

What is an Industrial Network?

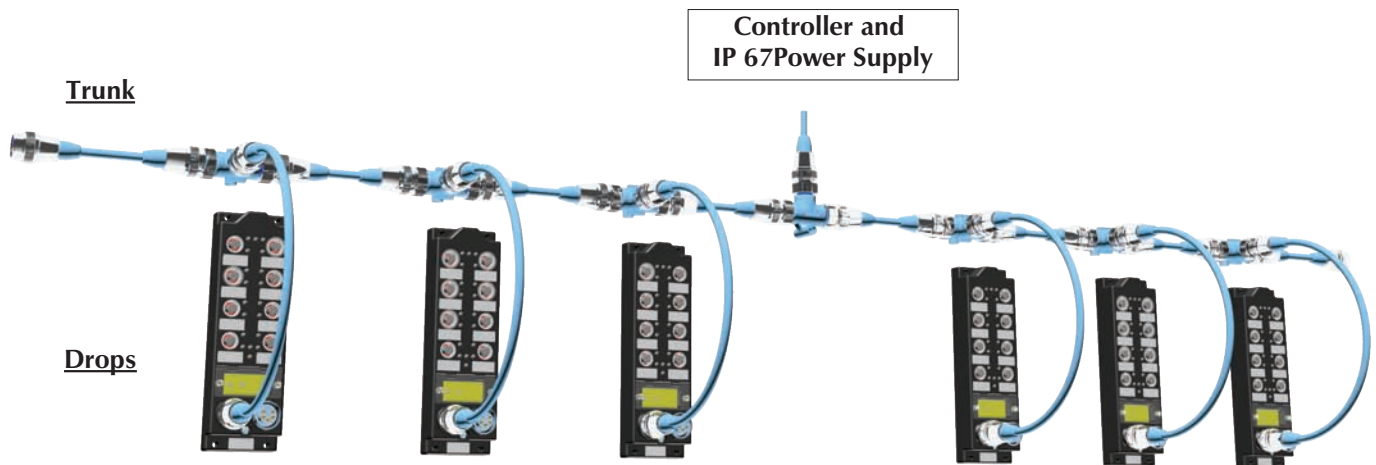
An industrial network is a serial communication system that is intended to replace traditional parallel wired I/O in a control system. A host controller communicates with nodes, which in turn are connected to field I/O devices. Rather than individual wires carrying data for each device in the control system, the network uses a pair of wires that are shared by all devices on the system. The controller and other communication devices follow a scheme that allows the time required to transmit data to other devices.

The primary benefit of implementing an industrial network is the reduction in wiring that can be achieved. Converting from a traditional system that could require hundreds or even thousands of individual wires to a networked system saves not only the cost of the wire itself, but more importantly the time (and cost) associated with making the connections, testing them and troubleshooting any problems that may arise. Since industrial network systems only need two to five wires for communication, the reduction in the physical installation is typically great.

Industrial networks are sometimes perceived as slower than traditional “hard-wired” systems, since I/O data does not appear immediately at the PLC card; rather the devices transmit data in succession. It is important to note, though, that in almost all cases the controller’s logic program takes far longer than any delay in the I/O transmission. Network nodes are designed to accept data from devices and transmit data in a matter of microseconds. Most industrial networks use very high-speed transmission systems that allow full systems to be scanned in under 10 milliseconds. Since PLC programs typically have a cycle time greater than this, any delay caused by the communication protocol has no effect.

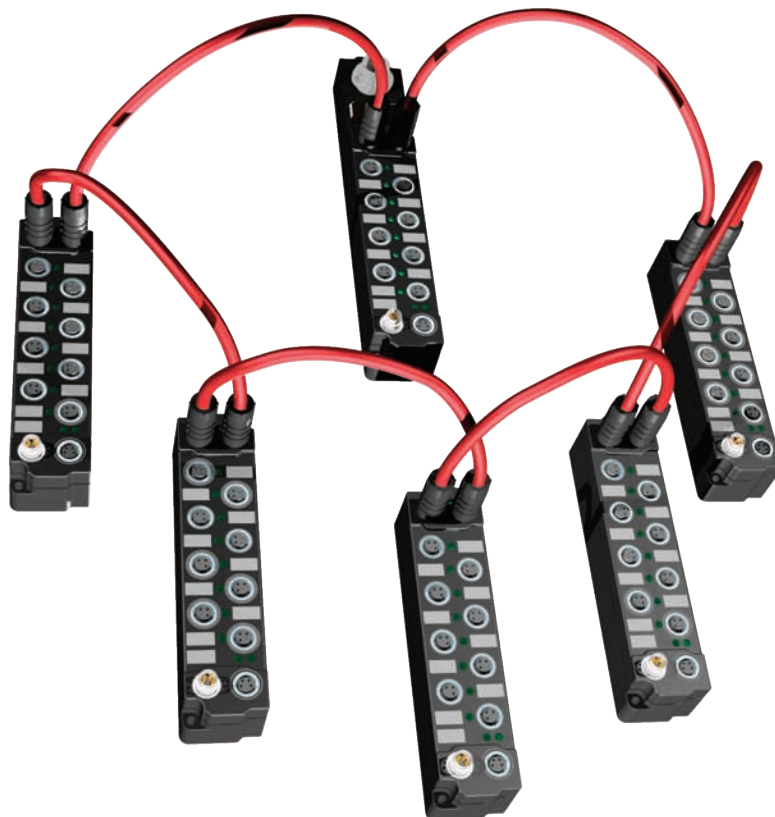
There are several different physical topologies that apply to industrial networks. The most common is the “trunk-drop” topology (Figure 1). In this installation, the network consists of a trunk or backbone with nodes connected to it by electrically parallel drops or spurs.

Figure 1



The “ring” topology may also be used for industrial networks. In this layout, the messages sent from one device travel from node to node in series (Figure 2). Note that in this topology only devices “downstream” from where the message is generated can receive it. Nodes in these networks typically read the message, replace a portion or add fresh data, and send the altered message to the next node.

Figure 2



Most industrial networks have some physical limitations that affect how communication devices (nodes) can be installed. In the case of most trunk/drop networks, the length of the trunk, as well as the length of each individual drop, has a specified maximum length. For detailed specifications for each of the industrial networks supported by **TURCK**, please see its corresponding sections in this catalog.

For a glossary of industrial automation terms, including many terms specific to network systems, please see page L40.

Connectivity

Connectorized inputs and outputs in a fieldbus system are extremely effective and will reduce hours of costly wire installation. In addition to installation, network maintenance is improved with **TURCK's** complete line of industrial grade plug-and-play cordsets and receptacles. **TURCK** has three standard connector types for network products. Specifically, the 7/8-16UN *minifast* , M12x1 *eurofast* and the M8x1 *picofast* .

These connection types are used in industries that require rugged, economic plug-and-play connectivity. Standard features of **TURCK** connectors are coupling nuts constructed of nickel plated brass, stainless steel or nylon. Mating pins and sockets are gold plated brass. Injection molded connector bodies are made of polyurethane (PUR) and injection molded to the cable jacket to provide strain relief and seal connections from hazardous environments.



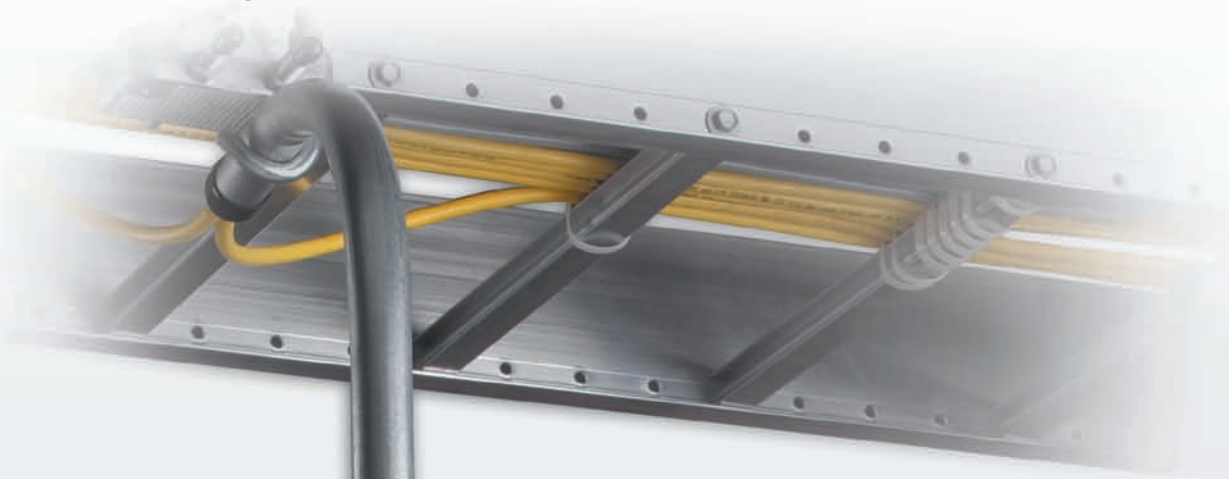
In terms of performance, the pin and sleeve ratings for the *minifast*, *eurofast* and *picofast* are 9, 4 and 1.5 Amps respectively.

Junctions

Junctions in this catalog are passive hubs. Some have short-circuit protection and voltage monitoring. Short-circuit protects the power on the trunk and allows use in Class 1, Div 2 locations. Junctions are made from two different materials; die-cast aluminum with a powder coated enamel finish or polyurethane PVC overmold. Both housings are available with either Nickel Plated brass or 316 stainless steel connectors.

Junctions are rated NEMA 1, 3, 4, 4X, 12, 13 and IEC IP 67. These ratings are conditional, requiring a cordset or cap to be installed on all ports. Although the aluminum housing is rated 4X (salt-water spray test) we highly recommend the polyurethane or fiberglass housing for aggressive environments.

Replace Pipe and Wire with Connectivity for Versatility in Harsh Environments



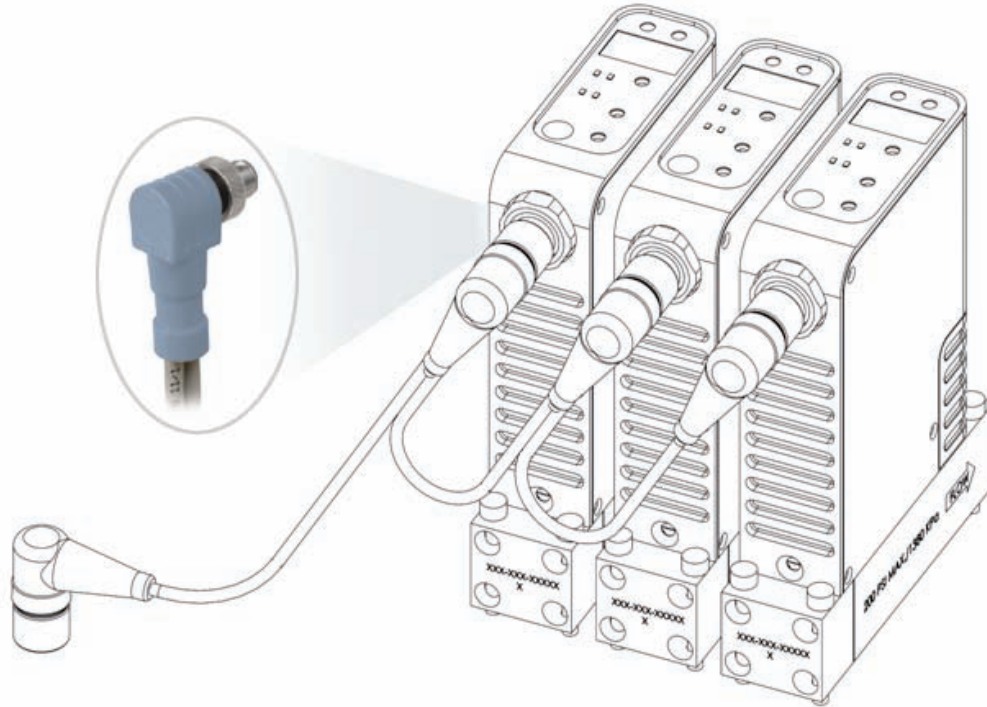
Cordsets to Conduit Adapter

TURCK armored cordsets offer a viable alternative to conduit wiring and are perfect for cable trays, direct burial or riser/rafter installations. The cordsets contain interlocking aluminum armor and an oil/UV resistant PVC cable jacket. Shielding to the coupling nut is also available.



Wiring Harnesses for Your Existing Connectors

TURCK offers custom harness and cable assembly providing a complete wiring consolidation solution. Consult our special project application engineers (1-800-544-7769) for your application.



Open Wiring

Type ITC (instrumentation tray cable) cable provides a cost effective alternative for the installation of transmitters in the field. Standard cables, with just a PVC jacket, can now be installed as open wiring up to 15 meters (50 ft). This type of open wiring installation has been typically reserved for cables with metal clad (MC) armor. **TURCK's FOUNDATION™** fieldbus cable types 490 and 496 are approved for open wiring and meets the crush and impact resistance of UL 2250 open wiring. No more conduit, armor cable, struts, angles or channels are required.

Per the NEC Handbook published in 2004:

Article 727.4 (6), allows ITC cable to be used... "as open wiring between cable tray and equipment in lengths not to exceed 15 meters (50 ft) where the cable complies with the crush and impact requirements of Type MC cable and is identified for such use. The cable shall be supported and secured at intervals not exceeding 1.8 meters (6 ft)."



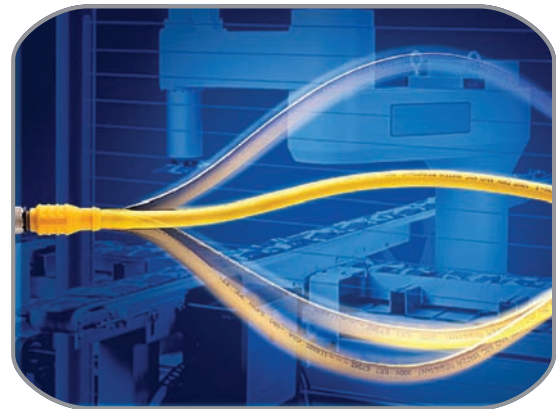
flexlife® Cable

- Designed to withstand over 2 million flex cycles
- Cables are tested in torsional and tick-tock bending
- Cable jackets available include: PVC, PUR, and *weldlife*™ (TPE)



flexlife-10 Continuously Flexible Cable

- Guarantees performance to 10 million continuous cycles
- Excellent for use in automotive, food and beverage, pharmaceutical, electronics and semiconductor industries
- Network cables guaranteed to 8 million continuous cycles

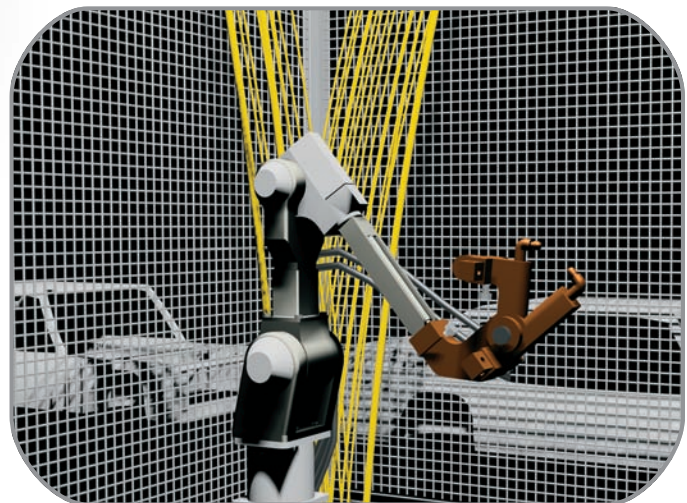





















Protect Your Cordsets in Harsh Environments

Weld Gun Application with TURCK's *weldlife* Cable

Factory automation contains some of the harshest application environments. **TURCK *weldlife*** cable is perfect for weld gun applications where sparks and weld slag buildup is common.

- *weldlife* cable has a specially formulated TPE jacket
- Similar results to CPE (rubber) bus less expensive
- Recyclable material



Introduction	A1 - A14	
BL67	B1 - B54	
BL20	C1 - C64	
<i>piconet</i> [®]	D1 - D36	
<i>excom</i> [®]	E1 - E24	
DeviceNet [™]	F1 - F126	
DeviceNet [™] Media	G1 - G80	
Ethernet	H1 - H16	
Ethernet Media	J1 - J38	
PROFIBUS-DP [®]	K1 - K78	
PROFIBUS-DP & PROFIBUS-PA Media	L1 - L62	
AS-interface [®]	M1 - M110	
AS-interface Media	N1 - N46	
CANopen	P1 - P38	
FOUNDATION [™] fieldbus	R1 - R68	
Network Media Section		
Blue Hose, CC-Link, Genius I/O, Interbus, SDS, sensoplex, Seriplex, Power	S1 - S54	
Accessories/Reference	T1 - T28	
Sensors, Connectivity and Process	V1 - V11	
Index	W1 - W14	

DeviceNet™ AIM Station Part Number Key



F = AIM™ Designator
Top-entry, plastic

DN = DeviceNet

P = 8 I/O Ports/Aux power/220 mm long
L = 8 I/O Ports/197 mm long
Q = 4 I/O Ports/148 mm long

L = NPN/PNP, Individual Open and Short-circuit Detection
P = PNP, Individual Open and Short-circuit Detection
S = PNP, Group Input Short-circuit Detection, Earth Ground Pin 4
C = Combined (ie: CPG = Combined PNP and 500 mA Outputs)
X = Universal PNP Input or 500 mA Output
N = NPN, Group Input Short-circuit Detection, Earth Ground Pin 5

Connector Material
Blank = Nickel Plated Brass
V = Stainless Steel

Aux Power Connector
T = Through *minifast*®
Both male and female

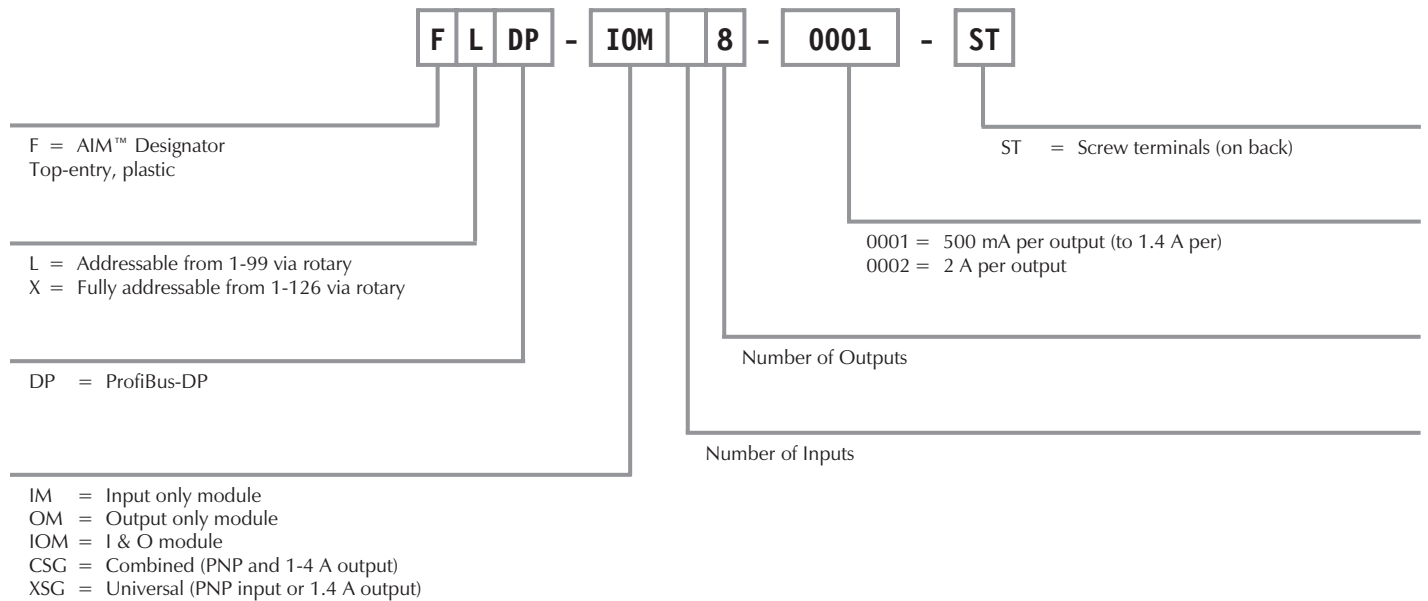
DeviceNet Connector Configuration
T = Through *minifast*, both male and female
E = *eurofast*® Drop, single male
M = *minifast* drop, male only
C = *eurofast*, Both male and female
W = Rotated connector

G = 500 mA Outputs
H = 1.4 or 2.0 Amp Outputs
I = 4.0 Amp Outputs

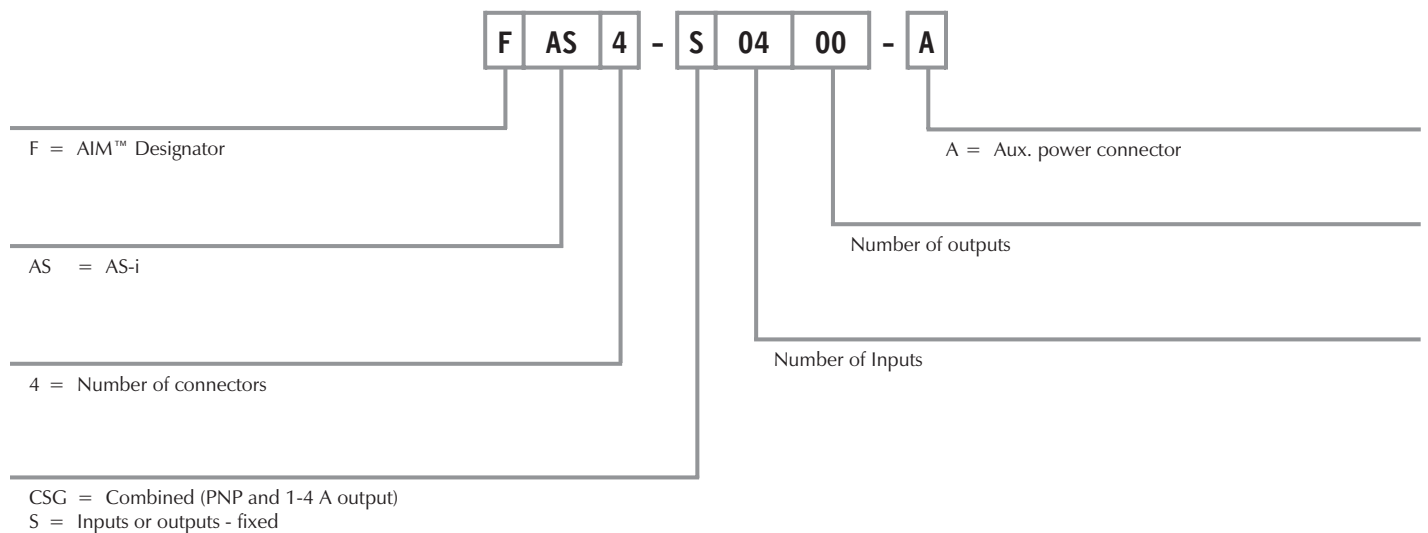
Number of Outputs

Number of Inputs

ProfiBus® AIM Station Part Number Key

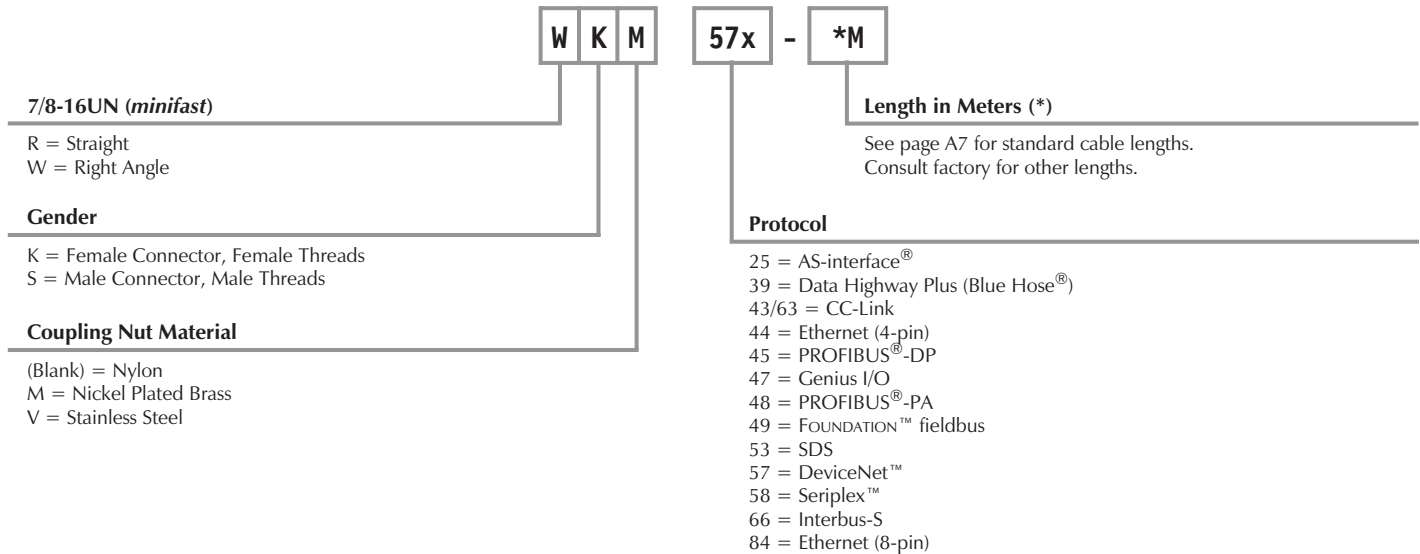


AS-interface AIM Station Part Number Key

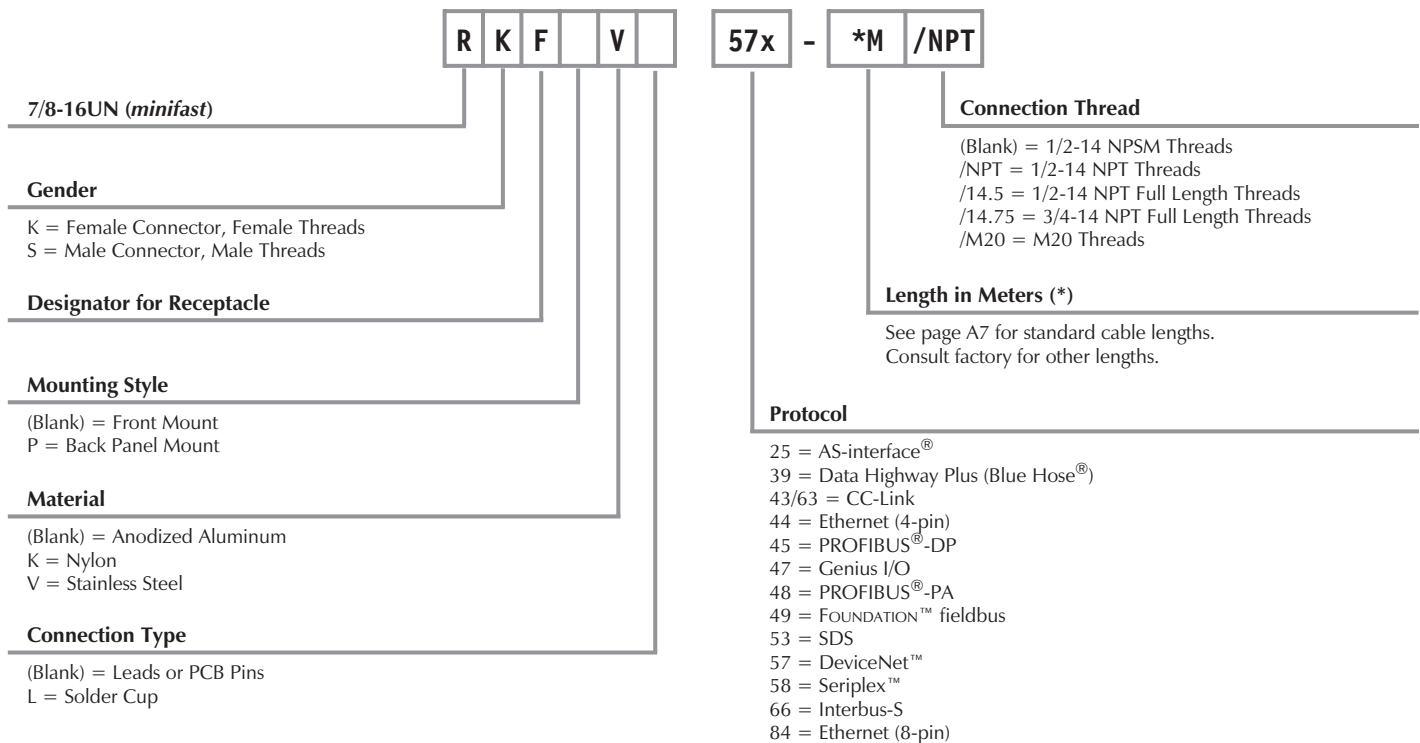


minifast® Cordset Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

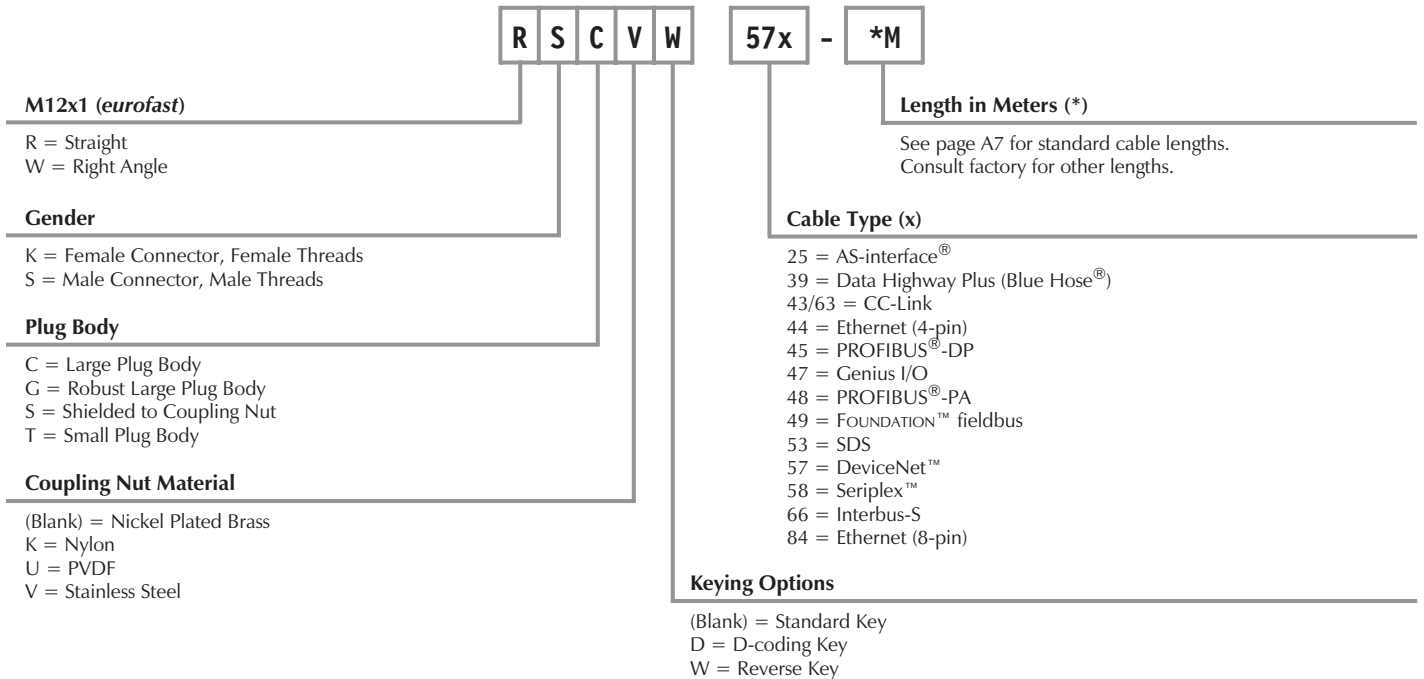


minifast Receptacle Part Number Key

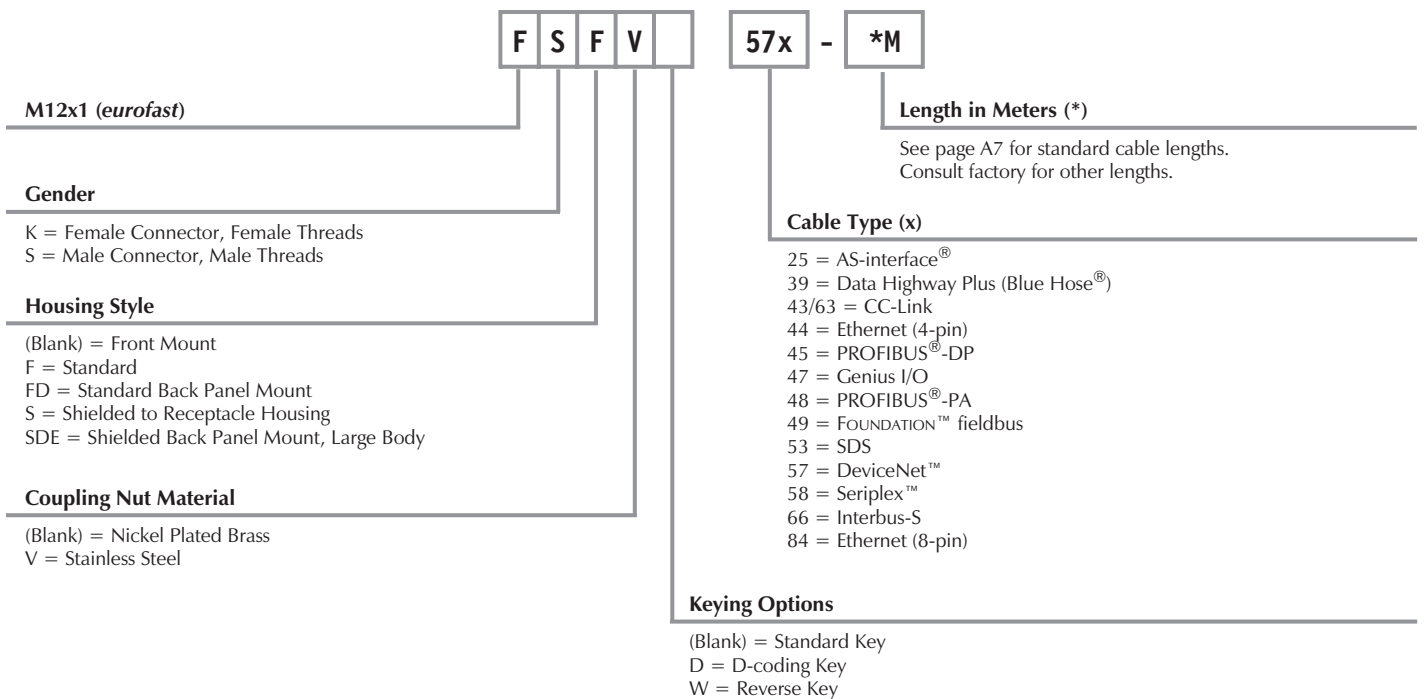


eurofast® Cordset Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.

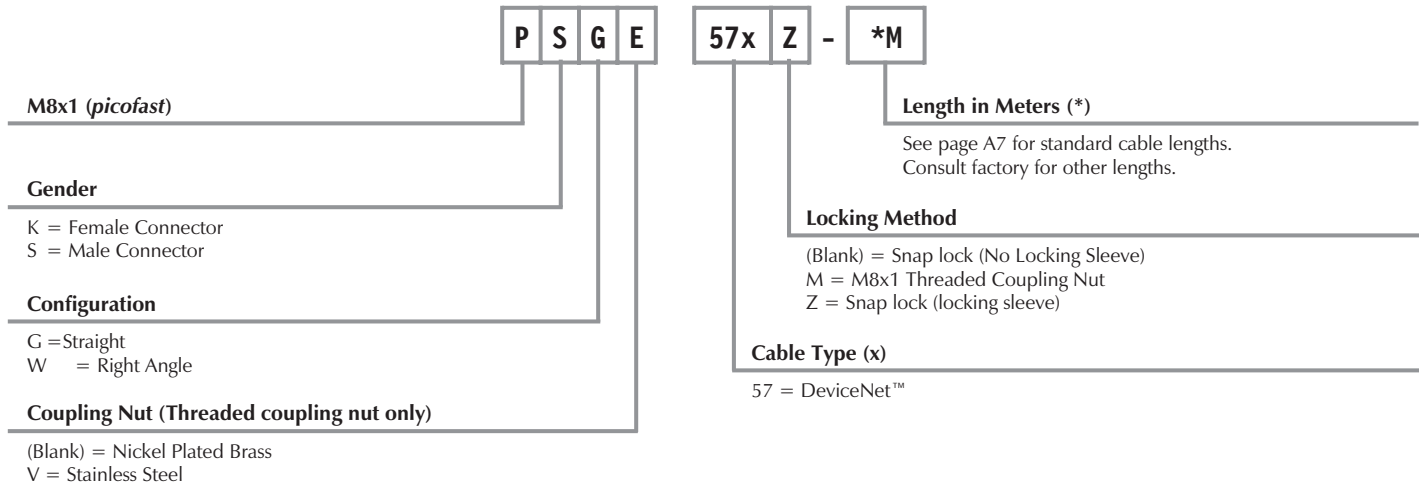


eurofast Receptacle Part Number Key

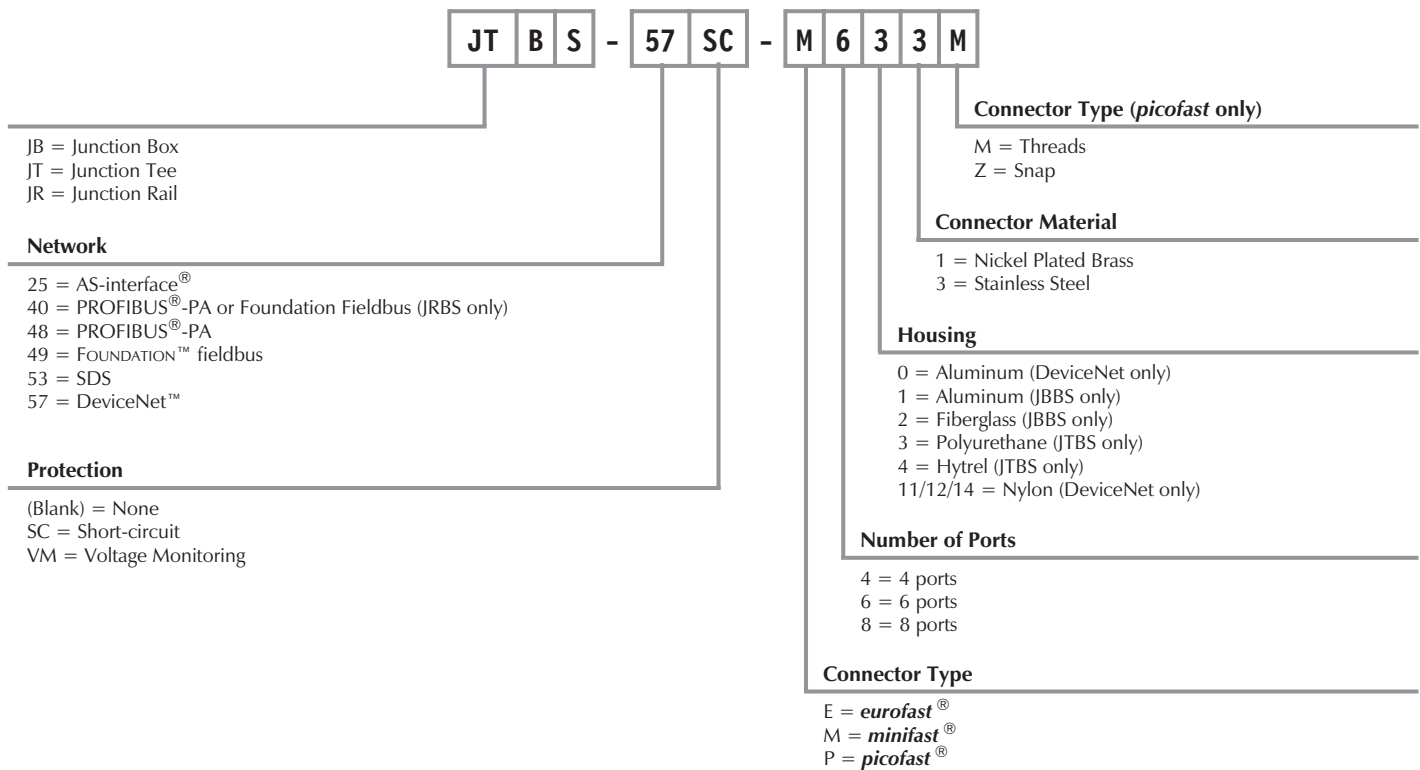


picofast® Part Number Key

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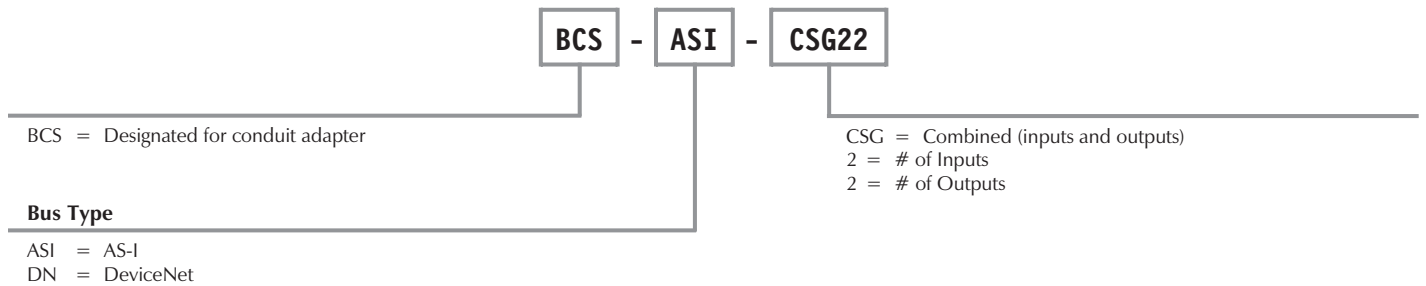
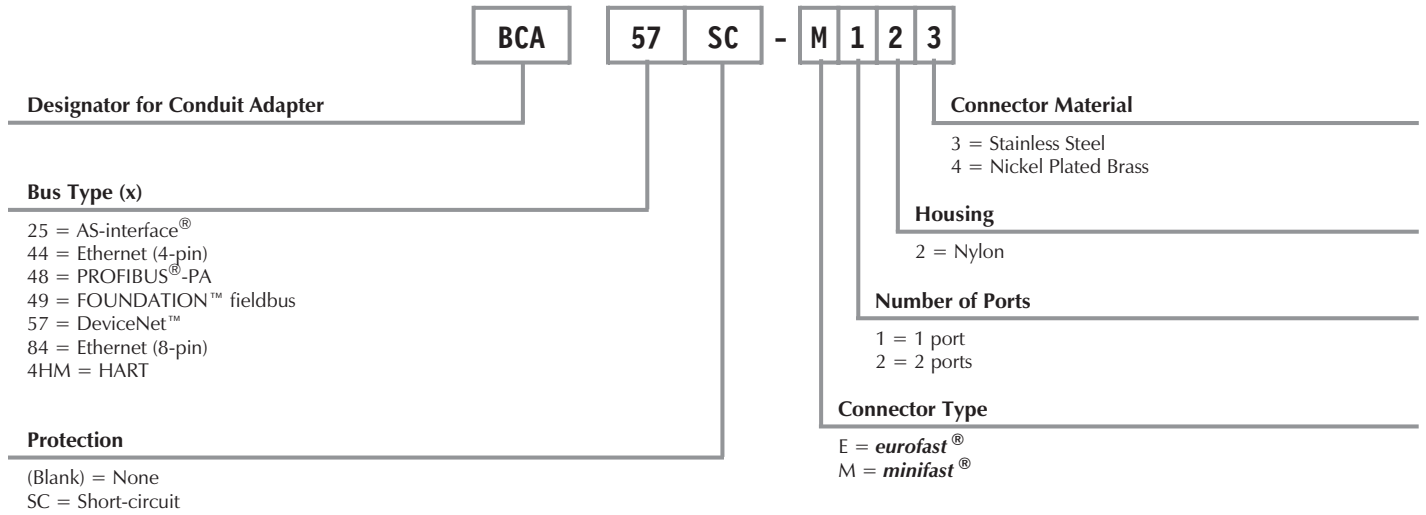


Junction Part Number Key

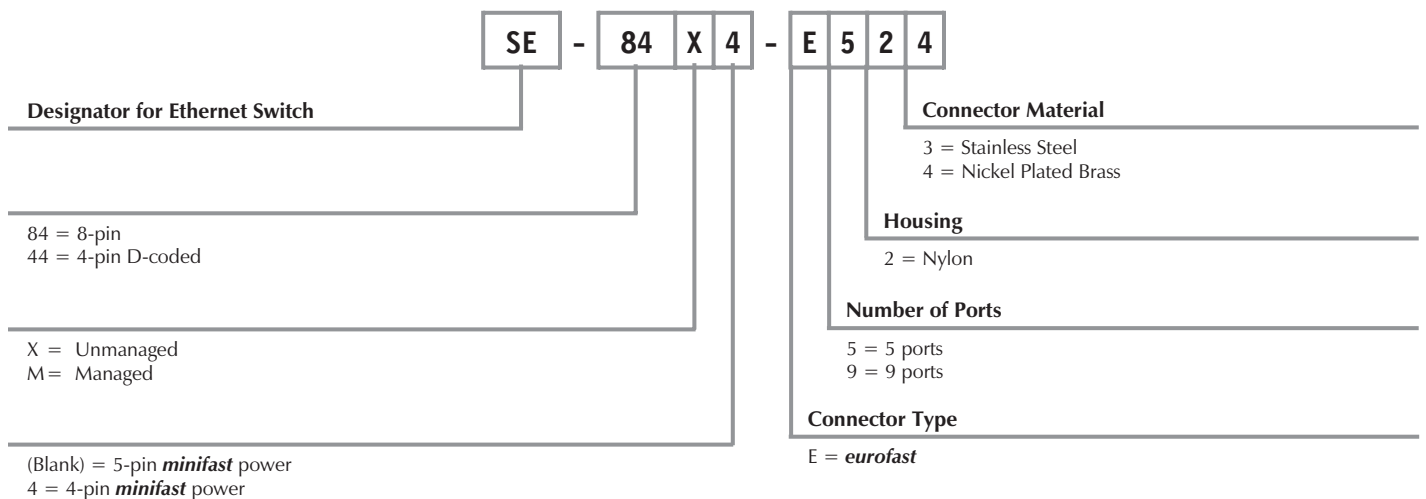


Conduit Adapter Part Number Key

Part Number Keys are to assist in IDENTIFICATION ONLY. Consult factory for catalog items not identified.



Switch Part Number Key



TURCK

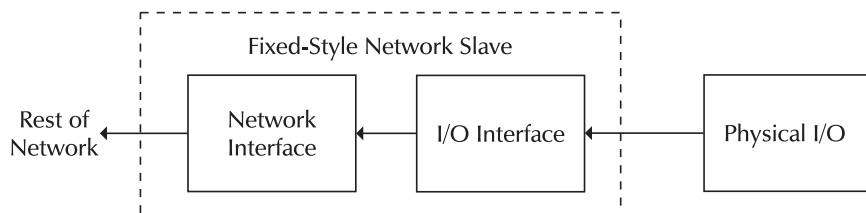
Modular Industrial I/O System

Modular I/O Stations

TURCK's modular network I/O systems give users the flexibility to add devices to a network by choosing the amount and type of I/O, while also providing the ability to mix different I/O types (i.e. analog and discrete).

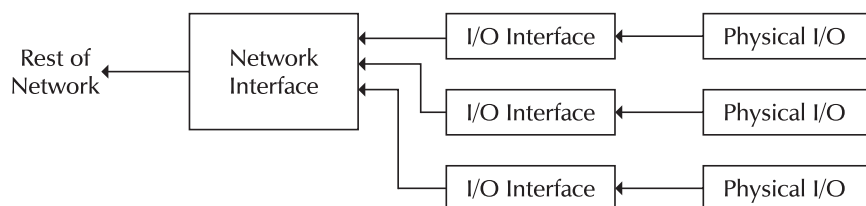
A network I/O node (or slave) consists of two basic components: an interface to the network and an interface to the physical I/O (see figure 1). Both of these components are fixed in standard I/O stations. For example, an 8-input DeviceNet™ AIM™ station contains a DeviceNet communication interface and eight sensor interfaces. This is contained in a single package, and customization by the user is limited.

Figure 1



In a modular system (for example BL67) the interfacing components are provided separately; the network interface (typically called a gateway) can be purchased separately from the I/O block. In addition, modular systems typically allow more than one I/O block to be used with a single gateway, providing a great deal of customization where different I/O types are required. This also allows the same I/O configuration to be easily changed between supported networks (i.e. DeviceNet gateway could be changed to a PROFIBUS®-DP gateway). The gateway then acts as a master for the I/O subsystem, and obtains I/O information from all connected I/O blocks and reports it as a single message to the network. See figure 2.

Figure 2



TURCK modular network I/O systems include BL67, BL20, *excom*® and *piconet*®. The differences between each are outlined in the following table.

System	Protection	Format	Expandable	Connectors	AC Support	Hazardous Area
BL67	IP 67	Backplane	X	X		
BL20	IP 20	Backplane	X		X	
<i>excom</i>	IP 20	Backplane				X
<i>piconet</i>	IP 67	Distributed	X	X		

Backplane systems contain I/O in a central location, while distributed systems allow the modules to be located around the machine or process using a cable for communication (fiber-optic in the case of *piconet*). Expandable systems allow a variable amount of modules to be connected to a system. For example, the BL67 and BL20 systems allow the user to build the backplane by connecting base modules together; the *excom* system allows the user to choose between several fixed-size backplanes.

Refer to the corresponding sections in this catalog for more details on the specifications and parameters for each TURCK modular network I/O system.

TURCK Modular Industrial I/O System



The BL67 Solution

BL67 combines all the flexibility of an in-the-cabinet PLC I/O system with modularity, ruggedness and connectorization. BL67 complements the AIM™, BL20 and **piconet**® product families to meet the needs of unique applications, such as small machine or conveyor systems requiring IP 67 protection.

The BL67 Concept

The BL67 modular concept is a very flexible approach to connectorized I/O. The gateway, base and electronic modules provide many benefits to the user.

- The gateway provides communication between the fieldbus and I/O modules; modules are not dependent on the fieldbus protocol.
- DIN-rail or frame mountable base modules are available with **euromast**® (M12), **minifast**® (7/8-16UN), M23 and **picofast**® (M8) connectors.
- Electronic modules are hot swappable.
- Power distribution module (24 VDC) supplies the connected I/O signals.

BL67's openness, flexibility, connectorization, compact housing and ruggedness provide a viable alternative to in-the-cabinet I/O.

Maximum Size of a BL67 Station

BL67 stations consist of a gateway and a maximum of 32 modules (equivalent to 1 m station length). Some high-tech and analog I/O modules may consume or produce large amounts of data, and therefore may limit the number of modules that may be used per system. It is highly recommended that the *I/Oassistant* software is used when planning and commissioning BL67 systems. This program allows you to build the BL67 node on your computer and verify that all restrictions with regard to power and size are met. The free *I/Oassistant* software is available for download from www.turck.com.

Addressing

As a node on a network, BL67 stations are addressed dependent on the network system being used. Each network gateway has a set of rotary switches used to set the address for the node.

DeviceNet™ and CANopen gateways may be addressed between 0 and 63 via two switches (one for the 10's digit and one for the 1's digit). For example, to set the address to 37 you would set the 10's switch to 3 and the 1's switch to 7. The third switch on the gateway may be used to set the communication rate of the network interface. PROFIBUS®-DP gateways may be set from 1 to 125 by using three switches (one for the 100's, one for the 10's and one for the 1's).

Ethernet gateways allow different addressing schemes depending on the Ethernet addressing method being used in the overall system. Dynamic addressing schemes include BootP and DHCP, while hard-coding a static address is also allowed.

BL67 Power Distribution

Power Overview

The power supply for a BL67 station is fed via the power connector on the PROFIBUS® gateway or directly from the network on the DeviceNet™ gateway. Power feeder modules can be added to the system at any point to provide a fresh isolated supply of power to all I/O connected to its right.

Internal Power Consumption via Module Bus

The amount of BL67 modules that may be supplied via the internal module bus depends on the respective nominal current I_{MB} of the individual modules on the module bus. The sum of the nominal current inputs of the connected BL67 modules must not exceed 1.5 A. If the I/O assistant software is used, an error message is generated automatically via the <Station - Verify> as soon as the system supply via the module bus is no longer sufficiently guaranteed.

Module	Nominal 1) Current at 5 V I_{MB}	Effective Draw 2) from Gateway at 24 VDC $I_{MB(24)}$	Nominal 3) Current from V_I	Nominal 4) Current from V_O
BL67-GW-DPV1	-	≤150 mA		
BL67-GW-DN	-	≤100 mA		
BL67-PF-24VDC	≤30 mA	≤9 mA		
BL67-4DI-P	≤30 mA	≤9 mA	≤40 mA	
BL67-8DI-P	≤30 mA	≤9 mA	≤40 mA	
BL67-4DO-0.5A-P	≤30 mA	≤9 mA		≤100 mA
BL67-4DO-2A-P	≤30 mA	≤9 mA		≤100 mA
BL67-8DO-0.5A-P	≤30 mA	≤9 mA		≤100 mA
BL67-2AI-V	≤35 mA	≤10 mA	≤12 mA	
BL67-2AI-I	≤35 mA	≤10 mA	≤12 mA	
BL67-2AI-TC	≤35 mA	≤10 mA	≤30 mA	
BL67-2AI-PT	≤45 mA	≤13 mA	≤45 mA	
BL67-2AO-I	≤40 mA	≤12 mA		≤50 mA
BL67-2AO-V	≤60 mA	≤17 mA		≤50 mA
BL67-1RS232	≤100 mA	≤28 mA	≤50 mA	
BL67-8XSG-PD	≤30 mA	≤9 mA		≤100 mA
BL67-1SSI	≤50 mA	≤15 mA	≤50 mA	
BL67-4DI-PD	≤30 mA	≤9 mA		≤100 mA
BL67-8DI-PD	≤30 mA	≤9 mA		≤100 mA

To calculate current draw on DeviceNet: Add $I_{MB(24)}$ for all modules. Then add V_I and V_O for electronic modules to the left of the first power feed module. Next, add the current draw of the I/O devices.

To calculate current draw on PROFIBUS gateway power connector for V_I : Add I_{MB} for all modules. Then add V_I current for all modules to the left of the first power feed module. Next, add the current draw of the input devices.

For V_O , add the V_O current for all modules to the left of the first power feed module. Next, add the current draw of the output devices.

V_{MB} = Module bus power

V_I = Input power

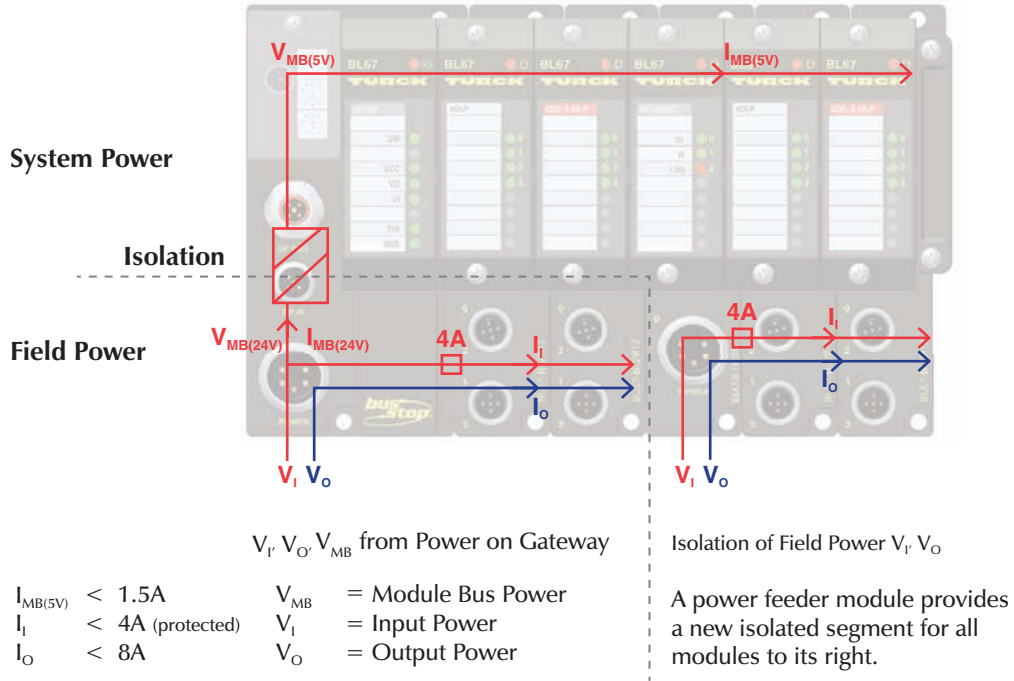
V_O = Output power

I_{MB} = Module bus current

$I_{MB(24)}$ = Effective current draw from gateway at 24 VDC supply

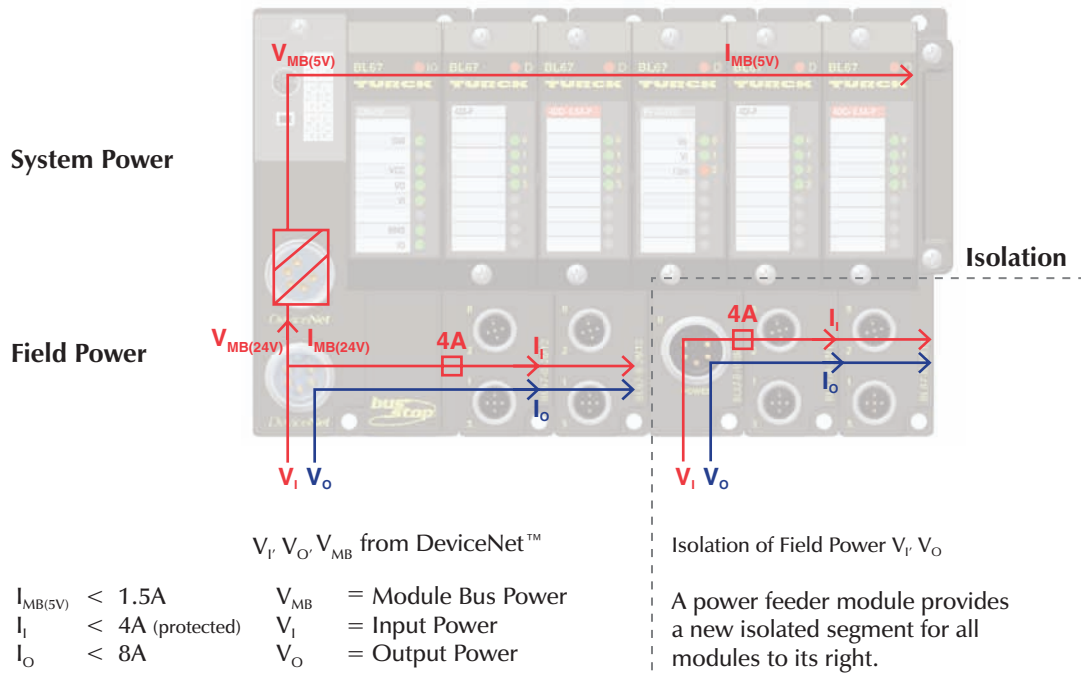
Applying Power to BL67

PROFIBUS[®], Ethernet and CANopen System



BL67

DeviceNet[™] System



Environmental Conditions

Intended Application Environments

- BL67 does not need an enclosure
- Mount directly on machine or conveyor
- Rugged design provides protection against dirt, dust and liquids


Not intended for These Environments

- Continuous submersion
- 100 percent humidity
- High pressure washdown

Note: For higher levels of protection consider fully potted AIM stations


General Environmental	
Potential isolation	Via optocoupler
Operating temperature	32° to +131°F (0° to +55°C)
Storage temperature	-13° to +185°F (-25° to +85°C)
Relative humidity	5 to 95% (indoor), noncondensing
Vibration	1.0 g 5-10 Hz
Shock	15 g
Protection class	IP 67, NEMA 1, 3, 4, 12, 13
Electromagnetic compatibility (EMC)	According to EN 61131-2
Housing material	PC-V0 (Lexan), Nickel plated brass
Approvals	CE
	UL (pending)
	CSA (pending)

BL67 Selection Guide

Gateways	Higher Level System	Pages
	DeviceNet	B9
	Ethernet	B10
	PROFIBUS-DP	B13
	CANopen	B14

BL67

BL67 Selection Guide

Modules	Type	I/O Direction	Pages
	Discrete	Input	B17, B29
		Output	B21
		Input & Output	B33
	Analog	Input	B43
		Output	B47
	Serial	Input & Output	B39
	Power Feed		B49
	Bus Modules		B51
Accessories		B54	

DeviceNet Gateway

- **Modular I/O**
- **Fieldbus Independent Configuration**
- **IP 67 Protection**
- **Various I/O Styles**



BL67-GW-DN



Electrical

- Operating Current: <math>< 600 \text{ mA}</math> from V_{MB}
- Supply Current: <math>< 8 \text{ A}</math> to I/O (from DeviceNet)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from DeviceNet)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

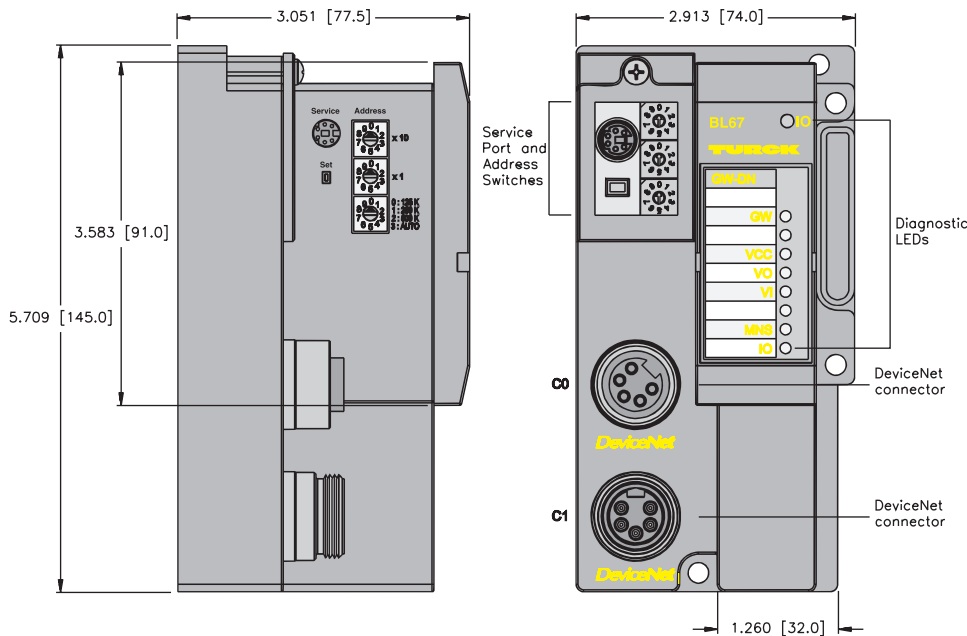
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the DeviceNet I/O map

Diagnostics (Physical)

- LEDs to indicate status of DeviceNet and Module Bus communication



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

DeviceNet minifast® Pinouts

Male	Female
5-Pin	5-Pin

Note: Power feeding modules may be used for I/O current supply to prevent overloading the DeviceNet power supply.

ModBus TCP/IP Ethernet Gateways



BL67-GW-EN
BL67-PG-EN



- **Modular I/O**
- **Fieldbus Independent Configuration**
- **IP 67 Protection**
- **Various I/O Styles**

Electrical

- Operating Current: <math><600\text{ mA}</math> from V_{MB}
- Input Supply Current: <math><4\text{ A}</math> (from V_I)
- Output Supply Current: <math><8\text{ A}</math> (from V_O)
- Backplane Current: <math><1.5\text{ A}</math> (from V_{MB})

Mechanical

- Operating Temperature: -12 to $+55^\circ\text{C}$ (-13 to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: 5 g @ $10\text{-}500\text{ Hz}$

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the system I/O map

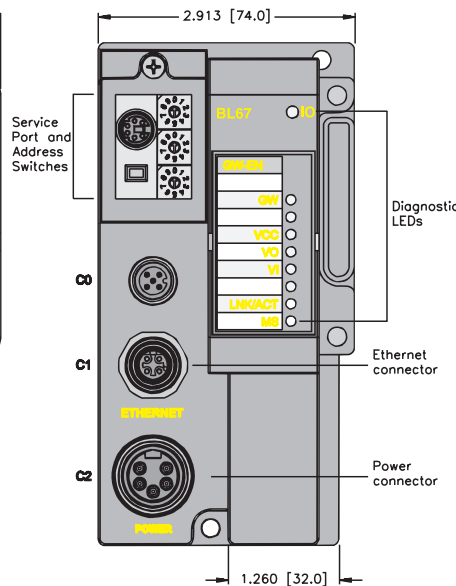
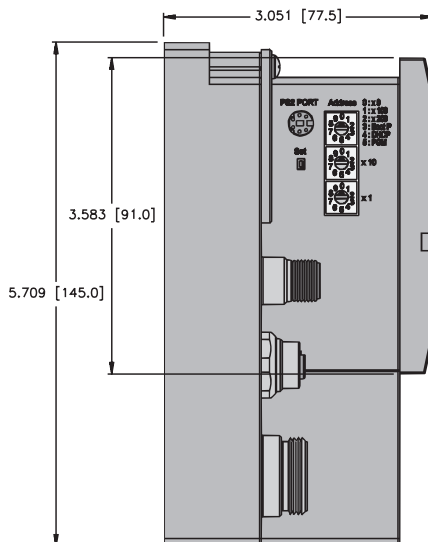
Diagnostics (Physical)

- LEDs to indicate status of Network and Module Bus communication

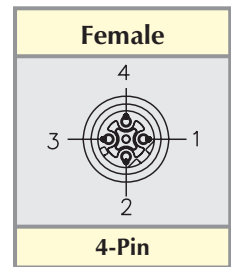
Programmability

- PG in part number designates a programmable gateway
- Programmable according to IEC 61131.3 using CodeSys (includes ladder logic)
- Use CodeSys to create logic programs to control local I/O

BL67

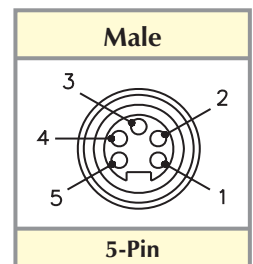


Ethernet Pinout



- 1 = TD+
- 2 = RD+
- 3 = TD-
- 4 = RD-

5-pin minifast® Power Pinout



- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O

Ethernet IP
Ethernet Gateways



BL67-GW-EN-IP
BL67-PG-EN-IP



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 600 \text{ mA}</math> from V_{MB}
- Input Supply Current: <math>< 4 \text{ A}</math> (from V_I)
- Output Supply Current: <math>< 8 \text{ A}</math> (from V_O)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from V_{MB})

Mechanical

- Operating Temperature: -12 to $+55^\circ\text{C}$ (-13 to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: $5 \text{ g @ } 10\text{-}500 \text{ Hz}$

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

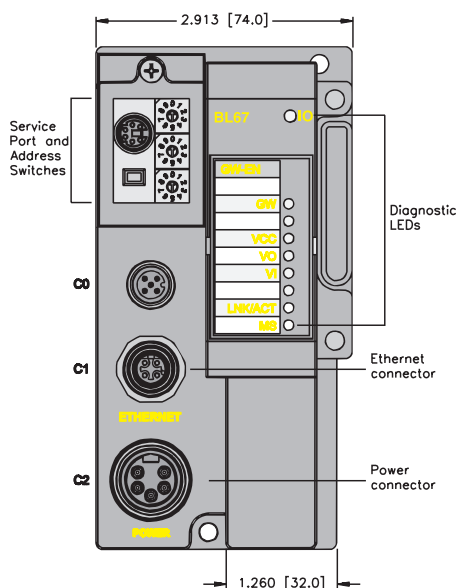
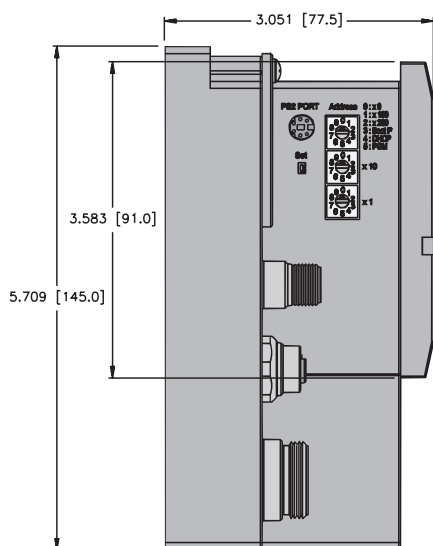
- Diagnostic information available through the system I/O map

Diagnostics (Physical)

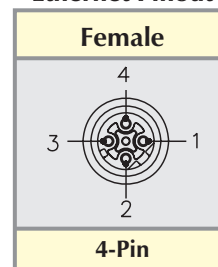
- LEDs to indicate status of Network and Module Bus communication

Programmability

- PG in part number designates a programmable gateway
- Programmable according to IEC 61131.3 using CodeSys (includes ladder logic)
- Use CodeSys to create logic programs to control local I/O

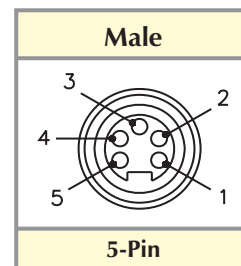


Ethernet Pinout



- 1 = TD+
- 2 = RD+
- 3 = TD-
- 4 = RD-

5-pin minifast® Power Pinout



- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O

Profinet Ethernet Gateways



BL67-GW-EN-PN



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 600 \text{ mA}</math> from V_{MB}
- Input Supply Current: <math>< 4 \text{ A}</math> (from V_I)
- Output Supply Current: <math>< 8 \text{ A}</math> (from V_O)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from V_{MB})

Mechanical

- Operating Temperature: -12 to $+55^\circ\text{C}$ (-13 to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: 5 g @ $10\text{-}500 \text{ Hz}$

Material

- Housing: PC-V0 (Lexan)

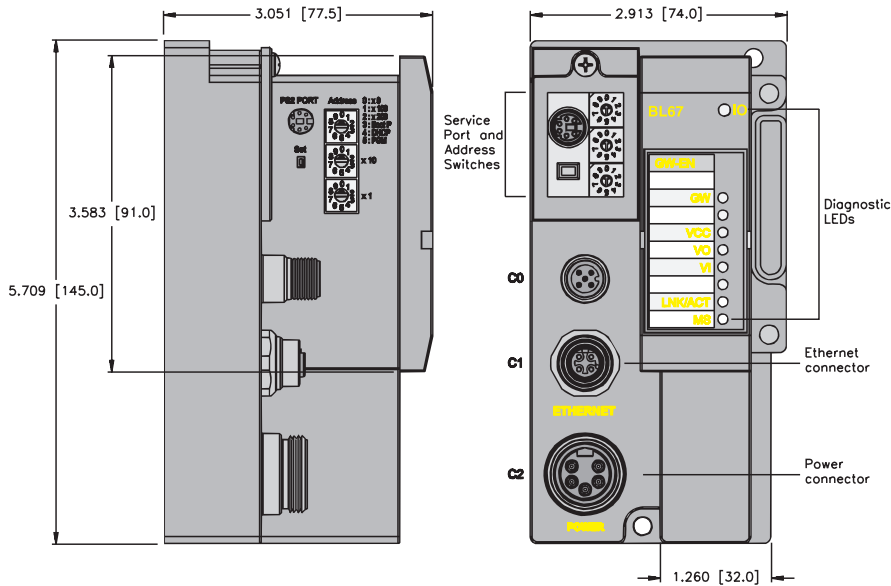
Diagnostics (Logical)

- Diagnostic information available through the system I/O map

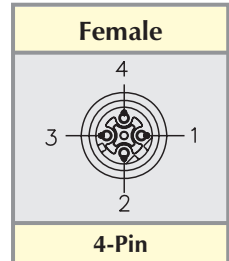
Diagnostics (Physical)

- LEDs to indicate status of Network and Module Bus communication

BL67

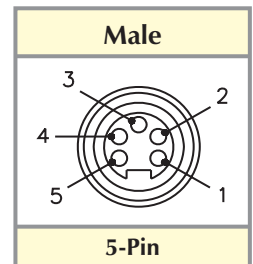


Ethernet Pinout



- 1 = TD+
- 2 = RD+
- 3 = TD-
- 4 = RD-

5-pin minifast® Power Pinout



- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O

PROFIBUS-DP Gateway



BL67-GW-DPV1

BL67-PG-DP



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: < 50 mA from V_I
- Supply Current: < 10 A to I/O (from V_I and V_O)
- Backplane Current: < 1.5 A (from V_I)

Mechanical

- Operating Temperature: -25 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

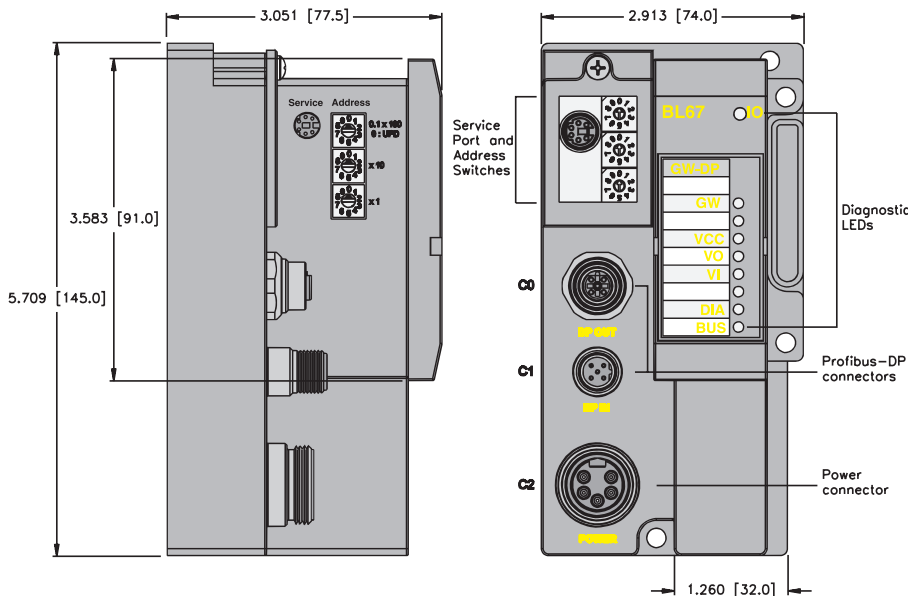
- Diagnostic information available through the PROFIBUS-DP interface

Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP and Module Bus communication

Programmability

- PG in part number designates a programmable gateway
- Programmable according to IEC 61131.3 using CodeSys (includes ladder logic)
- Use CodeSys to create logic programs to control local I/O



euromast PROFIBUS Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B

- 5 = Shield
- * Female connector only

minifast Power Pinouts

Male
5-Pin

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O

Note: Power feeding modules may be used for I/O current supply to prevent overloading the gateway power supply.

CANopen Gateway

- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles



BL67-GW-CO

Electrical

- Operating Current: <math>< 600\text{ mA}</math> from V_I
- Supply Current: <math>< 10\text{ A}</math> to I/O (from V_I and V_O)
- Backplane Current: <math>< 1.5\text{ A}</math> (from V_I)

Mechanical

- Operating Temperature: -25 to $+55^\circ\text{C}$ ($+32$ to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: 5 g @ 10 to 500 Hz

Material

- Housing: PC-V0 (Lexan)

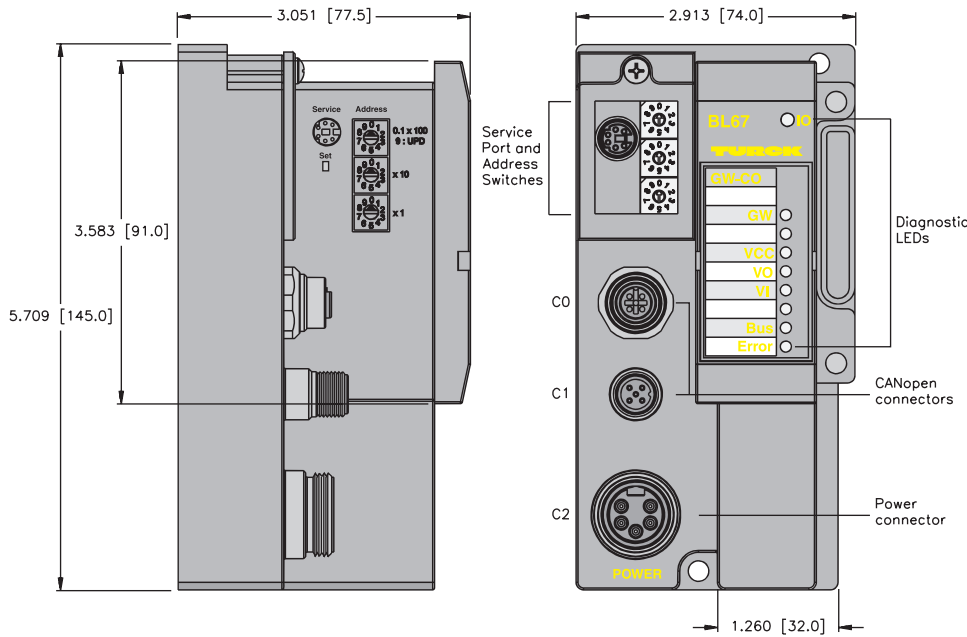
Diagnostics (Logical)

- Diagnostic information available through the CANopen interface

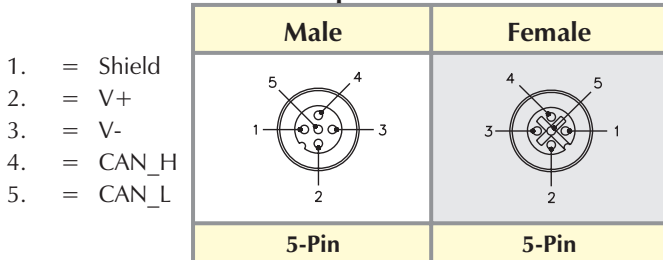
Diagnostics (Physical)

- LEDs to indicate status of CANopen and Module Bus communication

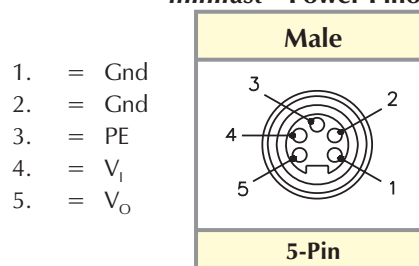
BL67



CANopen eurofast® Pinouts



minifast® Power Pinouts



Note: Power feeding modules may be used for I/O current supply to prevent overloading the gateway power supply.

CANopen Gateway

- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles



BL67-GW-CO-T



Electrical

- Operating Current: <math>< 600 \text{ mA}</math> from V_{MB}
- Supply Current: <math>< 8 \text{ A}</math> to I/O (from CANopen)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from CANopen)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

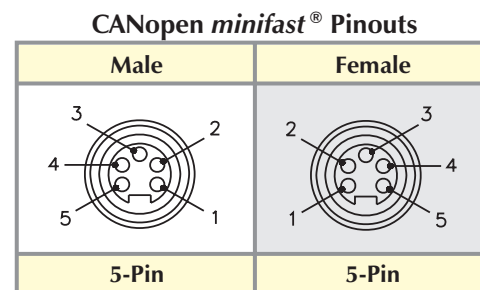
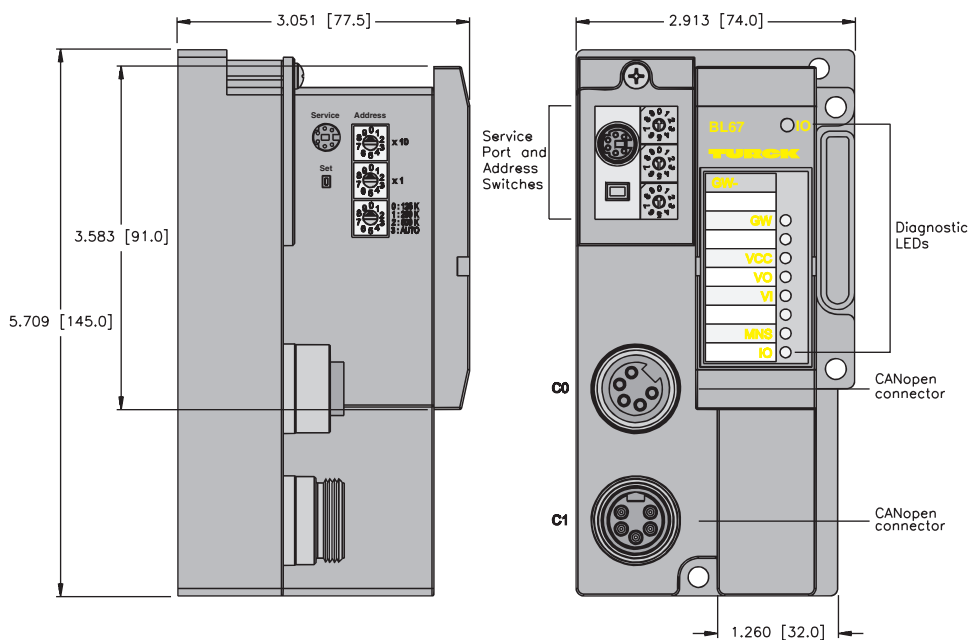
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the CANopen I/O map

Diagnostics (Physical)

- LEDs to indicate status of CANopen and Module Bus communication



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Note: Power feeding modules may be used for I/O current supply to prevent overloading the CANopen power supply.

Notes:

BL67

4 Discrete Input Modules



Shown with BL67-B-4MB base

BL67-4DI-P
BL67-4DI-N



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math><30\text{ mA}</math> from V_{MB}
<math><40\text{ mA}</math> from $V_I (...-P)</math>
<math><1\text{ mA}</math> from $V_I (...-N)</math>$$

Power Distribution

- Inputs: V_I
- Logic: V_{MB} and V_I

Material

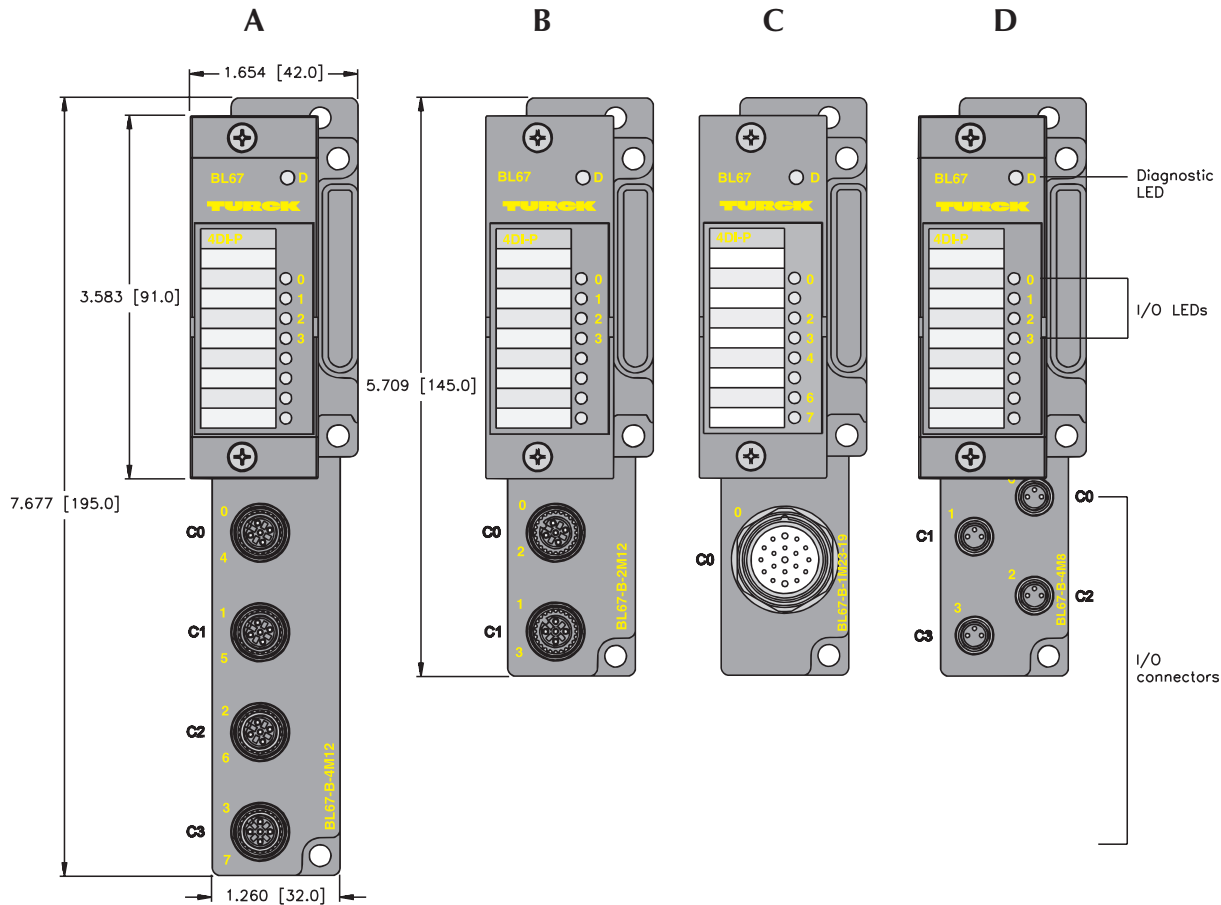
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



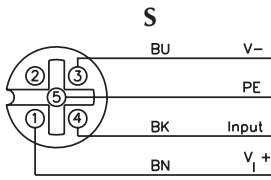
Inputs Data

Part Number	Drawing	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL67-4DI-P with BL67-B-4M12*	A	4	0-3	S	1	PNP	X			1
BL67-4DI-P with BL67-B-2M12*	B	4	0-1	2S	2	PNP	X			1
BL67-4DI-P with BL67-B-2M12-P*	B	4	0-1	2S	2	PNP	X			1
BL67-4DI-P with BL67-B-4M8*	D	4	0-3	PI	1	PNP	X			1
BL67-4DI-P with BL67-B-1M23*	C	4	0	M23-4I	4	PNP	X			1
BL67-4DI-N with BL67-B-4M12*	A	4	0-3	S	1	NPN	X			1
BL67-4DI-N with BL67-B-2M12*	B	4	0-1	2N	2	NPN	X			1
BL67-4DI-N with BL67-B-2M12-P*	B	4	0-1	2N	2	NPN	X			1
BL67-4DI-N with BL67-B-4M8*	D	4	0-3	PI	1	NPN	X			1
BL67-4DI-N with BL67-B-1M23*	C	4	0	M23-4I	4	NPN	X			1

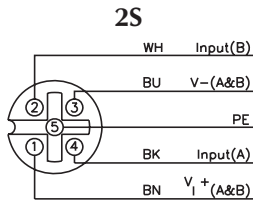
BL67

*Note: Base modules sold separately. See page G45.

Input Connectors

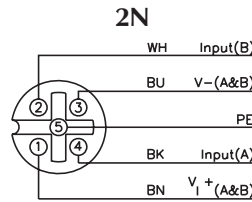


Mating cordset:
RK 4.4T-*-RS 4.4T

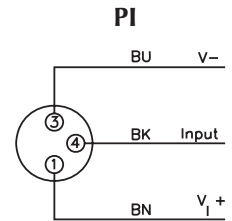


Mating cordset:
RK 4.4T-*-RS 4.4T

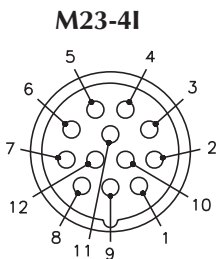
Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
PSG 3M-*



- 1=Input₀
- 2=Input₁
- 3=Input₂
- 4=Input₃
- 5=NC
- 6=NC
- 7=NC
- 8=NC
- 9=V₁+
- 10=V₁+
- 11=V₁+
- 12=V-

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
n	Data from next discrete modules			I-3	I-2	I-1	I-0		
n+1	(Data from modules to the right)								

8 Discrete Input Modules



Shown with BL67-B-4M12 base

BL67-8DI-P
BL67-8DI-N



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 40 \text{ mA}</math> from $V_I (...-P)</math>
<math>< 1 \text{ mA}</math> from $V_I (...-N)</math>$$

Power Distribution

- Inputs: V_I
- Logic: V_{MB}

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration:

Material

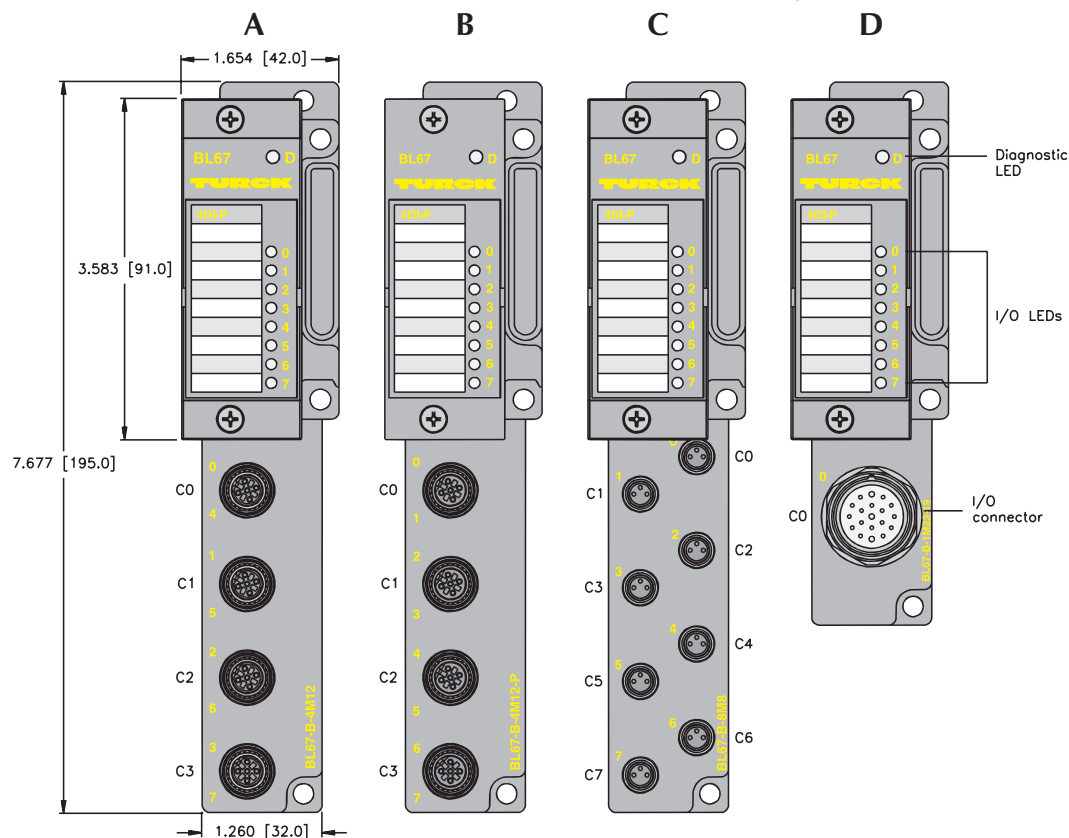
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



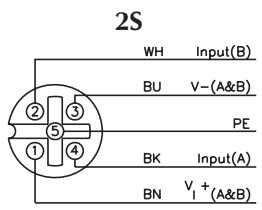
Inputs Data

Part Number	Drawing	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL67-8DI-P with BL67-B-4M12*	A	8	0-3	2S	2	PNP	X			1
BL67-8DI-P with BL67-B-4M12-P*	B	8	0-3	2S	2	PNP	X			1
BL67-8DI-P with BL67-B-8M8*	C	8	0-7	PI	1	PNP	X			1
BL67-8DI-P with BL67-B-1M23	D	8	0	M23-8I	8	PNP	X			1
BL67-8DI-N with BL67-B-4M12*	A	8	0-3	2N	2	NPN	X			1
BL67-8DI-N with BL67-B-4M12-P*	B	8	0-3	2N	2	NPN	X			1
BL67-8DI-N with BL67-B-8M8*	C	8	0-7	PI	1	NPN	X			1
BL67-8DI-N with BL67-B-1M23	D	8	0	M23-8I	8	NPN	X			1

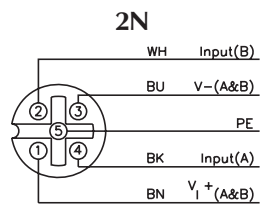
BL67

*Note: Base modules sold separately. See page G45.

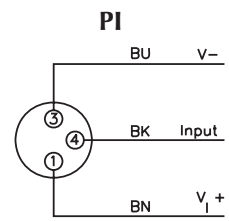
Input Connectors



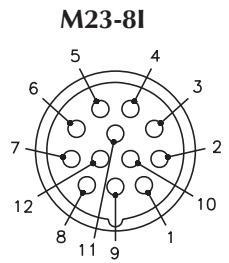
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
PSG 3M-*



- 1 = Input₀
- 2 = Input₁
- 3 = Input₂
- 4 = Input₃
- 5 = Input₄
- 6 = Input₅
- 7 = Input₆
- 8 = Input₇
- 9 = V₁+
- 10 = V₁+
- 11 = V₁+
- 12 = V-

Application:
TURCK splitter box: 8MB12Z-4PZ-CS12
Cable: CSWM CKWM 12-10-*/S101/BL67

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
	n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	n+1	(Data from modules to the right)							

4 Discrete Output Modules



Shown with BL67-B-4M12 base

BL67-4DO-0.5A-P



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 30\text{ mA}</math> from V_{MB}
<math>< 100\text{ mA}</math> from V_O
- Output Current: <math>< 0.5\text{ A}</math> per output from V_O

Power Distribution

- Outputs: V_O
- Logic: V_{MB} and V_O

Material

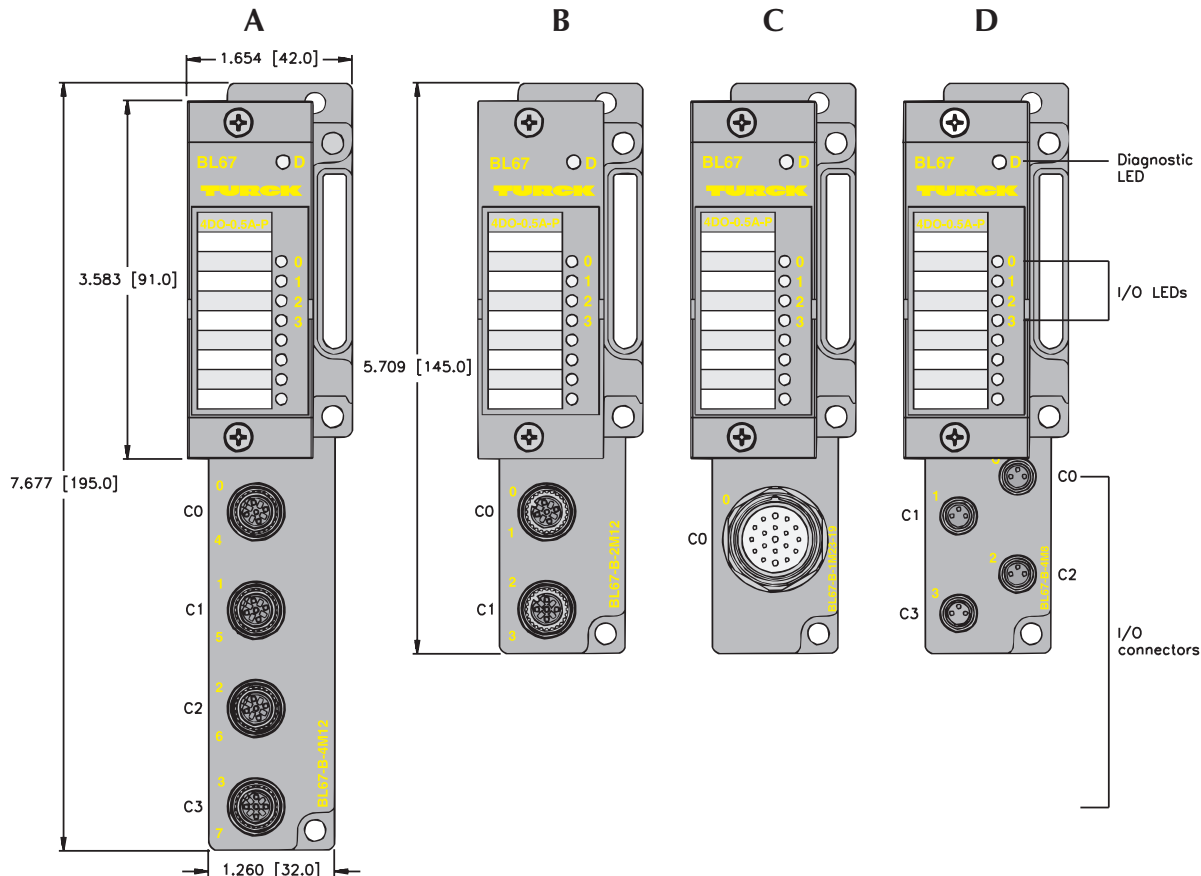
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

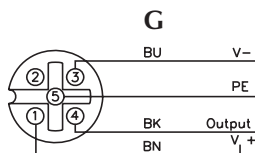


Part Number	Outputs								Data
	Drawing	Output Count	Connectors	Pinout	Outputs per Connector	Current	Style	Individual Diagnostics	I/O Map
BL67-4D0-0.5A-P with BL67-B-4M12*	A	4	0-3	G	1	0.5 A	Source		1
BL67-4D0-0.5A-P with BL67-B-2M12*	B	4	0-1	2G	2	0.5 A	Source		1
BL67-4D0-0.5A-P with BL67-B-2M12-P*	B	4	0-1	2G	2	0.5 A	Source		1
BL67-4D0-0.5A-P with BL67-B-4M8*	D	4	0-3	PO	1	0.5 A	Source		1
BL67-4D0-0.5A-P with BL67-B-1M23*	C	4	0	M23-4O	4	0.5 A	Source		1

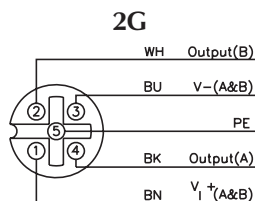
*Note: Base modules sold separately. See page G45.

BL67

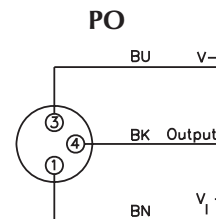
Output Connectors



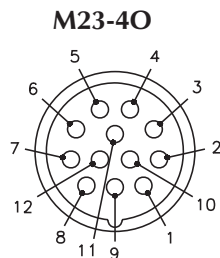
Mating cordset:
RK 4.4T-* -RS 4.4T



Mating cordset:
RK 4.4T-* -RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
PSG 3M-*



- 1 = Output₀
- 2 = Output₁
- 3 = Output₂
- 4 = Output₃
- 5 = NC
- 6 = NC
- 7 = NC
- 8 = NC
- 9 = V₁+
- 10 = V₁+
- 11 = V₁+
- 12 = V₋

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data for modules to the left)							
	n	Data for next discrete modules	0-3	0-2	0-1	0-0			
	n+1	(Data for modules to the right)							

4 Discrete Output Modules



Shown with BL67-B-2M12 base

BL67-4DO-2A-P

BL67-4DO-2A-N



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 100 \text{ mA}</math> from V_O
- Output Current: <math>< 2 \text{ A}</math> per output from V_O

Power Distribution

- Outputs: V_O
- Logic: V_{MB} and V_O

Material

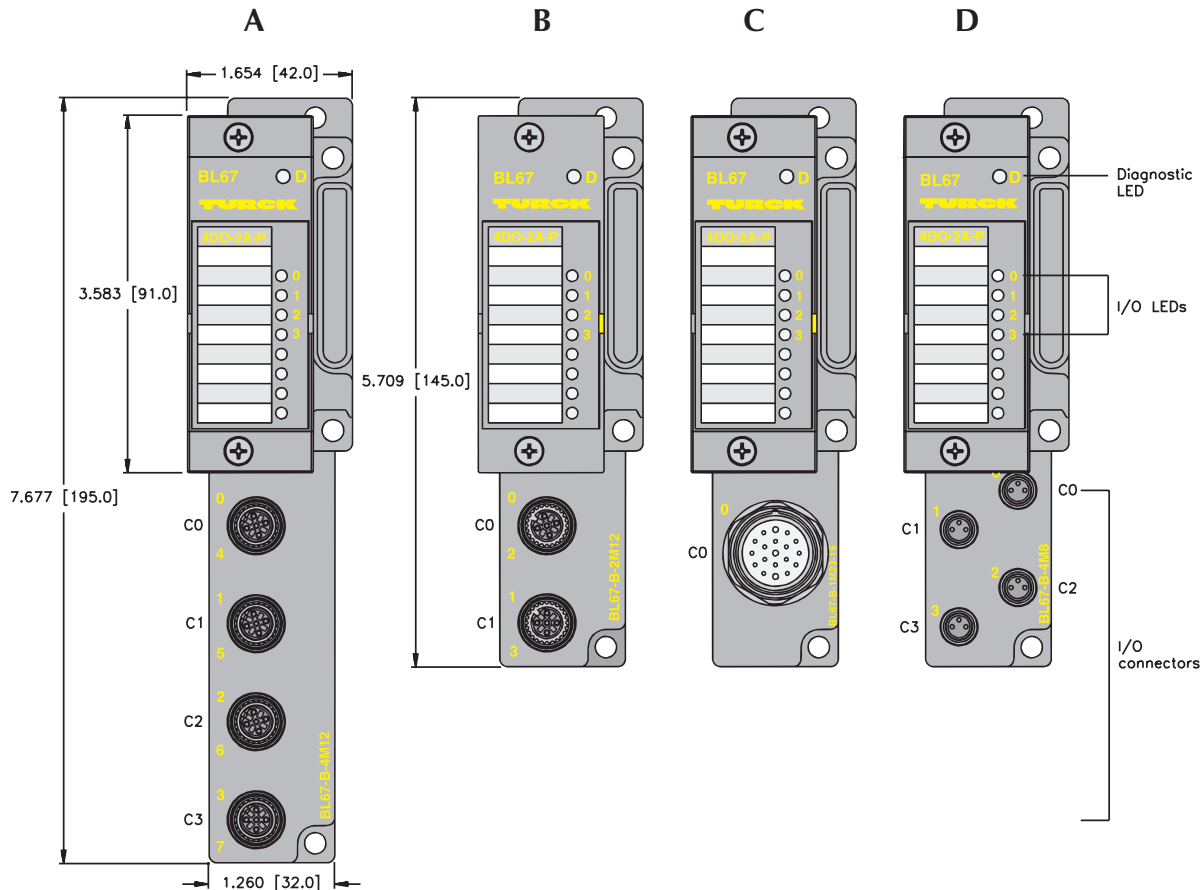
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

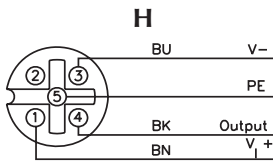
- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



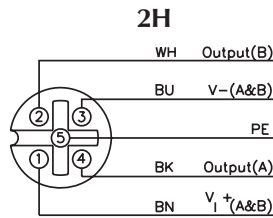
Part Number	Outputs									Data
	Drawing	Output Count	Connectors	Pinout	Outputs per Connector	Current	Style	Individual Diagnostics	I/O Map	
BL67-4D0-2A-P with BL67-B-4M12*	A	4	0-3	H	1	2 A	Source		1	
BL67-4D0-2A-P with BL67-B-2M12*	B	4	0-1	2H	2	2 A	Source		1	
BL67-4D0-2A-P with BL67-B-2M12-P*	C	4	0-1	2H	2	2 A	Source		1	
BL67-4D0-2A-P with BL67-B-4M8*	D	4	0-3	PO	1	2 A	Source		1	
BL67-4D0-2A-P with BL67-B-1M23*	C	4	0	M23-4O	4	2 A	Source		1	
BL67-4D0-2A-N with BL67-B-4M12*	A	4	0-3	H	1	2 A	Sink		1	
BL67-4D0-2A-N with BL67-B-2M12*	B	4	0-1	2H	2	2 A	Sink		1	
BL67-4D0-2A-N with BL67-B-2M12-P*	C	4	0-1	2H	2	2 A	Sink		1	
BL67-4D0-2A-N with BL67-B-4M8*	D	4	0-3	PO	1	2 A	Sink		1	
BL67-4D0-2A-N with BL67-B-1M23*	C	4	0	M23-4O	4	2 A	Sink		1	

* Base modules sold separately. See page G45.

Output Connectors

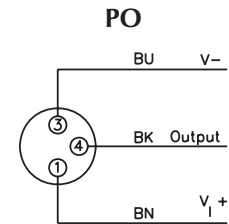


Mating cordset:
RK 4.5T-*-RS 4.5T

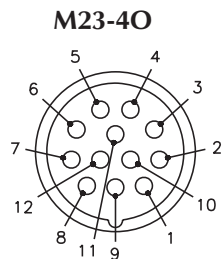


Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
PSG 3M-*



- 1 = Output₀
- 2 = Output₁
- 3 = Output₂
- 4 = Output₃
- 5 = NC
- 6 = NC
- 7 = NC
- 8 = NC
- 9 = V_I+
- 10 = V_I+
- 11 = V_I+
- 12 = V₋

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data for modules to the left)							
n	Data for next discrete modules			0-3	0-2	0-1	0-0		
n+1	(Data for modules to the right)								

8 Discrete Output Modules



Shown with BL67-B-8MB base

BL67-8DO-0.5A-P



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 100 \text{ mA}</math> from V_O
- Output Current: <math>< 0.5 \text{ A}</math> per output from V_O

Power Distribution

- Outputs: V_O
- Logic: V_{MB} and V_O

Material

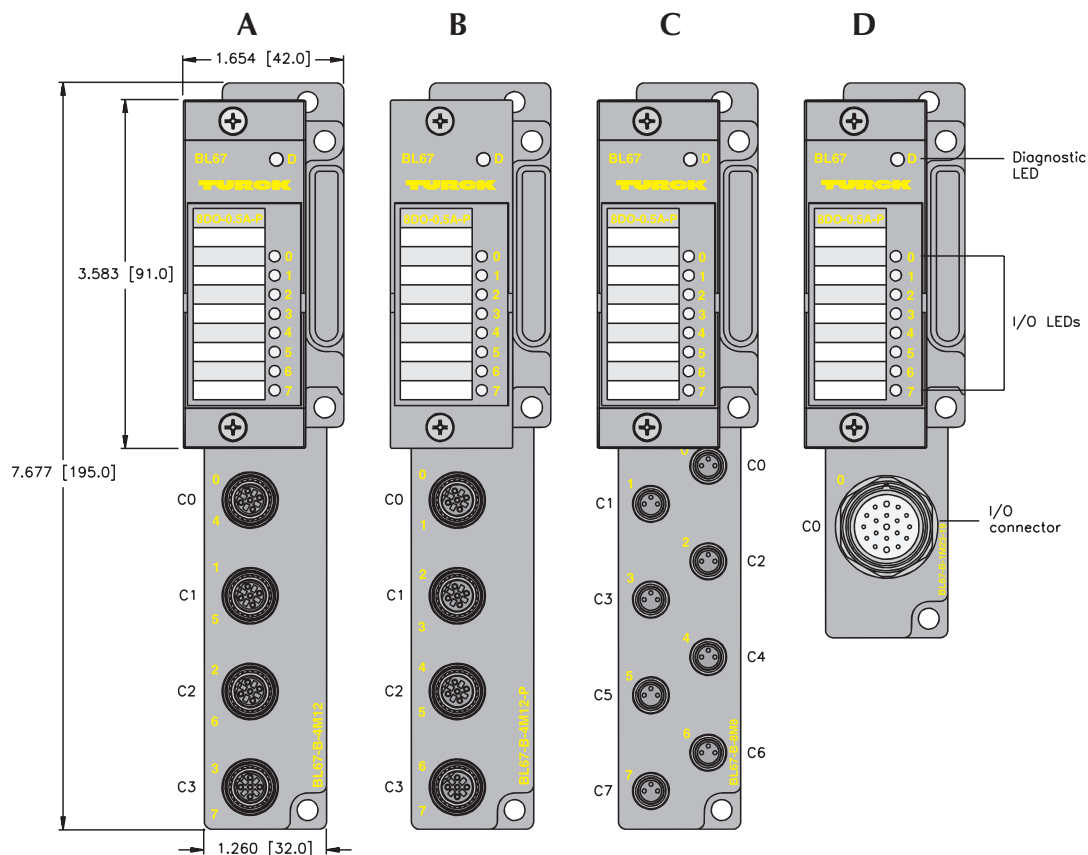
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

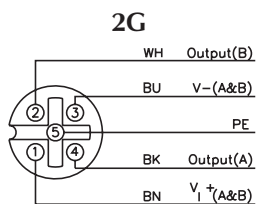


Outputs									Data
Part Number	Drawing	Output Count	Connectors	Pinout	Outputs per Connector	Current	Style	Individual Diagnostics	I/O Map
BL67-8D0-0.5A-P with BL67-B-4M12*	A	8	0-3	2G	2	0.5 A	Source		1
BL67-8D0-0.5A-P with BL67-B-4M12-P*	B	8	0-3	2G	2	0.5 A	Source		1
BL67-8D0-0.5A-P with BL67-B-8M8*	C	8	0-7	PO	1	0.5 A	Source		1
BL67-8D0-0.5A-P with BL67-B-1M23	D	8	0	M23-4O	4	0.5 A	Source		1

* Base modules sold separately. See page G45.

BL67

Output Connectors

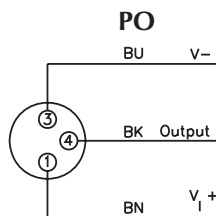


Mating cordset:

RK 4.4T-*-RS 4.4T

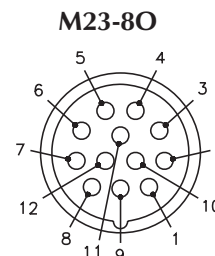
Splitter:

VBRS 4.4-2RK 4T-*/*



Mating cordset:

PSG 3M-*



- 1 = Output₀
- 2 = Output₁
- 3 = Output₂
- 4 = Output₃
- 5 = Output₄
- 6 = Output₅
- 7 = Output₆
- 8 = Output₇
- 9 = V₁+
- 10 = V₁+
- 11 = V₁+
- 12 = V-

Application:

TURCK splitter box: 8MB12Z-4PZ-CS12

Cable: CSWM CKWM 12-10-*/S101/BL67

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
n-1	(Data for modules to the left)								
n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0	
n+1	(Data for modules to the right)								

16 Discrete Output Module



Shown with BL67-8-1M23 base

BL67-16DO-0.1A-P

- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Valve Bank Module

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 100 \text{ mA}</math> from V_O
- Output Current: <math>< 0.5 \text{ A}</math> per output from V_O

Power Distribution

- Outputs: V_O
- Logic: V_{MB} and V_O

Material

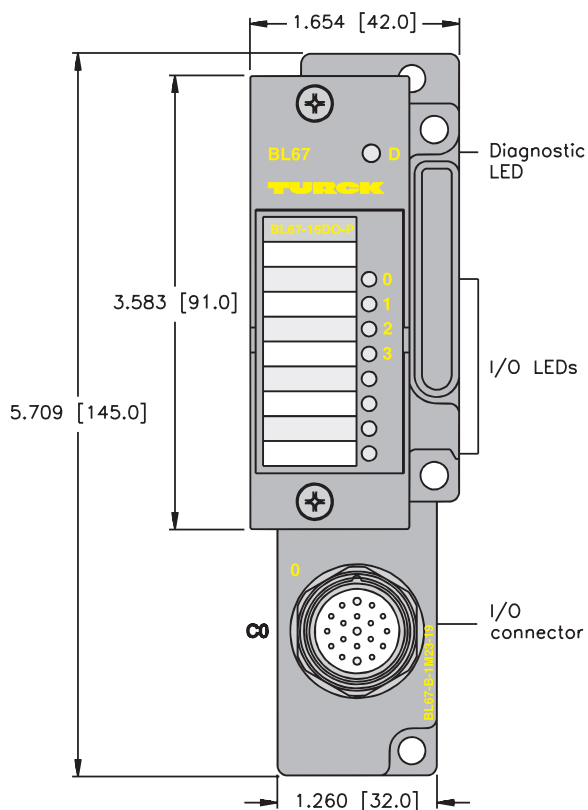
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



Note: For connection to SMC valve blocks use CSM DB25 19-17-*/SMC (* indicates the length in meters). This cordset connects from the BL67 19-pin base to a DB25 connector, and is wired for SMC valve connections.

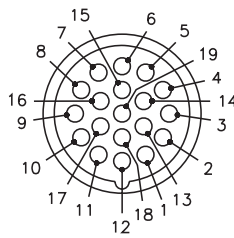
Outputs									Data
Part Number	Drawing	Output Count	Connectors	Pinout	Outputs per Connector	Current	Style	Individual Diagnostics	I/O Map
BL67-16D0-0.1-P with BL67-B-1M23-19	A	16	0	M23-16O	16	0.1 A	Source		1

BL67

* Base modules sold separately. See page G45.

Output Connectors

M23-16O



- 1 = Output₁₄
- 2 = Output₁₀
- 3 = Output₆
- 4 = Output₃
- 5 = Output₂
- 6 = V-
- 7 = Output₁
- 8 = Output₅
- 9 = Output₉
- 10 = Output₁₃
- 11 = Output₁₂
- 12 = PE
- 13 = Output₁₁
- 14 = Output₇
- 15 = Output₀
- 16 = Output₄
- 17 = Output₈
- 18 = Output₁₅
- 19 = VI+

Applications:

- SMC Valve Blocks; CSM DB25 19-17-*/SMC
- MAC Valve Blocks; CSM DBK 25 19-17-*/MAC
- 16MB12-4P2-CS19¹; CSM CKM 19-19-0-*/S101

* Indicates length in meters.

¹ Splitter box, refer to Connectivity Catalog for more information

Note: TURCK cannot guarantee pinout of connecting devices. Please verify pinout is correct for your application.

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
n-1	(Data for modules to the left)								
n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0	
n+1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	
n+2	(Data for modules to the right)								

Deluxe 4 Discrete Input Module



Shown with BL67-B-4M8 base

BL67-4DI-PD



- Modular I/O
- IP 67 Protection
- Per Point Diagnostics
- Various I/O Styles

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 100 \text{ mA}</math> from V_I

Power Distribution

- Inputs: V_I
- Logic: V_{MB} and V_I

Material

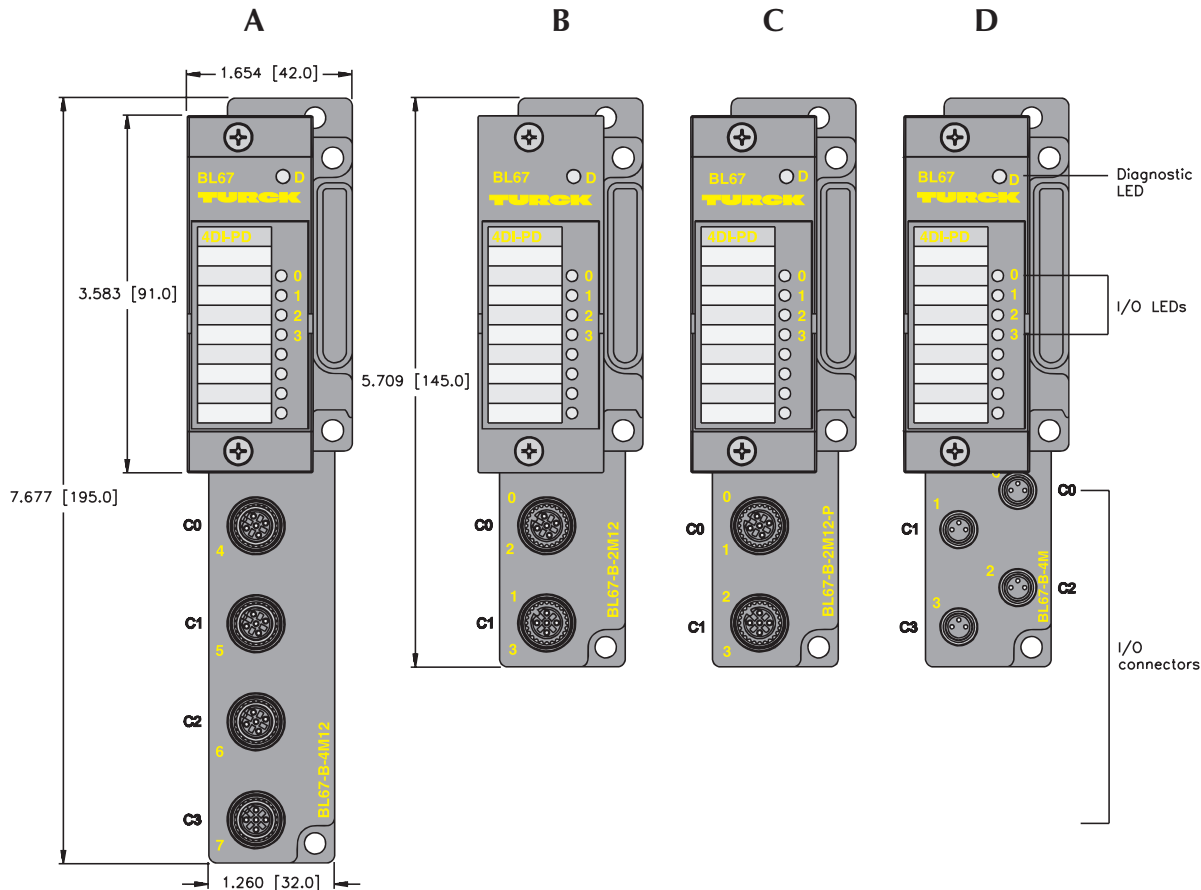
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

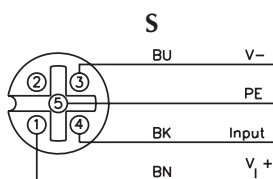


Part Number	Inputs									Data
	Drawing	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Individual Diagnostics	Wire-Break Detection	I/O Map	
BL67-4DI-PD with BL67-B-4M12*	A	4	0-3	S	1	PNP	X	X	1	
BL67-4DI-PD with BL67-B-2M12*	B	4	0-1	2S	2	PNP	X		1	
BL67-4DI-PD with BL67-B-2M12-P*	C	4	0-1	2S	2	PNP	X		1	
BL67-4DI-PD with BL67-B-4M8*	D	4	0-3	PI	1	PNP	X		1	

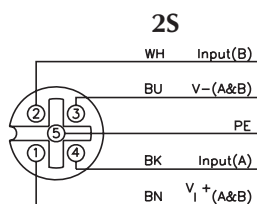
* Base modules sold separately. See page G45.

BL67

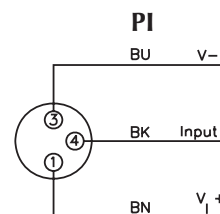
Input Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Data from next discrete modules			I-3	I-2	I-1	I-0	
	n+1	(Data from modules to the right)							

Note: I/O faults can be reported in the I/O map. Consult the product user manual for details.

Deluxe 8 Discrete Input Module



Shown with BL67-B-4M12 base

BL67-8DI-PD



- Modular I/O
- Per Point Diagnostics
- IP 67 Protection
- Various I/O Styles

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 100 \text{ mA}</math> from V_I

Power Distribution

- Inputs: V_I
- Logic: V_{MB} and V_I

Material

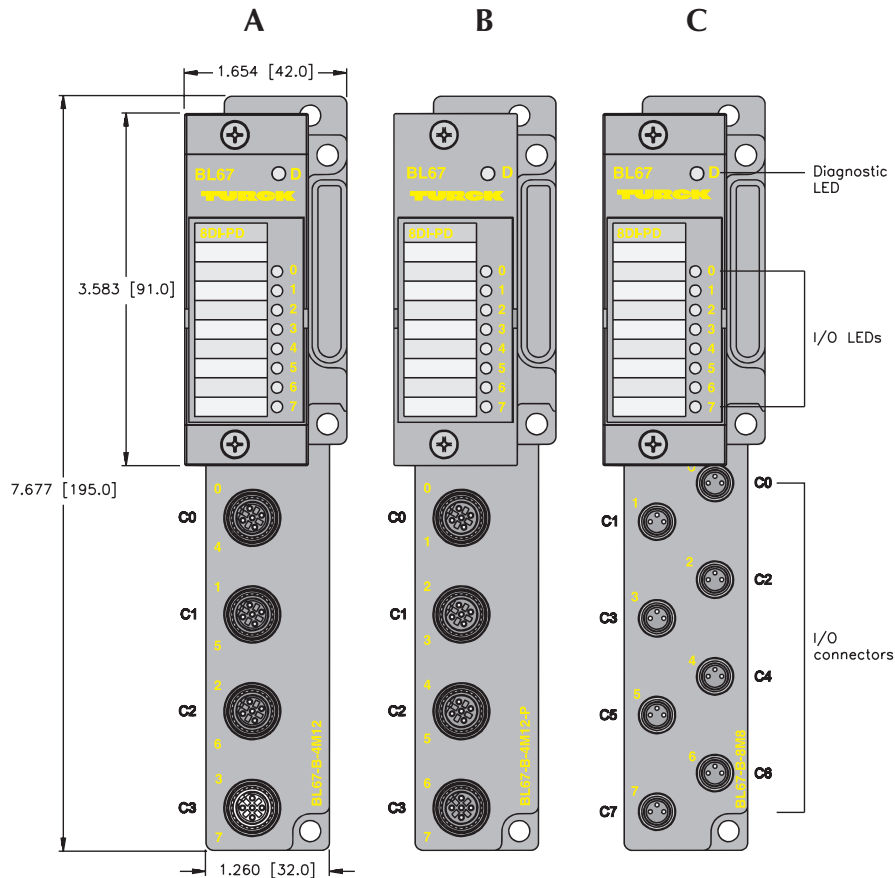
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

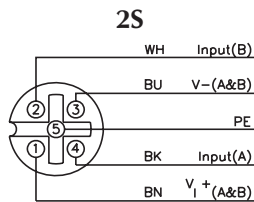


Part Number	Inputs								Data
	Drawing	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Individual Diagnostics	Wire-Break Detection	I/O Map
BL67-8DI-PD with BL67-B-4M12*	A	8	0-3	2S	2	PNP	X	X	1
BL67-8DI-PD with BL67-B-4M12-P*	B	8	0-3	2S	2	PNP	X		1
BL67-8DI-PD with BL67-B-8M8*	C	8	0-7	PI	1	PNP	X		1

BL67

*Note: Base modules sold separately. See page G45.

Input Connectors

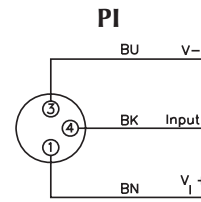


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*



Mating cordset:

PSG 3M-*

Note: Pins 1 & 2 must be jumpered together for open circuit monitoring.

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
n-1	(Data from modules to the left)								
n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
n+1	(Data from modules to the right)								

Note: I/O faults can be reported in the I/O table. Consult the product user manual for details.

Discrete Input/Output Module

- Modular I/O
- Fieldbus Independent Configuration
- IP 67 Protection
- Various I/O Styles



Shown with BL67-B-4M12 base

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 100 \text{ mA}</math> from V_O
- Output Current: <math>< 0.5 \text{ A}</math> per output from V_O

Power Distribution

- Inputs: V_I
- Outputs: V_O
- Logic: V_{MB} and V_O

Material

- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

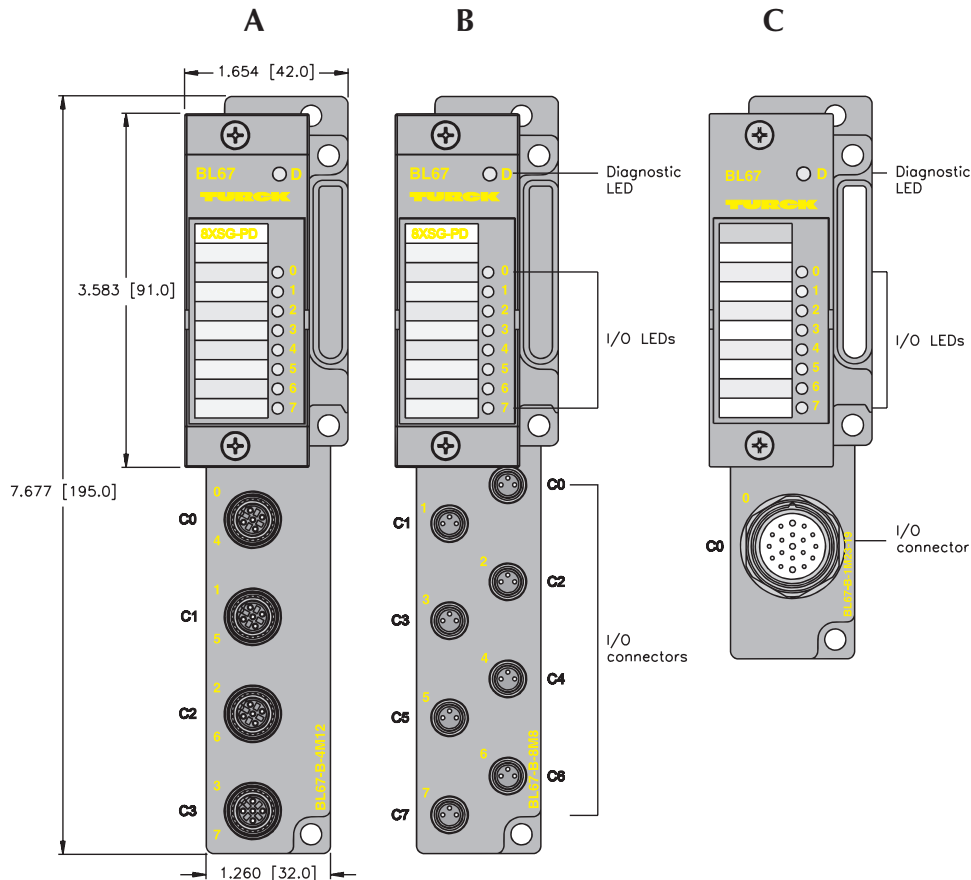
Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

BL67-8XSG-PD



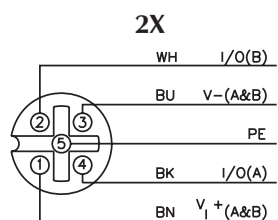
Inputs	Outputs	Data
--------	---------	------

Part Number	Drawing	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	V _I + Available Current	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
BL67-8XSG-PD with BL67-B-4M12*	A	8	0-3	2X	2	PNP		X		8	0-3	2X	2	0.5 A	X		1
BL67-8XSG-PD with BL67-B-8M8*	B	8	0-7	PI	1	PNP		X		8	0-7	PO	1	0.5 A	X		1
BL67-8XSG-PD with BL67-B-1M23	C	8	0	M23	8	PNP	80 mA each			8	0	M23	8	0.5 A	X		1
BL67-8XSG-PD with BL67-B-1M23-VI*	C	8	0	M23	8	PNP	4 A total			8	0	M23	8	0.5 A	X		1

BL67

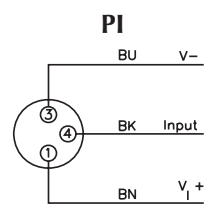
* Base modules sold separately. See page G45.

Input/Output Connectors

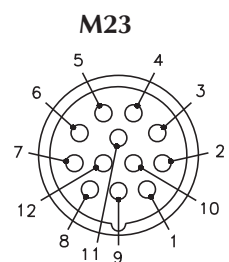


Mating cordset:
 RK 4.4T-* -RS 4.4T

Splitter:
 VBRS 4.4-2RK 4T-*/*



Mating cordset:
 PSG 3M-*



- 1 = Output₀
- 2 = Output₁
- 3 = Output₂
- 4 = Output₃
- 5 = Output₄
- 6 = Output₅
- 7 = Output₆
- 8 = Output₇
- 9 = V_I+
- 10 = V_I+
- 11 = V_I+
- 12 = V-

Application:
 TURCK splitter box: 8MB12Z-4PZ-CS12
 Cable: CSWM CKWM 12-10-*/S101/BL67

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	n+1	(Data from modules to the right)							
Out	n-1	(Data for modules to the left)							
	n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	n+1	(Data for modules to the right)							

Note: I/O faults can be reported in the I/O table. Consult the product user manual for details.

**Deluxe 4 Discrete Input
 4 Discrete Output Module**



Shown with BL67-B-4M12 base

BL67-4DI4DO-PD



- Modular I/O
- IP 67 Protection
- Per Point Diagnostics
- Various I/O Styles

Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
 <math>< 100 \text{ mA}</math> from V_O
- Output Current: <math>< 0.5 \text{ A}</math> per channel from V_O

Power Distribution

- Inputs: V_I
- Outputs: V_O
- Logic: V_{MB} and V_O

Material

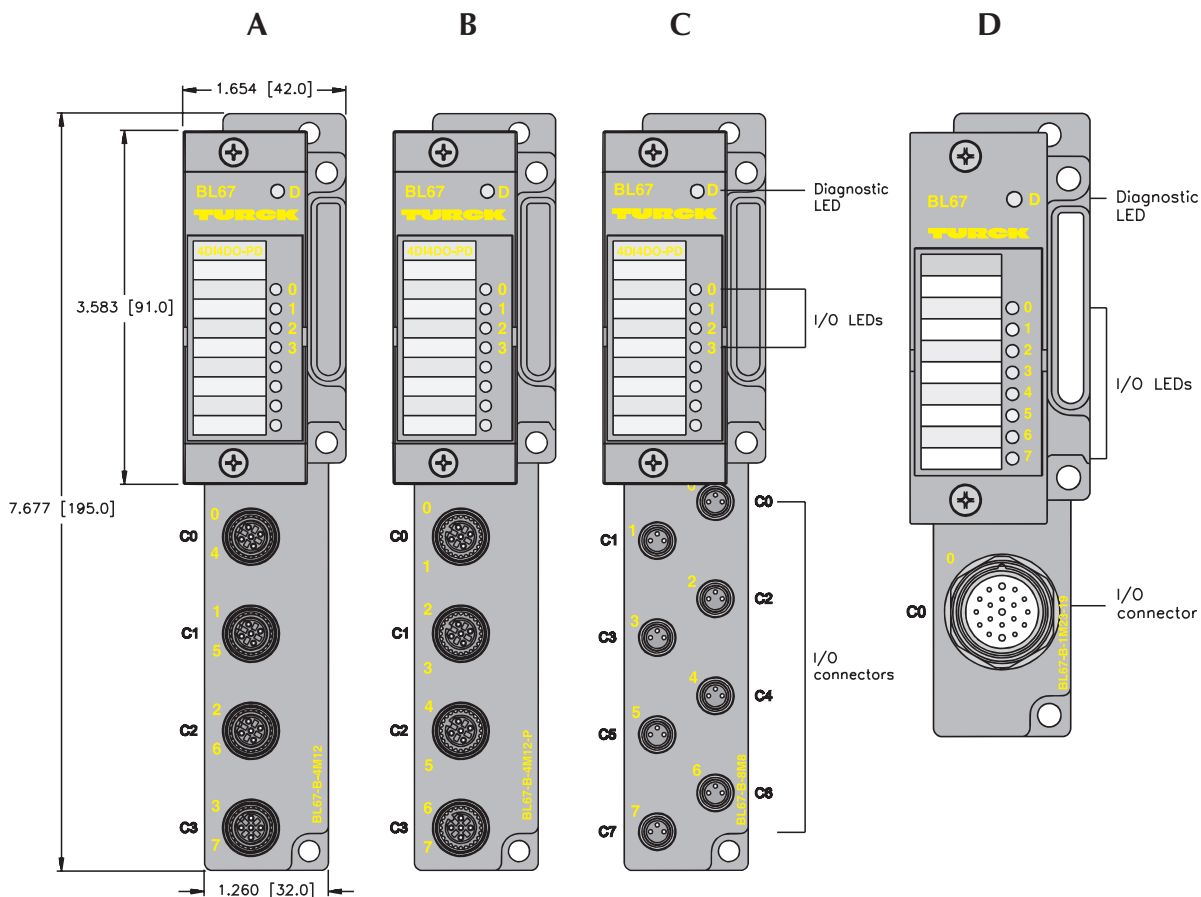
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



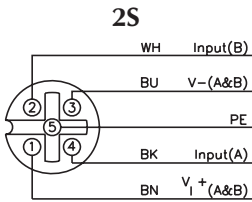
	Inputs		Outputs	Data
--	--------	--	---------	------

Part Number	Drawing #	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	VI+ Available Current	Group Diagnostics	Individual	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break	I/O Map
BL67-4DI4DO-PD with BL67-B-4M12-P*	A	4	0-1	2S	2	PNP			X		4	2-3	2G	2	0.5 A	X		1
BL67-4DI4DO-PD with BL67-B-4M12*	B	4	0-3	C	1	PNP			X		4	0-3	C	1	0.5 A	X		1
BL67-4DI4DO-PD with BL67-B-8M8*	C	4	0-3	PI	1	PNP			X		4	4-7	PO	1	0.5 A	X		1
BL67-4DI4DO-PD with BL67-B-1M23*	D	4	0	M23	4	PNP	80 mA each				4	0	M23	4	0.5 A			1
BL67-4DI4DO-PD with BL67-B-1M23*	D	4	0	M23	4	PNP	4 A total				4	0	M23	4	0.5 A			1

BL67

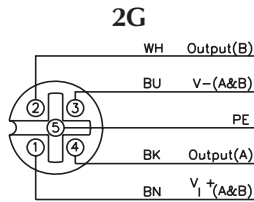
* Base modules sold separately. See page G45.

Input/Output Connectors



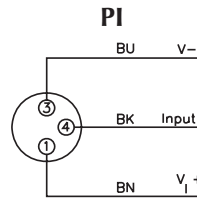
Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

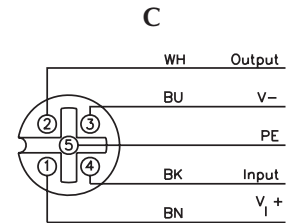


Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

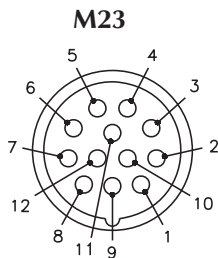


Mating cordset:
PSG 3M-*



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VB2-RS 4.4T-1/2RK 4.4T-*/*/S651



- 1 = Input₀
- 2 = Input₁
- 3 = Input₂
- 4 = Input₃
- 5 = Output₀
- 6 = Output₁
- 7 = Output₂
- 8 = Output₃
- 9 = VI+
- 10 = VI+
- 11 = VI+
- 12 = V-

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Data from next discrete modules				I-3	I-2	I-1	I-0
	n+1	(Data from modules to the right)							
Out	n-1	(Data for modules to the left)							
	n	(Data for next discrete modules)				0-3	0-2	0-1	0-0
	n+1	(Data for modules to the right)							

Note: I/O faults can be reported in the I/O table. Consult the product user manual for details.

CANopen Interface Module

- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles



BL67-1CVI



Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB} (SSI)
<math>< 50 \text{ mA}</math> from V (all)
<math>< 100 \text{ mA}</math> from V supply

Power Distribution

- I/O: V_I
- Logic: V_{MB} and V_I

Material

- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

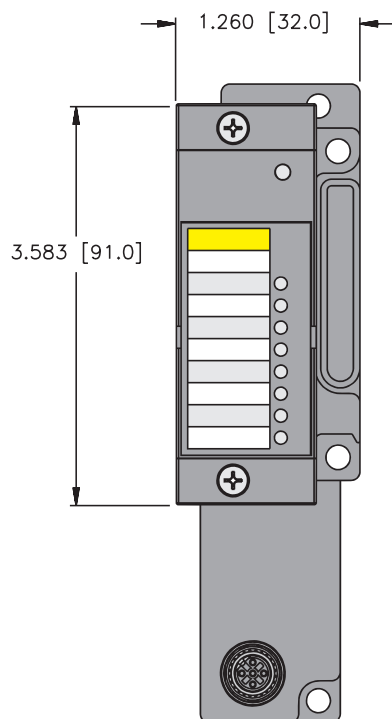
- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

Functional Description

- Connect up to 8 CANopen slaves to this module
- Map the slaves into any available fieldbus

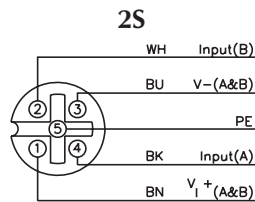


Inputs								Data
Part Number	Drawing	Slaves	Connectors	Pinout	Bytes/Slave	Max. Baud Rate	Group Diagnostics	I/O Map
BL67-1CVI with BL67-B-1M12	A	8	0	2S	1	1 mbits/S	X	1

* Base modules sold separately. See page G45.

BL67

Input Connectors



Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	1	Slave 2				Slave 1			
	2	Slave 4				Slave 3			
	3	Slave 6				Slave 5			
	4	Slave 7				Slave 8			
Out	5	Slave 2				Slave 1			
	6	Slave 4				Slave 3			
	7	Slave 6				Slave 5			
	8	Slave 7				Slave 8			

Serial Communication Modules



BL67-1RS485/422

BL67-1RS232

BL67-1SSI



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 140 \text{ mA}</math> from V_{MB} (RS232)
- <math>< 60 \text{ mA}</math> from V_{MB} (RS485/422)
- <math>< 50 \text{ mA}</math> from V_{MB} (SSI)
- <math>< 50 \text{ mA}</math> from V (all)

Power Distribution

- I/O: V
- Logic: V_{MB} and V

Material

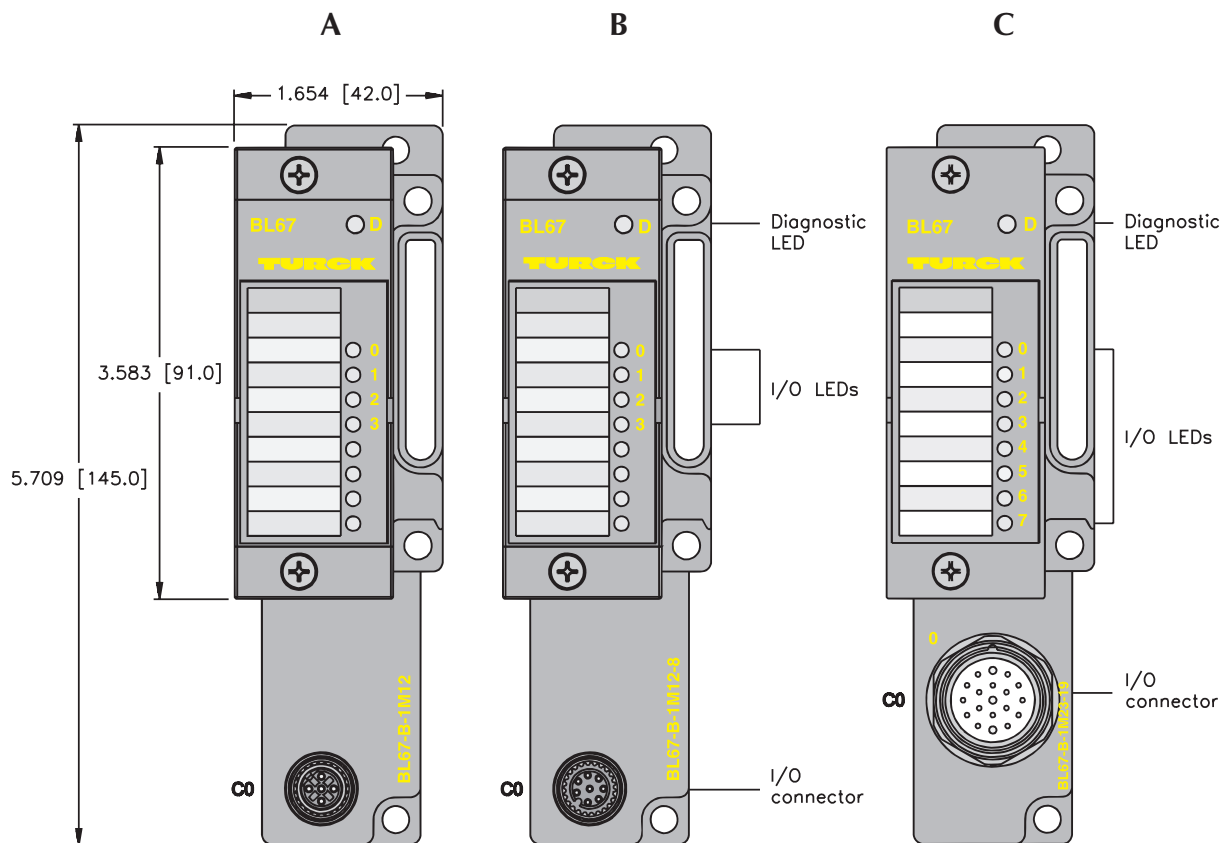
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



Inputs	Outputs	Data
---------------	----------------	-------------

Part Number	Drawing	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Output Count	Connectors	Pinout	Outputs per Connector	I/O Map
BL67-1RS485/422 with BL67-B-1M12*	A	1	0	B4	1	RS 485/422	X	1	0	B4	1	1
BL67-1RS485/422 with BL67-B-1M12-8*	B	1	0	B4-8	1	RS 485/422	X	1	0	B4-8	1	1
BL67-1RS232 with BL67-B-1M12*	A	1	0	B2	1	RS 232	X	1	0	B2	1	1
BL67-1RS232 with BL67-B-1M12-8*	B	1	0	B2-8	1	RS 232	X	1	0	B2-8	1	1
BL67-1SSI with BL67-B-1M23*	C	1	0	SSI-23	1	SSI	X	1	0	SSI-23	1	2
BL67-1SSI with BL67-B-1M12-8*	B	1	0	SSI	1	SSI	X	1	0	SSI	1	2

BL67

* Base modules sold separately. See page G45.

Input/Output Connectors

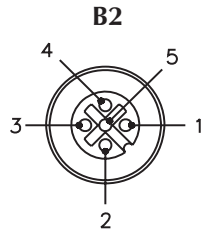
Pinouts are shown on following page.

I/O Data Map 1

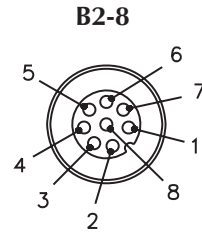
	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Data Byte 5 (MSB)							
	n+1	Data Byte 4							
	n+2	Data Byte 3							
	n+3	Data Byte 2							
	n+4	Data Byte 1							
	n+5	Data Byte 0 (LSB)							
	n+6	Buf Ovf1	Frame Err	HndSh Err	HW Failure	Prm Err	Reserved		
n+7	STAT	TX_CNT_ACK		RX_CNT		RX_BYTE_CNT			
n+8	(Data from modules to the right)								
Out	n-1	(Data for modules to the left)							
	n	Data Byte 5 (MSB)							
	n+1	Data Byte 4							
	n+2	Data Byte 3							
	n+3	Data Byte 2							
	n+4	Data Byte 1							
	n+5	Data Byte 0 (LSB)							
	n+6	Reserved						RxBuf Flush	TxBuf Flush
n+7	STAT Res	RX_CNT_ACK		TX_CNT		TX_BYTE_CNT			
n+8	(Data for modules to the right)								

I/O Data Map 2

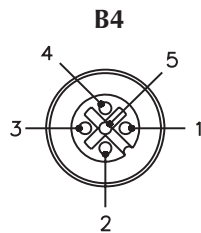
	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
In	n-1	(Data from modules to the left)								
	n	STOP	X	X	ERR PARA	UFLW	OFLW	ERR SSI	SSI DIAG	
	n+1	UP	DN	REL CMP2	FLAG CMP2	STS CMP2	REL CMP1	FLAG CMP1	STS CMP1	
	n+2	REG_WR ACPT	REG_WR ACK	X	X	SSI STS3	SSI STS2	SSI STS1	SSI STS0	
	n+3	REG_RD ABRT	X	REG_RD_ADR						
	n+4	REG_RD_DATA, Byte 0								
	n+5	REG_RD_DATA, Byte 1								
	n+6	REG_RD_DATA, Byte 2								
n+7	REG_RD_DATA, Byte 3									
n+8	(Data from modules to the right)									
Out	-1	(Data for modules to the left)								
	n	STOP	X	X	X	X	X	X	X	
	n+1	X	X	X	CLR CMP2	EN CMP2	X	CLR CMP1	EN CMP1	
	n+2	REG_WR	X	REG_WR_ADR						
	n+3	X	X	REG_RD_ADR						
	n+4	REG_WR_DATA, Byte 0								
	n+5	REG_WR_DATA, Byte 1								
	n+6	REG_WR_DATA, Byte 2								
n+7	REG_WR_DATA, Byte 3									
n+8	(Data for modules to the right)									



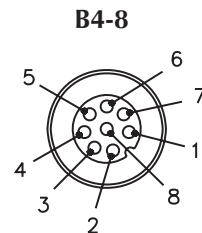
- 1 = NC
- 2 = TxD
- 3 = Gnd_{ISO}
- 4 = RxD
- 5 = Shield



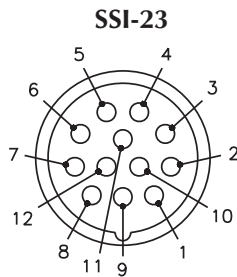
- 1 = RxD
- 2 = TxD
- 3 = RTS
- 4 = CTS
- 5 = Gnd_{ISO}
- 6 = NC
- 7 = NC
- 8 = Shield



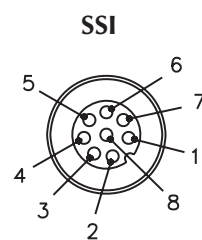
- 1 = Tx
- 2 = Tx+
- 3 = Rx-
- 4 = Rx+
- 5 = Shield



- 1 = Rx+
- 2 = Tx+
- 3 = Tx-
- 4 = NC
- 5 = Rx-
- 6 = Gnd_{ISO}
- 7 = NC
- 8 = Shield



- 1 = V-
- 2 = V_I+
- 3 = CLK+
- 4 = CLK-
- 5 = DATA+
- 6 = DATA-
- 7 = NC
- 8 = Shield
- 9 = NC
- 10 = NC
- 11 = NC
- 12 = NC



- 1 = V-
- 2 = V_I+
- 3 = CLK+
- 4 = CLK-
- 5 = DATA+
- 6 = DATA-
- 7 = NC
- 8 = Shield

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Access to all TURCK catalogs, press releases, white papers and tutorials

Search for products by part number, ID number or key word

Complete category listing of TURCK products

Access to CAD, wiring and pinout diagrams

Download or e-mail files, request for quote

Contact a TURCK representative

Option to e-mail pages

The screenshots show the TURCK USA website interface. The top screenshot displays the main navigation menu with categories like 'Products', 'Support', and 'Literature'. A search bar is visible on the left. The bottom screenshot shows a 'Documentation Search Results' page with a table of search results. The table includes columns for Part Number, ID Number, Catalog Page, Manual / ADAMT, Data Sheet, CAD, Config, and Wiring. Below the table, there are links for 'Download' and 'Request for Quote'.

www.turck.com

2 Analog Input Modules



BL67-2AI-V
BL67-2AI-I
BL67-4AI-V/I



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 35 \text{ mA}</math> from V_{MB}
<math>< 12 \text{ mA}</math> from V

Power Distribution

- Inputs: V_I
- Logic: V_{MB} and V_I

Material

- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

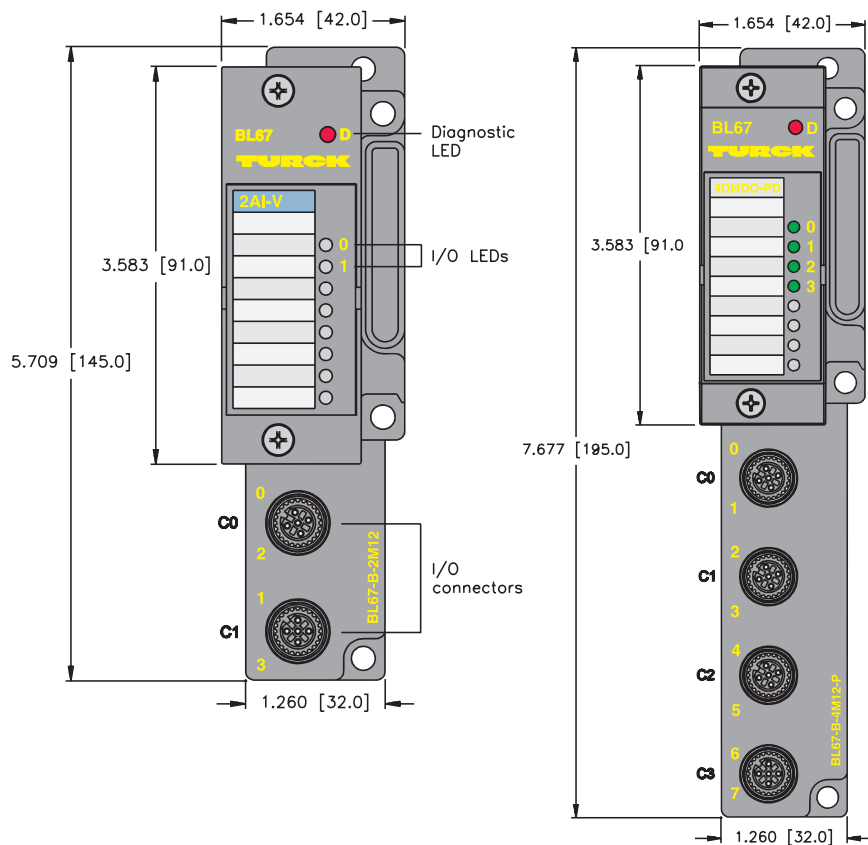
Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

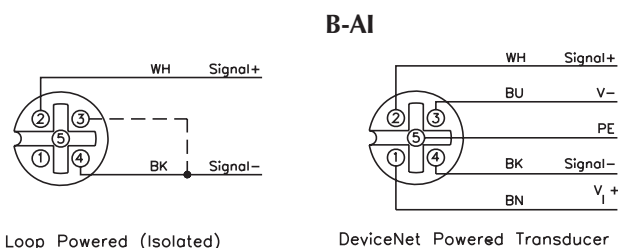
BL67-4AI-V/I



Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL67-2AI-V with BL67-B-2M12*	2	0-1	B-AI	1	-10/0 to 10 V				1
BL67-2AI-I with BL67-B-2M12*	2	0-1	B-AI	1	0/4 to 20 mA				1
BL67-4AI-V/I with BL67-B-4M12*	4	0-3	B-AI	1	-10/0 to 10 V 0/4 to 20 mA				2

* Base modules sold separately. See page G45.

Input Connectors



Mating cordset:

Isolated Loop: RK 4.5T-*M-RS 4.5T/S653
 Loop Powered: RK 4.5T-*M-RS 4.5T/LPS/S653

Applications:

TURCK Sensors: LU; RK 4.4T-*RS 4.4T/S1118
 LI; RK 4.4T-*RS 4.4T/S1120

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Channel 0, LSB							
	n+1	Channel 0, MSB							
	n+2	Channel 1, LSB							
	n+3	Channel 1, MSB							
	n+4	Channel 2, LSB							
	n+5	Channel 2, MSB							
	n+6	Channel 3, LSB							
	n+7	Channel 3, MSB							
	n+8	(Data from modules to the right)							

2 Temperature Input Modules



BL67-2AI-TC
BL67-2AI-PT



- **Modular I/O**
- **Thermocouple or RTD Inputs**
- **IP 67 Protection**
- **Various I/O Styles**

Electrical

- Operating Current: <math>< 35 \text{ mA}</math> from V_{MB} (TC)
<math>< 45 \text{ mA}</math> from V_{MB} (PT)
<math>< 30 \text{ mA}</math> from V (all)

Power Distribution

- Inputs: V_I
- Logic: V_{MB} and V_I
- Thermocouple Types: B, E, J, K, N, R, S and T (TC)
- RTD Types: PT100, PT200, PT500, PT1000, Ni100, Ni1000 (PT)

Material

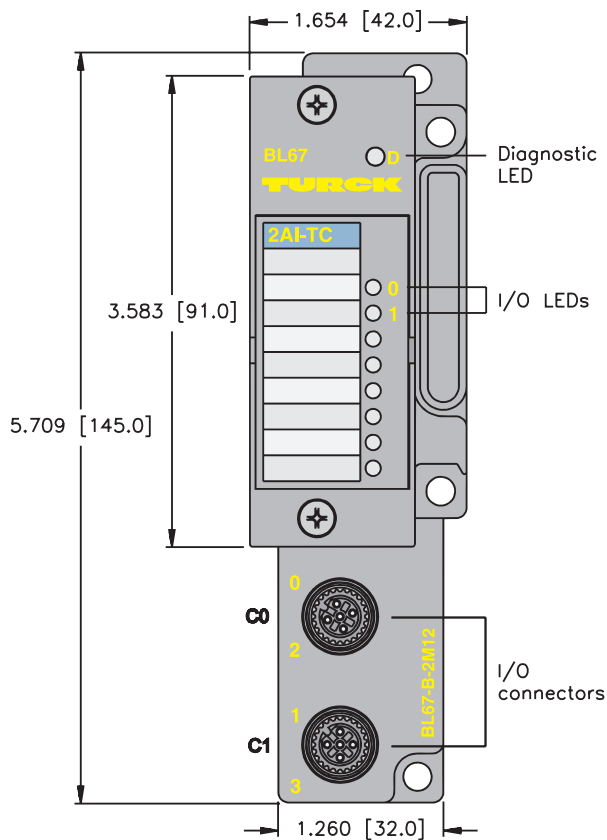
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

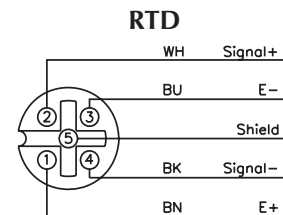
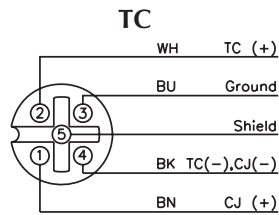


Part Number	Inputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL67-2AI-TC with BL67-B-2M12*	2	0-1	TC	1	TC				1
BL67-2AI-PT with BL67-B-2M12*	2	0-1	RTD	1	RTD				1

BL67

* Base modules sold separately. See page G45.

Input Connectors



Mating Connector (field wireable):

WAS5-THERMO (includes cold junction compensation)
 Isolated Loop: RK 4.5T-*M-RS 4.5T/S653
 Loop Powered: RK 4.5T-*M-RS 4.5T/LPS/S653

Mating cordset:

RK 4.5T-*RS 4.5T
 Isolated Loop: RK 4.5T-*M-RS 4.5T/S653
 Loop Powered: RK 4.5T-*M-RS 4.5T/LPS/S653

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Channel 0, LSB							
	n+1	Channel 0, MSB							
	n+2	Channel 1, LSB							
	n+3	Channel 1, MSB							
	n+4	(Data from modules to the right)							

2 Analog Output Modules



BL67-2AO-V
BL67-2AO-I

- Modular I/O
- Voltage or Current Outputs
- IP 67 Protection
- Various I/O Styles

Electrical

- Operating Current: <math>< 60 \text{ mA}</math> from V_{MB} (V)
- <math>< 40 \text{ mA}</math> from V_{MB} (I)
- <math>< 50 \text{ mA}</math> from V_I (all)

Power Distribution

- Inputs: V_I
- Logic: V_{MB} and V_I

Material

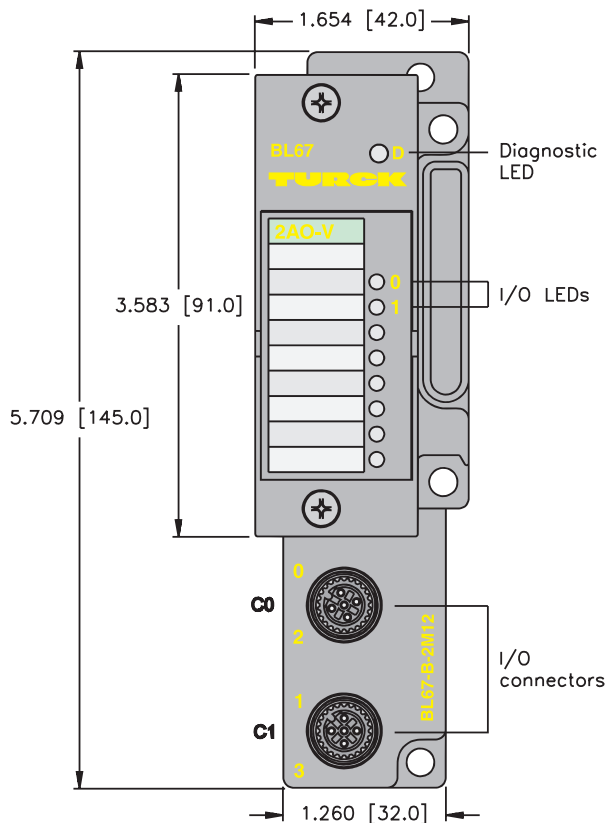
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

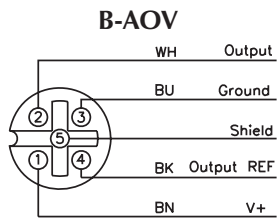
- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



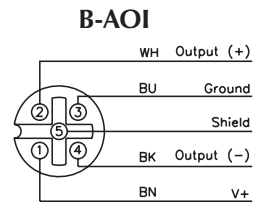
Part Number	Outputs								Data
	Output Count	Connectors	Pinout	Outputs per Connector	Type	Individual Diagnostics	Wire-Break Detection	I/O Map	
BL67-2A0-V with BL67-B-2M12*	2	0-1	B-AOV	1	-10/0 to 10V			1	
BL67-2A0-I with BL67-B-2M12*	2	0-1	B-AOI	1	0/4 to 20 mA			1	

* Base modules sold separately. See page G45.

Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



DeviceNet Powered Transducer

Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	n-1	(Data for modules to the left)							
	n	Channel 0, LSB							
	n+1	Channel 0, MSB							
	n+2	Channel 1, LSB							
	n+3	Channel 1, MSB							
	n+4	(Data for modules to the right)							

Power Feeding Module



BL67-PF-24VDC



- Modular I/O
- Isolate Power Segments
- IP 67 Protection
- Various I/O Styles

Electrical

- Operating Current: < 30 mA from V_{MB}
- Output Current: < 10 A for downstream I/O

Power Distribution

- Accepts 24 VDC supply to provide V_I and V_O for downstream modules

Material

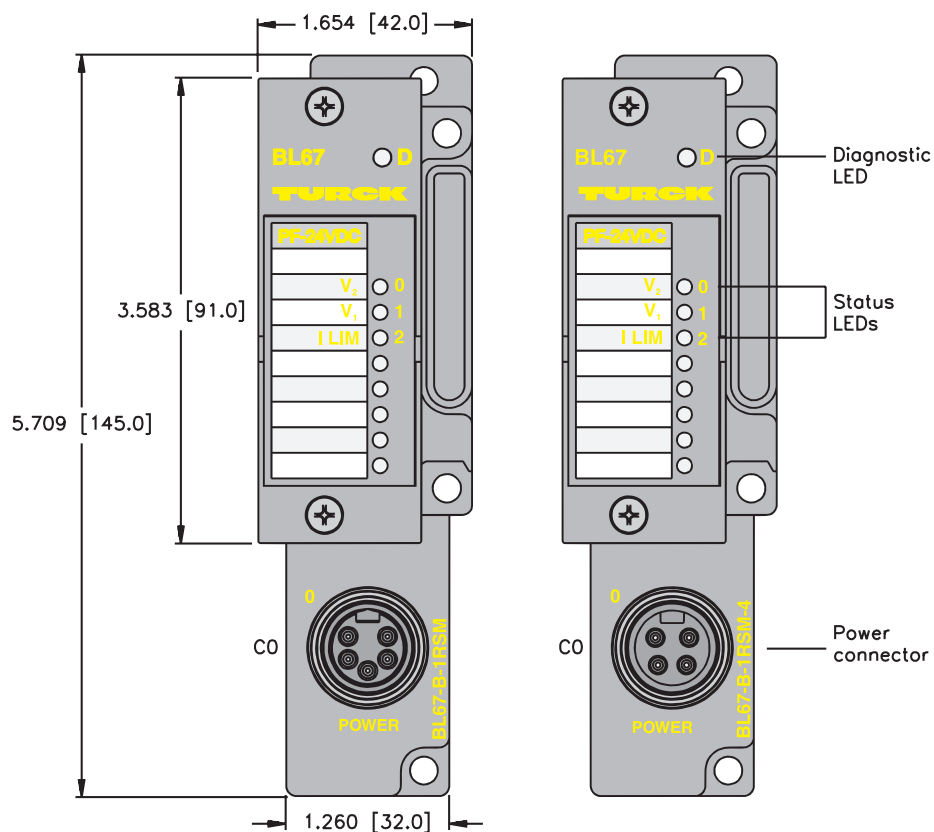
- Connectors: Nickel-plated brass
- Housing: PC-V0 (Lexan)

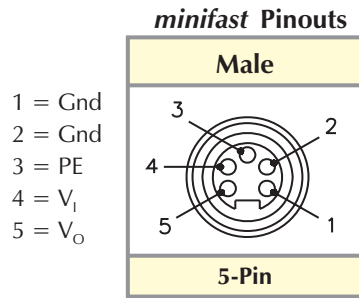
Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

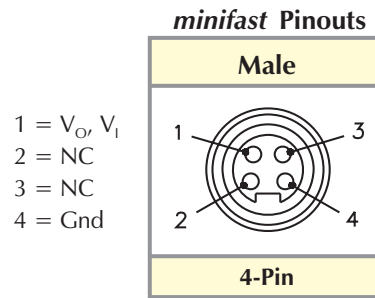
Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs to indicate power supply status









When used with BL67-B-1RSM base module







When used with BL67-B-1RSM-4 base module






Base Modules for BL67 I/O


Style	Part Number	Description
<p>Two <i>euromast</i>® Connectors</p> 	BL67-B-2M12	Base module with two <i>euromast</i> connectors. When used with 4 input or 4 output modules each connector has 2 I/O points.
<p>Two <i>euromast</i> Connectors with Paired I/O</p> 	BL67-B-2M12-P	Base module with two <i>euromast</i> connectors. Each connector has 2 I/O points, paired so consecutive points are on the same connector.
<p>Four <i>euromast</i> Connectors</p> 	BL67-B-4M12	Base module with four <i>euromast</i> connectors. When used with 8 input or 8 output modules each connector has 2 I/O points.
<p>Four <i>euromast</i> Connectors with Paired I/O</p> 	BL67-B-4M12-P	Base module with four <i>euromast</i> connectors. Each connector has 2 I/O points, paired so consecutive points are on the same connector.

Base Modules for BL67 I/O

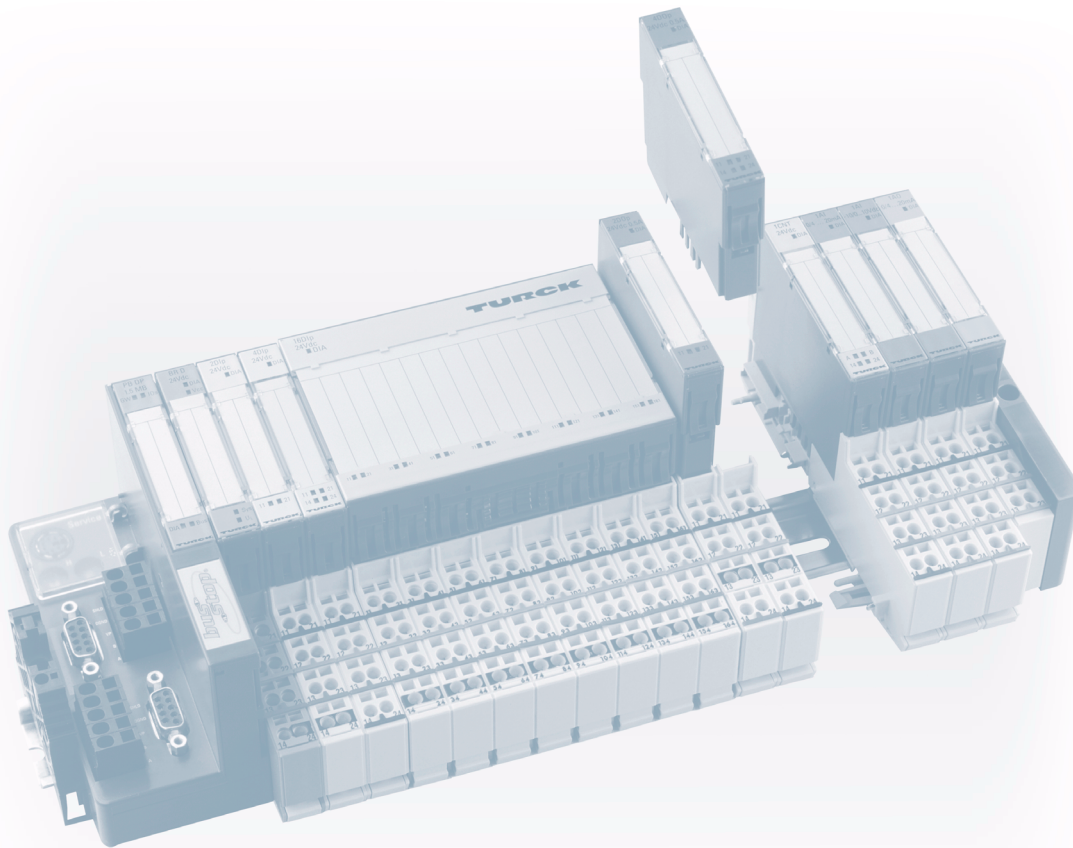
Style	Part Number	Description
<p>One <i>eurofast</i>® Connector (5-pin)</p> 	BL67-B-1M12	Base module with one <i>eurofast</i> 5-pin connector. Typically used with serial I/O modules.
<p>One <i>eurofast</i> Connector (8-pin)</p> 	BL67-B-1M12-8	Base module with one <i>eurofast</i> 8-pin connector. Typically used with serial I/O modules.
<p>Four <i>picofast</i>® Connectors</p> 	BL67-B-4M8	Base module with four <i>picofast</i> connectors. Typically used with 4-input or 4-output modules.
<p>Eight <i>picofast</i> Connectors</p> 	BL67-B-8M8	Base module with eight <i>picofast</i> connectors. Typically used with 8-input or 8-output modules.

Base Modules for BL67 I/O

Style	Part Number	Description
<p>One M23 Connector (12-pin)</p> 	BL67-B-1M23	Base module with one 12-pin M23 connector. Typically used with 8-output or SSI modules.
	BL67-B-1M23-VI	Base module that allows full 4 A available from V+ pins.
<p>One M23 Connector (19-pin)</p> 	BL67-B-1M23-19	Base module with one 19-pin M23 connector. For use with the 16-output module.
<p>One <i>minifast</i>[®] Connector (5-pin)</p> 	BL67-B-1RSM	Base module with one 5-pin <i>minifast</i> connector. For use with the power feeding module, five wire power scheme.
<p>One <i>minifast</i> Connector (4-pin)</p> 	BL67-B-1RSM-4	Base module with one 4-pin <i>minifast</i> connector. For use with the power feeding module, four wire power scheme.

	Part Number	Description
Labels for labeling electronic modules	BL67-Label/DIN-A4-50-PCS	DIN A4 sheet size
Programming Cable - For connecting the BL20/BL67 system to the I/O Assistant software 	XN-PS2-CABLE	

BL67



The BL20 Solution

The BL20 modular concept is a very flexible approach to terminal-wired I/O. The gateway, base and electronic modules provide many benefits to the user.

- The gateway provides communication between the fieldbus and I/O modules; modules are not dependent on the fieldbus protocol.
- DIN-rail mountable base modules are available with different wiring configurations to suit the user's needs.
- Electronic modules are hot swappable.
- Power distribution modules can be used to create isolated power segments within the system.

BL20's openness and flexibility provide a viable alternative to traditional PLC I/O.

Maximum Size of a BL20 Station

BL20 stations consist of a gateway and a maximum of 74 I/O modules (equivalent to 1 m station length). Some high-tech and analog I/O modules may consume or produce large amounts of data, and therefore may further limit the number of modules that may be used. It is highly recommended that *I/Oassistant* software is used when planning and commissioning BL20 systems. This program allows you to build the BL20 node on your computer and verify that all restrictions with regard to power and size are met. The free *I/Oassistant* software is available to download from www.turck.com.

Addressing

As a node on a network, the BL20 station must have an address. The setting of this address is dependent on the network system being used. Each network gateway has a set of rotary switches (one for the most significant digit, or 10's multiplier, and one for the least significant digit, or 1's multiplier) that are used to set the address for the node. DeviceNet™ gateways may be addressed between 0 and 63, while PROFIBUS®-DP and CANopen gateways can be set from 0 to 99.

BL20 Power Distribution

The power supply for a BL20 station is fed via power feeding or bus refreshing modules; the latter also being responsible for the power supply to the internal module bus. Bus refreshing modules are used within a BL20 station (without gateway supply) if the system supply to the BL20 modules (nominal current I_{MB} 1.5 A) is no longer sufficiently guaranteed. Bus refreshing modules are used with tension clamp (BL20-P3T-SBB-B or BL20-P4T-SBBC-B) or screw connection base modules (BL20-P3S-SBB-B or BL20-P4S-SBBC-B). Power feeding modules are used if the system supply to the BL20 modules (nominal current I_L < 10 A) is no longer sufficiently guaranteed.

System Supply Via Module Bus

The amount of BL20 modules that may be supplied by a bus refreshing module via the internal module bus depends on the respective minimal current I_{MB} of the individual modules on the bus. The sum of the nominal current inputs of the connected BL20 modules must not exceed 1.5 A. BL20 gateway power requirements (supplied by the first bus refreshing module) should be considered when calculating the required number of bus refreshing modules. If *I/Oassistant* software is used, an error message is generated automatically via the <Station - Verify> as soon as the system supply is no longer sufficiently guaranteed.

All bus refreshing modules used in a BL20 station should be connected via the same frame potential. The power supply to the bus is fed via the connections 11 (plus) and 21 (ground) of the respective base module for the bus refreshing module.

Creating Potential Groups

Both bus refreshing modules and power feeding modules may be used to create a potential group. The base module creates the possible isolation of the potential group on the left-hand side of the respective power distribution module.

It is not permitted for modules with 24 VDC and with 120/230 VAC field supply to be used in a joint potential group. Therefore, when using digital input modules for 120/230 VAC, the power feeding module BL20-PF-120/230VAC-D is to be used to create a special potential group.

C-rail (Cross Connection)

C-rails run through all I/O base modules. The C-rail for base modules for power distribution is mechanically separated; thus potentially isolating the adjoining supply groups.

Access to the C-rail

Access to the C-rail is made via base modules with a C designation (i.e. BL20-S4T-SBCS). The corresponding connection level is indicated by a thick black line on all base modules for BL20 I/O modules. For base modules for power distribution, the black line is only above the connection "24" to indicate that the C-rail is separated from the adjoining potential group to its left.

It is permitted to load the C-rail with a maximum of 24 V; never with 120/230 VAC.

Using the C-rail with Relay Modules

The C-rail may be used to supply a common voltage when relay modules are used. To accomplish this, the load voltage (24 VDC) is connected to a power distribution module and the base module BL20-P4x-SBBC with either tension clamp or screw connections.

If the C-rail is used for the joint supply of voltage to relay modules, there must be a power distribution module used for the potential isolation of the BL20 modules. The C-rail may still be used as protective earth (PE) once the potential isolation has been made.

Using the C-rail as a Protective Earth

A C-rail may be used as a protective earth (PE), where the PE connection for each power distribution modules must be connected to the mounting rail via an additional PE terminal, which is available as an accessory.

Environmental Conditions

General Technical Data	
Potential isolations	Via Optocoupler
Ambient temperature	
Operating temperature	+32 to +131°F (0 to +55°C)
Storage temperature	-13 to +185°F (-25 to +85°C)
Relative humidity	5 to 95% (indoor), Level RH-2, without condensation (storage at 45°C)
Noxious gas	
SO2	10 ppm (rel. humidity <75%, without condensation)
H2S	1.0 ppm (rel. humidity <75%, without condensation)
Resistant to vibration	According to EN 61131
Operating conditions	According to EN 61131
Resistant to shock	According to IEC 68-2-27
Resistant to repetitive shock	According to IEC 68-2-29
Topple and fall	According to IEC 68-2-31 and free fall according to IEC 68-2-32
Protection class	IP 20
Electromagnetic compatibility (EMC)	According to EN 50 082-2 (Industry)
Tests	According to EN 61131-2
Base Modules	
Measurement data	According to VDE 0611 part 1/8.92 / IEC 947-7-1/1989
Connection to technology in TOP construction	Tension clamp or screw connection
Insulation stripping length	8 mm
Crimpable wire	
Nominal diameter	1.5 mm ²
"e" solid core H 07V-U	0.5 to 2.5 mm ²
"f" flexible core H 07V-K	0.5 to 1.5 mm ²
"f" with ferrules according to DIN 46 228/1 (ferrules crimped gas-tight)	0.5 to 1.5 mm ²
Plug gauge according to IEC 947-1/1988	A1
Protection class	IP 20
Approvals	CE
	UL
	CSA

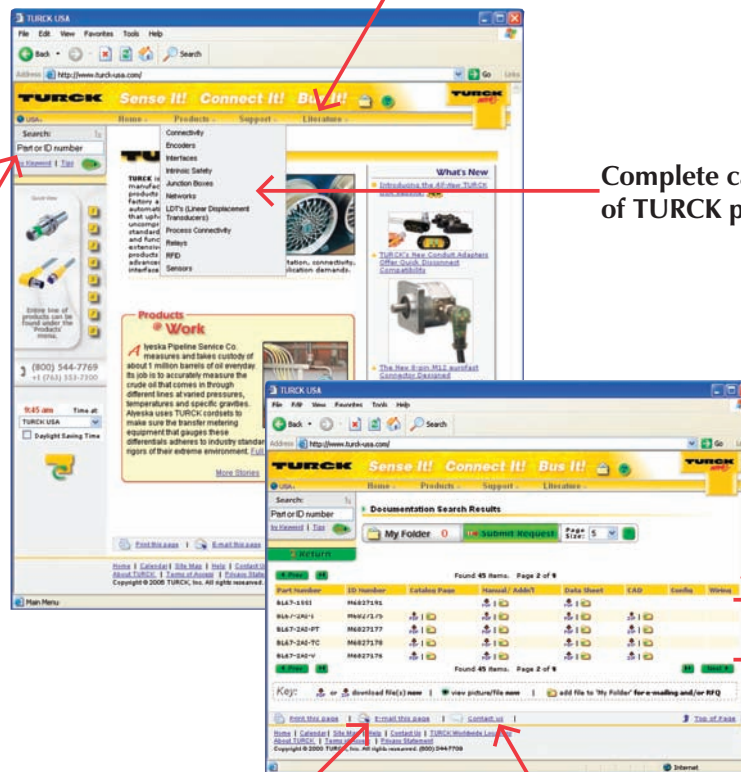
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BL20 Gateway Selection Guide

Gateways	Higher Level System	Pages
	DeviceNet™	C7
	PROFIBUS®-DP	C8
	Ethernet	C9
	Ethernet	C10
	CANopen	C11

BL20

BL20 Module Selection Guide

Modules	Type	I/O Direction	Pages
	Discrete	Input	C13 - C18, C25, C29
		Output	C19 - C24, C27, C31
	Analog	Input	C33 - C38
		Output	C39
	Serial	Input & Output	C41
	Counter	Input	C43
	Motor Starter	Input & Output	C49
	Power Feed		C45
	Base Modules		C58
	Accessories		C64

PROFIBUS-DP Gateway



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <430 mA from BR power supply (U_{SYS})
- Supply Current: <10 A to I/O (from U_L)
<1.5 A to backplane (from U_{SYS})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5-100 Hz

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the PROFIBUS-DP interface

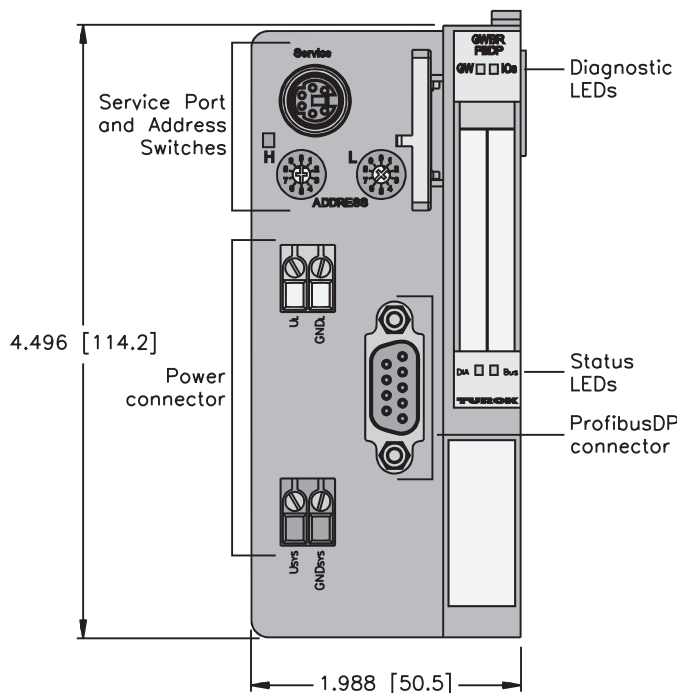
Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP and Module Bus communication

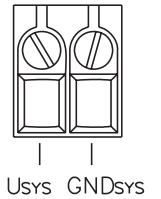
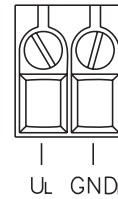
BL20-GW-DPV1



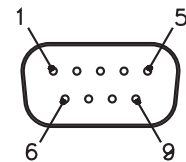
BL20



Power Connectors



PROFIBUS-DP Connector



- 1 = Shield
- 3 = BUS_B
- 5 = DGnd
- 6 = +5 VDC
- 8 = BUS_A

Ethernet Gateway



- **Modular I/O**
- **Fieldbus Independent Configuration**
- **IP 20 Protection**
- **Various I/O Styles**

Electrical

- Operating Current: < 430 mA from BR power supply (U_{sys})
- Supply Current: < 10 A to I/O (from U_L)
< 1.5 A to backplane (from U_{sys})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5-100 Hz

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the PROFIBUS-DP interface

Diagnostics (Physical)

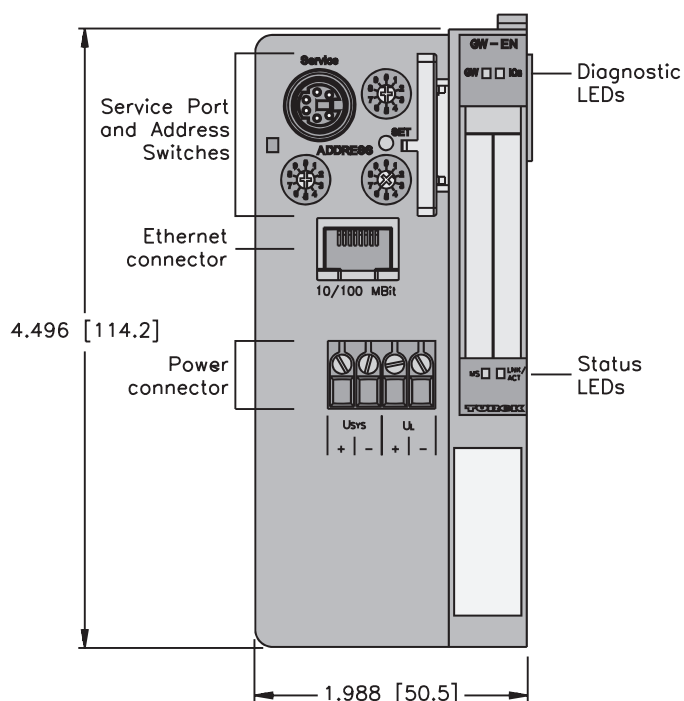
- LEDs to indicate status of PROFIBUS-DP and Module Bus communication

Programmability

- PG in part number designates a programmable gateway
- Programmable according to IEC 61131.3 using CodeSys (includes ladder logic)
- Use CodeSys to create logic programs to control local I/O

BL20-GW-EN

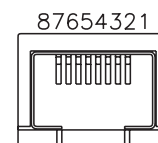
BL20-PG-EN



Power Connectors



RJ45 Ethernet Standard



- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Ethernet Gateway



- Modular I/O**
- IP 20 Protection**
- Fieldbus Independent Configuration**
- Various I/O Styles**

Electrical

- Operating Current: <430 mA from BR power supply (U_{SYS})
- Supply Current: <10 A to I/O (from U_L)
<1.5 A to backplane (from U_{SYS})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5-100 Hz

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the PROFIBUS-DP interface

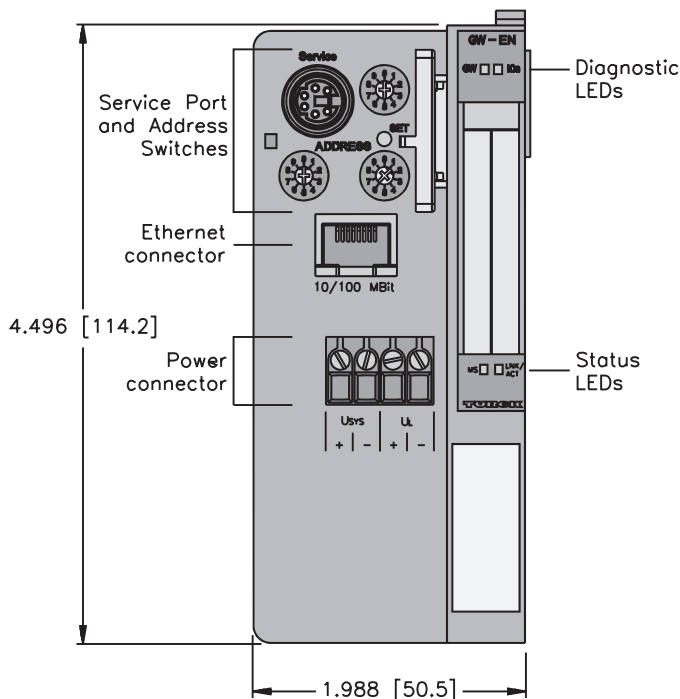
Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP and Module Bus communication

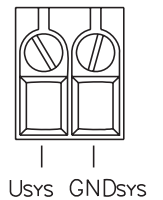
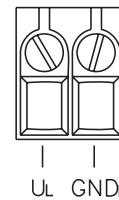
Programmability

- PG in part number designates a programmable gateway
- Programmable according to IEC 61131.3 using CodeSys (includes ladder logic)
- Use CodeSys to create logic programs to control local I/O

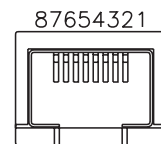
BL20-GW-EN-IP
BL20-PG-EN-IP



Power Connectors



RJ45 Ethernet Standard



- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

BL20

CANopen Gateway



BL20-GWBR-CANOPEN



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <350 mA from BR power supply (U_{SYS})
- Supply Current: <10 A to I/O (from U_L)
<1.5 A to backplane (from U_{SYS})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5-100 Hz

Material

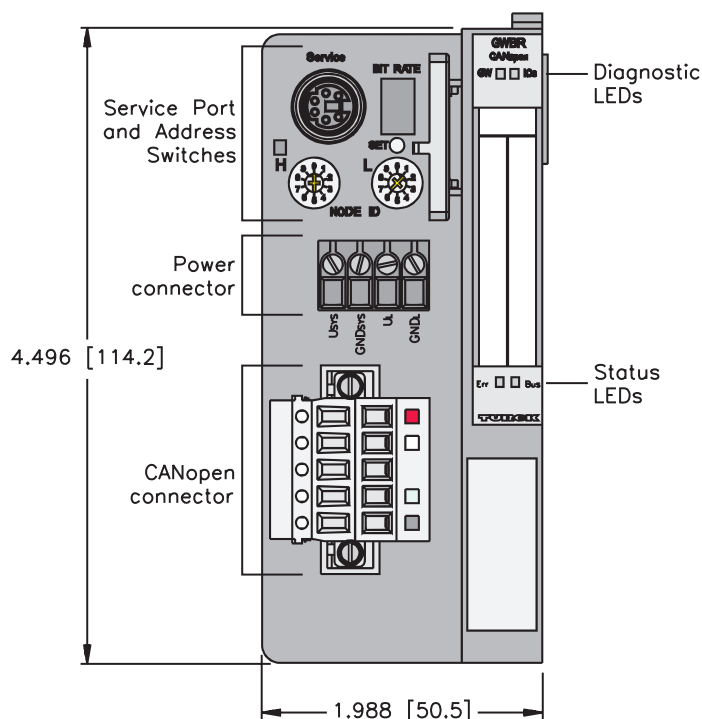
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the CANopen interface

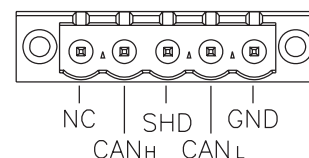
Diagnostics (Physical)

- LEDs to indicate status of CANopen and Module Bus communication



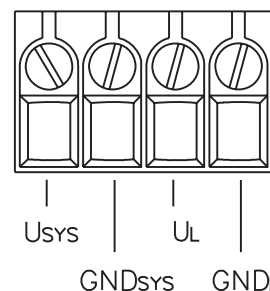
CANopen Connector

- 1 = NC
- 2 = CAN_H
- 3 = Shield
- 4 = CAN_L
- 5 = Gnd



Power connector

- 1 = U_L+
- 2 = V_L-
- 3 = $U_{SYS}+$
- 4 = $U_{SYS}-$



Notes:



BL20

Discrete Input Modules



- BL20-2DI-24VDC-N
- BL20-2DI-24VDC-P
- BL20-4DI-24VDC-N
- BL20-4DI-24VDC-P (shown)



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 28 \text{ mA}</math> from V_{MB}
 <math>< 20 \text{ mA}</math> from $V_{IO} (\dots-2DI\dots)$
 <math>< 40 \text{ mA}</math> from $V_{IO} (\dots-4DI\dots)$

Power Distribution

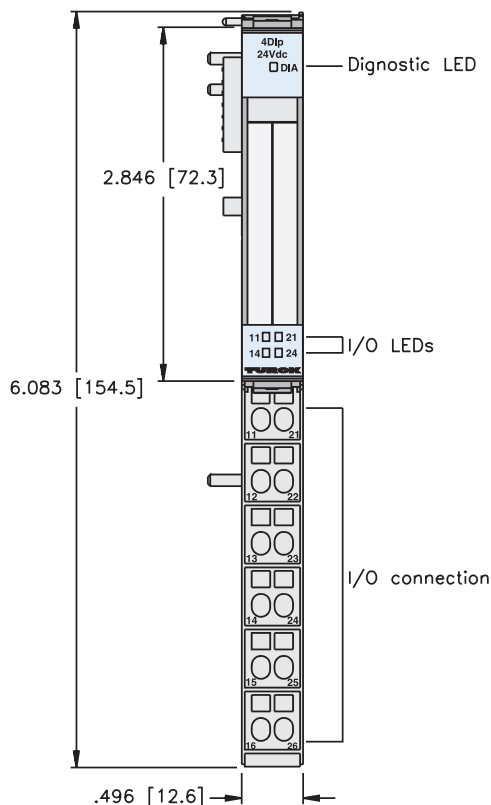
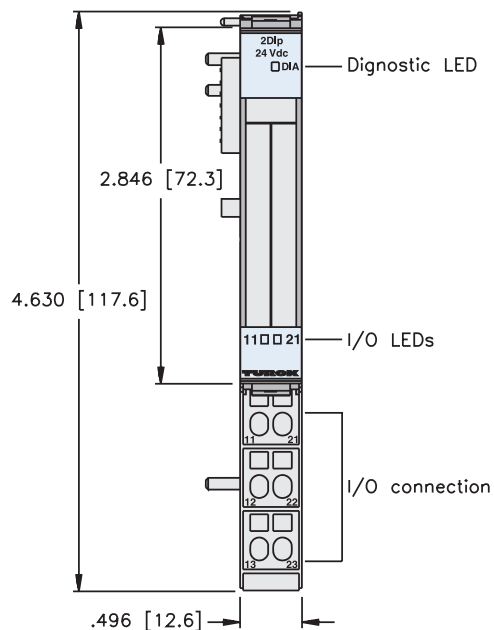
- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

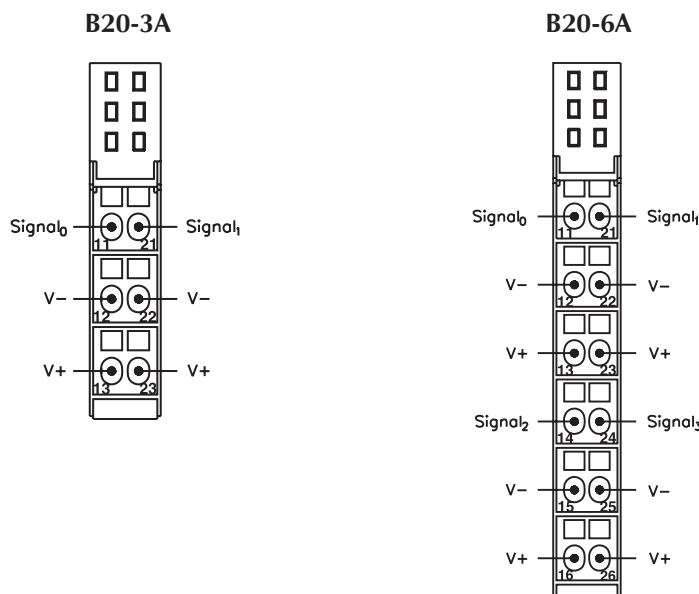


Inputs	Data
---------------	-------------

Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-2DI-24VDC-P with BL20-S3*-SBB**	2	B20-3A	PNP				1
BL20-2DI-24VDC-N with BL20-S3*-SBB**	2	B20-3A	NPN				1
BL20-4DI-24VDC-P with BL20-S6*-SBSBB**	4	B20-6A	PNP				2
BL20-4DI-24VDC-N with BL20-S6*-SBSBB**	4	B20-6A	NPN				2

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See page C58 - C61.

Input Connectors



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
	n-1	(Data from modules to the left)								
	n	Data from next discrete modules					I-1	I-0		
	n+1	(Data from modules to the right)								

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
	n-1	(Data from modules to the left)								
	n	Data from next discrete modules				I-3	I-2	I-1	I-0	
	n+1	(Data from modules to the right)								

Discrete Input Economy Module

- Modular I/O
- Fieldbus Independent Configuration
- IP 20 Protection
- Base and Electronics in One Part



BL20-E-8DI-24VDC-P
BL20-E-16DI-24VDC-P



Electrical

- Operating Current: <math>< 30\text{ mA}</math> from V_{MB}
<math>< 2\text{ mA}</math> from V_{IO}

Power Distribution

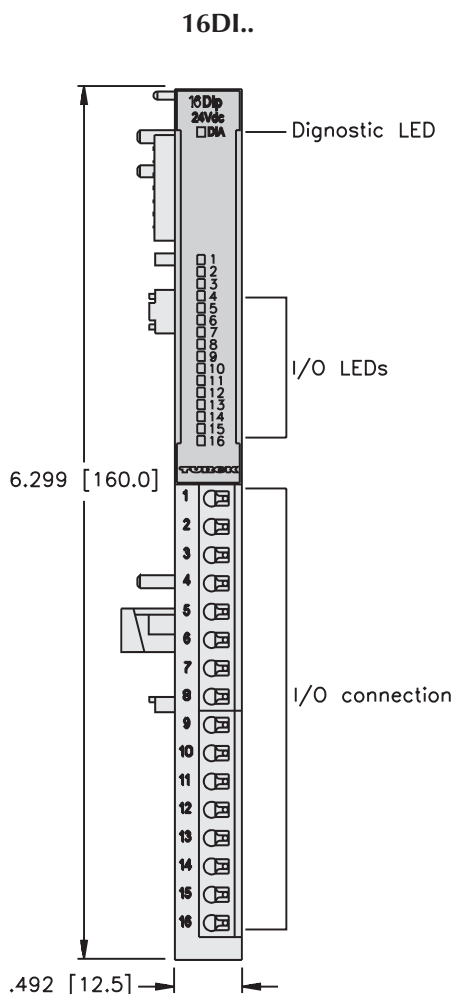
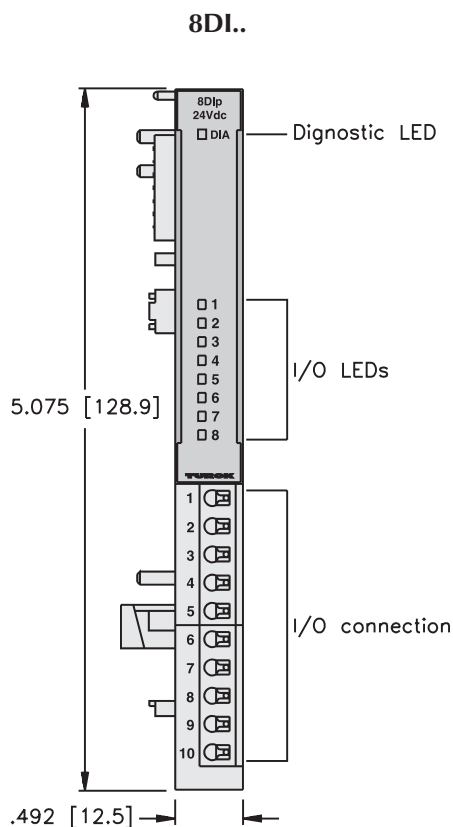
- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



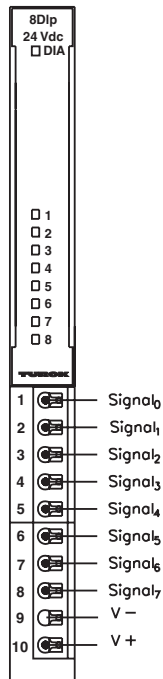
Inputs	Data
---------------	-------------

Part Number	Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-E-8DI-24VDC-P	8	B20-E1	PNP				1
BL20-E-16DI-24VDC-P	16	B20-E2	PNP				2

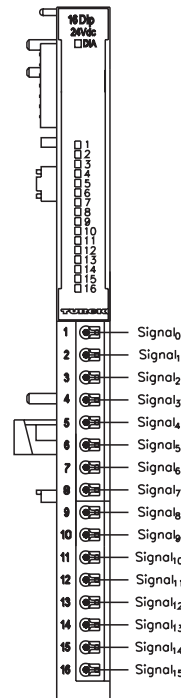
Note: This module can only be used with other tension clamp modules.

Input Connectors

B20-E1



B20-E2



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
	n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
n+1	(Data from modules to the right)								

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
	n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
n+1	I-8	I-9	I-10	I-11	I-12	I-13	I-14	I-15	
n+2	(Data from right)								

NAMUR Input Module

- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- NAMUR Inputs



BL20-4DI-NAMUR



Electrical

- Operating Current: <math>< 40 \text{ mA}</math> from V_{MB}
<math>< 30 \text{ mA}</math> from V_{IO}

Power Distribution

- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

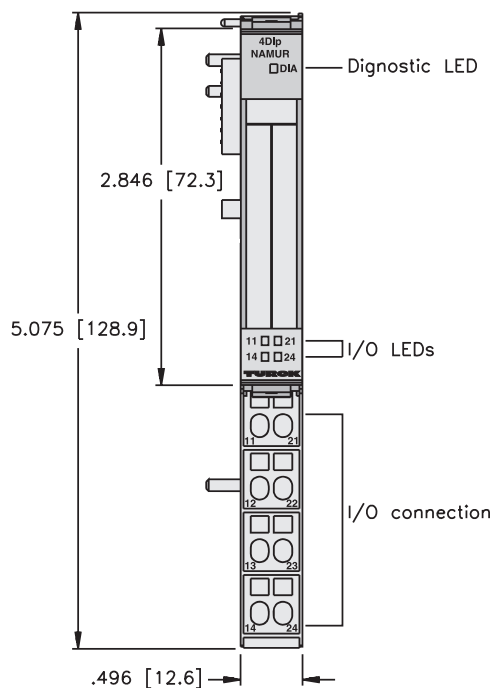
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



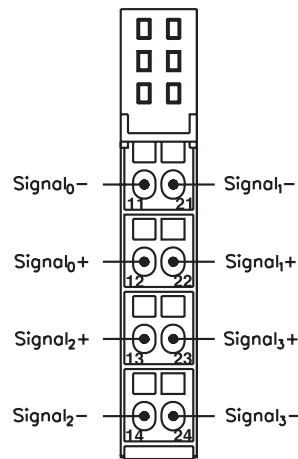
Inputs						Data	
Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-4DI-NAMUR with BL20-S4*-SBBS**	4	B20-4C	NAMUR		X		1

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See page C58 - C61.

BL20

Input Connectors

B20-4C



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
	n	S-3	S-2	S-1	S-0	I-3	I-2	I-1	I-0
	n+1	(Data from modules to the right)							

Note: S = status bit

Discrete DC Output
Modules

- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles



- BL20-2DO-24VDC-2A-P
- BL20-2DO-24VDC-0.5A-N
- BL20-2DO-24VDC-0.5A-P
- BL20-4DO-24VDC-0.5A-P



Electrical

- Operating Current: <math>< 33 \text{ mA}</math> from V_{MB}
<math>< 25 \text{ mA}</math> from V_{IO} (...-0.5A...)
<math>< 50 \text{ mA}</math> from V_{IO} (...-2A...)
- Output Current: see table on facing page (from V_{IO})

Power Distribution

- Outputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

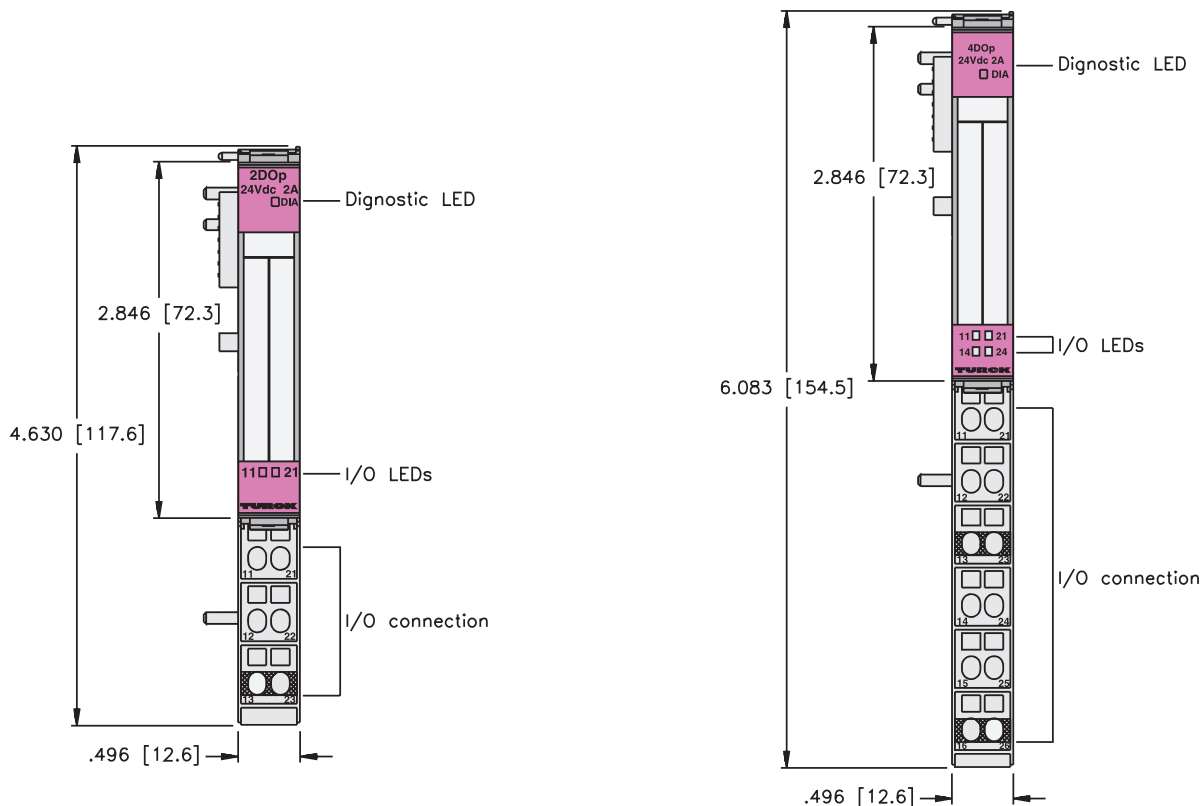
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



Outputs	Data
----------------	-------------

Part Number	Input Count	Pinout	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-2DO-24VDC-0.5A-P with BL20-S3*-SBC**	4	B20-3B	0.5 A			1
BL20-2DO-24VDC-0.5A-N with BL20-S3*-SBC**	4	B20-3B	0.5 A			1
BL20-2DO-24VDC-2A-P with BL20-S3*-SBC**	4	B20-3B	2 A			1
BL20-4DO-24VDC-0.5A-P with BL20-S6*-SBCSBC**	4	B20-6B	0.5 A			2

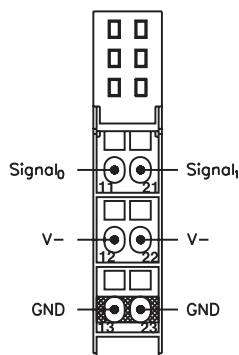
* T = Tension clamp

S = Screw clamp

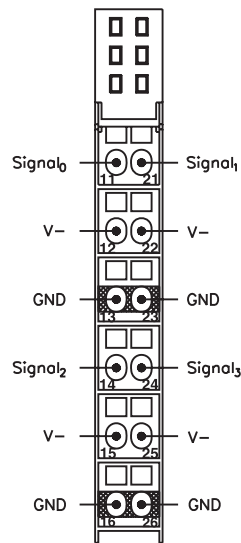
** Base modules sold separately. See page C58 - C61.

Output Connectors

B20-3B



B20-6B



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Out	n-1	(Data for modules to the left)						
n		Data for next discrete modules						0-1	0-0
n+1		(Data for modules to the right)							

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Out	n-1	(Data for modules to the left)						
n		Data for next discrete modules				0-3	0-2	0-1	0-0
n+1		(Data for modules to the right)							

Discrete Output Economy Module

- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Base and Electronics in One Part



BL20-E-8DO-24VDC-0.5A-P
BL20-E-16DO-24VDC-0.5A-P



Electrical

- Operating Current: <math>< 30 \text{ mA}</math> from V_{MB}
<math>< 10 \text{ mA}</math> from V_{IO}
- Output Current: <math>< 0.5 \text{ A}</math> per output (from V_{IO})

Power Distribution

- Outputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

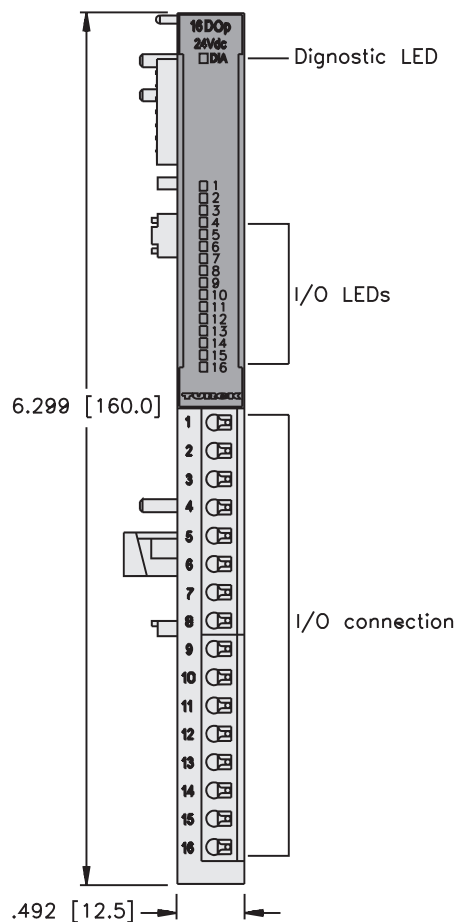
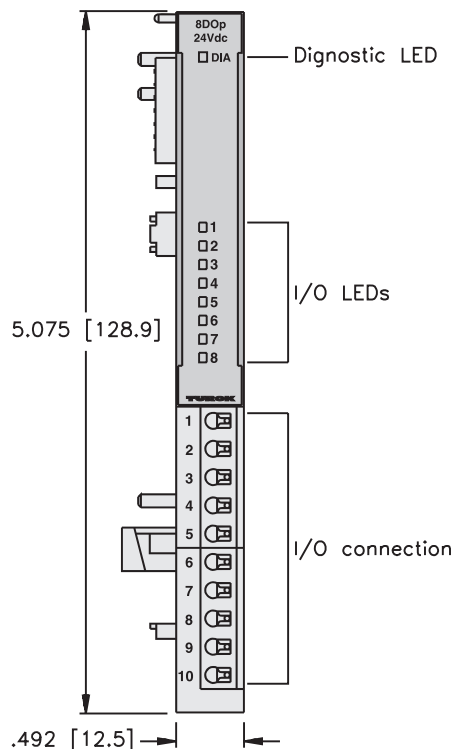
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

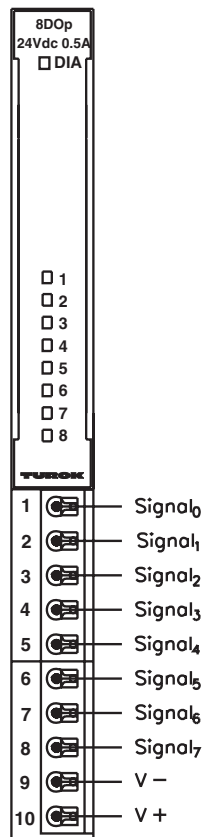
- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



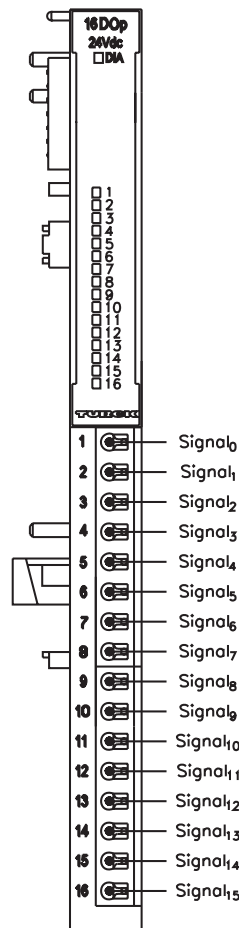
Part Number	Outputs					Data
	Input Count	Pinout	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-E-8DO-24VDC-0.5A-P	8	BO-E1	0.5 A	X		1
BL20-E-16DO-24VDC-0.5A-P	16	BO-E2	0.5 A	X		2

Output Connectors

BO-E1



BO-E2



I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
n-1	(Data for modules to the left)								
n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0	
n+1	(Data for modules to the right)								

I/O Data Map 2

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
n-1	(Data for modules to the left)								
n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0	
n+1	0-8	0-9	0-10	0-11	0-12	0-13	0-14	0-15	
n+2	(Data from right)								

Discrete relay Output Modules



BL20-2DO-R-CO
BL20-2DO-R-NO
BL20-2DO-R-NC



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Relay Outputs

Electrical

- Operating Current: <math>< 28 \text{ mA}</math> from V_{MB}
<math>< 20 \text{ mA}</math> from V_{IO}

Power Distribution

- Outputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

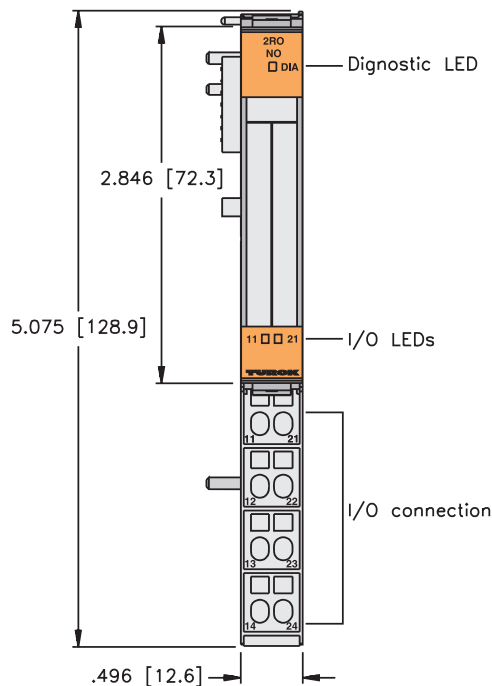
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



Outputs	Data
----------------	-------------

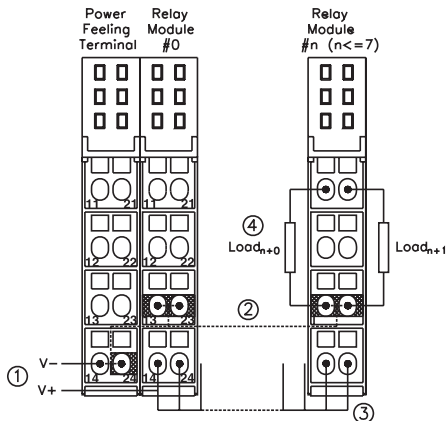
Part Number	Count	Pinout	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-2D0-R-N0 with BL20-S4*-SBCS**	2	B20-4A	2 A			1
BL20-2D0-R-NC with BL20-S4*-SBCS**	2	B20-4A	2 A			1
BL20-2D0-R-C0 with BL20-S4*-SBBS**	2	B20-4B	2 A			1

BL20

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

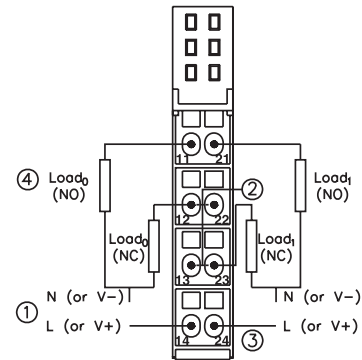
Output Connectors

B20-4A



- ① Power is supplied by the user.
 - ② V- terminal points connected internally via "C-Rail"
 - ③ V+ terminal points connected externally by user (jumper part number XN-QV/*, ** indicates number of slices to connect, up to 8)
 - ④ Relay₀ contact is between terminals 14/11
Relay₁ contact is between terminals 24/21
- *NOTE: C-Rail scheme may only be used with 24 VDC relays. Not rated for AC use.

B20-4B



- ① Power is supplied externally by the user.
- ② Terminal points 12/22 connected internally. Points 13/23 connected internally.
- ③ Terminal points 14/24 may be connected externally by user (jumper part number XN-QV/1).
- ④ Relay₀ (NO) contact is between terminals 14/11, (NC) contact between 24/21.
Relay₁ (NO) contact is between terminals 24/21, (NC) between 24/23.

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	n-1	(Data for modules to the left)							
	n	Data for next discrete modules						0-1	0-0
	n+1	(Data for modules to the right)							

Discrete AC Input Module

- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- AC Inputs



BL20-2DI-120/230VAC-P



Electrical

- Operating Current: <math>< 28 \text{ mA}</math> (from V_{MB})
<math>< 20 \text{ mA}</math> (from V_{IO})

Power Distribution

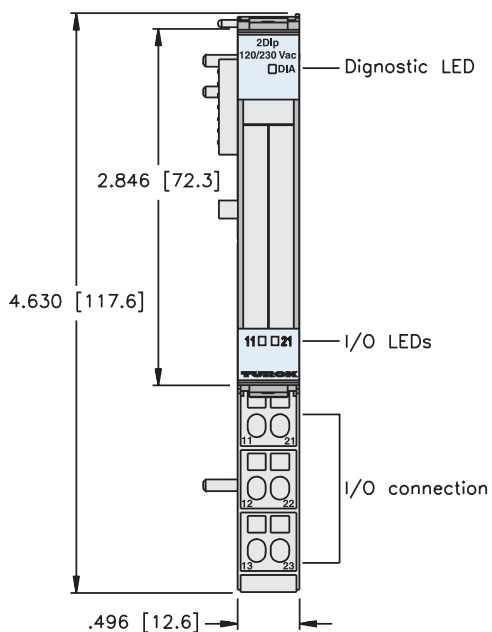
- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

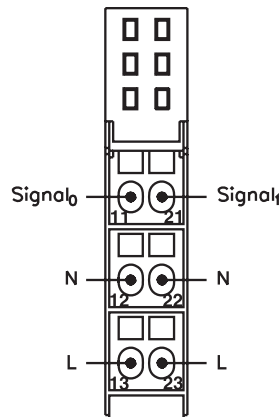


Inputs							Data
Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-2DI-120/230VAC-P with BL20-S3*-SBB**	2	B20-3C	AC				1

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

Input Connectors

B20-3C



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
In	n-1	(Data from modules to the left)								
	n	Data from next discrete modules						I-1	I-0	
	n+1	(Data from modules to the right)								

BL20

Discrete AC Output Module

- Modular I/O
- Fieldbus Independent Configuration
- IP 20 Protection
- AC Outputs



BL20-2DO-120/230VAC-0.5A



Electrical

- Operating Current: <math>< 35 \text{ mA}</math> from V_{MB}
<math>< 20 \text{ mA}</math> from V_{IO}
- Output Current: <math>< 0.5 \text{ A}</math> per output (from V_{IO})

Power Distribution

- Outputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

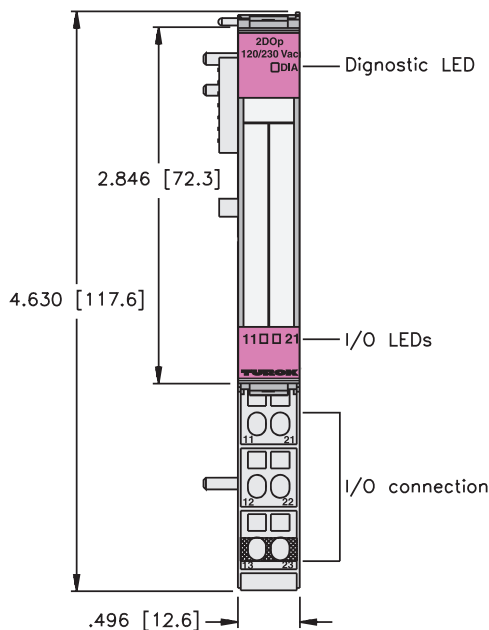
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



Outputs						Data
Part Number	Output Count	Pinout	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-2D0-120/230VAC-0.5A-P with BL20-S3*-SBC**	2	B20-3B	0.5 A			1

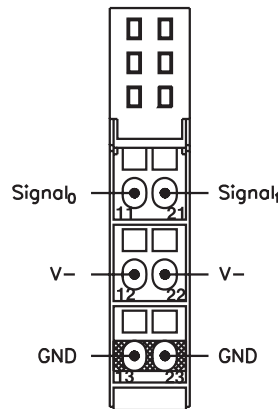
* T = Tension clamp

S = Screw clamp

** Base modules sold separately. See pages C58 - C61.

Output Connectors

B20-3B



I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data for modules to the left)							
	n	Data for next discrete modules						0-1	0-0
	n+1	(Data for modules to the right)							

Discrete Input Blocks

- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles



BL20-32DI-24VDC-P
BL20-16DI-24VDC-P



Electrical

- Operating Current: <math><45\text{ mA}</math> from V_{MB}
<math><40\text{ mA}</math> from V_{IO} (...-16DI...)
<math><30\text{ mA}</math> from V_{IO} (...-32DI...)

Power Distribution

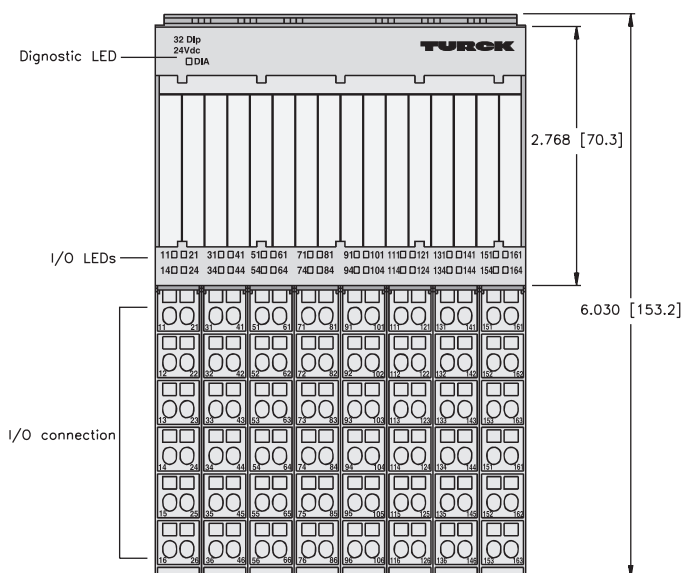
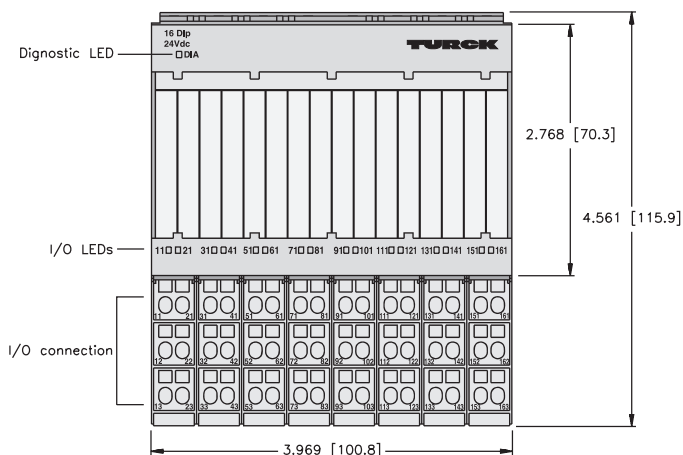
- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



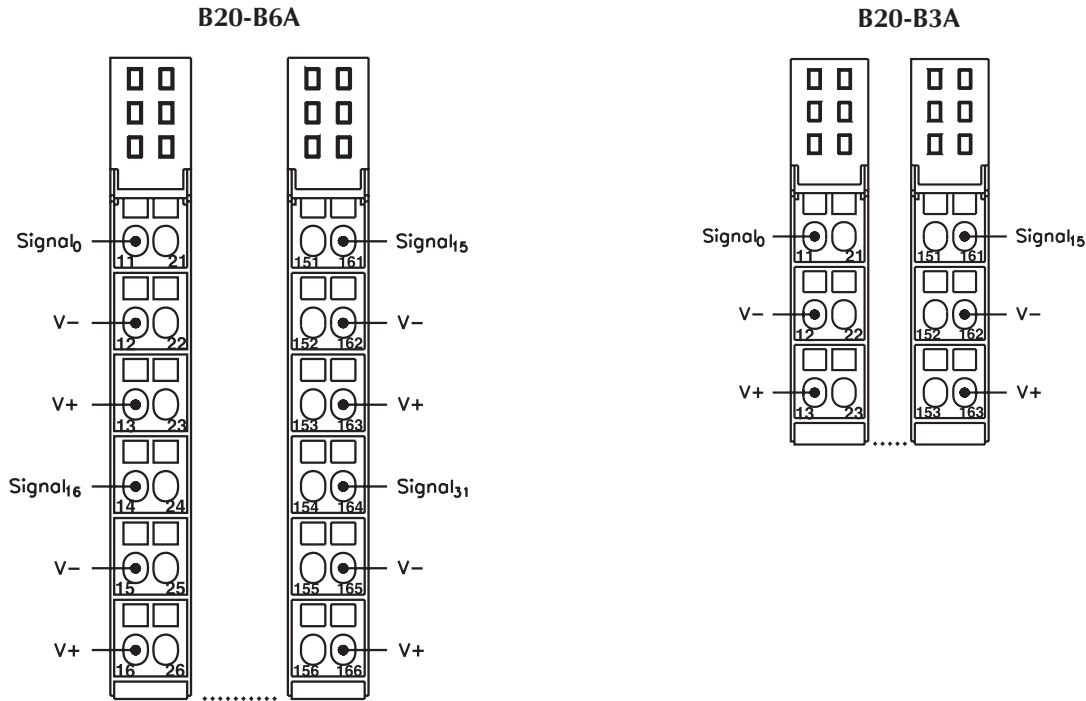
Inputs	Data
--------	------

Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-16DI-24VDC-P with BL20-B3*-SBB**	16	B20-B3A	PNP				1
BL20-32DI-24VDC-P with BL20-B6*-SBSBB**	32	B20-B6A	PNP				2

BL20

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

Input Connectors



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
n+1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
n+2	(Data from modules to the right)								

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
n+1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
n+2	I-23	I-22	I-21	I-20	I-19	I-18	I-17	I-16	
n+3	I-31	I-30	I-29	I-28	I-27	I-26	I-25	I-24	
n+4	(Data from modules to the right)								

Discrete Output Blocks



BL20-32DO-24VDC-0.5A-P
BL20-16DO-24VDC-0.5A-P



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 120 \text{ mA}</math> from V_{MB}
<math>< 50 \text{ mA}</math> from V_{IO}
- Output Current: <math>< 0.5 \text{ A}</math> per output (from V_{IO})

Power Distribution

- Outputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

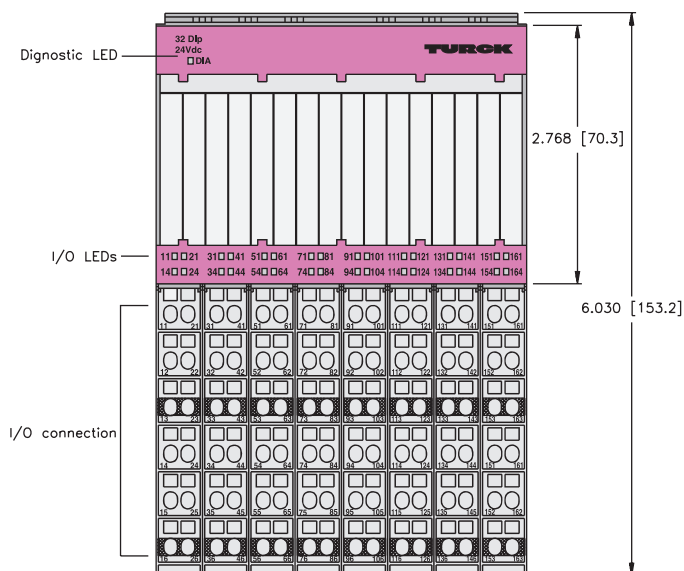
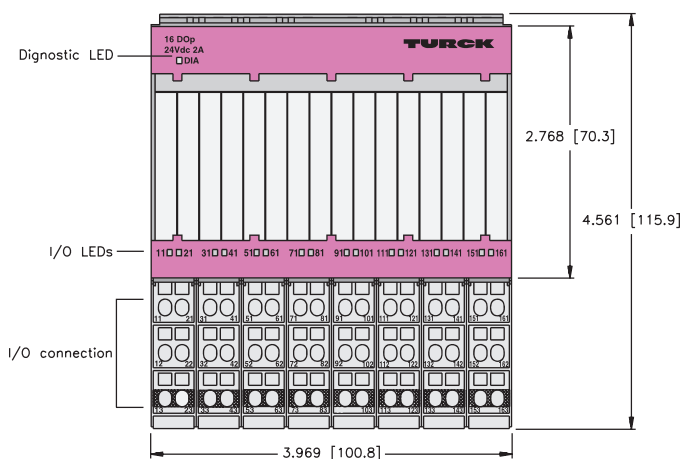
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

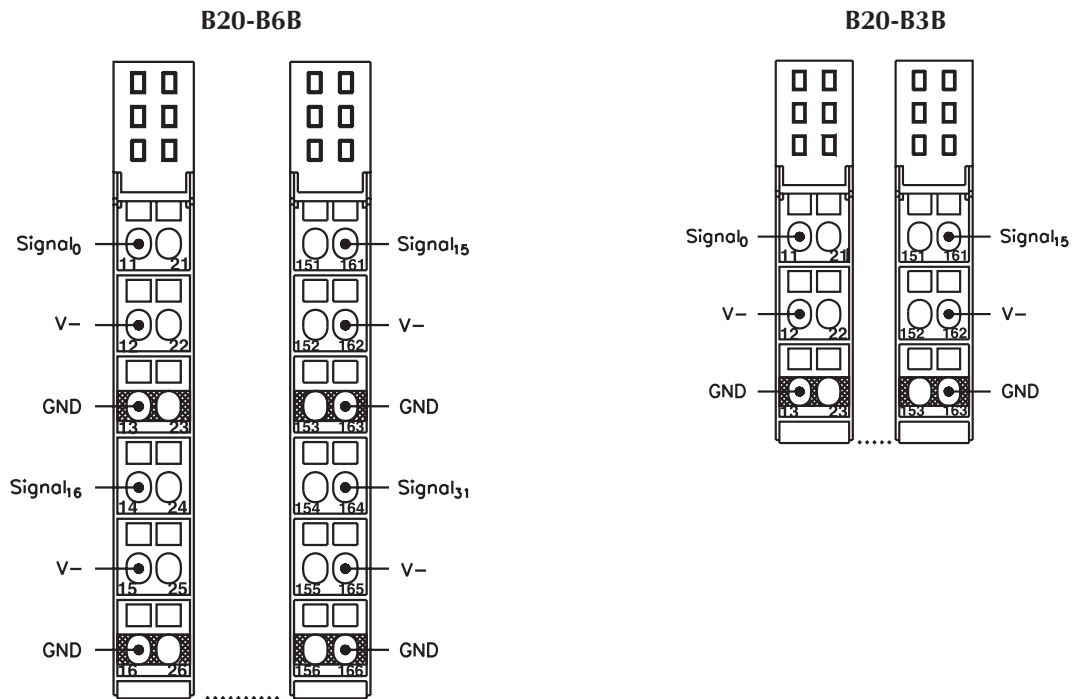


Part Number	Outputs					Data
	Output Count	Pinout	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-16D0-24VDC-0.5A-P with BL20-B3*-SBC**	16	B20-B3B	0.5 A			1
BL20-32D0-24VDC-0.5A-P with BL20-B6*-SBCSBC**	32	B20-B6B	0.5 A			2

BL20

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

Output Connectors



I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data for modules to the left)							
n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0	
n+1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	
n+2	(Data for modules to the right)								

I/O Data Map 2

out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data for modules to the left)							
n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0	
n+1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	
n+2	0-23	0-22	0-21	0-20	0-19	0-18	0-17	0-16	
n+3	0-31	0-30	0-29	0-28	0-27	0-26	0-25	0-24	
n+4	(Data for modules to the right)								

Analog Input Modules



- BL20-2AI-U(-10/0 to +10VDC)
- BL20-2AI-I(0/4 to 20MA)
- BL20-1AI-U(-10/0 to +10VDC)
- BL20-1AI-I(0/4 to 20MA)



- Modular I/O
- Fieldbus Independent Configuration
- IP 20 Protection
- Various I/O Styles

Electrical

- Operating Current: <41 mA from V_{MB} (...-1AI...)
- <35 mA from V_{MB} (...-2AI...)
- <50 mA from V_{IO} (...-1AI...)
- <12 mA from V_{IO} (...-2AI...)

Power Distribution

- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

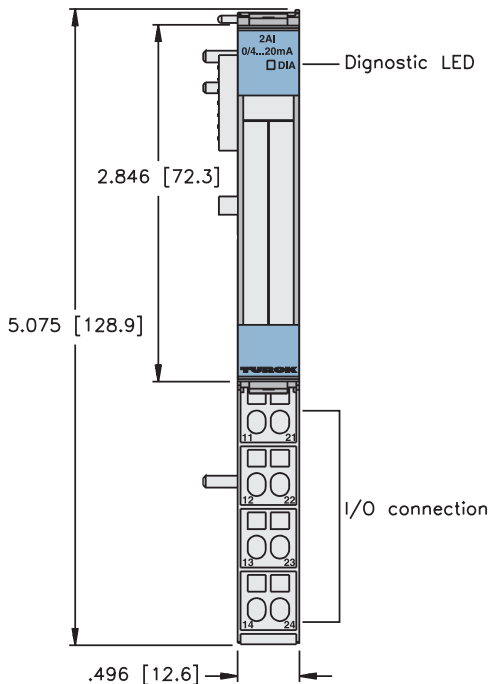
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics



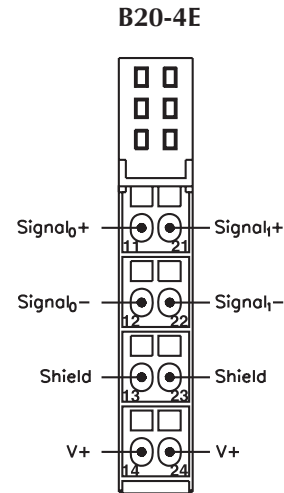
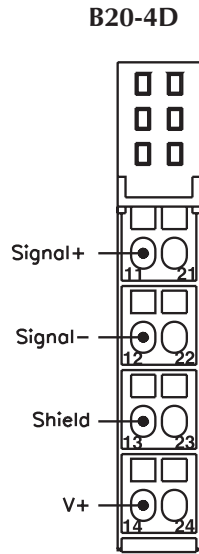
Inputs	Data
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Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-1AI-U(-10/0 to +10VDC) with BL20-S4*-SBBS**	1	B20-4D	-10/0 to 10 V				1
BL20-1AI-I(0/4 to 20mA) with BL20-S4*-SBBS**	1	B20-4D	0/4 to 20 mA				1
BL20-2AI-U(-10/0 to +10VDC) with BL20-S4*-SBBS**	2	B20-4E	-10/0 to 10 V				2
BL20-2AI-I(0/4 to 20mA) with BL20-S4*-SBBS**	2	B20-4E	0/4 to 20 mA				2

BL20

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

Input Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Channel 0, LSB							
	n+1	Channel 0, MSB							
	n+2	(Data from modules to the right)							

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Channel 0, LSB							
	n+1	Channel 0, MSB							
	n+2	Channel 1, LSB							
	n+3	Channel 1, MSB							
n+4	(Data from modules to the right)								

Analog Input Module



BL20-4AI-U/I



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Voltage and Current Inputs

Electrical

- Operating Current: <math>< 50 \text{ mA}</math> from V_{MB}
<math>< 20 \text{ mA}</math> from V_{IO} (...-2AI...)

Power Distribution

- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

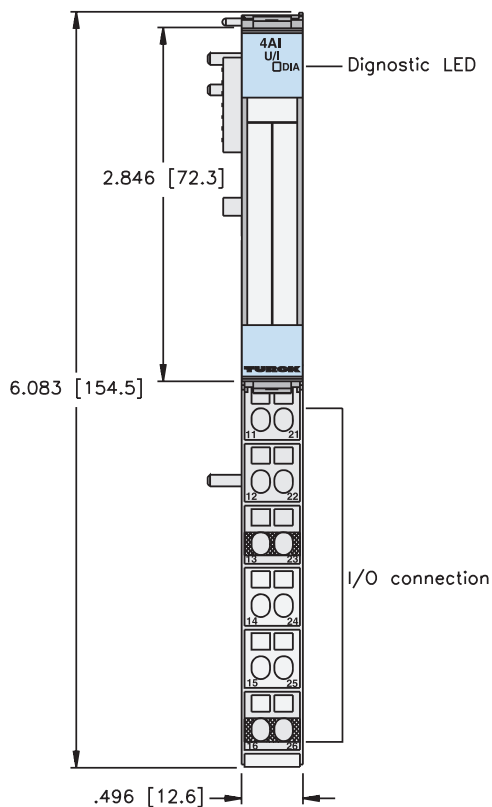
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics



Inputs							Data
Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-4AI-U/I with BL20-S6*-SBCSBC**	4	B20-6C	0/4 to 20 mA or -10/0 to 10V				1

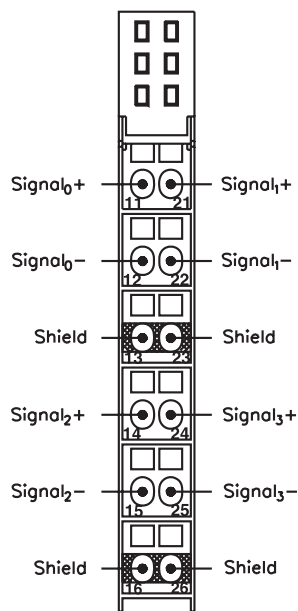
* T = Tension clamp

S = Screw clamp

** Base modules sold separately. See pages C58 - C61.

Input Connectors

B20-6C



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Channel 0, LSB							
	n+1	Channel 0, MSB							
	n+2	Channel 1, LSB							
	n+3	Channel 1, MSB							
	n+4	Channel 2, LSB							
	n+5	Channel 2, MSB							
	n+6	Channel 3, LSB							
	n+7	Channel 3, MSB							
	n+8	(Data from modules to the right)							

BL20

Temperature Input Modules

- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Thermocouple or RTD Inputs



BL20-2AI-THERMO-PI
BL20-2AI-PT/Ni-2/3



Electrical

- Operating Current: <math>< 45 \text{ mA}</math> from V_{MB}
<math>< 30 \text{ mA}</math> from V_{IO}
- Thermocouple Types: B, E, J, K, N, R, S, T (... THERMO-PI)
- RTD Types: PT100, PT500, PT1000, Ni100, Ni1000 (...PT/Ni-2/3)

Power Distribution

- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

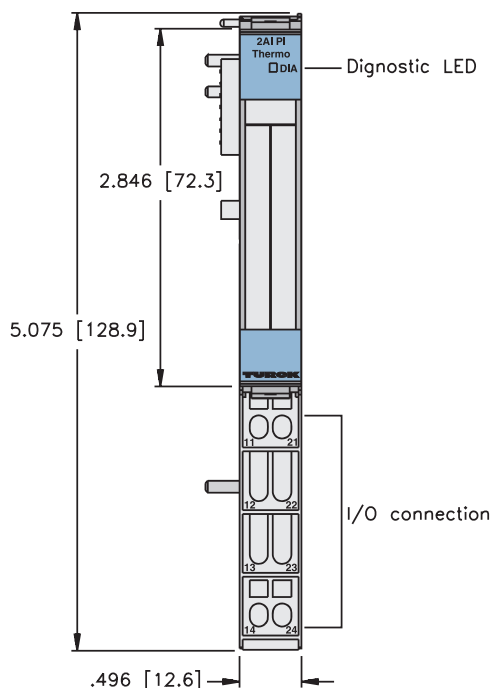
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics



Part Number	Inputs						Data
	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-2AI-PT/NI-2/3 with BL20-S4*-SBBS**	2	B20-4F	RTD				1
BL20-2AI-THERMO-PI with BL20-S4*-SBBS-CJ**	2	B20-4G	TC				1

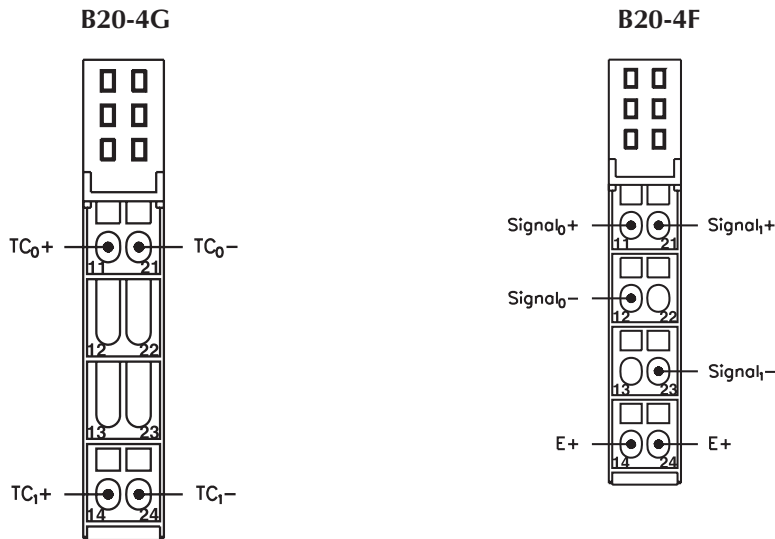
BL20

* T = Tension clamp
S = Screw clamp

** Base modules sold separately. See pages C58 - C61.

Note: BL20-S4*-SBBS-CJ has integrated cold junction compensation fro thermocouples.

Input Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Channel 0, LSB							
	n+1	Channel 0, MSB							
	n+2	Channel 1, LSB							
	n+3	Channel 1, MSB							
	n+4	(Data from modules to the right)							

Analog Output Modules



BL20-2AO-I(0/4 to 20MA)

BL20-2AO-U(-10/0 to +10VDC)

BL20-1AO-I(0/4 to 20MA)



- Modular I/O
- Fieldbus Independent Configuration
- IP 20 Protection
- Various I/O Styles

Electrical

- Operating Current: <math>< 43 \text{ mA}</math> (from V_{MB})
- Sensor Current: <math>< 50 \text{ mA}</math> (from V_{IO})

Power Distribution

- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

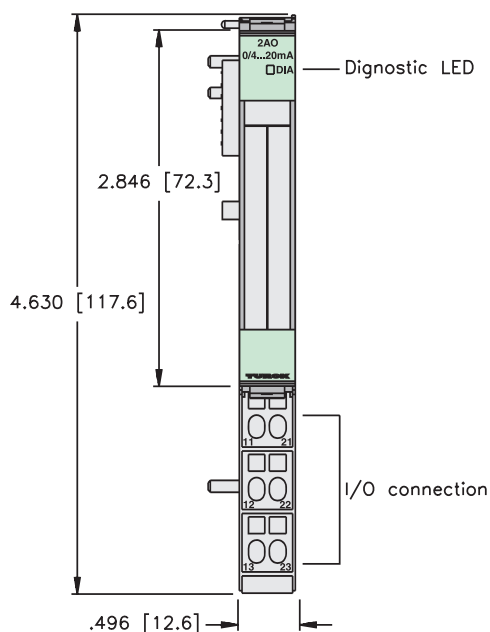
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics



Outputs	Data
----------------	-------------

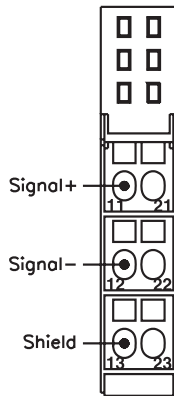
Part Number	Output Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-1A0-I(0/4 to 20mA) with BL20-S3*-SBB**	1	B20-3D	0/4 to 20 mA				1
BL20-2A0-I(0/4 to 20mA) with BL20-S3*-SBB**	1	B20-3E	0/4 to 20 mA				2
BL20-2AI-U(-10/0 to +10VDC) with BL20-S3*-SBB**	2	B20-3E	-10/0 to 10 V				2

BL20

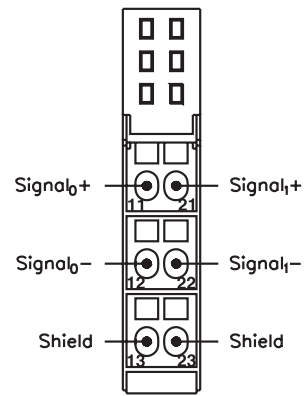
* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

Output Connectors

B20-3D



B20-3E



I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data for modules to the left)							
n	Channel 0, LSB								
n+1	Channel 0, MSB								
n+2	(Data for modules to the right)								

I/O Data Map 2

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data for modules to the left)							
n	Channel 0, LSB								
n+1	Channel 0, MSB								
n+2	Channel 1, LSB								
n+3	Channel 1, MSB								
n+4	(Data for modules to the right)								

Serial I/O Modules



BL20-1RS232
BL20-1SSI
BL20-1RS485/422



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <25 mA from V_{IO}
 <140 mA from V_{MB} (...1RS232)
 <50 mA from V_{MB} (...1SSI)
 <60 mA from V_{MB} (...1RS485/422)

Power Distribution

- I/O: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

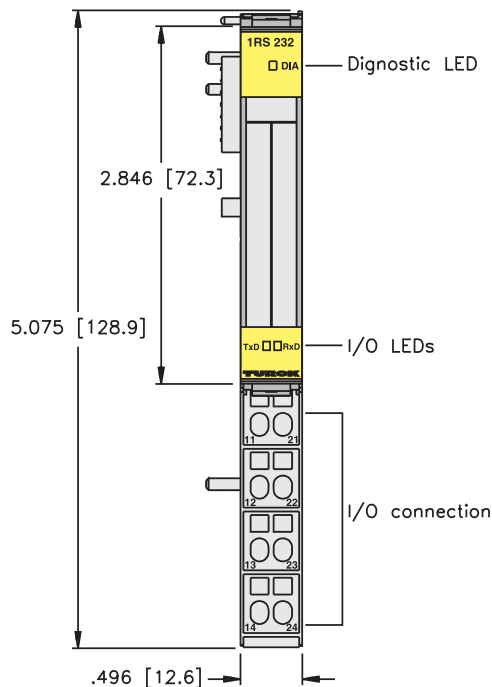
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



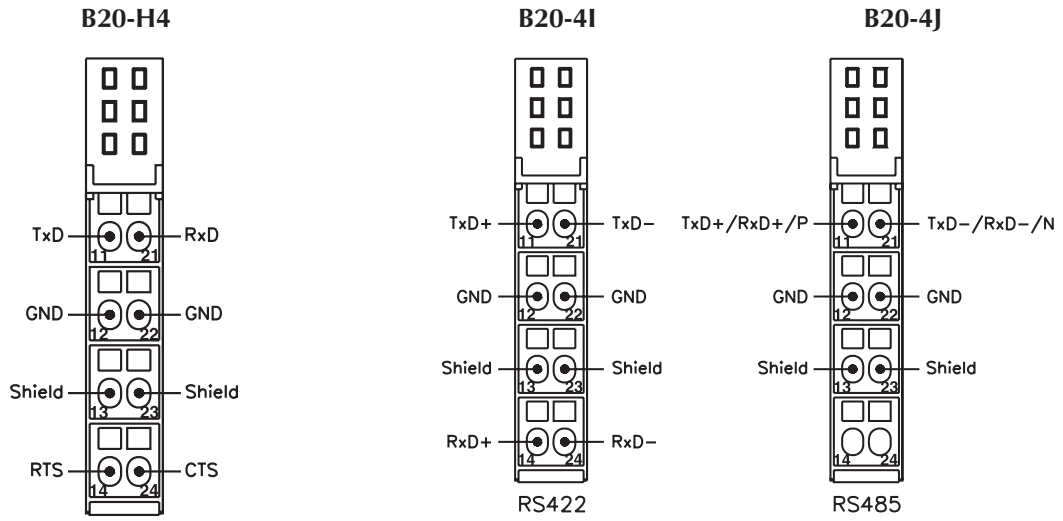
Inputs	Outputs	Data
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Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Pinout	Style	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-1RS232 with BL20-S4*-SBBS**	1	B20-4H	RS232				1	B20-4H	RS232			#
BL20-1RS485/422 with BL20-S4*-SBBS**	1	B20-4I	RS485/422				1	B20-4I	RS485/422			#
BL20-1SSI with BL20-S4*-SBBS**	1	B20-4J	SSI				1	B20-4J	SSI			#

BL20

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.
 # I/O data map is dependant on the fieldbus being used. Consult the user manual for details.

Input/Output Connectors



Counter Module



BL20-1CNT-24VDC



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Counter Input

Electrical

- Operating Current: <50 mA (from V_{IO})
<40 mA (from V_{MB})
- Count Range: 0...7FFFFFFF (positive)
80000000...FFFFFFFF (negative)

Power Distribution

- Inputs: V_{IO}
- Logic: V_{MB} and V_{IO}

Mechanical

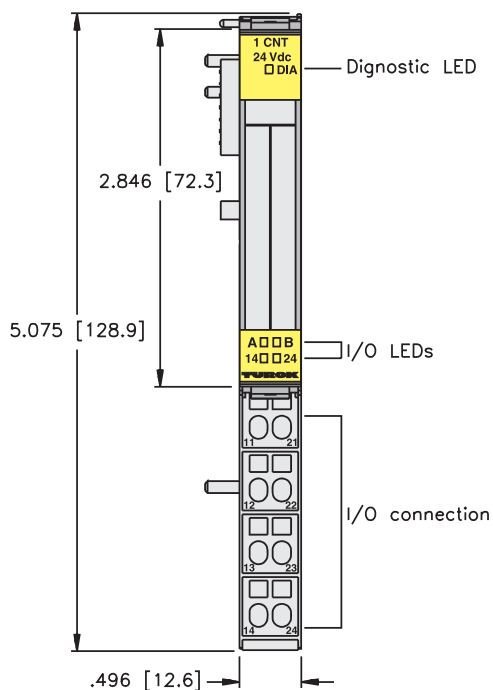
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status



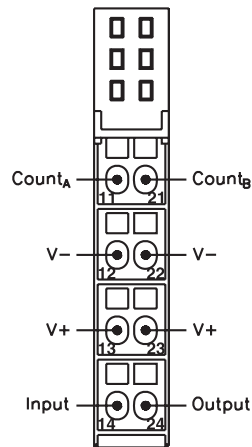
Inputs							Data
Part Number	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-1CNT-24VDC with BL20-S4*-SBBS**	1	B20-4K	Counter				See below

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

BL20

Input Connectors

B20-4K



NOTE: "Input" signal serves several uses (gate, sync, etc)

I/O data map is dependant on the fieldbus being used. Consult the user manual for details.

Power Feeding Modules



BL20-PF-120/230VAC-D
BL20-PF-24VDC-D



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Supply AC or DC I/O Power

Electrical

- Operating Current: <28 mA (from V_{MB})
- Output Current: <10 A for downstream I/O

Power Distribution

- Accepts AC (...120/230VAC...) or DC (...24VDC...) supply to provide V_{IO} for downstream modules

Mechanical

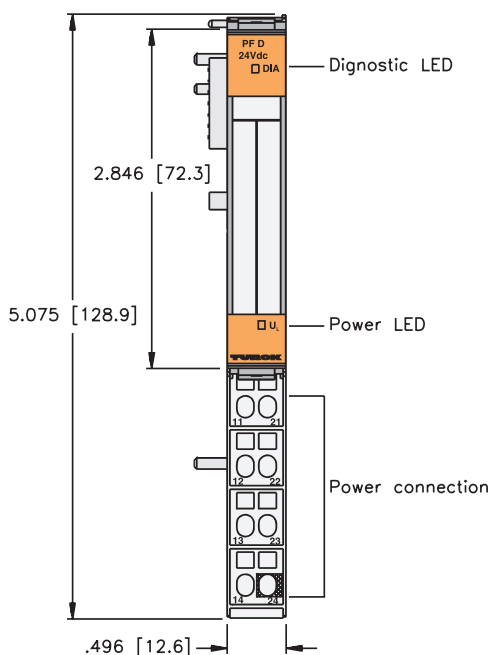
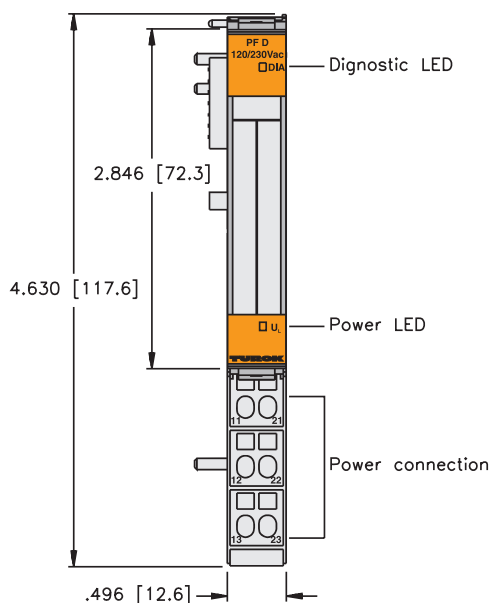
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication and power supply status.



Part Number	Pinout
BL20-PF-120/230VAC-D with BL20-P3*-SBB**	B20-P3
BL20-PF-120/230VAC-D with BL20-P4*-SBBC**	B20-P4
BL20-PF-24VDC-D with BL20-P3*-SBB**	B20-P3
BL20-PF-24VDC-D with BL20-P4*-SBBC**	B20-P4

BL20

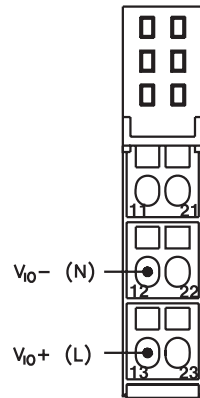
* T = Tension clamp

S = Screw clamp

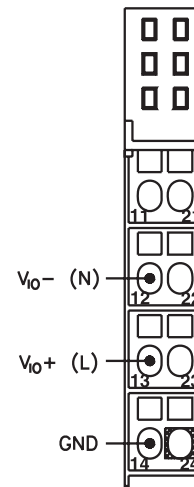
** Base modules sold separately. See pages C58 - C61.

Input Connectors

B20-P3



B20-P4



Bus Refreshing Module

- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration



BL20-BR-24VDC-D



Electrical

- Module Bus Supply: <1.5 A
- I/O Supply: <10 A (24 VDC only)

Power Distribution

- Refreshes backplane (V_{MB}) supply and provides new V_{IO} segment for downstream modules

Mechanical

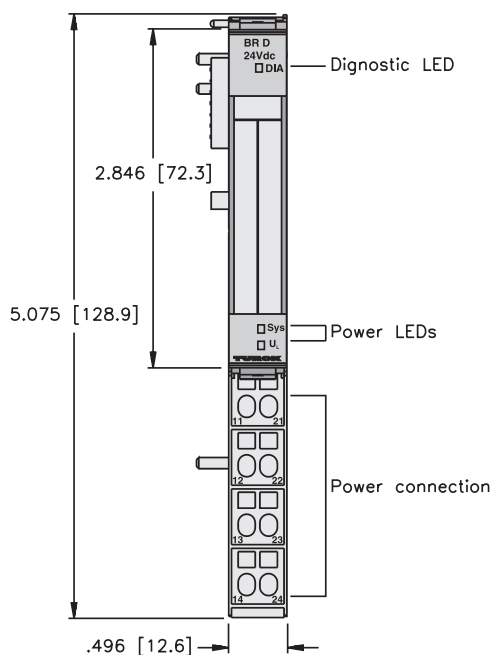
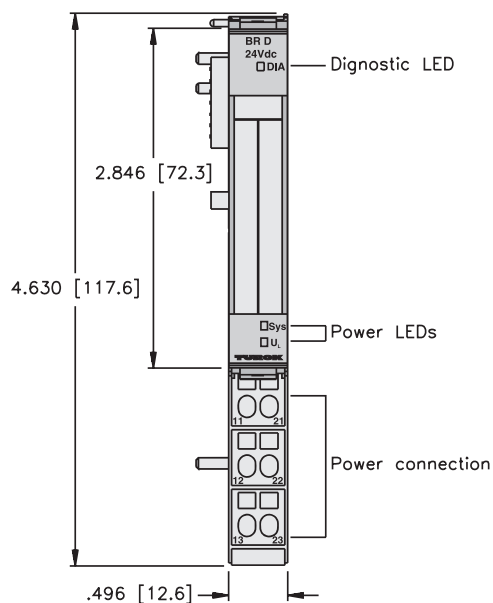
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical)

- LED to indicate module bus communication and power supply status.

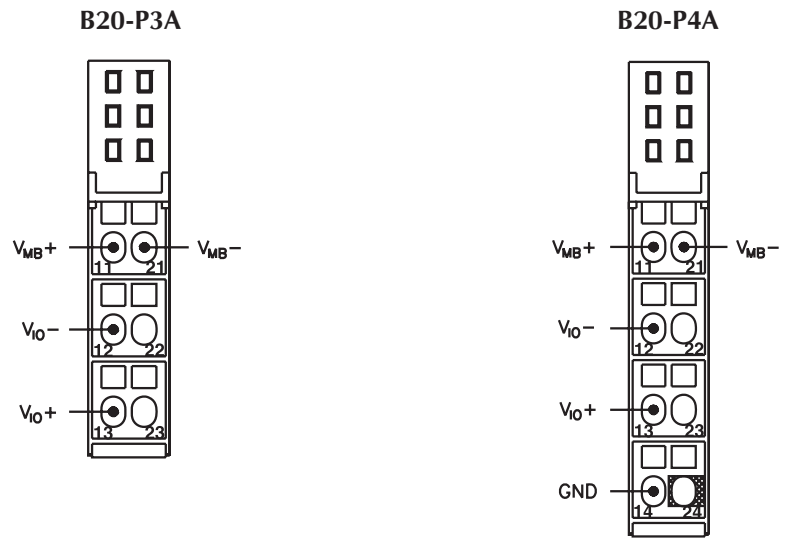


Part Number	Pinout
BL20-BR-24VDC-D with BL20-P3*-SBB-B**	B20-P3A
BL20-BR-24VDC-D with BL20-P4*-SBBC-B**	B20-P4A

* T = Tension clamp
 S = Screw clamp
 ** Base modules sold separately. See pages C58 - C61.

BL20

Input Connectors



BL20 Motor Starter Modules

BL20 motor starters allow 3-phase motor control to be connected to the same BL20 rack as the standard I/O. BL20 motor starters can be mounted on the same rail as the BL20 gateway, or they can be mounted on another rail to ease placement within panels. The motor starters will be controlled by the gateways via the chosen fieldbus (DeviceNet, PROFIBUS-DP, or CANopen).

How to order a motor starter



How to implement the motor starters



Each SWIRE slice can manage up to 16 non-reversing motor starters.

Each gateway can support up to 3 SWIRE modules for a total of 48 non-reversing motor starters on a single gateway. Any reversing motor starter is considered as 2 non-reversing. The motor starters are rated for .06kW to 15kW (0.08hp to 20hp).

By ordering parts of the motor starter separately will allow for fewer parts to be stored within your inventory and will cost less to repair if just one piece of the motor starter fails. Motor starters are hot-swappable as long as the SWIRE-DIL module stays connected to the SWIRE system.

Refer to the user manual for details on installing and configuring the BL20 motor starter system.

Available Motor Starter Sizes

BL20

Part Number	Motor Rating @ 480 VAC		Rated Operational Current @ 480 VAC	Rated Uninterrupted Current @ 480 VAC	Classification Type
	kW	hp			
PKZM0-0.25	0.06	0.08	0.21	0.25	2
PKZM0-0.4	0.09	0.12	0.31	0.4	2
PKZM0-0.63	0.18	0.24	0.6	0.63	2
PKZM0-1	0.25	0.33	0.8	1	2
PKZM0-1.6	0.55	0.74	1.5	1.6	2
PKZM0-2.5	0.75	1	1.9	2.5	1
PKZM0-4	1.5	2	3.6	4	1
PKZM0-6.3	2.2	2.95	5	6.3	1
PKZM0-10	3	4	6.6	10	1
PKZM0-10*	4	5.4	8.5	10	1
PKZM0-12	5.5	7.38	11.3	12	1
PKZM0-16	7.5	10	15.2	16	1
PKZM0-25	11	15	21.7	25	1
PKZM0-32	15	20	29.3	32	1

*Can be achieved by using DILM9-10(24VDC) instead of the DILM7-10(24VDC)

Non-Reversing Part Numbers



hp	Motor Contactor Part Number	Wiring Set Part Number	Relay Part Number	SWIRE Communication
0.08	PKZM0-0.25	PKZM0-XDM12	DILM7-10(24 VDC)	BL20-SWIRE-DIL
0.12	PKZM0-0.4			
0.24	PKZM0-0.63			
0.33	PKZM0-1			
0.74	PKZM0-1.6			
1	PKZM0-2.5			
2	PKZM0-4			
2.95	PKZM0-6.3			
4	PKZM0-10			
5.4	PKZM0-10*			
7.38	PKZM0-12			
10	PKZM0-16	PKZM0-XDM32	DILM15-10(24 VDC)	
15	PKZM0-25		DILM25-10(24 VDC)	
20	PKZM0-32		DILM32-10(24 VDC)	

* To order a motor starter with the rated hp, order one of each part number that appears to the right.

Reversing Part Numbers

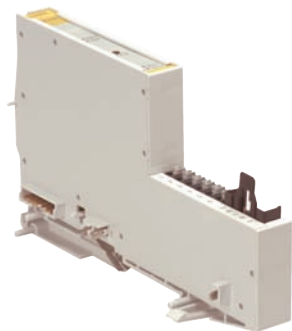


BL20

hp	Part Number	Wiring Set Number	Relay Part Number	Relay Part Number	SWIRE Communication	SWIRE Communication	Mechanical Interlock
0.08	PKZM0-0.25	PKZM0-XRM12	DILM7-10(24 VDC)	DILM7-10(24 VDC)	BL20-SWIRE-DIL	BL20-SWIRE-DIL	DILM12-XMV
0.12	PKZM0-0.4						
0.24	PKZM0-0.63						
0.33	PKZM0-1						
0.74	PKZM0-1.6						
1	PKZM0-2.5						
2	PKZM0-4						
2.95	PKZM0-6.3						
4	PKZM0-10						
5.4	PKZM0-10*						
7.38	PKZM0-12	DILM12-10(24 VDC)	DILM12-10(24 VDC)				
10	PKZM0-16	DILM15-10(24 VDC)	DILM15-10(24 VDC)				
15	PKZM0-25	DILM25-10(24 VDC)	DILM25-10(24 VDC)				
20	PKZM0-32	DILM32-10(24 VDC)	DILM32-10(24 VDC)				

* To order a motor starter with the rated hp, order one of each part number that appears to the right.

**SWIRE Economy
Communication Module**



- Modular Motor Starter Control
- IP 20 Protection
- Fieldbus Independent Configuration
- Base and Electronics in One Part

Electrical

- Operating Current: ≤ 60 mA from V_{MB}
 < 3 A from V_{IO}

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- Diagnostic information available through the fieldbus gateway

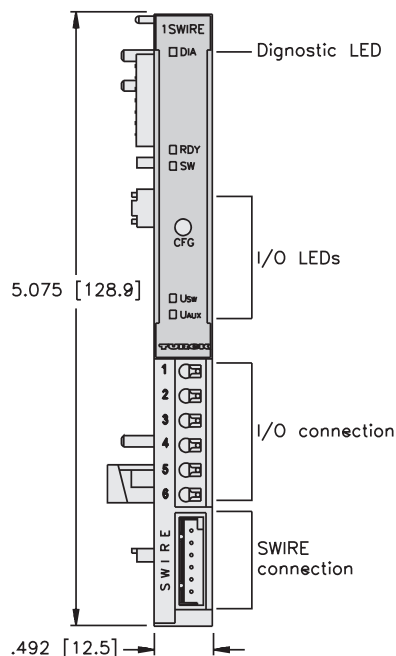
Diagnostics (Physical)

- LEDs for status and I/O diagnostics

Supported Gateways

- BL20-GW-DPV1
- BL20-GWBR-CANopen
- BL20-GWBR-DNET

BL20-E-1SWIRE

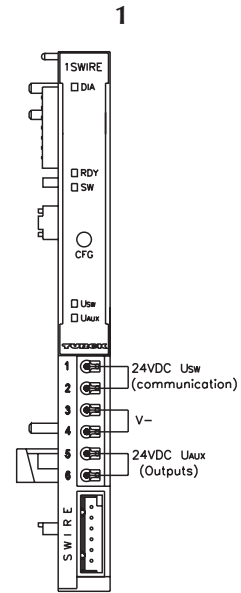


Part Number	Input Count	Pinout	Current	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
BL20-E-1SWIRE		1	3 A	X	X		1

Note: This module can only be used with other tension clamp modules unless it is separated using a BL20-PF-24VDC-D and BL20-P4T-SBBC base.

Mating Cordsets:

- From SWIRE slice to first motor starter: BL20-SWIRE-CAB-XXX.
- End cap for last motor starter; BL20-SWIRE-CAB-000
- From one motor starter to an adjacent motor starter: BL20-SWIRE-CAB-008
- XXX = Cable length in cm, cable lengths available in 25, 50, 100 and 200 cm.



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
n	SWIRE Slave 2				SWIRE Slave 1				
	SD2		PKZ-ST2	SI2	SD1		PKZ-ST1	SI1	
n+1	SWIRE Slave 4				SWIRE Slave 3				
	SD4		PKZ-ST2	SI2	SD3		PKZ-ST3	SI3	
n+2	SWIRE Slave 6				SWIRE Slave 5				
	SD6		PKZ-ST2	SI2	SD5		PKZ-ST5	SI5	
n+3	SWIRE Slave 8				SWIRE Slave 7				
	SD8		PKZ-ST2	SI2	SD7		PKZ-ST7	SI7	
n+4	SWIRE Slave 10				SWIRE Slave 9				
	SD10		PKZ-ST2	SI2	SD9		PKZ-ST9	SI9	
n+5	SWIRE Slave 12				SWIRE Slave 11				
	SD12		PKZ-ST2	SI2	SD11		PKZ-ST11	SI11	
n+6	SWIRE Slave 14				SWIRE Slave 13				
	SD14		PKZ-ST2	SI2	SD13		PKZ-ST13	SI13	
n+7	SWIRE Slave 16				SWIRE Slave 15				
	SD16		PKZ-ST2	SI2	SD15		PKZ-ST15	SI15	
n+8	(Data from modules to the right)								


OUT	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
n	SWIRE Slave 2				SWIRE Slave 1				
				S02				S01	
n+1	SWIRE Slave 4				SWIRE Slave 3				
				S04				S03	
n+2	SWIRE Slave 6				SWIRE Slave 5				
				S06				S05	
n+3	SWIRE Slave 8				SWIRE Slave 7				
				S08				S07	
n+4	SWIRE Slave 10				SWIRE Slave 9				
				S010				S09	
n+5	SWIRE Slave 12				SWIRE Slave 11				
				S012				S011	
n+6	SWIRE Slave 14				SWIRE Slave 13				
				S014				S013	
n+7	SWIRE Slave 16				SWIRE Slave 15				
				S016				S015	
n+8	(Data from modules to the right)								

Slx: Motor Starter is On
 PKZ-STx: Motor Starter is OK
 SDx: Slave Diagnostics Available

SOx: Turn on Motor Starter


Motor Overload Contactor

- Protects Motor from Current Overload

Housing	Part Number	Application
	PKZM0-*	<ul style="list-style-type: none"> • Available in multiple amperages • See table on page C50 for Specs.


Motor Starter Wiring Set

- Wires Motor Overload Contactor to Relay Module

Housing	Part Number	Application
	PKZM0-X*M*2	<ul style="list-style-type: none"> • Different styles for different amperages • See tables on C51 & C52 for correct part numbers

Relay Module


- Controls whether or not Power is Supplied to Connected Motor

Housing	Part Number	Application
	DILM*	<ul style="list-style-type: none"> • Available in different styles for different amperages • See pages C51 & C52 for correct part numbers • "10" in part number refers to normally open contact • "01" in part number refers to normally closed contact

BL20

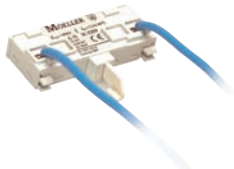
SWIRE Communication

- Controls SWIRE Communication and Activates the Motor Starter

Housing	Part Number	Application
	BL20-SWIRE-DIL	<ul style="list-style-type: none"> • Use with all DILM* modules • Control motor starter through SWIRE network

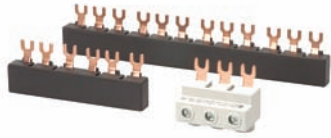
Trip Indication

- Provide Feedback Status of Motor Starter because of Overcurrent or Short Circuit

Housing	Part Number	Application
	NHI-E-10L-PL20	<ul style="list-style-type: none"> • Monitor motor starter status

Bus Commoning Bars


- Easily Connect Multiple Motor Starters without the need for Separate Wiring

Housing	Part Number	Application
	<p>BK25/3-PKZ0 B3.0/2-PKZ0* B3.0/4-PKZ0* B3.0/5-PKZ0*</p>	<ul style="list-style-type: none"> • BK25 is used to land 3 phase wires to beginning of the bus • B3.0/x; x refers to the number of motor starters can be connected to the bar • Max 63A can be carried through a bus bar

* If bussing a reverse motor starter, a cover may be necessary for finger safe needs. Order a cap with p/n H-B3-PKZ0.

Power Feed Module





- Safety Zone Separation

Housing	Part Number	Application
	<p>BL20-SWIRE-PF</p>	<ul style="list-style-type: none"> • Separate motor starter sets into separate safety zones





Base Modules for Slice I/O







BL20

Housing	Part Number	Description
Three Terminal Block 	BL20-S3T-SBB	Tension Clamp Connection
	BL20-S3S-SBB	Screw Terminal Connection
Three Terminal Block with C-Connection 	BL20-S3T-SBC	Tension Clamp Connection
	BL20-S3S-SBC	Screw Terminal Connection
Four Terminals 	BL20-S4T-SBBS	Tension Clamp Connection
	BL20-S4S-SBBS	Screw Terminal Connection
Four Terminals with Cold Junction Compensation for Thermocouples 	BL20-S4T-SBBS-CJ	Tension Clamp Connection
	BL20-S4S-SBBS-CJ	Screw Terminal Connection

Base Modules for Slice I/O


Housing	Part Number	Description
Four Terminals with C-Connection 	BL20-S4T-SBBC	Tension Clamp Connection
	BL20-S4S-SBBC	Screw Terminal Connection
Four Terminals with C-Connection, Dual Signal 	BL20-S4T-SBCS	Tension Clamp Connection
	BL20-S4S-SBCS	Screw Terminal Connection
Six Terminals 	BL20-S6T-SBBSBB	Tension Clamp Connection
	BL20-S6S-SBBSBB	Screw Terminal Connection
Six Terminals with C-Connection 	BL20-S6T-SBCSBC	Tension Clamp Connection
	BL20-S6S-SBCSBC	Screw Terminal Connection

Base Modules for Block I/O





Housing	Part Number	Description
Three Terminal Block 	BL20-B3T-SBB	Tension Clamp Connection
	BL20-B3S-SBB	Screw Terminal Connection
Three Terminal Block with C-Connection 	BL20-B3T-SBC	Tension Clamp Connection
	BL20-B3S-SBC	Screw Terminal Connection
Four Terminal Block with C-Connections 	BL20-B4T-SBBC	Tension Clamp Connection
	BL20-B4S-SBBC	Screw Terminal Connection
Six Terminal Block 	BL20-B6T-SBBSBB	Tension Clamp Connection
	BL20-B6S-SBBSBB	Screw Terminal Connection




BL20

Base Modules for Block I/O

Housing	Part Number	Description
<p>Six Terminal Block with C-Connection</p> 	<p>B6T-SBCSBC</p>	<p>Tension Clamp Connection</p>
	<p>B6S-SBCSBC</p>	<p>Screw Terminal Connection</p>

Base Modules for Power Input

Housing	Part Number	Description
Three Terminal Power Base 	BL20-P3T-SBB	Tension Clamp Connection
	BL20-P3S-SBB	Screw Terminal Connection
Three Terminal Power Base with Gateway Feed 	BL20-P3T-SBB-B	Tension Clamp Connection
	BL20-P3S-SBB-B	Screw Terminal Connection
Four Terminal Power Base with C-Connection 	BL20-P4T-SBBC	Tension Clamp Connection
	BL20-P4S-SBBC	Screw Terminal Connection
Four Terminal Power Base with C-Connection and Gateway Feed 	BL20-P4T-SBBC-B	Tension Clamp Connection
	BL20-P4S-SBBC-B	Screw Terminal Connection

Housing	Part Number	Description
<p>Markers Used for color coding terminals on BL20 base modules</p> 	<p>XN-ANBZ-WS (10/PKG) XN-ANBZ-GN/GE/BED (10/PKG) XN-ANBZ-RT/BL-BED (10/PKG) XN-ANBZ-BR (10/PKG) XN-ANBZ-SW (10/PKG) XN-ANBZ-GN (10/PKG) XN-ANBZ-RT (10/PKG) XN-ANBZ-BL (10/PKG)</p>	<p>White Green/Yellow Red/Blue Brown Black Green Red Blue</p>
<p>Jumpers For use with BL20 relay modules</p> 	<p>XN-QV/8 (10/PKG) XN-QV/7 (10/PKG) XN-QV/6 (10/PKG) XN-QV/5 (10/PKG) XN-QV/4 (10/PKG) XN-QV/3 (10/PKG) XN-QV/2 (10/PKG) XN-QV/1 (10/PKG)</p>	<p>8 pair 7 pair 6 pair 5 pair 4 pair 3 pair 2 pair 1 pair</p>
<p>Coding Blocks For keying electronic modules to base modules</p> 	<p>XN-KO/17 (10/PKG) XN-KO/16 (10/PKG) XN-KO/14 (10/PKG) XN-KO/13 (10/PKG) XN-KO/12 (10/PKG) XN-KO/11 (10/PKG) XN-KO/10 (10/PKG) XN-KO/9 (10/PKG) XN-KO/8 (10/PKG) XN-KO/6 (10/PKG) XN-KO/2 (10/PKG)</p>	<p>BL20-PF-120/230VAC-D BL20-PF-24VDC-D BL20-2AO-U(-10/0...+10V) BL20-1AO-I(0/4...20MA) RTD and TC temperature modules, BL20-1AI-U(-10/0...+10V) BL20-1AI-I(0/4...20MA) BL20-2DO-R-CO BL20-2DO-R-NC BL20-2DO-R-NO BL20-*DO-24VDC* BL20-*DI-24VDC*</p>

Housing	Part Number	Description
Labels	FW5/151-200 (10 SETS/PKG) FW5/101-150 (10 SETS/PKG) FW5/51-100 (10 SETS/PKG) FW5/1-50 (10 SETS/PKG)	Numbered 151-200 Numbered 101-150 Numbered 51-100 Numbered 1-50
End Bracket 	XN-WEW-35/2-SW (1/PKG)	
End Plate 	XN-ABPL	
Shield Connection - For use with analog modules 	XN-KLBU/S (10/PKG) XN-KLBU/T (10/PKG)	Screw terminal Tension clamp
Labels - For labeling electronic modules. DIN A5 sheets 	BL20-LABEL/BLOCK (5 SHEETS/PKG) BL20-LABEL/SCHEIBE (5 SHEETS/PKG)	For block modules For slice modules
Tension Clamp Tool - For ease of operating tension clamp connections 	ZBW5-2	
Ferrite Ring - For damping high frequency interference on data and supply lines 	PS416-ZBX-405 (2/PKG)	
Shield Connection - For use with direct wiring gateways 	SCH-1-WINBLOC (1/PKG)	
Programming Cable - For connecting the BL20/BL67 system to the I/O Assistant software 	XN-PS2-CABLE	

BL20



piconet Selection Guide

Gateway	Higher Level System	Pages
	DeviceNet™	D5
	PROFIBUS®-DP	D7
	Ethernet	D9
	CANopen	D11

piconet

piconet Selection Guide

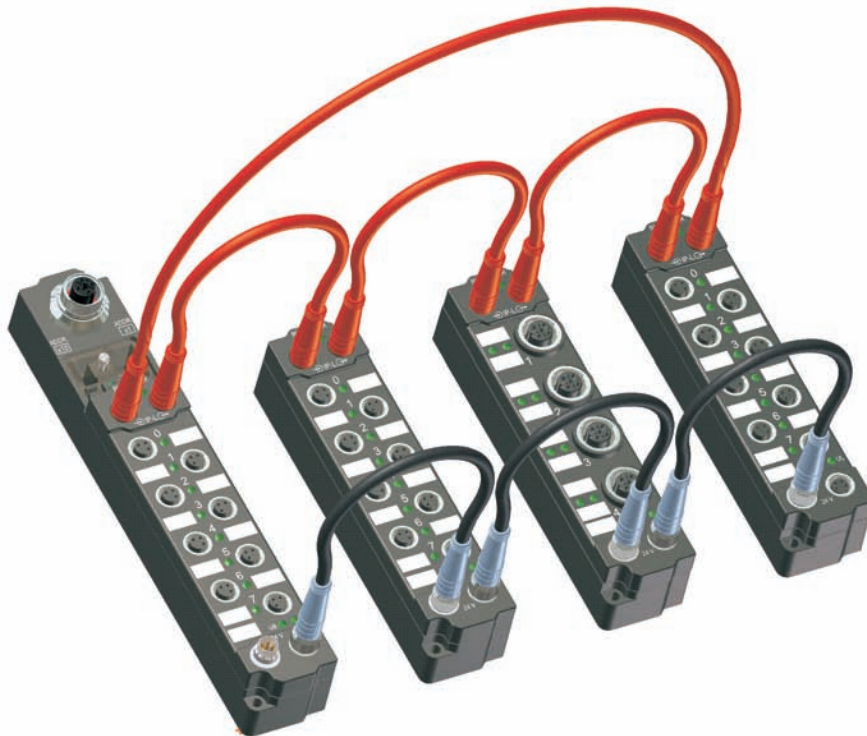
Modules	Type	I/O Direction	Pages
	Discrete	Input	D13
		Output	D15
		Input & Output	D17
	Analog	Input	D21
		Output	D25
	Counter	Input	D27
	Encoder	Input	D29
	Serial	Input & Output	D31
Accessories		D35	

The *piconet* System

piconet combines the rugged connectorized concept of TURCK's AIM™ stations with the modular I/O concept of the BL20 and BL67 systems. *piconet* stations are IP 67 rated and designed to be mounted directly on the machine with no need for a separate enclosure. Like the BL (BL20, BL67) systems, *piconet* consists of a gateway with connected I/O modules, but instead of connecting the I/O to a fixed backplane, *piconet* uses a distributed fiber-optic ring to communicate between the gateway and I/O.

piconet stations are available as stand alone units for DeviceNet™, PROFIBUS®-DP and CANopen systems; this section focuses on *piconet* subnetwork systems. Subnetwork systems offer a very flexible approach to connectorized I/O, while allowing individual stations to be mounted as close as possible to I/O devices.

Up to 255 extension modules may be connected to one gateway, with no more than 15 m of fiber-optic cable between each module.



Addressing

As a node on a network, **piconet**® systems have an address that is dependent on the network system being used. Each network gateway has a set of rotary switches used to set the address for the node.

DeviceNet and CANopen gateways may be addressed between 0 and 63 via two switches (one for the 10's digit and one for the 1's digit). For example, to set the address to 37 you would set the 10's switch to 3 and the 1's switch to 7. The third switch on these gateways can be used to set the communication rate of the network interface. PROFIBUS-DP gateways also use two switches, but may be addressed as high as 99.

Power

piconet gateways and extension modules accept two 24 VDC power supplies via a male/female pair of 4-pin **picofast**® (M8) connectors. One of the supplies is for the station electronics and inputs, while the other is used to power outputs. Power may be connected from module to module by using **picofast** extension cords, or individual modules or groups of modules may be powered from separate supplies.

DeviceNet Gateway

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Flexible I/O Subnetwork



SDNL-0404D-0003



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

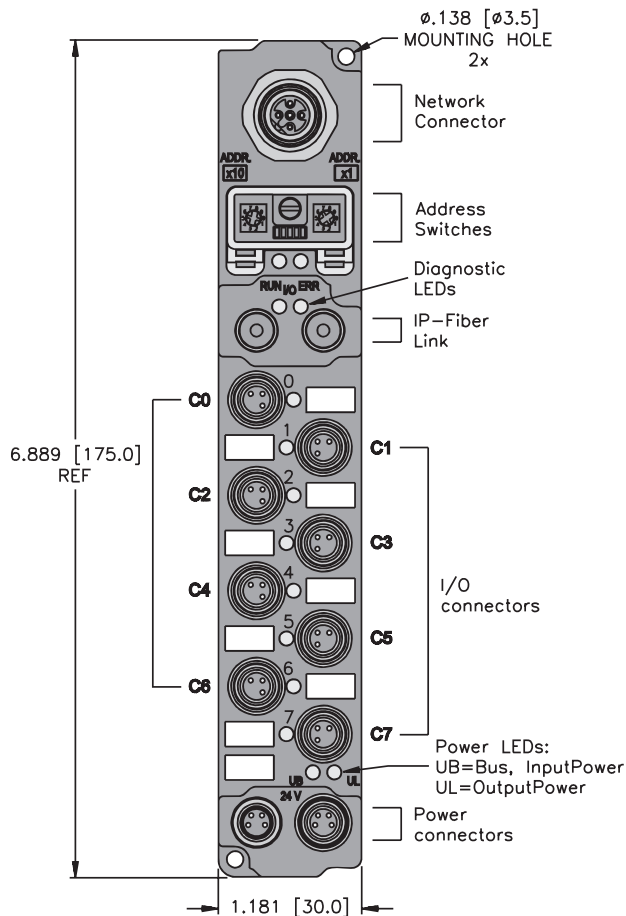
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

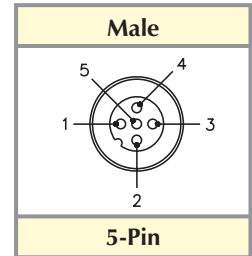
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

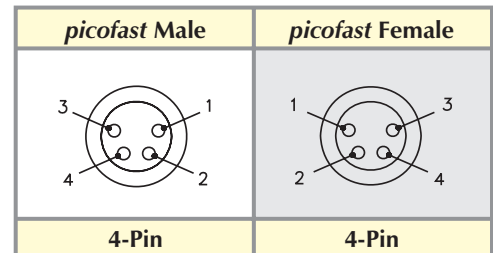


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

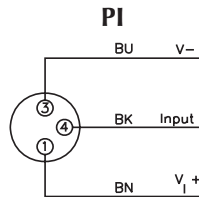
Aux. Power



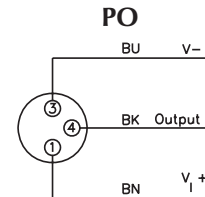
- 1 = U_B +
- 2 = U_L +
- 3 = Gnd
- 4 = Gnd

Part Number	Inputs								Outputs				Data			
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

Input/Output Connectors



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data from next input modules				I-3	I-2	I-1	I-0
Out	0	Data for next output modules				0-3	0-2	0-1	0-0

PROFIBUS-DP Gateways

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

- SDPL-0404D-0003
- SDPL-0404D-0004
- SDPL-0404D-1003
- SDPL-0404D-1004

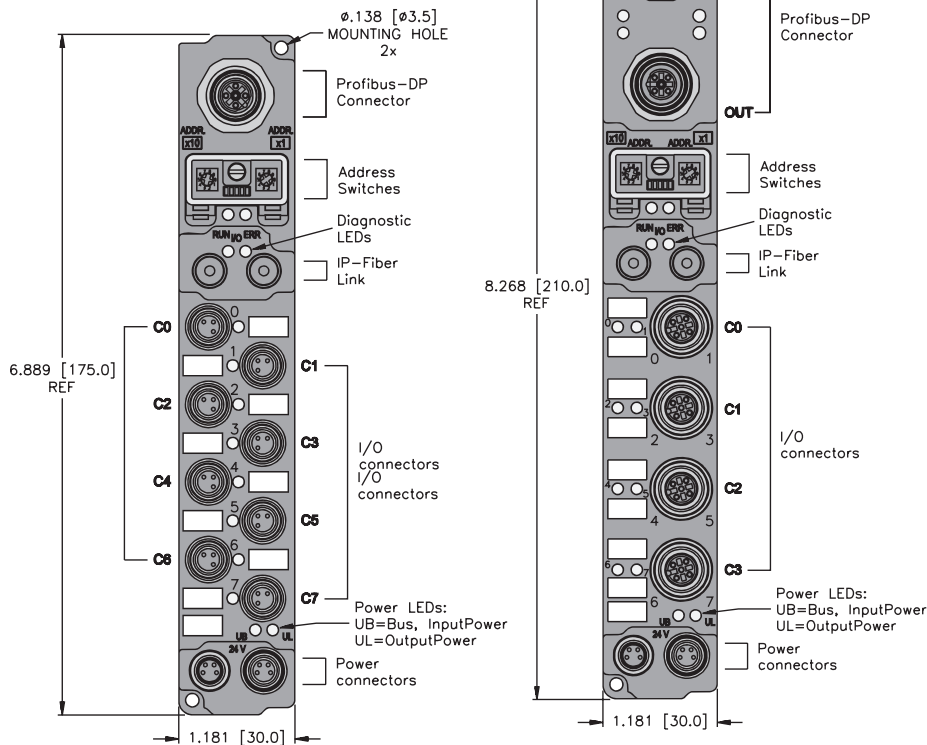


PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC 4 = BUS_B
- 2 = BUS_A 5 = Shield
- 3 = Gnd

...1003 and ...1004 have both male and female PROFIBUS-DP connectors



Aux. Power

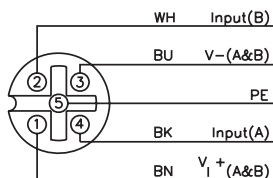
picofast Male	picofast Female
4-Pin	4-Pin

- 1 = U_B+ 3 = Gnd
- 2 = U_L+ 4 = Gnd

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1
SDPL-0404D-0004	4	0-3	2S	2	PNP				4	2-3	2G	2	0.5 A			1
SDPL-0404D-1003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1
SDPL-0404D-1004	4	0-3	2S	2	PNP				4	2-3	2G	2	0.5 A			1

Input/Output Connectors

2S



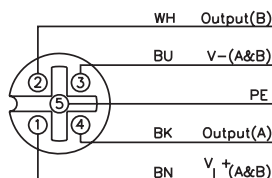
Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

2G



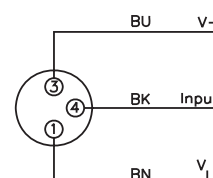
Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

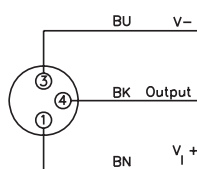
PI



Mating cordset:

PSG 3M-*

PO



Mating cordset:

PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data from next input modules				I-3	I-2	I-1	I-0
Out	0	Data for next output modules				0-3	0-2	0-1	0-0

Ethernet/IP Gateways

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

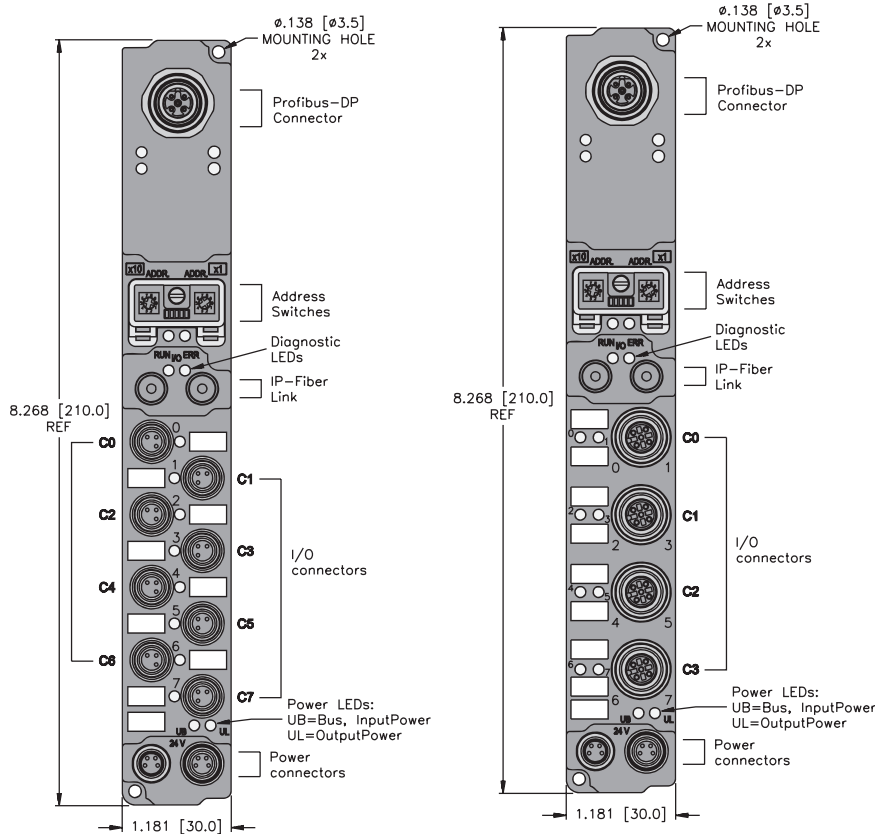
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

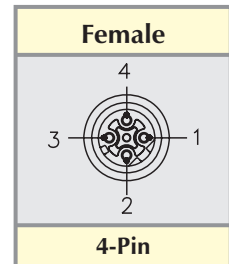
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of Ethernet communication

SIPL-0404D-0003
SIPL-0404D-0004

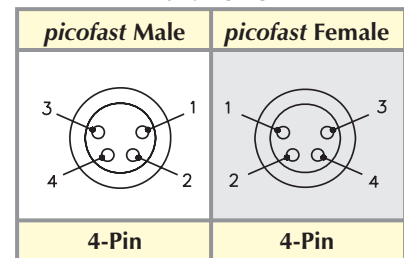


Ethernet Pinout



- 1 = TD+
- 2 = RD+
- 3 = TD-
- 4 = RD-

Aux. Power

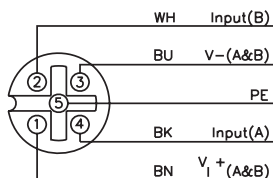


- 1 = $U_B +$
- 2 = $U_L +$
- 3 = Gnd
- 4 = Gnd

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SIPL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1
SIPL-0404D-0004	4	0-3	2S	2	PNP				4	2-3	2G	2	0.5 A			1

Input/Output Connectors

2S



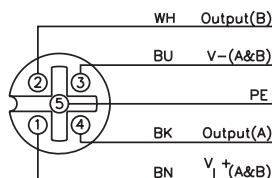
Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

2G



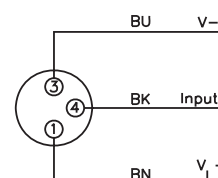
Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

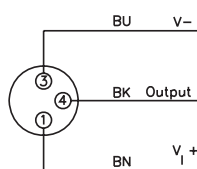
PI



Mating cordset:

PSG 3M-*

PO



Mating cordset:

PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data from next input modules				I-3	I-2	I-1	I-0
Out	0	Data for next output modules				0-3	0-2	0-1	0-0

CANopen Gateway

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Flexible I/O Subnetwork



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

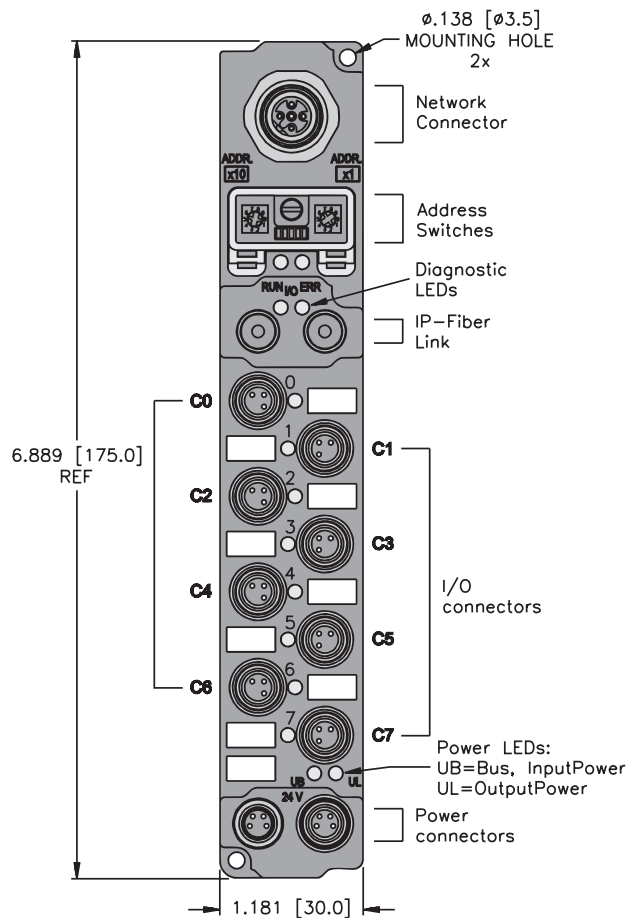
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

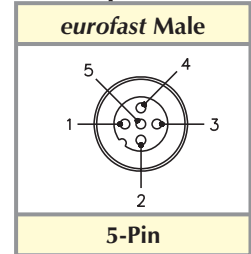
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication

SCOL-0404D-0003

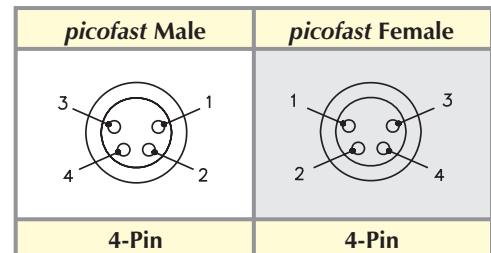


CANopen Pinout



- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

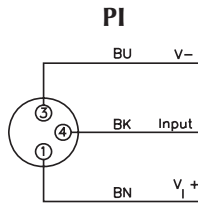
Aux. Power



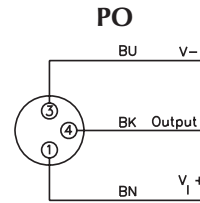
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

Input/Output Connectors



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	Data from next input modules				I-3	I-2	I-1	I-0
Out	0	Data for next output modules				0-3	0-2	0-1	0-0

Input Module



SNNE-0800D-0008



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

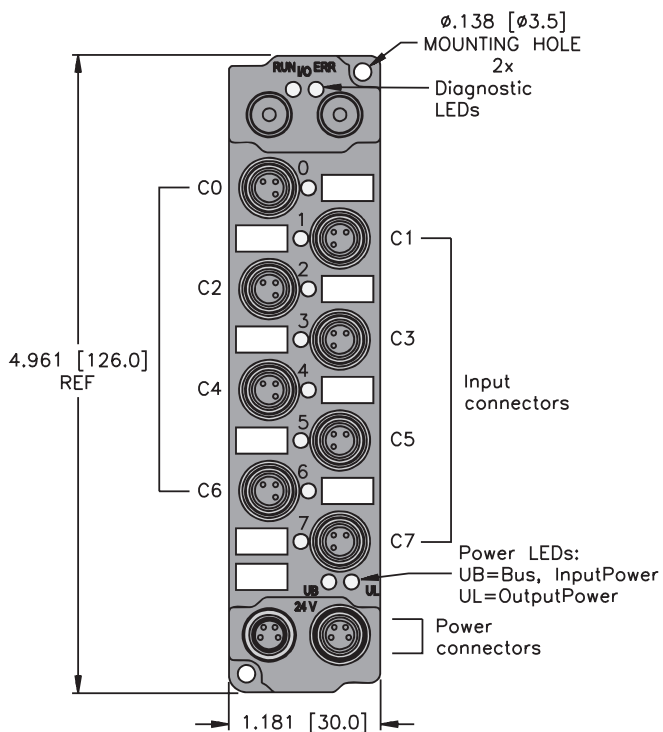
- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of module and system communication



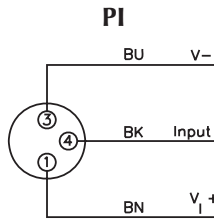
Aux. Power

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

- 1 = U_B +
- 2 = U_L +
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Map
SNNE-0800D-0008	8	0-7	PI	1	PNP				1

Input Connectors



Mating cordset:
PSG 3M-*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	-1	Data from modules to left							
	n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	n+1	Data from modules to right							

Output Modules

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System



SNNE-0008D-0006
SNNE-0008D-0002



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Outputs: U_L Power supply

Mechanical

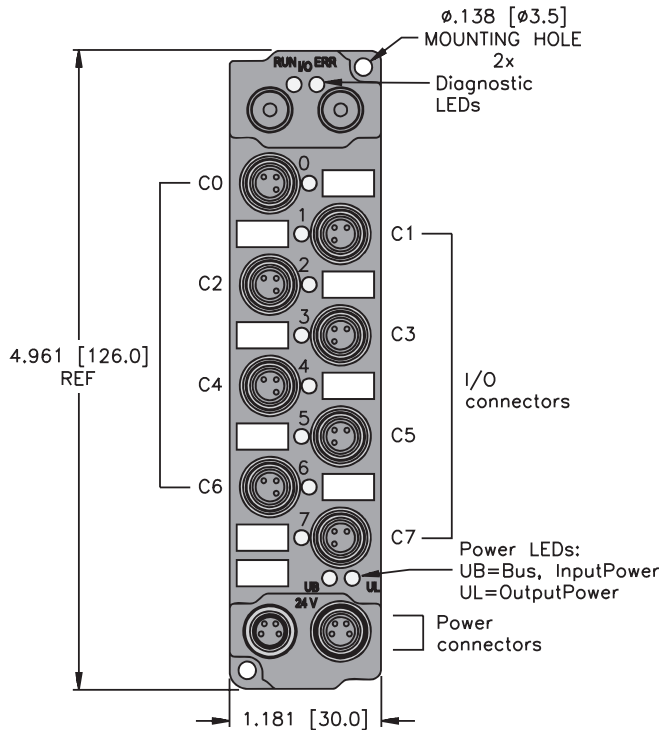
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of module and system communication



Aux. Power

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

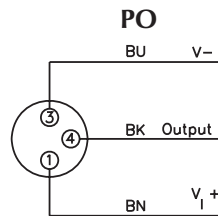
- 1 = U_B +
- 2 = U_L +
- 3 = GND
- 4 = GND

Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-0008D-0006	8	0-7	PO	1	0.5 A			1
SNNE-0008D-0002	8	0-7	PO	1	2 A*			1

*Note: Total output current for the station is limited to 4 A.

piconet

Output Connectors



Mating cordset:
PSG 3M-*

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	-1	Data for modules to left							
n	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0	
n+1	Data for modules to right								

Input/Output Modules

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System



SNNE-0404D-0005
SNNE-0404D-0001



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

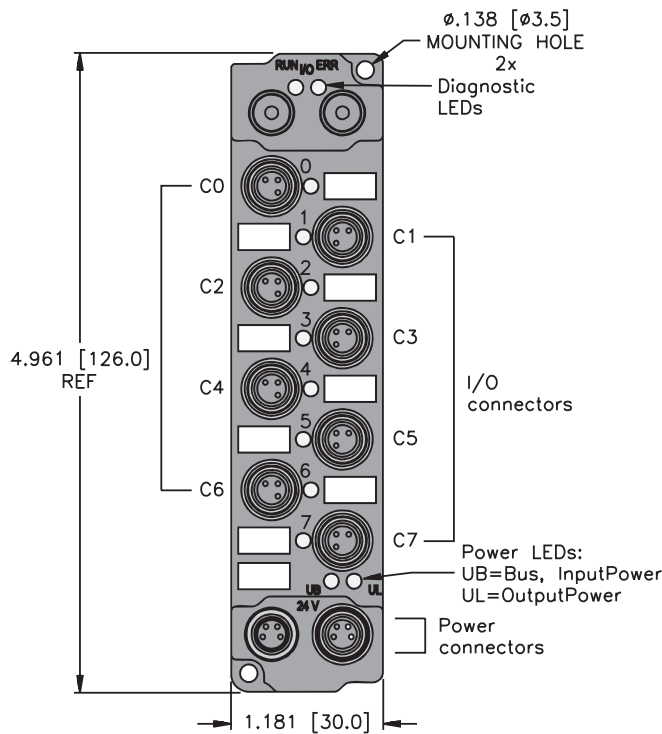
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of module and system communication



Aux. Power

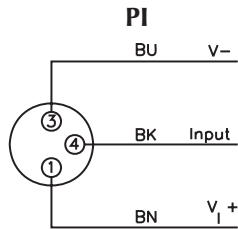
<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = GND
- 4 = GND

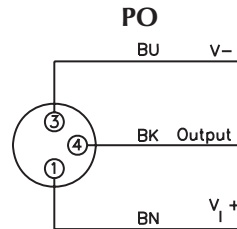
	Inputs								Outputs					Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-0404D-0005	4	0-3	PI	1	PNP				4	4-7	PO	1	2 A			1
SNNE-0404D-0001	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

Note: Total output current for station is limited to 4 A.

Input/Output Connectors



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	-1	Data from modules to left							
	n	Data for next module			I-3	I-2	I-1	I-0	
	n+1	Data from modules to right							
Out	-1	Data for modules to left							
	n	Data from next module			0-3	0-2	0-1	0-0	
	n+1	Data for modules to right							

Input/Output Modules

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System



Electrical

- Operating Current: <25 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: 0.5 A (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

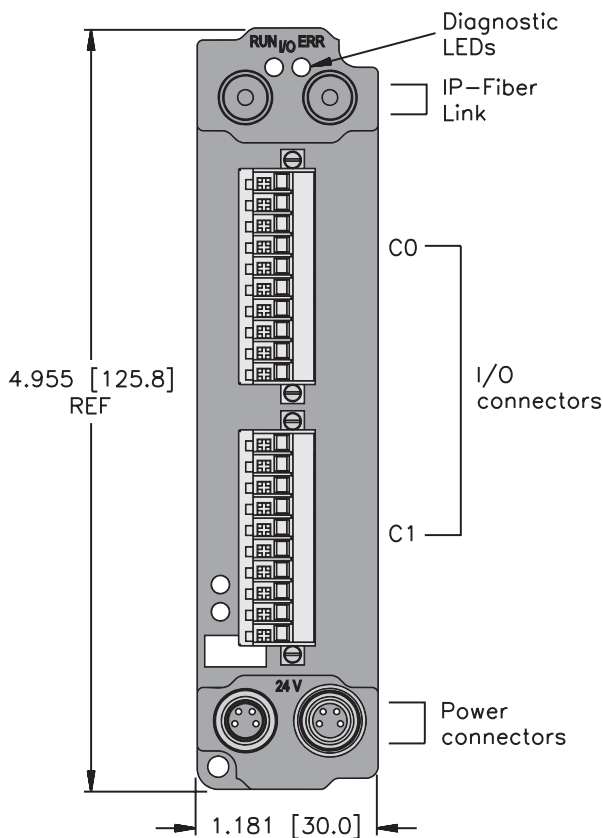
Material

- Connectors: IP20 Tension clamp terminals
- Housing: Nylon

SNNE-0808D-0003

Diagnostics (Physical)

- LEDs to indicate status of module and system communication



Aux. Power

- 1 = U_B+
- 2 = U_L+
- 3 = GND
- 4 = GND

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

	Inputs								Outputs					Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-0808D-0003	8	0	TI	8	PNP				8	2	PO	8	0.5 A			1

Note: Total output current for station is limited to 4 A.

Input/Output Connectors

piconet

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	-1	Data from modules to left							
	n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	n+1	Data from modules to right							
Out	-1	Data for modules to left							
	n	0-7	0-8	0-9	0-4	0-3	0-2	0-1	0-0
	n+1	Data for modules to right							

Analog Input Stations



SNNE-40A-0005
SNNE-40A-0007



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

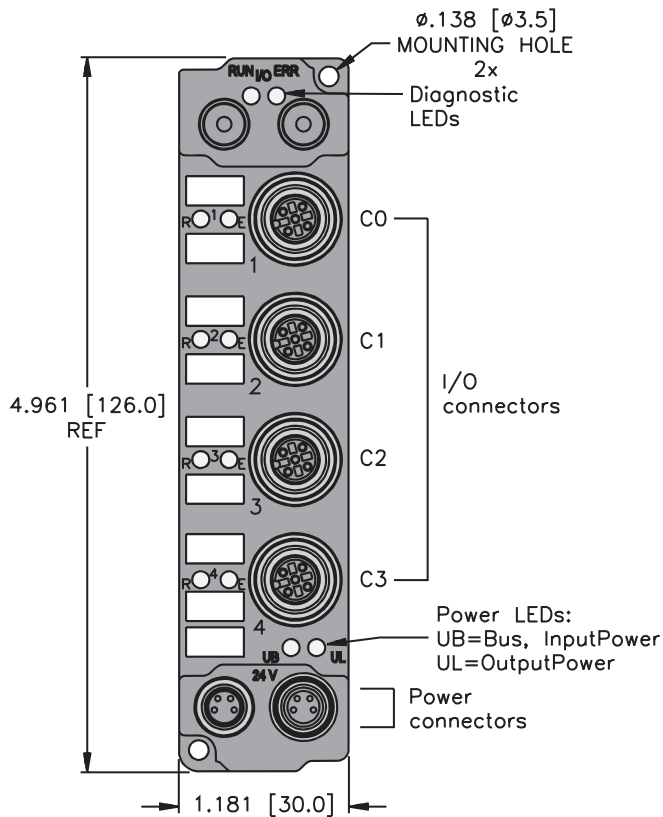
- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of module and system communication



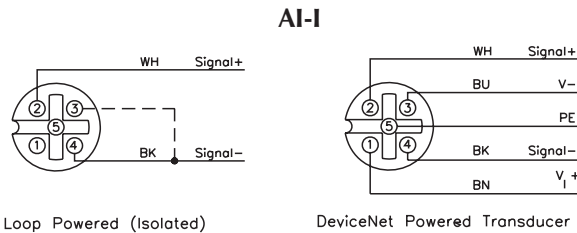
Aux. Power

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = GND
- 4 = GND

Part Number	Inputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-40A-0005	4	0-3	AI	1	0 to 10 V				1
SNNE-40A-0007	4	0-3	AI	1	4 to 20 mA				1

Input/Output Connectors



Mating cordset:

Isolated Loop: RK 4.5T-*M-RS 4.5T/S653
 Loop Powered: RK 4.5T-*M-RS 4.5T/LPS/S653

Applications:

TURCK Sensors: LU; RK 4.4T-*RS 4.4T/S1118
 LI; RK 4.4T-*RS 4.4T/S1120

I/O Data Map 1

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	-1	Data from modules to left						
n	Channel 0, MSB							
n+1	Channel 0, LSB							
n+2	Channel 1, MSB							
n+3	Channel 1, LSB							
n+4	Channel 2, MSB							
n+5	Channel 2, LSB							
n+6	Channel 3, MSB							
n+7	Channel 3, LSB							
n+8	Data from modules to right							

Temperature Input
Modules



SNNE-40A-0004
SNNE-40A-0009



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Input Type: Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni1000 RTDs (...0009) Type J,K,L,B,E,N,R,S,T,U thermocouples (...0004)

Power Distribution

- Inputs: U_B Power supply

Mechanical

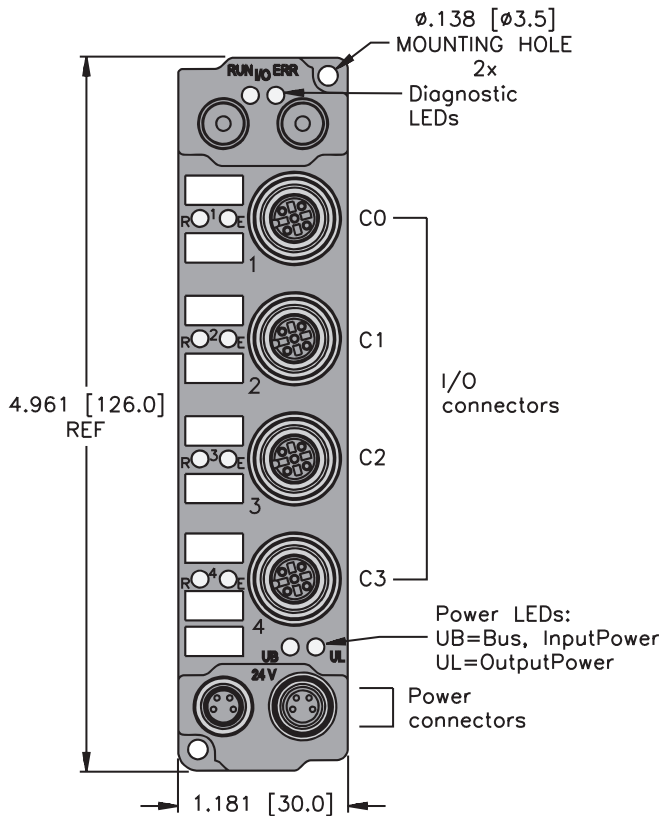
- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of module and system communication



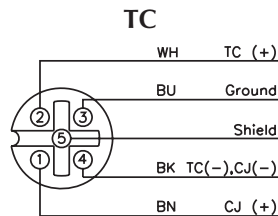
Aux. Power

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

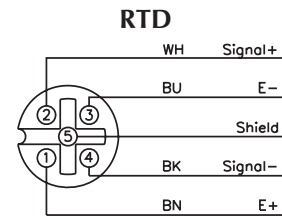
- 1 = U_B+
- 2 = U_L+
- 3 = GND
- 4 = GND

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-40A-0004	4	0-3	TC	1	Thermocouple				1
SNNE-40A-0009	4	0-3	RTD	1	RTD				1

Input/Output Connectors



Mating cordset:
 RK 4.5T-*-RS 4.5T



Mating cordset:
 RK 4.5T-*-RS 4.5T

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	-1	Data from modules to left							
n	Channel 0, MSB								
n+1	Channel 0, LSB								
n+2	Channel 1, MSB								
n+3	Channel 1, LSB								
n+4	Channel 2, MSB								
n+5	Channel 2, LSB								
n+6	Channel 3, MSB								
n+7	Channel 3, LSB								
n+8	Data from modules to right								

Analog Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System



SNNE-04A-0009
SNNE-04A-0007

Electrical

- Operating Current: <75 mA (from U_B)

Power Distribution

- Outputs: U_L Power supply

Mechanical

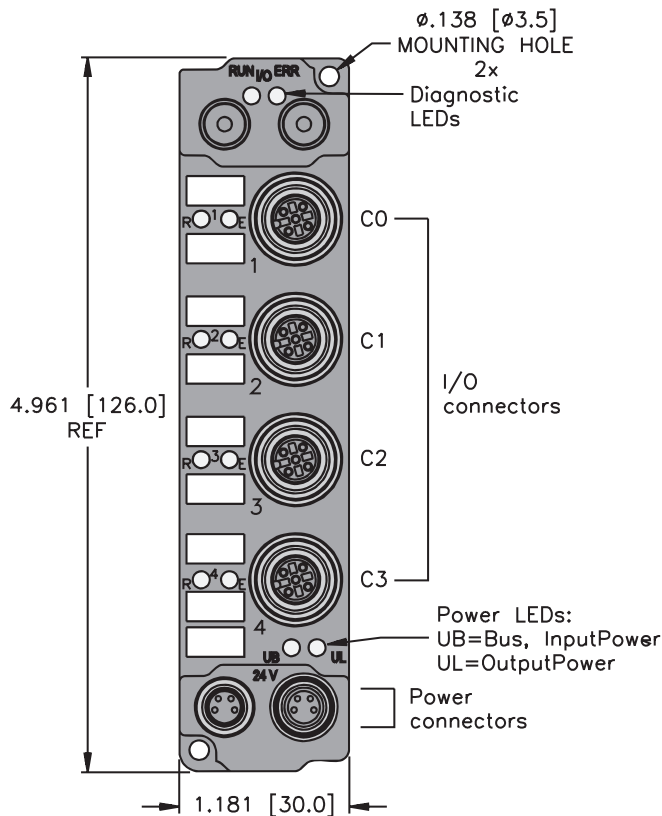
- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of module and system communication



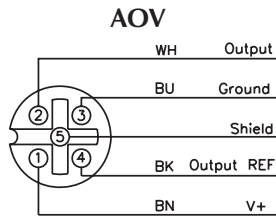
Aux. Power

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

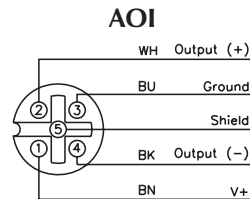
- 1 = U_B+
- 2 = U_L+
- 3 = GND
- 4 = GND

Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Output Style	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-04A-0009	4	0-3	AOI	1	0 to 20 mA			1
SNNE-04A-0007	4	0-3	AOV	1	-10/0 to 10 V			1

Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



DeviceNet Powered Transducer

Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	-1	Data for modules to left							
n	Channel 0, MSB								
n+1	Channel 0, LSB								
n+2	Channel 1, MSB								
n+3	Channel 1, LSB								
n+4	Channel 2, MSB								
n+5	Channel 2, LSB								
n+6	Channel 3, MSB								
n+7	Channel 3, LSB								
n+8	Data for modules to right								

Counter Station



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus device currents (from U_B)
- Input Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)
- Maximum Frequency: 100 KHz

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

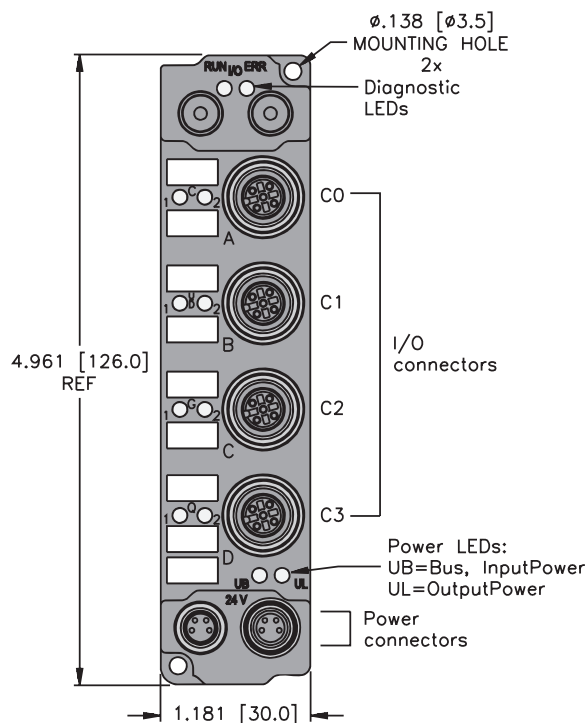
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of piconet communication

SNNE-0202D-0003



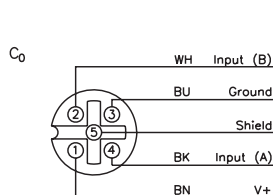
Aux. Power

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

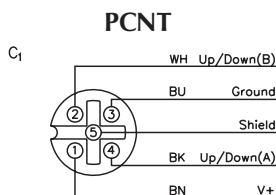
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd_B
- 4 = Gnd_L

	Inputs										Outputs				Data	
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-0202D-0003	2	0-3	PCNT	2	Counter				2	0-3	PCNT	2	0.5 A			1

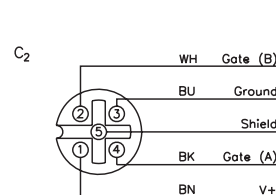
Input/Output Connectors



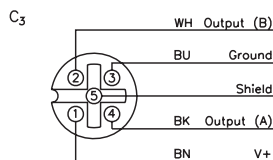
Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	-1	Data from previous modules							
	n	Channel 0 - Status							
	n+1	Channel 0, Byte 3 (MSB)							
	n+2	Channel 0, Byte 2							
	n+3	Channel 0, Byte 1							
	n+4	Channel 0, Byte 0 (LSB)							
	n+5	Channel 1 - Status							
	n+6	Channel 1, Byte 3 (MSB)							
	n+7	Channel 1, Byte 2							
	n+8	Channel 1, Byte 1							
	n+9	Channel 1, Byte 0 (LSB)							
n+10	Data from next modules								
Out	-1	Data for previous modules							
	n	Channel 0 - Control							
	n+3	Data for next modules							
	n+1	Channel 1 - Control							

Incremental Encoder Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus device currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

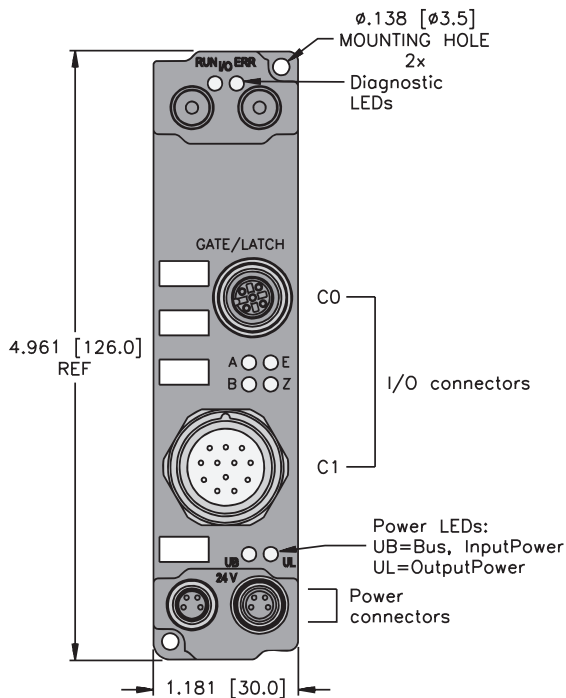
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of Piconet communication

SNNE-10S-0001



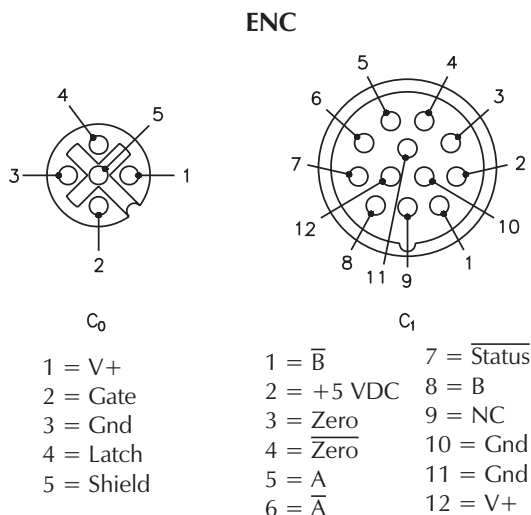
Aux. Power

<i>picofast</i> ® Male	<i>picofast</i> ® Female
4-Pin	4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-10S-0001	1	0-1	ENC	1	Encoder				1

Input/Output Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	-1	Data from previous modules							
	n	Counter - Status							
	n+1	Count Value - High (MSB)							
	n+2	Count Value - Low (LSB)							
	n+3	Data from next modules							
Out	-1	Data for previous modules							
	n	Counter - Control							
	n+1	Set Value - High (MSB)							
	n+2	Set Value - Low (LSB)							
	n+3	Data for next modules							

Serial Interface Modules

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Modular I/O System



Electrical

- Operating Current: <75 mA (from U_B)

Mechanical

- Operating Temperature : 0 to +55 °C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

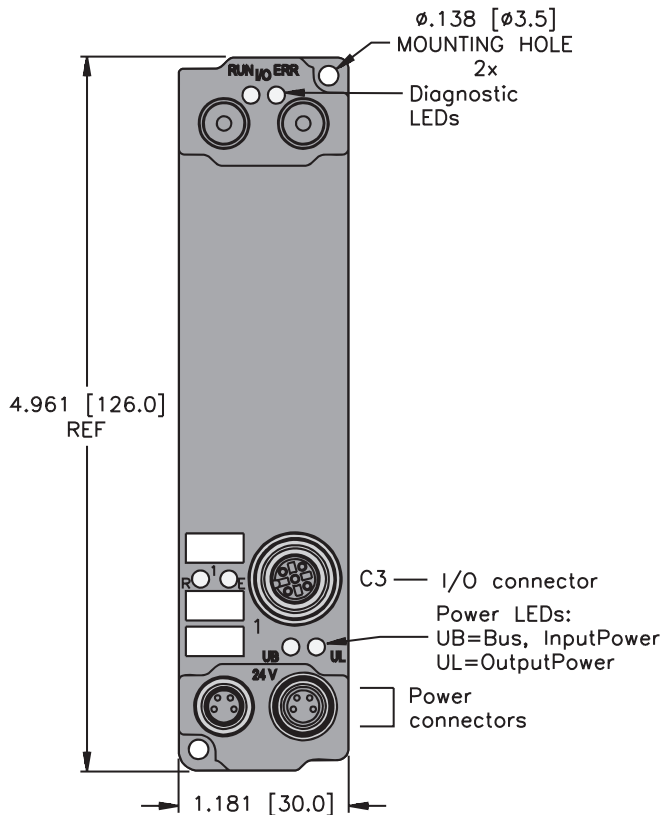
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of module and system communication

SNNE-10S-0002
SNNE-10S-0004



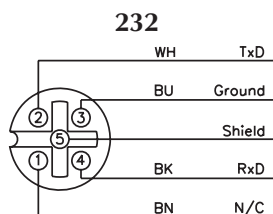
Aux. Power

<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

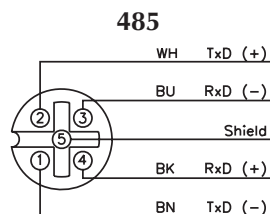
- 1 = U_B+
- 2 = U_L+
- 3 = GND
- 4 = GND

Part Number	Inputs								Outputs					Data		
	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SNNE-10S-0002	1	0	232	1	RS232	3...5			1	3	232	1				1
SNNE-10S-0004	1	3	485	1	RS485/422	3...5			1	3	485	1				1

Input/Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	In	-1	Data from modules to left						
n		Data Byte 0							
n+1		Status							
n+2		Data Byte 2							
n+3		Data Byte 1							
Out	-1	Data for modules to left							
	n	Data Byte 0							
	n+1	Control							
	n+2	Data Byte 2							
	n+3	Data Byte 1							
n+4	Data for modules to right								

* Note: Default configuration of 3 data bytes shown. Up to 5 data bytes can be transferred. Consult user manual for details.

SSI Station



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

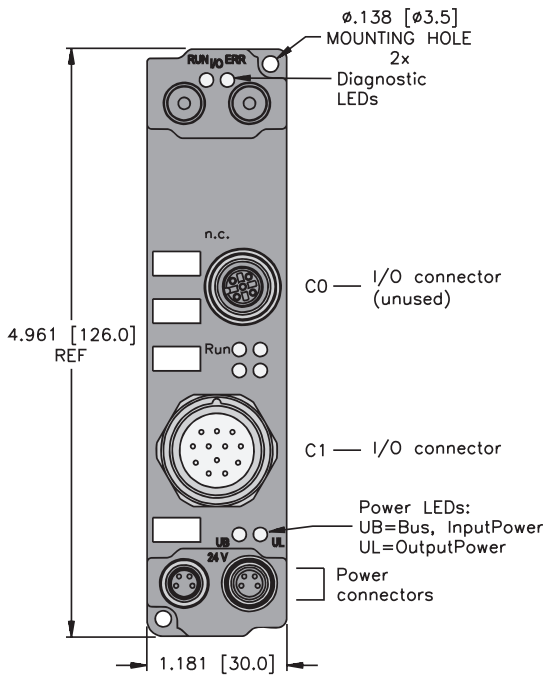
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of Piconet communication

SNNE-10S-0005



Aux. Power

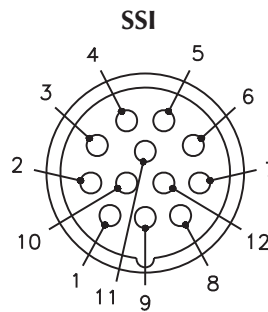
<i>picofast</i> Male	<i>picofast</i> Female
4-Pin	4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs										Data
Part Number	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map	
SNNE-10S-0005	1	0		1	SSI	4			1	

Input Connectors

- 1 = Clock-
- 2 = Clock+
- 3 = Data+
- 4 = Data-
- 5 = NC
- 6 = NC
- 7 = NC
- 8 = NC
- 9 = NC
- 10 = NC
- 11 = V+
- 12 = Ground








Mating cordset:
CKM 12-12-*/S817

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	-1	Data from previous modules							
	n	Data Byte 1							
	n+1	Data Byte 0 (LSB)							
	n+2	Data Byte 3 (MSB)							
	n+4	Data from next modules							
	n+3	Data Byte 2							

* Note: One additional status byte (in) and control byte (out) may be configured.

Accessories

Housing	Part Number	Description
<p>Clip for Fiber Optic Connections</p> 	SFOL-CLIP	Secures fiber optic connectors in place on <i>piconet</i> subnetwork systems.
<p>Fiber Optic Bridge</p> 	SFOB-0001	Power bridge connector for use when close-mounting <i>piconet</i> subnetwork (SNNE) nodes.
<p>Power Bridge</p> 	IPSKP4-0.12-SSP4/S90/S2154	Power bridge connector for use when close-mounting <i>piconet</i> subnetwork (SNNE) nodes.
<p>Programming Cable</p> 	ADAPTER CABLE - PICONET	Cable for connecting piconet system to I/O Assistant for commissioning and debugging
<p>Fiber Optic Cable</p>	SFOL-*M	Fiber Optic cable for connecting piconet network devices to IP link
<p>Power Distribution Block</p> 	8MBM8 4MBM4	Uses minifast power connection and distributes it to M8 connectors for Piconet devices

TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

Visit our site for new product releases, approvals, white papers, application support and more.

piconet

Access to all TURCK catalogs, press releases, white papers and tutorials

Search for products by part number, ID number or key word

Complete category listing of TURCK products

Access to CAD, wiring and pinout diagrams

Download or e-mail files, request for quote

Option to e-mail pages

Contact a TURCK representative

Part Number	ID Number	Material	Library	Style Sheet	CAD	Books	Wiring
8647-1181	MA827194						
8647-242-4	MA827179						
8647-242-PT	MA827177						
8647-242-TC	MA827178						
8647-242-V	MA827176						

www.turck.com

The *excom*[®] System

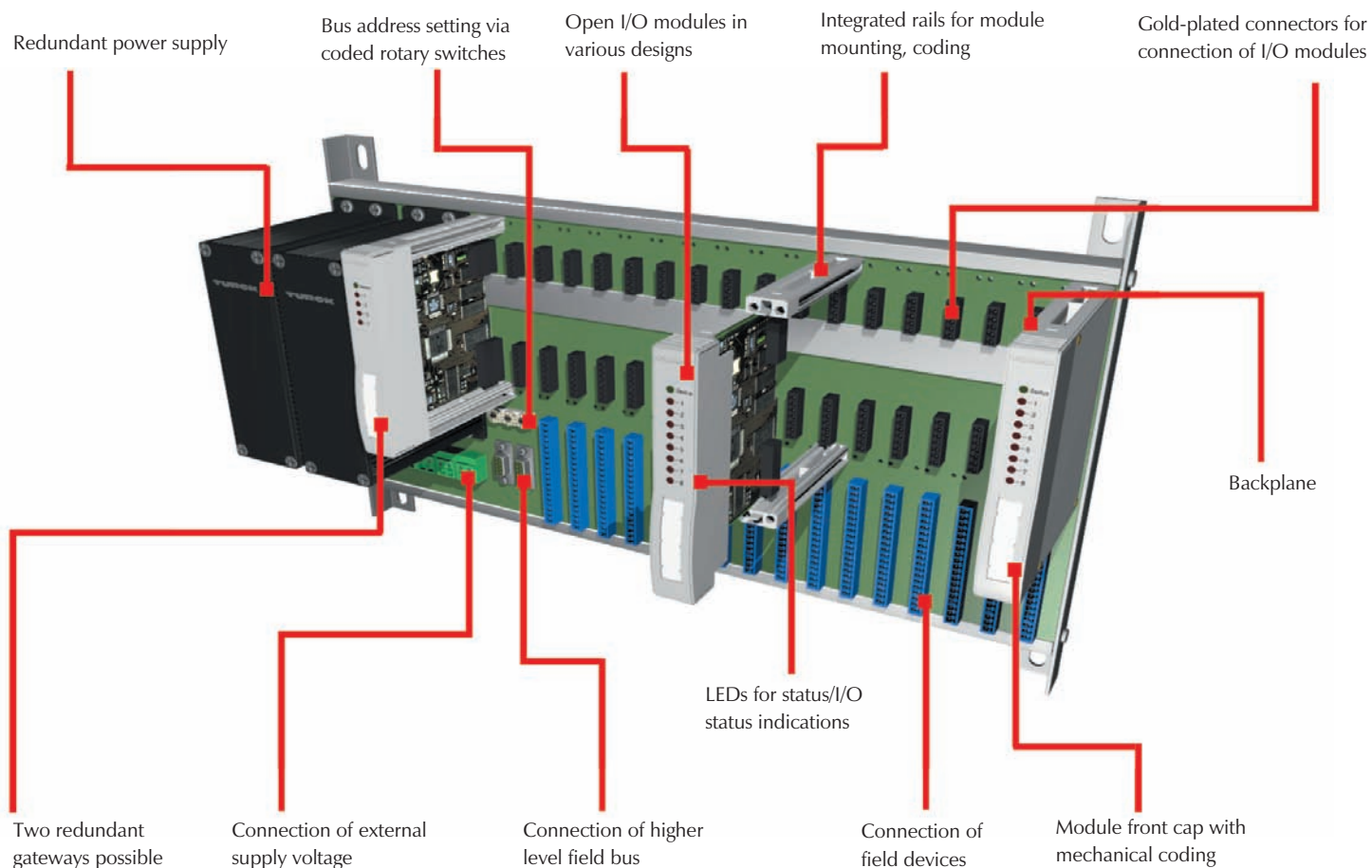
excom is a remote I/O system for use in hazardous locations. It provides PROFIBUS[®]-DP compatible I/O modules in an IP 20 protected solution for connecting discrete and analog intrinsically safe field devices. It is approved for use in Class I, Division 2 locations, and may be connected to field devices in Class I, Division 1 areas.

The modular system consists of power modules, PROFIBUS-DP communication gateways, I/O modules and a backplane rack. The backplane is available in two sizes, with support for 8 or 16 I/O modules. The larger rack (MT18...) also allows for redundant power supplies and PROFIBUS-DP gateway cards to be used. This allows a failsafe communication scheme to be used.

The I/O modules provide the interface to field devices. The backplane provides power for I/O from the mounted power supply, with no need for a separate field supply. The gateways, power supplies and I/O cards are simply plugged into the backplane rack, with all power, PROFIBUS-DP and I/O wiring separate from the removable modules. I/O modules may also be changed during operation ("hot-swapped"). The system automatically checks whether a newly inserted module matches the configuration.

The internal cycle time of the *excom* system is less than 5 ms for discrete signals and less than 20 ms for analog signals. Total response time of the PROFIBUS-DP system depends on the cycle time of the controller and its program, as well as the data rate of the PROFIBUS-DP system. HART values may be exchanged with supported devices via PROFIBUS-DPV1 communication.

In order to use the *excom* system in a hazardous area, the PROFIBUS-DP communication must be conditioned through a segment coupler. Couplers are available for both wire and fiber-optic media.

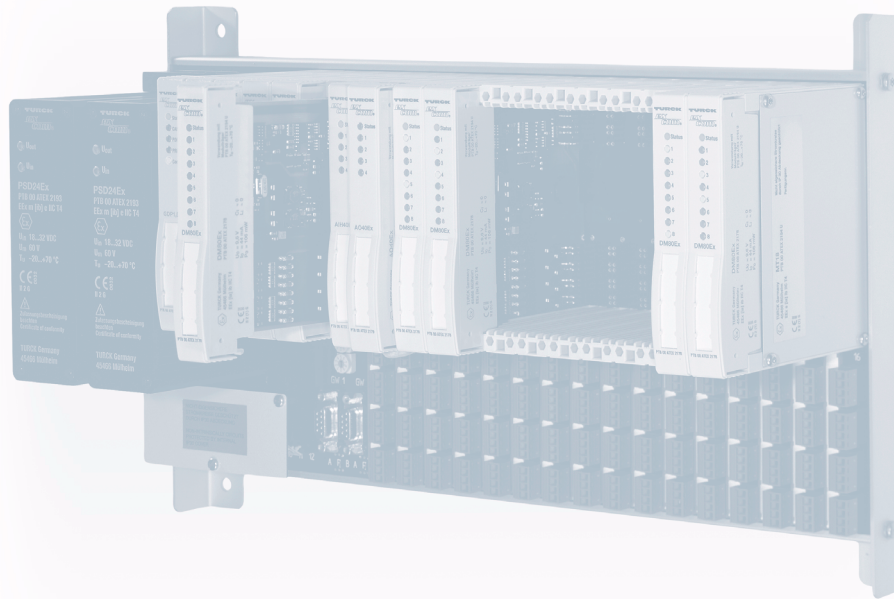


Diagnostics


The **excom** gateway provides extended PROFIBUS-DP diagnostic information, including channel-specific error indication. Each module also features LEDs for visual error indication as well as I/O status. Consult the user manual for the **excom** system for detailed information.

Addressing


The I/O modules need no user configured address since the gateway recognizes them by which backplane slot they are inserted in. The **excom** system itself needs a PROFIBUS-DP address, which is set via three rotary switches. The maximum address of the system is 125.



excom Gateway Selection Guide

Gateway	Higher Level System	Pages
	<p>PROFIBUS®-DP</p>	<p>E4</p>

excom Module Selection Guide

Modules	Type	I/O Direction	Pages
	<p>Discrete</p>	<p>Input</p>	<p>E5</p>
		<p>Output</p>	<p>E7</p>
		<p>Input & Output</p>	<p>E9</p>
	<p>Analog</p>	<p>Input</p>	<p>E11, E17</p>
		<p>Output</p>	<p>E13</p>
	<p>Frequency/Counter</p>	<p>Input</p>	<p>E15</p>
<p>Accessories</p>			<p>E19 - E24</p>

Certification Table

Housing	FM	CSA
DM80EX	•	•
DO40EX	•	•
AIH40EX	•	•
AIH41EX	•	•
AO40EX	•	•
AI41EX	•	•
TI40EX	•	•
GDP 1.5	•	•
PSD24EX	•	•
MT 9	•	•
MT 18	•	•
SC12-EX	•	•

PROFIBUS-DP Gateway



- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- Various I/O Styles

Electrical

- Power Consumption: <3 W (from backplane)

Mechanical

- Operating Temperature: -20 to +60°C (-4 to +140°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O faults are mapped to the PROFIBUS-DP diagnostic area

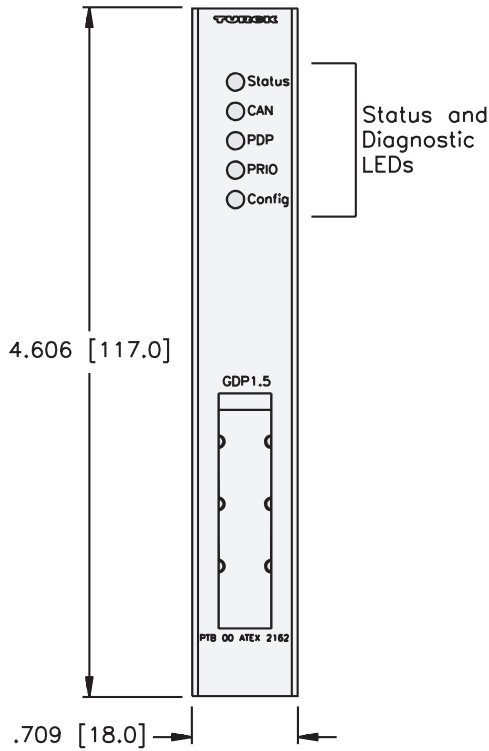
Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP and backplane communication

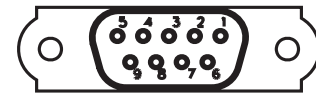
GDP1.5



excom



PROFIBUS-DP Connector



- 1 = Shield
- 3 = BUS_B
- 5 = DGnd
- 6 = +5 VDC
- 8 = BUS_A

Note: Connector is mounted to the excom backplane rack.

**4 Channel
 Discrete Input Module**

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- NAMUR Inputs



Electrical

- Power Consumption: <2 W (from backplane)
- Sensor Type: NAMUR

Mechanical

- Operating Temperature: -20 to +70°C (-4 to +158°F)
- Protection: IEC IP 20

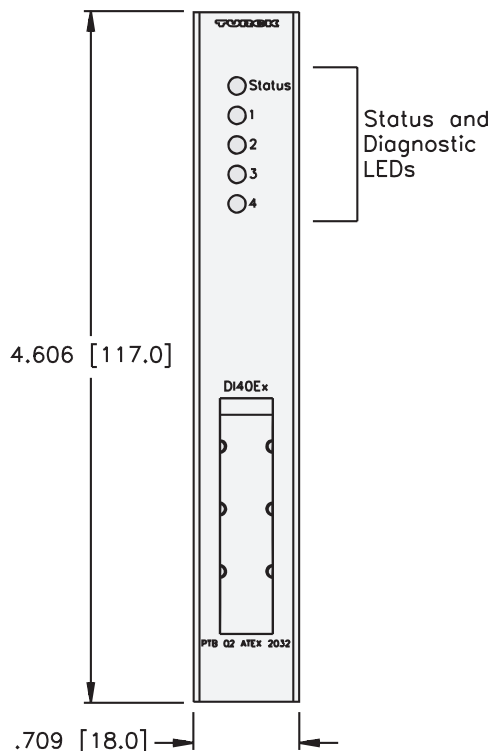
Diagnostics (Logical)

- I/O faults are mapped to the PROFIBUS-DP diagnostic area
- Open/short-circuit detection is configurable

Diagnostics (Physical)

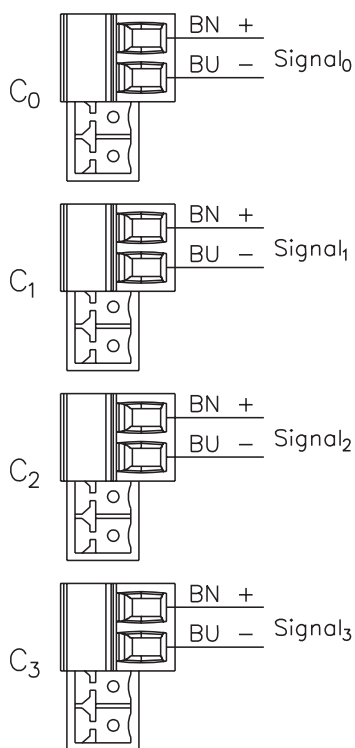
- LEDs indicate faults for each channel

DI40EX



Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	OCD	I/O Map
DI40EX	4	0-3	E-I	1	NAMUR		X	X	1

E-I



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Data from next discrete modules				I-3	I-2	I-1	I-0
	n+1	(Data from modules to the right)							

excom

**4 Channel
 Discrete Output Module**

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- Selectable Output Power



Electrical

- Power Consumption: <4.5 W (from backplane)
- Output Voltage: 16 or 24 VDC (depending on terminals used)

Mechanical

- Operating Temperature: -20 to +60°C (-4 to +140°F)
- Protection: IEC IP 20

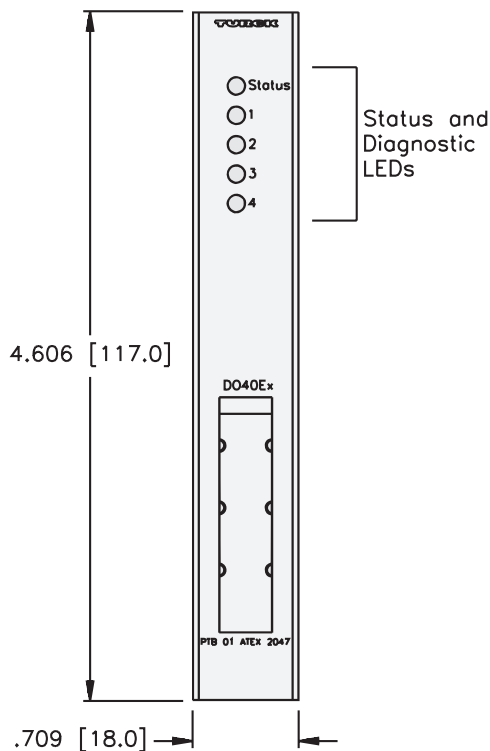
Diagnostics (Logical)

- I/O faults are mapped to the PROFIBUS-DP diagnostic area
- Open/short-circuit detection is configurable

Diagnostics (Physical)

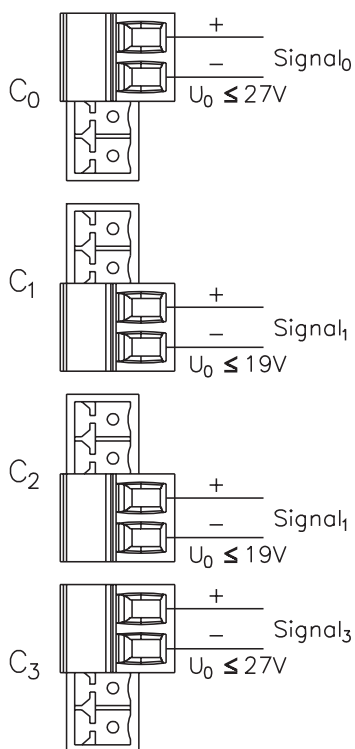
- LEDs indicate faults for each channel

DO40EX



Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
D040EX	4	0-3	E-O	1	45 mA (@12 V)	X	X	1

E-O



Note: Each output can be used in either the 19 or 27 V mode

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	n-1	(Data for modules to the left)							
	n	Data for next discrete modules				0-3	0-2	0-1	0-0
	n+1	(Data for modules to the right)							

**8 Channel Discrete
 Input/Output Module**

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- Channels can be Input or Output



Electrical

- Power Consumption: <2 W (from backplane)
- Input Type: NAMUR or dry contact
- Output Voltage: 8 VDC

Mechanical

- Operating Temperature: -20 to +60°C (-4 to +140°F)
- Protection: IEC IP 20

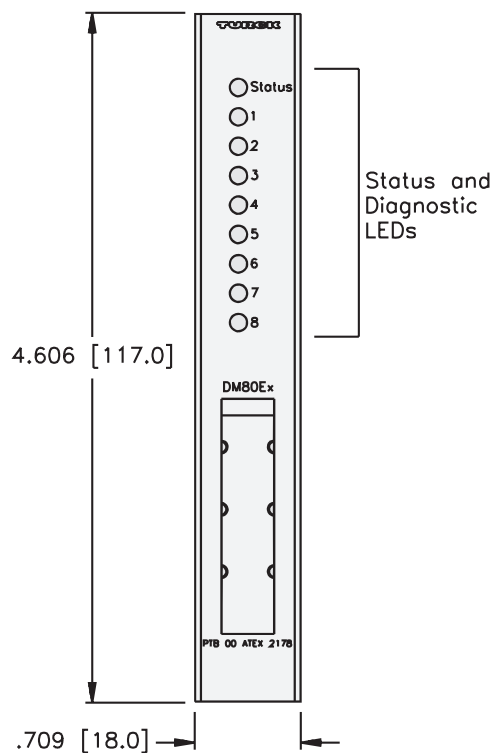
Diagnostics (Logical)

- I/O faults are mapped to the PROFIBUS-DP diagnostic area
- Open/short-circuit detection is configurable

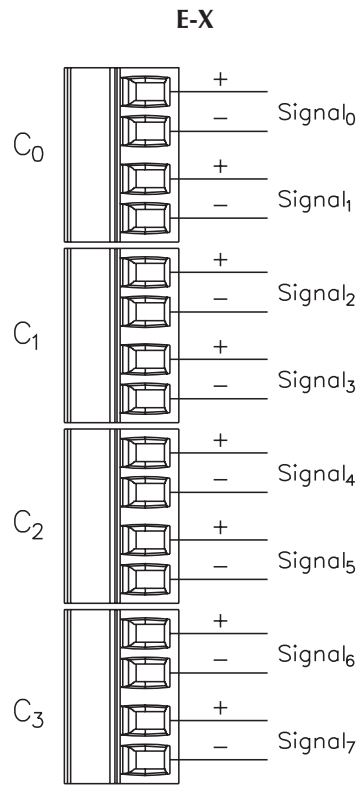
Diagnostics (Physical)

- LEDs indicate faults for each channel

DM80EX



Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
DM80EX	8	0-3	E-X	2	NAMUR		X	X	8	0-3	E-X	2	~4 mA	X	X	1



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	n-1	(Data from modules to the left)							
	n	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	n+1	(Data from modules to the right)							

excom

4 Channel Analog Input Modules

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- HART Capability



Electrical

- Power Consumption: <3.5 W (from backplane)
- Input Type: 2-wire (AI(H)40EX) or 4-wire (AI(H)41EX) sensors

Mechanical

- Operating Temperature: -20 to +70°C (-4 to +158°F)
- Protection: IEC IP 20

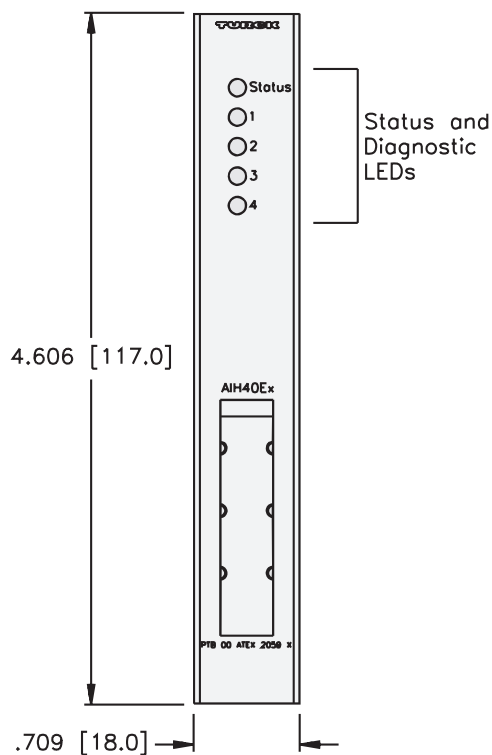
Diagnostics (Logical)

- I/O faults are mapped to the PROFIBUS-DP diagnostic area
- Open/short-circuit detection is configurable

Diagnostics (Physical)

- LEDs indicate faults for each channel

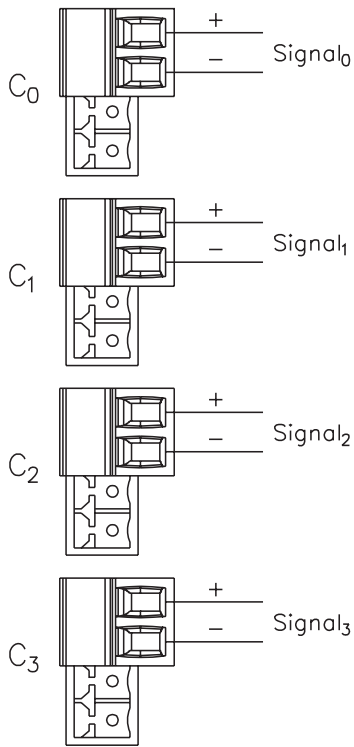
- AI40EX**
- AIH40EX**
- AI41EX**
- AIH41EX**



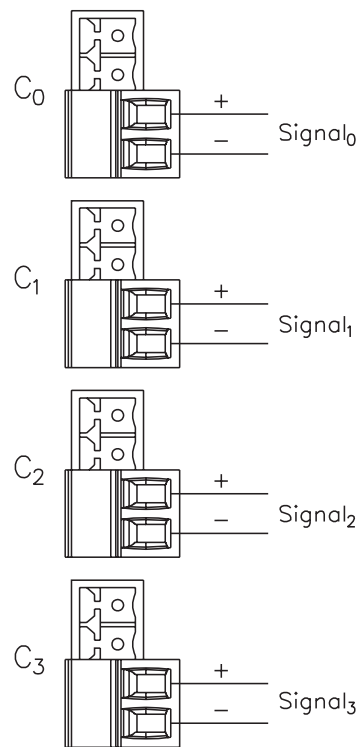
Inputs	Data
--------	------

Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Individual Diagnostics	Wire-Break Detection	HART Compatible	I/O Map
AI40EX	4	0-3	E-AI2	1	0/4 to 20 mA	X	X		1
AI41EX	4	0-3	E-AI4	1	0/4 to 20 mA	X	X		1
AIH40EX	4	0-3	E-AI2	1	0/4 to 20 mA	X	X	X	1
AIH41EX	4	0-3	E-AI4	1	0/4 to 20 mA	X	X	X	1

E-AI2



E-AI4



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	Channel 0, MSB							
	n+1	Channel 0, LSB							
	n+2	Channel 1, MSB							
	n+3	Channel 1, LSB							
	n+4	Channel 2, MSB							
	n+5	Channel 2, LSB							
	n+6	Channel 3, MSB							
	n+7	Channel 3, LSB							
	n+8	(Data from modules to the right)							

Note: Default data map shown. More data is returned if HART variables are used. Consult product user manual for details.

4 Channel Analog Output Modules

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- HART Capability



Electrical

- Power Consumption: <3.5 W (from backplane)
- Output Type: 0/4...20 mA actuators

Mechanical

- Operating Temperature: -20 to +70°C (-4 to +158°F)
- Protection: IEC IP 20

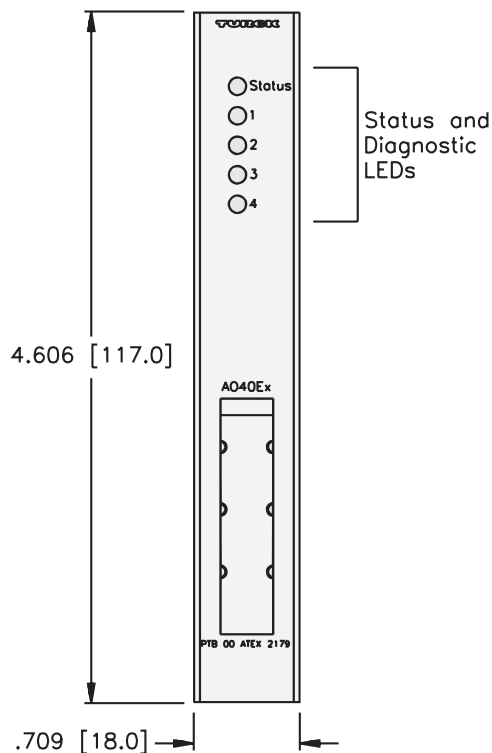
Diagnostics (Logical)

- I/O faults are mapped to the PROFIBUS-DP diagnostic area
- Open/short-circuit detection is configurable

Diagnostics (Physical)

- LEDs indicate faults for each channel

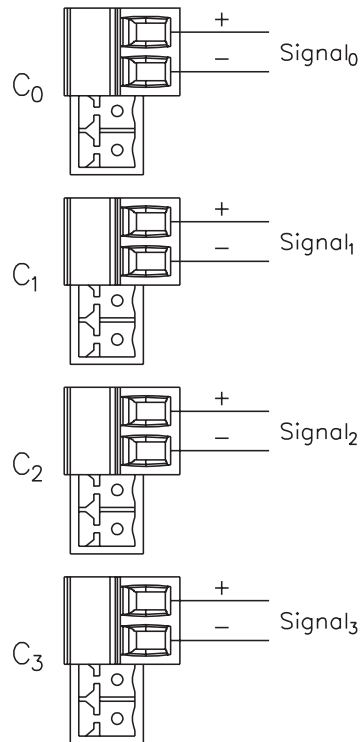
AO40EX
AOH40EX



Outputs

Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	HART Compatible	I/O Map
A040EX	4	0-3	E-AO	1	0/4 to 20 mA	X	X		1
A0H40EX	4	0-3	E-AO	1	0/4 to 20 mA	X	X	X	1

E-AO



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	n-1	(Data for modules to the left)							
	n	Channel 0, MSB							
	n+1	Channel 0, LSB							
	n+2	Channel 1, MSB							
	n+3	Channel 1, LSB							
	n+4	Channel 2, MSB							
	n+5	Channel 2, LSB							
	n+6	Channel 3, MSB							
	n+7	Channel 3, LSB							
	n+8	(Data for modules to the right)							

**8 Channel
 Frequency/Counter Input
 Module**

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- Pulse Count or Frequency Measurement



Electrical

- Power Consumption: <1.5 W (from backplane)
- Input Type: Pulse count or frequency measurement of NAMUR sensor

Mechanical

- Operating Temperature: -20 to +60°C (-4 to +140°F)
- Protection: IEC IP 20

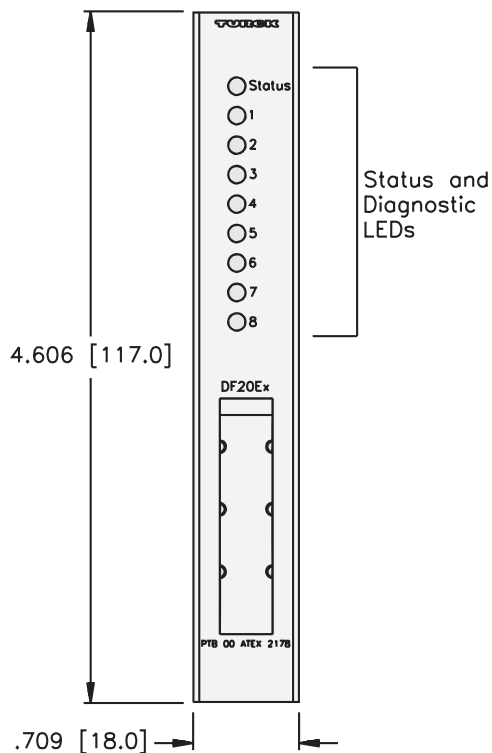
Diagnostics (Logical)

- I/O faults are mapped to the PROFIBUS-DP diagnostic area
- Open/short-circuit detection is configurable

Diagnostics (Physical)

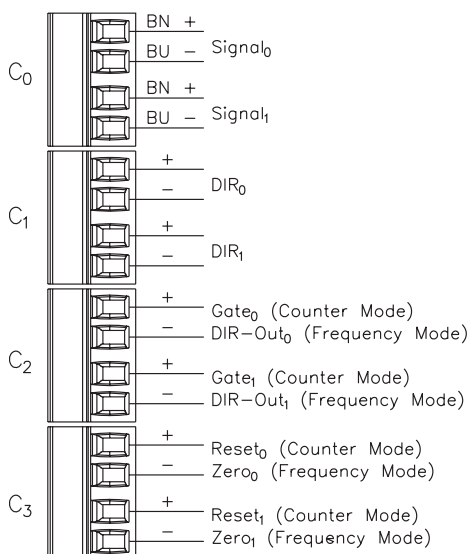
- LEDs indicate faults for each channel

DF20EX



Inputs										Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map	
DF20EX	2	0-3	E-F	2	Frequency/Counter		X	X	1	

E-F



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	S-0	OV-0*	SIGN-0	Channel 0 (MS bits)				
	n+1	Channel 0							
	n+2	Channel 0							
	n+3	Channel 0 (LSB)							
	n+4	S-1	OV-1*	SIGN-1	Channel 1 (MS bits)				
	n+5	Channel 1							
	n+6	Channel 1							
	n+7	Channel 1 (LSB)							
	n+8	(Data from modules to the right)							

*** OV is used in counter mode only**

4 Channel Temperature Input Module

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- Thermocouple or RTD Inputs



TI40EX

Electrical

- Power Consumption: <3 W (from backplane)
- Input Type: PT100, PT1000, NI100 2-, 3- or 4-wire RTDs
 Type B, E, J, K, L, N, R, S, T Thermocouples

Mechanical

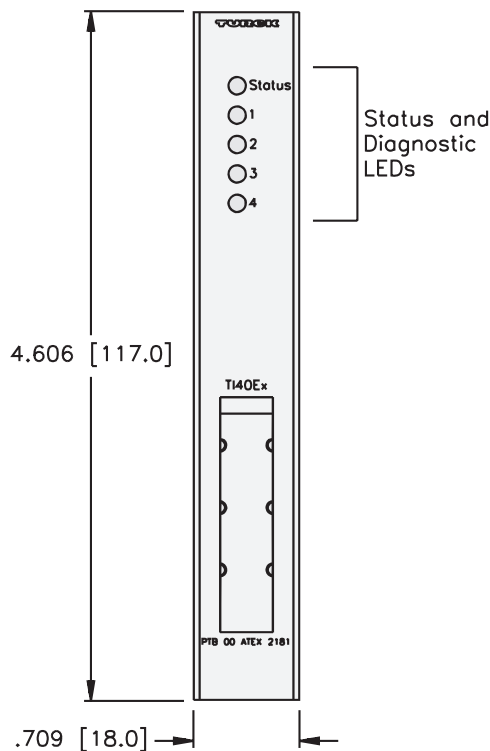
- Operating Temperature: -20 to +70°C (-4 to +158°F)
- Protection: IEC IP 20

Diagnostics (Logical)

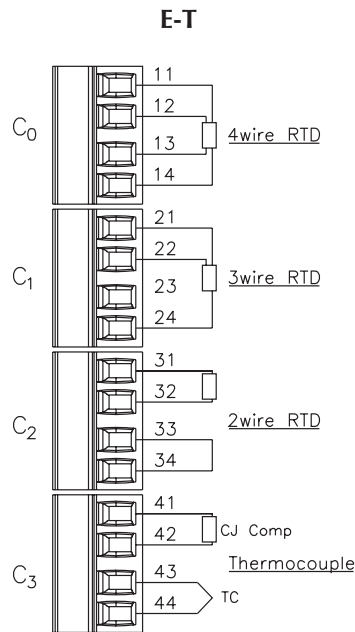
- I/O faults are mapped to the PROFIBUS-DP diagnostic area
- Open/short-circuit detection is configurable

Diagnostics (Physical)

- LEDs indicate faults for each channel



Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
TI40EX	4	0-3	E-T	1	TC / RTD		X	X	1



Note: Each channel may be used in any of the four example forms shown.

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	n-1	(Data from modules to the left)							
	n	S-0	Channel 0, MSB						
	n+1	Channel 0, LSB							
	n+2	S-1	Channel 1, MSB						
	n+3	Channel 1, LSB							
	n+4	S-2	Channel 2, MSB						
	n+5	Channel 2, LSB							
	n+6	S-3	Channel 3, MSB						
	n+7	Channel 3, LSB							
	n+8	(Data from modules to the right)							

TURCK Modular Industrial I/O System for Hazardous Areas



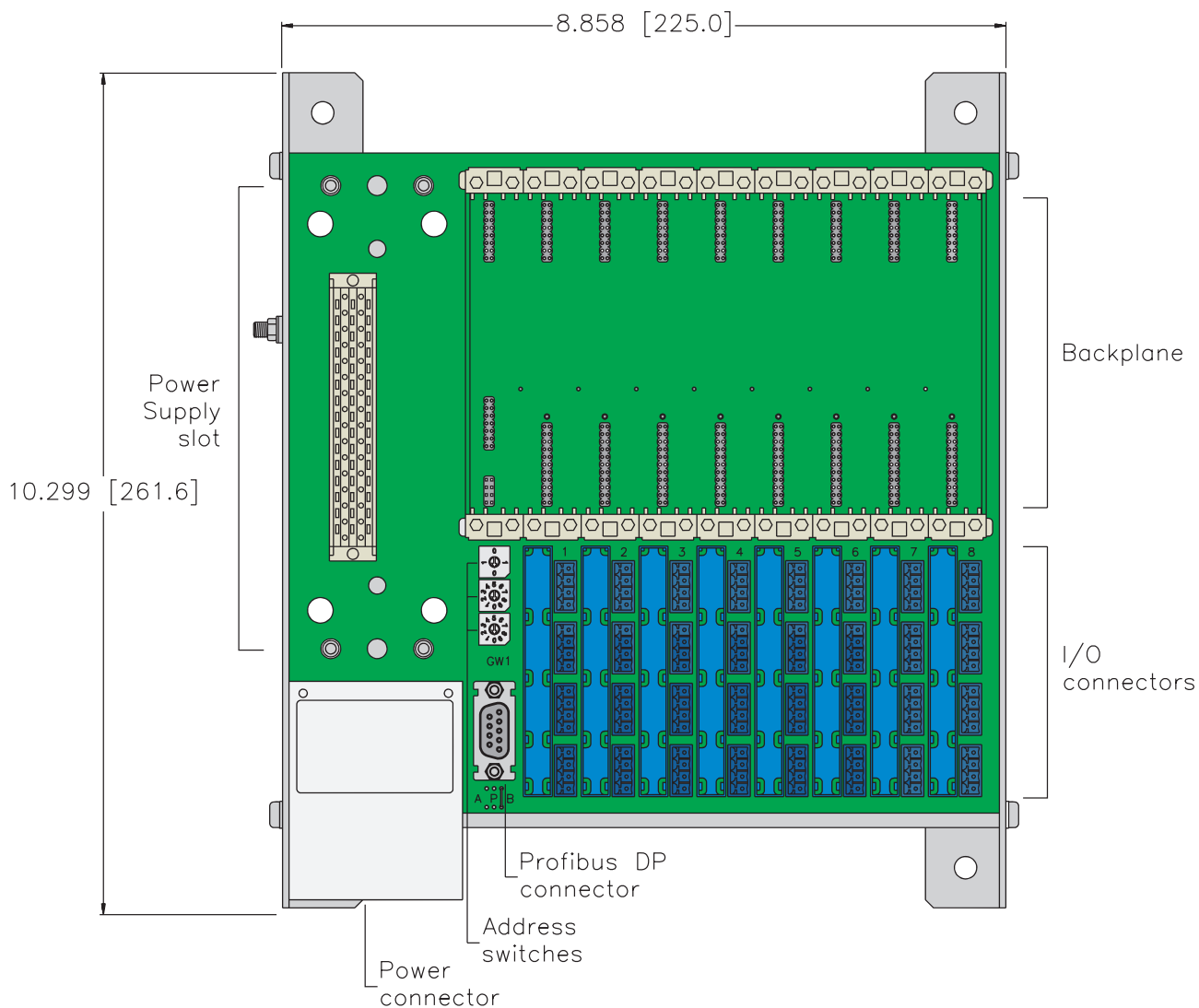
Backplane Racks

- Modular I/O
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- Redundant Communication Option

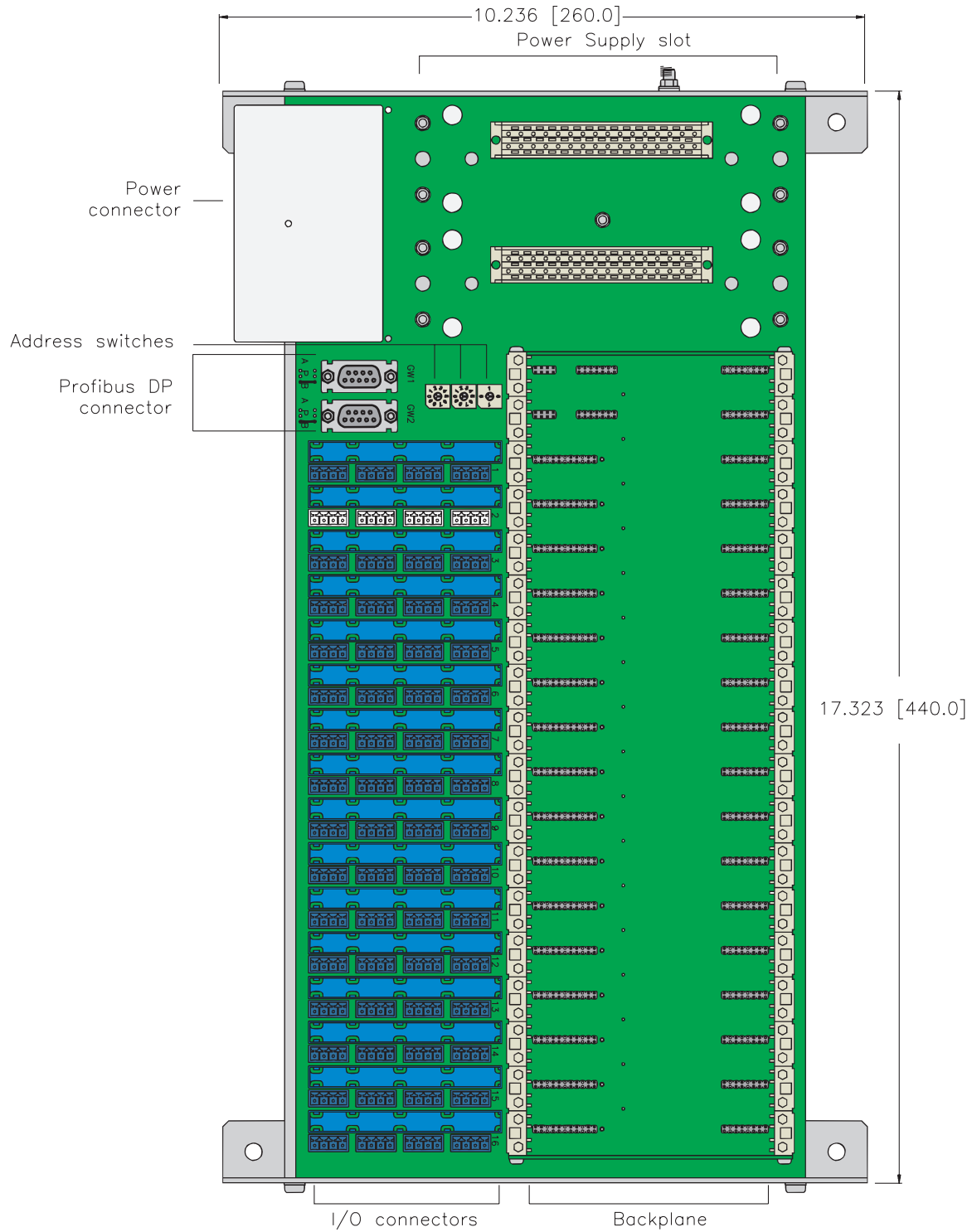


Excom Racks				
Part Number	I/O Slots	Redundancy	Connector Type	FM Approval
MT9/FM	8		Screw Terminal	X
MT9-R024	8		Screw Terminal	Pending
MT18-R024	16	X	Screw Terminal	Pending

MT9/FM
MT18-R024



MT18..



excom

PSD24EX



- Power Supply Module (24 VDC in) for Excom Rack

Electrical

- Power Consumption: 75 W
- Power Output: 60 W
- Voltage Input: 18...33 VDC

Mechanical

- Operating Temperature: -20 to +60°C (-4 to +140°F)
- Protection: IEC IP50

Diagnostics (Physical)

- LEDs indicate status of power supply



BM1



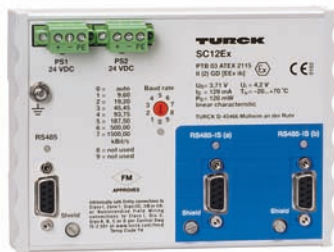
- Blank Cover for Unused *excom* Slots

Image	Part Number	Description
	<p>D9T-RS485</p>	<p>D9 PROFIBUS-DP connector for use in safe areas.</p>
	<p>D9T-RS485IS</p>	<p>D9 PROFIBUS-DP connector for use in hazardous (FM Div 2) areas.</p>
	<p>D9T-RS485PG</p>	<p>D9 PROFIBUS-DP connector with programming port for use in safe areas</p>
	<p>MODEX-FILTER</p>	<p>Capacitor to improve power up performance and operational safety of <i>excom</i></p>

excom

**PROFIBUS-DP
 IS Couplers**

- Redundant Communication
- PROFIBUS-DP Compatible
- Hazardous Area Usage
- Fiber Optic or Copper Media



Electrical

- Voltage In: 18 to 32 VDC
- Current Consumption: <100 mA (OC11...), <200 mA (SC12...)

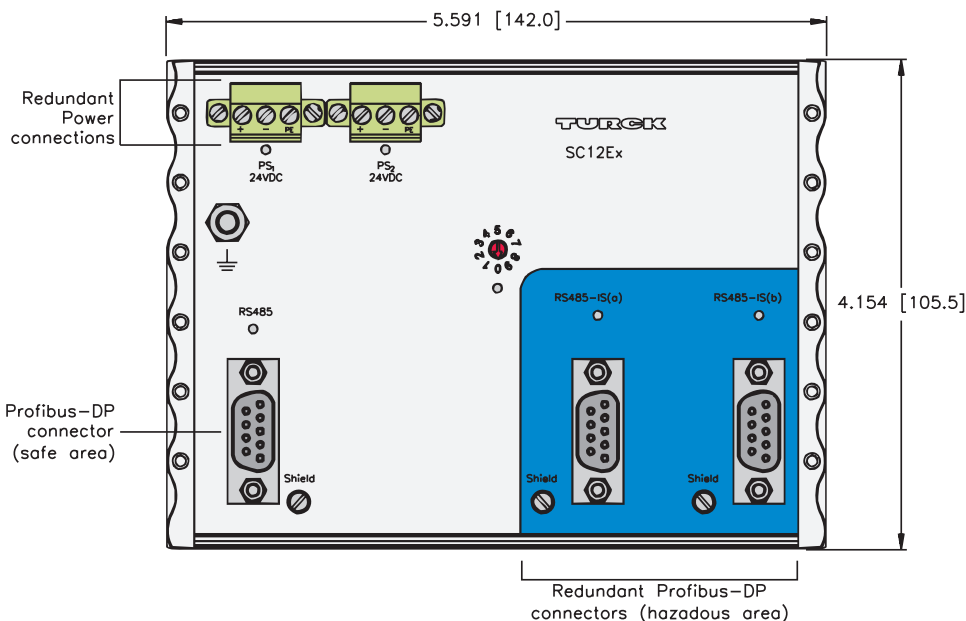
Mechanical

- Operating Temperature: -20 to +70°C (-4 to +158°F)
- Protection: IEC IP 20

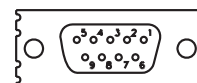
Diagnostics (Physical)

- LEDs indicate status of power and PROFIBUS-DP communication

OC11EX/2G
OC11EX/3G
SC12-EX



SC12-EX shown

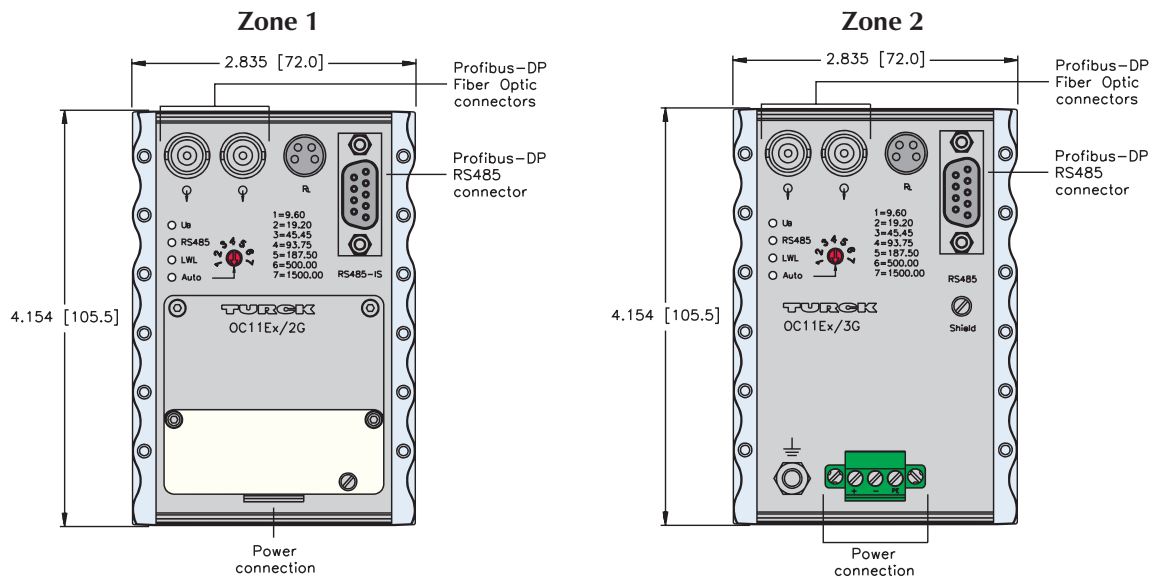


- 1=Shield
- 3=BUS_B
- 5=DGND
- 6=+VDC
- 8=BUS_A

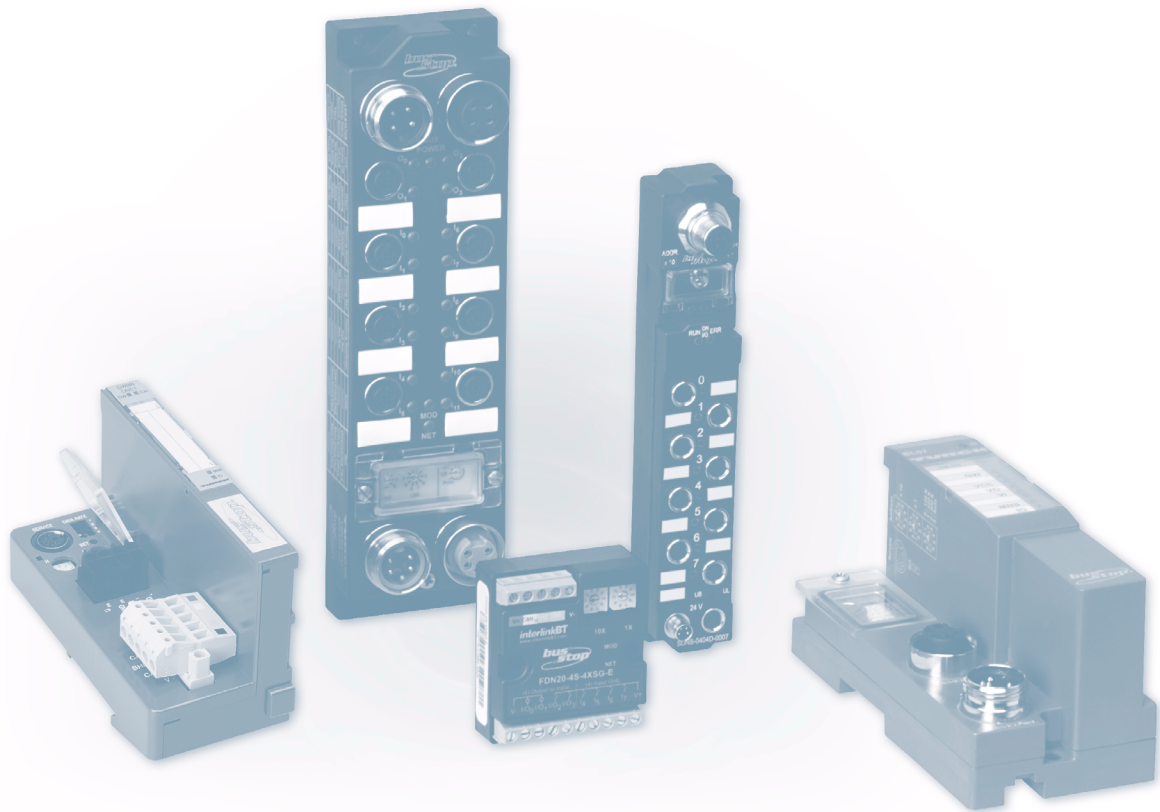
Note: For fiber optic communication the part number CABLE LWL-2ST/SY-*M (where * is the length in meters) must be used.

Part Number	Classification	Connection
OC11EX/2G	Zone 1	Fiber
OC11EX/3G	Zone 2	Fiber
SC12-EX		Copper

Note: For fiber-optic communication the part number CABLE LWL-2ST/SY-*M (where * is the length in meters) must be used.



excom



DeviceNet™ System Description

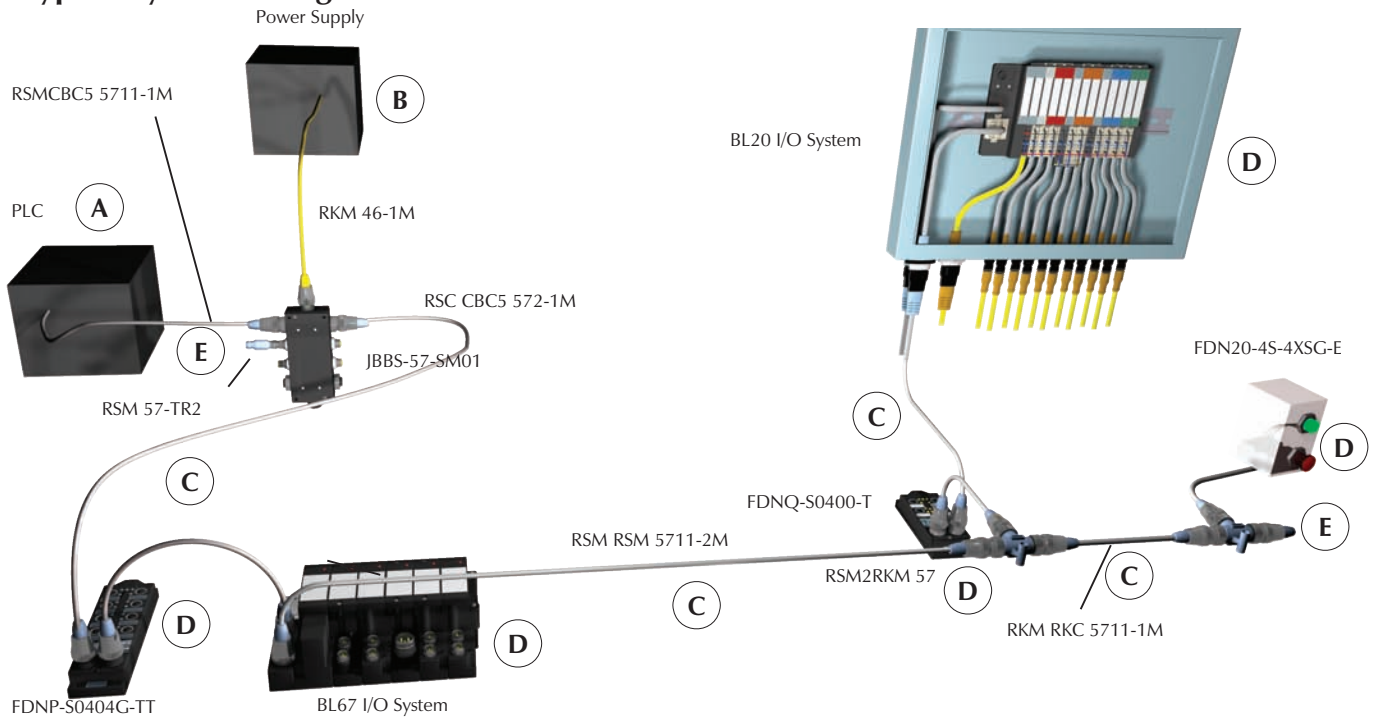
DeviceNet is a low-cost communications protocol that eliminates hard wiring and connects industrial devices such as limit switches, photoelectric sensors, valve manifolds, motor starters, process sensors, bar code readers, variable frequency drives, panel displays and operator interfaces to a network. DeviceNet's direct connection provides improved communication between devices, as well as important device-level diagnostics not easily accessible or available through hard-wired I/O interfaces.

DeviceNet is based on the Controller Area Network (CAN) broadcast-oriented communication architecture. CAN uses a bus arbitration method, CSMA/BA, that assures the highest priority message always gets use of the bus in the event of a data collision. The DeviceNet protocol further defines message priorities such that I/O messages are given top priority and configuration messages have lower priority.

A DeviceNet network supports up to 64 nodes and virtually an unlimited amount of I/O. The bus uses a trunkline/dropline topology, where bus power and communication are supplied on a single cable. Bus power is 24 VDC and supplies current to operate the nodes and (typically) power input devices. Some **TURCK** stations require an additional 24 VDC auxiliary power to supply current for outputs.

DeviceNet allows peer-to-peer data exchange (where a DeviceNet node can initiate communication with other nodes or peers), and a master/slave configuration in which the master node initiates all communication and all other nodes, or slaves, respond to the master node's requests.

Typical System Configuration



A typical DeviceNet system consists of the following parts:

- A - Controller
- B - Power Supply
- C - DeviceNet Cable
- D - DeviceNet I/O Modules (or Slaves)
- E - Terminating Resistors

DeviceNet stations require a network master (also called a scanner) to interface the stations to the host controller. **TURCK** DeviceNet stations are designed to be fully compatible with DeviceNet equipment from other manufacturers.

Cordsets

TURCK offers a complete line of molded DeviceNet cordsets to facilitate network installation, resulting in a faster start-up and fewer wiring errors. The bus and drop cables are specially designed foil-shielded, high-flex cables with very low inductance and capacitance to minimize propagation delay time. DeviceNet cables consist of a shielded and twisted data pair, as well as a shielded and twisted power pair for the 24 VDC bus power, with an additional outer shield. The 24 VDC power pair provides bus power to the station's communication electronics and (typically) to input circuits.

The data lines for CAN-High and CAN-Low differential signals conform to the CAN standard, and support network data exchange at the maximum transmission speed of 500 kbps.

In most cases, bus cable connections are made using 5-pin *minifast*® (7/8-16 UN) or *eurofast*® (M12) connectors. A variety of stations are also available that support terminal-block type connections. Stations with output circuits for DC actuators normally require 24 VDC auxiliary power fed through a separate connection from the communication bus.

TURCK cordsets for the DeviceNet system are available in standard lengths. Contact your local sales representative to order custom lengths.

Diagnostics

TURCK stations provide increased diagnostics when used with standard proximity or photoelectric sensors and discrete actuators. **TURCK** stations also serve as a buffer between I/O devices and the DeviceNet bus by detecting short-circuits without disrupting DeviceNet communication.

For deluxe style stations, each I/O point on the station provides state and status data. State data represents the real world value of the I/O device; for example, when the sensor is on or the actuator is off. Status data indicates short-circuits in the I/O device or in the wiring between the device and the station. Some models also use status data to indicate open circuits.

State and status data are transferred to the DeviceNet scanner where it is available for fault handling in the control program. Additionally, each input and output has a multicolored LED to indicate its state and status and pinpoint I/O problems quickly; for example the module status LED indicates the internal health of the station, and the network status LED indicates the station's communication on the DeviceNet network.

Addressing

The valid range of DeviceNet node addresses is 0 to 63. The station's default node address is 63. Each node's address must be initially set, usually via rotary dials or switches on the node. The address can also be set with a DeviceNet configuration tool.

Changes to the address settings take effect when the station power is cycled. Care must be taken to prevent the same address from being assigned to more than one node in a system. If the same address is set on multiple nodes, one node will take control of the address and the others will go into "Critical Link Failure" state, indicated by the network status LED (solid red).

Communication Rate/Cycle Time

DeviceNet™ specifications define three transmission speeds: 125, 250 and 500 kbps. All nodes on a network must communicate at the same rate.

Several factors must be considered when calculating the complete cycle time of a DeviceNet system, including:

- Number of nodes being scanned
- Amount of data produced and consumed by the nodes
- Type of I/O messaging (change of state, strobe, poll)
- Network communication rate
- Device time-out and explicit messaging traffic
- Cycle time of the control program

Electronic Data Sheets (EDS) Files







Electronic Data Sheets, or EDS files, are files that contain detailed information about a DeviceNet device, including I/O data size and the device's configurable parameters. The information provided by EDS files guide a user through the steps necessary to configure a device. EDS files are available on the **TURCK** web site (www.turck.com).

Maximum Ratings

The DeviceNet bus uses trunk and drop topology. The trunk is the main communication cable, and requires a 121 ohm resistor at both ends of the trunk. The length of the trunk depends on the communication rate and the cable type. Drops are branches off the trunk, and may be from zero to 6 m (20 ft) in length. The cumulative drop lengths are dependent on the communication rate. The following table shows the maximum ratings for a trunk using thick, mid and thin cable. Thick and thin DeviceNet communication cable types are defined by the DeviceNet specification; mid cable is a hybrid of the two that is offered by **TURCK**.

Communication Rate	Thick Trunk Length (maximum)	Mid Trunk Length (maximum)	Thin Trunk Length (maximum)	Drop Length (maximum per drop)	Drop Length (cumulative)	Nodes (maximum)
125 kbps	500 m (1640 ft.)	300 m (984 ft.)	100 m (328 ft.)	6 m (20 ft.)	156 m (512 ft.)	64
250 kbps	250 m (820 ft.)	250 m (820 ft.)	100 m (328 ft.)	6 m (20 ft.)	78 m (256 ft.)	64
500 kbps	100 m (328 ft.)	100 m (328 ft.)	100 m (328 ft.)	6 m (20 ft.)	39 m (128 ft.)	64

DeviceNet Selection Guide

Housing	I/O Type	I/O Direction	Pages
	Discrete	Input	F13, F15, F31, F39
		Output	F29, F41
		Input & Output	F17 - F27, F33 - F37, F43 - F45
	Analog	Input	F47 - F49
	E-connect	Input & Output	F51 - F64
	Master		F65
	Repeater		F67
	Spanner		F69
	Discrete	Input & Output	F75
	Discrete	Input	F89
		Output	F93
		Input & Output	F91, F95
	Analog	Input	F97
		Output	F101
	Special Function	Counter	F103
		Encoder	F105
	Serial	F107	
	Discrete	Input & Output	F111
	Discrete	Input & Output	F115
	BL67	N/A	F117
	BL20		F119
	AS-I		F121
	<i>piconet</i>		F125
DeviceNet Media			G1 - G82

DeviceNet™ AIM™ Stations

TURCK's Advanced I/O Module (AIM) DeviceNet stations are extremely rugged stations designed for machine mounting. These stations allow easy connection of standard I/O devices (such as sensors, limit switches, valves and pilot lights) to a DeviceNet network, typically without a protective enclosure. This is made possible by epoxy-filled station housings, all-metal connectors and visible rotary address switches, among other things.

Specifications

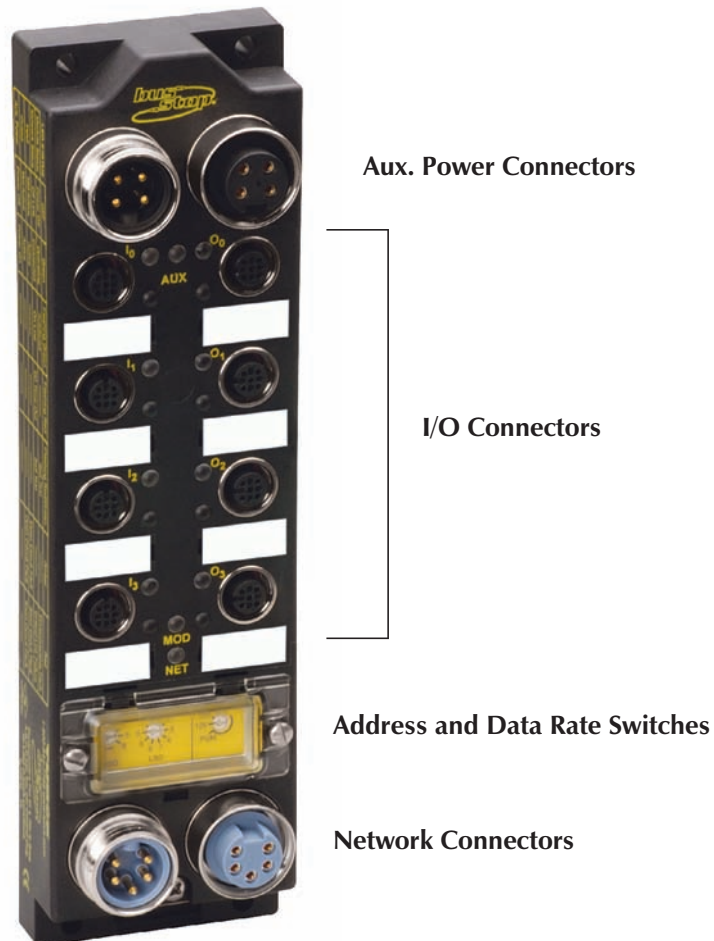
Mechanical

TURCK DeviceNet AIM stations are designed for machine mounting with no separate enclosure or housing necessary. Quick-disconnect capability, combined with an epoxy-filled housing, creates an extremely durable station that can be mounted in most industrial environments. Detailed environmental specifications are as follows:

- Housing material: Glass filled nylon
- Connector material: Nickel-plated brass
- Protection level: NEMA 1,3,4,12,13; IEC IP 67
- Operating temperature: SE stations -40 to +70°C (-40 to +158°F); LX stations -25 to +70°C (-13 to +158°F)
- Vibration: 50 g @ 10-500 Hz

Other housing and connector materials available upon request.

The stations components are identified in the following figure. The figure shows a station with *minifast*® (7/8-16 UN) network connectors, but other connector options (such as M12 *euromast*®) are available for some stations. Stations with all I/O powered from the DeviceNet power supply do not have the auxiliary power connectors at the top of the housing.

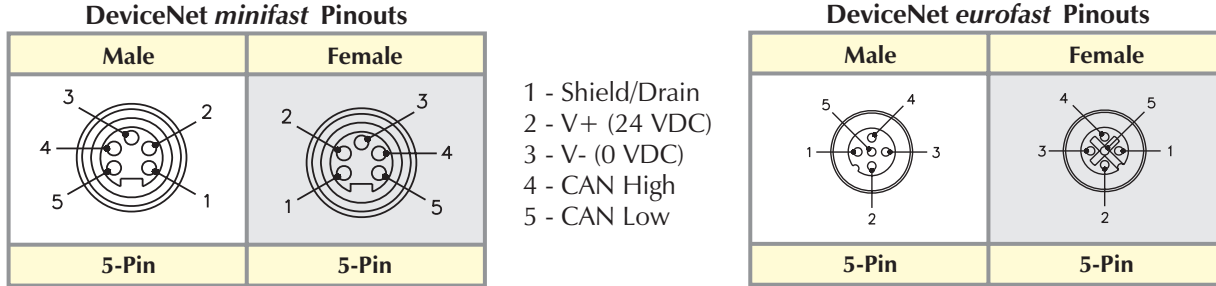


Connectors

DeviceNet™ AIM™ stations generally provide connections for the bus and I/O, in addition to auxiliary power for stations with outputs.

Bus Connectors

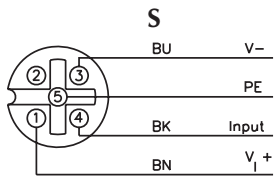
minifast® (7/8-16UN) is the standard bus connector for DeviceNet AIM stations. Some stations are available with **eurofast**® (M12) or M23 bus connectors.



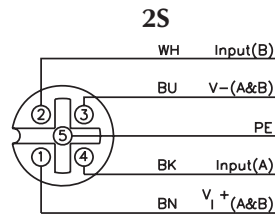
eurofast I/O Connectors

Different I/O connector pinouts are used for different station types. Stations are available with one or two inputs per connector, one or two outputs per connector, or one input and one output per connector. The pin assignments for these styles are provided below.

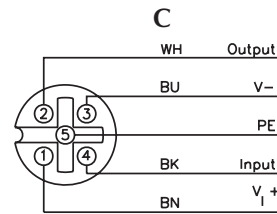
Screw Terminal I/O Connection



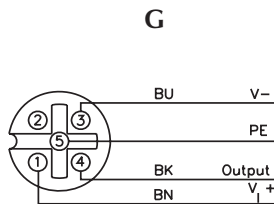
Mating cordset:
 RK 4.4T-*/-RS 4.4T



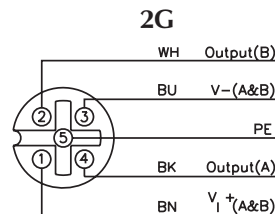
Mating cordset:
 RK 4.4T-*/-RS 4.4T
 Splitter:
 VBRS-4.4-2RK 4T-*/*



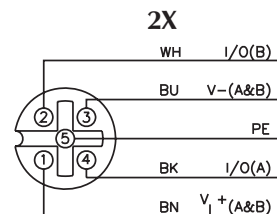
Mating cordset:
 RK 4.4T-*/-RS 4.4T
 Splitter:
 VB2-RS 4.4T-1/2RK
 4.4T-*/*/S651



Mating cordset:
 RK 4.4T-*/-RS 4.4T



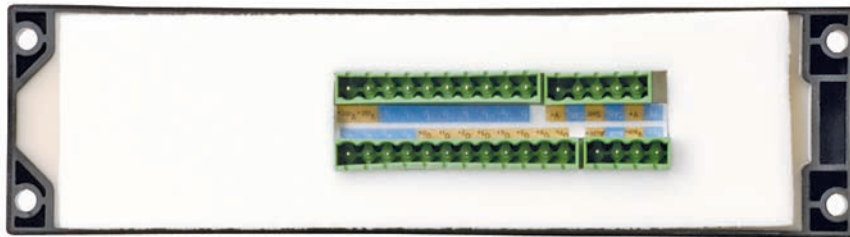
Mating cordset:
 RK 4.4T-*/-RS 4.4T
 Splitter:
 VBRS-4.4-2RK 4T-*/*



Mating cordset:
 RK 4.4T-*/-RS 4.4T
 Splitter:
 VBRS-4.4-2RK 4T-*/*

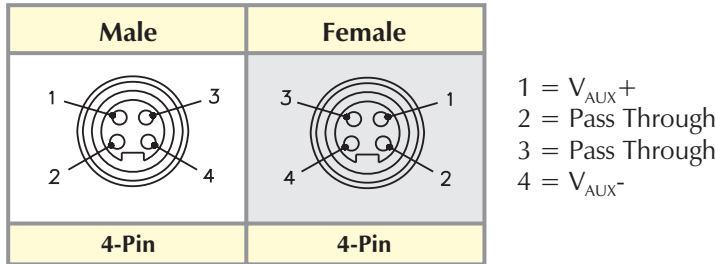
AIM™ stations with part numbers ending in “ST” support screw terminal I/O and bus connections. The screw terminals for these stations are located on the back of the station. The back of the station is also fitted with a foam gasket to allow the station to be mounted to the outside of a cabinet or field I/O box (i.e. motor control center).

Auxiliary Power Connectors



ions where I/O draws a significant amount of current (2 Amp outputs, for example) receives this power from a second, or auxiliary, power supply. Some stations receive input power from the network and output power from the auxiliary supply. Generally, the connection is a male/female pair to allow cabling one power supply to multiple stations without the use of a tee (daisy chain configuration). Auxiliary power is typically supplied by a 4-pin *minifast*® (7/8-16 UN) connector, though other auxiliary power connections are used on some stations. For further details see the individual station entries in this catalog.

Aux. Power Pinout



Power

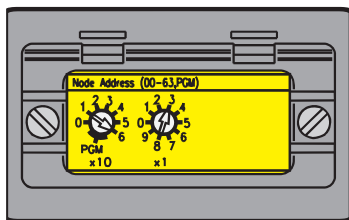
Some AIM stations (typically those with only inputs) are completely powered from the DeviceNet power supply. When designing a network, take care to include the current draw for the station, as well as all input devices connected to the station in your power supply sizing calculations. For example, if the internal current consumption of the station is <50 mA and the total short-circuit limit for all inputs combined is <700 mA, then the maximum current draw for the station is 50 mA + 700 mA = 750 mA.

Stations with output points normally use a separate auxiliary power supply to provide current for the outputs. Several AIM stations can be powered by one auxiliary supply, or a single supply for each station can be used.

Common power ratings for AIM stations include:

- Bus (DeviceNet) Voltage: 11-26 VDC
- Aux Power Voltage: 24 VDC (nominal, supported stations)

- Input Voltage: 13-26 VDC (From DeviceNet supply)
- Input Signal Current (each input): OFF <2 mA; ON 3.0-3.4 mA (@ nominal 24 VDC)
- Input Delay: 2.5 ms



Addressing

DeviceNet™ stations must have a network address for communication. The address for AIM stations may be set via the visible rotary switches

under the clear plastic cover on the front of the station.

The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the station, rotate the switches with a small slotted screwdriver until the arrows on the switch point to the appropriate numbers for the chosen address.

Some stations (LX style with extended diagnostics) have a third switch. This switch is used to set the communication baud rate for the station. When set to the AUTO position, the station automatically senses the baud rate of the network. SE style stations only use the autobaud setting.

Parameters

Many DeviceNet configuration tools support the use of EDS driver files to configure nodes and set various parameters. Some of the user settable parameters available for AIM stations are:

Parameter Name	Description	Valid Values	Default
Baud Rate	Defines the baud rate for the station to use if Autobaud is disabled	125kB; 250kB; 500kB	125kB
Autobaud	If enabled the station automatically senses the baud rate	Enable; Disable	Enable
Connection Mode	Set to UCMM to use unconnected messaging	Predefined M/S Connection; UCMM	Predefined M/S Connection
Quick Connect	Set to enable fast startup connection to DeviceNet (QuickConnect)	Enable; Disable	Disable

Consult the documentation for the DeviceNet configuration tool you are using for details on how to access device parameters via EDS files.

Diagnostics

AIM™ stations provide two LEDs for diagnosing communication problems.

Module Status

- Green: Working properly
- Flashing green: Detecting baud rate
- Flashing red: Input short-circuit

Network Status

- Green: Connection established
- Flashing green: Waiting for connection
- Flashing red: Connection timed out
- Red: Cannot connect

There is an additional LED for each I/O point on the station. This LED indicates:

- Off: Point is off
- Green: Point is on
- Amber: Point is in open circuit state (advanced diagnostic stations only)
- Red: Point is in short-circuit state (advanced diagnostic stations only)

For SE style (group diagnostic) stations there is also a single bit communicated to the controller for diagnostic purposes. This bit is on if any input on the station is in the short-circuit condition, and off if all inputs are operating normally.

LX style (extended diagnostic) stations indicate the diagnostic status of each I/O point on the station, with an extra bit to indicate if the point is short or open circuited. These diagnostic bits can be disabled via the EDS parameter settings.

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	-	APS	-	-	-	-	-	-
Out	0	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0

} extended diagnostic

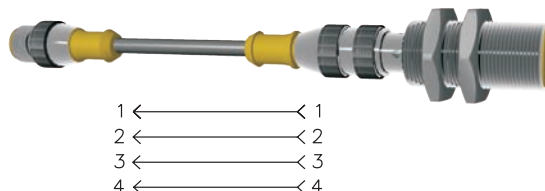
Connecting Devices to an AIM Station

AIM stations typically provide a **euromast**® (M12) connection for each I/O point. Standard **TURCK** I/O cordsets can be used to connect physical devices in the field to the AIM station. Some AIM stations, specifically those with I/O counts greater than eight total points, connect two signals to each connector. If the signals being connected are on the same physical device (for example a sensor with two outputs), a simple four or five-wire cordset can be used for connection (Figure 1) on the next page.

- I = Input
- O = Output
- ISS = Input Short Circuit Status
- IOS = Input Open Circuit Status
- OS = Output Status
- APS = Auxiliary Power Status

If the signals are on two separate devices, a splitter can be used to separate the AIM™ I/O connector into two individual **euromast**® connectors. The recommended splitter is wired such that the second signal pin on the AIM station (pin 2) is wired to the default signal pin (pin 4) on the second splitter arm - requiring no special wiring by the user. The splitter is simply plugged into the AIM I/O connector and each arm is plugged into the appropriate I/O devices, as shown (Figure 2).

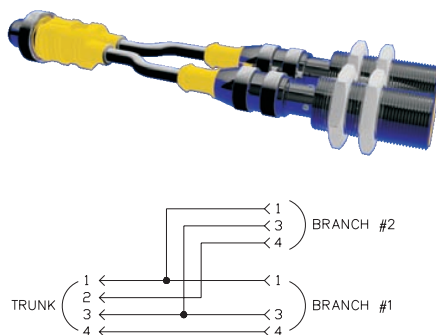
Figure 1



For one input per connector use standard cordsets, for example RK 4.4T-1-RS 4.4T

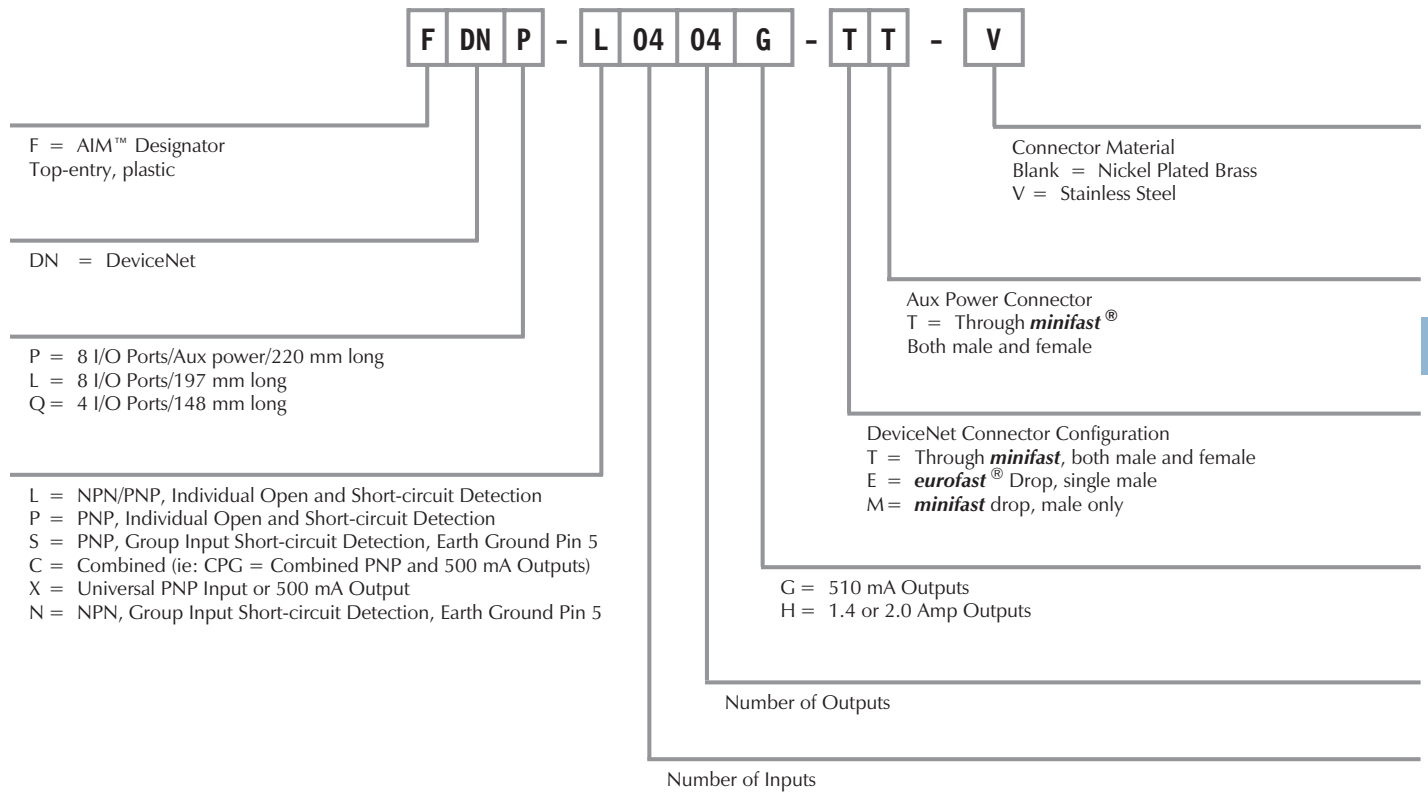
AIM stations provide a wide range of connection options depending on the I/O count and type being used. The user should be aware of the I/O pinout being used.

Figure 2



For two inputs per connector use a splitter, for example VBRS 4.4-2RK 4T-1/1

Part Number Key



Deluxe Input Stations



- FDNL-L0800-T
- FDNL-L0800-T-V
- FDNL-L1600-T
- FDNL-L0800-C
- FDNL-L1600-C



- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: ≤100 mA (8-in) or 140 mA (16-in) plus sum of input currents (from DeviceNet)
- Sensor Current: <80 mA per input (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

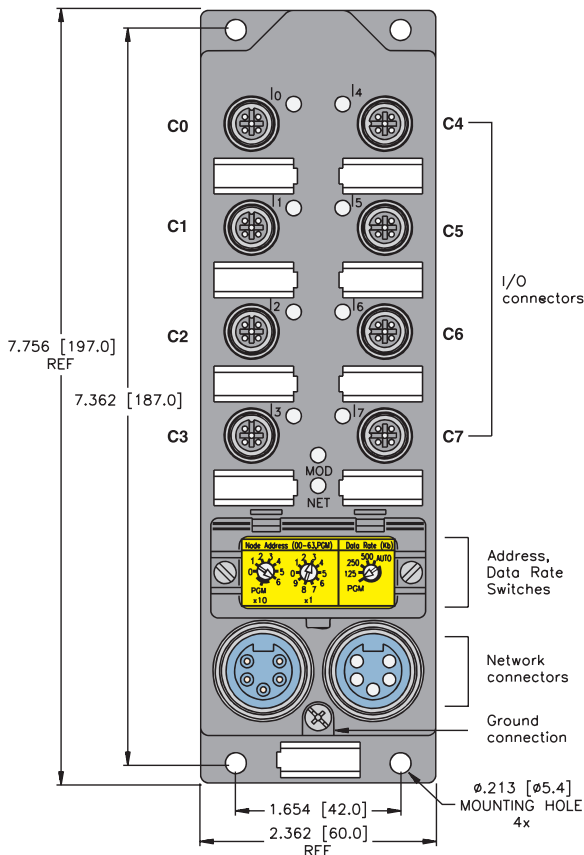
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit each per I/O point

Diagnostics (Physical)

- Individual LED to indicate open/short-circuit for each channel
- LEDs to indicate status of DeviceNet communication



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

DeviceNet minifast® Pinouts

Male	Female
5-Pin	5-Pin

FDNL-...-T

DeviceNet eurofast® Pinouts

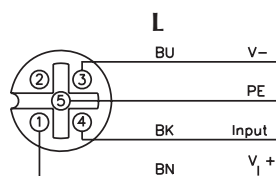
Male	Female
5-Pin	5-Pin

FDNL-...-C

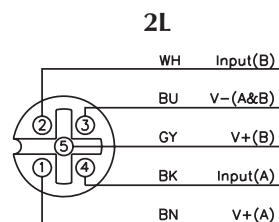
Part Number	Inputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNL-L0800-T	8	0-7	L	1	NPN/PNP		X	X	1
FDNL-L0800-T-V	8	0-7	L	1	NPN/PNP		X	X	1
FDNL-L1600-T	16	0-7	2L	2	NPN/PNP		X	X	2
FDNL-L0800-C	8	0-7	L	1	NPN/PNP		X	X	1
FDNL-L1600-C	16	0-7	2L	2	NPN/PNP		X	X	2

DeviceNet

Input Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
Sensor with dual outputs:
RK 4.4T-*-RS 4.4T
Two sensors:
RK 4.5T-*-RS 4.5T
Splitter:
VBRS 4.5-2RK 4T-*/S818

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0	
2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0	

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
2	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0	
3	ISS-15	ISS-14	ISS-13	ISS-12	ISS-11	ISS-10	ISS-9	ISS-8	
4	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0	
5	IOS-15	IOS-14	IOS-13	IOS-12	IOS-11	IOS-10	IOS-9	IOS-8	

Standard Input Stations



- FDNL-S0800-T
- FDNL-S1600-T
- FDNL-S1600-T-V
- FDNL-N0800-T
- FDNL-N1600-T
- FDNL-S1600-E



- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <50 mA plus input currents (from DeviceNet)
- Sensor Current: <700 mA sum of all inputs (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

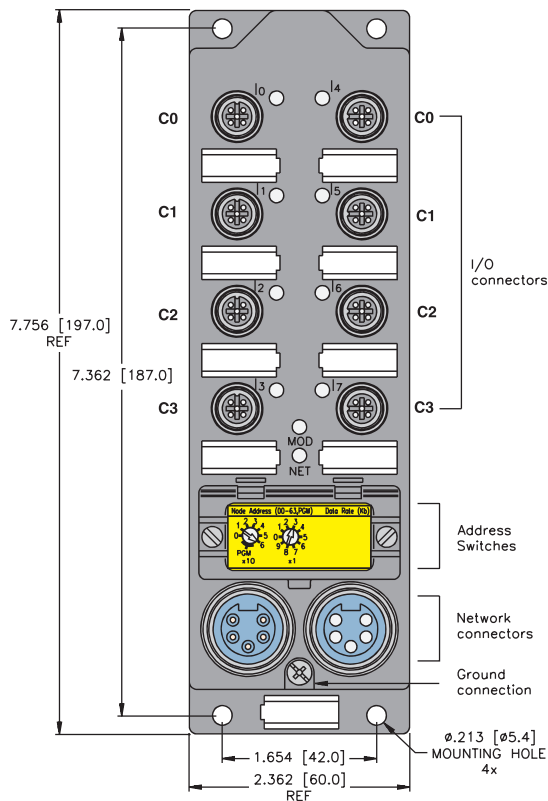
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates a fault for all inputs

Diagnostics (Physical)

- One LED indicates a fault for the whole station
- LEDs to indicate status of DeviceNet communication



DeviceNet *minifast* Pinout

Male	Female
5-Pin	5-Pin

FDNL...T

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

DeviceNet *eurofast*® Pinouts

Male
5-Pin

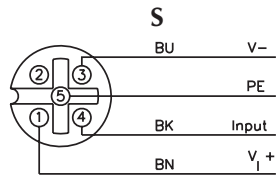
FDNL...E

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

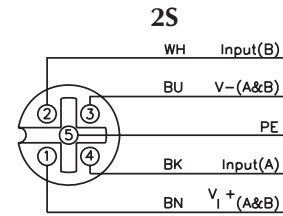
Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNL-S0800-T	8	0-7	S	1	PNP	X			1
FDNL-S1600-T	16	0-7	2S	2	PNP	X			2
FDNL-S1600-T-V	16	0-7	2S	2	PNP	X			2
FDNL-N0800-T	8	0-7	N	1	NPN	X			1
FDNL-N1600-T	16	0-7	2N	2	NPN	X			2
FDNL-S1600-E	16	0-7	2S	2	PNP	X			2

DeviceNet

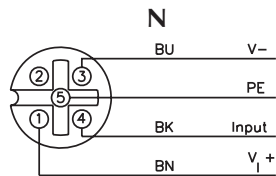
Input Connectors



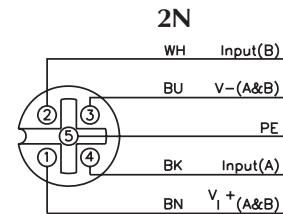
Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
1	IGS	-	-	-	-	-	-	-	-

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
2	IGS	-	-	-	-	-	-	-	-

Deluxe Input/Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Input and Output on Same Connector
- Automatic Baud Rate Sensing



FDNL-CPG88-T



Electrical

- Operating Current: <100 mA plus sum of I/O currents (from DeviceNet)
- Sensor Current: <120 mA per input (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

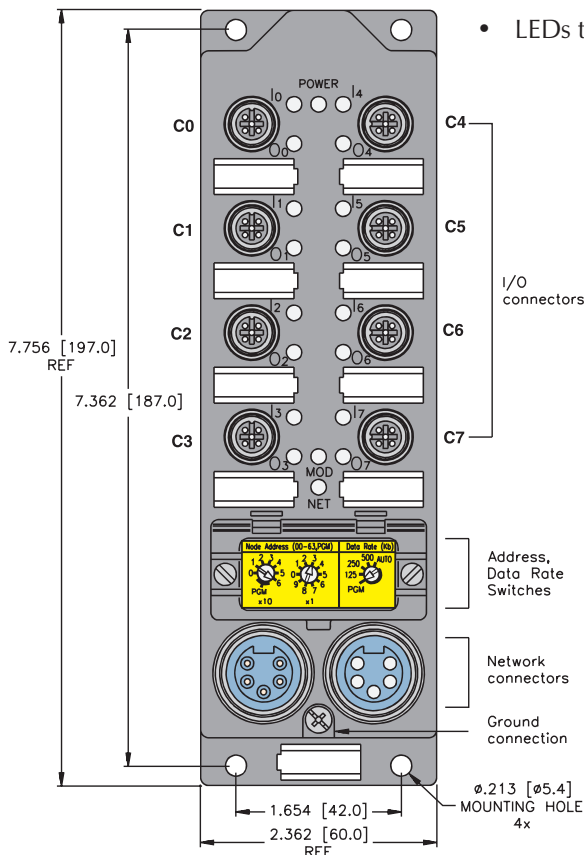
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit each per I/O point

Diagnostics (Physical)

- Individual LED to indicate open/short-circuit for each channel
- LEDs to indicate status of DeviceNet communication

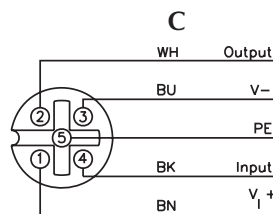


DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNL-CPG88-T	8	0-7	C	1	PNP		X	X	8	0-7	C	1	0.5 A	X	X	1

Input/Output Connectors



Mating cordset:

RK 4.4T-*/RS 4.4T

Splitter:

VB2-RS 4.4T-1/2RK 4.4T-*/S651

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0	
2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0	
3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0	
4	-	APS	-	-	-	-	-	-	
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Standard Input/Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Input and Output on Same Connector
- Automatic Baud Rate Sensing



FDNL-CSG88-T
FDNL-CSG88-T-V



Electrical

- Operating Current: <100 mA plus sum of I/O currents (from DeviceNet)
- Sensor Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

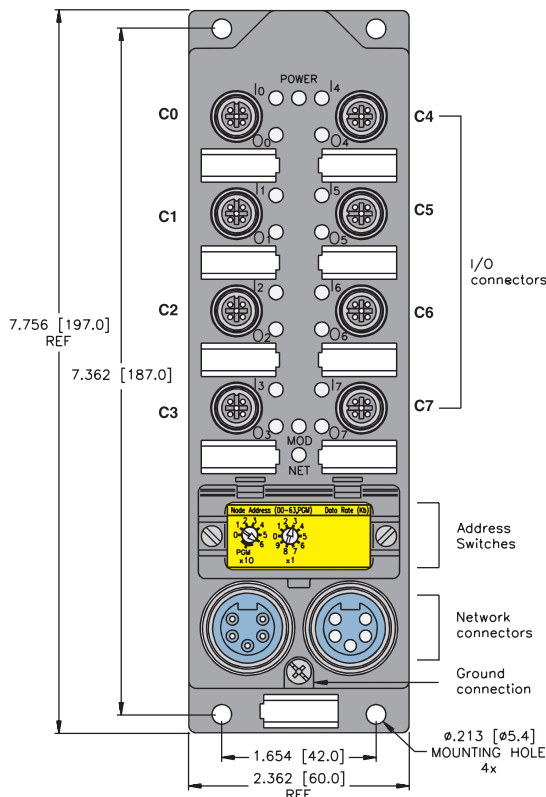
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates a fault for all inputs, one bit for all outputs

Diagnostics (Physical)

- One LED indicates I/O fault for entire station
- LEDs to indicate status of DeviceNet communication



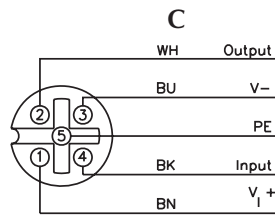
DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

	Inputs								Outputs					Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNL-CSG88-T	8	0-7	C	1	PNP	X			8	0-7	C	1	0.5 A			1
FDNL-CSG88-T-V	8	0-7	C	1	PNP	X			8	0-7	C	1	0.5 A			1

Input/Output Connectors



Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

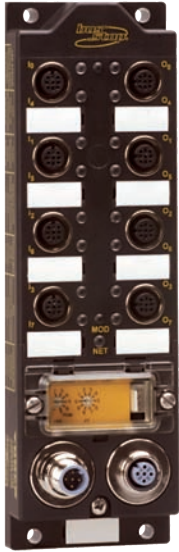
VB2-RS 4.4T-1/2RK 4.4T-*/S651

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IGS	OGS	-	-	-	-	-	-
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Input/Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- DeviceNet Powered I/O
- Sinking Outputs



FDNL-SN0808N-C



Electrical

- Operating Current: <75 mA (from DeviceNet)
- Sensor Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

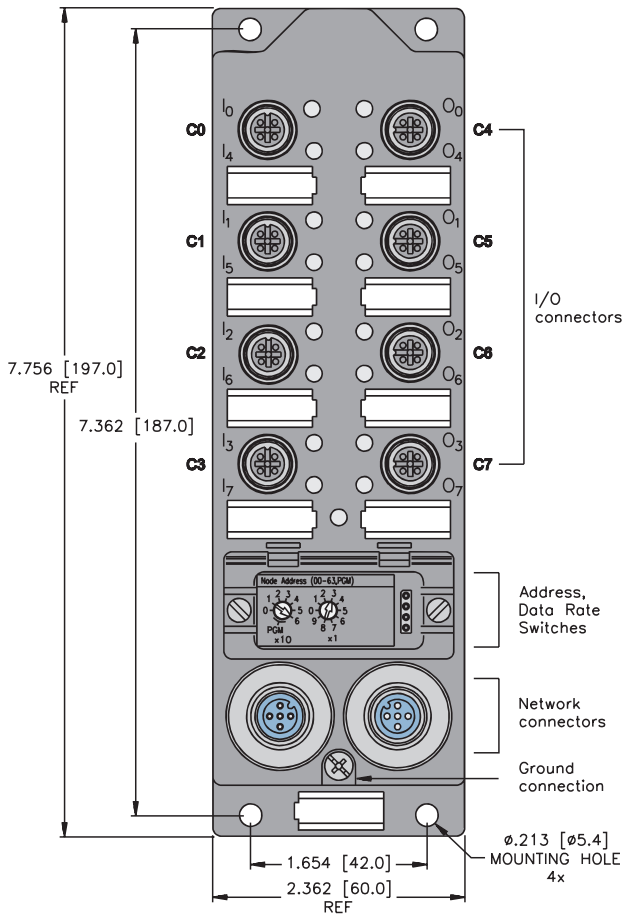
- Operating Temperature: -40 to +70 °C (-40 to +158 °F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Physical)

- One LED indicates a fault for the entire station
- LEDs to indicate status of DeviceNet communication



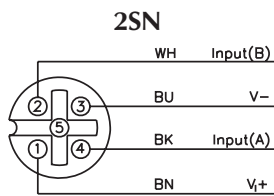
DeviceNet eurofast Pinout

Male	Female
5-Pin	5-Pin

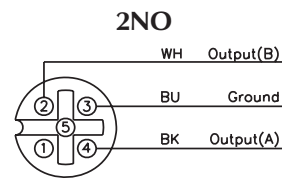
- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

	Inputs								Outputs					Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNL-SN0808N-C	8	0-3	2SN	2	PNP/NPN				8	4-7	2NO	2	0.5 A			1

Input/Output Connectors



Mating cordset:
 RK 4.4T-*-RS 4.4T



Mating cordset:
 RK 4.4T-*-RS 4.4T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IGS	-	-	-	-	-	-	-
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Input/Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- DeviceNet Powered I/O
- Sinking Outputs



FDNL-S1204H-0142*
FDNL-S1204H-0153



Electrical

- Operating Current: <75 mA (from DeviceNet)
- Sensor Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

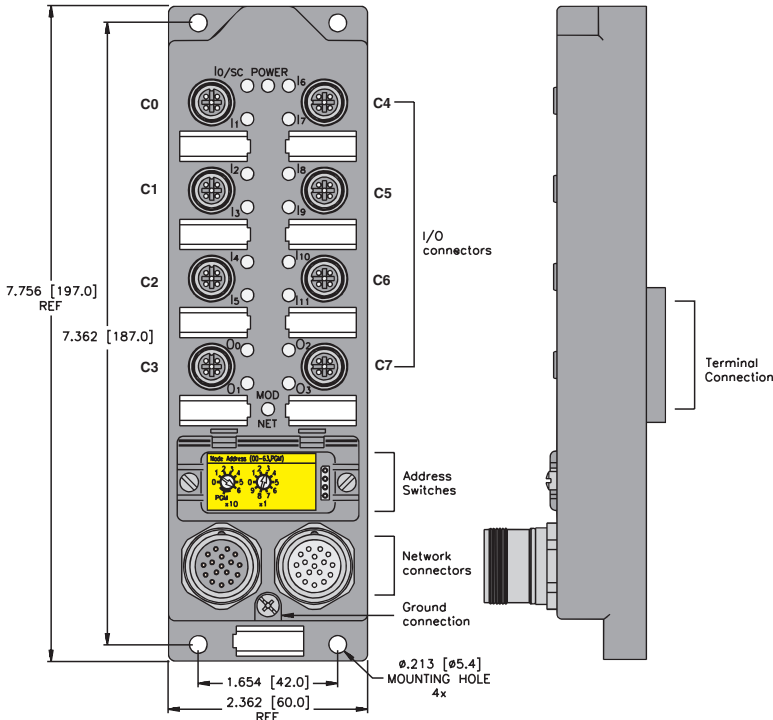
- Operating Temperature: -40 to +70 °C (-40 to +158 °F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Physical)

- One LED indicates a fault for the entire station
- LEDs to indicate status of DeviceNet communication



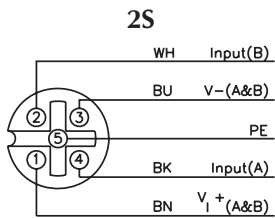
DeviceNet multifast Pinout	
Male	Female
17-Pin	17-Pin

- | | |
|--------------|------------------|
| 1 = 0 V, us1 | 10 = KSR1 |
| 2 = 0 V, US2 | 11 = * |
| 3 = +24, US2 | 12 = Us CAN high |
| 4 = +24, US1 | 13 = Devnet high |
| 5 = PE | 14 = Devnet low |
| 6 = * | 15 = RBST |
| 7 = Us COM | 16 = UL |
| 8 = * | 17 = Us CAN low |
| 9 = KSR2 | |

* Rear removable terminal present on FDNL-S1204H-0142 only.

Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNL-S1204H-0142	12	0-2 4-6		2	PNP	X			4	3+7		2	2.0 A			1
FDNL-S1204H-0153	12	0-2 4-6		2	PNP	X			4	3+7		2	2.0 A			1

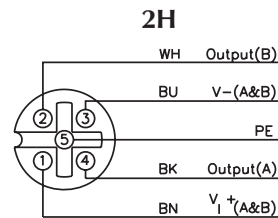
Input/Output Connectors



Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter: VBRS 4.4-2RK 4T-*/*



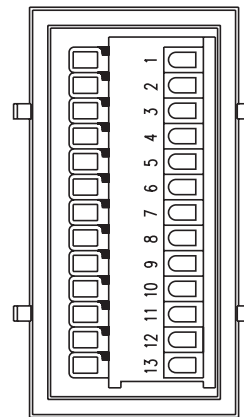
Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter: VBRS 4.4-2RK 4T-*/*

SIGNAL	PIN
*	6
PE	5
+24V, US1	4
+24V, US2	3
0 V, US1	1
0 V, US2	2
Us CAN high	12
Us CAN low	17
KSR2	9
KSR1	10
*	8
Us COM	7
*	11
Devnet high	13
Devnet low	14
RBST	15
UL	16

LEAD	SIGNAL
1	+24V, US2
2	0V, US1, US2
3	0V, US1, US2
4	Us CAN high
5	Us CAN low
6	KSR2
7	KSR1
8	-
9	-
10	-
11	-
12	-
13	-



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IGS	-	-	-	I-11	I-10	I-9	I-8
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

Deluxe Input/Output Stations



- FDNP-L0404G-TT**
- FDNP-L0808G-TT**
- FDNP-L0808H-TT***
- FDNP-P0808H-TT***

* Not FM



- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Auxiliary Powered Outputs
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <100 mA (all except ...L0404G... is <140 mA) plus sensor currents (from DeviceNet power)
- Sensor Current: <80 mA per input (from DeviceNet)
- Output Current: See table on facing page

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

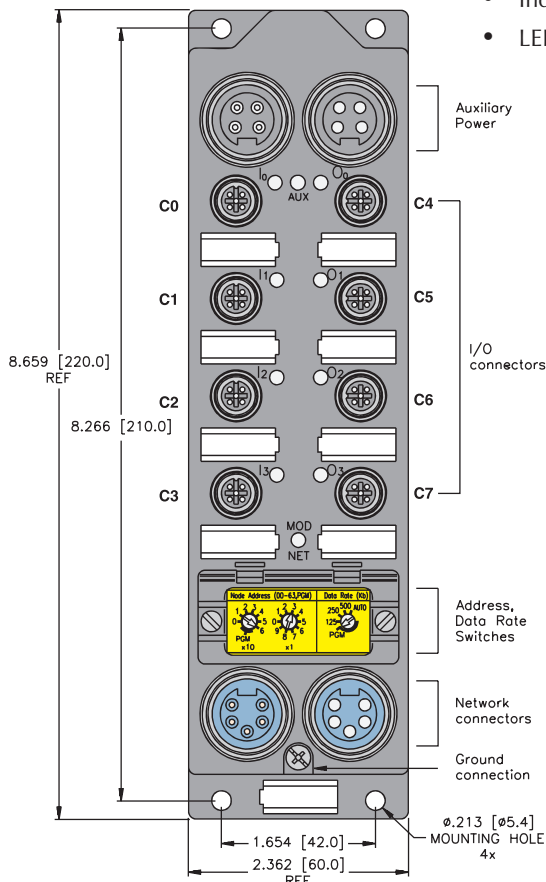
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit each per I/O point

Diagnostics (Physical)

- Individual LED to indicate open/short-circuit for each channel
- LEDs to indicate status of DeviceNet communication



Aux. Power Pinout

Male	Female
4-Pin	4-Pin

- 1 = V_{aux+}
- 2 = Pass thru
- 3 = Pass thru
- 4 = V_{aux-}

DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

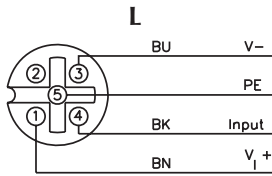
- 1 = Shield
- 2 = $V+$
- 3 = $V-$
- 4 = CAN_H
- 5 = CAN_L

	Inputs	Outputs	Data
--	--------	---------	------

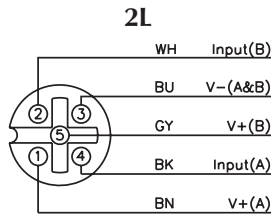
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-L0404G-TT	4	0-3	L	1	PNP/NPN		X	X	4	4-7	G	1	0.5 A	X	X	1
FDNP-L0808G-TT	8	0-3	2L	2	PNP/NPN		X	X	8	4-7	2G	2	0.5 A	X	X	2
FDNP-L0808H-TT	8	0-3	2L	2	PNP/NPN		X	X	8	4-7	2H	2	2 A	X	X	2
FDNP-P0808H-TT	8	0-3	2P	2	PNP		X	X	8	4-7	2H	2	2 A	X	X	2

DeviceNet

Input/Output Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T

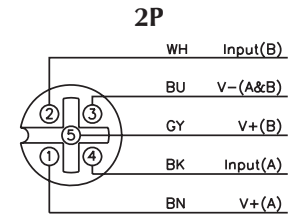


Mating cordset:
RK 4.4T-*-RS 4.4T

Sensor with dual outputs:
RK 4.4T-*-RS 4.4T

Two sensors:
RK 4.5T-*-RS 4.5T

Splitter:
VBRS 4.5-2RK 4T-*/S818

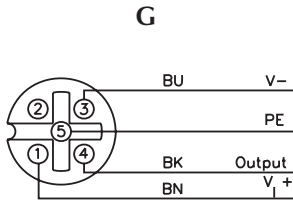


Mating cordset:
RK 4.4T-*-RS 4.4T

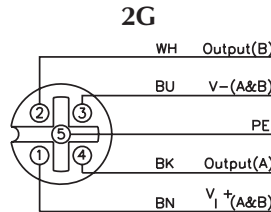
Sensor with dual outputs:
RK 4.4T-*-RS 4.4T

Two sensors:
RK 4.5T-*-RS 4.5T

Splitter:
VBRS 4.5-2RK 4T-*/S818

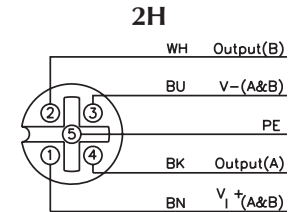


Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	-	-	-	-	I-3	I-2	I-1	I-0
	1	I0S-3	I0S-2	I0S-1	I0S-0	ISS-3	ISS-2	ISS-1	ISS-0
	2	O0S-3	O0S-2	O0S-1	O0S-0	OSS-3	OSS-2	OSS-1	OSS-0
	3	-	APS	-	-	-	-	-	-
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	I0S-7	I0S-6	I0S-5	I0S-4	I0S-3	I0S-2	I0S-1	I0S-0
	3	O0S-7	O0S-6	O0S-5	O0S-4	O0S-3	O0S-2	O0S-1	O0S-0
	4	-	APS	-	-	-	-	-	-
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Deluxe Input/Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Auxiliary Powered I/O
- Automatic Baud Rate Sensing



FDNP-CPG88-TT



Electrical

- Operating Current: <30 mA (from DeviceNet)
- Sensor Current: <120 mA per input (from Auxiliary power)
- Output Current: <0.5 A per output (from Auxiliary power)

Power Distribution

- Inputs: Auxiliary power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

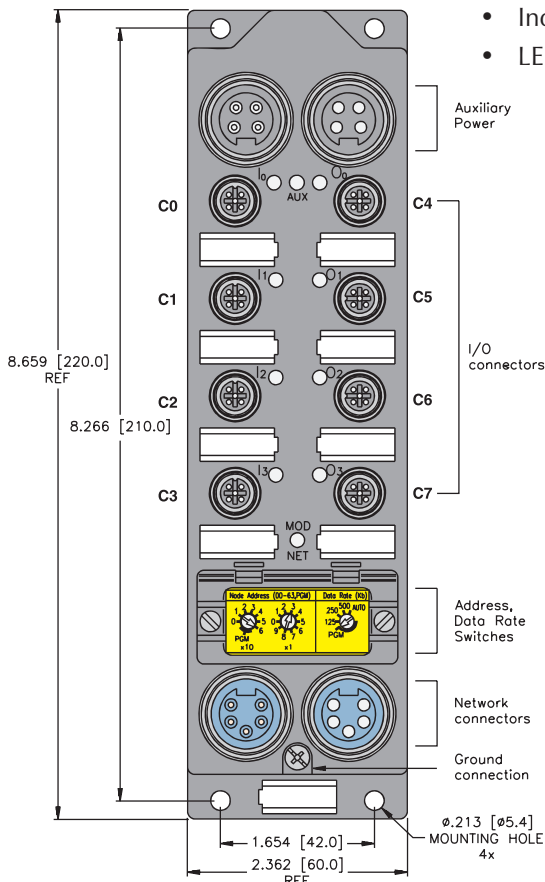
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit each per I/O point

Diagnostics (Physical)

- Individual LED to indicate open/short-circuit for each channel
- LEDs to indicate status of DeviceNet communication



Aux. Power Pinout

Male	Female
4-Pin	4-Pin

- 1 = V_{aux+}
- 2 = Pass thru
- 3 = Pass thru
- 4 = V_{aux-}

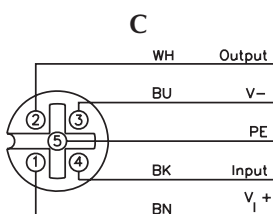
DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

	Inputs								Outputs					Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-CPG88-TT	8	0-7	C	1	PNP		X	X	8	0-7	C	1	0.5 A	X	X	1

Input/Output Connectors



Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	2	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	3	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
	4	-	APS	-	-	-	-	-	-
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Standard Output Stations



- FDNP-S0008G-TT
- FDNP-S0008G-TT-V
- FDNP-S0008H-TT*
- FDNP-S0016N-TT-0200*

*Not FM



- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Auxiliary Powered Outputs
- Automatic Baud Rate Sensing

Electrical

- Operating Current: < 140 mA (FDNP...G-TT), < 50 mA (FDNP...H-TT), < 75 mA (FDNP...0200) (from DeviceNet)
- Output Current: see table on facing page (from aux. power)

Power Distribution

- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

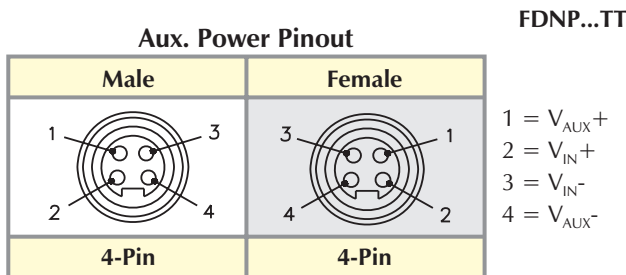
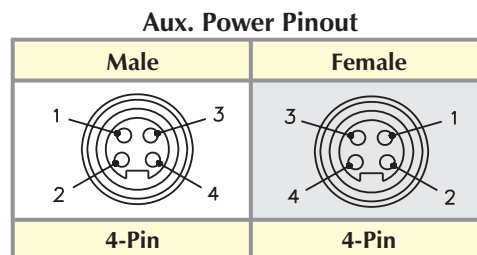
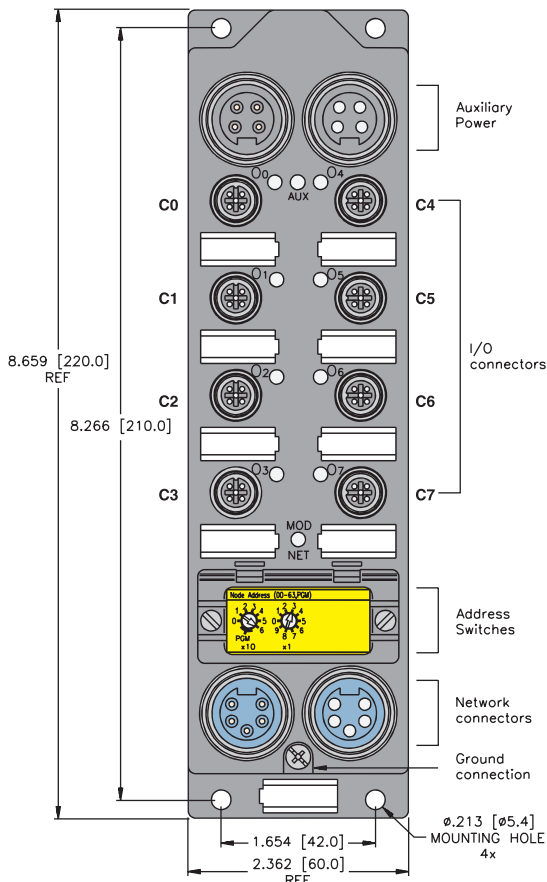
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- short-circuit status mapped to DeviceNet I/O table, one bit per each I/O point (except FDNP...0200 has no diagnostic data)

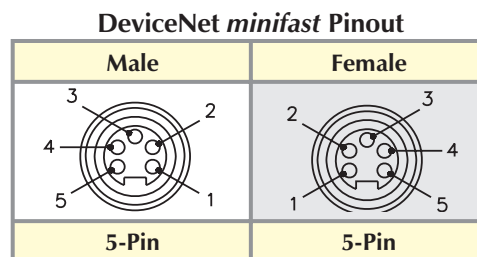
Diagnostics (Physical)

- Individual LED to indicate open/short-circuit for each channel (except FDNP...0200 has one LED indicating a short for all I/O points)



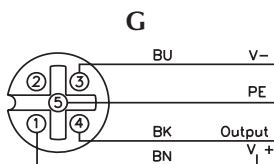
FDNP...0200

- 1 = Shield
- 2 = $V+$
- 3 = $V-$
- 4 = CAN_H
- 5 = CAN_L

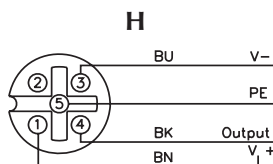


Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-S0008G-TT	8	0-7	G	1	0.5 A	X		1
FDNP-S0008G-TT-V	8	0-7	G	1	0.5 A	X		1
FDNP-S0008H-TT	8	0-7	H	1	1.4 A	X		1
FDNP-S0016N-TT-0200	16	0-7	2GN	2	0.5 A			2

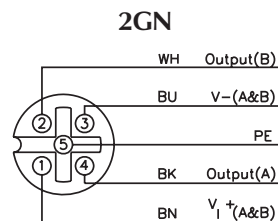
Output Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0S-7	0S-6	0S-5	0S-4	0S-3	0S-2	0S-1	0S-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 2

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	

Standard Input Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Auxiliary Powered Inputs
- Automatic Baud Rate Sensing



FDNP-N1600-TT-0197



Electrical

- Operating Current: <20 mA (from DeviceNet)
- Sensor Current: <700 mA total of all inputs (from V_{IN} power)

Power Distribution

- Inputs: Auxiliary (V_{IN}) power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

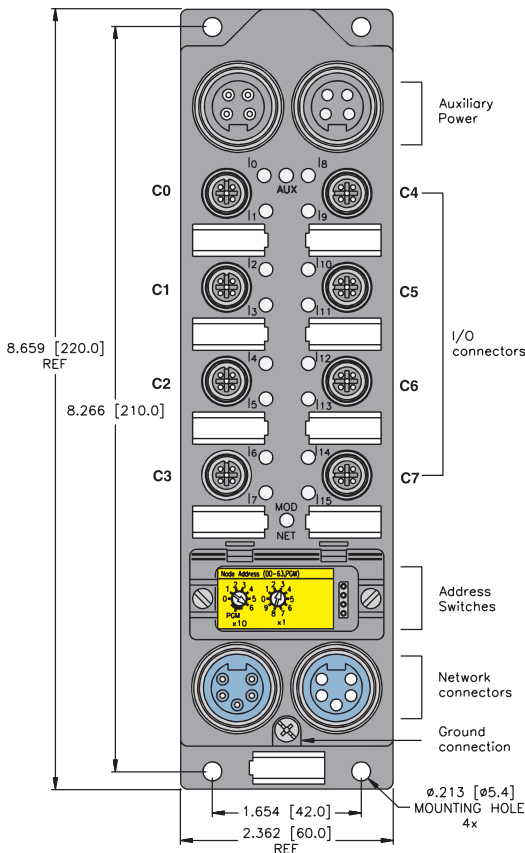
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- No diagnostic data

Diagnostics (Physical)

- One LED indicates a fault for the entire station
- LEDs to indicate status of DeviceNet communication



Aux. Power Pinout

Male	Female
4-Pin	4-Pin

- 1 = V_{AUX}+
- 2 = V_{IN}+
- 3 = V_{IN}-
- 4 = V_{AUX}-

DeviceNet minifast Pinout

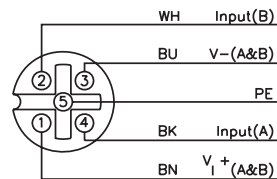
Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-N1600-TT-0197	16	0-7	2S	2	NPN				1

Input Connectors

2S



Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	

Standard Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Auxiliary Powered
- Automatic Baud Rate Sensing



- FDNP-S0404G-TT
- FDNP-S0808G-TT
- FDNP-CSG88-TT
- FDNP-XSG16-TT
- FDNP-S1204H-TT-0149*

* Not FM Approved



Electrical

- Operating Current: <75 mA plus applicable input currents (from DeviceNet)
- Sensor Current: <700 mA total (from DeviceNet except FDNP-CSG... and FDNP-XSG...) per input
- Output Current: See table on facing page

Power Distribution

- Inputs: DeviceNet power supply (except FDNP-CSG... and FDNP-XSG... from Auxiliary supply)
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

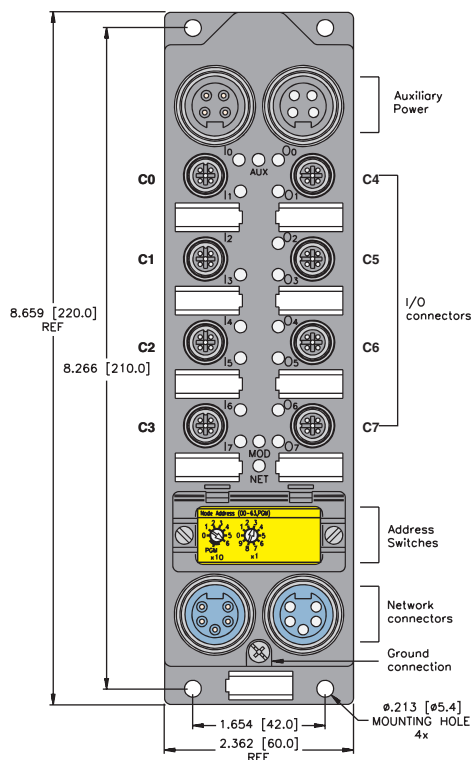
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates fault for entire station (FDNP-CSG88-TT maps one bit for all inputs and one bit for each output point)

Diagnostics (Physical)

- One LED indicates fault for entire station
- LEDs to indicate status of DeviceNet communication



Aux. Power Pinout

Male	Female
4-Pin	4-Pin

- 1 = V_{AUX}+
- 2 = Pass thru
- 3 = Pass thru
- 4 = V_{AUX}-

DeviceNet minifast Pinout

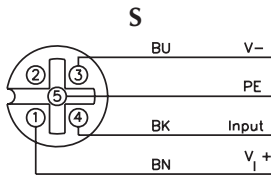
Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

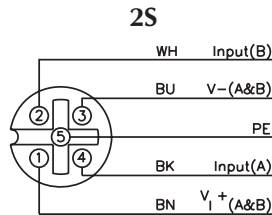
	Inputs								Outputs					Data
--	--------	--	--	--	--	--	--	--	---------	--	--	--	--	------

Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-S0404G-TT	4	0-3	S	1	PNP	X			4	4-7	G	1	0.5 A			1
FDNP-S0808G-TT	8	0-3	2S	2	PNP	X			8	4-7	2G	2	0.5 A			2
FDNP-CSG88-TT	8	0-7	C	1	PNP	X			8	0-7	C	1	0.5 A	X		5
FDNP-XSG16-TT	16	0-7	2X	2	PNP	X			16	0-7	2X	2	0.5 A			4
FDNP-S1204H-TT-0149	12	0-2, 4-6	2S	2	PNP	X			4	3, 7	2H	2	1.4 A			3

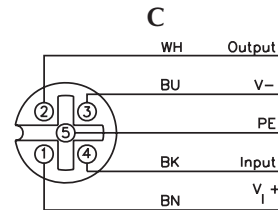
Input/Output Connectors



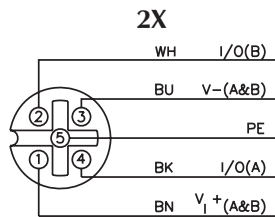
Mating cordset:
RK 4.4T-*-RS 4.4T



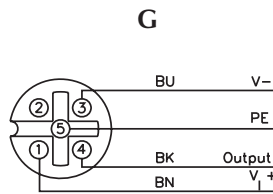
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter: VBRS 4.4-2RK 4T-*/*



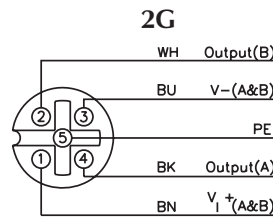
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter: VB2-RS 4.4T-1/2RK 4.4T-*/*/S651



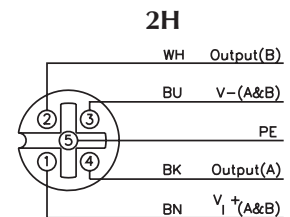
Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter: VBRS 4.4-2RK 4T-*/*



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter: VBRS 4.4-2RK 4T-*/*



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter: VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	IGS	OGS	-	-	I-3	I-2	I-1	I-0
Out	0	-	-	-	0-3	0-2	0-1	0-0	

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	IGS	OGS	-	-	-	-	-	-	
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 3

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	IGS	OGS	-	-	I-11	I-10	I-9	I-8	
Out	0	-	-	-	0-3	0-2	0-1	0-0	

I/O Data Map 4

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8

I/O Data Map 5

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	IGS	-	-	-	-	-	-	-

Deluxe Input/Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Auxiliary Powered Outputs
- Automatic Baud Rate Sensing



FDNP-P1204G-TT



Electrical

- Operating Current: <100 mA plus sum of input currents (from DeviceNet)
- Sensor Current: <80 mA per input (from DeviceNet)
- Output Current: <0.5 A per output (from Auxiliary power)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

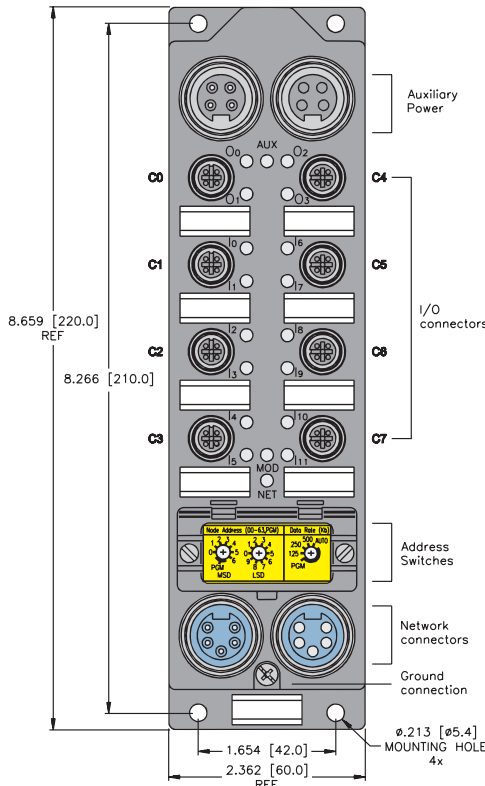
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit for each I/O point

Diagnostics (Physical)

- Individual LED to indicate open/short-circuit for each channel
- LEDs to indicate status of DeviceNet communication



Aux. Power Pinout

Male	Female
4-Pin	4-Pin

- 1 = V_{AUX+}
- 2 = pass thru
- 3 = pass thru
- 4 = V_{AUX-}

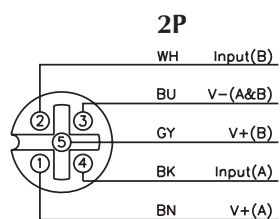
DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = $V+$
- 3 = $V-$
- 4 = CAN_H
- 5 = CAN_L

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-P1204G-TT	12	0-2, 4-6	2P	2	PNP		X	X	4	3, 7	2G	2	0.5 A	X	X	1

Input/Output Connectors



Mating cordset:

Sensor with dual outputs:

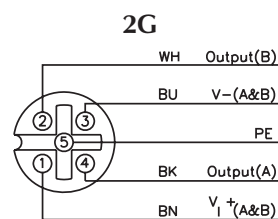
RK 4.4T-*/-RS 4.4T

Two sensors:

RK 4.5T-*/-RS 4.5T

Splitter:

VBRS 4.5-2RK 4T-*/*/S818



Mating cordset:

RK 4.4T-*/-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	-	APS	-	-	I-11	I-10	I-9	I-8
	2	ISS-7	ISS-6	ISS-5	ISS-4	ISS-3	ISS-2	ISS-1	ISS-0
	3	OSS-3	OSS-2	OSS-1	OSS-0	IOS-11	IOS-10	IOS-9	IOS-8
	4	IOS-7	IOS-6	IOS-5	IOS-4	IOS-3	IOS-2	IOS-1	IOS-0
	5	OOS-3	OOS-2	OOS-1	OOS-0	IOS-11	IOS-10	IOS-9	IOS-8
Out	0	-	-	-	-	O-3	O-2	O-1	O-0

Standard Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Screw Terminal Connections
- Automatic Baud Rate Sensing



FDNP-S0808G-ST
FDNP-XSG16-ST



Electrical

- Operating Current: <75 mA from DeviceNet (for ...S0808G... add input currents)
- Sensor Current: <700 mA total of all inputs (...S0808G... From DeviceNet, ...XSG16... from aux. Power)
- Output Current: <500 mA per output (from aux. power)

Power Distribution

- Inputs: ...S0808G... from DeviceNet power supply, ...XSG16... From Auxiliary power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

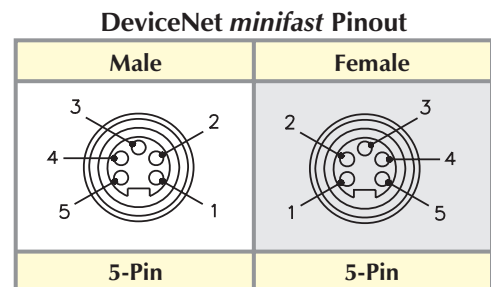
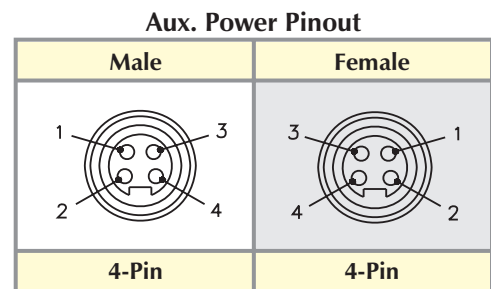
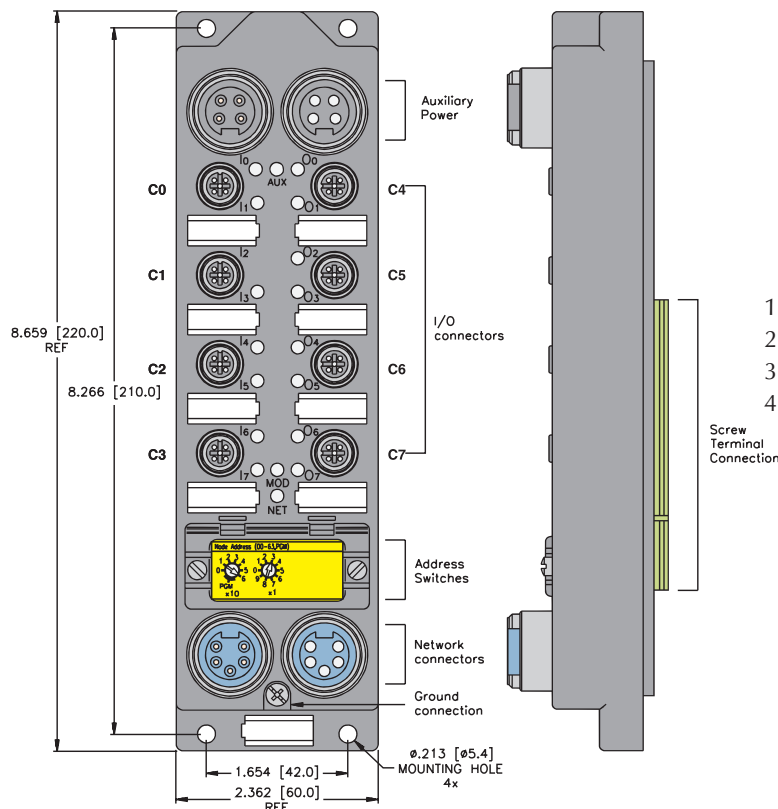
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates a fault for the entire station

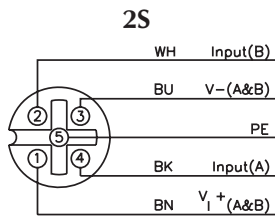
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication



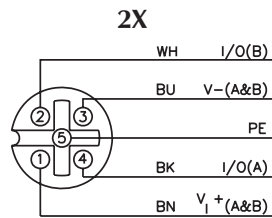
Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-S0808G-ST	8	0-3	2S, ST1	2	PNP	X			8	4-7	2G, ST1	2	0.5 A			1
FDNP-XSG16-ST	16	0-7	2X, ST2	2	PNP	X			16	0-7	2X ST2	2	0.5 A			2

Input/Output Connectors



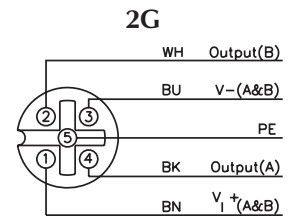
Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*



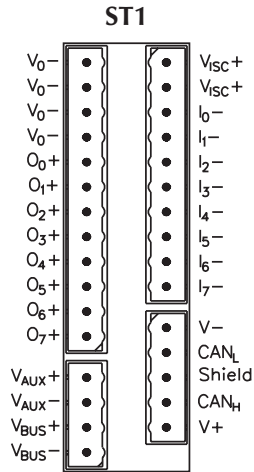
Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

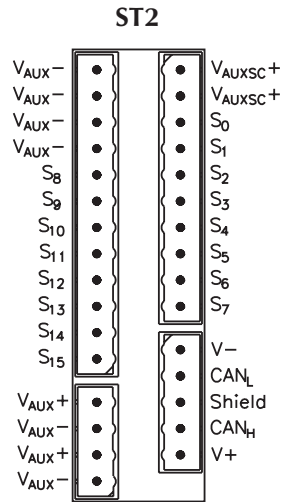


Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*



NOTE: V_{isc} is from DeviceNet power supply.
 V_0 is from Auxiliary power supply.



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	IGS	OGS	-	-	-	-	-	-	-
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
2	IGS	OGS	-	-	-	-	-	-	
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	

Standard Input Stations



- FDNQ-S0200-T***
- FDNQ-S0400-T**
- FDNQ-S0800-T**
- FDNQ-S0400-C**

* Not FM Approved



- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Compact Housing
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus total of input currents (from DeviceNet)
- Sensor Current: <700 mA sum of all inputs (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

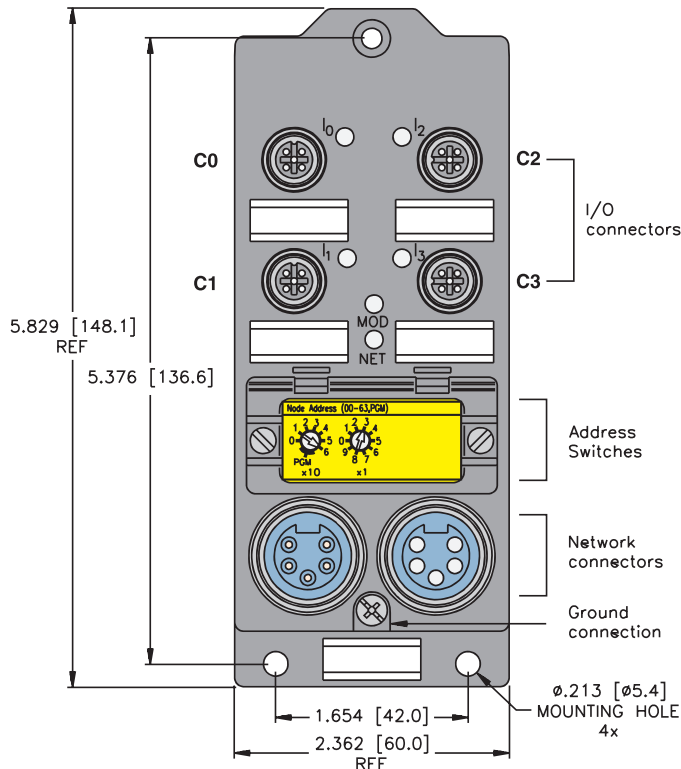
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates fault for entire station

Diagnostics (Physical)

- One LED indicates fault for entire station
- LEDs to indicate status of DeviceNet communication



DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

FDNQ...T

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

DeviceNet eurofast Pinout

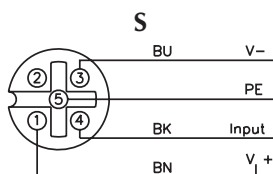
Male	Female
5-Pin	5-Pin

FDNQ...C

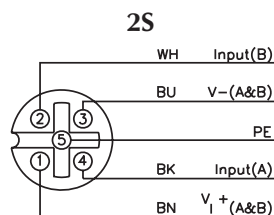
- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNQ-S0200-T	2	0,2	S	1	PNP	X			3
FDNQ-S0400-T	4	0-3	S	1	PNP	X			1
FDNQ-S0800-T	8	0-3	2S	2	PNP	X			2
FDNQ-S0400-C	4	0-3	S	1	PNP	X			1

Input Connectors



Mating cordset:
RK 4.4T- *-RS 4.4T



Mating cordset:
RK 4.4T- *-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	IGS	-	-	-	I-3	I-2	I-1	I-0	

I/O Data Map 3

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	IGS	-	-	-	-	-	-	I-1	I-0

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
1	IGS	-	-	-	-	-	-	-	-

Standard Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Compact Housing
- Automatic Baud Rate Sensing



FDNQ-S0002G-T



Electrical

- Operating Current: <75 mA plus total of all output currents (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Outputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

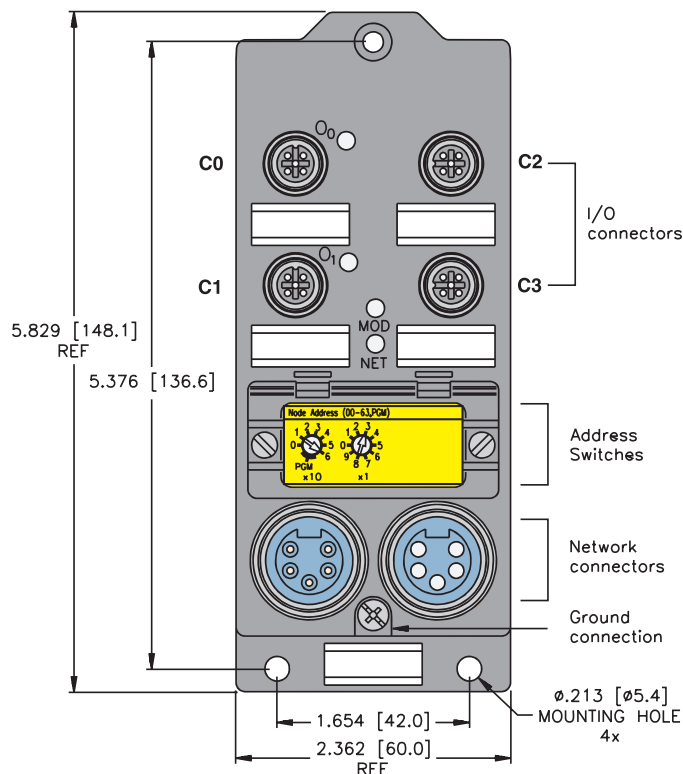
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit each per I/O point

Diagnostics (Physical)

- Individual LED to indicate open/short-circuit for each channel
- LEDs to indicate status of DeviceNet communication

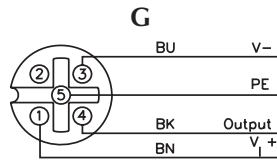


DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNQ-S0002G-T	2	0, 2	G	1	0.5 A	X		1

Output Connectors



Mating cordset:

RK 4.4T-*-RS 4.4T

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	-	-	0S-1
Out	0	-	-	-	-	-	-	0-1	0-0

Standard Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- DeviceNet Powered I/O
- Compact Housing



- FDNQ-S0201G-T*
- FDNQ-CSG44-T
- FDNQ-S0404G-T
- FDNQ-XSG08-T
- FDNQ-CSG44-E

* Not CSA Approved



Electrical

- Operating Current: <75 mA plus total of all I/O current (from DeviceNet)
- Sensor Current: <700 mA total of all inputs (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70 °C (-40 to +158 °F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

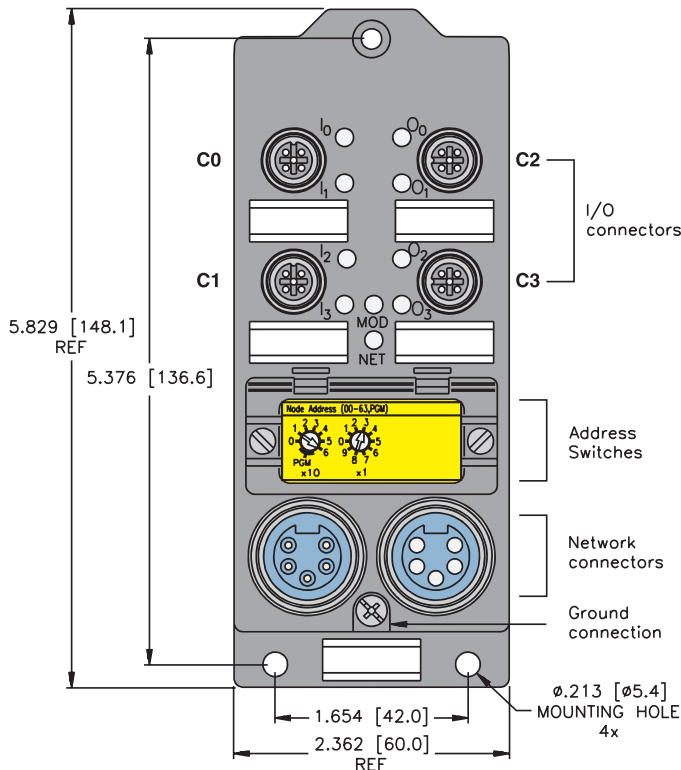
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates fault for entire station (...S0201G-T has one dedicated bit to indicate a fault for the output point as well)

Diagnostics (Physical)

- One LED indicates fault for entire station
- LEDs to indicate status of DeviceNet communication



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

DeviceNet Pinout

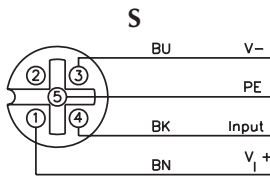
eurofast Male
5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

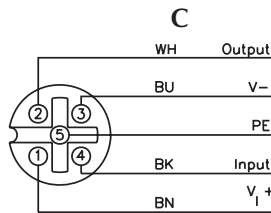
FDNQ...-E

Part Number	Inputs									Outputs					I/O Map	
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics		Wire-Break Detection
FDNQ-S0201G-T	2	0	2S	2	PNP	X			1	1	G	1	0.5 A	X		1
FDNQ-CSG44-T	4	0-3	C	1	PNP	X			4	0-3	C	1	0.5 A			2
FDNQ-S0404G-T	4	0-1	2S	2	PNP	X			4	2-3	2G	2	0.5 A			2
FDNQ-XSG08-T	8	0-3	2X	2	PNP	X			8	0-3	2X	2	0.5 A			3
FDNQ-CSG44-E	4	0-3	C	1	PNP	X			4	0-3	C	1	0.5 A			2

Input/Output Connectors

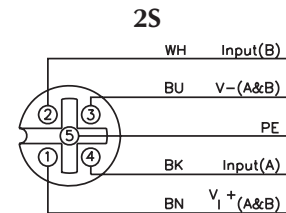


Mating cordset:
RK 4.4T-*-RS 4.4T



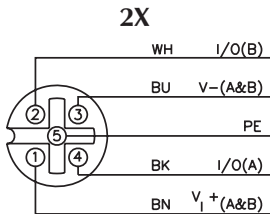
Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VB2-RS 4.4T-1/2RK 4.4T-*/S651



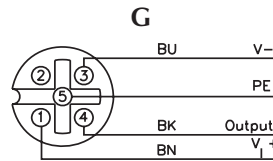
Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/

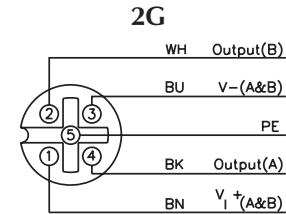


Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	IGS	-	-	-	-	OS-0	I-1	I-0	
Out	0	-	-	-	-	-	-	-	0-0

I/O Data Map 3

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
1	IGS	OGS	-	-	-	-	-	-	
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	IGS	OGS	-	-	I-3	I-2	I-1	I-0	
Out	0	-	-	-	0-3	0-2	0-1	0-0	

Standard Input/Output Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Auxiliary Powered Outputs
- Automatic Baud Rate Sensing



FDNQ-S0404G-MM



Electrical

- Operating Current: <75 mA plus total of input currents (from DeviceNet)
- Sensor Current: <700 mA total of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from Auxiliary power)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

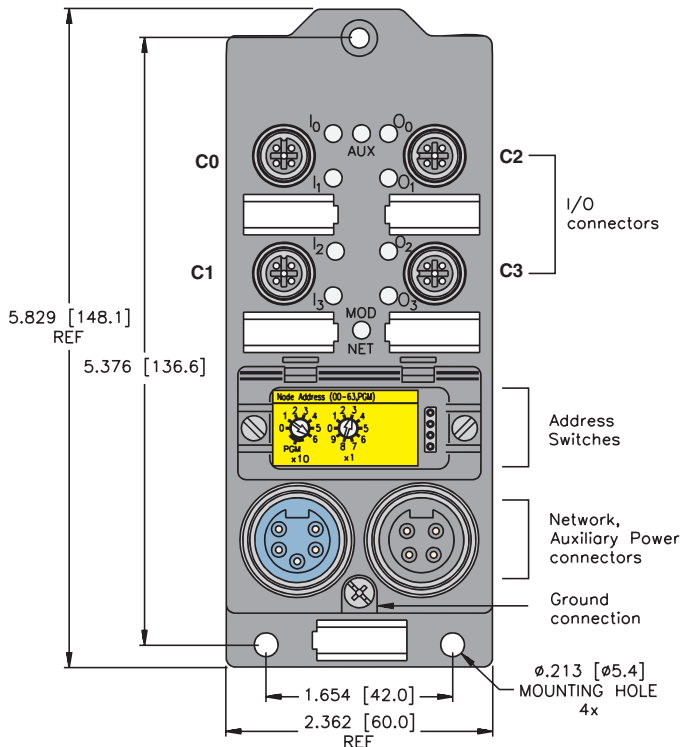
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

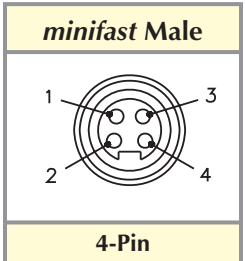
- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates fault for entire station

Diagnostics (Physical)

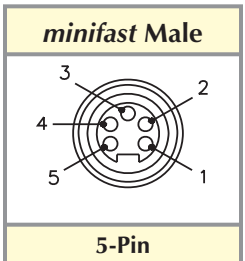
- One LED indicates a fault for the entire station
- LEDs to indicate status of DeviceNet communication



Aux. Power Pinout

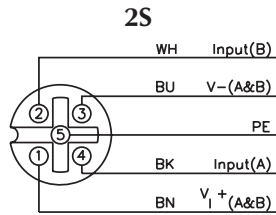


DeviceNet Pinout



Part Number	Inputs										Outputs				Data	
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNQ-S0404G-MM	4	0-1	2S	2	PNP	X			4	2-3	2G	2	0.5 A	X		1

Input/Output Connectors

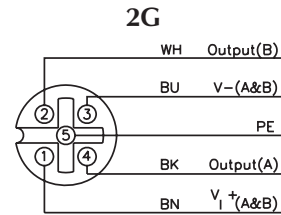


Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*



Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	IGS	OGS	-	-	I-3	I-2	I-1	I-0
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

Analog Input Station



FDNQ-4AI-I-T



- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Compact Housing
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <100 mA plus sum of input currents (from DeviceNet)
- Sensor Current: 0-20 mA or 4-20 mA analog signal (16-bit signed integer). The 0-20 mA or 4-20 mA range can be adjusted via rotary switch on front of station.

Power Distribution

- Inputs: DeviceNet power supply

Mechanical

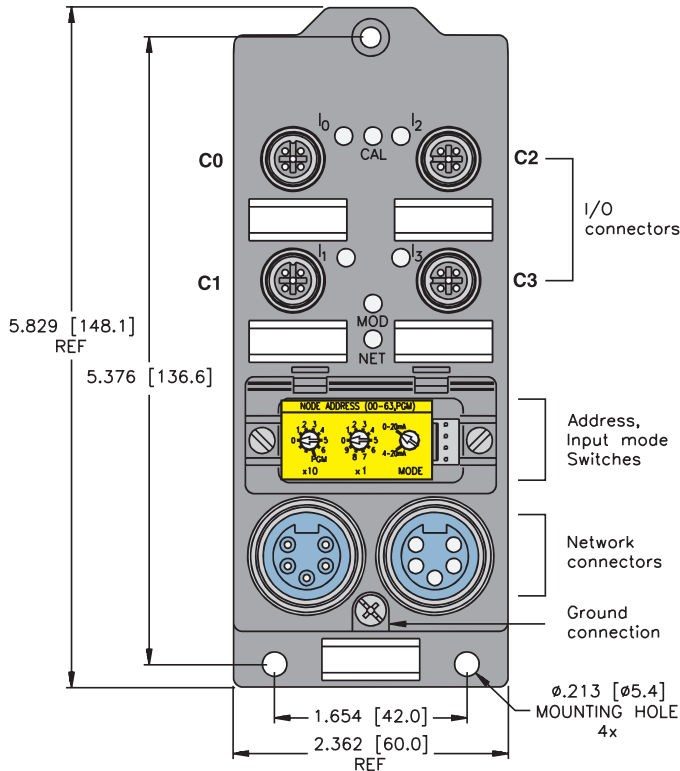
- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Physical)

- LEDs to indicate status of DeviceNet communication



DeviceNet minifast Pinout

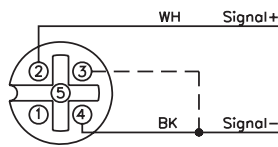
Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

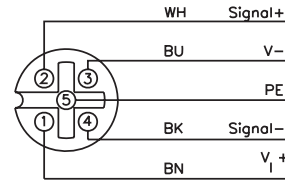
Part Number	Inputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNQ-4AI-I-T	4	0-3	AI-I	1	0-20 mA or 4-20 mA				1

Input Connectors

AI-I



Loop Powered (Isolated)



DeviceNet Powered Transducer

Mating cordset:

Isolated Loop:

RK 4.5T-*M-RS 4.5T/S653

Loop Powered:

RK 4.5T-*M-RS 4.5T/LPS/S653

Note: The "LPS" in the part number indicates that the cord jumpers pin 3 to pin 4 on the male side to the signal- to the station common. Pin 3 is not connected at the female end.

Applications:

TURCK Sensors:
LU; RK 4.4T-*RS 4.4T/S1118

LI; RK 4.4T-*RS 4.4T/S1120

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Channel 0, LSB							
	1	Channel 0, MSB							
	2	Channel 1, LSB							
	3	Channel 1, MSB							
	4	Channel 2, LSB							
	5	Channel 2, MSB							
	6	Channel 3, LSB							
	7	Channel 3, MSB							

Analog Input Station

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Compact Housing
- Automatic Baud Rate Sensing



FDNQ-4AI-V/I-T



Electrical

- Operating Current: <100 mA plus sum of input currents (from DeviceNet)
- Sensor Current: 0-20 mA or 4-20 mA analog signal (16-bit signed integer)
- Sensor Voltage: 0 to 10 V or -10 to +10 V Analog signal (16 bit signed integer)

The voltage/current ranges can be adjusted via rotary switch on front of station.

Power Distribution

- Inputs: DeviceNet power supply

Mechanical

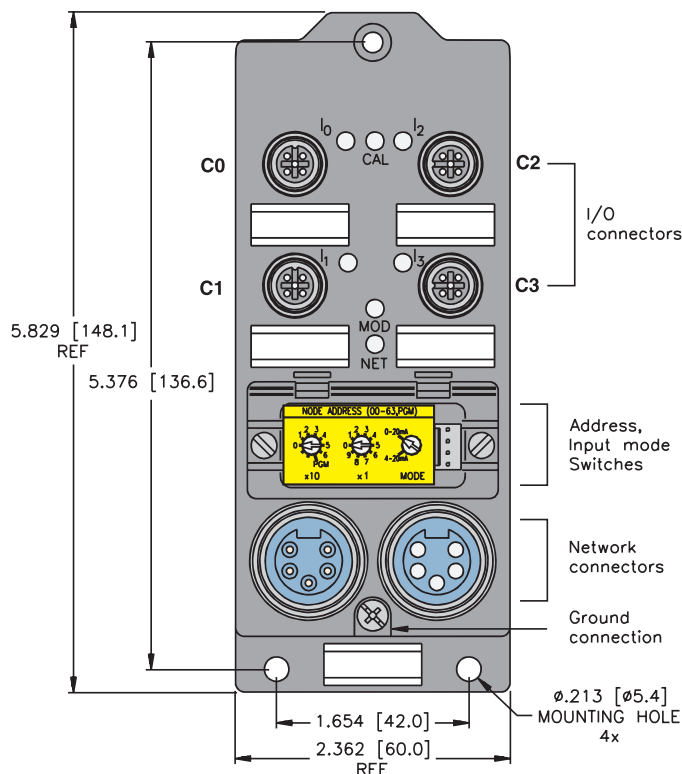
- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Physical)

- LEDs to indicate status of DeviceNet communication



DeviceNet minifast Pinout

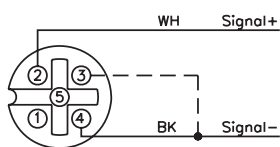
Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

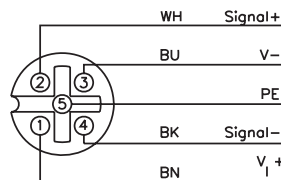
Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNQ-4AI-V/I-T	4	0-3	AI-I	1	0-20 mA, 4-20 mA 0-10 V -10 to +10 V				1

Input Connectors

AI-I



Loop Powered (Isolated)



DeviceNet Powered Transducer

Mating cordset:

Isolated Loop:

RK 4.5T-*M-RS 4.5T/S653

Loop Powered:

RK 4.5T-*M-RS 4.5T/LPS/S653

Note: The "LPS" in the part number indicates that the cord jumpers pin 3 to pin 4 on the male side to the signal- to the station common. Pin 3 is not connected at the female end.

Applications:

TURCK Sensors:

LU; RK 4.4T-*RS 4.4T/S1118

LI; RK 4.4T-*RS 4.4T/S1120

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Channel 0, LSB							
	1	Channel 0, MSB							
	2	Channel 1, LSB							
	3	Channel 1, MSB							
	4	Channel 2, LSB							
	5	Channel 2, MSB							
	6	Channel 3, LSB							
	7	Channel 3, MSB							



The E-connect system

Safely stopping motion is becoming more critical as machinery and systems become more automated. Where once a machine was controlled by one person, today we have many interconnect machines that are controlled by Industrial PCs and PLCs. Motion may start automatically without warning, and some of today's equipment is almost silent in comparison to the background noise of the factory.

TURCK has developed three systems to quickly connectorize standard e-stop devices.

- 1) Series E-connect
- 2) Series E-connect with bus monitoring and annunciation
- 3) Dedicated E-connect

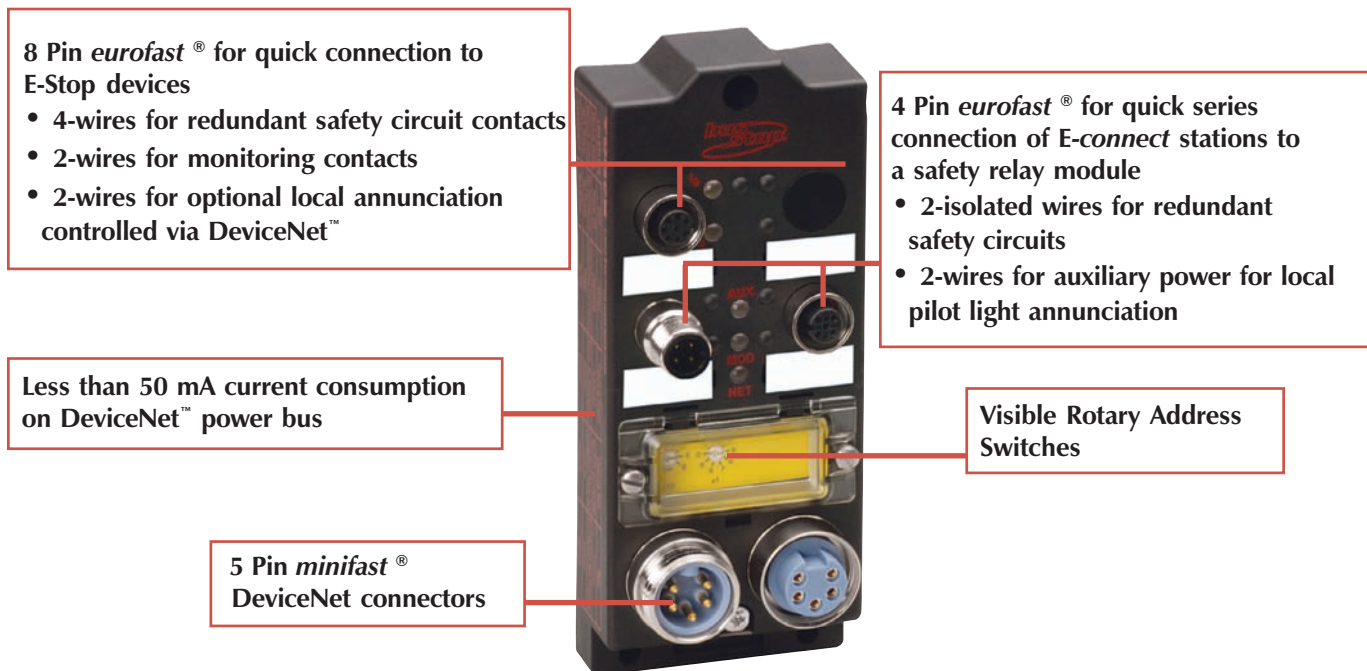
Series E-connect

Series connection of redundant e-stop device contacts is one of the most common ways in North America to provide machine safety for personnel. Two isolated circuits go from the safety relay module to the redundant contacts of each emergency stop devices.

Dedicated E-connect

Two dedicated circuits go from the safety relay module to redundant contacts of a single emergency stop, or safeguarding device.

E-connect Station



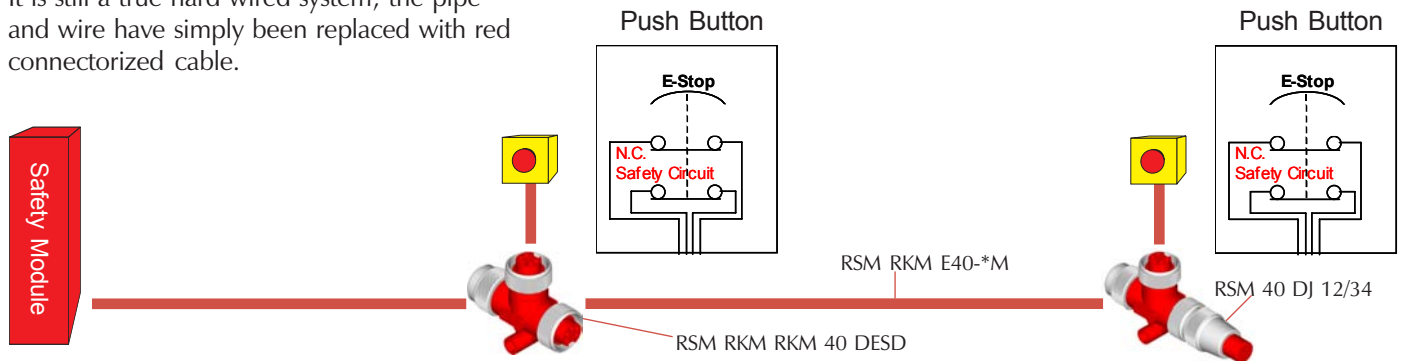
Advantages

- Tremendous savings in startup and trouble shooting time
- DeviceNet PLC monitors the state of the safety switch
- Easy to integrate into any DeviceNet station
- Provides quick connection to standard e-stop devices and safety relays

The information contained in this publication is general in nature and is for educational purposes. Each application is unique. It is the responsibility of the user to ensure all-applicable jurisdictional codes and regulations are satisfied, and that installation and maintenance instructions are followed.

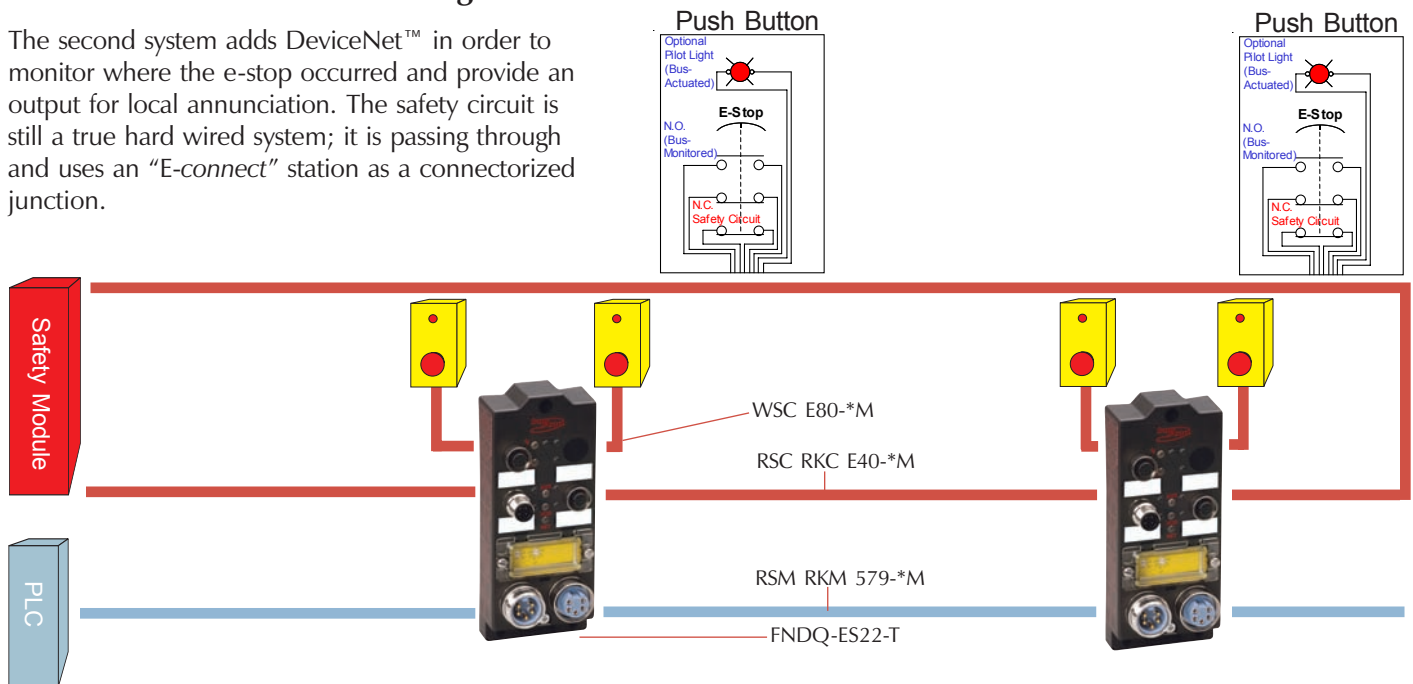
Series E-connect

The series E-connect system provides quick, basic e-stop with a total of only seven different components and cabling. The red cables, tees and mini connectors assemble quickly and can be maintained easily. Its only difference from a standard pipe and wire solution is that it is connectorized. It is still a true hard wired system; the pipe and wire have simply been replaced with red connectorized cable.



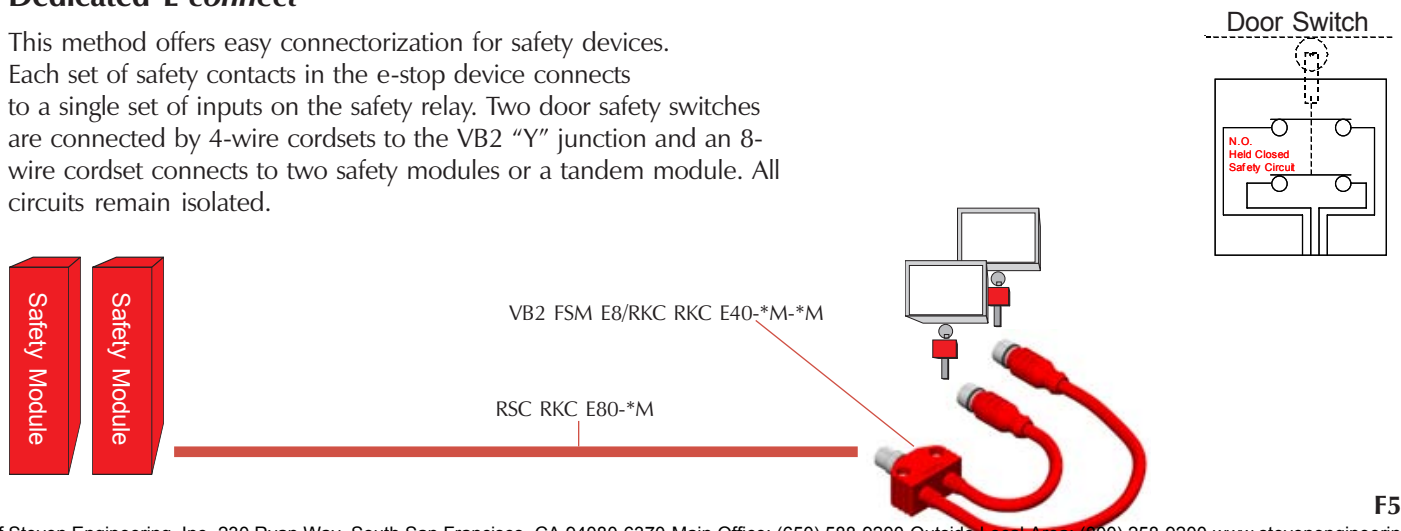
Series E-connect with Monitoring and Annunciation

The second system adds DeviceNet™ in order to monitor where the e-stop occurred and provide an output for local annunciation. The safety circuit is still a true hard wired system; it is passing through and uses an "E-connect" station as a connectorized junction.



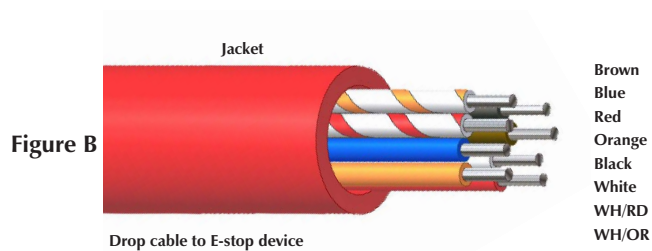
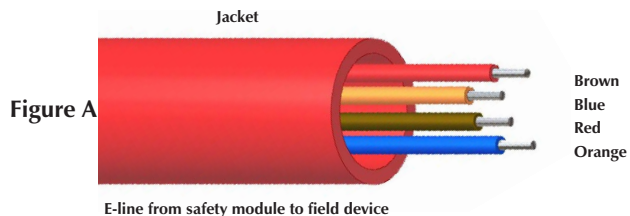
Dedicated E-connect

This method offers easy connectorization for safety devices. Each set of safety contacts in the e-stop device connects to a single set of inputs on the safety relay. Two door safety switches are connected by 4-wire cordsets to the VB2 "Y" junction and an 8-wire cordset connects to two safety modules or a tandem module. All circuits remain isolated.



E-connect™, Cable Specifications

- Provides E-line Connection from Safety Module to Field Device
- Provides Drop to E-Stop Device
- Red PCV Jackets



Type	Approvals	Power Pair		Outer Jacket	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.		
E40 AWM 2517 105°C 300 Volts	NEC PLTC/ITC/CL2 CEC AWM-I/II A/B FT4	4/18 AWG BN/BU/RD/OR	6.5 Ohms PVC	PVC Red 7.2 mm (.285 in)	RB50896-*M 58 lbs.	A
E46 AWM 2517 105°C 300 Volts	NEC PLTC/ITC/CL2 CEC AWM-I/II A/B FT4	4/16 AWG BN/BU/RD/OR	4.3 Ohms PVC	PVC Red 8.4 mm (.330 in)	RB50925-*M 81 lbs.	A
E80 AWM 2517 105°C 300 Volts	NEC CL2 CEC AWM-I/II A/B FT4	8/24 BN/BU/RD/OR/BK/WH/ WH, RD/WH, OR	27.7 Ohms PVC	PVC Red 5.7 mm (.224 in)	RB50897-*M 36 lbs.	B

* Indicates length in meters.



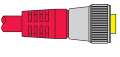

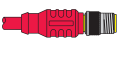
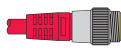
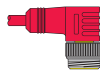
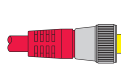
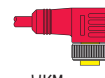
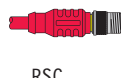
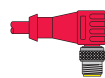
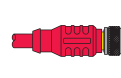

x Indicates cable type.

Standard cable lengths are 30, 75, 150, 225 and 300 meters. Consult factory for other lengths.

+ See page A6 for *flexlife*® and *weldlife* performance.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

E-connect™, Cable/Cordset Selection Matrix

		<i>minifast®</i>				<i>eurofast® (Thin/Mid Only)</i>
		Pin (Male)		Socket (Female)		Pin (Male)
		1  RSM	2  WSM	3  RKM	4  WKM	5  RSC
Bare		RSM Exx-*M	WSM Exx-*M	RKM Exx-*M	WKM Exx-*M	RSC Exx-*M
<i>minifast</i>	Pin (Male)	1  RSM RSM RSM Exx-*M	RSM WSM Exx-*M	RSM RKM Exx-*M	RSM WKM Exx-*M	RSM RSC Exx-*M
	Socket (Female)	2  WSM	WSM WSM Exx-*M	WSM RKM Exx-*M	WSM WKM Exx-*M	WSM RSC Exx-*M
	Socket (Female)	3  RKM		RKM RKM Exx-*M	RKM WKM Exx-*M	RKM RSC Exx-*M
	Socket (Female)	4  WKM			WKM WKM Exx-*M	WKM RSC Exx-*M
<i>eurofast (Thin/Mid Only)</i>	Pin (Male)	5  RSC				RSC RSC Exx-*M
	Pin (Male)	6  WSC				
	Socket (Female)	7  RKC				
	Socket (Female)	8  WKC				

See pages F56 - F57 for dimensional drawings.

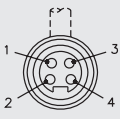
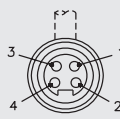
* Indicates length in meters.

x Indicates cable type.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 0.3, 0.5, 1.0, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 8.0, 10, 15...50 Meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

<i>minifast</i>	Pinouts	<i>minifast</i>
Female 	1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H)	Male 

DeviceNet

E-connect™, Cable/Cordset Selection Matrix

<i>eurofast</i> ® (Thin/Mid Only)			<i>minifast</i> ® Bulkhead		<i>eurofast</i> Bulkhead (Thin Only)	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6	7	8	9	10	11	12
WSC	RKC	WKC	RSFP	RKFP	FSFD	FKFD
WSC Exx-*M	RKC Exx-*M	WKC Exx-*M	RSFP Exx-*M	RKFP Exx-*M	FSFD Exx-*M	FKFD Exx-*M
RSM WSC Exx-*M	RSM RKC Exx-*M	RSM WKC Exx-*M	RSM RSFP Exx-*M	RSM RKFP Exx-*M	RSM FSFD Exx-*M	RSM FKFD Exx-*M
WSM WSC Exx-*M	WSM RKC Exx-*M	WSM WKC Exx-*M	WSM RSFP Exx-*M	WSM RKFP Exx-*M	WSM FSFD Exx-*M	WSM FKFD Exx-*M
RKM WSC Exx-*M	RKM RKC Exx-*M	RKM WKC Exx-*M	RKM RSFP Exx-*M	RKM RKFP Exx-*M	RKM FSFD Exx-*M	RKM FKFD Exx-*M
WKM WSC Exx-*M	WKM RKC Exx-*M	WKM WKC Exx-*M	WKM RSFP Exx-*M	WKM RKFP Exx-*M	WKM FSFD Exx-*M	WKM FKFD Exx-*M
RSC WSC Exx-*M	RSC RKC Exx-*M	RSC WKC Exx-*M	RSC RSFP Exx-*M	RSC RKFP Exx-*M	RSC FSFD Exx-*M	RSC FKFD Exx-*M
WSC WSC Exx-*M	WSC RKC Exx-*M	WSC WKC Exx-*M	WSC RSFP Exx-*M	WSC RKFP Exx-*M	WSC FSFD Exx-*M	WSC FKFD Exx-*M
	RKC RKC Exx-*M	RKC WKC Exx-*M	RKC RSFP Exx-*M	RKC RKFP Exx-*M	RKC FSFD Exx-*M	RKC FKFD Exx-*M
		WKC WKC Exx-*M	WKC RSFP Exx-*M	WKC RKFP Exx-*M	WKC FSFD Exx-*M	WKC FKFD Exx-*M

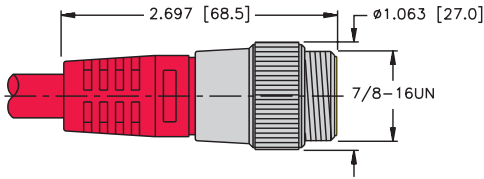
<i>minifast</i>	Pinouts	<i>minifast</i>	<i>eurofast</i>	Pinouts	<i>eurofast</i>
Female 	1. BN(+ AUX) 2. RD (E1L) 3. OR (E2L) 4. BU (- AUX)	Male 	Male 	1. BK (IN) 2. WH (OUT) 3. BN (AUX+) 4. RD (SC1) 5. WH/RD (SC1c) 6. OR (SC2) 7. WH/OR (SC2c) 8. BU (AUX-)	Female

E-connect™, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Overmold:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

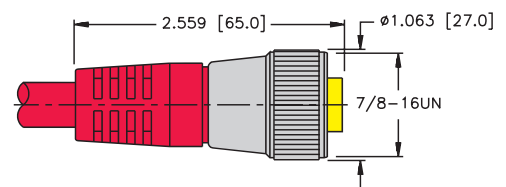
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RSM ..

Pages F54 - F55

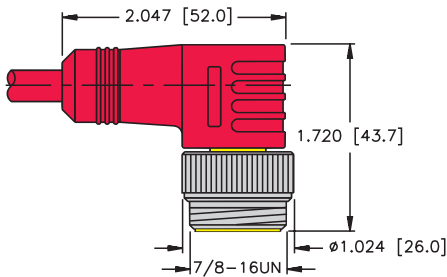
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RKM ..

Pages F54 - F55

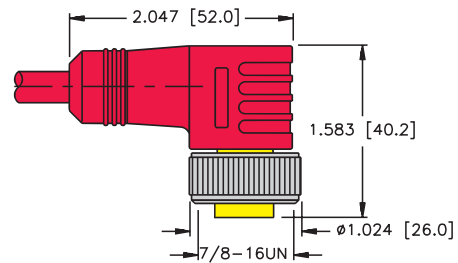
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WSM ..

Pages F54 - F55

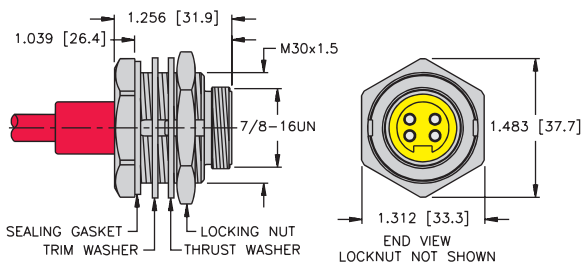
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WKM ..

Pages F54 - F55

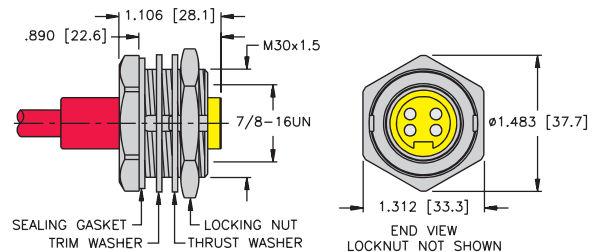
9



RSFP ..

Pages F54 - F55

10



RKFP ..

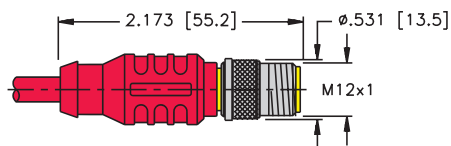
Pages F54 - F55

E-connect™, eurofast® Cordset and Receptacle Connector Dimensions

Specifications

Overmold:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

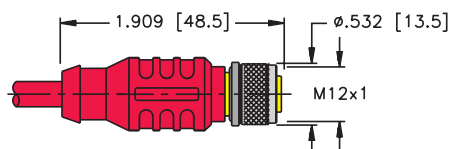
5



RSC ..

Pages F54 - F55

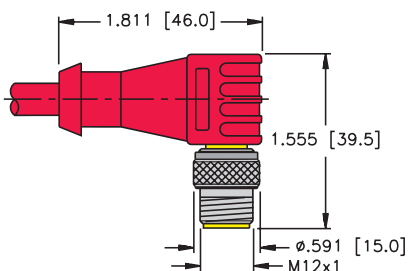
7



RKC ..

Pages F54 - F55

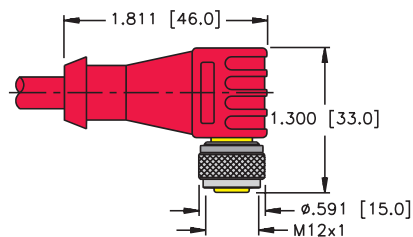
6



WSC ..

Pages F54 - F55

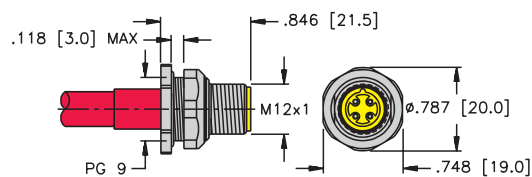
8



WKC ..

Pages F54 - F55

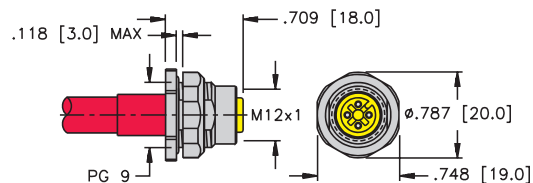
11



FSFD ..

Pages F54 - F55

12



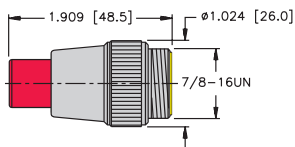
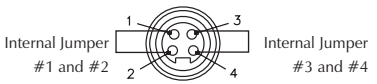
FKFD ..

Pages F54 - F55

E-connect™, Terminating Resistor

- Male *minifast*® Connector
- TPE (PUR) Overmold Body



Housing	Part Number	Specs	Application	Pinout
	RSM 40 DJ 12/34	Nickel Plated Brass or Stainless Steel 300 V, 9 A -40 to +75°C IP 67	<ul style="list-style-type: none"> • <i>minifast</i> with Dual Internal Jumper • Internally jumpered to complete dual • E & M stop circuits 	<p>Male</p> 

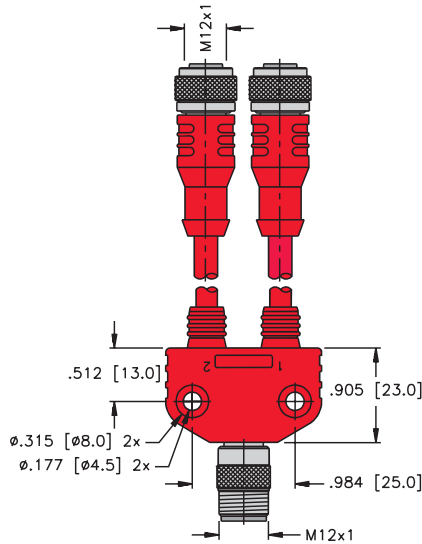
E-connect™, eurofast® Drop Junctions

- Creates a Drop or Branch from the Main Bus Line
- Cable Drop Lengths Available Up to a Maximum of 6 Meters



Housing	Part Number	Application	Wiring Diagram
See Figure 1	VB2 FSM E8/RKC RKC E40-*M-*M	<ul style="list-style-type: none"> • VB2 Junction with Trunk Line • Reduced power and data branch • Maximum six meter branch 	

* Indicates length in meters.



DeviceNet

E-Connect Stations



- Rugged, Fully Potted Stations
- Monitor E-Stop Switches with DeviceNet
- IP 67, IP 68, IP 69K Protection
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <40 mA (from DeviceNet)
- Output Current: <500 mA per output (from Aux. Power)

Power Distribution

- Inputs: Auxiliary power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

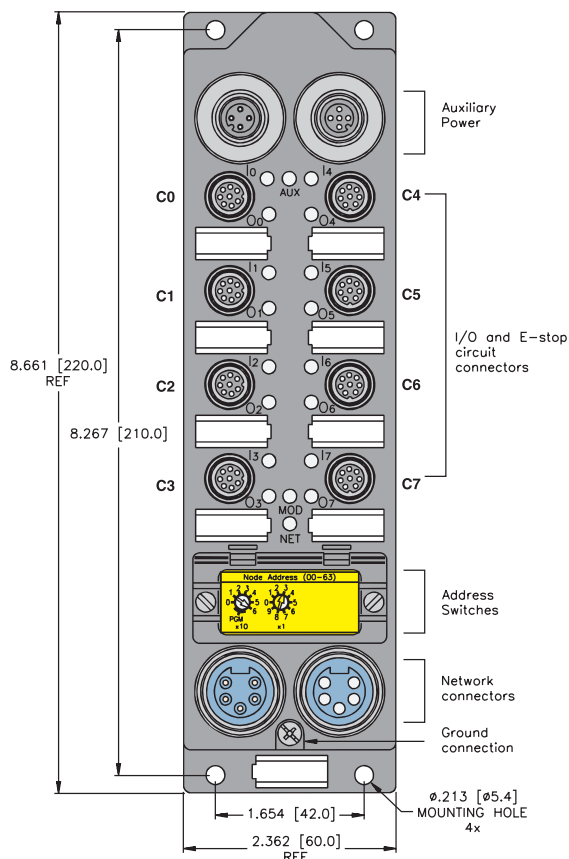
Diagnostics (Logical)

- One bit in I/O table indicates status of Auxiliary Power Supply (APS)

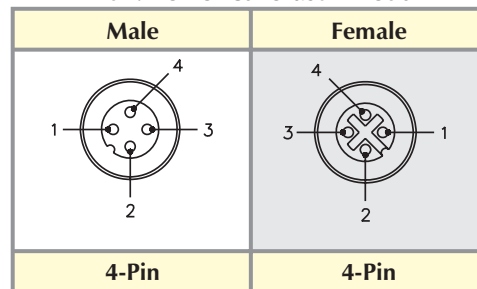
Diagnostics (Physical)

- LEDs to indicate status of DeviceNet communication

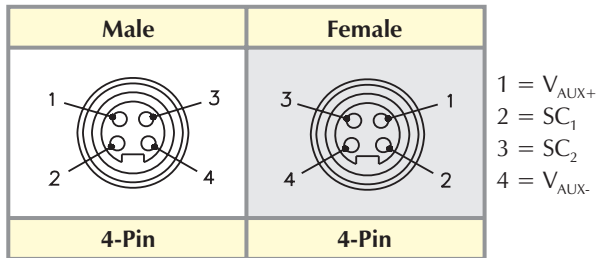
FDNP-ES44-TC
FDNP-ES88-TC
FDNP-ES88-TT



Aux. Power *eufofast* Pinout

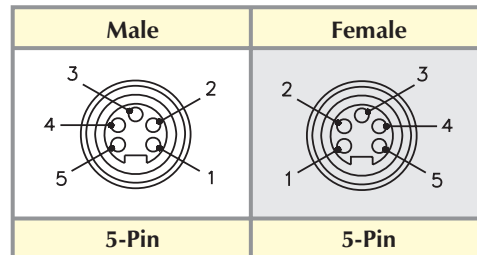


Aux. Power *minifast* Pinout



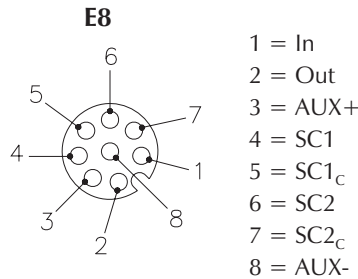
...-TT

DeviceNet *minifast* Pinout



Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNP-ES44-TC	4	0-1, 4-5	E8	1	E-Stop				4	0-1, 4-5	E8	1	0.5 A			2
FDNP-ES88-TC	8	0-7	E8	1	E-Stop				8	0-7	E8	1	0.5 A			1
FDNP-ES88-TT	8	0-7	E8	1	E-Stop				8	0-7	E8	1	0.5 A			1

Input/Output Connectors



Mating cordset:
RSC RKC E80-*M

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	APS	-	-	-	-	-	-	-	-
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	APS	-	-	-	I-3	I-2	I-1	I-0
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

E-Connect Stations

- Rugged, Fully Potted Stations
- IP 67, IP 68, IP 69K Protection
- Monitor E-Stop Switches with DeviceNet
- Automatic Baud Rate Sensing



FDNQ-ES11-T
FDNQ-ES22-T



Electrical

- Operating Current: <50 mA (from DeviceNet)
- Output Current: <500 mA per output (from Auxiliary power supply)

Power Distribution

- Inputs: Auxiliary power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67, IP 68, IP 69K
- Vibration: 50 g @ 10-500 Hz

Material

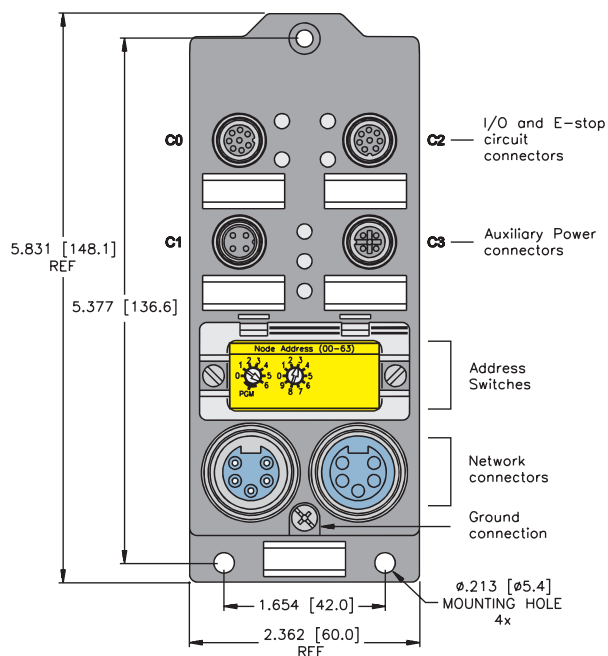
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Logical)

- One bit in I/O table indicates status of Auxiliary Power Supply (APS)

Diagnostics (Physical)

- LEDs to indicate status of DeviceNet communication



Aux. Power eurofast Pinout

Male	Female
4-Pin	4-Pin

- 1 = V_{AUX+}
- 2 = SC_1
- 3 = SC_2
- 4 = V_{AUX-}

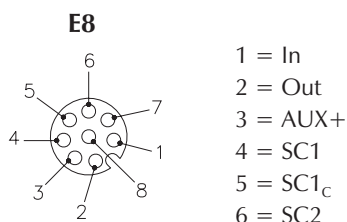
DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FDNQ-ES11-T	1	0	E8	1	E-Stop				1	0	E8	1	0.5 A			1
FDNQ-ES22-T	2	0, 2	E8	1	E-Stop				2	0, 2	E8	1	0.5 A			2

Input/Output Connectors



Mating cordset:
RSC RKC E80-*M

- 1 = In
- 2 = Out
- 3 = AUX+
- 4 = SC1
- 5 = SC1_C
- 6 = SC2
- 7 = SC2_C
- 8 = AUX-

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	APS	-	-	-	-	-	-	-
Out	0	-	-	-	-	-	-	-	0-0

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	APS	-	-	-	-	-	-	I-1
Out	0	-	-	-	-	-	-	0-1	0-0

DeviceNet Master

- Used to Manage a Sub-Network
- Manages 8-nodes on Sub-Network



FDN-MSTR-1220
CE SF UL

Electrical

- Bus Power: 11-30 VDC
- Current Consumption: 125 mA (Slave), 30 mA (Master)

LED Indication

- Slave Network Status:
 - Flashing Green: Ready for connection
 - Green: Established connection
 - Flashing Red: Connection time out
- Master Network Status:
 - Flashing Green: Ready for connection
 - Green: Connected to all stations
 - Flashing Red: Time out with one or more stations
 - Red: Connection not possible

Adjustments

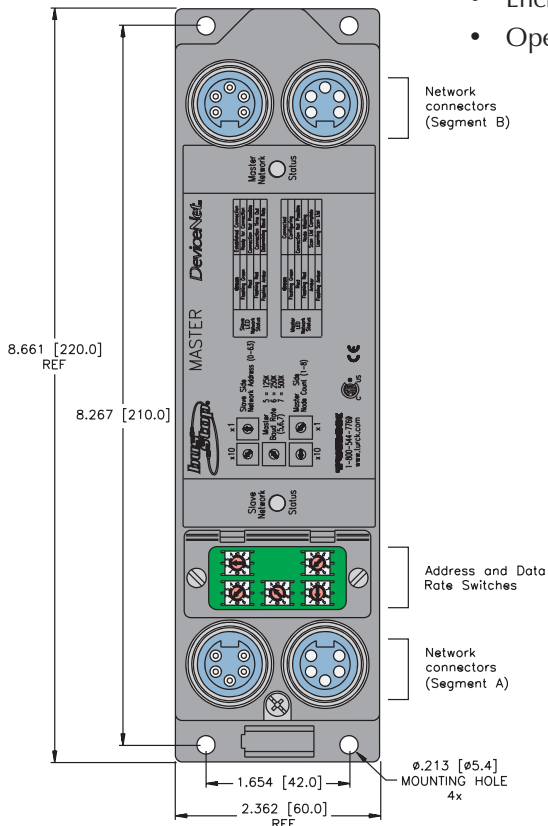
- Slave Side (Network address): 0-63 via rotary switches
- Master Side (Node count): 0-8 via rotary switches
- Master Baud Rate (5,6,7): 5=125 K, 6=250 K, 7=500 K

Connections

- Bus Line: 5-pin *minifast*® connectors

Housing

- Material: Glass filled nylon with nickel plated brass connectors
- Enclosure: NEMA 1,3,4,12,12 and IEC IP 67, 68 and 69K
- Operating Temperature: -25° to 70° C (-13° to 158° F)



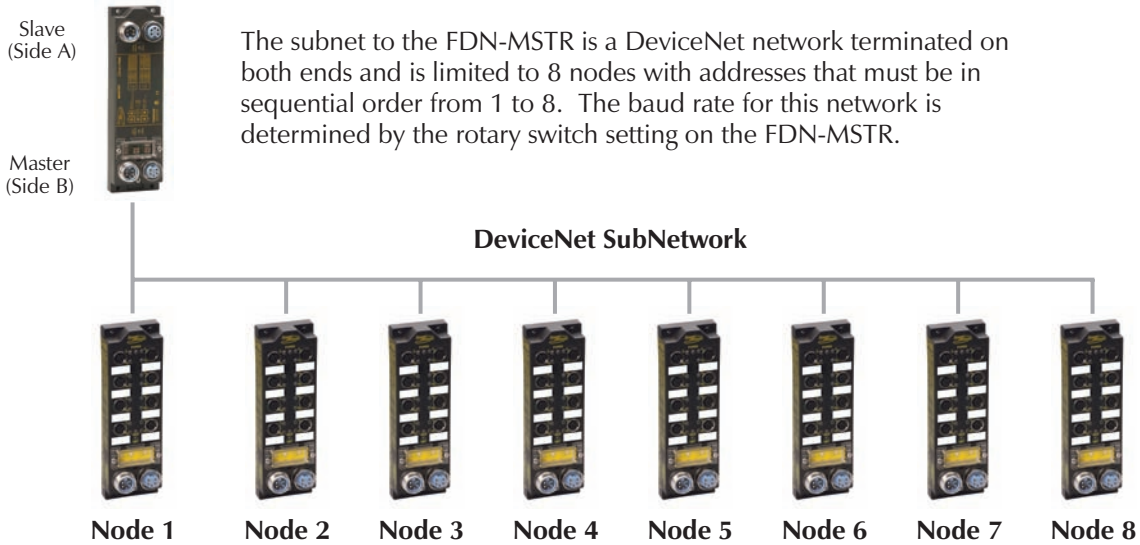
Note: each segment has one male and one female connector

DeviceNet *minifast* Pinout

Male	Female
5-Pin	5-Pin

The FDN-MSTR is a DeviceNet™ master used to manage a subnet off of the main DeviceNet network.

Main DeviceNet Network



The subnet to the FDN-MSTR is a DeviceNet network terminated on both ends and is limited to 8 nodes with addresses that must be in sequential order from 1 to 8. The baud rate for this network is determined by the rotary switch setting on the FDN-MSTR.

The slaves on the subnet are independent of the main DeviceNet network. Hence a node 4 on the main network will conflict with a node 4 on the sub network.

The slaves on the subnet are independent of the main DeviceNet network. Hence a node 4 on the main network will conflict with a node 4 on the sub network.

I/O Data Map 1

The Input data size is 64 bytes (where the first two bytes are reserved for status information from the FDN-MSTR).

	Byte	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	IC	-
	1	ESN 8	ESN 7	ESN 6	ESN 5	ESN 4	ESN 3	ESN 2	ESN 1	RSN 8	RSN 7	RSN 6	RSN 5	RSN 4	RSN 3	RSN 2	RSN 1
	2	Node Address 1 Input Data															
	3	Node Address 2 Input Data															
															
N	Node Address X Input Data																

The Output data is 64 bytes.

	Byte	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	0	Node Address 1 Output Data															
	1	Node Address 2 Output Data															
	2	Node Address 3 Output Data															
															
	N	Node Address X Output Data															

IC = Invalid configuration of node missing: 0 means OK, 1 means error.

ESNX = Error on sub node X: 0 means OK, 1 means error communicating with node.

RSNX = Registered sub node X: 0 means no node is present, 1 means that node is present.

The data table for the Input and Output show the last Byte as "N". This "N" is variable depending on the total amount of data generated by all the nodes on the deviceNet™ sub network. However the maximum for both the Input and the Output are 64 bytes.

DeviceNet Repeater

- Extend Network Length
- Isolate Power Segments
- Extend Drop Lengths
- Isolate Communication Segments



REP-DN
REP-DN-DROP



Electrical

- Operating Current: 125 mA from segment A, 30 mA from segment B

Power Distribution

- REP-DN: DeviceNet power supply for each segment (must be powered by separate supplies)
- REP-DN-Drop: Does not require a separate power supply and does not isolate power between segments

Mechanical

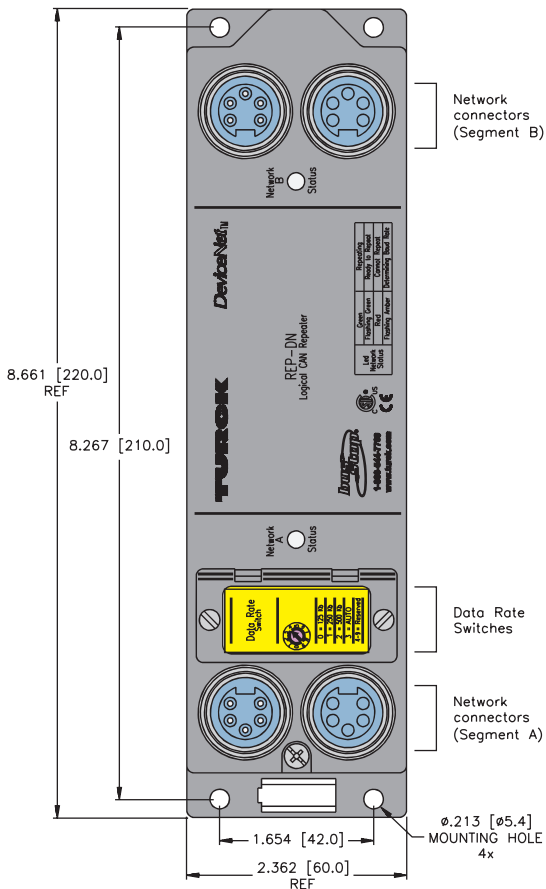
- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 and IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Physical)

- One LED for each segment to indicate communication status



DeviceNet minifast Pinout

Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Note: each segment has one male and one female connector

DeviceNet™ Repeater

The **REP-DN** is a potted, fully connectorized rugged repeater that can be mounted directly on the machine. It is designed for use on any Controller Area Network (CAN), including DeviceNet. Network segments connected by a repeater are considered separate physical networks (trunk and drop lengths for each segment are determined as if the other segments are not there), but one logical network (addresses cannot be duplicated - the scanner and configuration tools work as a single network).

A repeater does not consume an address and is invisible to all the other devices on the network. A repeater does not have an EDS file. The **REP-DN** repeater can be used to extend either the trunk or drop lines, and to isolate power supplies on networks with multiple supplies. There is no limit to the number of repeaters that can be used on one network.

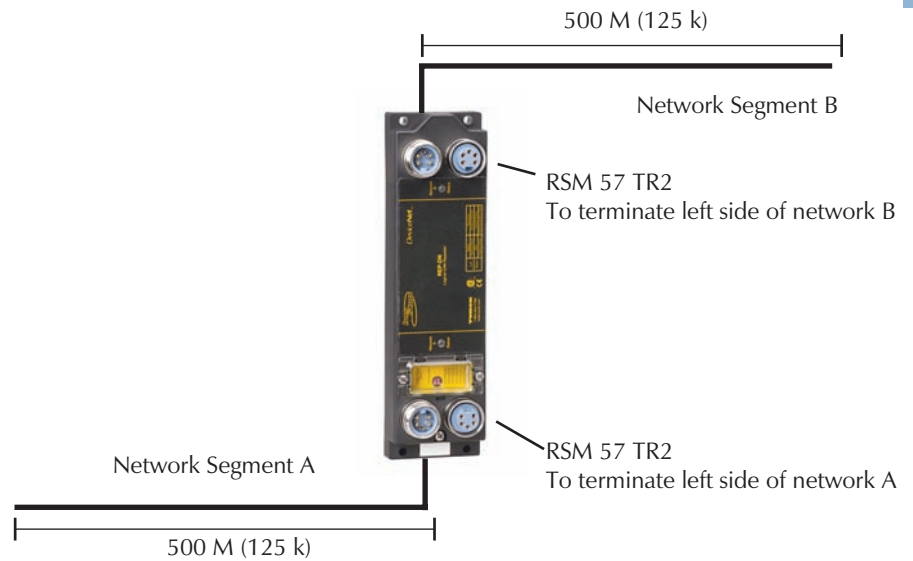
A repeater's baudrate is set via a rotary switch. The baudrate on each side of the repeater must be the same, as different rates would cause the "slow" side to be overloaded with messages from the "fast" side. When a message is repeated, a 2 ms delay is introduced. This is typically insignificant compared to the overall scan time of the network. If more than four repeaters are used in series, the interscan delay may need to be increased.

Repeater Configurations

Extended Trunk Line

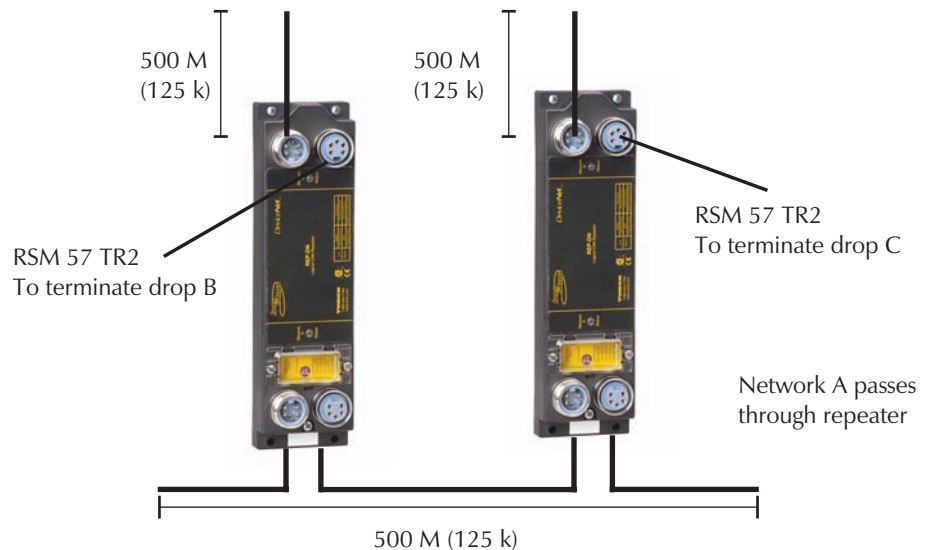
Repeaters are connected in series to extend the trunk line. The total delay is 2 ms multiplied by the number of repeaters.

* REP-DN-DROP does not require a separate power supply on segment B. If a separate power supply is desired, it must be attached using a "Power T" (RSM RKM 57 WSM 40 PST recommended).



Extended Drop Line

Repeaters are connected in parallel to extend the drop length. The overall network delay is 2 ms, because there is only one repeater between the scanner on the trunk and any other device.



Do Not Create a Ring

While a repeater can be used to create very large and complex networks, some configurations are not permitted. If a ring is created (both sides of a repeater are connected to the same network), the repeater will continuously repeat to itself, causing the network to overload.

DeviceNet Spanner



- Rugged, Fully Potted Stations
- IP 67 Protection
- Communicate Between PLCs
- Connect Two DeviceNet Networks

Electrical

- Operating Current: 125 mA from segment A, 30 mA from segment B

Power Distribution

- Station: DeviceNet power supply for each segment (must be powered by separate supplies)

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: NEMA 1,3,4,12,13 and IEC IP 67
- Vibration: 50 g @ 10-500 Hz

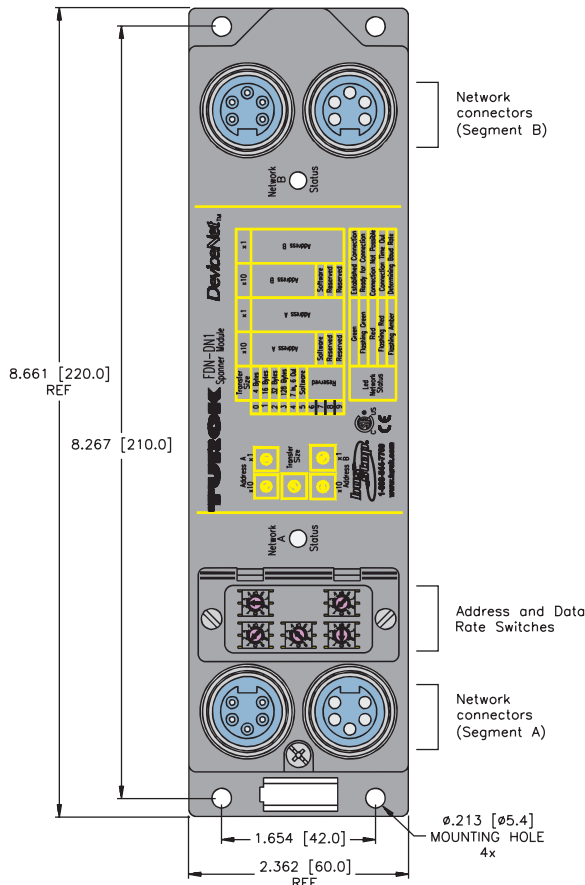
Material

- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon 6 (other materials available on request)

Diagnostics (Physical)

- One LED for each segment to indicate communication status

FDN-DN1



DeviceNet minifast Pinouts

Male	Female
5-Pin	5-Pin

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Note: Each segment has one male and one female connector.

DeviceNet™ Spanner

The FDN-DN1 “Spanner” module provides a means to route data between two PLC’s using DeviceNet. The spanner eliminates the need for a high level control network pyramid, by connecting the DeviceNet networks directly. This simple approach is extremely powerful and economical. It is simple because the spanner appears to each PLC as a standard rack of I/O; any DeviceNet scanner can send I/O data to the spanner without additional software or complex configuration procedures. It is powerful because it can transfer up to 128 bytes of data in one message. It is economical because it replaces the high level control network, eliminating two control cards, wiring, conduit and programming.

Theory of operation

The spanner transfers data between PLC A and PLC B by appearing as I/O to each PLC. The spanner immediately copies the output data from PLC A to the input data for PLC B. Similarly, PLC B’s output data is copied to PLC A’s input data. The size of data transferred is set by the transfer size switch. If the transfer size switch is set at 4,16, 32 or 128 bytes, then the size of the data transferred is the same in both directions. If the transfer size switch is set to software, then the transfer size is set via software and it can be any size (0,1,2,3...128 bytes). When in software mode, the data size mapped to the PLC must be equal in opposite directions on either side of the spanner. For example, if side A produces 2 input bytes and consumes 12 output bytes, then side B must be set to produce 12 input bytes and consume 2 output bytes.

Electrically

The spanner optically isolates network A from network B; the networks do not interact electrically in any way. The spanner is powered internally by network A; a power reset on the A side will reset the entire station.

Addressing

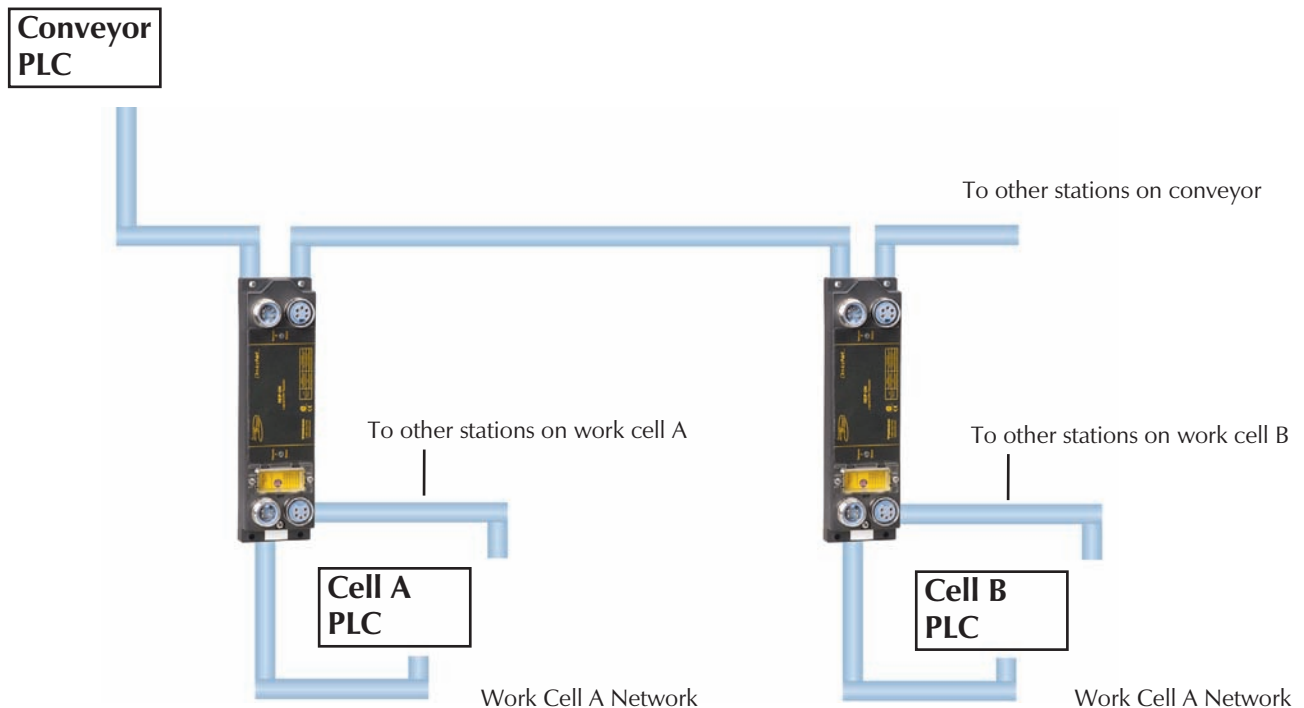
Because the spanner is essentially two DeviceNet devices, one on network A and one on network B, it has two sets of address switches. The address switches for network A are completely independent of network B.

Baudrate

The spanner automatically detects the Baudrate at startup. Network A and B may be at different baudrates.

Spanner Topology

The spanner is typically used to correct and coordinate multiple work cells.



DeviceNet

DeviceNet FDN20 Stations

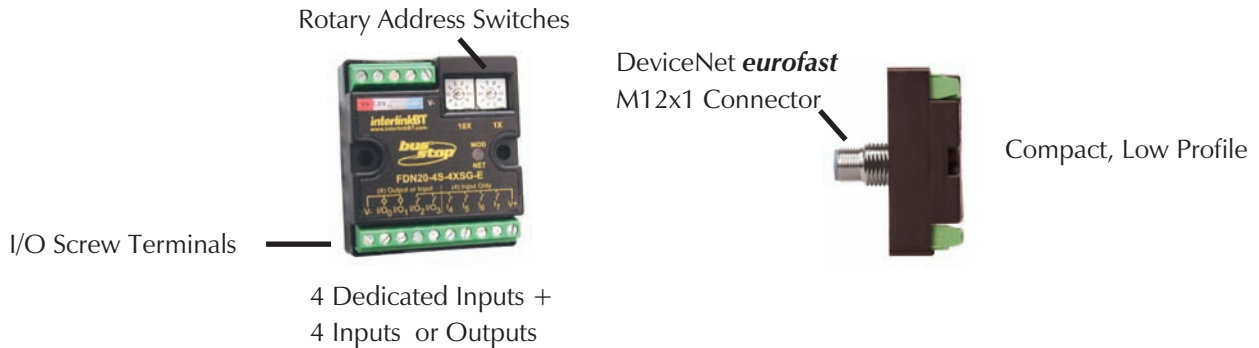
TURCK's FDN20 DeviceNet stations are low-cost screw-terminal connection stations designed for mounting in an enclosure. These stations allow you to easily connect standard I/O devices such as push buttons, pilot lights, motor starters and drives to a DeviceNet network. The FDN20 station is designed to easily upgrade existing equipment to a DeviceNet network.

Specifications

TURCK FDN20 stations are designed to be mounted in standard equipment enclosures (operator stations, motor control centers, etc.). Most FDN20 stations use only screw terminal connections for all I/O and network wiring. FDN20-4S-4XSG-E has a DeviceNet **eurofast**® (M12) connector on the back of the housing that enables mounting the station to an enclosure wall with the (DeviceNet) connection on the outside of the box; greatly simplifying network wiring. Detailed environmental specifications are as follows:

- Housing material: Glass filled nylon
- Protection level: IP 20
- Operating temperature: -40 to +70°C (-40 to +158°F)

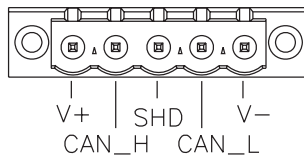
The station's components are identified in the figure below.



Connectors

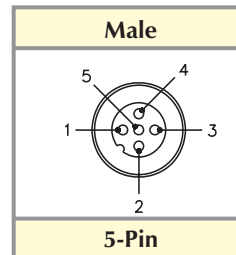
Bus connectors:

FDN20 screw terminal and **eurofast** bus connectors pinouts:



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

DeviceNet Pinout



I/O connectors:

Each FDN20 version uses a different screw terminal connector. Detailed pinout information is given in the product information on the following pages.

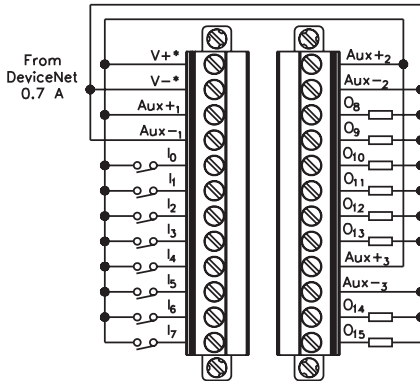
Power

The short FDN20 stations provide all the power to the I/O devices from the DeviceNet™ power supply. In this case there is no auxiliary power connection.

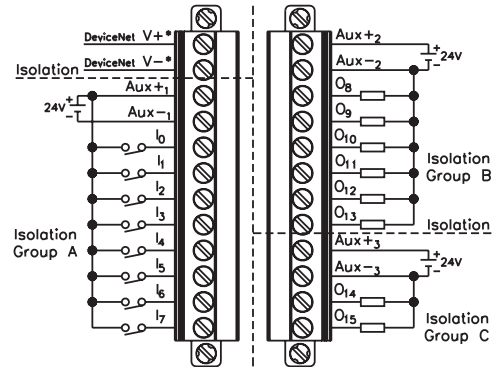
The remaining long FDN20 stations (FDN20-16XSG, for example) provide an auxiliary power connection. I/O devices can be powered from the DeviceNet or auxiliary power supply, depending on how the user chooses to wire the station. The different wiring options are illustrated in the following diagram.

***WARNING NOTE:** (V+) and (V-) PROVIDE POWER FROM DeviceNet . DO NOT CONNECT TO SUPPLY OR GROUND.

***WARNING NOTE:** (V+) and (V-) PROVIDE POWER FROM DeviceNet. DO NOT CONNECT TO SUPPLY OR GROUND.



CONNECT AS SHOWN TO USE DeviceNet to POWER I/O



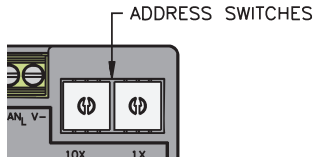
TO USE EXTERNAL POWER SUPPLY

Power ratings for FDN20 stations:

- Bus (DeviceNet) Voltage: 11-26 VDC
- Aux Power Voltage: 24 VDC (nominal)
- Internal Current Consumption: <75 mA (@ nominal 24 VDC) plus sum of I/O currents if auxiliary power is not used
- Input Voltage: 13-26 VDC (From DeviceNet supply)
- Input Short-Circuit Current: <700 mA (total for entire station)
- Input Signal Current (each input): OFF <2 mA; ON 3.0-3.4 mA (@ nominal 24 VDC)
- Input Delay: 2.5 ms
- Output Current: 0.5 A max per output

Addressing

DeviceNet stations must have a network address for communication. The address for FDN20 stations may be set via the visible rotary switches on the front of the station.



$$\text{Address} = 6 \times 10 + 3 \times 1 = 63$$

The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the stations, rotate the switches with a small slotted screwdriver until the arrows are pointing at the appropriate numbers for the chosen address.

Diagnostics

FDN20 stations provide a single Network Status LED for diagnosing communication problems.

- Green: Connection established
- Flashing green: Waiting for connection
- Flashing red: Connection timed out
- Red: Cannot connect
- Flashing Amber: Finding baud rate (autobaud setting)

The long housing stations (i.e. FDN20-16XSG) have an additional LED for each I/O point on the station indicating:

- Off: Point is off
- Green: Point is on

Additionally, most FDN20 stations provide diagnostic bits in the I/O table for diagnostics. One bit indicates a short-circuit fault for outputs or inputs. See product pages in this catalog for detailed I/O information.

Notes:

**Enclosure Mounted
 Input/Output Stations**



FDN20-4S-4XSG
FDN20-4S-4XSG-E*
FDN20-4S-4XSG-DIN*

* Not UL



- In-Cabinet I/O
- IP 20 Protection
- Ideal for Retrofits
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA (from DeviceNet) plus I/O currents (from bus power)
- Input Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: IEC IP 20

Material

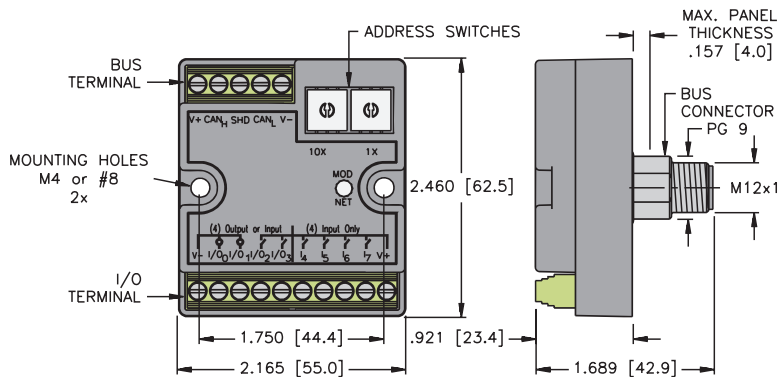
- Connectors: Nickel-plated brass (*eurofast* option only)
- Housing: Nylon

Diagnostics (Logical)

- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates a fault for all inputs and one bit indicates a fault for all outputs

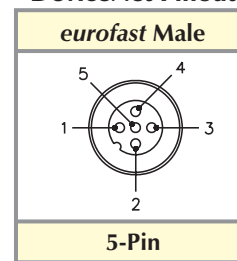
Diagnostics (Physical)

- LED to indicate status of DeviceNet communication



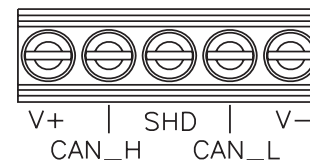
FDN20-4S-4XSG-E shown

DeviceNet Pinout



FDN20-4S-4XSG-E only

DeviceNet Connector

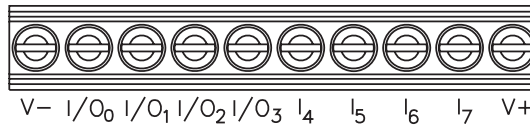


Note: A DIN rail mounting bracket (FDN20-BKT-DIN) may be purchased separately for use with the FDN20-4S-4XSG.

Part Number	Inputs						Outputs				Data	
	Input Count	Pinout	Sensor Style	Group	Individual	Wire-Break Detection	Output Count	Pinout	Current	Individual	Wire-Break Detection	Data Map
FDN20-4S-4XSG	8	FS	PNP	X			4	FS	0.5 A			1
FDN20-4S-4XSG-E	8	FS	PNP	X			4	FS	0.5 A			1
FDN20-4S-4XSG-DIN	8	FS	PNP	X			4	FS	0.5 A			1

Input/Output Connectors

FS



*Note: I/O₀ to I/O₃ can be used as inputs or outputs

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IGS	OGS	-	-	-	-	-	-
Out	0	-	-	-	-	O-3	O-2	O-1	O-0

Enclosure Mounted
Input/Output Station

- In-Cabinet I/O
- IP 20 Protection
- Ideal for Retrofits
- Automatic Baud Rate Sensing



FDN20-4S-4XSG-0189
FDN20-S0404G-0220*

* Not CE



Electrical

- Operating Current: <75 mA plus I/O currents (from bus power)
- Input Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: IEC IP 20

Material

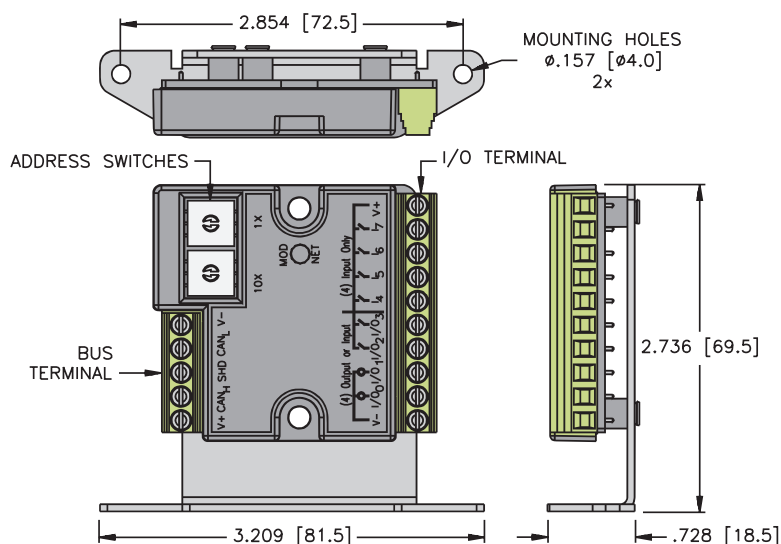
- Housing: Nylon

Diagnostics (Logical)

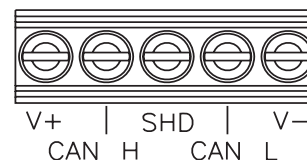
- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates a fault for all inputs and one bit indicates a fault for all outputs

Diagnostics (Physical)

- LED to indicate status of DeviceNet communication



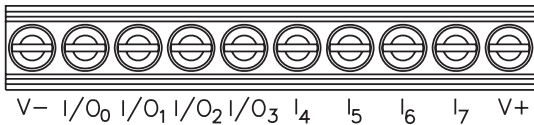
DeviceNet Connector



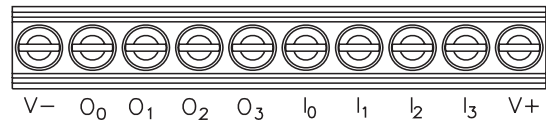
Part Number	Inputs						Outputs				Data	
	Input Count	Pinout	Sensor Style	Group	Individual	Wire-Break Detection	Output Count	Pinout	Current	Individual	Wire-Break Detection	Data Map
FDN20-4S-4XSG-0189	8	FS	PNP	X			4	FS	0.5A			1
FDN20-S0404G-0220	4	FS-2	PNP	X			4	FS-2	0.5 A			2

Input/Output Connectors

FS



FS-2



*Note: I/O₀ to I/O₃ can be used as inputs or outputs

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IGS	OGS	-	-	-	-	-	-
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	IGS	OGS	-	-	I-3	I-2	I-1	I-0
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

Enclosure Mounted
Input/Output Stations

- In-Cabinet I/O
- IP 20 Protection
- Ideal for Retrofits
- Automatic Baud Rate Sensing



FDN20-16XSG
FDN20-16S

Electrical

- Operating Current: <75 mA plus applicable I/O currents (from bus power)
- Input Current: <700 mA sum of all inputs
- Output Current: <500 mA per output

Power Distribution

- Inputs: Optionally DeviceNet or Auxiliary power supply as shown in wiring diagram
- Outputs: Optionally DeviceNet or Auxiliary power supply as shown in wiring diagram

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: IEC IP 20

Material

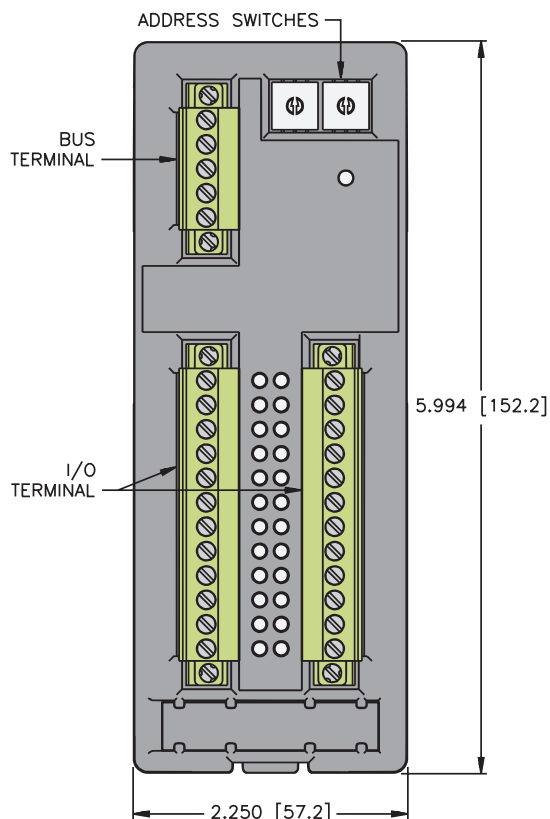
- Housing: Nylon

Diagnostics (Logical)

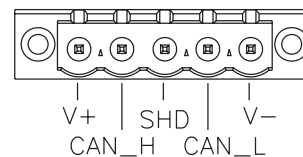
- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates a fault for all inputs, on bit indicates a fault for all outputs

Diagnostics (Physical)

- LED to indicate status of DeviceNet communication

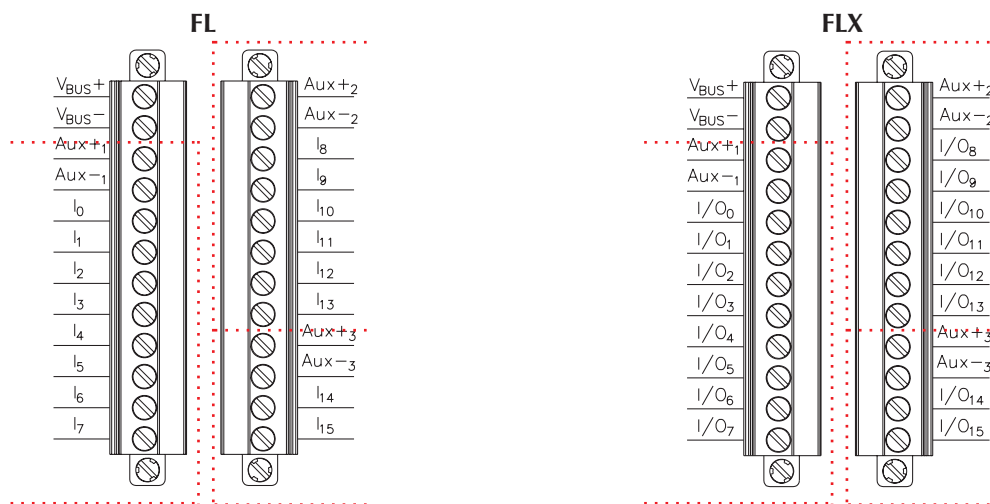


DeviceNet Connector



Part Number	Inputs						Outputs				Data	
	Input Count	Pinout	Sensor Style	Group	Individual	Wire-Break Detection	Output Count	Pinout	Current	Individual	Wire-Break Detection	Data Map
FDN20-16XSG	16	FLX	PNP	X			16	FLX	0.5 A			1
FDN20-16S	16	FL	PNP	X			0					2

Input/Output Connectors



..... Indicates I/O groups which can be powered from separate Aux. Power supplies if desired.

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
2	IGS	OGS	-	-	-	-	-	-	
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
2	IGS	OGS	-	-	-	-	-	-	

**Enclosure Mounted
 Input/Output Stations**

- In-Cabinet I/O
- IP 20 Protection
- Ideal for Retrofits
- Automatic Baud Rate Sensing



FDN20-16SN-16XSG
FDN20-32SN



Electrical

- Operating Current: <75 mA plus applicable I/O currents (from bus power)
- Input Current: <700 mA sum of all inputs
- Output Current: 1.8 A per output

Power Distribution

- Inputs: Optionally DeviceNet or Auxiliary power supply as shown in wiring diagram
- Outputs: Optionally DeviceNet or Auxiliary power supply as shown in wiring diagram

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: IEC IP 20

Material

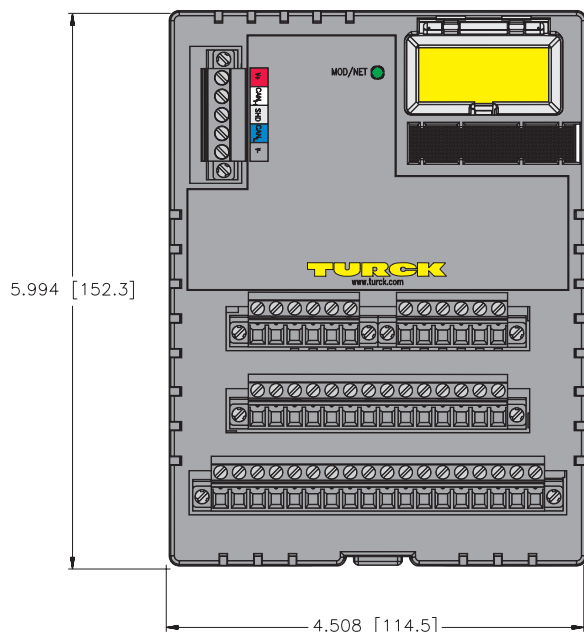
- Housing: Nylon

Diagnostics (Logical)

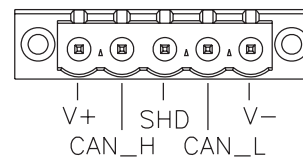
- Open/short-circuit status mapped to DeviceNet I/O table, one bit indicates a fault for all inputs, on bit indicates a fault for all outputs

Diagnostics (Physical)

- LED to indicate status of DeviceNet communication

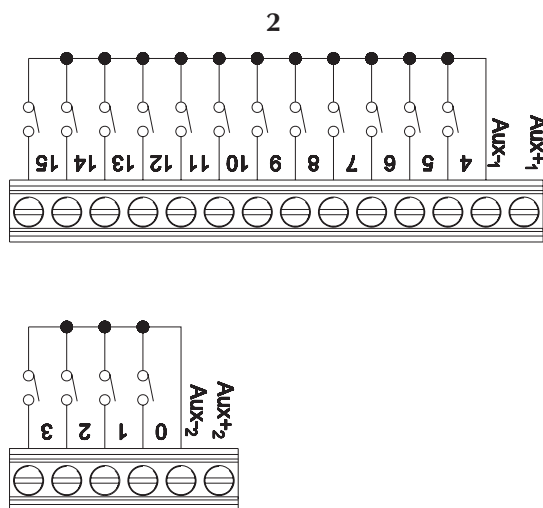
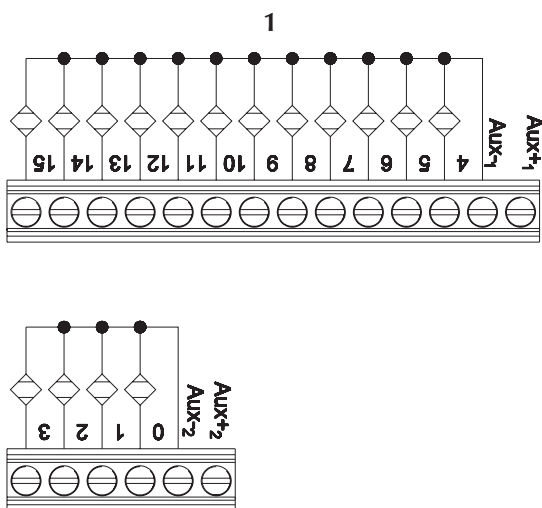


DeviceNet Connector



Part Number	Inputs						Outputs				Data	
	Input Count	Pinout	Sensor Style	Group	Individual	Wire-Break Detection	Output Count	Pinout	Current	Individual	Wire-Break Detection	Data Map
FDN20-16SN-16XSG	32*	1	NPN/PNP	X			16*	2	1.8 A			1
FDN20-32SN	32	1	NPN/PNP	X								2

* 16 dedicated inputs and 16 points which can be used as inputs or outputs.



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1
1		I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
2		I-23	I-22	I-21	I-20	I-19	I-18	I-17	I-16
3		I-31	I-30	I-29	I-28	I-27	I-26	I-25	I-24
4		IGS	OGS	-	-	-	-	-	-
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8

I/O Data Map 2

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1
1		I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
2		I-23	I-22	I-21	I-20	I-19	I-18	I-17	I-16
3		I-31	I-30	I-29	I-28	I-27	I-26	I-25	I-24
4		IGS	OGS	-	-	-	-	-	-

**Enclosure Mounted
 Input/Output Stations**

- In-Cabinet I/O
- IP 20 Protection
- Ideal for Retrofits
- Automatic Baud Rate Sensing



FDN20-4DR



Electrical

- Bus Power: 11-26 VDC
- Internal Current Consumption: ≤75 mA plus sum of sensor and output currents (from bus power)

Input Circuits: (4) Negative switched dry contacts

- Input Voltage (V+): 0-26 VDC
- Input Signal Current (Input): OFF > 3 V, < 0.5 mA
 ON 0-1 V, 2-3 mA
- Input Delay: 1 ms

Output Circuits: (12) Solid state relays

- Output Voltage: 0-26 VDC
- Output Load Current: 120 mA (max.)

Output Circuits (Analog): (4) 0-10 V

- Output Voltage 0-10 V
- Representation 16-bit signed integer
- Analog Supply Voltage 10-24 V

Network Status LED

- Status: Green: Established connection
 Flashing Green: Ready for connection
 Red: Connection not possible
 Flashing Amber: autobaud/125k/250k/500k

Adjustments

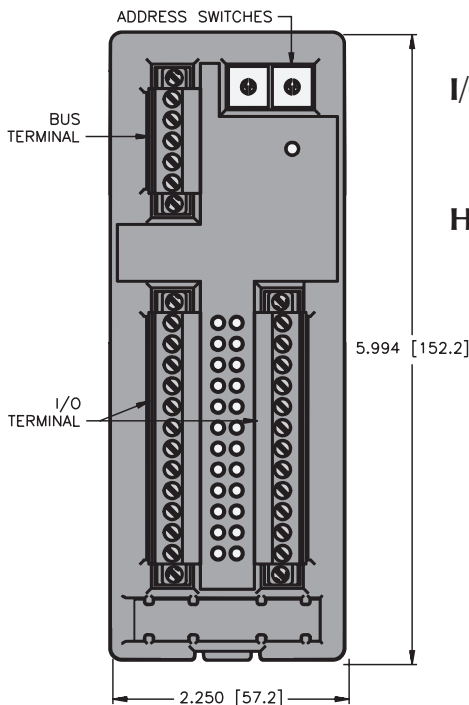
- Slave Side (Network address): 0-63 via rotary switches
- Master Side (Node count): 0-8 via rotary switches
- Master Baud Range (5,6,7): 5=125 K, 6=250 K, 7=500 K

I/O Status LED

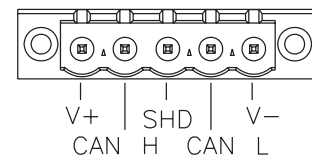
- OFF = off
- Green = On

Housing

- Material: Nylon
- Operating Temperature: -40° to 70° C (-40° to 158° F)



DeviceNet Connector



Part Number	Inputs							Outputs				Data
	Input Count	Pinout	Sensor Style	Group	Individual	Wire-Break Detection	Discrete Relay Output Count	Pinout	Analog Outputs	Individual	Wire-Break Detection	Data Map
FDN20-4DR	4	1	Sinking Dry Contacts	X			12	1	4			1

Input/Output Connectors

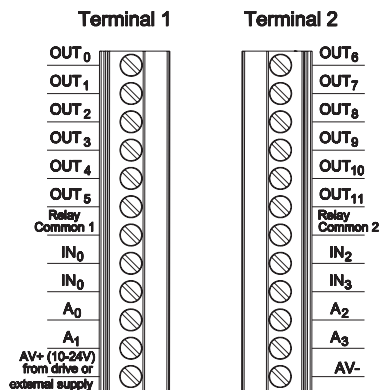


Diagram A

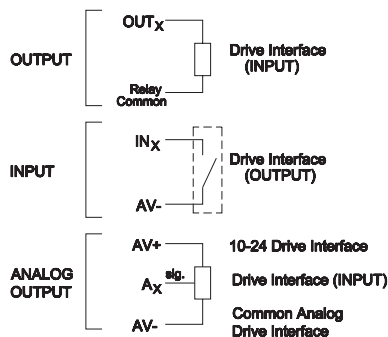


Diagram B

NOTE:
Relay Common and Relay Common 2 are isolated from each other and can be connected to either 10-24 V or AV-

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
In	0	-	-	-	-	-	-	I-1	I-0	
	1	-	-	-	-	-	-	I-3	I-2	
Out	0	-	-	0-5	0-4	0-3	0-2	0-1	0-0	
	1	-	-	0-11	0-10	0-9	0-8	0-7	0-6	
	2	A0 Low Byte								
	3	A0 High Byte								
	4	A1 Low Byte								
	5	A1 High Byte								
	6	A2 Low Byte								
	7	A2 High Byte								
	8	A3 Low Byte								
	9	A3 High Byte								

DeviceNet™ *piconet* Stations

TURCK's *piconet* DeviceNet stations are compact rugged stations designed for machine mounting. These stations allow easy connection of standard I/O devices such as sensors, limit switches, valves and pilot lights to a DeviceNet network, typically without a protective enclosure. This is made possible by epoxy-filled station housings, all-metal connectors and visible rotary address switches, among other things.

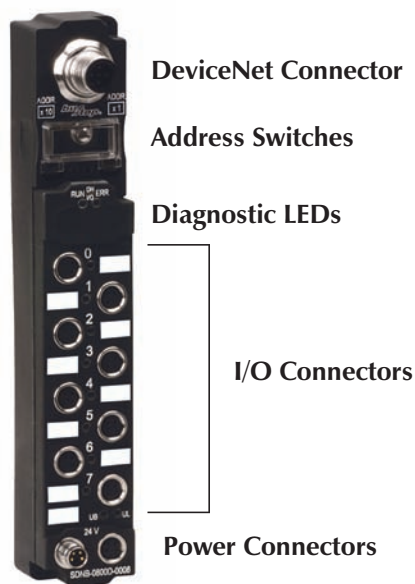
piconet's small size sets them apart from other stations. *piconet* stations are the smallest rugged I/O modules available, with a standard housing footprint of 30 x 175 mm. They are also available with *picofast*® (M8) connectors for I/O, making them ideally suited for small-space applications.

Mechanical Specifications

TURCK DeviceNet *piconet* stations are designed to be mounted directly on machines and work cells with no separate enclosure or housing necessary. Epoxy-filled housing creates a durable station that allows it to be mounted in most industrial environments. Detailed environmental specifications include:

- Housing material: Glass filled nylon
- Connector material: Nickel-plated brass
- Protection level: NEMA 1,3,4,12,13; IEC IP 67
- Operating temperature: 0 to 55°C

The station's components are identified in the figure below.

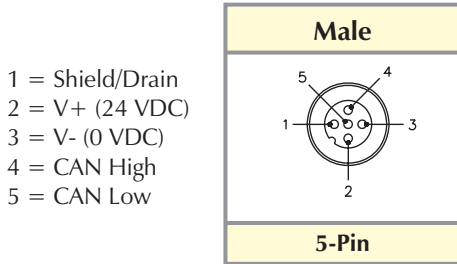


Connectors

DeviceNet™ *piconet*® stations provide connectors for bus and I/O power. Unlike other TURCK DeviceNet stations, *piconet* stations power all I/O from auxiliary power.

Bus connector

DeviceNet *eurofast* Pinouts



picofast® I/O connectors

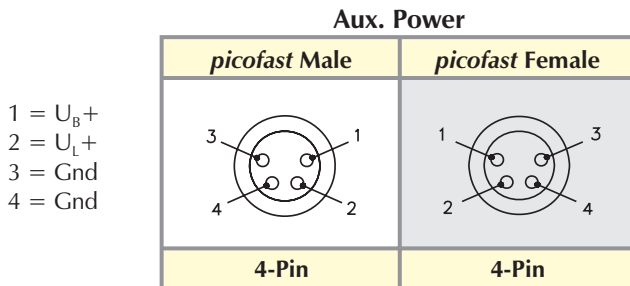
piconet stations with discrete I/O are available with *picofast* (M8) connectors. See the individual product pages in this catalog for detailed pinouts.

eurofast I/O connectors

piconet stations with analog and special function I/O are available with *eurofast* (M12), and in some cases M23, connectors. See the individual product pages in this catalog for detailed pinouts.

Auxiliary Power Connectors

piconet stations have two 4-pin *picofast* auxiliary power connectors, one male and one female, that allow the stations to be “daisy-chained” from one power supply to another without using a T-connector. Two power supplies are connected through the auxiliary supply; one for the station electronics and inputs and one for outputs.



Stations may be available with different connector options than the standards mentioned here. Consult your local sales representative for different connector options.

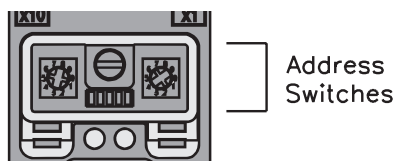
Power

Common power specifications for *piconet* stations:

- Bus (DeviceNet) Voltage: 11-26 VDC
- Aux Power Voltage: 24 VDC (nominal)
- Input Voltage: (From Auxiliary supply, U_B)
- Output Voltage: From Auxiliary supply, U_L

Addressing

DeviceNet stations must have a network address for communication. The address for *piconet* stations may be set via the visible rotary switches under the clear plastic cover on the front of the station.



$$\text{Address} = 6 \times 10 + 3 \times 1 = 63$$

The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the station, rotate the switches with a small slotted screwdriver until the arrows point to the appropriate numbers for the chosen address.

Diagnostics

piconet DeviceNet stations provide two LEDs for diagnosing communication problems.

Module Status

- Green: Working properly
- Flashing green: Detecting baud rate
- Flashing red: Input short-circuit

Network Status

- Green: Connection established
- Flashing green: Waiting for connection
- Flashing red: Connection timed out
- Red: Cannot connect

There is an additional LED for each input on the station. This LED indicates:

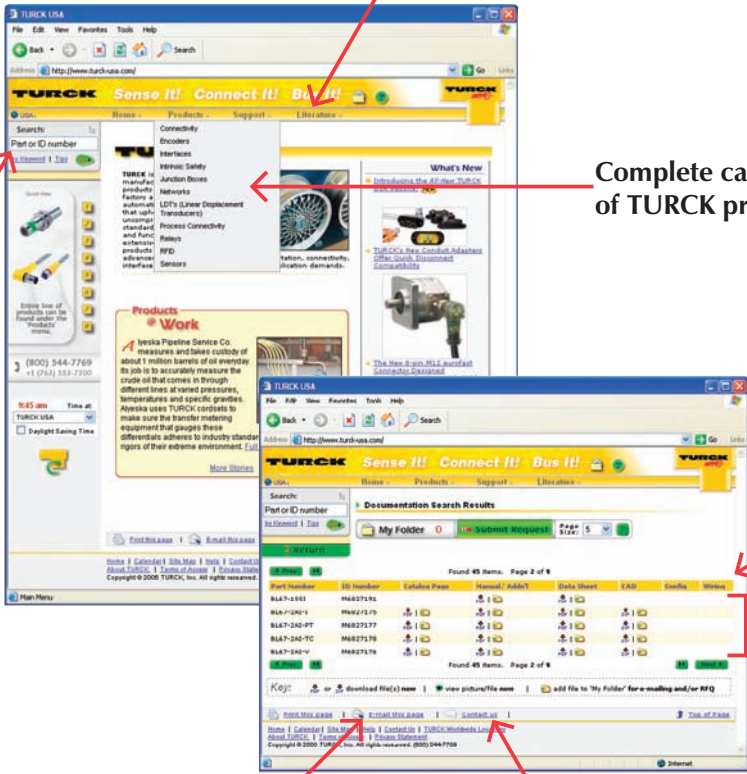
- Off: Input is off
- Green: Input is on

There is also an LED to indicate the status of the two auxiliary power supplies.

- Off: Power is missing
- On: Power is present

TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

Visit our site for new product releases, approvals, white papers, application support and more.



Access to all TURCK catalogs, press releases, white papers and tutorials

Search for products by part number, ID number or key word

Complete category listing of TURCK products

Access to CAD, wiring and pinout diagrams

Download or e-mail files, request for quote

Contact a TURCK representative

Option to e-mail pages

Part Number	ID Number	Catalog Page	Manual / ADAM	Data Sheet	CAD	Conds	Notes
847-1001	M002192						
847-1002	M002193						
847-240-PT	M002177						
847-240-PC	M002178						
847-240-W	M002176						

www.turck.com

Input Station



SDNB-0800D-0008



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

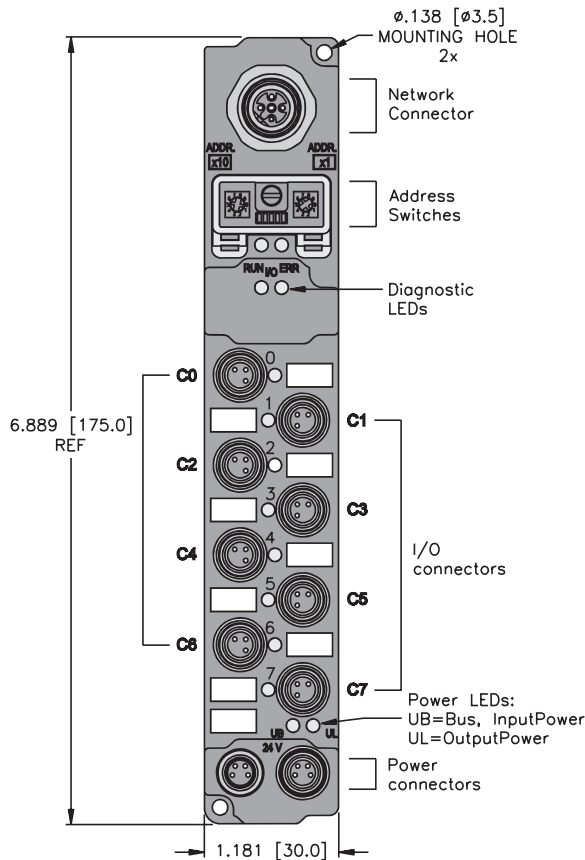
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

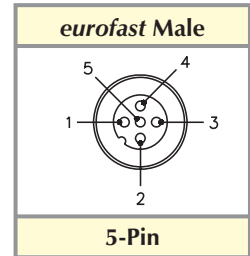
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

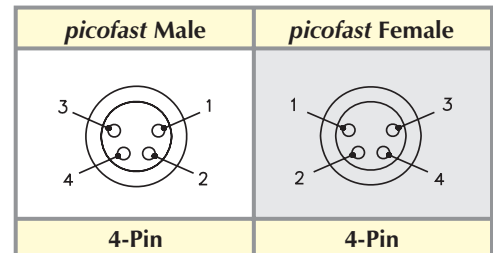


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

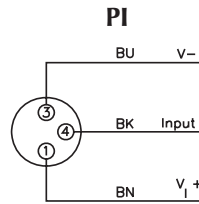
Aux. Power



- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Map
SDNB-0800D-0008	8	0-7	PI	1	PNP				1

Input Connectors



Mating cordset:
PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IS-7	IS-6	IS-5	IS-4	IS-3	IS-2	IS-1	IS-0

Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDNB-0808D-0001



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

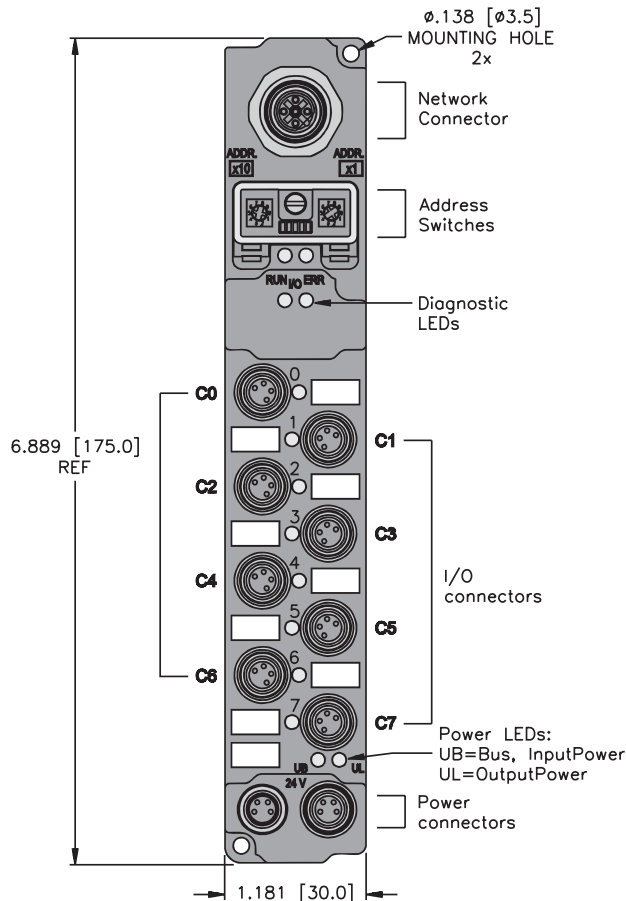
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

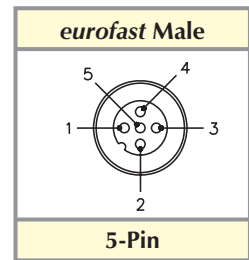
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

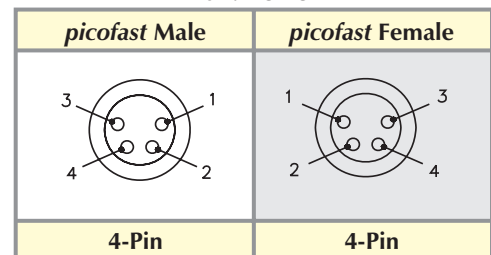


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

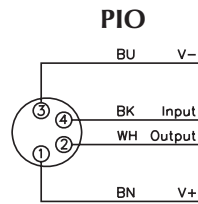
Aux. Power



- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs										Outputs					Data	
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNB-0808D-0001	8	0-7	PIO	1	PNP				8	0-7	PIO	1	0.5 A			1

Input/Output Connectors



Mating cordset:
PSG 4M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IS-7	IS-6	IS-5	IS-4	IS-3	IS-2	IS-1	IS-0
	2	OS-7	OS-6	OS-5	OS-4	OS-3	OS-2	OS-1	OS-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDNB-0008D-0006
SDNB-0008D-0002



Electrical

- Operating Current: <75 mA (from U_B)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Outputs: U_L Power supply

Mechanical

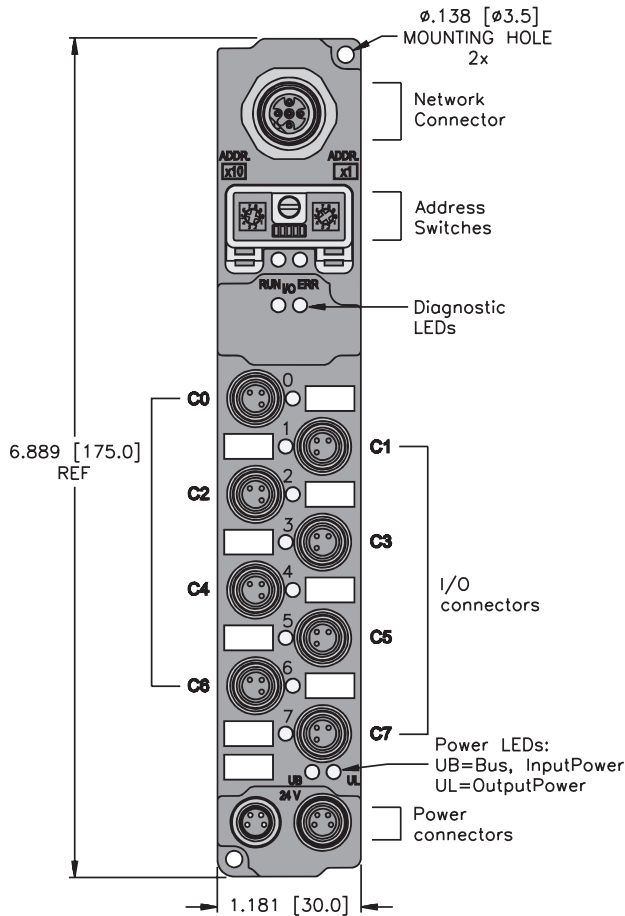
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

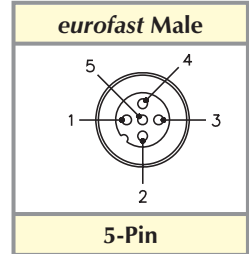
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

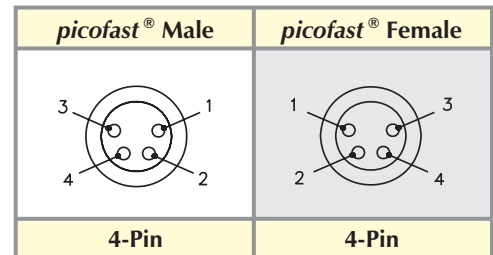


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Aux. Power

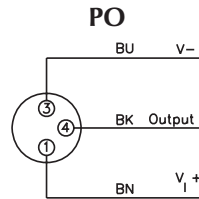


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNB-0008D-0006	8	0-7	PO	1	0.5 A			1
SDNB-0008D-0002	8	0-7	PO	1	2 A*			1

*Note: Total output current for the station is limited to 4 A.

Output Connectors



Mating cordset:

PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	0S-7	0S-6	0S-5	0S-4	0S-3	0S-2	0S-1	0S-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Input/Output Stations



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

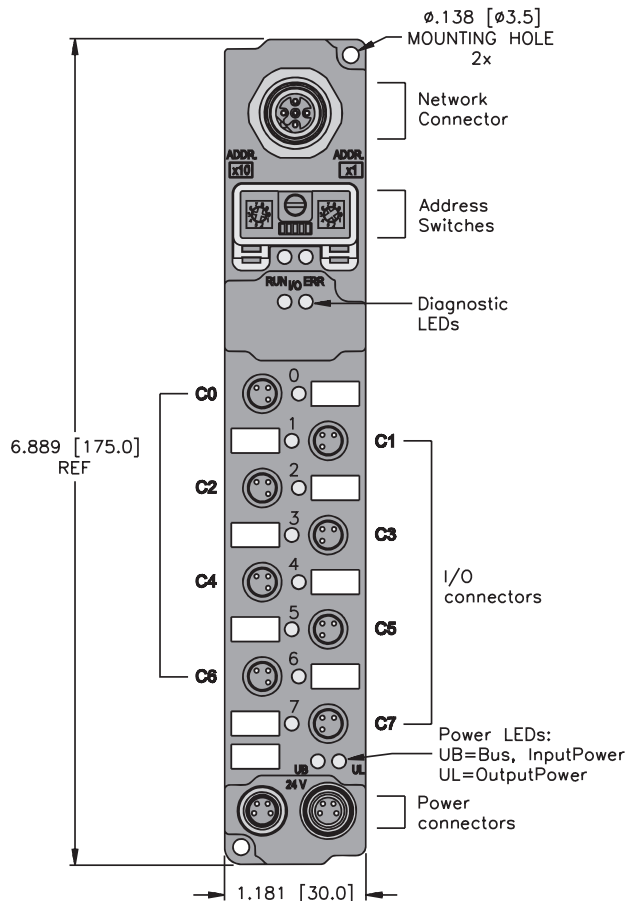
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

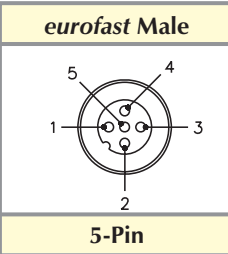
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

SDNB-0404D-0005
SDNB-0404D-0001

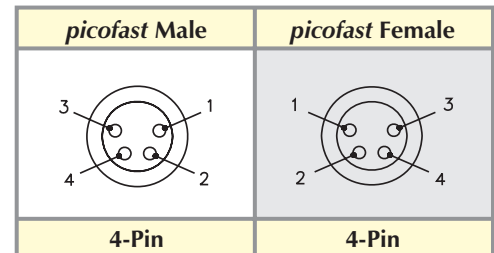


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Aux. Power

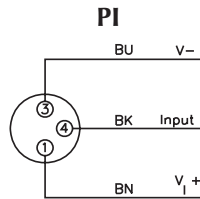


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

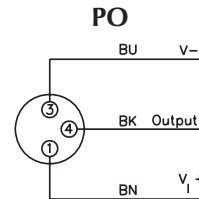
	Inputs								Outputs					Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNB-0404D-0005	4	0-3	PI	1	PNP				4	4-7	PO	1	2 A*			1
SDNB-0404D-0001	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

*Note: Total output current for the station is limited to 4 A.

Input/Output Connectors



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	IS-3	IS-2	IS-1	IS-0	I-3	I-2	I-1	I-0
	1	-	-	-	-	OS-3	OS-2	OS-1	OS-0
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

Analog Input Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDNB-40A-0005
SDNB-40A-0007



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

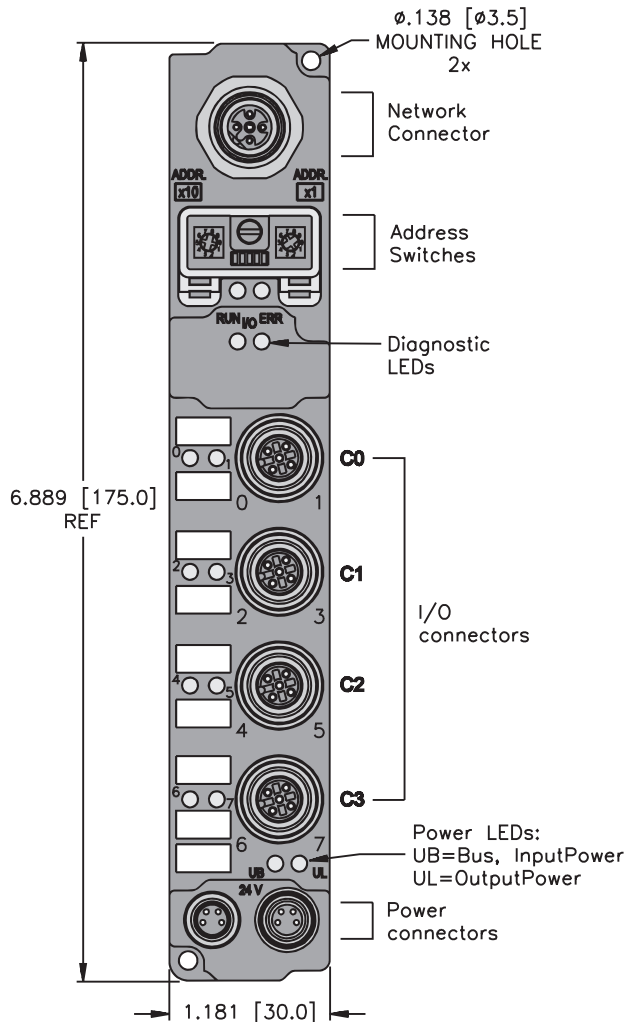
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

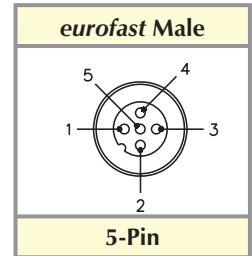
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

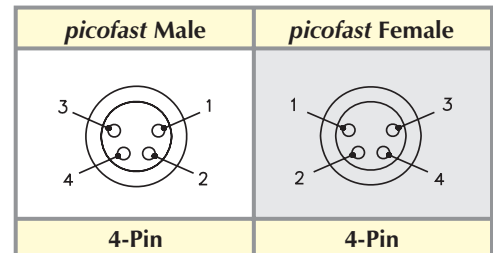


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Aux. Power

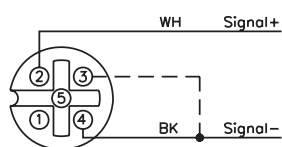


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd_B
- 4 = Gnd_L

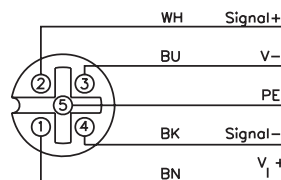
Inputs										Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map	
SDNB-40A-0005	4	0-3	AI	1	-10/0 to 10 V				1	
SDNB-40A-0007	4	0-3	AI	1	0 to 20 mA				1	

Input/Output Connectors

AI



Loop Powered (Isolated)



DeviceNet Powered Transducer

Mating cordset:

Isolated Loop:

RK 4.5T-*M-RS 4.5T/S653

Loop Powered:

RK 4.5T-*M-RS 4.5T/LPS/S653

Note: The "LPS" in the part number indicates that the cord jumpers pin 3 to pin 4 on the male side to the signal- to the station common. Pin 3 is not connected at the female end.

Applications:

TURCK Sensors:

LU; RK 4.4T-*RS 4.4T/S1118

LI; RK 4.4T-*RS 4.4T/S1120

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	Channel 0, MSB							
1	Channel 0, LSB								
2	Channel 1, MSB								
3	Channel 1, LSB								
4	Channel 2, MSB								
5	Channel 2, LSB								
6	Channel 3, MSB								
7	Channel 3, LSB								
8	-	-	-	-	-	AIS-3	AIS-2	AIS-1	AIS-0

Temperature Input Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDNB-40A-0004
SDNB-40A-0009



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

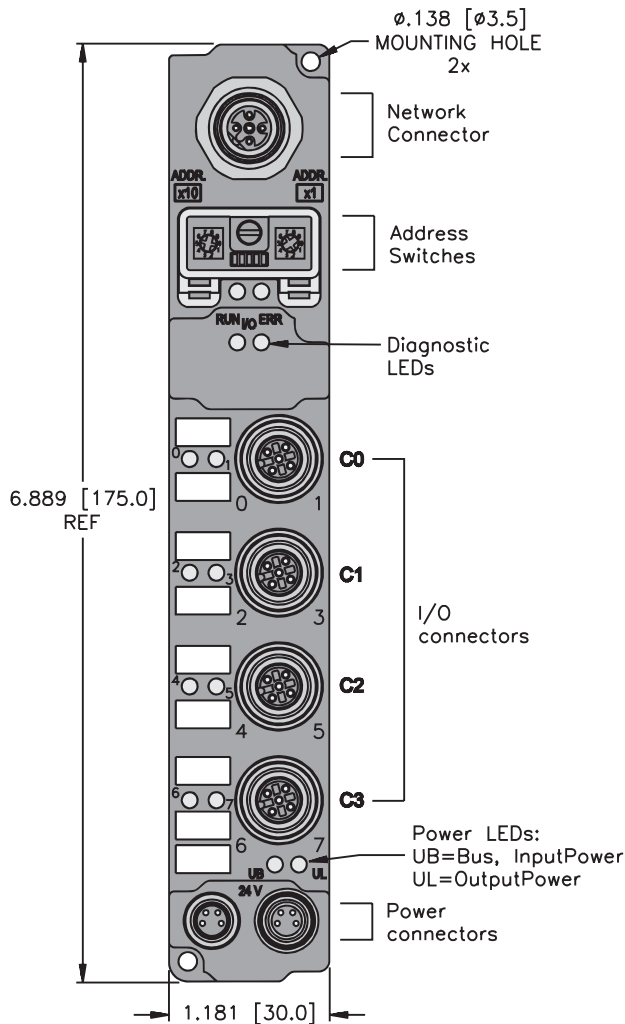
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

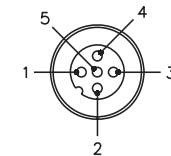
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication



DeviceNet Pinout

eurofast Male

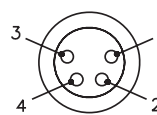


- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

5-Pin

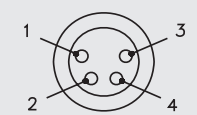
Aux. Power

picofast Male



4-Pin

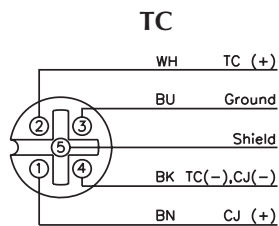
picofast Female



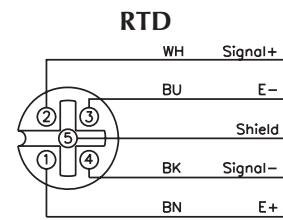
4-Pin

Part Number	Inputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNB-40A-0004	4	0-3	TC	1	TC				1
SDNB-40A-0009	4	0-3	RTD	1	RTD				1

Input/Output Connectors



Mating connector (field wireable):
 WAS5-THERMO
 (includes cold junction compensation)



Mating cordset:
 RK 4.5T-* -RS 4.5T

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	Channel 0, MSB							
	1	Channel 0, LSB							
	2	Channel 1, MSB							
	3	Channel 1, LSB							
	4	Channel 2, MSB							
	5	Channel 2, LSB							
	6	Channel 3, MSB							
	7	Channel 3, LSB							
8	-	-	-	-	AIS-3	AIS-2	AIS-1	AIS-0	

Analog Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDNB-04A-0009
SDNB-04A-0007



Electrical

- Operating Current: <75 mA (from U_B)

Power Distribution

- Outputs: U_L Power supply

Mechanical

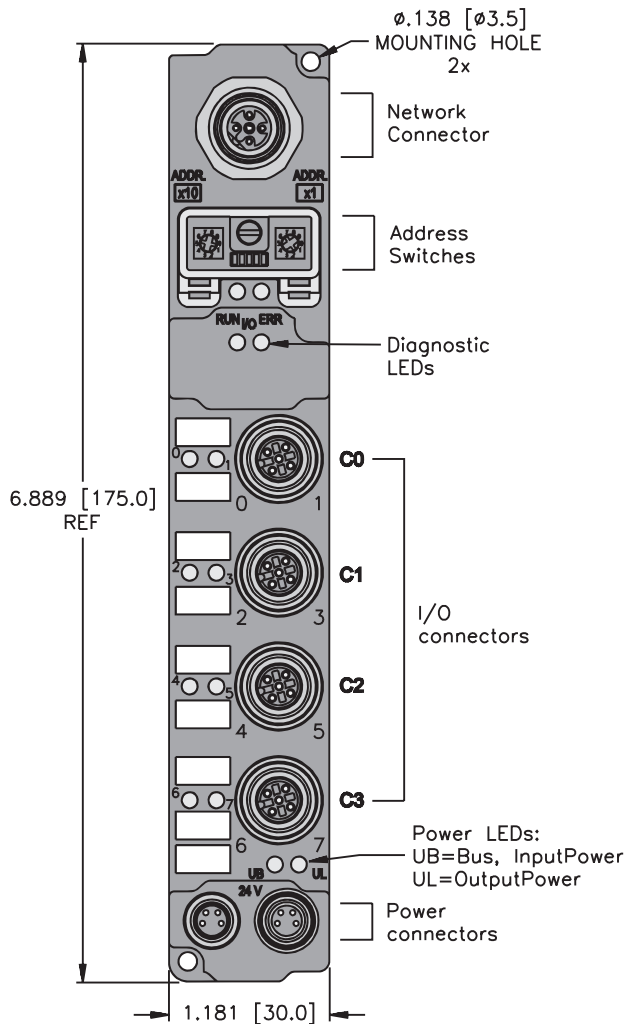
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

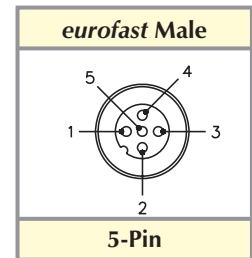
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

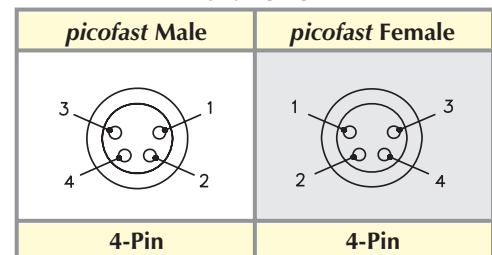


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

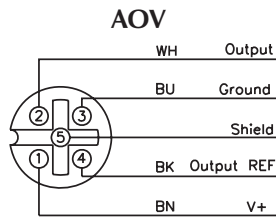
Aux. Power



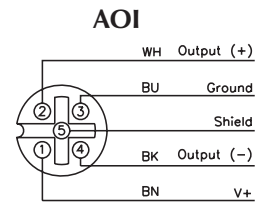
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd_B
- 4 = Gnd_L

Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Output Style	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNB-04A-0009	4	0-3	AOI	1	0 to 20 mA			1
SDNB-04A-0007	4	0-3	AOV	1	-10/0 to 10 V			1

Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



DeviceNet Powered Transducer

Mating cordset:
RK 4.5T-*-RS 4.5T

Applications:

TURCK Sensors:
LU; RK 4.4T-*-RS 4.4T/S1118

LI; RK 4.4T-*-RS 4.4T/S1120

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	AOS-3	AOS-2	AOS-1	AOS-0
Out	0	Channel 0, MSB							
	1	Channel 0, LSB							
	2	Channel 1, MSB							
	3	Channel 1, LSB							
	4	Channel 2, MSB							
	5	Channel 2, LSB							
	6	Channel 3, MSB							
	7	Channel 3, LSB							

Counter Station



SDNB-0202D-0003



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus device currents (from U_B)
- Input Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)
- Frequency: 100 KHz

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

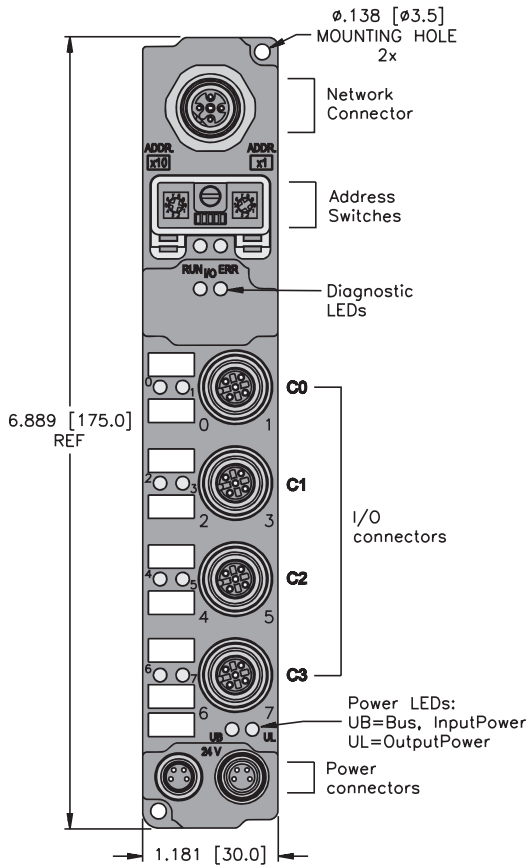
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

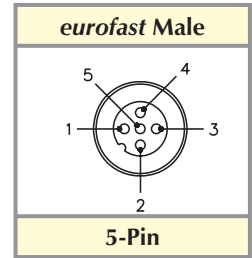
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

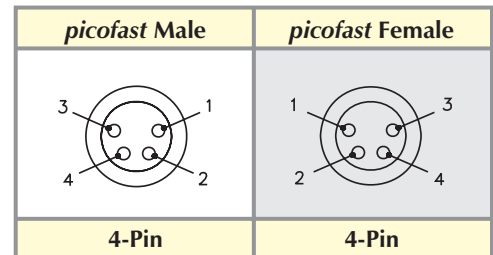


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

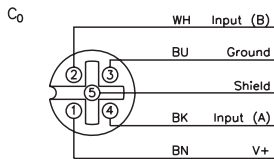
Aux. Power



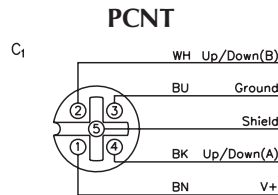
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd_B
- 4 = Gnd_L

Part Number	Inputs										Outputs				Data	
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNB-0202D-0003	2	0-3	PCNT	2	Counter				2	0-3	PCNT	2	0.5 A			1

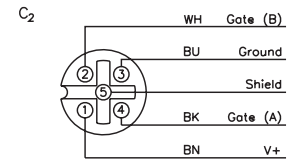
Input/Output Connectors



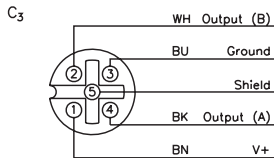
Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
In	0	Channel 0 - Status								
	1	Channel 0, Byte 0								
	2	Channel 0, Byte 1								
	3	Channel 0, Byte 2								
	4	Channel 0, Byte 3								
	5	Channel 1 - Status								
	6	Channel 1, Byte 0								
	7	Channel 1, Byte 1								
	8	Channel 1, Byte 2								
	9	Channel 1, Byte 3								
Out	10	Res.						C2-S	C1-S	
	0	Channel 0 - Control								
	1	Channel 0, Byte 0								
	2	Channel 0, Byte 1								
	3	Channel 0, Byte 2								
	4	Channel 0, Byte 3								
	5	Channel 1 - Control								
	6	Channel 1, Byte 0								
	7	Channel 1, Byte 1								
	8	Channel 1, Byte 2								
9	Channel 1, Byte 3									

Incremental Encoder Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDNB-10S-0001

Electrical

- Operating Current: <75 mA plus device currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

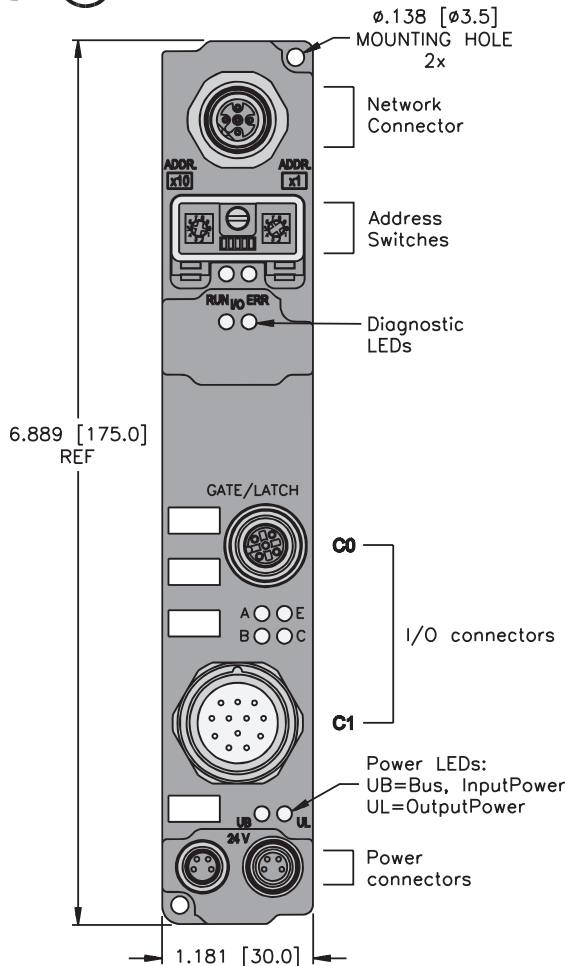
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

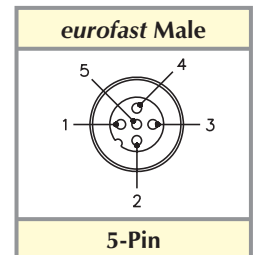
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

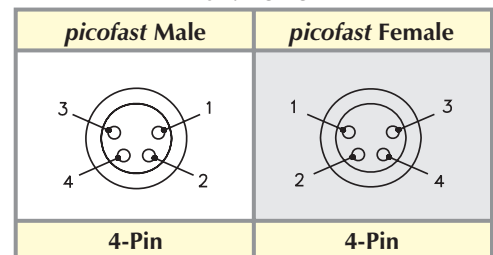


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Aux. Power

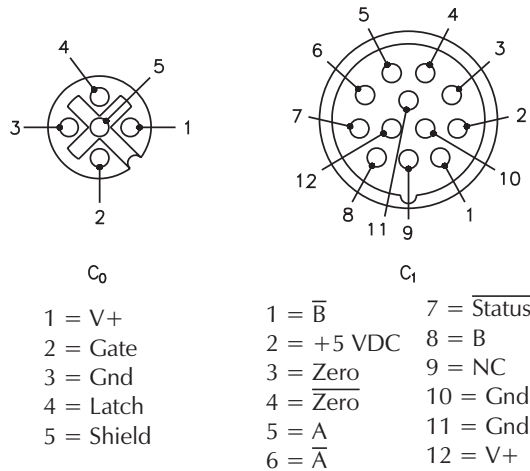


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNB-10S-0001	1	0-1	ENC	1	Encoder				1

Input/Output Connectors

ENC



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Serial Interface - Status							
	1	Count Value - High (MSB)							
	2	Count Value - Low (LSB)							
	3	Latch							
	4	Period Value - High (MSB)							
	5	Period Value - Low (LSB)							
Out	6	Device Status							
	0	Serial Interface - Control							
	1	Set Value - High (MSB)							
	2	Set Value - Low (LSB)							
	3	Reserved							
	4	Reserved							
	5	Reserved							

Serial Interface Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDNB-10S-0002
SDNB-10S-0004

Electrical

- Operating Current: <75 mA (from U_B)

Mechanical

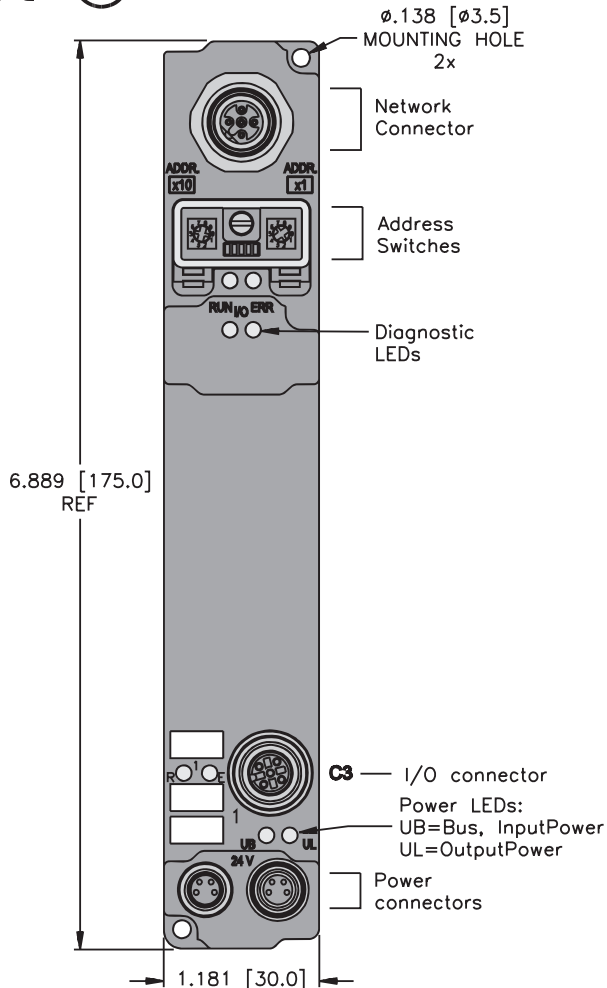
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

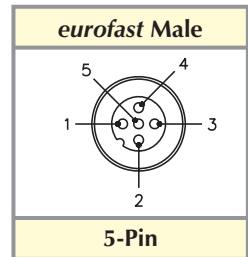
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

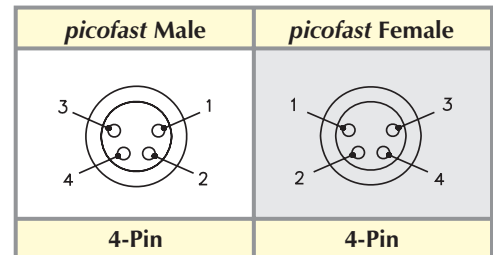


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

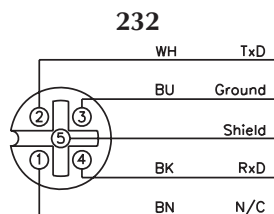
Aux. Power



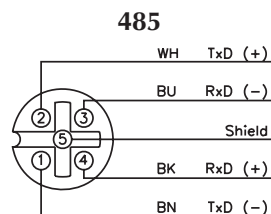
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Part Number	I/O									Data
	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes Per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map	
SDNB-10S-0002	1	0	232	1	RS232	3 to 5			1	
SDNB-10S-0004	1	0	485	1	RS485/422	3 to 5			1	

Input/Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Serial Interface Status							
	1	Data 0							
	2	Data 1							
	3	Data 2							
	4	Data 3							
	5	Data 4							
	6	Device Status							
Out	0	Serial Interface Control							
	1	Data 0							
	2	Data 1							
	3	Data 2							
	4	Data 3							
	5	Data 4							

*Note: Five data byte configuration shown. Can be configured for 3, 4 or 5 data bytes. Consult user manual for details.

SSI Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

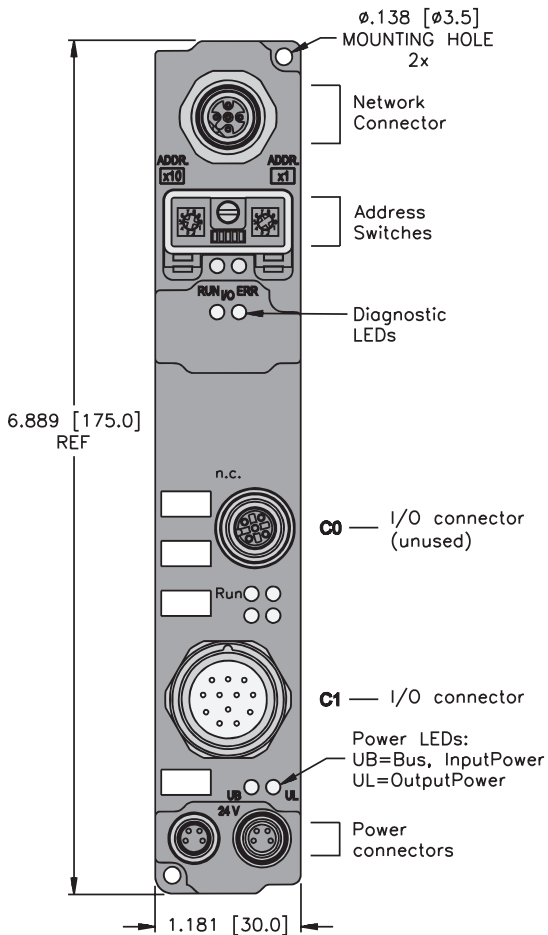
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

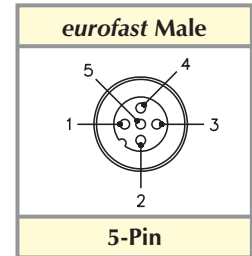
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

SDNB-10S-0005

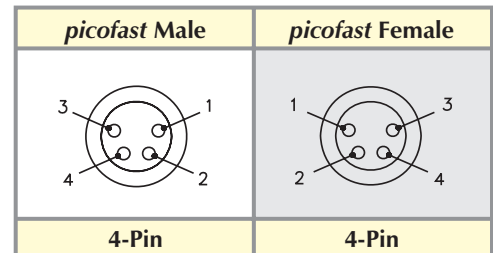


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Aux. Power

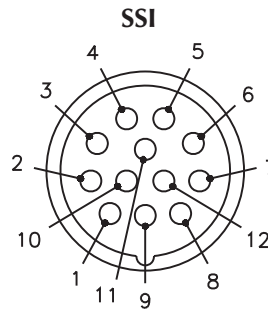


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Part Number	Inputs									Data
	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map	
SDNB-10S-0005	1	0		1	SSI	4			1	

Input/Output Connectors

- 1 = Clock-
- 2 = Clock+
- 3 = Data+
- 4 = Data-
- 5 = NC
- 6 = NC
- 7 = NC
- 8 = NC
- 9 = NC
- 10 = NC
- 11 = V+
- 12 = Ground



Mating cordset:
CKM 12-12-*/S817

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	Data 0							
	1	Data 1							
	2	Data 2							
	3	Data 3							
4	Device Status								

OEM Stations

- PC-Board Slaves
- Small Footprint
- Ideal for Retrofits
- Bus Powered I/O



FDN-PCB-22
FDN-PCB-22-OEM*

* Not CE



Electrical

- Operating Current: <50 mA plus sum of I/O currents (from DeviceNet)
- Input Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

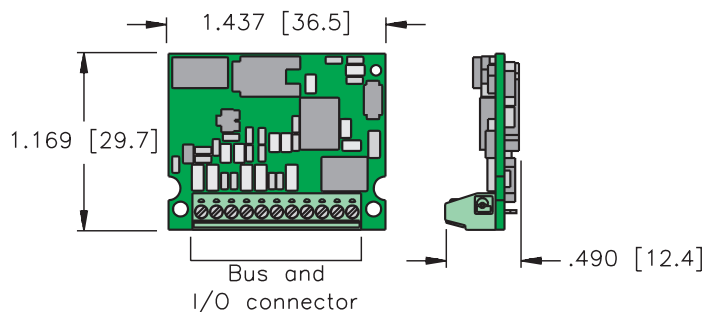
- Inputs: DeviceNet power supply
- Outputs: DeviceNet power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: Open Frame

Diagnostics (Logical)

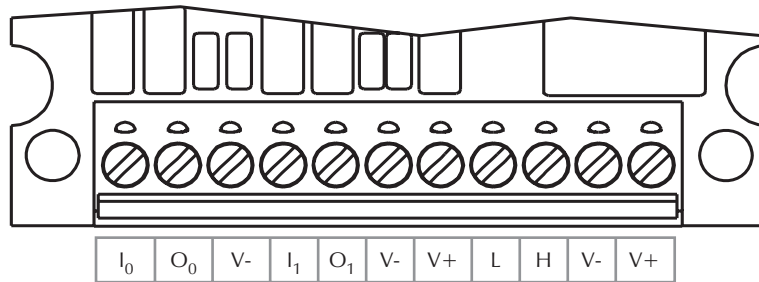
- One bit in I/O table indicates input fault for entire station, one bit per output for fault indication



Inputs								Outputs				Data	
Part Number	Connector	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Output Count	Pinout	Current	Individual Diagnostics	OCD	Map
FDN-PCB-22	Screw Terminal	2	DN-O1	PNP	X			2	DN-O1	0.5A	X		1
FDN-PCB-22-OEM	None	2	DN-O1	PNP	X			2	DN-O1	0.5A	X		1

Input/Output Connectors

DN-O1



Note: L refers to CAN_L and H refers to CAN_H

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	IGS	-	-	-	OS-1	OS-0	I-1	I-0
Out	0	-	-	-	-	-	-	O-1	O-0

OEM Station

- PC-Board Slaves
- Small Footprint
- Ideal for Retrofits
- Included Mounting Bracket



FDN-PCB-22-1003-BKT



Electrical

- Operating Current: <50 mA plus sum of I/O currents (from DeviceNet)
- Input Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

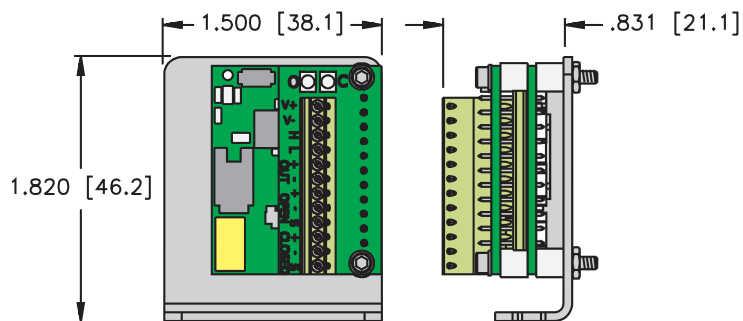
- Inputs: DeviceNet power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -40 to +70°C (-40 to +158°F)
- Protection: Open Frame

Diagnostics (Logical)

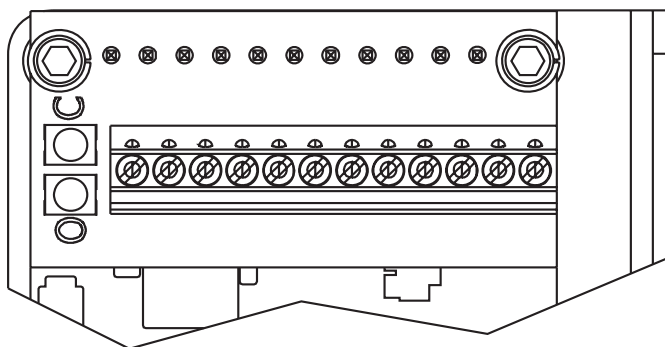
- One bit in I/O table indicates input fault for entire station, one bit per output for fault indication



Part Number	Inputs						Outputs				Data	
	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Output Count	Pinout	Current	Individual Diagnostics	OCD	Map
FDN-PCB-22-1003-BKT	2	DN-O3	PNP	X			1	DN-O3	0.5 A	X		1

Input/Output Connectors

DN-O3



V+	V-	H	L	+	-	+	-	S	+	-	S
				Out		Open Input			Closed Input		

DeviceNet

I/O

Note: L refers to CAN_L and H refers to CAN_H

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	IGS	-	-	-	OS-1	-	I-1	I-0
Out	0	-	-	-	-	-	-	O-1	-

Operator Station



ODNA-4S-4XSG-E

- Ideal for Operator Interfaces
- IP 67 Protection
- Bus Powered I/O
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <50 mA plus sum of all I/O currents (from DeviceNet)
- Input Current: <700 mA sum of all inputs (from DeviceNet)
- Output Current: <500 mA per output (from DeviceNet)

Power Distribution

- Inputs: DeviceNet power supply
- Outputs: Auxiliary power supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Protection: NEMA 4 / IEC IP 67

Material

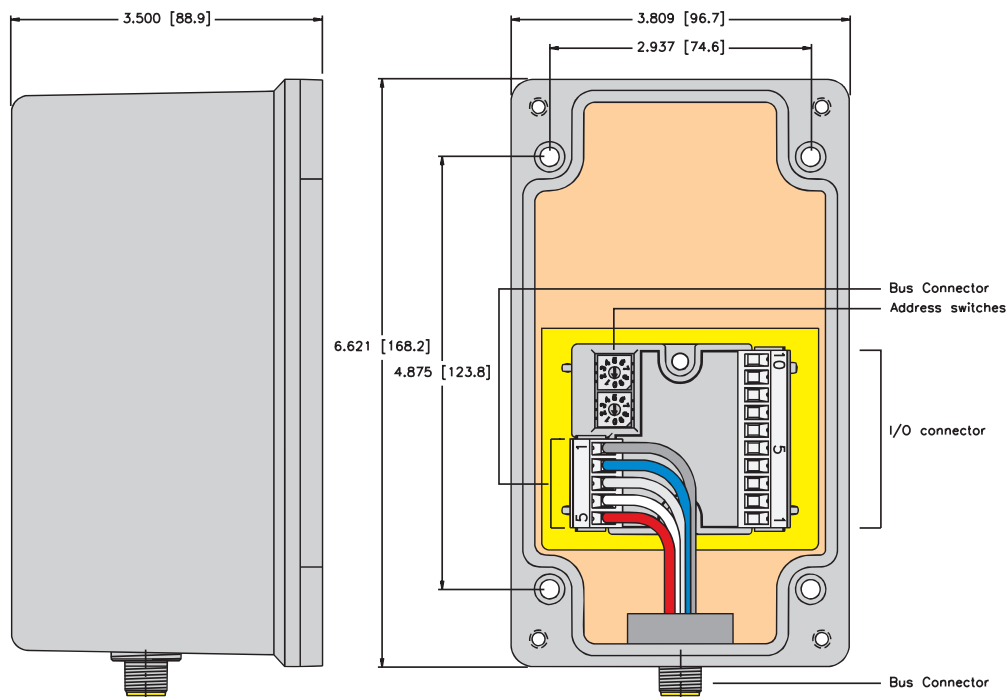
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Fiberglass

Diagnostics (Logical)

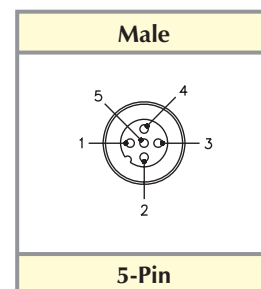
- One bit in I/O table indicates an I/O fault for inputs, one bit for outputs

Diagnostics (Physical)

- LED to indicate status of DeviceNet communication



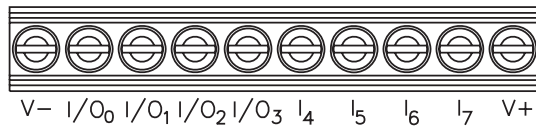
**DeviceNet eurofast®
Pinouts**



Part Number	Inputs						Outputs				Data	
	Input Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Output Count	Pinout	Current	Individual Diagnostics	OCD	Map
ODNA-4S-4XSG-E	8	FS	PNP	X			4	FS	0.5A	X		1

Input/Output Connectors

FS



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	IGS	OGS	-	-	-	-	-	-
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

Covers for ODNA-4S-4XSG-E	
Part Number	Cutouts
OCA-B	Blank
OCA-1-30	1 x 30 mm
OCA-2-30	2 x 30 mm
OCA-1-22	1 x 22 mm
OCA-2-22	2 x 22 mm
OCA-3-22	3 x 22 mm

BL67 Gateway



- **Modular I/O**
- **Fieldbus Independent Configuration**
- **IP 67 Protection**
- **Various I/O Styles**

Electrical

- Operating Current: <600 mA from V_{MB}
- Supply Current: <8 A to I/O (from DeviceNet)
- Backplane Current: <1.5 A (from DeviceNet)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

- Housing: PC-V0 (Lexan)

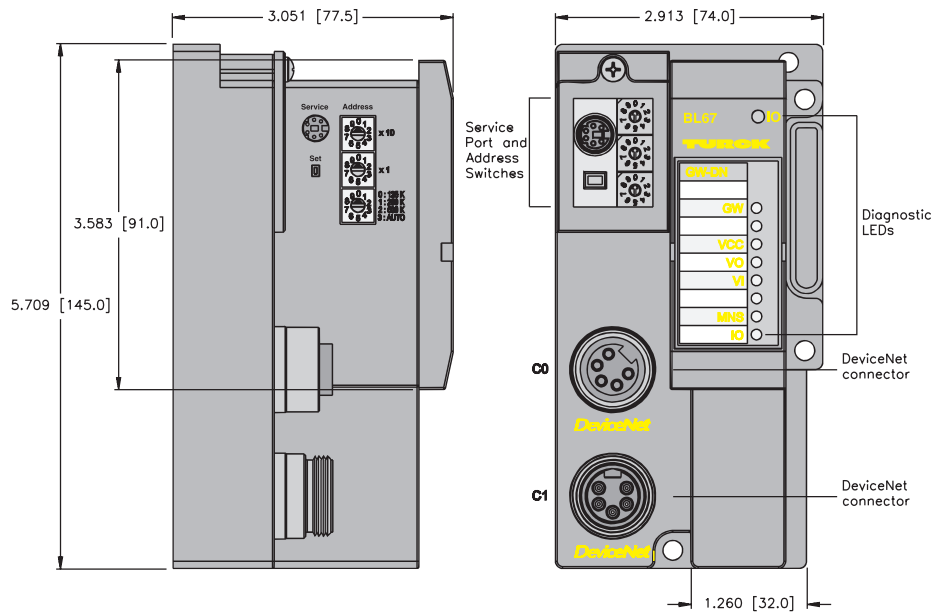
Diagnostics (Logical)

- Diagnostic information available through the DeviceNet I/O map

Diagnostics (Physical)

- LEDs to indicate status of DeviceNet and Module Bus communication

BL67-GW-DN



DeviceNet minifast® Pinouts

- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

Male	Female
5-Pin	5-Pin

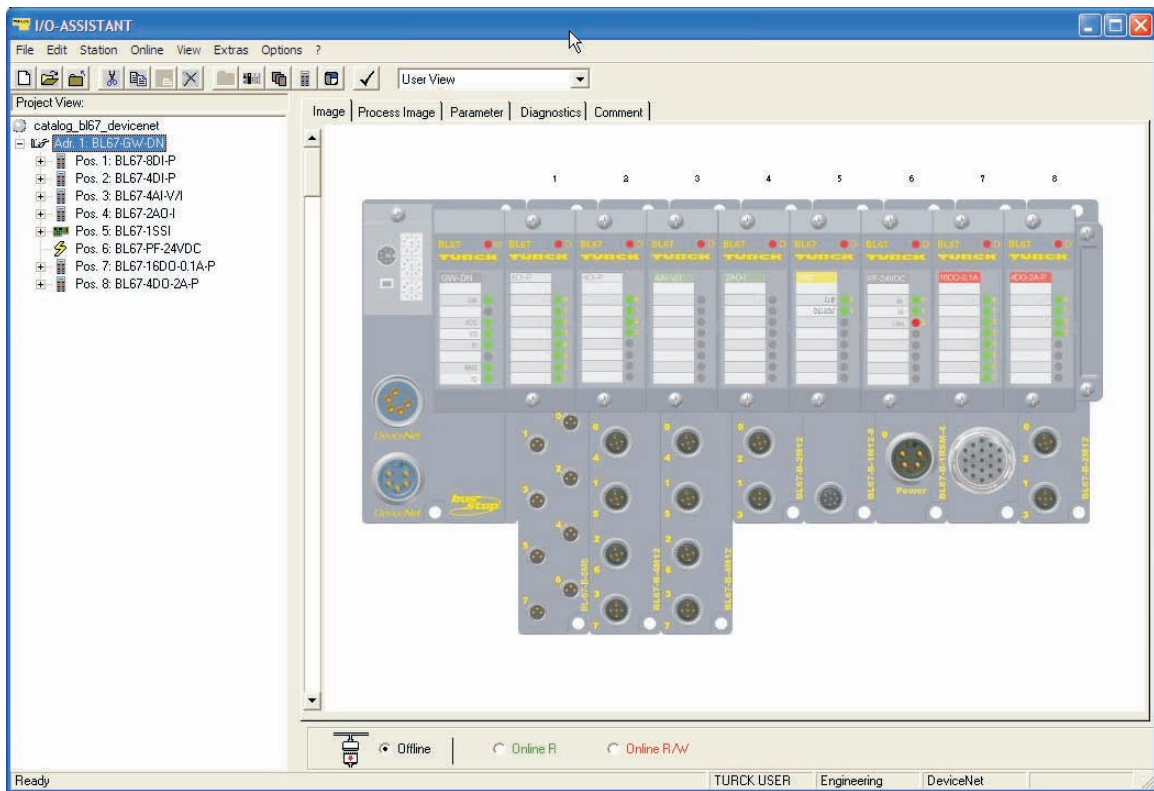
Note: Power feeding modules may be used for I/O current supply to prevent overloading the DeviceNet power supply.

DeviceNet™ BL67 Stations

TURCK's BL67 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 67 protection and metal threaded connectors, the BL67 can often be mounted in the physical process environment or directly on a machine without the need to plan or purchase a separate enclosure for the I/O. This saves planning and installation time, as well as the cost of the enclosure itself.

The BL67 system supports several different network protocols, including DeviceNet. A BL67 station consists of a gateway module that interfaces to the DeviceNet system, and several I/O modules that interface with the physical I/O in the field. Different connector options are available to allow a greater level of customization to the user.

For more details on the BL67 system please see the section G of this catalog.



TURCK's I/O Assistant software package is used to configure the BL67 system.

BL20 Gateway



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <250 mA from BR power supply
- Supply Current: <10 A to I/O (from U_L)
<1.5 A to backplane (from U_{SYS})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5...100 Hz

Material

- Housing: PC-V0 (Lexan)

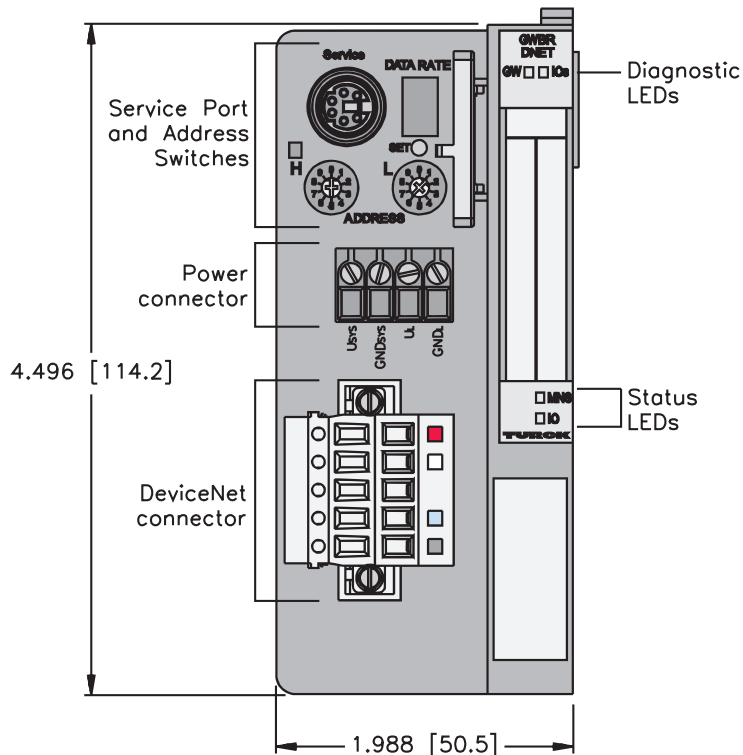
Diagnostics (Logical)

- Diagnostic information available through the DeviceNet I/O map

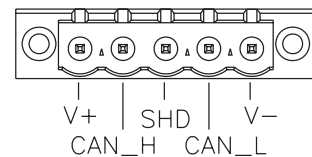
Diagnostics (Physical)

- LEDs to indicate status of DeviceNet and Module Bus communication

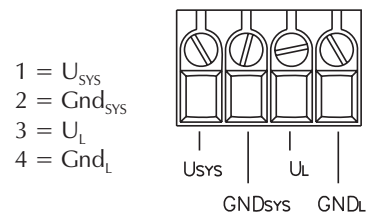
BL20-GWBR-DNET



DeviceNet Connector



Power Connector

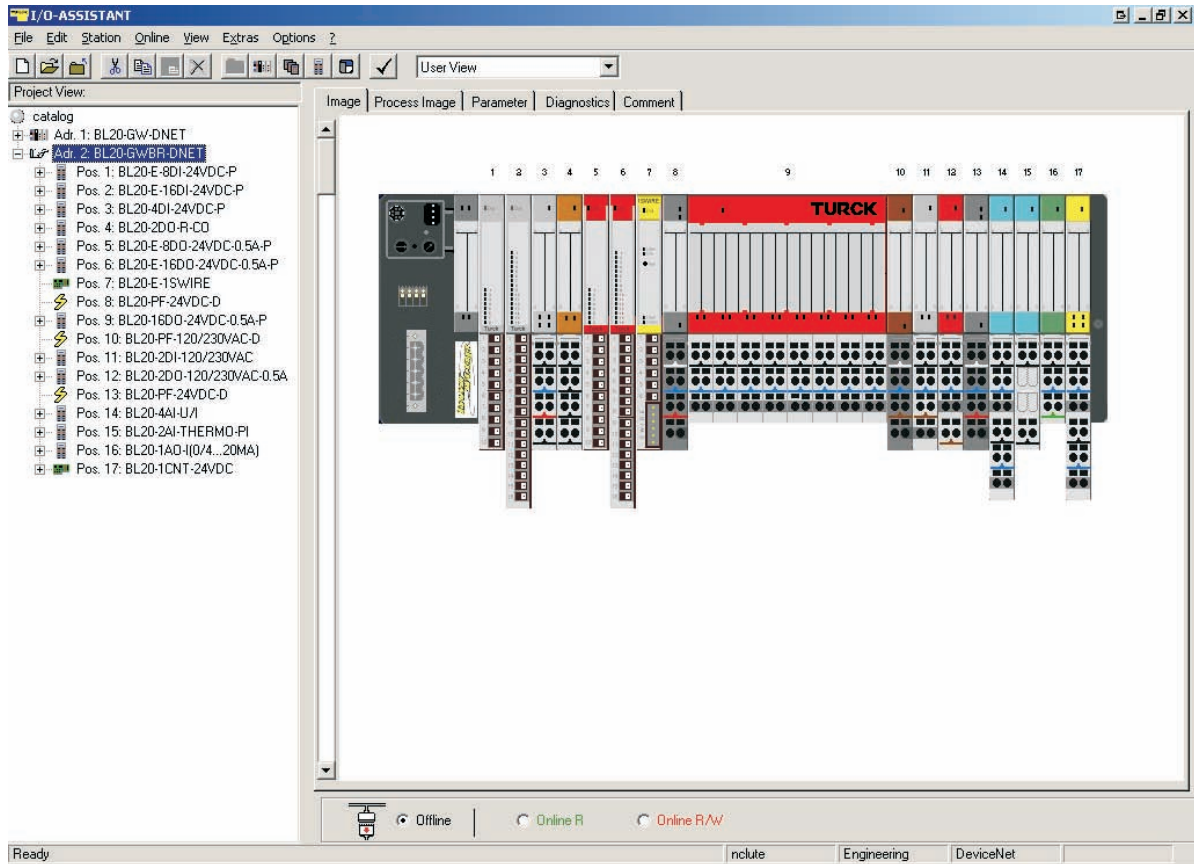


DeviceNet™ BL20 Stations

TURCK's BL20 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 20 protection and terminal point connections, the BL20 is intended to be mounted in the control cabinet or in a field enclosure.

The BL20 system supports several different network protocols, including DeviceNet. A BL20 station consists of a gateway module that interfaces to the DeviceNet system, and several I/O modules that interface with the physical I/O in the field. The terminal bases are available with tension clamp or screw terminal connector types.

For more details on the BL20 system please see section H of this catalog.

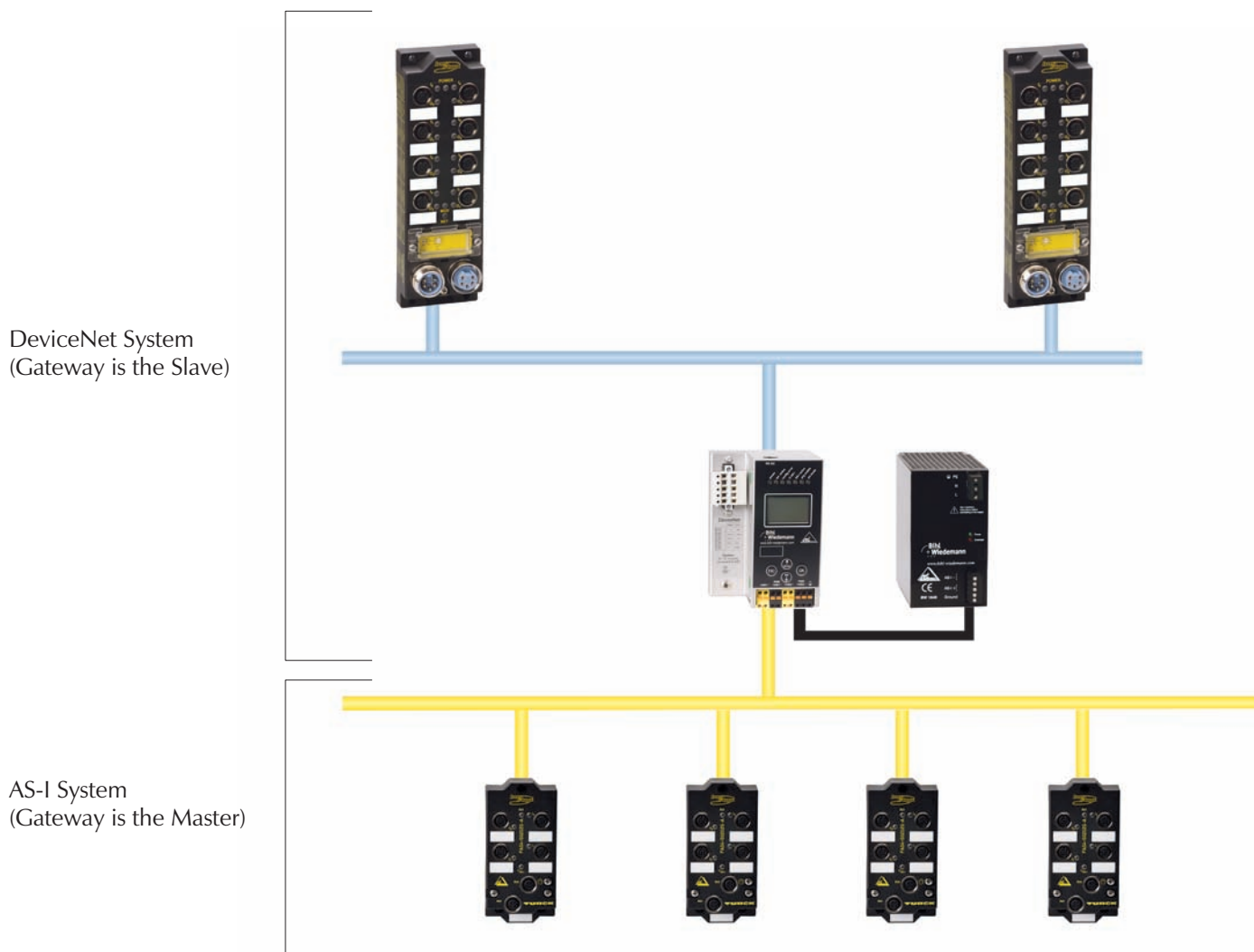


TURCK's I/O Assistant software package is used to configure the BL20 system.

DeviceNet to AS-interface® Gateways

AS-I systems can be easily connected to a higher-level network, such as DeviceNet, through a gateway master. The gateway acts as a master to the AS-I system(s) and a slave to the DeviceNet system, mapping all of the AS-I data for DeviceNet in a single block.

For AS-I specifications and ratings details, see section E of this catalog.



Addressing

DeviceNet™ stations must have a network address for communication. The address for AS-i/DeviceNet gateway stations may be set via the display screen and push buttons. Please consult the manual for a particular gateway for instruction on the procedure.

Diagnostics

AS-i/DeviceNet gateways contain LEDs for diagnosing I/O and communication problems for both the DeviceNet and AS-I interfaces. For a detailed description of the LED states, please see the Bihl+Wiedemann AS-i/DeviceNet Gateway User Manual available to download from www.bihl-wiedemann.com.

Power

Most AS-i/DeviceNet gateways draw power from the AS-I power supply. The option to use a separate, non-AS-I power supply is also available. Refer to the AS-I masters section of this catalog for more details on the power supply configurations.

AS-I Gateways in Stainless Steel

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics



- ASI-DNG-SS BW1818*
- ASI-DNG-SS BW1819*
- ASI-DNG-SS BW1820*
- ASI-DNG-SS-C1D2 BW1824
- ASI-DNG-SS-C1D2 BW1825
- ASI-DNG-SS-C1D2 BW1826

* Not ETL Listed

Electrical

- Operating Current: 200 mA from V_{AS-1} (Power Supply A)
200 mA from V_{AS-11} , 70mA from V_{AS-12} (Power Supply A2)
250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: According to EN 61131-2

Material

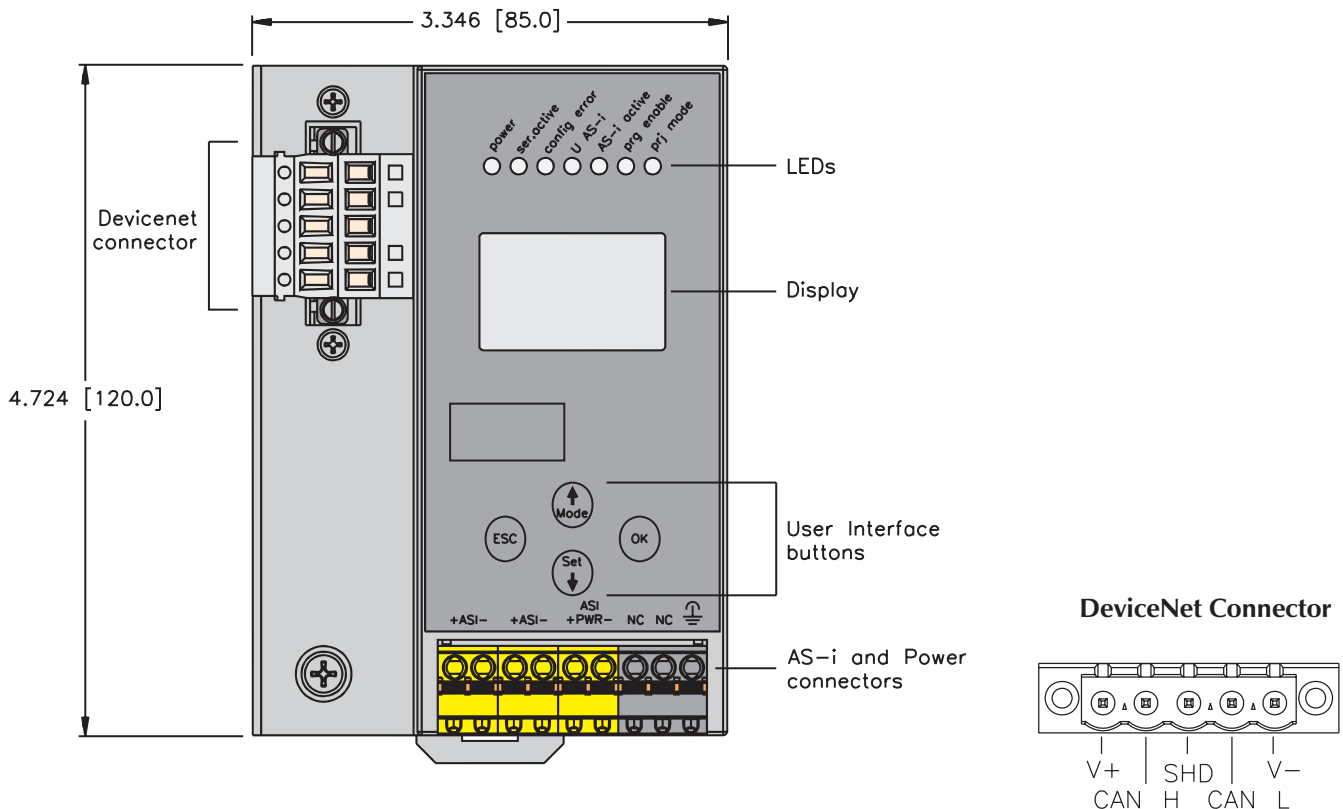
- Housing: Stainless Steel

Diagnostics (Logical)

- AS-I diagnostic data is available via Network interface

Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply



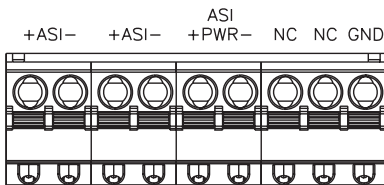
Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters
ASI-DNG-SS BW1818	DeviceNet	A	3.0	A	1
ASI-DNG-SS BW1819	DeviceNet	A2	3.0	A2	2
ASI-DNG-SS BW1820	DeviceNet	E	3.0	E	2
ASI-DNG-SS-C1D2 BW1824*	DeviceNet	A	3.0	A	1
ASI-DNG-SS-C1D2 BW1825*	DeviceNet	A2	3.0	A2	2
ASI-DNG-SS-C1D2 BW1826*	DeviceNet	E	3.0	E	2

DeviceNet

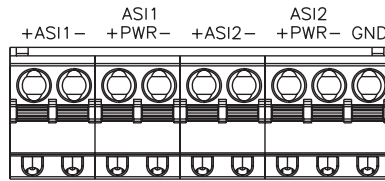
* Approved for use in Class 1, Division 2 areas.

Input/Output Connectors

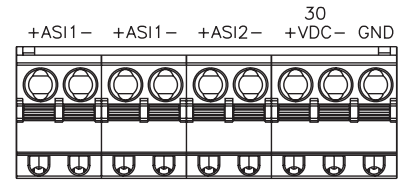
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

piconet Gateway

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Flexible I/O Subnetwork



SDNL-0404D-0003



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

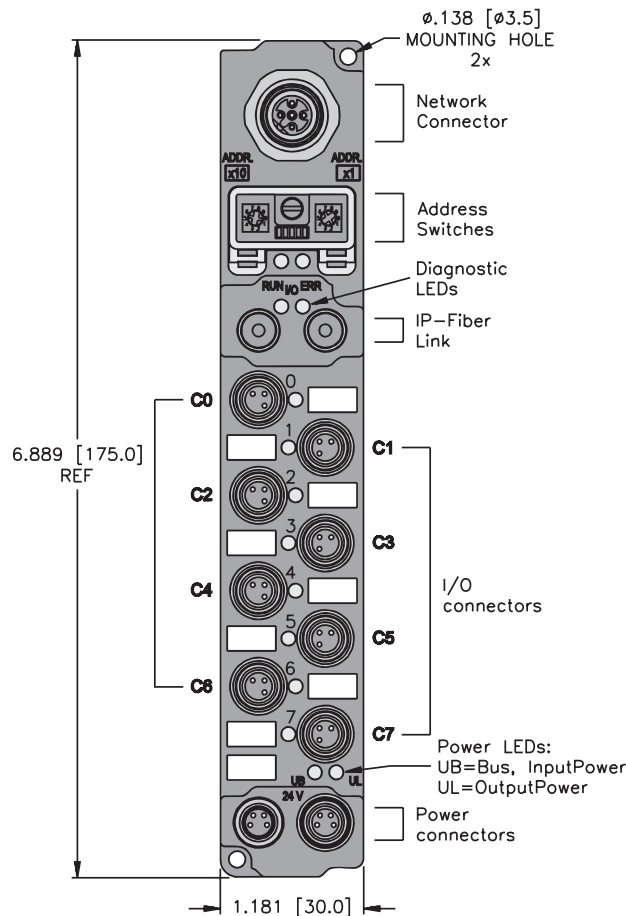
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

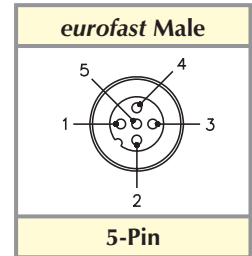
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of DeviceNet communication

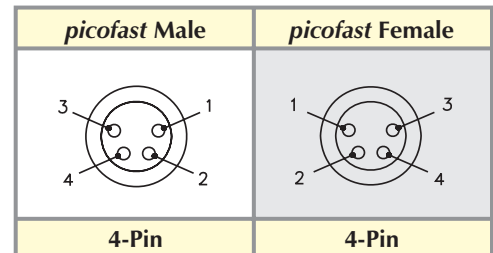


DeviceNet Pinout



- 1 = Shield
- 2 = V+
- 3 = V-
- 4 = CAN_H
- 5 = CAN_L

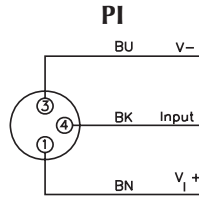
Aux. Power



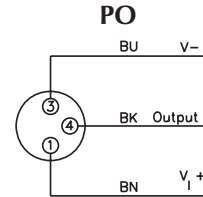
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDNL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

Input/Output Connectors



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data from next input modules				I-3	I-2	I-1	I-0
	1	Status							
Out	0	Data for next output modules				0-3	0-2	0-1	0-0
	1	Status							

DeviceNet™ Media



DeviceNet™, Selection Guide



Cables	Flat Cable Connectors	Terminating Resistors
G4 - G20	G14	G21



Feed Through Connectors	Junctions	Conduit Adapters/Wall Adapters
G23	G25 - G50	G53/G55



Tees	Gender Changers	Receptacles
G56 - G59	G60	G62 - G74



Field Wireable Connectors	Power Taps	Daisy Chain Cordsets
G75	G77	G79

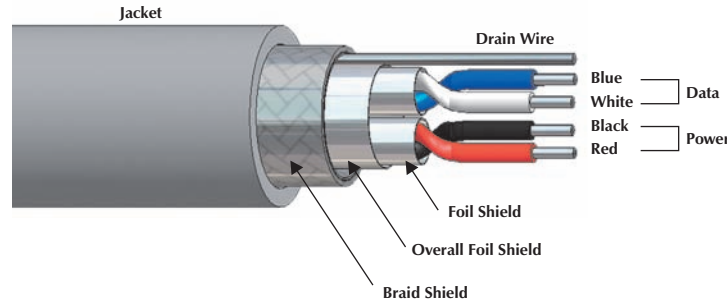
DeviceNet Media

TURCK
Network Media Products

Notes:

DeviceNet™, Thin Cable Specifications

- Cable that Meets the Requirements of ODVA Thin or Type 1 Cable
- Commonly Used as Drop Cable to a Maximum Length of 6 Meters (20 Feet) or Trunk Cable in Networks Up to a Maximum Length of 100 Meters (328 Feet)



Data Rate	Maximum Trunk Length	Drop Length	
		Maximum	Cumulative
125 Kbaud	100 meters (328 feet)	6 meters (20 feet)	156 meters (512 feet)
250 Kbaud	100 meters (328 feet)		78 meters (feet)
500 Kbaud	100 meters (328 feet)		39 meters (feet)

Type	Approvals	Power Pair		Data Pair		Outer Jacket Material Color Nominal O.D.	Shields Type Drain Wire	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation			
572 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/22 AWG BK/RD	18.1 Ohms PVC	2/22 AWG BU/WH	18.1 Ohms PE	PVC Light Grey 7.2 mm (.285 in)	Foil 22 AWG	RB50603-*M 44 lbs.
577 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/22 AWG BK/RD	16.9 Ohms PVC	2/22 AWG BU/WH	16.9 Ohms PE	PVC Light Grey 8.4 mm (.330 in)	Foil/Braid 22 AWG	RB50629-*M 65 lbs. <i>flexlife-10</i> ® †
578 AWM 2464 75°C 300 Volts	NEC PLTC/CL2 CEC CMG	2/22 AWG BK/RD	18.1 Ohms PVC	2/22 AWG BU/WH	18.1 Ohms PE	PVC Light Grey 7.8 mm (.310 in)	Foil/Braid 22 AWG	RB50651-*M 51 lbs.
5715 AWM 2095 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT1	2/22 AWG BK/RD	16.5 Ohms PVC	2/22 AWG BU/WH	16.5 Ohms PE	PVC Light Grey 6.0 mm (.235 in)	Foil (Data Only) 22 AWG	RB50764-*M 26 lbs.
5725 AWM 21080 75°C 300 Volts	NEC AWM	2/22 AWG BK/RD	16.5 Ohms PE	2/24 AWG BU/WH	27.7 Ohms PE	PUR Violet 7.1 mm (.280 in)	Foil/Braid 22 AWG	RB50994-*M 50 lbs. Halogen-Free ††
5732 AWM 20626 80°C 600 Volts	NEC AWM CEC AWM-I/II A/B FT4	2/22 AWG BK/RD	16.5 Ohms PVC	2/22 AWG BU/WH	16.5 Ohms PE	TPE Charcoal Grey 9.3 mm (.365 in)	Foil/Braid 22 AWG	RB51296-*M 68 lbs. <i>flexlife</i> ® † <i>weldlife</i> ™ †

* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

† See page A7 for *flexlife*® performance.

†† Zero Halogen: to DIN VDE 0472 part 815 + IEC 60754-1

TURCK

Network Media Products

DeviceNet™, Mid Cable Specifications

- Cable That Meets the Requirements of ODVA Mid or Type III Cable
- Provides More Flexibility When Used as a Trunk Cable Up to a Maximum Length of 300 Meters (984 Feet)

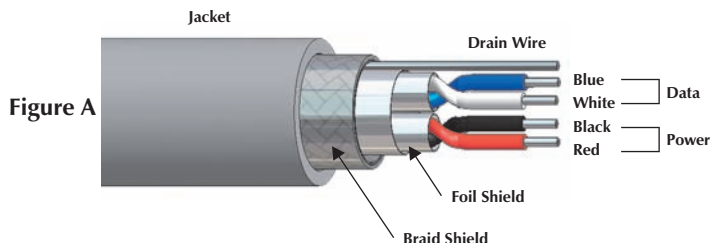


Figure A

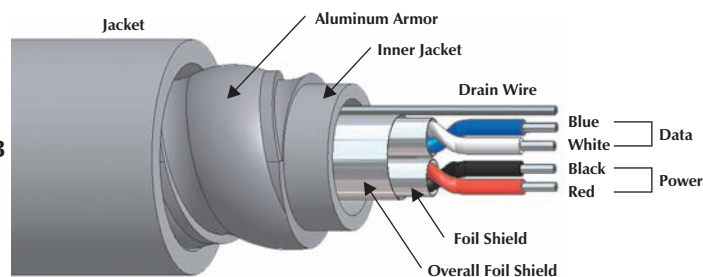


Figure B

Data Rate	Maximum Trunk Length
125 Kbaud	300 meters (984 feet)
250 Kbaud	250 meters (820 feet)
500 Kbaud	100 meters (328 feet)

Type	Approvals	Power Pair		Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire		
5711 AWM 2464 80°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/16 AWG BK/RD	4.1 Ohms PVC	2/20 AWG BU/WH	11.2 Ohms PE	PVC Light Grey 8.4 mm (.330 in)	Foil 20 AWG	RB50721-*M 65 lbs.	A
5722 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/17 AWG BK/RD	5.2 Ohms SR-PVC	2/20 AWG BU/WH	10.4 Ohms PE	PVC Light Grey 8.9 mm (.350 in)	Foil 20 AWG	RB50876-*M 71 lbs. <i>flexlife-10</i> ® †	A
5723 AWM 20233 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT1	2/17 AWG BK/RD	5.2 Ohms PVC	2/20 AWG BU/WH	10.4 Ohms PE	PUR Light Grey 8.4 mm (.330 in)	Foil 20 AWG	RB50877-*M 60 lbs. <i>flexlife-10</i> †	A
5721A 75°C 300 Volts	NEC PLTC/CM CEC CMG HL ABCD	2/18 AWG BK/RD	6.7 Ohms PVC	2/20 AWG BU/WH	10.4 Ohms PE	PVC Light Grey 14.9 mm (.585 in) Aluminum Armor	Foil/Armor 20 AWG	RB50859-*M 101 lbs. <i>armorfast</i> ®	B
5731 AWM 20626 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT1	2/16 AWG BK/RD	4.1 Ohms PVC	2/20 AWG BU/WH	10.4 Ohms PE	TPE Charcoal Grey 10 mm (.394 in)	Foil/Spiral None	RB51235-*M 95 lbs. <i>flexlife</i> † <i>weldlife</i> ™ †	A

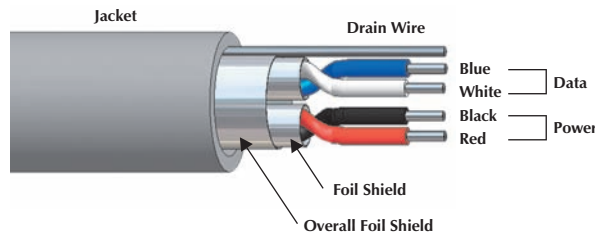
* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

† See page A7 for *flexlife*® and *weldlife*™ performance.

DeviceNet™, Thick Cable Specifications

- Cable That Meets the Requirements of ODVA Thick or Type II Cable
- It Provides the Most Power to a Network When Used as a Trunk Cable Up to a Maximum Standard Cable Length of 500 Meters (1640 Feet)



Data Rate	Maximum Trunk Length	Maximum Trunk Length (5720)
125 Kbaud	500 meters (1640 feet)	420 meters (1378 feet)
250 Kbaud	250 meters (820 feet)	200 meters (656 feet)
500 Kbaud	100 meters (328 feet)	100 meters (328 feet)

Type	Approvals	Power Pair		Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation			
575 AWM 20233 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT1	2/15 AWG BK/RD	3.3 Ohms PVC	2/18 AWG BU/WH	6.5 Ohms PE	PUR Light Grey 10.4 mm (.409 in)	Foil/Braid 18 AWG	RB50633-*M 94 lbs.
579 AWM 2570 75°C 300 Volts	NEC PLTC/CL2 CEC CMG	2/15 AWG BK/RD	3.2 Ohms PVC	2/18 AWG BU/WH	6.5 Ohms PE	PVC Light Grey 11.3 mm (.445 in)	Foil/Braid 18 AWG	RB50652-*M 122 lbs.
5720 75°C 600 Volts	NEC TC	2/16 AWG BK/RD	4.9 Ohms PVC	2/18 AWG BU/WH	6.9 Ohms PE	PVC Light Grey 13 mm (.515 in)	Foil/Braid 16 AWG	RB50793-*M 168 lbs.
5726 AWM 21080 70°C 300 Volts	NEC AWM	2/15 AWG BK/RD	3.2 Ohms PE	2/18 AWG BU/WH	6.9 Ohms PE	PUR Violet 11.2 mm (.449 in)	Foil/Braid 18 AWG	RB51038-*M 150 lbs. Halogen-Free ††
5727 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/15 AWG BK/RD	3.44 Ohms PVC	2/18 AWG BU/WH	7.06 Ohms PE	PVC Light Grey 13.7 mm (.540 in)	Foil/Spiral None	RB51106-*M 157 lbs flexlife-10 ® †
5730 AWM 20626 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT1	2/15 AWG BK/RD	3.44 Ohms PVC	2/18 AWG BU/WH	7.06 Ohms PE	TPE Grey 10.4 mm (.413 in)	Foil/Braid 18 AWG	RB51231-*M 110 lbs. flexlife † weldlife ™ †

* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.†





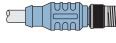

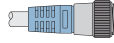







See page A7 for **flexlife**® and **weldlife** performance.

†† Zero Halogen: to DIN VDE 0472 part 815 + IEC 60754-1

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Network Media Products

DeviceNet™, Cable/Cordset Selection Matrix

		<i>minifast</i> ®				<i>eurofast</i> ® (Thin/Mid Only)	
		Pin (Male)		Socket (Female)		Pin (Male)	
		1  RSM	2  WSM	3  RKM	4  WKM	5  RSC	
 Bare		RSM 57x-*M	WSM 57x-*M	RKM 57x-*M	WKM 57x-*M	RSC 57x-*M	
<i>minifast</i>	Pin (Male)	1  RSM	RSM RSM 57x-*M	RSM WSM 57x-*M	RSM RKM 57x-*M	RSM WKM 57x-*M	RSM RSC 57x-*M
	2  WSM		WSM WSM 57x-*M	WSM RKM 57x-*M	WSM WKM 57x-*M	WSM RSC 57x-*M	
	3  RKM			RKM RKM 57x-*M	RKM WKM 57x-*M	RKM RSC 57x-*M	
	4  WKM				WKM WKM 57x-*M	WKM RSC 57x-*M	
<i>eurofast</i> (Thin/Mid Only)	5  RSC					RSC RSC 57x-*M	
	6  WSC						
	7  RKC						
	8  WKC						

See pages G11 - G12 for dimensional drawings.

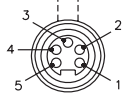
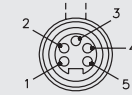
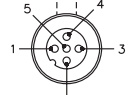

* Indicates length in meters.

x Indicates cable type.


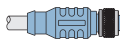
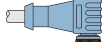
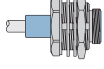
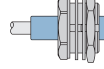

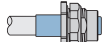
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

<i>minifast</i>		Pinouts	<i>eurofast</i>	
Male	Female	1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H) 5. Blue (CAN_L)	Male	Female
				

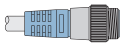

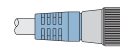
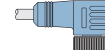
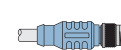

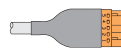
DeviceNet™, Cable/Cordset Selection Matrix

eurofast® (Thin/Mid Only)			minifast® Bulkhead		eurofast Bulkhead (Thin Only)	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6 	7 	8 	9 	10 	11 	12 
WSC	RKC	WKC	RSFP	RKFP	FSFD	FKFD
WSC 57x-*M	RKC 57x-*M	WKC 57x-*M	RSFP 57x-*M	RKFP 57x-*M	FSFD 57x-*M	FKFD 57x-*M
RSM WSC 57x-*M	RSM RKC 57x-*M	RSM WKC 57x-*M	RSM RSFP 57x-*M	RSM RKFP 57x-*M	RSM FSFD 57x-*M	RSM FKFD 57x-*M
WSM WSC 57x-*M	WSM RKC 57x-*M	WSM WKC 57x-*M	WSM RSFP 57x-*M	WSM RKFP 57x-*M	WSM FSFD 57x-*M	WSM FKFD 57x-*M
RKM WSC 57x-*M	RKM RKC 57x-*M	RKM WKC 57x-*M	RKM RSFP 57x-*M	RKM RKFP 57x-*M	RKM FSFD 57x-*M	RKM FKFD 57x-*M
WKM WSC 57x-*M	WKM RKC 57x-*M	WKM WKC 57x-*M	WKM RSFP 57x-*M	WKM RKFP 57x-*M	WKM FSFD 57x-*M	WKM FKFD 57x-*M
RSC WSC 57x-*M	RSC RKC 57x-*M	RSC WKC 57x-*M	RSC RSFP 57x-*M	RSC RKFP 57x-*M	RSC FSFD 57x-*M	RSC FKFD 57x-*M
WSC WSC 57x-*M	WSC RKC 57x-*M	WSC WKC 57x-*M	WSC RSFP 57x-*M	WSC RKFP 57x-*M	WSC FSFD 57x-*M	WSC FKFD 57x-*M
	RKC RKC 57x-*M	RKC WKC 57x-*M	RKC RSFP 57x-*M	RKC RKFP 57x-*M	RKC FSFD 57x-*M	RKC FKFD 57x-*M
		WKC WKC 57x-*M	WKC RSFP 57x-*M	WKC RKFP 57x-*M	WKC FSFD 57x-*M	WKC FKFD 57x-*M

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Network Media Products

DeviceNet™, Open Connector Cordset Selection Matrix

		<i>minifast</i> ®				<i>eurofast</i> ®
		Pin (Male)		Socket (Female)		Pin (Male)
		1  RSM	2  WSM	3  RKM	4  WKM	5  RSC
13  CBC5	CBC5 57x-*M	RSM CBC5 57x-*M	WSM CBC5 57x-*M	RKM CBC5 57x-*M	WKM CBC5 57x-*M	RSC CBC5 57x-*M
14  BK52C	BK52C 57x-*M	RSM BK52C 57x-*M	WSM BK52C 57x-*M	RKM BK52C 57x-*M	WKM BK52C 57x-*M	RSC BK52C 57x-*M
Thin, Mid and Thick Cable						Thin Cable Only

See pages G10 - G12 for dimensional drawings.

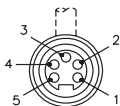
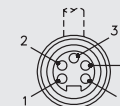
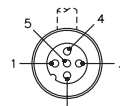
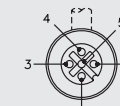
* Indicates length in meters.

x Indicates cable type.

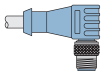
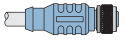
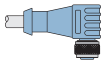
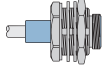
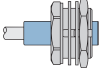
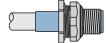
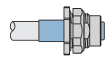
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nut: Change part number (RSM ... to RSV, RSC ... to RSCV).

<i>minifast</i>		Pinouts	<i>eurofast</i>	
Male 	Female 	1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H) 5. Blue (CAN_L)	Male 	Female 

DeviceNet™, Open Connector Cordset Selection Matrix

eurofast®			minifast® Bulkhead		eurofast Bulkhead	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6 	7 	8 	9 	10 	11 	12 
WSC	RKC	WKC	RSFP	RKFP	FSFD	FKFD
WSC CBC5 57x-*M	RKC CBC5 57x-*M	WKC CBC5 57x-*M	RSFP CBC5 57x-*M	RKFP CBC5 57x-*M	FSFD CBC5 57x-*M	FKFD CBC5 57x-*M
WSC BK52C 57x-*M	RKC BK52C 57x-*M	WKC BK52C 57x-*M	RSFP BK52C 57x-*M	RKFP BK52C 57x-*M	FSFD BK52C 57x-*M	FKFD BK52C 57x-*M
Thin and Mid Cable Only			Thin, Mid and Thick Cable		Thin Cable Only	

DeviceNet Media

See pages G11 - G12 for dimensional drawings.

* Indicates length in meters.

x Indicates cable type.

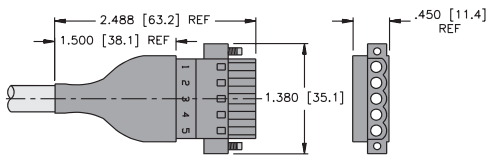
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

Specifications

- Housing:** PA (Nylon)
- Protection:** NEMA 1, and IEC IP 20
- Rated Voltage:** 250 V
- Rated Current:** 12 A
- Ambient Temperature:** -40° to +75°C (-22° to +167°F)

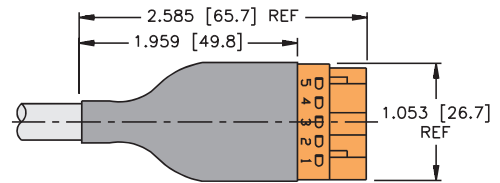
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CBC5 ..

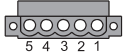
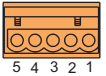
Page G9

14



BK52C ..

Page G9

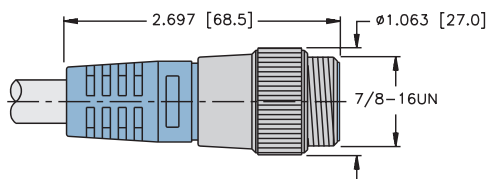
CBC5	Pinouts	BK52C
	1 = Black (- Voltage) 2 = Blue (CAN_L) 3 = Bare (Shield Drain) 4 = White (CAN_H) 5 = Red (+ Voltage)	

DeviceNet™, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Overmold:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

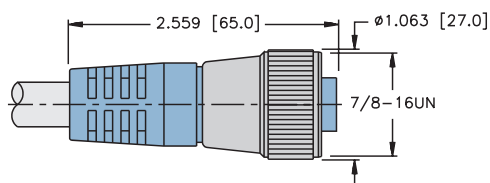
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RSM ..

Pages G7 - G10

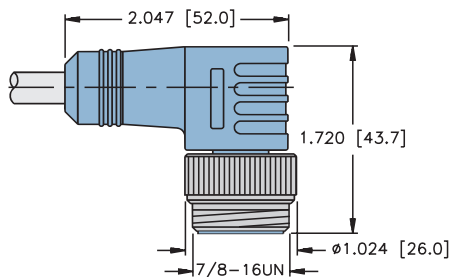
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RKM ..

Pages G7 - G10

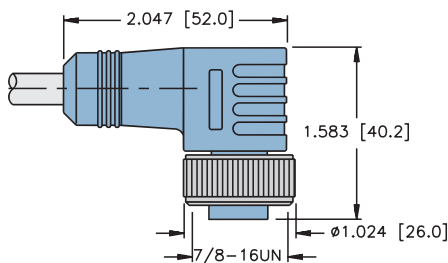
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WSM ..

Pages G7 - G10

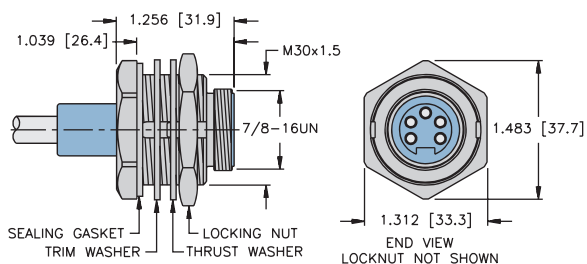
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WKM ..

Pages G7 - G10

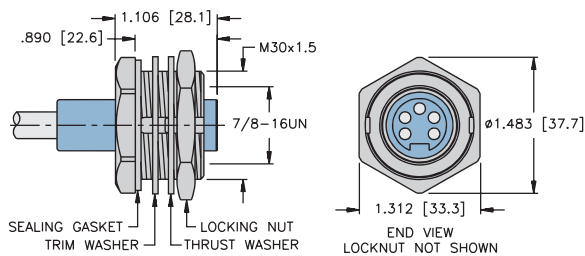
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RAFP ..

Pages G7 - G10

10



RKFP ..

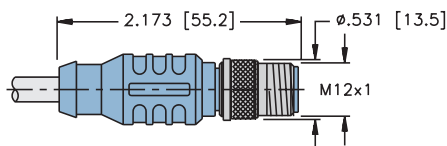
Pages G7 - G10

DeviceNet™, eurofast® Cordset and Receptacle Connector Dimensions

Specifications

Overmold:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

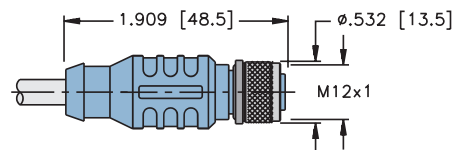
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RSC ..

Pages G7 - G10

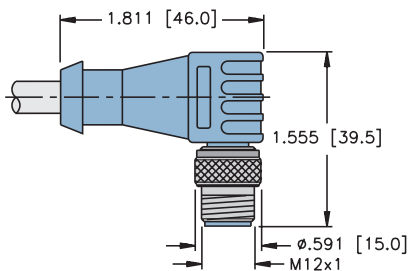
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RKC ..

Pages G7 - G10

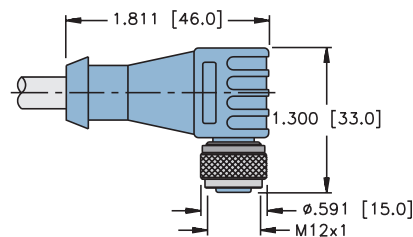
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WSC ..

Pages G7 - G10

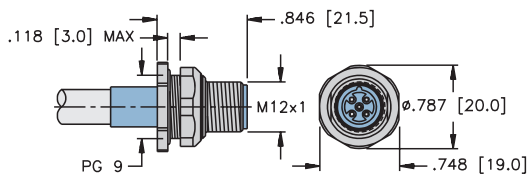
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WKC ..

Pages G7 - G10

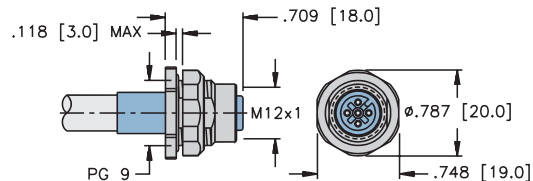
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FSFD ..

Pages G7 - G10

12



FKFD ..

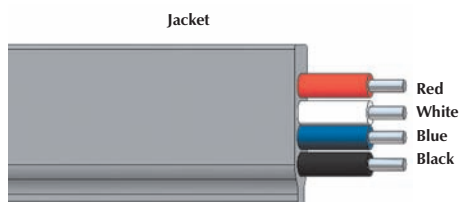
Pages G7 - G10

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Network Media Products

DeviceNet™, Flat Cable Specifications

- Cable that Meets the Requirements of ODVA Thick or Type II Cable
- Uses Insulation Displacement Connectors as Device Taps



Data Rate	Maximum Trunk Length
125 Kbaud	420 meters (1378 feet)
250 Kbaud	200 meters (656 feet)
500 Kbaud	100 meters (328 feet)

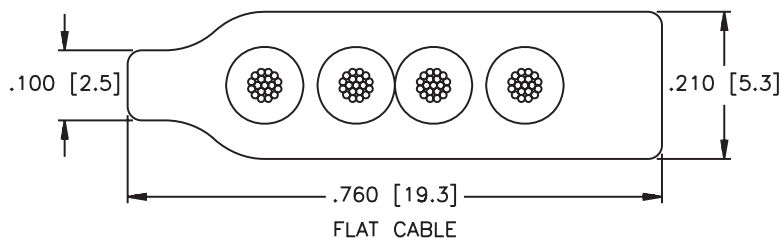
Type	Approvals	Power Pair		Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire	
5713 75°C 300 Volts	NEC CL2 CEC AWM-I/II A/B FT4	2/16 AWG BK/RD	4.1 PE	2/16 AWG BU/WH	4.1 PE	PVC Light Grey Flat Profile ^{††}	None	RB50787-*M 116 lbs.

* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

†† Flat cable profile is 19.3 mm (0.760 in) x 5.3 mm (0.210 in).

Flat Cable Profile



DeviceNet™, Flat Cable Connectors

- Provides a *minifast*® or *eurofast*® Drop Connector from Flat Cable



Housing	Part Number	Application	Pinouts
	RKF 57-IDC	(7/8-16UN) <i>minifast</i> Flat Cable Connector <ul style="list-style-type: none"> Flat cable connector to female (7/8-16UN) <i>minifast</i> drop 	Female
	RKF 40-IDC	(7/8-16UN) <i>minifast</i> Auxiliary Power Connector	Female
	FK 57-IDC	(M12x1) <i>eurofast</i> Flat Cable Connector <ul style="list-style-type: none"> Flat cable connector to female (M12x1) <i>eurofast</i> drop 	Female
	FK 57-IDC ET	Includes connector, end termination, and splice kit	
	RKF 57-IDC ET		
	RKF 40-IDC ET		

DeviceNet Media

Specifications

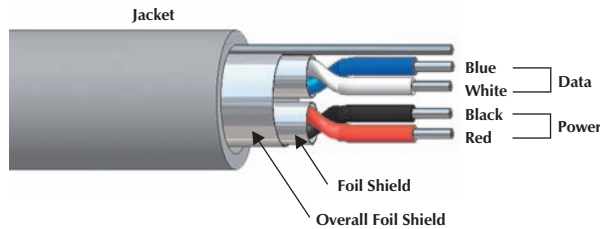
Housing:	POM (Nylon)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	Nylon
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A (<i>eurofast</i>), 9 A (<i>minifast</i>)
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

TURCK
Network Media Products

Notes:

DeviceNet™, Pico Cable Specifications

- Cable that Meets the Electrical Requirements of ODVA Thin Cable (Data Pair Only)
- Pico Cable has 24 AWG Conductors Which May be Used with *picofast*® Connectors
- Submittal to ODVA - Pending



DeviceNet - Pico Cable 5724

Data Rate	Maximum Trunk Length
125 Kbaud	35 meters (115 feet)
250 Kbaud	35 meters (115 feet)
500 Kbaud	35 meters (115 feet)

DeviceNet - Thin Cable 5715

Data Rate	Maximum Trunk Length
125 Kbaud	100 meters (984 feet)
250 Kbaud	100 meters (820 feet)
500 Kbaud	100 meters (328 feet)

Type	Approvals	Power Pair		Data Pair		Outer Jacket Material Color Nominal O.D.	Shields Type Drain Wire	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation			
5724 AWM 2464 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT1	2/24 AWG BK/RD	24.9 PVC	2/24 AWG BU/WH	24.9 PE	PVC Light Grey 5.7 mm (.224 in)	Foil (Data Only) 24 AWG	RB51045-*M 27 lbs.
5715 AWM 2464 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT1	2/22 AWG BK/RD	16.5 PVC	2/22 AWG BU/WH	16.5 PE	PVC Light Grey 6.0 mm (.235 in)	Foil (Data Only) 22 AWG	RB50764-*M 26 lbs.

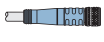

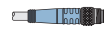

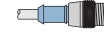




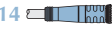



* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

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Network Media Products

DeviceNet™, Cable/Cordsets Selection Matrix - Threaded

		picofast® (5724 Cable Only)				eurofast® (5724 Cable Only)				
		Socket (Female)		Pin (Male)						
		14 	16 	13 	15 	19 	21 	20 	22 	
		PKGM	PKWM	PSGM	PSWM	RST	WST	RKT	WKT	
		PKGM 57x-*M	PKWM 57x-*M	PSGM 57x-*M	PSWM 57x-*M	RST 57x-*	WST 57x-*	RKT 57x-*	WKT 57x-*	
picofast (5724 Cable Only)	Socket (Female)	14 	PKGM PKGM 57x-*M	PKWM PKWM 57x-*M	PKGM PSGM 57x-*M	PKGM PSWM 57x-*M	PKGM RST 57x-*M	PKGM WST 57x-*M	PKGM RKT 57x-*M	PKGM WKT 57x-*M
		16 		PKWM PKWM 57x-*M	PKWM PSGM 57x-*M	PKWM PSWM 57x-*M	PKWM RST 57x-*M	PKWM WST 57x-*M	PKWM RKT 57x-*M	PKWM WKT 57x-*M
	Pin (Male)	13 			PSGM PSGM 57x-*M	PSGM PSWM 57x-*M	PSGM RST 57x-*M	PSGM WST 57x-*M	PSGM RKT 57x-*M	PSGM WKT 57x-*M
		15 				PSWM PSWM 57x-*M	PSWM RST 57x-*M	PSWM WST 57x-*M	PSWM RKT 57x-*M	PSWM WKT 57x-*M

See pages G19 - G20 for dimensional drawings.

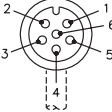
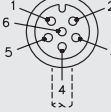
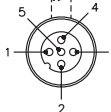
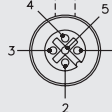
* Indicates length in meters.

x Indicates cable type. See page B125 for available cable types.

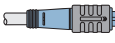
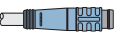
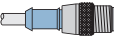

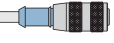

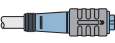
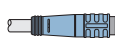
Type 5715 cable can be used with RST, WST, RKT and WKT smaller body styles. Consult factory for part numbers.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

picofast		Pinouts	eurofast	
Male	Female		Male	Female
		<ol style="list-style-type: none"> 1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H) 5. Blue (CAN_L) 6. N/C (<i>picofast</i> only) 		

DeviceNet™, Cable/Cordsets Selection Matrix - Snap Lock

		picofast®		eurofast®				
		Socket (Female)	Pin (Male)					
		18  PKGZ	17  PSG	17  RST	18  WST	19  RKT	20  WKT	
Bare		PKGZ 57x-*M	PSG 57x-*M	RST 57x-*	WST 57x-*	RKT 57x-*	WKT 57x-*	
picofast® (5724 Cable Only)	Socket (Female)	15  PKGZ	PKGZ PKGZ 57x-*M	PKGZ PSG 57x-*M	PKGZ RST 57x-*M	PKGZ WST 57x-*M	PKGZ RKT 57x-*M	PKGZ WKT 57x-*M
	Pin (Male)	16  PSG		PSG PSG 57x-*M	PSG RST 57x-*M	PSG WST 57x-*M	PSG RKT 57x-*M	PSG WKT 57x-*M

DeviceNet Media

See pages G19 - G20 for dimensional drawings.

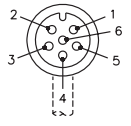
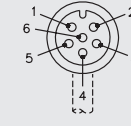
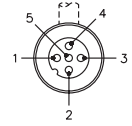
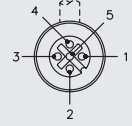
* Indicates length in meters.

x Indicates cable type. See page B125 for available cable types.

Type 5715 cable can be used with RST, WST, RKT and WKT smaller body styles. Consult factory for part numbers.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

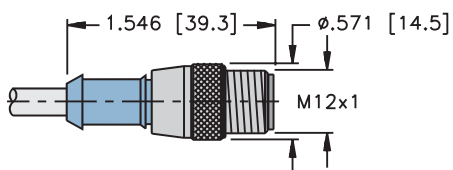
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

picofast		Pinouts	eurofast	
Male 	Female 	1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H) 5. Blue (CAN_L) 6. N/C (picofast only)	Male 	Female 

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

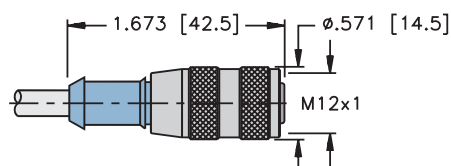
19



RST ..

Pages G17 - G18

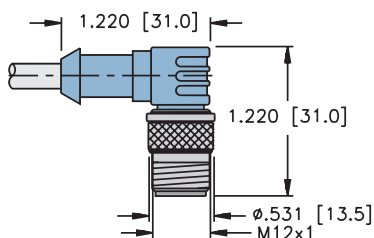
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RKT ..

Pages G17 - G18

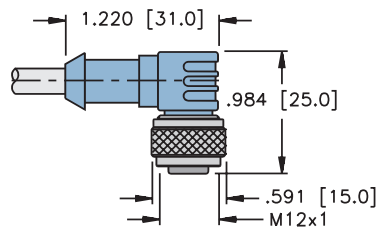
21



WST ..

Pages G17 - G18

22



WKT ..

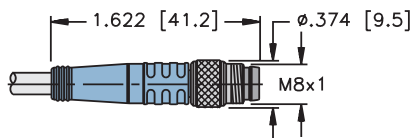
Pages G17 - G18

DeviceNet™, picofast® Cable/Cordsets Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel (thread), Nylon (snap lock)
Contact Carrier:	PUR (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	30 V
Rated Current:	1.5 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

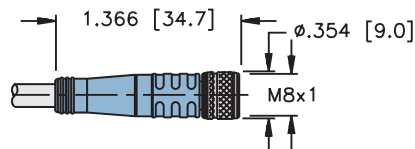
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PSGM ..

Pages G17 - G18

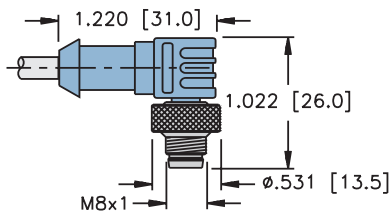
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PKGM ..

Pages G17 - G18

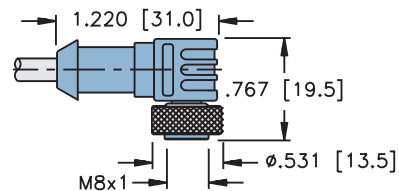
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PSWM ..

Pages G17 - G18

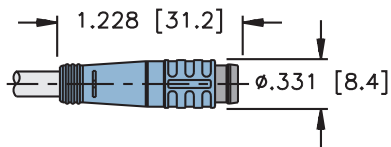
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PKWM ..

Pages G17 - G18

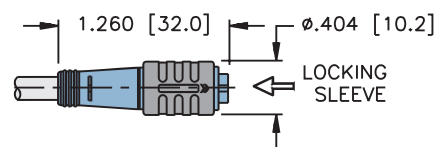
17



PSG ..

Pages G17 - G18

18



PKGZ ..

Pages G17 - G18

TURCK

Network Media Products

DeviceNet™, Terminating Resistors

- Terminating Resistors Stabilize and Minimize Reflections on the Bus Line
- A Terminating Resistor is Required at the Beginning and End of the Main Bus Line



Housing	Part Number	Specs	Application	Pinouts
	RSM 57-TR2	Nickel Plated Brass or Stainless Steel 300 V, 9 A -40° to +75°C IP 67	minifast ® Terminating Resistor <ul style="list-style-type: none"> • Male minifast connector • 120 Ohms, 1/4 W internal resistance 	Male
	RSM 57-TR2/VM	Nickel Plated Brass or Stainless Steel 300 V, 9 A -40° to +75°C IP 67	minifast Terminating Resistor with Voltage Monitoring <ul style="list-style-type: none"> • Male minifast connector • Led indication: Red - reverse polarity Green-okay • 120 Ohms, 1/4 W internal resistance 	Male
	RKM 57-TR2	Nickel Plated Brass or Stainless Steel 250 V, 4 A -40° to +75°C IP 67	minifast Terminating Resistor <ul style="list-style-type: none"> • Female minifast connector • 120 Ohms, 1/4 W internal resistance 	Female
	RSE 57-TR2	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C IP 67	eurofast ® Terminating Resistor <ul style="list-style-type: none"> • Male eurofast connector • 120 Ohms, 1/4 W internal resistance 	Male
	RKE 57-TR2	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C IP 67	eurofast Terminating Resistor <ul style="list-style-type: none"> • Female eurofast connector • 120 Ohms, 1/4 W internal resistance 	Female

DeviceNet™, Terminating Resistors

- Terminating Resistors Stabilize and Minimize Reflections on the Bus Line
- A Terminating Resistor is Required at the Beginning and End of the Main Bus Line



Housing	Part Number	Specs	Application	Pinouts
	PSGM 57-TR	Nickel Plated Brass or Stainless Steel 125 V, 2 A -40° to +105°C IP 67	<p><i>picofast</i>® Terminating Resistor</p> <ul style="list-style-type: none"> • Male <i>picofast</i> connector • 120 Ohms, 1/2 W internal resistance 	<p>Male</p> <p>TERMINATING RESISTOR (120 Ω, 1/2W) BETWEEN PINS 4,5</p>
	PKGM 57-TR			<p>Female</p> <p>TERMINATING RESISTOR (120 Ω, 1/2W) BETWEEN PINS 4,5</p>

TURCK

Network Media Products

DeviceNet™, Receptacles

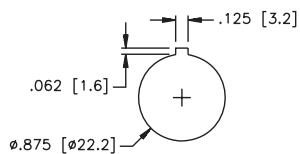
- Receptacles Provide Transition from Male to Female Connectors
- Available for Bulkhead and Feed Through Applications



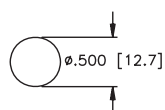
Housing	Part Number	Specs	Application	Pinouts
	RSF RKF 57/22	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +75°C IP 67	minifast® Bulkhead Receptacle • Straight male/female feed through	<p>Male</p> <p>Female</p>
	FKM FS 57/M12	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C IP 67	eurofast® Bulkhead Receptacle • Straight male/female feed through	<p>Male</p> <p>Female</p>

Standard housing material is nickel plated brass. "RSF RKF.."; "RSFV RKFV.." indicates stainless steel housing.

Panel Cutout
RSF RKF 57/22



Panel Cutout
FKM FS 57/M12



Notes:

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Network Media Products

DeviceNet™, Panel Mount Junction Box

- DIN Rail Junction Box
- Open Style
- Removable Terminals

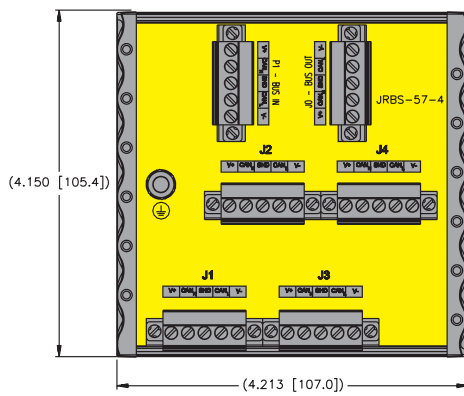


Part Number	Application	Wiring Diagrams
JRBS-57-4		
JRBS-57-6	Open style DIN mounted junction box	
JRBS-57-8		

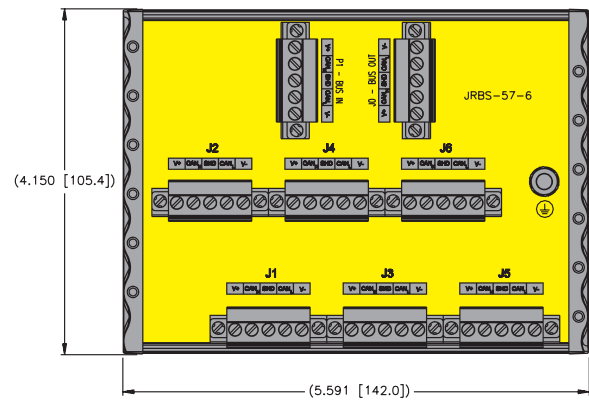
Specifications

Housing:	Aluminum
Contact Carrier:	PA (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1 and IP 20
Connection Mode:	Snap-on DIN RAIL (DIN 50022)
Ambient Temperature:	-25° to +70°C (-13° to +158°F)

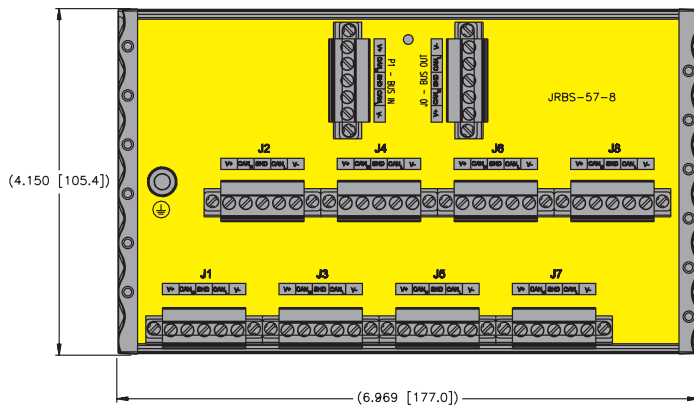
4-Port



6-Port



8-Port



TURCK

Network Media Products

DeviceNet™, eurofast® Junctions

- Multi-port Junction Boxes for Connecting I/O in Concentrated Areas
- Available in Standard and Voltage Monitoring



Part Number	Application	Wiring Diagram
JBBS-57-E811	8-port Junction with Voltage Monitoring <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i>® • Eight (M12x1) <i>eurofast</i> connectors for field connectors • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber 	
JBBS-57-E812	8-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Eight (M12x1) <i>eurofast</i> connectors for field connectors 	

TURCK

Network Media Products

DeviceNet™, *picofast*® Junctions, 4-port

- Multi-Port Passive Junction Box in Small Compact Housing
- Accepts (M8x1) Snap Lock or Threaded Connectors
- Available in Standard and Voltage Monitoring

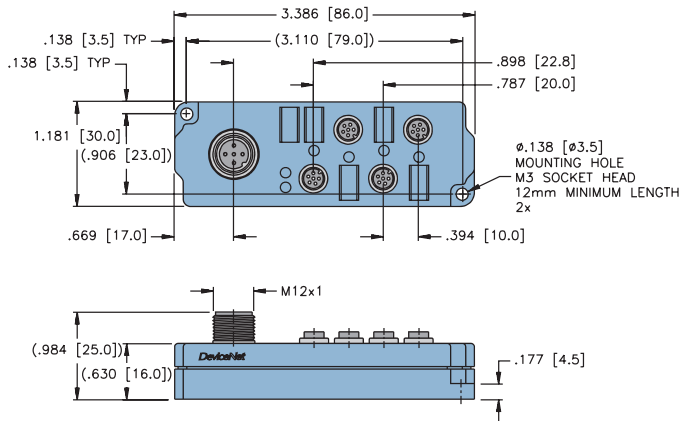


Part Number	Application	Wiring Diagrams
JBBS-57-FS-P424Z	4-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>euromast</i>® drop connector • Four (M8x1) <i>picofast</i> snap lock connectors 	
JBBS-57-FS-P424M	4-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>euromast</i> drop connector • Four (M8x1) <i>picofast</i> threaded connectors 	
JBBS-57-FS/VM-P424Z	4-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>euromast</i> drop connector • Four (M8x1) <i>picofast</i> snap lock connectors • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED Indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber	
JBBS-57-FS/VM-P424M	4-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>euromast</i> drop connector • Four (M8x1) <i>picofast</i> threaded connectors • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber	
JBBS-57-FS-E424	4-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>euromast</i>® drop connector • Four (M12x1) <i>euromast</i> threaded connectors 	

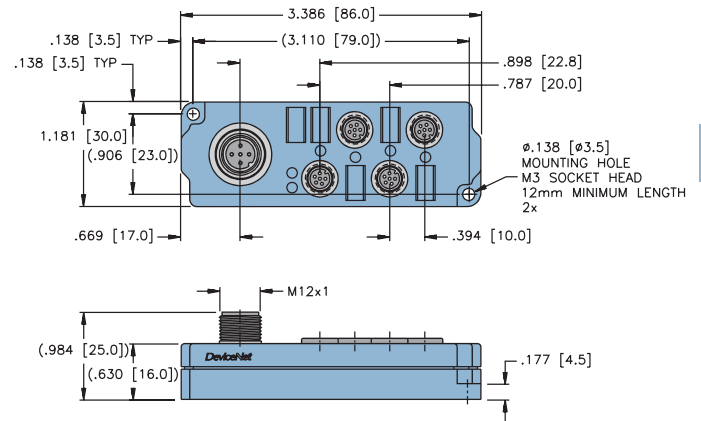
Specifications

- Housing:** POM (Nylon)
- Coupling Nut:** Nickel Plated CuZn or Stainless Steel
- Contact Carrier:** PUR (Polyurethane) or POM (Nylon)-*picofast*®, POM (Nylon)-*eurofast*®
- Contacts:** Gold Plated CuZn
- Protection:** NEMA 1, 3, 4, 6P and IEC IP 67
- Rated Voltage:** 30 V
- Rated Current:** 1.5 A
- Ambient Temperature:** -40° to +75°C (-22° to +167°F)

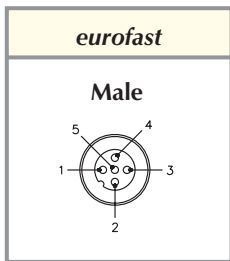
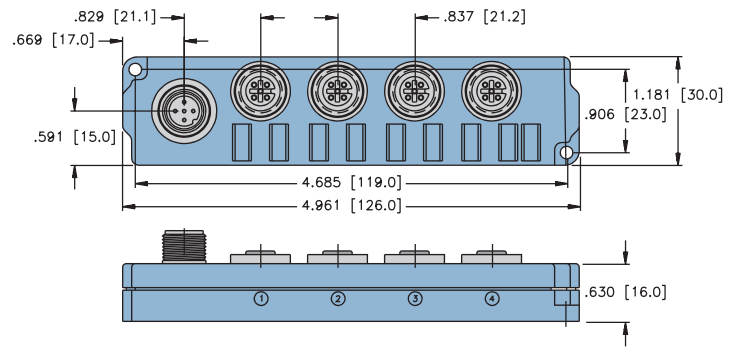
JBBS-57-FS-P424Z



JBBS-57-FS-P424M



JBBS-57-FS-E424



<i>picofast</i>	Pinouts	<i>picofast</i>
<p>Male</p>	<ol style="list-style-type: none"> 1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H) 5. Blue (CAN_L) 6. N/C (<i>picofast</i> only) 	<p>Female</p>

<i>eurofast</i>	Pinouts	<i>eurofast</i>
<p>Male</p>	<ol style="list-style-type: none"> 1. = (Shield Drain Wire) 2. = (+ Voltage) 3. = (- Voltage) 4. = (CAN_H) 5. = (CAN_L) 	<p>Female</p>

TURCK

Network Media Products

DeviceNet™, *picofast*® Junctions, 8-port

- Multi-Port Passive Junction Box in Small Compact Housing
- Accepts (M8x1) Snap Lock or Threaded Connectors
- Available in Standard and Voltage Monitoring

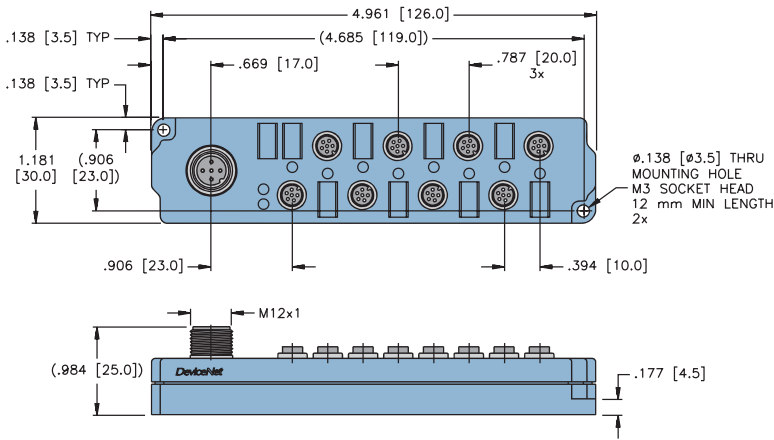


Part Number	Application	Wiring Diagrams
JBBS-57-FS-P824Z	8-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>eurofast</i>® drop connector • Eight (M8x1) <i>picofast</i> snap lock connectors 	
JBBS-57-FS-P824M	8-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>eurofast</i> drop connector • Eight (M8x1) <i>picofast</i> threaded connectors 	
JBBS-57-FS/VM-P824Z	8-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>eurofast</i> drop connector • Eight (M8x1) <i>picofast</i> snap lock connectors • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber	
JBBS-57-FS/VM-P824M	8-port Junction Tee <ul style="list-style-type: none"> • (M12x1) <i>eurofast</i> drop connector • Eight (M8x1) <i>picofast</i> threaded connectors • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber	

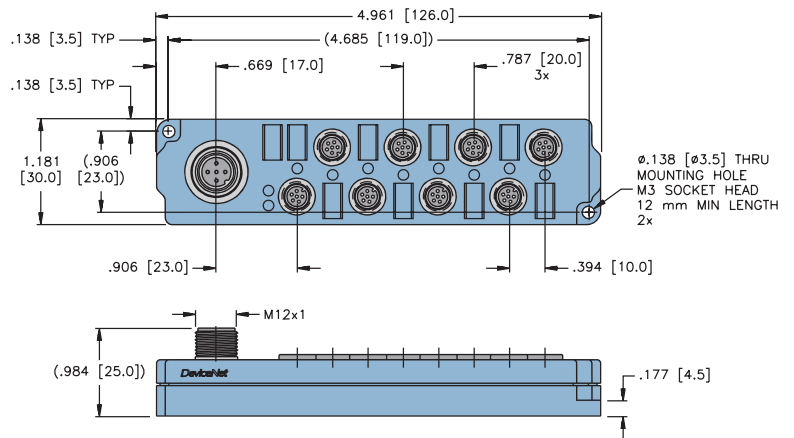
Specifications

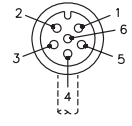
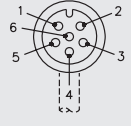
Housing:	POM (Nylon)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane) or POM (Nylon)- <i>picofast</i> ®, POM (Nylon)- <i>euromast</i> ®
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	30 V
Rated Current:	1.5 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

JBBS-57-FS-P824Z



JBBS-57-FS-P824M



<i>picofast</i>	Pinouts	<i>picofast</i>
<p>Male</p> 	<ol style="list-style-type: none"> 1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H) 5. Blue (CAN_L) 6. N/C (<i>picofast</i> only) 	<p>Female</p> 

TURCK

Network Media Products

DeviceNet™, minifast® Passive Multi-Port Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Bus-In / Bus-Out Eliminates Need for Splitter Tee
- Suitable for Outdoor Applications

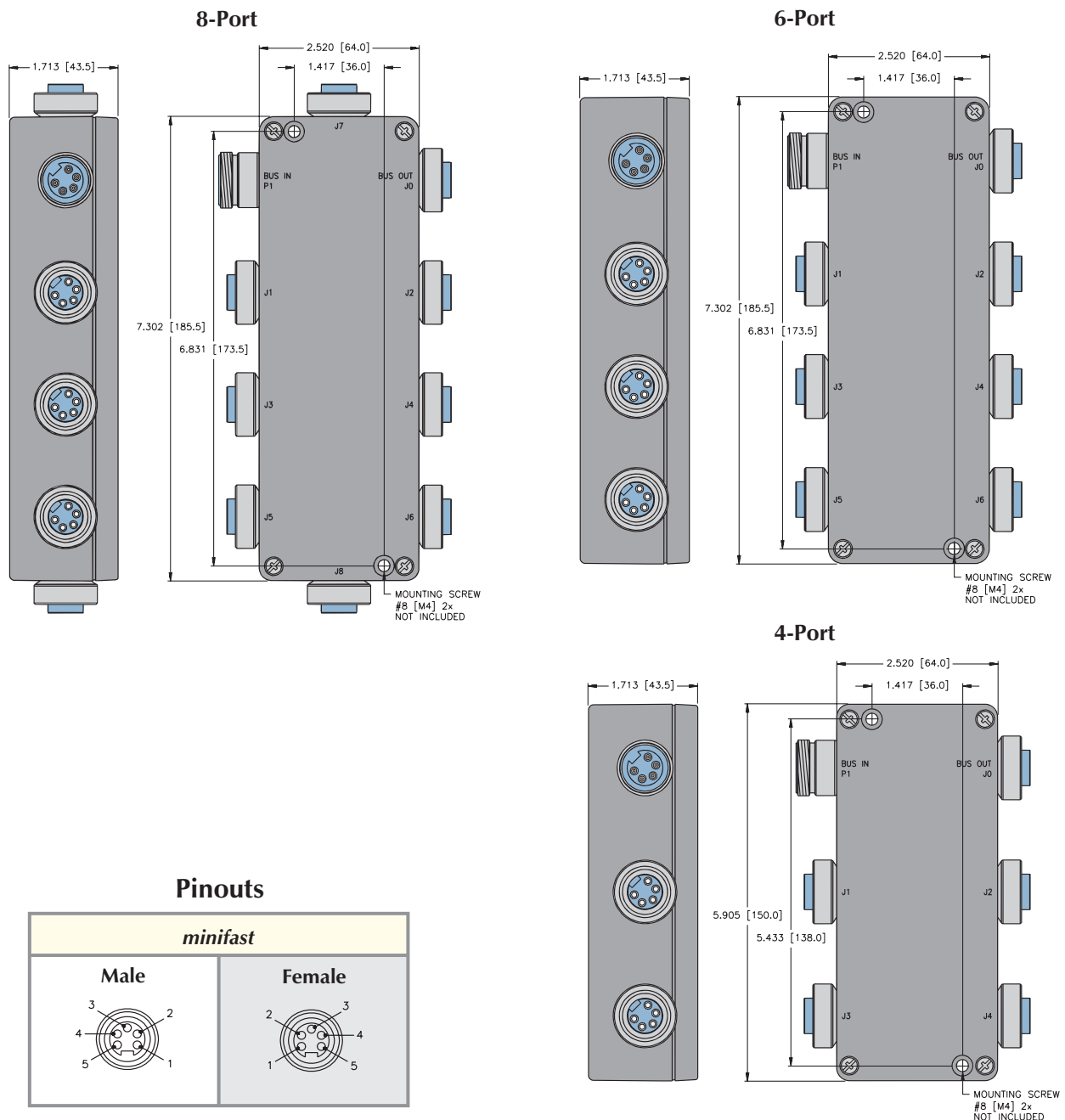


Part Number	Specs	Application	Wiring Diagrams
<p>JBBS-57-M401</p> <p>JBBS-57-M413</p>		<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Four device ports with (7/8-16UN) <i>minifast</i> connectors 	
<p>JBBS-57-M601</p> <p>JBBS-57-M613</p>	Die-cast aluminum enclosure.	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Six device ports with (7/8-16UN) <i>minifast</i> connectors 	
<p>JBBS-57-M801</p> <p>JBBS-57-M813</p>		<p>8-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Eight device ports with (7/8-16UN) <i>minifast</i> connectors 	

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



TURCK

Network Media Products

DeviceNet™, minifast® Passive Multi-Port Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Bus-In / Bus-Out Eliminates Need for Splitter Tee
- Suitable for Outdoor Applications



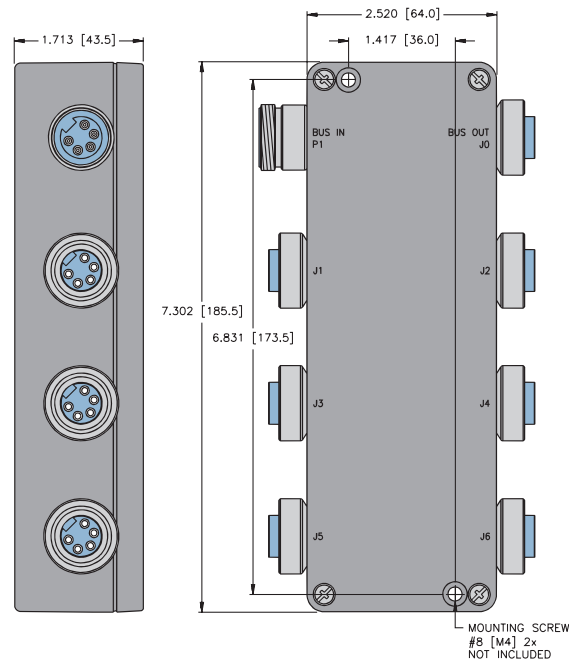
Part Number	Specs	Application	Wiring Diagrams
JBBS-57-M623	Fiberglass enclosure	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Six device ports with (7/8-16UN) <i>minifast</i> connectors 	

Specifications

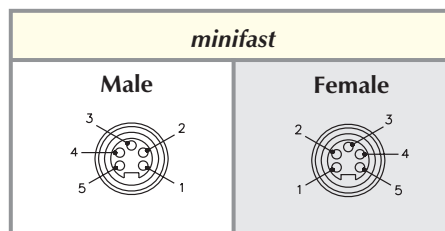
Housing:	Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions

6-Port



Pinouts



TURCK

Network Media Products

DeviceNet™, eurofast® Passive Multi-Port Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Bus-In / Bus-Out Eliminates Need for Splitter Tee
- Suitable for Outdoor Applications

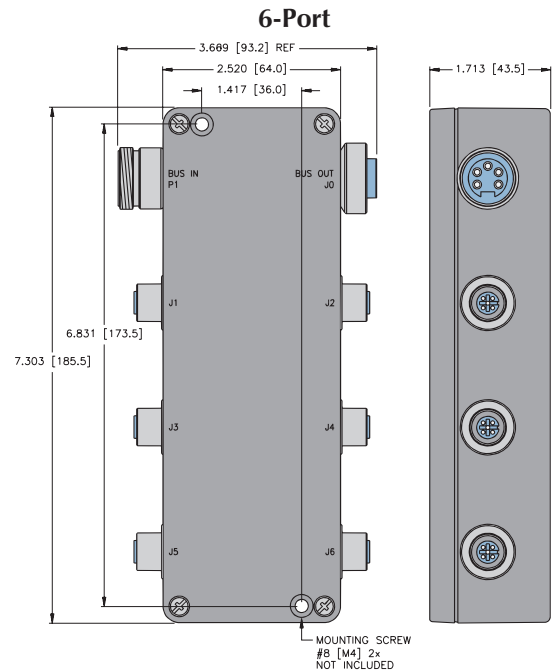
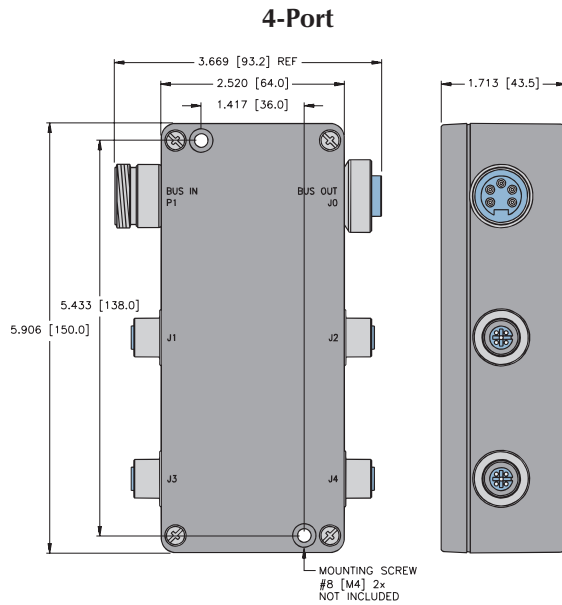


Part Number	Specs	Application	Wiring Diagram
JBBS-57-E401	Die-cast aluminum enclosure.	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i>® through ports • Four device ports with (M12x1) <i>eurofast</i> connectors 	
JBBS-57-E403			
JBBS-57-E411			
JBBS-57-E421	Fiberglass		
JBBS-57-E601	Die-cast aluminum enclosure.	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Six device ports with (M12x1) <i>eurofast</i> connectors 	
JBBS-57-E621	Fiberglass		

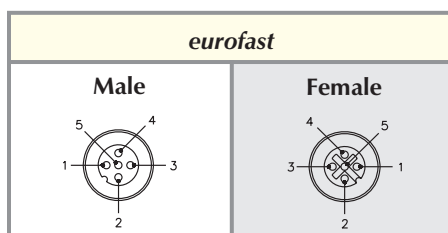
Specifications

Housing:	Anodized Aluminum/Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



Pinouts



TURCK

Network Media Products

DeviceNet™, eurofast® Passive Multi-Port Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Bus-In / Bus-Out Eliminates Need for Splitter Tee
- Suitable for Outdoor Applications

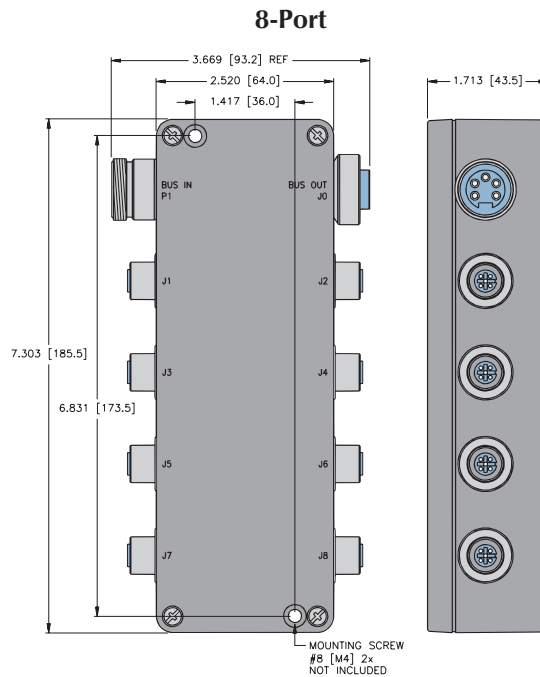


Part Number	Specs	Application	Wiring Diagram
JBBS-57-E801	Die-cast aluminum enclosure.	8-port Junction	
JBBS-57-E803			
JBBS-57-E821	Fiberglass	<ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Eight device ports with (M12x1) <i>eurofast</i> connectors 	

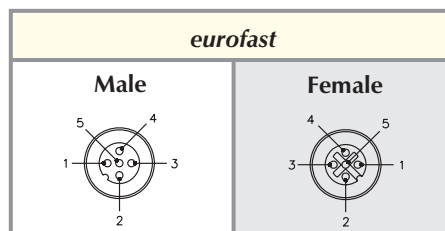
Specifications

Housing:	Anodized Aluminum/Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



Pinouts



TURCK

Network Media Products

DeviceNet™, eurofast® Passive Multi-Port Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Bus-In / Bus-Out Eliminates Need for Splitter Tee
- Suitable for Outdoor Applications

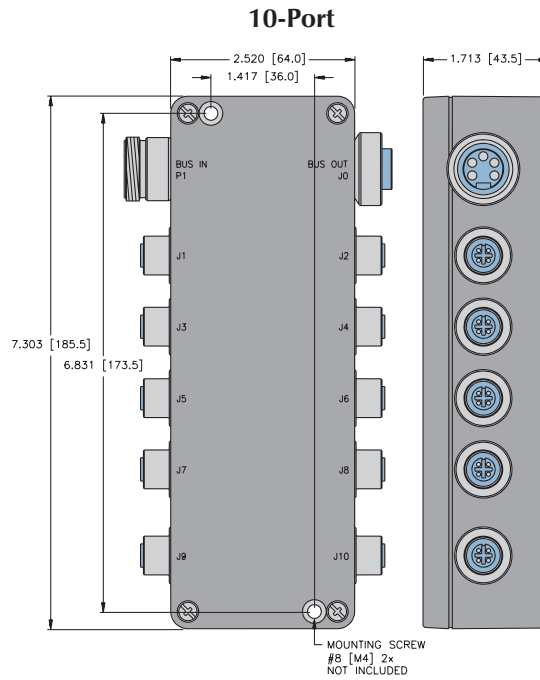


Part Number	Specs	Application	Wiring Diagram
JBBS-57-E1001	Die-cast aluminum enclosure.	10-port Junction <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i>® through ports • Ten device ports with (M12x1) <i>eurofast</i> connectors 	

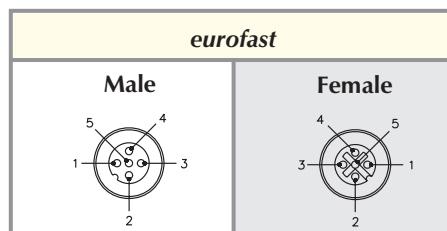
Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



Pinouts



TURCK

Network Media Products

DeviceNet™, eurofast® Passive Multi-Port Junctions

- Switchable DeviceNet Diagnostic Box
- Used fo DeviceNet Troubleshooting

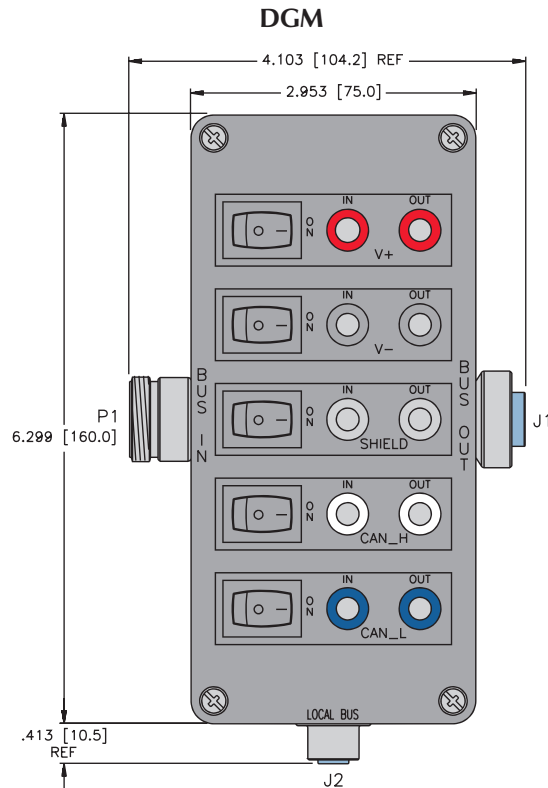


Part Number	Specs	Application	Wiring Diagram
<p style="text-align: center;">JBBS-57-DGM</p>	<p style="text-align: center;">Fiberglass</p>	<p style="text-align: center;">Diagnostic Box</p> <ul style="list-style-type: none"> • Taps into CAN_H, CAN_L, V+, V- and SHIELD • Used to diagnose DeviceNet (should not be installed permanently on network) 	

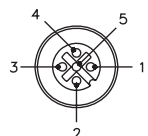
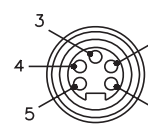
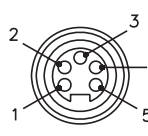
Specifications

Housing:	Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	IEC IP20
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



Pinouts

eurofast Male	minifast Male	minifast Female
		

DeviceNet™, eurofast® Passive Multi-Port Junctions

- System Module Junction Box

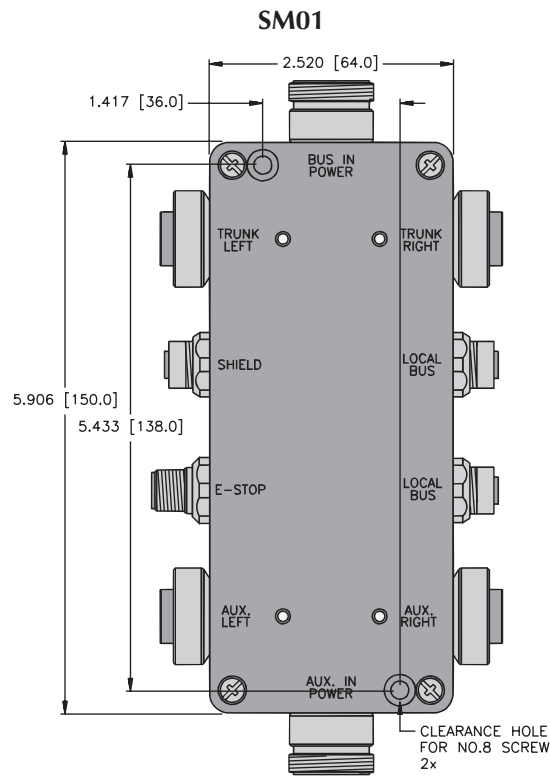


Part Number	Specs	Application	Wiring Diagram
JBBS-57-SM01	Die-cast aluminum enclosure.	<p>System module with two circuit groups</p> <ul style="list-style-type: none"> • DeviceNet circuit • Supplies DC power • Two drops • Auxiliary power • Supplies DC power • Catagory 2 E-stop • General purpose • M(machine)-stop 	

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



TURCK

Network Media Products

DeviceNet™, minifast® Junction Tee

- **Indoor Use Only**
(for outdoor applications use JBBS family)
- **Multi-Port Junction Provides a Rugged Connection to Network Devices**
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**



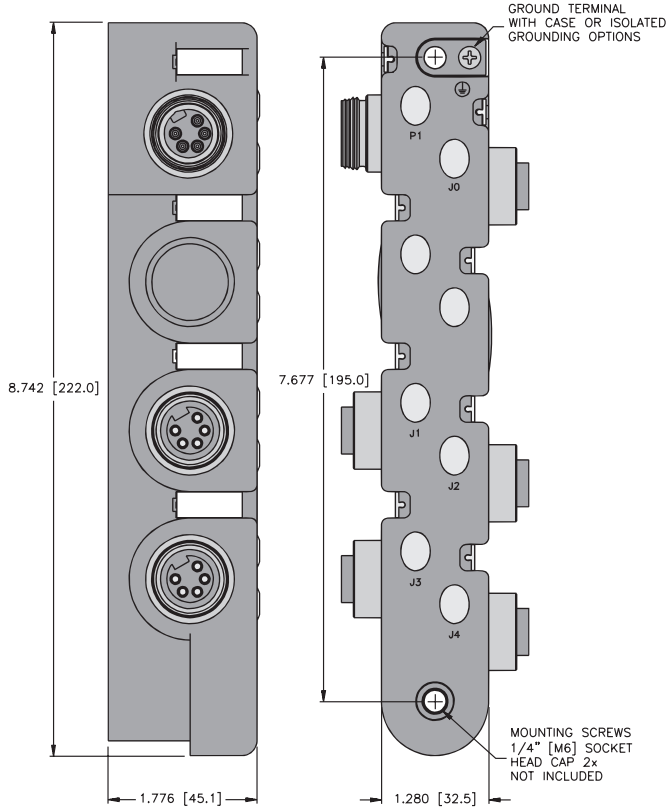
Part Number	Application	Wiring Diagrams
JTBS 57-M433	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Four (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 57-M434 	
JTBS 57VM-M433	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Four (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 57VM-M434 • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C 	
JTBS 57-M633	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 57-M634 	
JTBS 57VM-M633	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 57VM-M634 • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C 	

Specifications

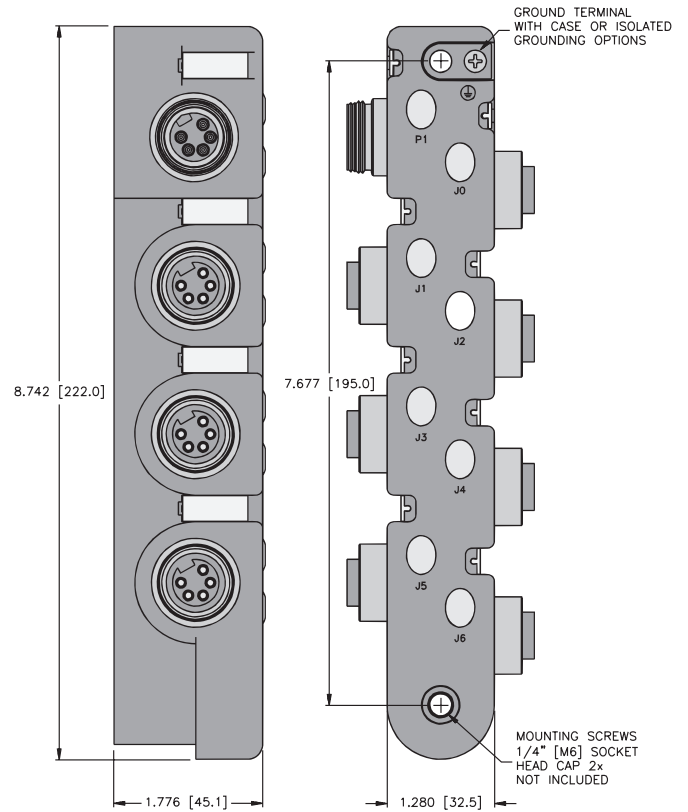
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions

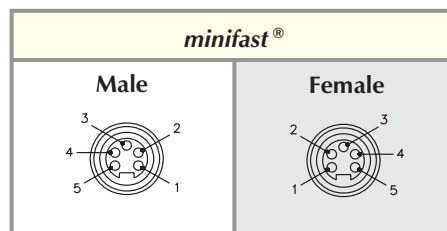
4-port



6-port



Pinouts



TURCK

Network Media Products

DeviceNet™, eurofast® Junction Tee

- **Indoor Use Only**
(for outdoor applications use JBBS family)
- **Multi-Port Junction Provides a Rugged Connection to Network Devices**
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**



Part Number	Application	Wiring Diagrams
JTBS 57-E433	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i>® bus in/bus out connections • Four (M12x1) <i>eurofast</i> device ports • For nickel plated brass connectors change part number to JTBS 57-E434 	
JTBS 57VM-E433	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Four (M12x1) <i>eurofast</i> device ports • For nickel plated brass connectors change part number to JTBS 57VM-E434 • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9 - 25.6 V Green (Hi) > 25.6 V Amber • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C 	
JTBS 57-E633	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (M12x1) <i>eurofast</i> device ports • For nickel plated brass connectors change part number to JTBS 57-E634 	
JTBS 57VM-E633	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (M12x1) <i>eurofast</i> device ports • For nickel plated brass connectors change part number to JTBS 57VM-E634 • Voltage monitoring provides low voltage (12.9 V) and high voltage (25.6) indication LED indication: (Lo) < 12.9 V Amber (Ok) 12.9-25.6 V Green (Hi) > 25.6 V Amber • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C 	

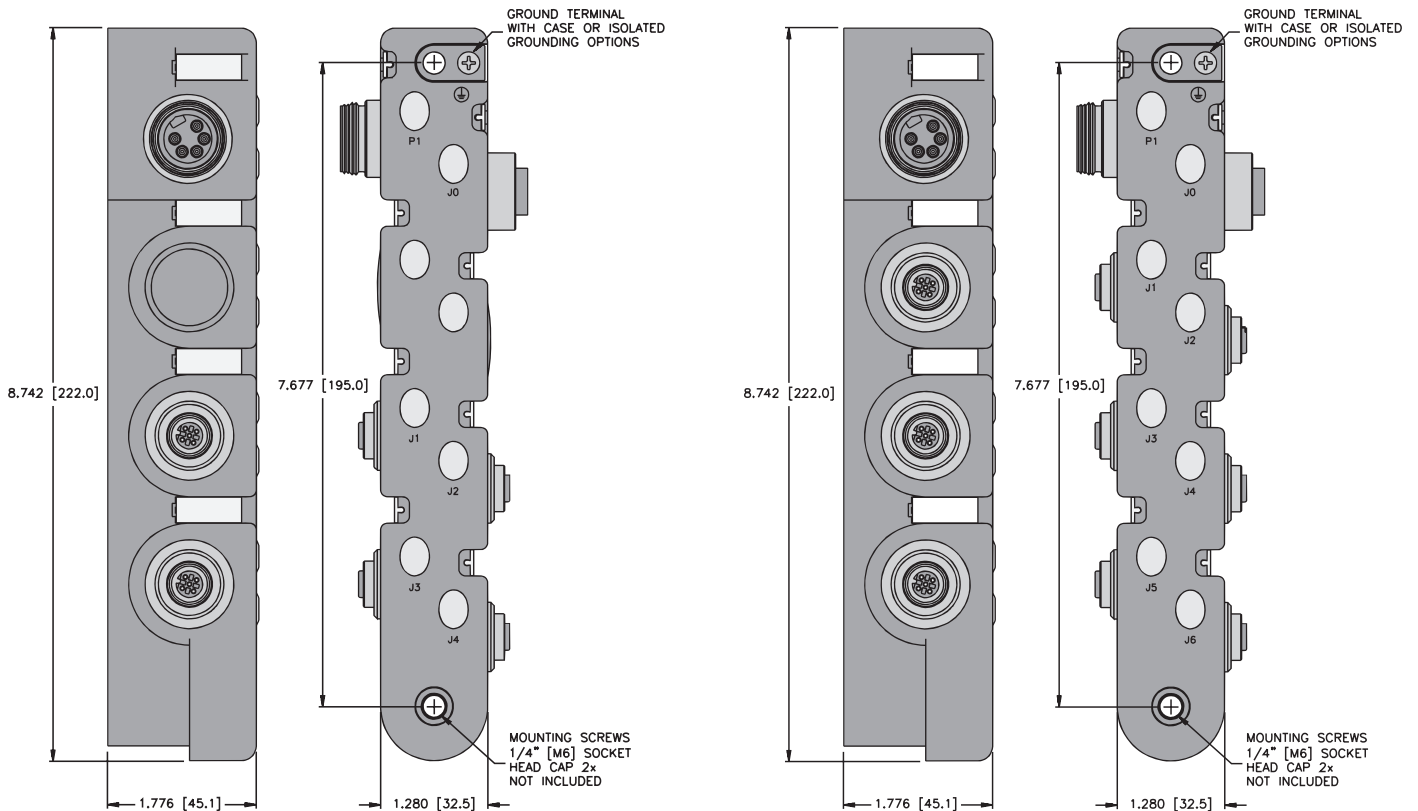
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

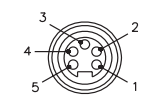
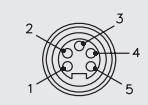
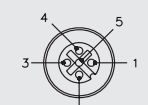
Dimensions

4-port

6-port



Pinouts

<i>minifast</i> ®		<i>eurofast</i> ®
Male	Female	Female
		

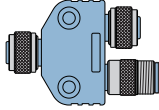
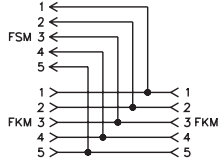
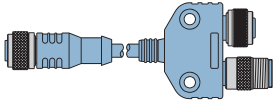
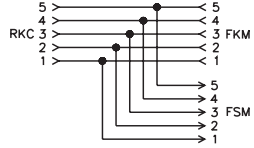
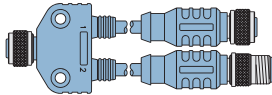
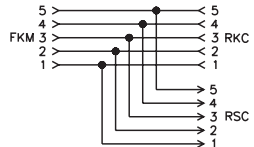
TURCK

Network Media Products

DeviceNet™, eurofast® Drop Junctions

- Creates a Drop or Branch from the Main Bus Line
- Cable Drop Lengths Available Up to a Maximum of 6 Meters



Housing	Part Number	Application	Wiring Diagrams
	VB2-FKM/FKM/FSM 57	VB2 Junction <ul style="list-style-type: none"> • Ready for <i>eurofast</i> drop and trunk cordsets • Maximum six meter drop 	
	VB2-RKC 57x-*M-FKM FSM	VB2 Junction with Trunk Line <ul style="list-style-type: none"> • Ready for <i>eurofast</i> trunk line • Maximum six meter drop 	
	VB2-FKM/RKC RSC 57x-*M/*M	VB2 Junction with Trunk Line <ul style="list-style-type: none"> • Ready for <i>eurofast</i> drop cordsets • Maximum six meter branch 	

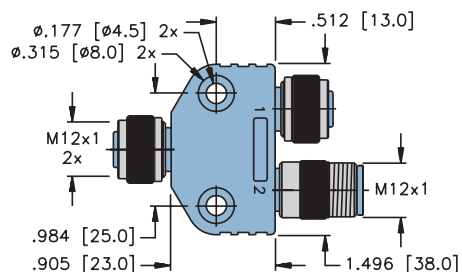
* Indicates length in meters.
 x Indicates cable type.

Specifications

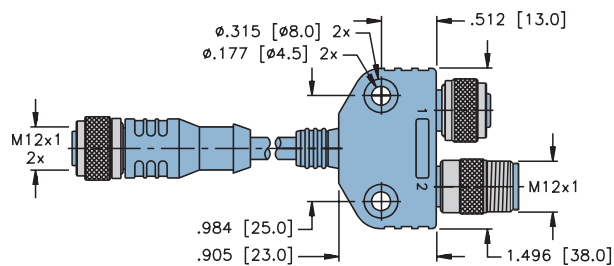
Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Mounting: Mounting hole accepts #8 screw.

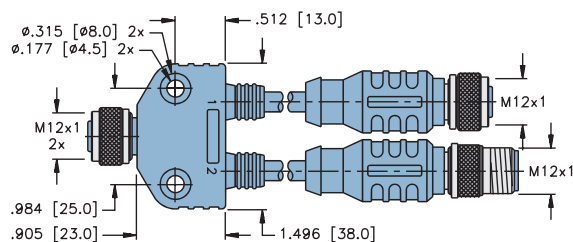
VB2-FKM/FKM/FSM 57



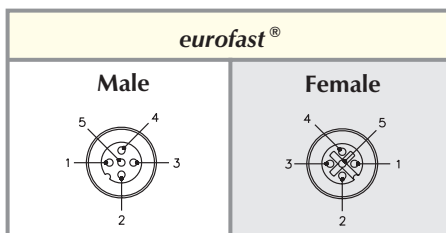
VB2-RKC 57x-*M-FKM FSM



VB2-FKM/RKC RSC 57x-*M/*M



Pinouts



TURCK

Network Media Products

DeviceNet™, minifast® Conduit Adapters

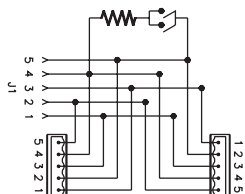
- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port



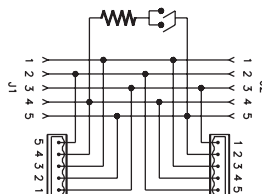
Housing	Part Number	Specs	Application	Pinout
	BCA 57-M123	Nylon Housing Stainless Steel Receptacle Housing 300 V, 9 A -40° to +75°C	Attaches to standard conduit body* for transition to 5-wire (7/8-16UN) minifast connector *Crouse-Hinds 3/4" Form 8, Mark 9 or equivalent.	<p>Female</p>
	BCA 57-M223	Nylon Housing Stainless Steel Receptacle Housing 300 V, 9 A -40° to +75°C	Attaches to standard conduit body* for transition to 5-wire (7/8-16UN) minifast connector *Crouse-Hinds 3/4" Form 8, Mark 9 or equivalent.	<p>Female</p>

Standard receptacle housing material is stainless steel, for nickel plated brass change part number from ... M223 to ... M224.

1-port Wiring Diagram



2-port Wiring Diagram



DeviceNet™, eurofast® Conduit Adapters

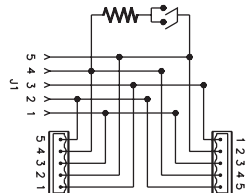
- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port



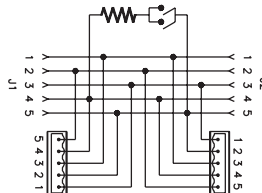
Housing	Part Number	Specs	Application	Pinout
	BCA 57-E123	Nylon Housing Stainless Steel Receptacle Housing 250 V, 4 A -40° to +75°C	Attaches to standard conduit body* for transition to 5-wire (M12x1) eurofast connector *Crouse-Hinds 3/4" Form 8, Mark 9 or equivalent.	<p>Female</p>
	BCA 57-E223		Attaches to standard conduit body* for transition to 5-wire (M12x1) eurofast connector *Crouse-Hinds 3/4" Form 8, Mark 9 or equivalent.	

Standard receptacle housing material is stainless steel, for nickel plated brass change part number from ... M223 to ... M224.

1-port Wiring Diagram



2-port Wiring Diagram



TURCK

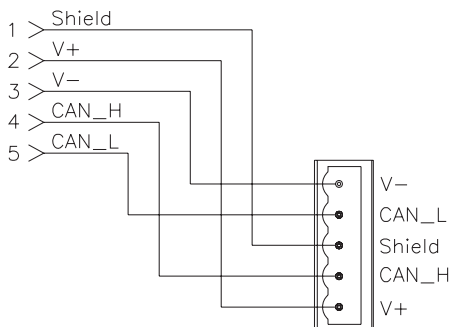
Network Media Products

DeviceNet™, Wall Plate Adapters

- Gasket and Mounting Screws Provided
- For Use with a Single Gang Electrical Box



Housing	Part Number	Specs	Application	Pinouts
	BPA-57-M113	Stainless Steel 250 V, 4.0 A -40 to +70°C (-40 to +158°F)	Attaches to standard single gang electrical box for transition to 5-wire (7/8-16UN) minifast connector	
	BPA-57-E113		Attaches to standard single gang electrical box for transition to 5-wire (M12x1) eurofast connector	



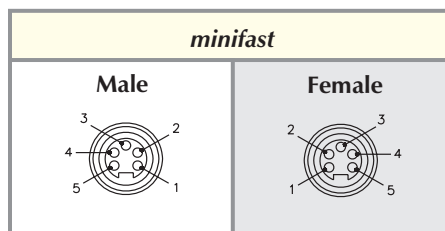
DeviceNet™, Bus Drop and Diagnostic Tees

- Creates a Drop or Branch from the Main Bus Line
- (7/8-16UN) *minifast*® Connectors on Bus and Drop Lines
- Available in Three Keyway Options



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSM 2RKM 57		<p><i>minifast</i> Drop Off Bus Line</p> <ul style="list-style-type: none"> • Full power and data drop • Maximum six meter branch • Standard keyway 	
	RSM 2RKM 57-KF	PUR (Polyurethane) 300 V, 9 A -40° to +75°C	<p><i>minifast</i> Drop Off Bus Line</p> <ul style="list-style-type: none"> • Full power and data drop • Maximum six meter branch • Keyway facing female 	
	RSM 2RKM 57-KM		<p><i>minifast</i> Drop Off Bus Line</p> <ul style="list-style-type: none"> • Full power and data drop • Maximum six meter branch • Keyway facing male 	

Pinouts



TURCK

Network Media Products

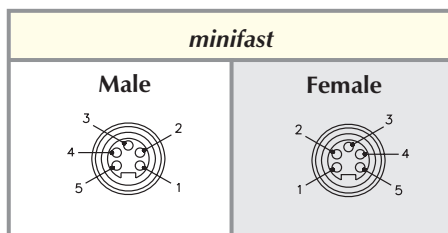
DeviceNet™, Power and Diagnostic Tees

- Provide a Drop to Insert Power or Diagnostic Equipment
- (7/8-16UN) *minifast*® Connectors on Bus and Drop Lines
- Reverse Current Protection on Power Tap



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSM RKM 57 WSM 40 PST	PUR (Polyurethane) 300 V, 9 A -40° to +75°C	Bus Power <ul style="list-style-type: none"> • Tee provides segment power • Includes reverse current protection 	
	RSM 2RKM 57 DGT		Bus Diagnostic Tee <ul style="list-style-type: none"> • Provides easy connection for diagnostic tools • Tap protected with cover when not in use (not shown) 	

Pinouts



DeviceNet™, Bus Tees

- Creates a Drop or Branch from the Main Bus Line
- Cable Drop Can Be Up to a Maximum of 6 Meters
- *eurofast*® Drop Connector or Extension Cordset



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSM FKM RKM 57		<i>eurofast</i> Drop <ul style="list-style-type: none"> • <i>minifast</i>® to <i>eurofast</i> • Bus power and data drop 	
	RSM RKC 57x-*M RKM 57	PUR (Polyurethane) 250 V, 4 A -40° to +75°C	<i>eurofast</i> Drop Cordset <ul style="list-style-type: none"> • <i>minifast</i> to <i>eurofast</i> cordset • Bus power and data drop 	

Pinouts

<i>minifast</i>		<i>eurofast</i>
Male 	Female 	Female

TURCK

Network Media Products

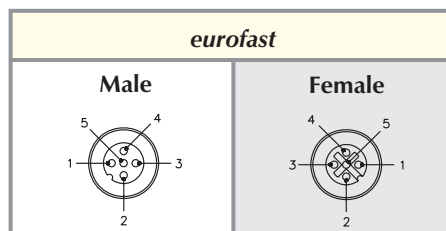
DeviceNet™, eurofast® Bus Tees

- Creates a Drop or Branch from the Main Bus Line
- Cable Drop Can Be Up to a Maximum of 6 Meters
- *eurofast* Drop Connector



Housing	Part Number	Specs	Application	Wiring Diagram
	RSC 2RKC 57	PUR (Polyurethane) 250 V, 4 A -40° to +75°C	<i>eurofast</i> Tee <ul style="list-style-type: none"> • <i>eurofast</i> trunk and drop 	
	RSC 2RKC 57/KS		<i>eurofast</i> Tee <ul style="list-style-type: none"> • <i>eurofast</i> trunk and drop • Keyway aligns tee in-line on (M8x1) <i>piconet</i>® boxes 	

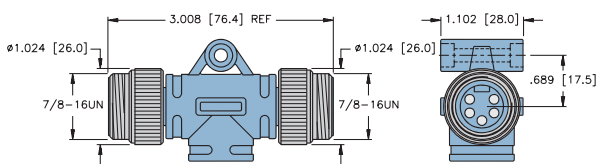
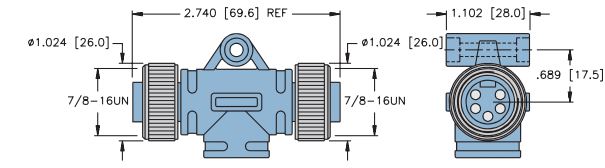
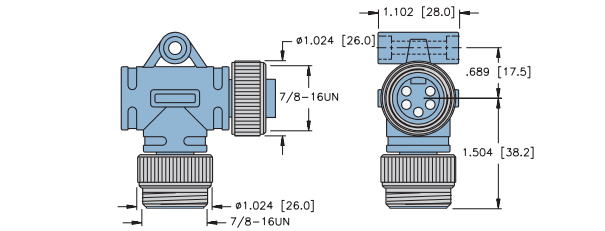
Pinouts



DeviceNet™, Gender Changers and Elbow Connectors

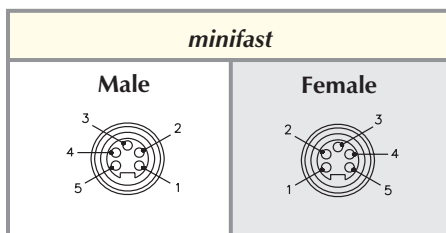
- Allows Quick and Easy Changes from Male to Female Connectors
- Available in Straight and Right Angle Styles with *minifast*® Connectors



Housing	Part Number	Specs	Application
	RSM RSM 57		Male <i>minifast</i> Gender Changer <ul style="list-style-type: none"> • Changes female cordset to male cordset
	RKM RKM 57	PUR (Polyurethane) 300 V, 9 A -40° to +75°C	Female <i>minifast</i> Gender Changer <ul style="list-style-type: none"> • Changes male cordset to female cordset • Changes straight male or female cordset to right angle cordset
	WSM RKM 57		<i>minifast</i> Elbow <ul style="list-style-type: none"> • Right angle male to female connector

DeviceNet Media

Pinouts



TURCK

Network Media Products

DeviceNet™, Gender Changers and Elbow Connectors

- Allows Quick and Easy Changes from Male to Female and *minifast*® to *eurofast*® Connectors



Housing	Part Number	Specs	Application	Wiring Diagram
	RSM 57-FK 4.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Female <i>eurofast</i> to male <i>minifast</i> adapter	

Pinouts

<i>minifast</i>	<i>eurofast</i>
Male 	Female

DeviceNet™, (7/8-16UN) minifast® Male Receptacles

- Provides Quick Connection to Field Devices or Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
<p>23</p>	RSF 57-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	Male
<p>25</p>	RSF 57-*M/14.75		3/4-14NPT full length threads	
<p>24</p>	RSF 57-*M/M20		M20x1.5 threads	
<p>26</p>	RSF 57-*M		1/2-14NPSM threads	
<p>27</p>	RSF 57-*M/NPT		1/2-14NPT modified length threads	

See page G69 for dimensional drawings.

- * Length in meters.
- Standard cable length is 0.3 meters. Consult factory for other lengths.
- Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.
- Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.
- For locknuts to be included, add "W/LN" to the end of the part number.

DeviceNet Media

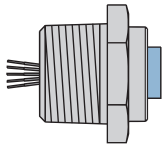
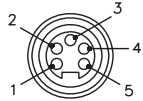
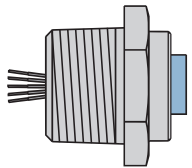
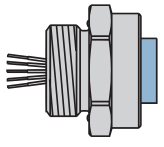
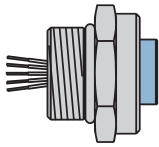
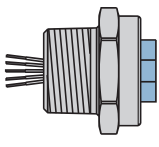
TURCK

Network Media Products

DeviceNet™, (7/8-16UN) *minifast*® Female Receptacles

- Provides Quick Connection to Field Devices or Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
28 	RKF 57-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	<p>Female</p> 
30 	RKF 57-*M/14.75		3/4-14NPT full length threads	
29 	RKF 57-*M/M20		M20x1.5 threads	
31 	RKF 57-*M		1/2-14NPSM threads	
32 	RKF 57-*M/NPT		1/2-14NPT modified length threads	

See page G70 for dimensional drawings.

* Length in meters.

Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.

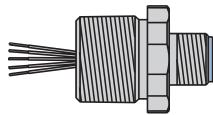
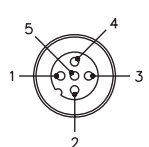
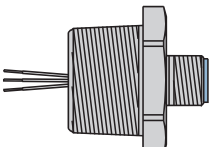
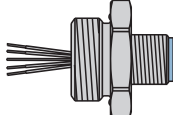
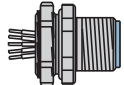
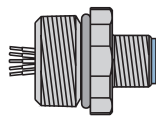
Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

For locknuts to be included, add "W/LN" to the end of the part number.

DeviceNet™, (M12x1) eurofast® Male Receptacles

- Provides Quick Connection to Field Devices
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinout
<p>33</p> 	FS 57-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	<p>Male</p> 
<p>35</p> 	FS 57-*M/14.75		3/4-14NPT full length threads	
<p>34</p> 	FS 57-*M/M20		M20x1.5 threads	
<p>36</p> 	FS 57-*M		PG 9 threads	
<p>37</p> 	FS 57-*M/NPT		1/2-14NPT modified length threads	

See page G71 for dimensional drawings.

* Length in meters.

Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.

Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

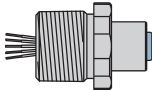
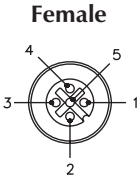
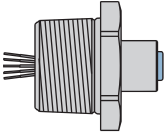
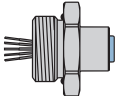
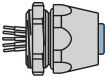
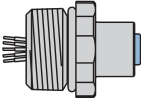
TURCK

Network Media Products

DeviceNet™, (M12x1) eurofast® Female Receptacles

- Mounted for Quick Connection to Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
38 	FK 57-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	Female 
40 	FK 57-*M/14.75		3/4-14NPT full length threads	
39 	FK 57-*M/M20		M20x1.5 threads	
41 	FK 57-*M		PG 9 threads	
42 	FK 57-*M/NPT		1/2-14NPT modified length threads	

See page G72 for dimensional drawings.

* Length in meters.

Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.

Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

DeviceNet™, minifast® PCB and Solder Cup Receptacles

- Provides (7/8-16UN) *minifast* Connection to Field Devices



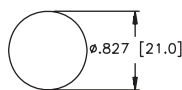
Housing	Part Number	Specs	Application	Pinouts
<p>43</p>	RSF 57 PCB	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	Male <i>minifast</i> PCB pins	<p>Male</p>
<p>45</p>	RSF 57		Male <i>minifast</i> solder cups	
<p>44</p>	RKF 57 PCB		Female <i>minifast</i> PCB pins	<p>Female</p>
<p>46</p>	RKF 57		Female <i>minifast</i> solder cups	

1. BARE
2. RD
3. BK
4. WH
5. BU

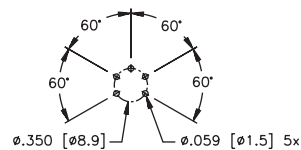
See page G73 for dimensional drawings.

Standard housing material is nickel plated brass "RSFV .."; "RKFV .." indicates 316 stainless steel.

Panel Cutout
FK ... FS



Board Layout (reference only)
FK ... FS



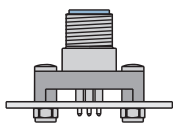
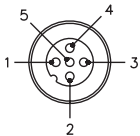
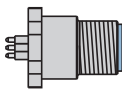
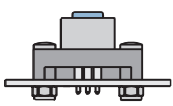
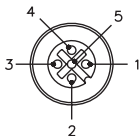
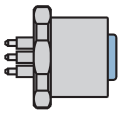
TURCK

Network Media Products

DeviceNet™, eurofast® PCB and Solder Cup Receptacles

- Provides (M12x1) eurofast Connection to Field Devices



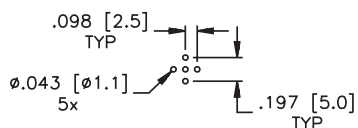
Housing	Part Number	Specs	Application	Pinouts
50 	FS 57 PCB KIT	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	Male eurofast with mounting kit	Male 
51 	FS 57 PCB		Male eurofast	
54 	FK 57 PCB KIT		Female eurofast with mounting kit	Female 
55 	FK 57 PCB		Female eurofast	

1. BARE
2. RD
3. BK
4. WH
5. BU

See page G74 for dimensional drawings.

Standard housing material is nickel plated brass "FSV .."; "FKV .." indicates 316 stainless steel.

Board Layout (reference only) FK ... FS



DeviceNet™, eurofast® PCB Pins and Solder Cup Receptacles

- Provides (M12x1) eurofast Connection to Field Devices



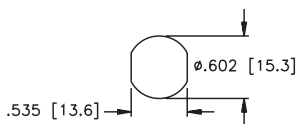
Housing	Part Number	Specs	Application	Pinouts	
49 	FSFD 57 PCB	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	Male eurofast PCB pins	<p>1. BARE 2. RD 3. BK 4. WH 5. BU</p>	
48 	FSFDL 57		Male eurofast solder cups		
47 	WFS 57 PCB		Male eurofast right angle PCB pins		
53 	FKFD 57 PCB		Female eurofast PCB pins		<p>Female</p>
52 	FKFDL 57		Female eurofast solder cups		

DeviceNet Media

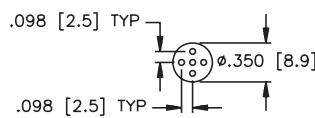
See pages G73 - G74 for dimensional drawings.

Standard housing material is nickel plated brass "FKFD .."; "FKFDV .." indicates 316 stainless steel.

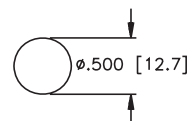
Panel Cutout
FKFD ... FSFD



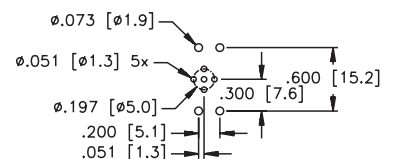
Board Layout (reference only)
FKFD ... FSFD



Panel Cutout
WFS

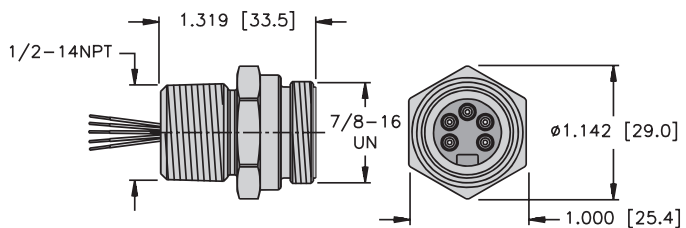


Board Layout (reference only)
WFS



minifast® Male Receptacles

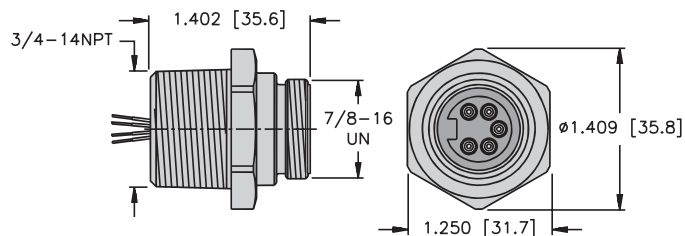
23



RSF ..14.5

Page G62

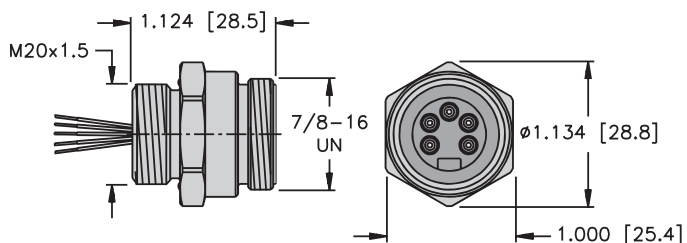
25



RSF ..14.75

Page G62

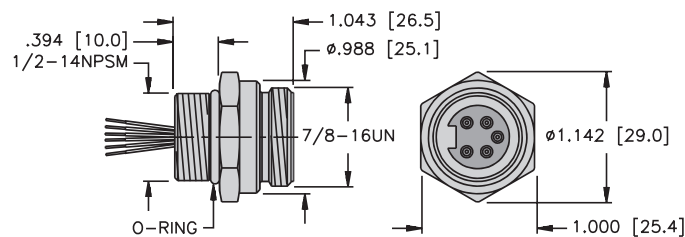
24



RSF .. M20

Page G62

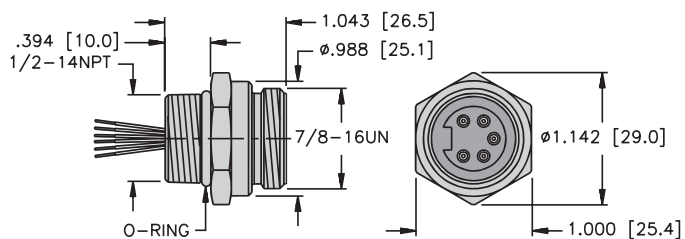
26



RSF ..

Page G62

27



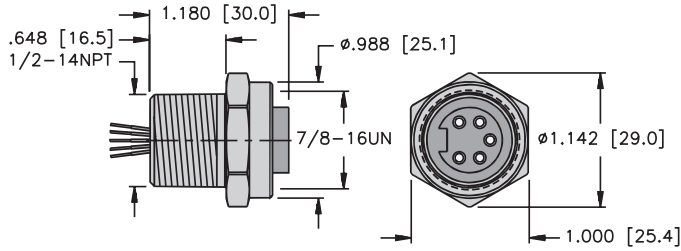
RSF .. NPT

Page G62

minifast® Female Receptacles

DeviceNet Media

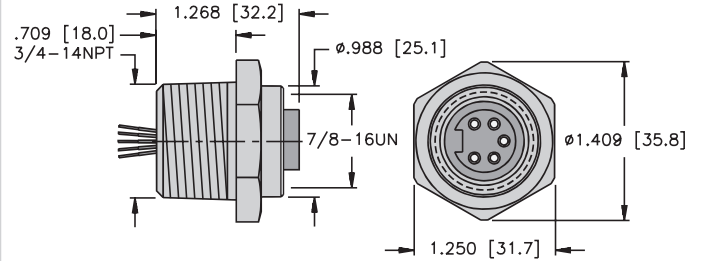
28



RKF .. 14.5

Page G63

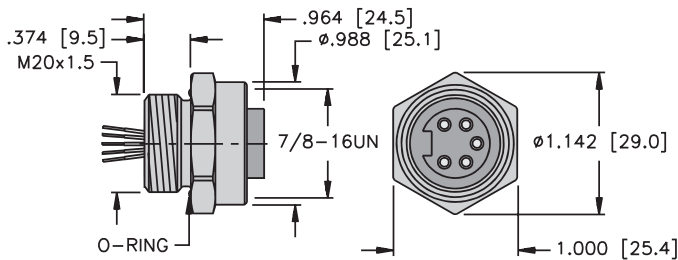
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RKF .. 14.75

Page G63

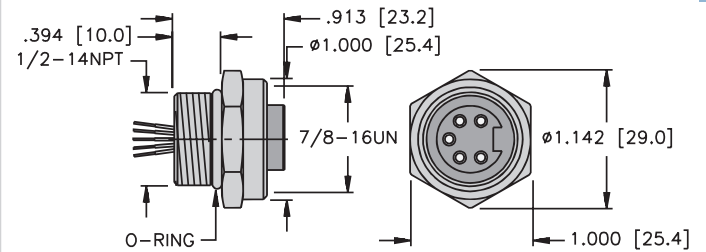
29



RKF .. M20

Page G63

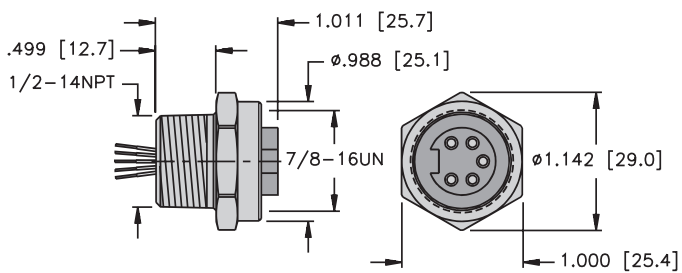
31



RKF ..

Page G63

32

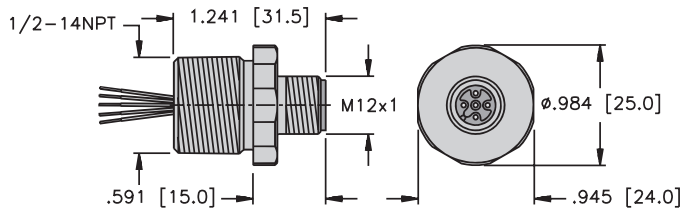


RKF .. NPT

Page G63

euromast® Male Receptacles

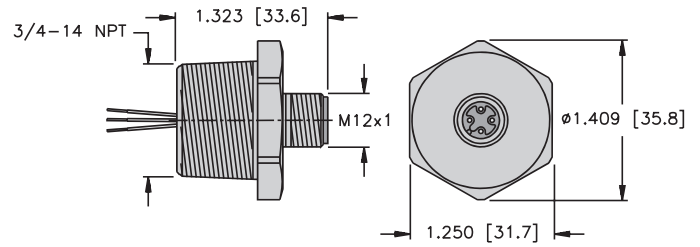
33



FS .. 14.5

Page G64

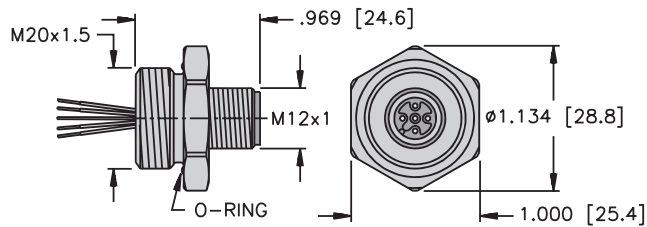
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FS .. 14.75

Page G64

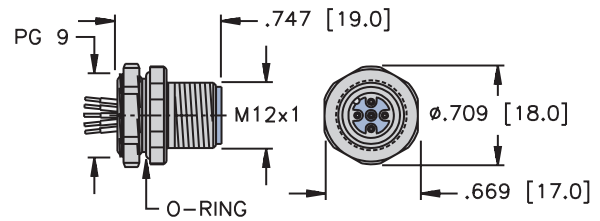
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FS .. M20

Page G64

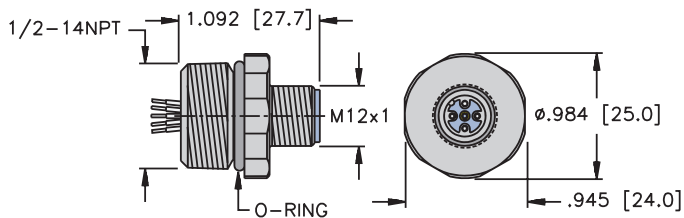
36



FS ..

Page G64

37

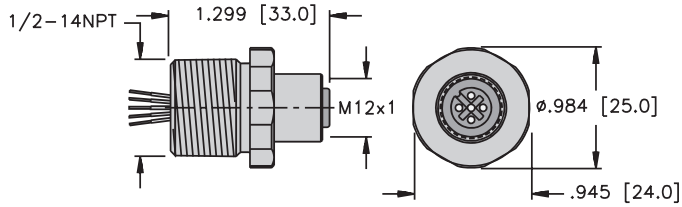


FS .. NPT

Page G64

euromast® Female Receptacles

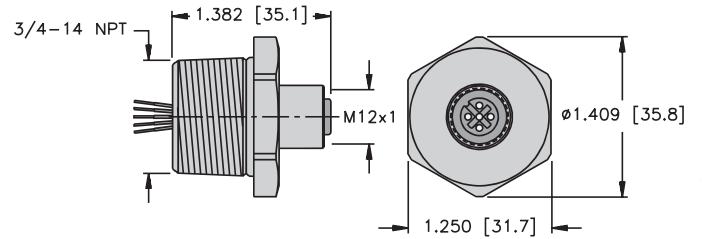
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FK .. 14.5

Page G65

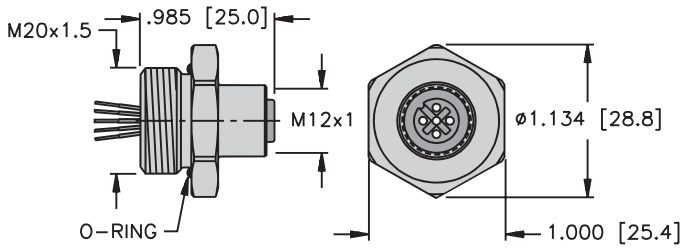
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FK .. 14.75

Page G65

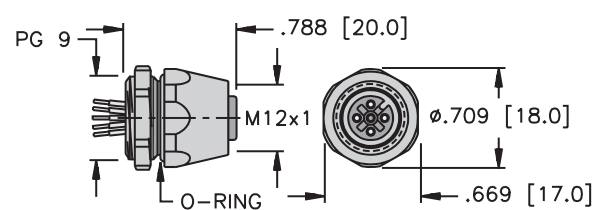
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FK .. M20

Page G65

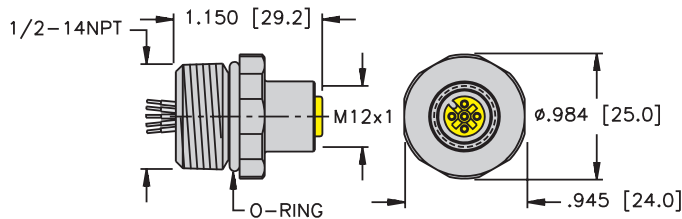
41



FK ..

Page G65

42



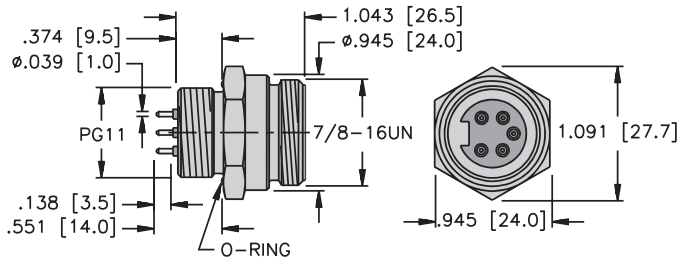
FK .. NPT

Page G65

DeviceNet Media

minifast® PCB Mount Male and Female Receptacles

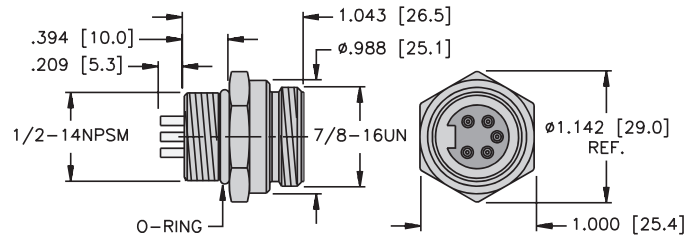
43



RSF ..PCB

Page G66

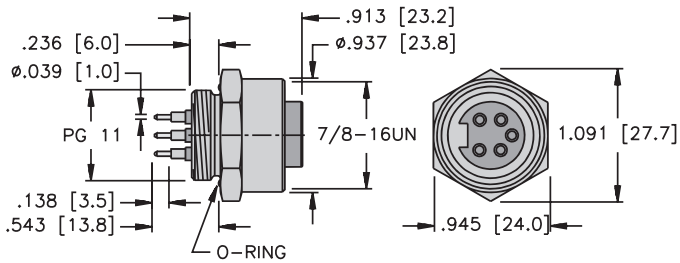
45



RSF ..

Page G66

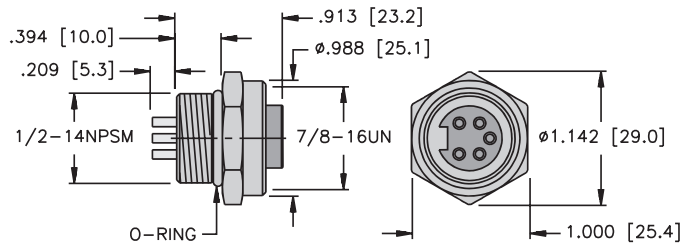
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RKF ..PCB

Page G66

46

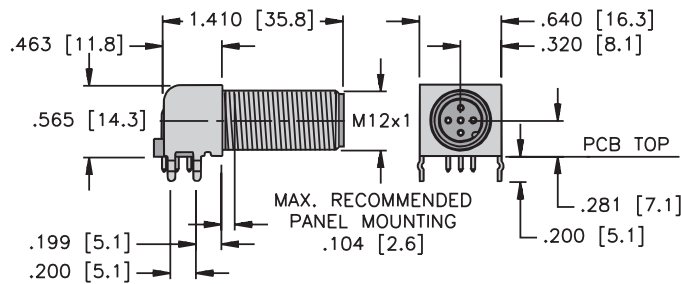


RKF ..

Page G66

eurofast® PCB Mount Male and Female Receptacles

47

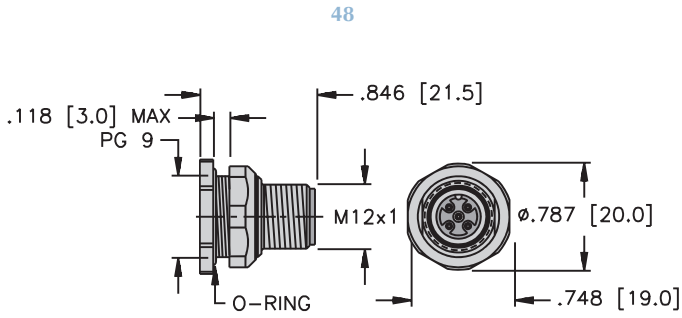


WFS ..PCB

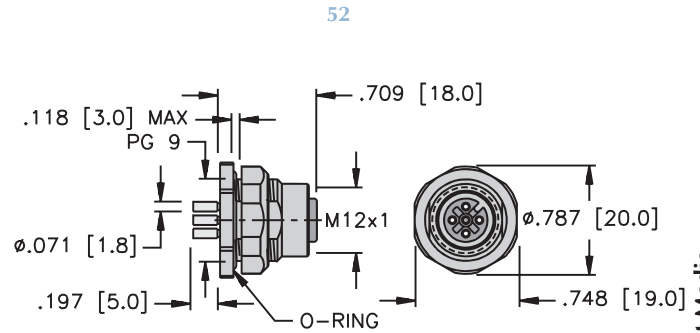
Page G68

euromast® PCB Mount Male and Female Receptacles

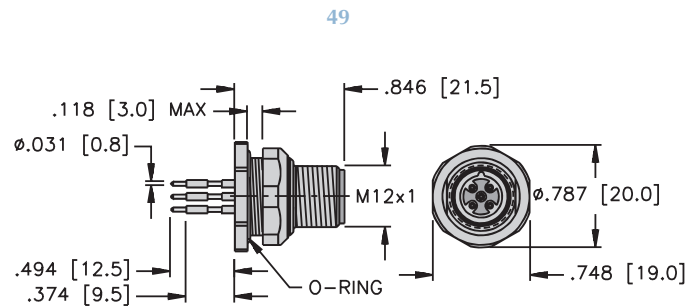
DeviceNet Media



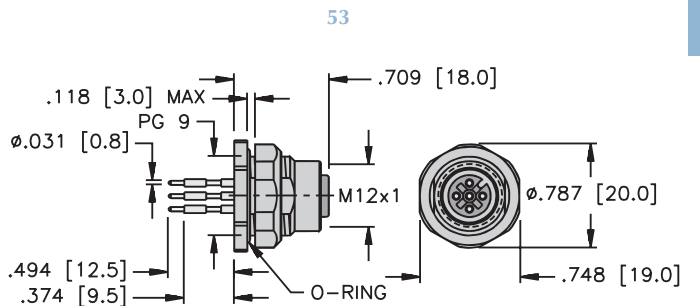
FSFDL .. Page G68



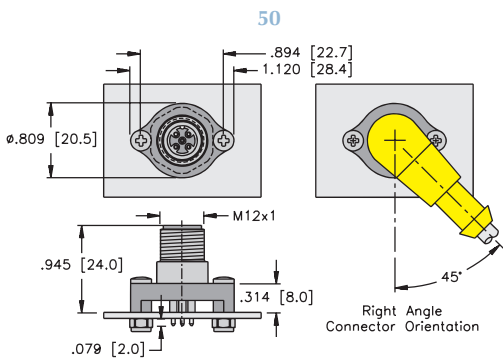
FKFDL .. Page G68



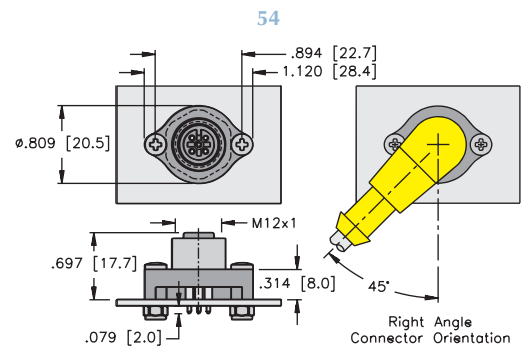
FSFD ..PCB Page G68



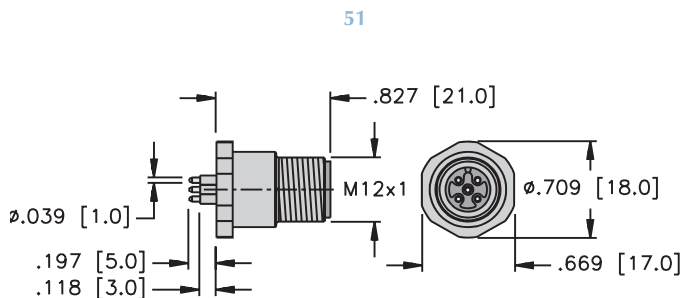
FKFD ..PCB Page G68



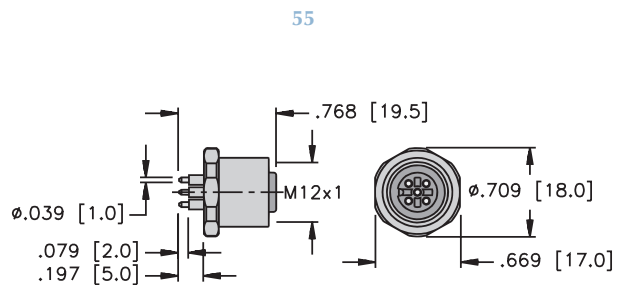
FS ..PCB KIT Page G67



FK ..PCB KIT Page G67



FS ..PCB KIT Page G67



FK ..PCB KIT Page G67

TURCK

Network Media Products

DeviceNet™, minifast® Field Wireable Connectors

- Allows for Quick Connection when Pre-Molded Cables not Available
- Available for Male and Female Connectors
- Color Coded Wire Connections for DeviceNet



Housing	Part Number	Housing Specs.	Application	Pinouts
	BS 4151-0/9/DNET	Glass filled nylon PG 9 cable gland accepts 6-8 mm cable diameter Screw terminals 85°C 250 V, 9 A	Mates with all 5-pin cordsets and receptacles	Male
	BS 4151-0/13.5/DNET	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter Screw terminals 85°C 250 V, 9 A		
	B 4151-0/9/DNET	Glass filled nylon PG 9 cable gland accepts 6-8 mm cable diameter Screw terminals 85°C 250 V, 9 A		Female
	B 4151-0/13.5/DNET	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter Screw terminals 85°C 250 V, 9 A		

DeviceNet™, eurofast® Field Wireable Connectors

- Allows for Quick Connection when Pre-Molded Cables not Available
- Available for Male and Female Connectors in Straight or Right-Angle Configurations
- Color Coded Wire Connections for DeviceNet



Housing	Part Number	Housing Specs.	Application	Pinouts
	B 8251-0/PG9/DNET	PBT, Black PG 9 cable gland accepts 4-8 mm cable diameter Screw terminals 85°C 125 V, 4 A	Mates with 5-pin cordsets and receptacles	Male
	BS 8251-0/PG9/DNET	PBT, Black PG 9 cable gland accepts 4-8 mm cable diameter Screw terminals 85°C 125 V, 4 A		Female
	B 8151-0/PG9/DNET	PBT, Black PG 9 cable gland accepts 4-8 mm cable diameter Screw terminals 85°C 250 V, 4 A		
	BS 8151-0/PG9/DNET	PBT, Black PG 9 cable gland accepts 4-8 mm cable diameter Screw terminals 85°C 250 V, 4 A		

DeviceNet Media

TURCK

Network Media Products

DeviceNet™, Power Taps

- Allows Connection to Bus Line for Bringing in 12 VDC Power
- Available with *minifast*® Bus Line and Drop Connectors or Terminal Connectors



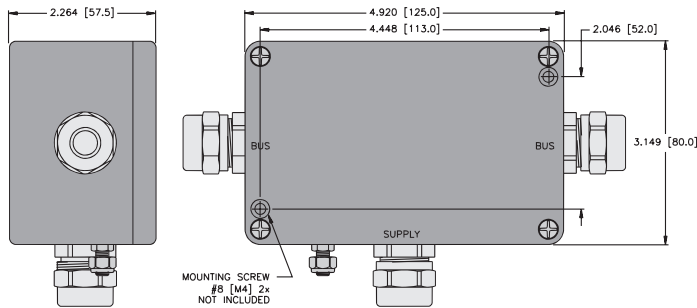
Part Number	Application	Wiring Diagrams
SPTC1	Power Tap with <i>minifast</i> Connectors <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> male to female bus connector • (7/8-16UN) <i>minifast</i> female power connector 	
SPTC2	Power Tap with <i>minifast</i> Connectors <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> female to female bus connector • (7/8-16UN) <i>minifast</i> female power connector 	
SPTT1	Power Tap with Terminal Connectors <ul style="list-style-type: none"> • Terminal strip bus connectors • Terminal strip power connector 	

Specifications

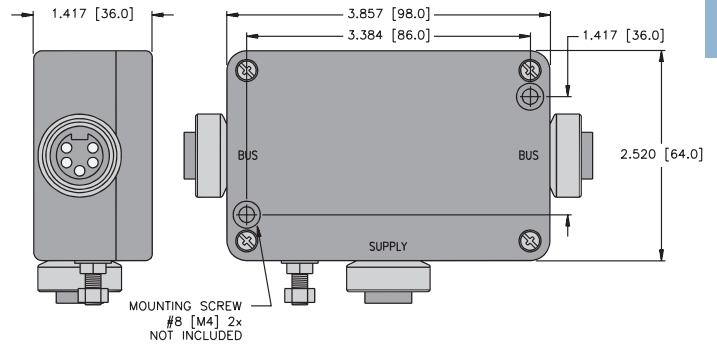
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-30° to +75°C (-22° to +167°F)

DeviceNet Media

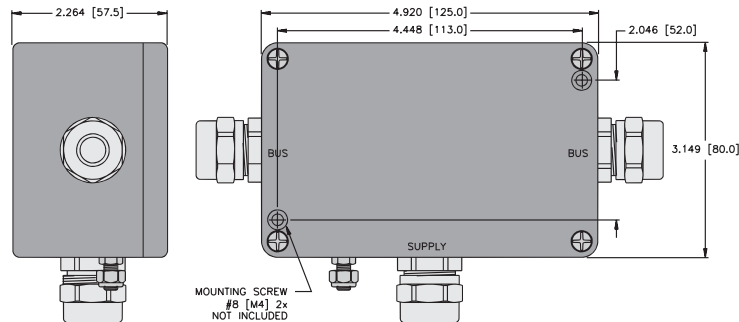
SPTC1



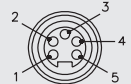

SPTC2



SPTT1



Pinouts

<i>minifast</i> ® - Bus Line		<i>minifast</i> - Auxiliary Power	
Female		Female	
	<ol style="list-style-type: none"> 1. Bare (Shield) 2. Red (+ Voltage) 3. Black (- Voltage) 4. White (CAN_H) 5. Blue (CAN_L) 		<ol style="list-style-type: none"> 1. + Voltage 2. - Voltage 3. + Voltage 4. - Voltage

TURCK

Network Media Products

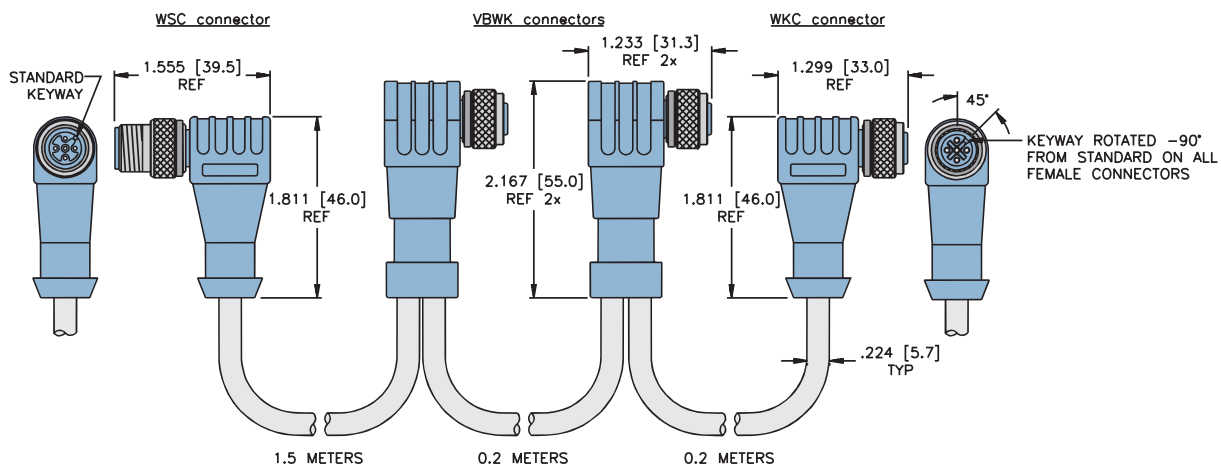
DeviceNet™, eurofast® Daisy Chain Configurations

- Multi-drop Harnesses Designed for OEM Applications
- Provides Cost Effective Solution vs. Single Tees and Drops

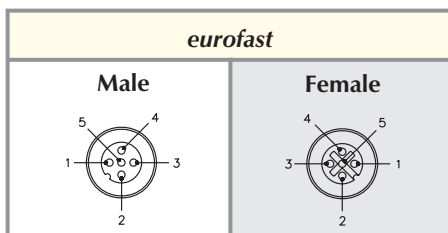


Part Number	Specs	Application
WSC 2VBWK WKC 5724-DCL	PUR (Polyurethane) 250 V, 4 A -40° to +75°C	(M12x1) eurofast Trunk and Drop Harness <ul style="list-style-type: none"> • Available in custom configurations including length, number of drops and end connector styles

Consult factory for other designs.



Pinouts



DeviceNet™, eurofast® Daisy Chain Configurations

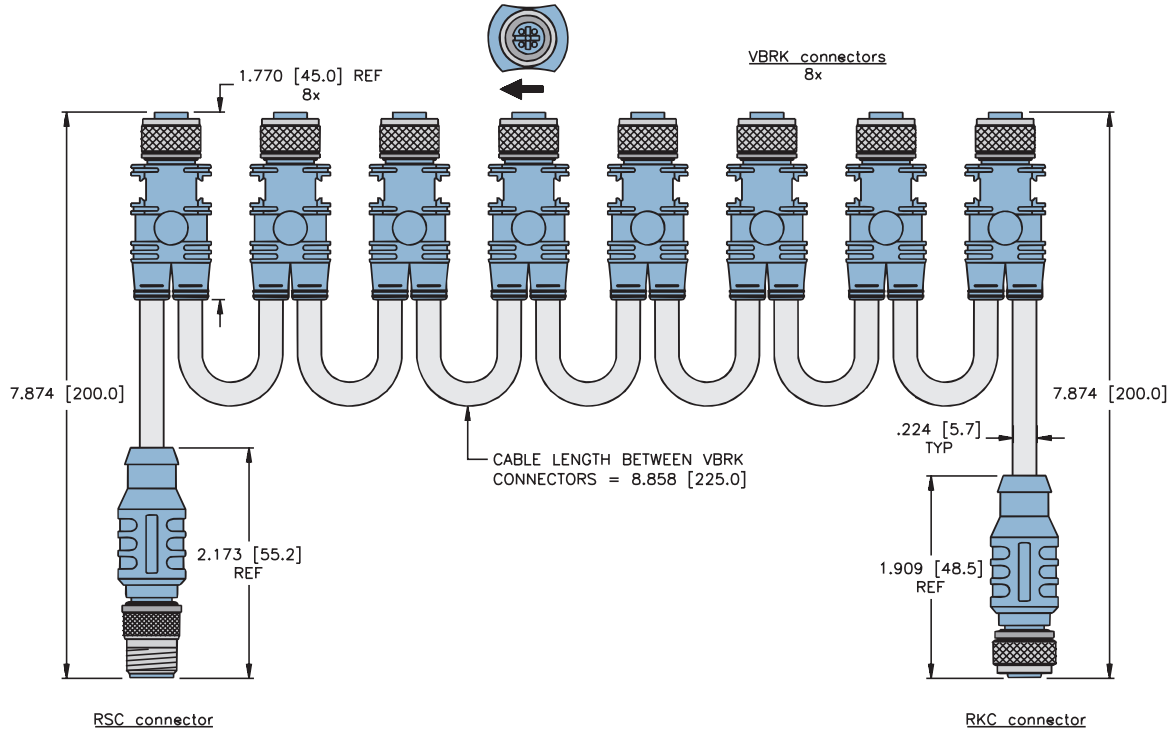
- Multi-drop Harnesses Designed for OEM Applications
- Provides Cost Effective Solution vs. Single Tees and Drops



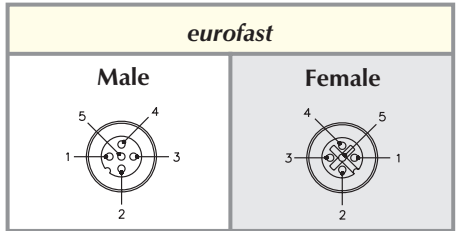
Part Number	Specs	Application
RSC 8VBRK RKC 5724-DCL	PUR (Polyurethane) 250 V, 4 A -40° to +75°C	(M12x1) eurofast Trunk and Drop Harness <ul style="list-style-type: none"> • Available in custom configurations including length, number of drops and end connector styles

DeviceNet Media

Consult factory for other designs.



Pinouts





System Description

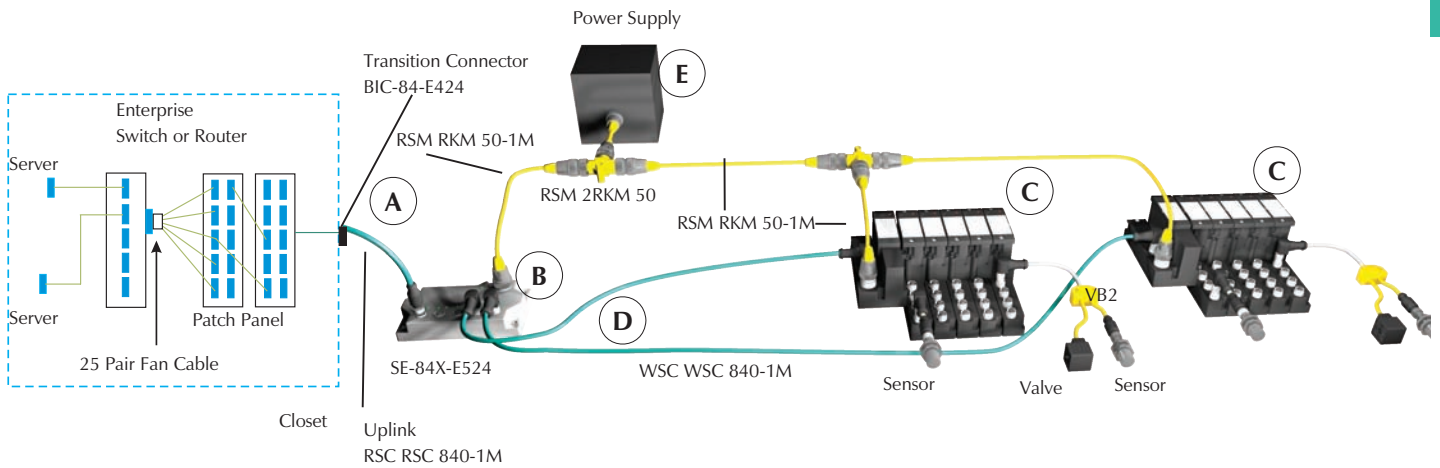
Ethernet is the most popular protocol used to connect office computers and peripherals today. It is increasingly finding its way into other applications, and is rapidly becoming the network of choice for higher level industrial control applications. Ethernet is primarily used to connect PLCs, computers, HMI displays and other high level components.

The term “Ethernet” actually refers to the lower level communication structure. Various different versions, or implementations, of Ethernet are available, such as Ethernet/IP™ and Modbus-TCP. It is important to note that while all of these different specifications use the same physical communication method and can operate on the same cable simultaneously, they cannot necessarily communicate with each other. For example, Modbus-TCP devices cannot communicate with Ethernet/IP devices. This is because the messages and communication protocol have been defined differently for these systems, even though the physical electrical structure is the same. Think of it as two people who speak different languages; they speak by moving air with their mouths, but the rules of the languages are different.

TURCK's BL67 Ethernet gateways provide a convenient way to connect industrial I/O devices directly to the Ethernet system, expediting monitoring and troubleshooting for the overall control scheme.

Typical System Configuration

Basic Parts List



A typical Ethernet system consists of the following parts:

- A - Controller
- B - Switches
- C - Ethernet I/O modules
- D - Ethernet cable
- E - Power supply

Ethernet I/O modules act as clients on a network. A server device is needed to retrieve data from and post data to the client. This is analogous to an office network, where the client PC on a user’s desk may actively connect with multiple servers to access information in different areas of the enterprise. **TURCK** Ethernet stations are designed to be fully compatible with established Ethernet standards for industrial use.

Cordsets

TURCK offers a complete line of molded Ethernet cordsets to facilitate network installation, resulting in a faster start-up and fewer wiring errors. Cables are available with stranded or solid-core conductors, with or without shielding.

Most **TURCK** Ethernet equipment uses the 4 or 8-pin (M12) **eurofast**[®] connector specifications. These connectors provide a tough, rugged seal, and are IP 67 rated. In some cases (mainly in the control cabinet) a traditional RJ45 Ethernet connector needs to be used. **TURCK** provides RJ45 cordsets, as well as a variety of devices made to convert between RJ45 and **eurofast** connectors.

TURCK cordsets for the Ethernet system are available in standard lengths. Please contact your local sales representative to order custom lengths.




Addressing

Industrial Ethernet stations use the IP addressing scheme. An address defined by this scheme consists of four byte values usually displayed in decimal form, for example, 192.168.1.254. Different classifications of networks require different portions of this address to be constant for all devices on the network (referred to as a "subnet"). This means that the number of stations allowed on a particular network varies depending on what class of subnet is being used. If the first three bytes of the IP address are constant (which is common), then the remaining byte may be addressed between 2 and 254, resulting in 253 possible addresses.

Maximum Ratings

Ethernet allows different maximum cable lengths depending on the type of cable being used. Normally an Ethernet segment may be as long as 100 m, where 90 m must be solid core cable and the remaining 10 m can be stranded patch cords.

Ethernet™ Selection Guide

Item	Style	Type	Pages
Gateways 	BL67	4-Pin	H5 - H8
	AS-I	RJ45	H9 - H16
Switches 	Unmanaged	8-pin	J11, J27
		4-pin	J25
	Managed	4-pin	J29
Ethernet Media Selection Guide 	-----	-----	J2

Ethernet

ModBus TCP/IP
Ethernet Gateways



Gateway:
BL67-GW-EN
Programmable Gateway:
BL67-PG-EN



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 600 \text{ mA}</math> from V_{MB}
- Input Supply Current: <math>< 4 \text{ A}</math> (from V_I)
- Output Supply Current: <math>< 8 \text{ A}</math> (from V_O)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from V_{MB})

Mechanical

- Operating Temperature: -12 to $+55^\circ\text{C}$ (-13 to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: $5 \text{ g @ } 10\text{-}500 \text{ Hz}$

Material

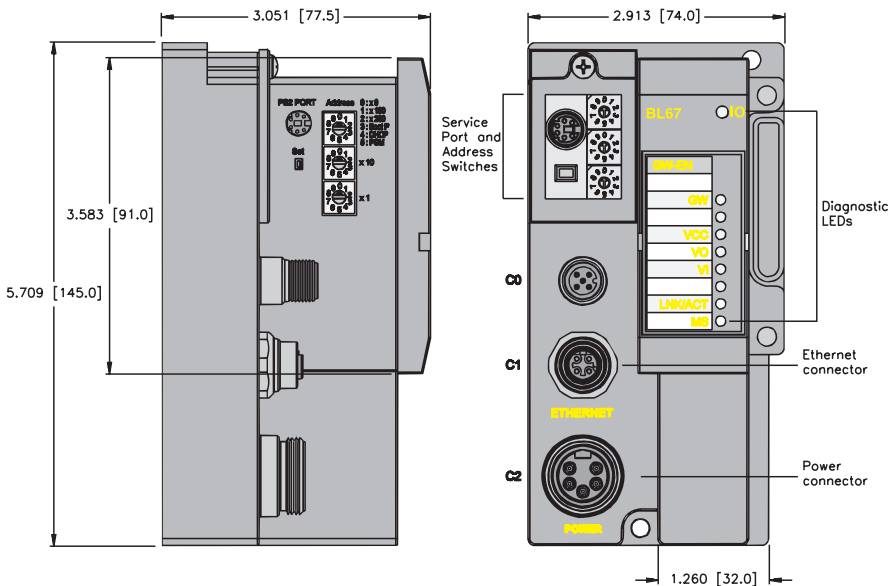
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

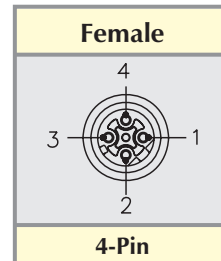
- Diagnostic information available through the system I/O map

Diagnostics (Physical)

- LEDs to indicate status of Network and Module Bus communication

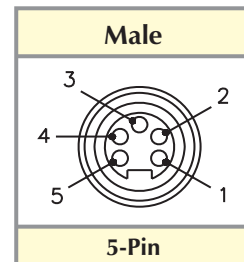


Ethernet Pinout



- 1 = TD+
- 2 = RD+
- 3 = TD-
- 4 = RD-

5-pin minifast® Power Pinout



- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O

Ethernet IP Ethernet Gateways



Gateway:
BL67-GW-EN-IP
Programmable Gateway
BL67-PG-EN-IP



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math><600\text{ mA}</math> from V_{MB}
- Input Supply Current: <math><4\text{ A}</math> (from V_I)
- Output Supply Current: <math><8\text{ A}</math> (from V_O)
- Backplane Current: <math><1.5\text{ A}</math> (from V_{MB})

Mechanical

- Operating Temperature: -12 to $+55^\circ\text{C}$ (-13 to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: 5 g @ $10\text{-}500\text{ Hz}$

Material

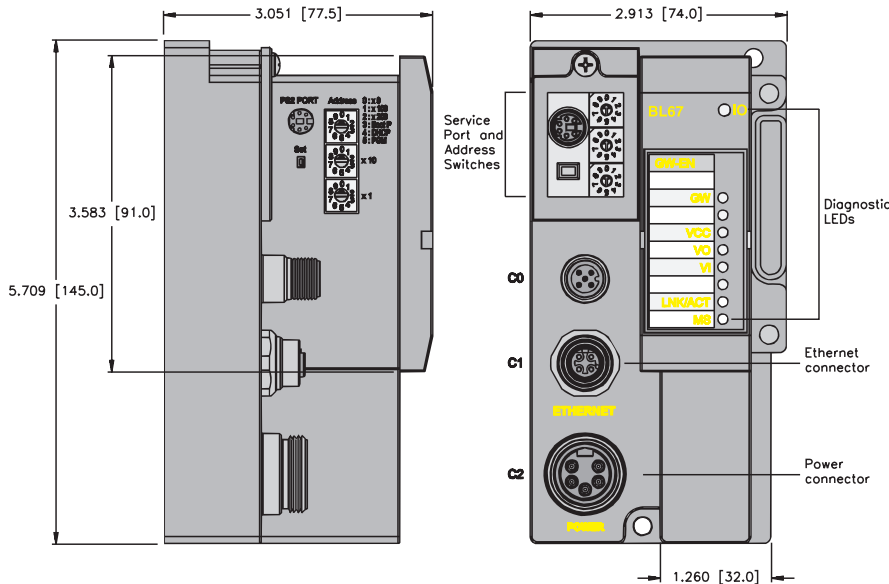
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

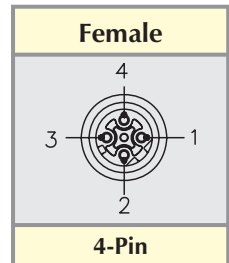
- Diagnostic information available through the system I/O map

Diagnostics (Physical)

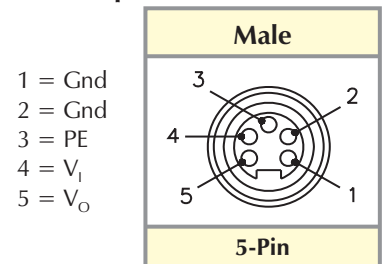
- LEDs to indicate status of Network and Module Bus communication



Ethernet Pinout



5-pin minifast® Power Pinout



**Profinet
Ethernet Gateways**



BL67-GW-EN-PN



- **Modular I/O**
- **Fieldbus Independent Configuration**
- **IP 67 Protection**
- **Various I/O Styles**

Electrical

- Operating Current: <math>< 600 \text{ mA}</math> from V_{MB}
- Input Supply Current: <math>< 4 \text{ A}</math> (from V_I)
- Output Supply Current: <math>< 8 \text{ A}</math> (from V_O)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from V_{MB})

Mechanical

- Operating Temperature: -12 to $+55^\circ\text{C}$ (-13 to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: 5 g @ $10\text{-}500 \text{ Hz}$

Material

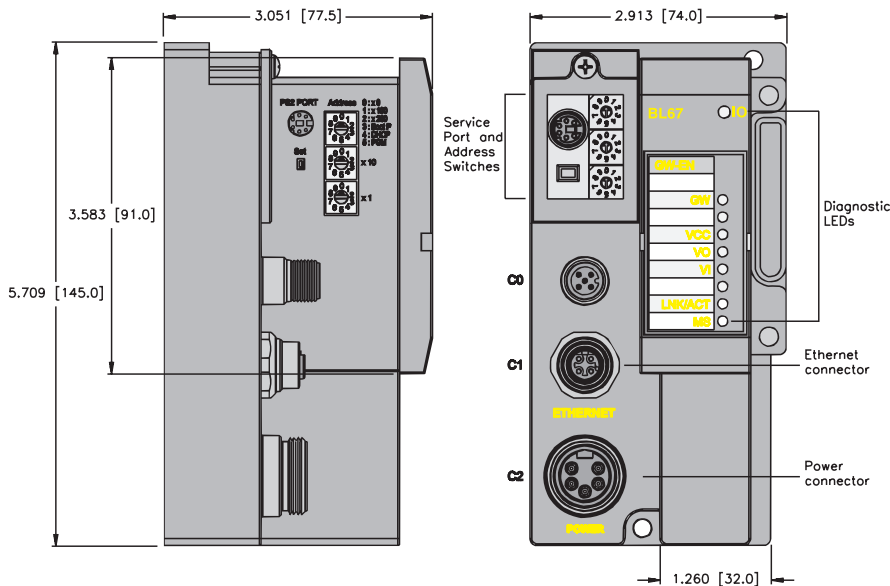
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

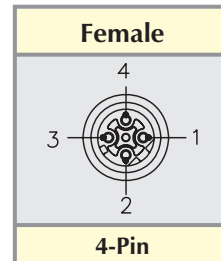
- Diagnostic information available through the system I/O map

Diagnostics (Physical)

- LEDs to indicate status of Network and Module Bus communication

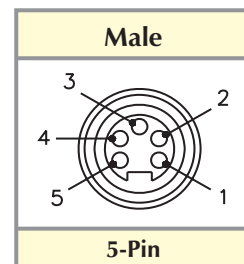


Ethernet Pinout



- 1 = TD+
- 2 = RD+
- 3 = TD-
- 4 = RD-

5-pin minifast® Power Pinout



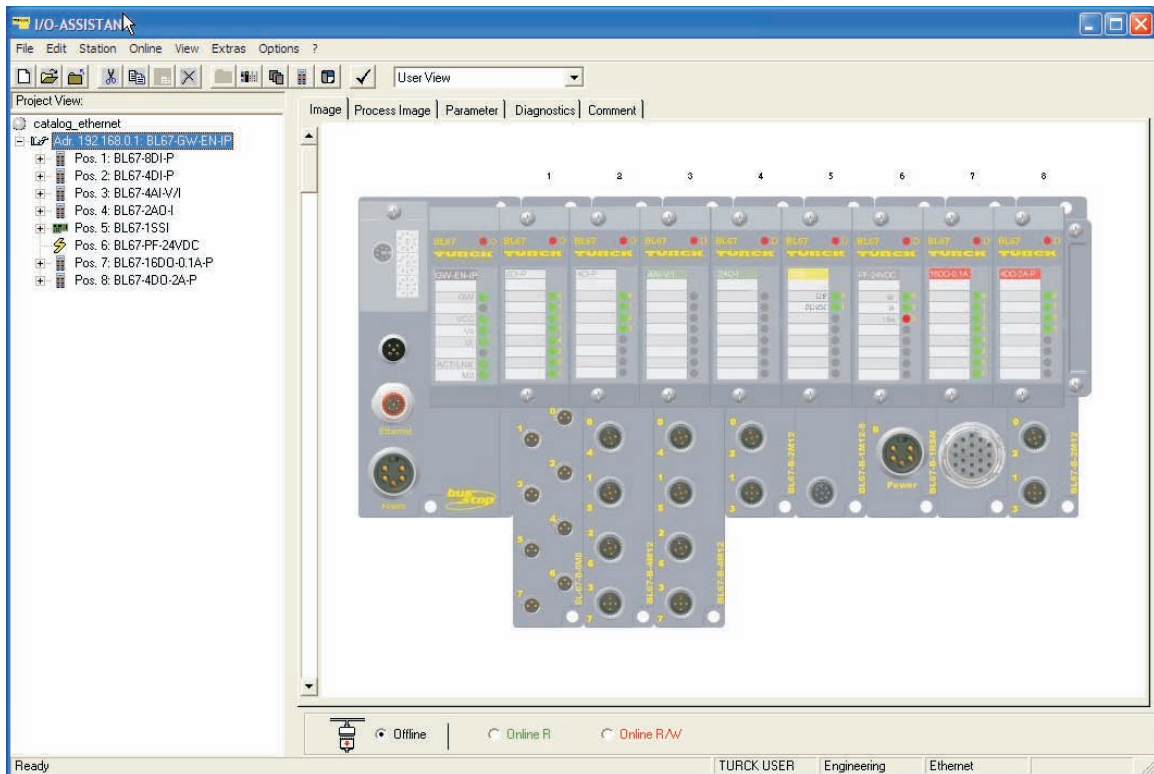
- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O

Ethernet BL67 Stations

TURCK's BL67 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 67 protection and metal threaded connectors, the BL67 can often be mounted directly on a machine without the need to plan or purchase a separate enclosure for the I/O. This saves planning and installation time, as well as the cost of the enclosure itself.

The BL67 system supports several different network protocols, including Ethernet/IP™ and Modbus-TCP. A BL67 station consists of a gateway module that interfaces to the Ethernet system, and several I/O modules that interface with the physical I/O in the field. Different connector options are available to allow a greater level of customization to the user.

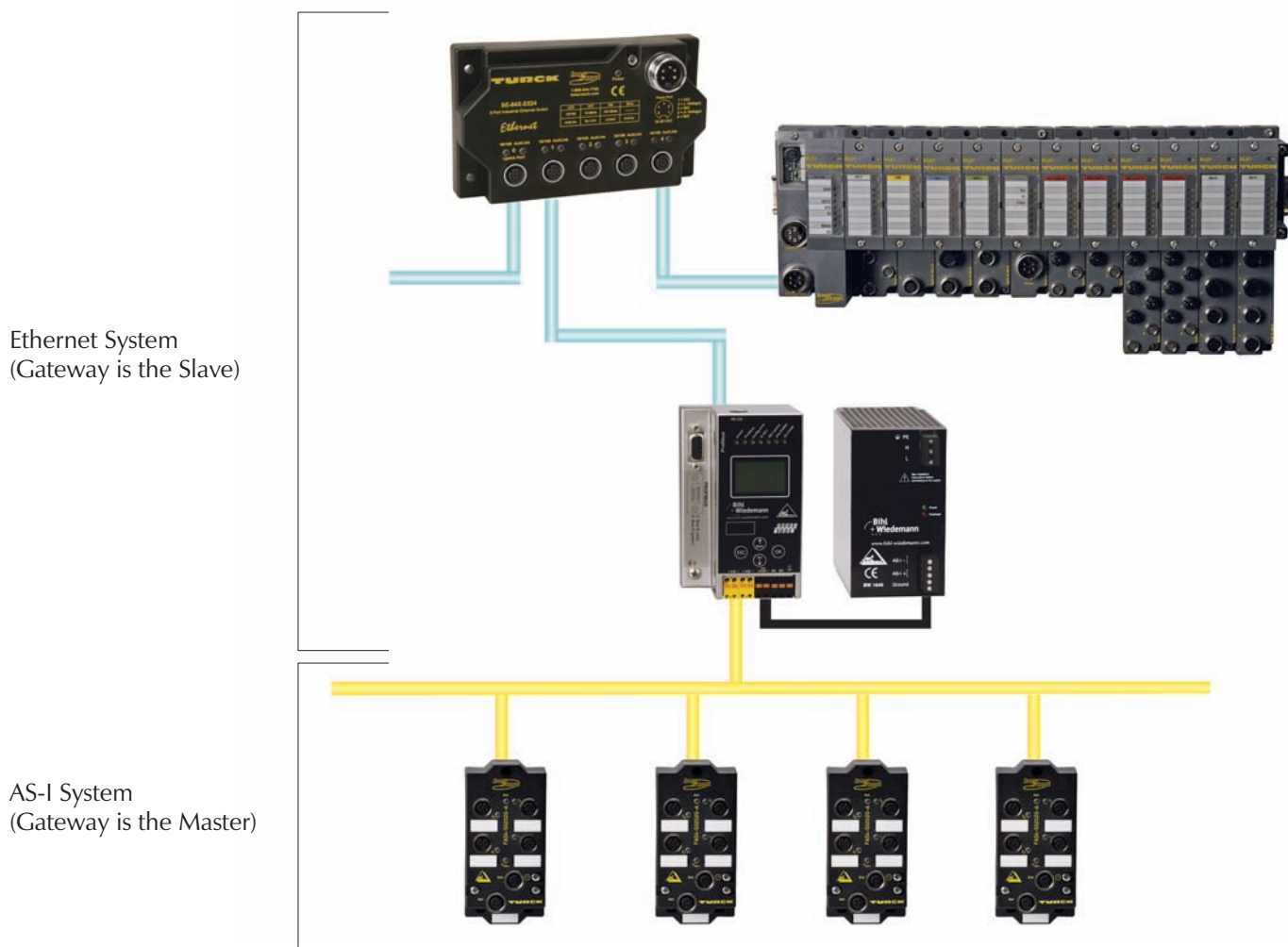
For more details on the BL67 system please see section G of this catalog.



Ethernet to AS-interface® Gateways

AS-I systems can be easily connected to a higher-level network, such as EtherNet/IP™ and Modbus-TCP, through a gateway master. The gateway acts as a master to the AS-I system(s) and a slave to the Ethernet system, mapping all of the AS-I data for Ethernet in a single block.

For AS-I specifications and rating details, see section E of this catalog.



Addressing

Ethernet stations must have an IP address for communication. The address for AS-i/Ethernet gateways may be set via the on-unit display and push buttons. Please consult the manual for a particular gateway for instruction on the procedure.

Diagnostics

AS-i/Ethernet gateways contain LEDs for diagnosing I/O and communication problems for Ethernet and AS-I. For a detailed description of the LED states, see the Bihl+Wiedemann AS-i/Ethernet Gateway User Manual available for download from www.bihl-wiedemann.com.

Power

Most AS-i/Ethernet gateways draw power from the AS-I power supply. The option to use a separate, non-AS-I power supply is also available. Consult the gateway documentation to ensure the gateway being selected meets the requirements of your system.

Modbus TCP Gateways in Stainless Steel



- ASI-ENG-SS BW1650***
- ASI-ENG-SS BW1651***
- ASI-ENG-SS BW1652***
- ASI-ENG-SS-C1D2 BW1659**
- ASI-ENG-SS-C1D2 BW1660**
- ASI-ENG-SS-C1D2 BW1661**

* not ETL Listed

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
200 mA from V_{AS-i1} , 70mA from V_{AS-i2} (Power Supply A2)
250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

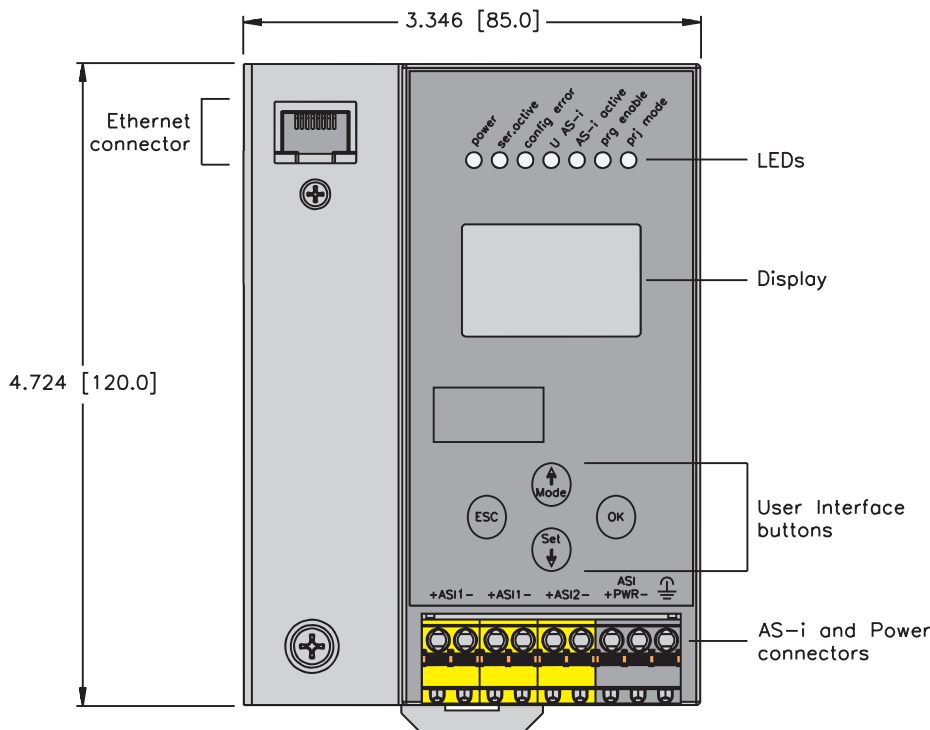
- Housing: Stainless Steel

Diagnostics (Logical)

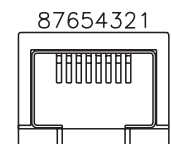
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RJ45 Ethernet Standard



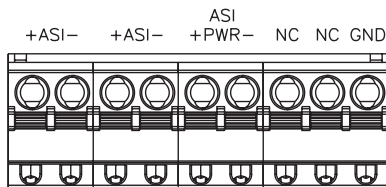
- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-ENG-SS BW1650	ModbusTCP	A	3.0	1	X	X
ASI-ENG-SS BW1651	ModbusTCP	A2	3.0	2	X	X
ASI-ENG-SS BW1652	ModbusTCP	E	3.0	2	X	X
ASI-ENG-SS-C1D2 BW1659*	ModbusTCP	A	3.0	1		
ASI-ENG-SS-C1D2 BW1660*	ModbusTCP	A2	3.0	2		
ASI-ENG-SS-C1D2 BW1661*	ModbusTCP	E	3.0	2		

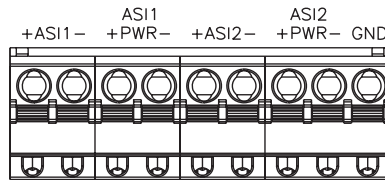
* Approved for use in Class 1, Division 2 areas

Input/Output Connectors

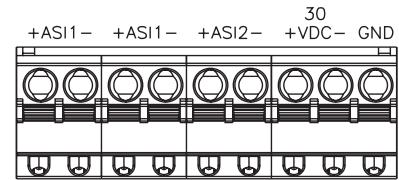
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

AS-I Ethernet/IP Gateways in Stainless Steel

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics



- ASI-EIPG-SS BW1828*
- ASI-EIPG-SS BW1829*
- ASI-EIPG-SS BW1833*
- ASI-EIPG-SS-C1D2 BW1834
- ASI-EIPG-SS-C1D2 BW1835
- ASI-EIPG-SS-C1D2 BW1836

* not ETL listed

Electrical

- Operating Current: 300 mA from VAS₋₁ (Power Supply A)
200 mA from VAS₋₁₁, 70mA from VAS₋₁₂ (Power Supply A2)
250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

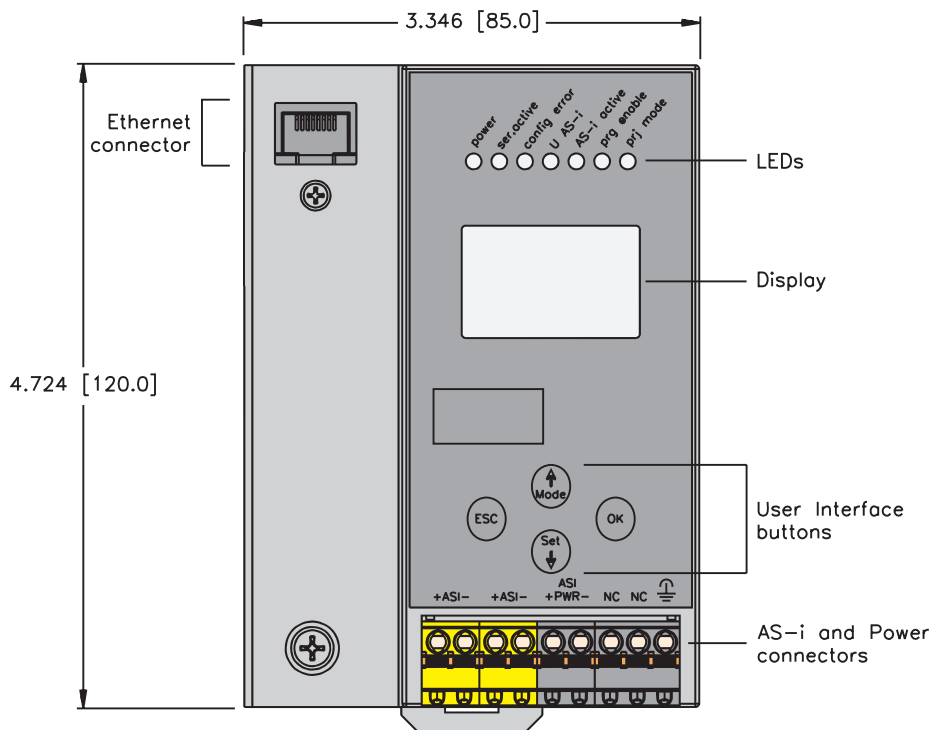
- Housing: Stainless Steel

Diagnostics (Logical)

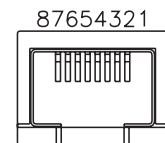
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RJ45 Ethernet Standard

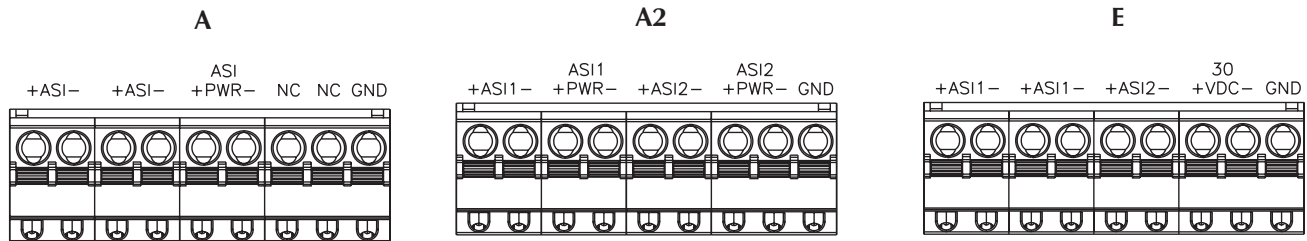


- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-EIPG-SS BW1828	Ethernet/IP	A	3.0	1	X	X
ASI-EIPG-SS BW1829	Ethernet/IP	A2	3.0	2	X	X
ASI-EIPG-SS BW1833	Ethernet/IP	E	3.0	2	X	X
ASI-EIPG-SS-C1D2 BW1834*	Ethernet/IP	A	3.0	1		
ASI-EIPG-SS-C1D2 BW1835*	Ethernet/IP	A2	3.0	2		
ASI-EIPG-SS-C1D2 BW1836*	Ethernet/IP	E	3.0	2		

Approved for use in Class 1, Division 2 areas

Input/Output Connectors



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

AS-I ProfiNET Gateways in Stainless Steel



- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 300 mA from V_{AS-I} (Power Supply A)

Power Distribution

- From AS-I supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Stainless Steel

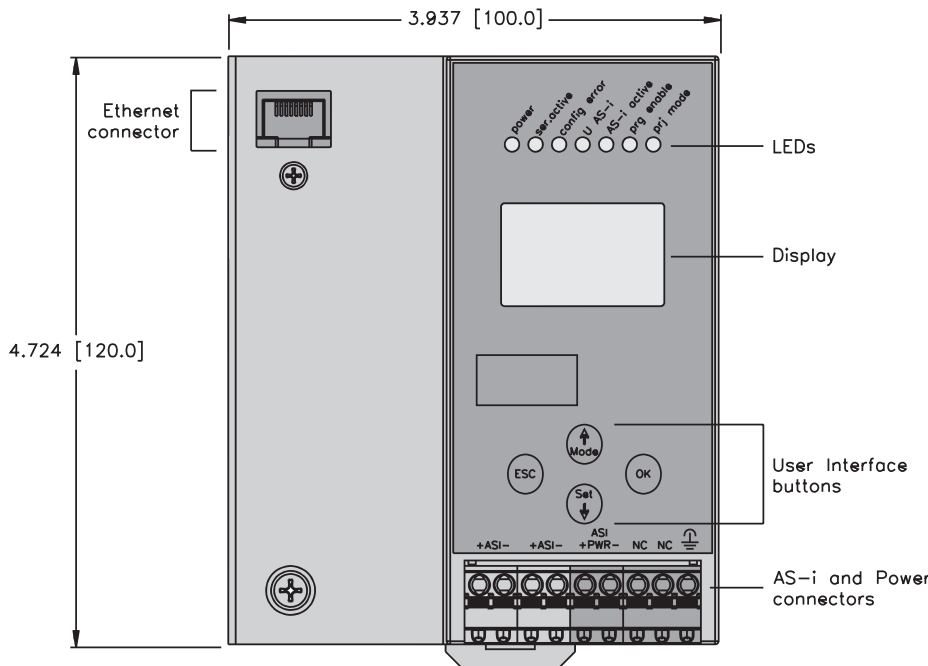
Diagnostics (Logical)

- Health of AS-I network is available via Network interface

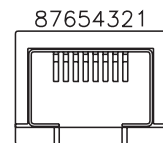
Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply

ASI-PNG-SS BW1912



RJ45 Ethernet Standard

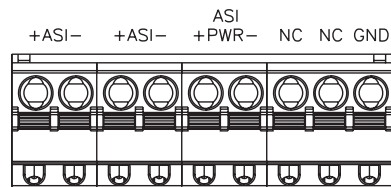


- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-PNG-SS BW1912	PROFINET	A	3.0	1	X	X

Input/Output Connectors

A



A - Single AS-I network is powered by and AS-I power supply

Ethernet Media



Ethernet, 8-wire Selection Guide



Cables	Unmanaged Switches	Conduit Adapters
J4 - J9	J11, J27	J13



Cabinet Adapters	Receptacles
J14	J15

Ethernet Media

Ethernet, 4-wire, Selection Guide



Cables	Unmanaged Switches	Managed Switches
J19 - J23	J25	J29

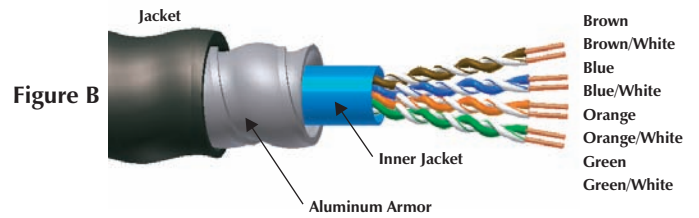
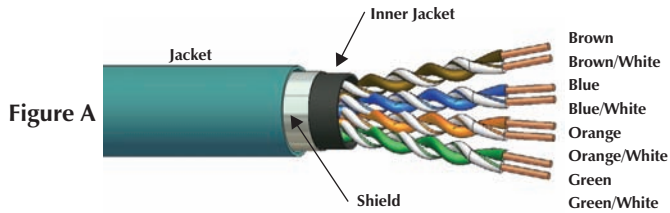


Conduit Adapters/Wall Plates	Cabinet Adapters	Receptacles/Field Wireables/RJ11
J31/J32	J33	J34/J35/J37

Notes:

Ethernet, Cable Specifications, 8-wire

- Cable that Meets the Requirements of TIA/EIA568-B.2 Category 5e Cable for 10 and 100 Base-T Ethernet
- Cable is UL Rated for Sunlight and Oil Resistant



Maximum 100 meters of cable of which:

- 90 meters Horizontal Cable (SOLID - 842 or 843)
- 2 x 5 meters Patch Cables (STRANDED - 840 or 841)
- Direct Connect 30 M STRANDED

Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type		
840 75°C 300 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Stranded	28.6 Ohms PE	PVC Teal 6.5 mm (.256 in)	None	RB50856-*M 39 lbs. <i>flexlife</i> ^{®++}	A
841 75°C 300 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Stranded	28.6 Ohms PE	PVC Teal 7.3 mm (.286 in)	Foil/Braid	RB50893-*M 50 lbs. <i>flexlife</i> ⁺⁺	A
842 75°C 100 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Solid	28.6 Ohms PE	PVC Teal 5.9 mm (.231 in)	None	RB50857-*M 39 lbs. <i>flexlife</i> ⁺	A
843 75°C 300 Volts	NEC CMR (ETL) CEC C (ETL)	8/24 AWG Solid	28.6 Ohms PE	PVC Teal 7.3 mm (.286 in)	Foil/Braid	RB50894-*M 50 lbs. <i>flexlife</i> ⁺	A
845 50°C 125 Volts	TSB-36 ISO/IEC 11801	8/26 AWG Stranded	37.3 Ohms PE	PUR Teal 6.3 mm (.248 in)	Foil/Braid	RB51305-*M 54 lbs. <i>flexlife</i> ⁺⁺⁺ Halogen Free	A
849A AWM 444 80°C 300 Volts	NEC CMG CEC HL CMG	8/24 AWG Solid	28.6 Ohms PO	PVC Black 15.3 mm (.530 in)	Foil/Braid Armor	RB51100-*M 159 lbs. <i>armorfast</i> [®]	B

* Indicates length in meters.


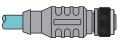
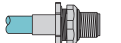



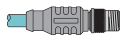
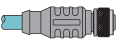

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

+ 85 thousand cycles on c-track flexing machine at 1.5" bend radius.

++ 4 million cycles on c-track flexing machine at 1.5" bend radius.

+++ 2 million cycles on c-track flexing machine at 1.5" bend radius.

Ethernet, (M12x1) *eurofast*® Cable/Cordset Selection Matrix - Cable Type 840 & 842 Only

		<i>eurofast</i>					
		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)	RJ45 Plug	
		1  RSC	2  RKC	3  FSFD	4  FKFD	7  RJ45	
 Bare		RSC 84x-*M	RKC 84x-*M	FSFD 84x-*M	FKFD 84x-*M	RJ45 84x-*M	
<i>eurofast</i>	Pin (Male)	1  RSC	RSC RSC 84x-*M	RSC RKC 84x-*M	RSC FSFD 84x-*M	RSC FKFD 84x-*M	RSC RJ45 84x-*M
	Socket (Female)	2  RKC		RKC RKC 84x-*M	RKC FSFD 84x-*M	RKC FKFD 84x-*M	RKC RJ45 84x-*M
	RJ45 Plug	7  RJ45			RJ45 FSFD 84x-*M	RJ45 FKFD 84x-*M	RJ45 RJ45 84x-*M

See pages J7 - J8 for dimensional drawings.

* Indicates length in meters.


x Indicates cable type.

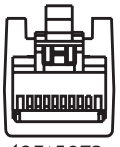
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

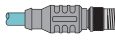
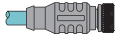
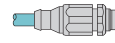
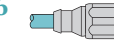


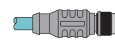
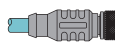

For stainless steel coupling nuts change part number RSC ... to RSCV, FKFD ... to FKFDV.

For cross-over cable, add "CR" to part number RJ45 RJ45 CR 84x-*M.

<i>eurofast</i>	Pinouts	<i>eurofast</i>
<p>Male</p> 	<ol style="list-style-type: none"> White/Blue White/Brown Brown Orange White/Green White/Orange Blue Green 	<p>Female</p> 

Standard Pinout	RJ45 Plug	(CR) Pinout
<ol style="list-style-type: none"> White/Orange Orange White/Green Blue White/Blue Green White/Brown Brown 	<p>Male</p>  12345678	<ol style="list-style-type: none"> White/Green Green White/Orange Blue White/Blue Orange White/Brown Brown

Ethernet, (M12x1) eurofast® Cable/Cordset Selection Matrix - Cable Type 841 & 843 Only

		eurofast					
		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)	RJ45 Plug	
		1  RSS	2  RKS	5  FSSDE	6  FKSDE	7  RJ45S	
 Bare		RSS 84x-*M	RKS 84x-*M	FSSDE 84x-*M	FKSDE 84x-*M	RJ45S 84x-*M	
eurofast	Pin (Male)	1  RSS	RSS RSS 84x-*M	RSS RKS 84x-*M	RSS FSSDE 84x-*M	RSS FKSDE 84x-*M	RSS RJ45S 84x-*M
	Socket (Female)	2  RKS		RKS RKS 84x-*M	RKSS FSSDE 84x-*M	RKS FKSDE 84x-*M	RKS RJ45S 84x-*M
	RJ45 Plug	7  RJ45S			RJ45S FSSDE 84x-*M	RJ45S FKSDE 84x-*M	RJ45S RJ45S 84x-*M

See pages J7 - J8 for dimensional drawings.

* Indicates length in meters.

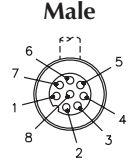

x Indicates cable type.

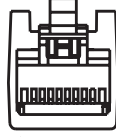
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSS ... to RSSV, FKSDE ... to FKSDEV.

For cross-over cable, add "CR" to part number RJ45S RJ45S CR 84x-*M.

eurofast	Pinouts	eurofast
 <p>Male</p>	1. White/Blue 2. White/Brown 3. Brown 4. Orange 5. White/Green 6. White/Orange 7. Blue 8. Green	 <p>Female</p>

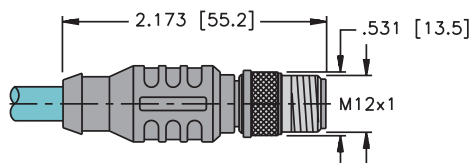
Standard Pinout	RJ45 Plug	(CR) Pinout
1. White/Orange 2. Orange 3. White/Green 4. Blue 5. White/Blue 6. Green 7. White/Brown 8. Brown	 <p>Male 12345678</p>	1. White/Green 2. Green 3. White/Orange 4. Blue 5. White/Blue 6. Orange 7. White/Brown 8. Brown

Ethernet, *euofast*® Cordset Connector Dimensions / Configuration

Specifications

Housing: PUR (Polyurethane)
Coupling Nut: Nickel Plated CuZn or Stainless Steel
Contact Carrier: TPU (Polyurethane) or POM (Nylon)
Contacts: Gold Plated CuZn
Protection: NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage: 60 V
Rated Current: 2 A
Ambient Temperature: 0° to +75°C (-22° to +167°F)

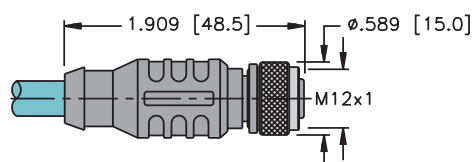
1



RSC/RSS ..

Pages J5 - J6

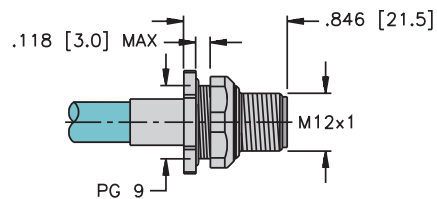
2



RKC/RKS ..

Pages J5 - J6

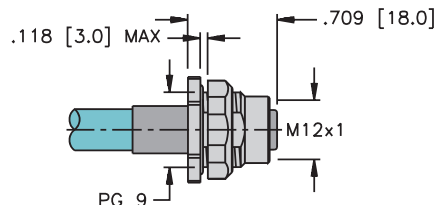
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FSFD ..

Pages J5 - J6

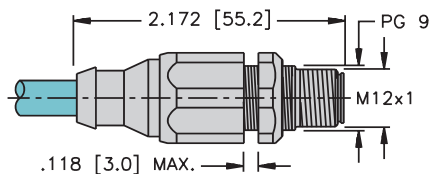
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FKFD ..

Pages J5 - J6

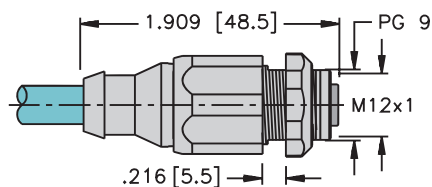
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FSSDE ..

Pages J5 - J6

6



FKSDE ..

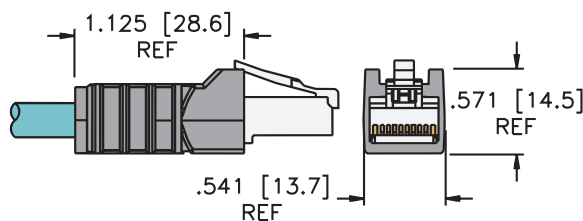
Pages J5 - J6

Ethernet, RJ45 Connector Dimensions / Configuration

Specifications

Housing:	Polyolefin
Protection:	NEMA 1 and IEC IP 20
Rated Voltage:	42 V
Rated Current:	1.5 A
Ambient Temperature:	0° to +80°C (-22° to +176°F)

7



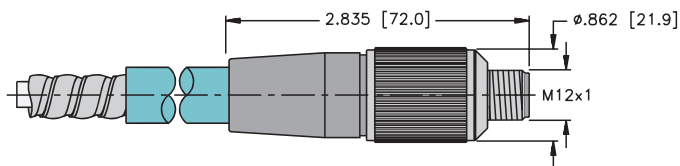
RJ45/RJ45S ..

Page J5 - J6

Ethernet Media

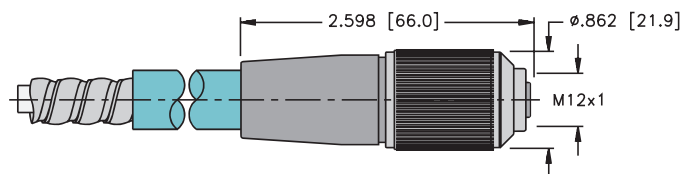
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	60 V
Rated Current:	2 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)



RSA ..

(armorfast® only)



RKA ..

(armorfast only)

Ethernet, Economy RJ45 to RJ45 Cordsets

- For "In the Panel" Applications Where Industrial Cordsets are not Needed
- Available on Yellow, 3 FT and 7 FT Lengths Only



	Part Number	Application	Pinout
	RJ45 RJ45 840-3FT/ECON	<ul style="list-style-type: none"> • Ethernet patch cordsets for panel connections • Economy, non industrial 	<p>Male</p> <p>12345678</p>
	RJ45 RJ45 840-7FT/ECON		

RJ45 Plug	Pinout
<p>Male</p> <p>12345678</p>	<ol style="list-style-type: none"> 1. White/Orange 2. Orange 3. White/Green 4. Blue 5. White/Blue 6. Green 7. White/Brown 8. Brown

Notes:

Unmanaged Switches



- 5 and 9 Ports Available
- 10/100 Mbps
- IP 67 Protection
- 8-pin Ethernet Connectors

Electrical

- Power Consumption: 2 W (...-E524), 4 W (...-E924)
- Operating Voltage: 10-30 VDC

Mechanical

- Operating Temperature: -30 to +80°C (-22 to +176°F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

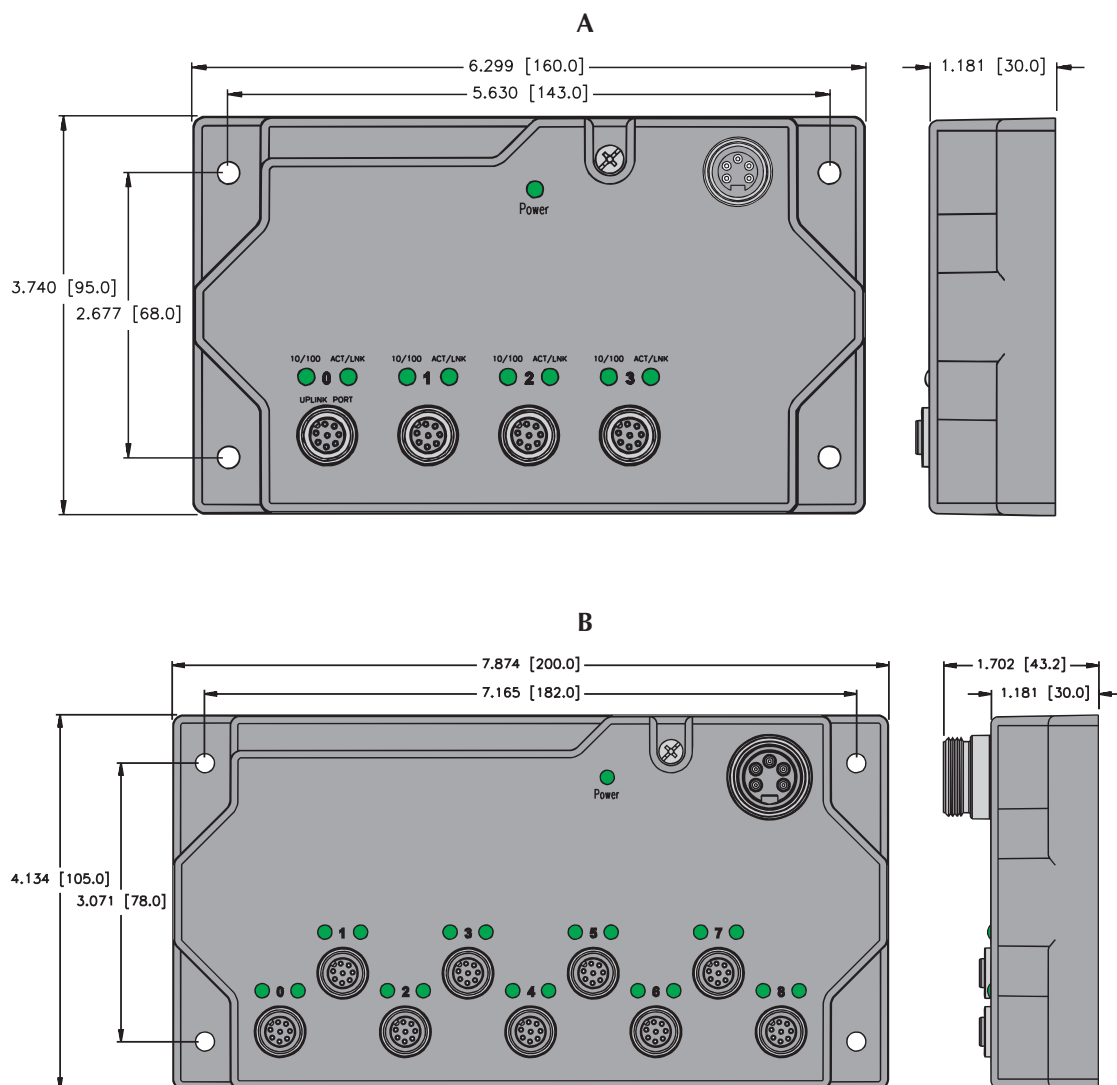
Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

- LEDs to indicate status of Ethernet communication

- SE-84X-E524
- SE-84X-E924
- SE-84X4-E524
- SE-84X4-E924

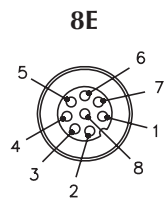


Inputs

Part Number	Ports*	Ethernet Pinouts	Power Pinout	Dimensions
SE-84X-E524	5	8E	5M	A
SE-84X-E924	9	8E	5M	B
SE-84X4-E524	5	8E	4M	A
SE-84X4-E924	9	8E	4M	B

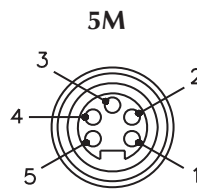
* Note: One port for each switch is a dedicated uplink port

Port/Power Connectors



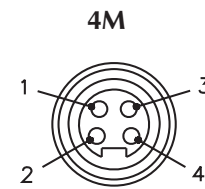
8-pin eurofast®

- 1 = WH/BU
- 2 = WH/BN
- 3 = BN
- 4 = OG (TX-)
- 5 = WH/GN (RX+)
- 6 = WH/OG (TX+)
- 7 = BU
- 8 = GN (RX-)



5-pin minifast® Power

- 1 = NC
- 2 = V-
- 3 = NC
- 4 = V+
- 5 = NC



4-pin minifast Power

- 1 = V+
- 2 = NC
- 3 = NC
- 4 = V-

Ethernet, Conduit Adapters, 8-wire

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port



	Part Number	Specs	Application	Pinout
	BCA 84-E124	Nylon Housing 60 V, 2 A -40° to +75°C	Attaches to standard conduit body* for transition to 8-wire (M12x1) eurofast ® connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	<p>Female</p>
	BCA 84-E224		Attaches to standard conduit body* for transition to 8-wire (M12x1) eurofast connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	

Ethernet, Cabinet Adapter, 8-wire

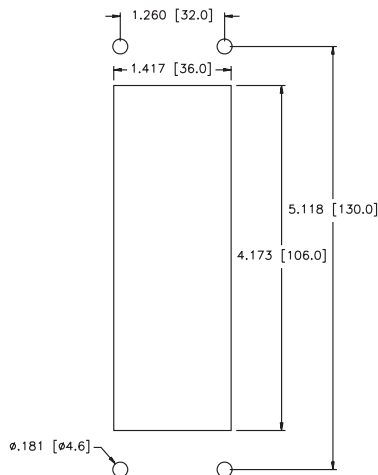
- Mounts to any Cabinet for Transition from (M12x1) *euromast*® 8-Pin Connectors to RJ45 Connectors
- Gasket and Mounting Hardware Included (8-32 x 1/2")



	Part Number	Specs	Application	Pinout
	BIC 84-E424	Nylon Housing 60 V, 2 A -40° to +75°C	Attaches to cabinet for transition to 4-wire (M12x1) <i>euromast</i> connector	<p>Female</p>

Ethernet Media

Panel Dimensions



RJ45 Plug	Pinouts
	<ol style="list-style-type: none"> 1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+RX) 4. Blue 5. White/Blue 6. Green (-RX) 7. White/Brown 8. Brown

Ethernet, Circuit Board Connectors and OEM Receptacles, 8-wire

- Provides (M12x1) *eurofast*® 8-Pin Connection to Field Devices

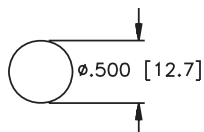


	Part Number	Specs	Application	Pinouts
<p>10</p>	FS 84 PCB KIT		Male <i>eurofast</i> with mounting kit	<p>Male</p>
<p>14</p>	FS 84 PCB	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Male <i>eurofast</i>	
<p>13</p>	FK 84 PCB KIT		Female <i>eurofast</i> with mounting kit	<p>Female</p>
<p>16</p>	FK 84 PCB		Female <i>eurofast</i>	

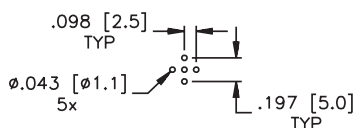
See pages J17 - J18 for dimensional drawings.

Standard housing material is nickel plated brass "FSV .."; "FKV .." indicates 316 stainless steel.

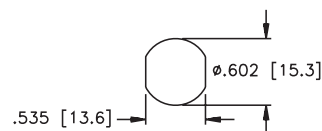
Panel Cutout
FK ... FS



Board Layout (reference only)
FK ... FS



Panel Cutout
FKFD ... FSFD



Ethernet, Circuit Board Connectors and OEM Receptacles, 8-wire

- Provides (M12x1) *eurofast*® 8-Pin Connection to Field Devices



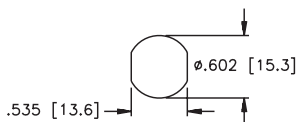
	Part Number	Specs	Application	Pinouts	
<p>9</p>	FSFD 84 PCB	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Male <i>eurofast</i> PCB pins	<p>Male</p>	
<p>8</p>	FSFDL 84		Male <i>eurofast</i> solder cups		
<p>15</p>	WFS 84 PCB		Male <i>eurofast</i> right angle PCB pins		
<p>12</p>	FKFD 84 PCB		Female <i>eurofast</i> PCB pins		<p>Female</p>
<p>11</p>	FKFDL 84		Male <i>eurofast</i> solder cups		

1. WH/BU
2. WH/BN
3. BN
4. OG
5. WH/GN
6. WH/OG
7. BU
8. GN

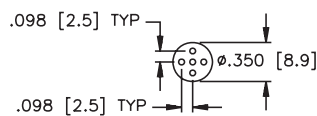
See pages J17 - J18 for dimensional drawings.

Standard housing material is nickel plated brass "FKFD.."; "FKFDV.." indicates 316 stainless steel.

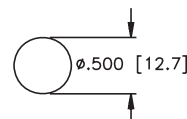
Panel Cutout
FKFD ... FSFD



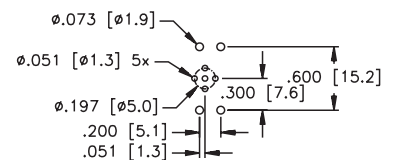
Board Layout (reference only)
FKFD ... FSFD



Panel Cutout
WFS

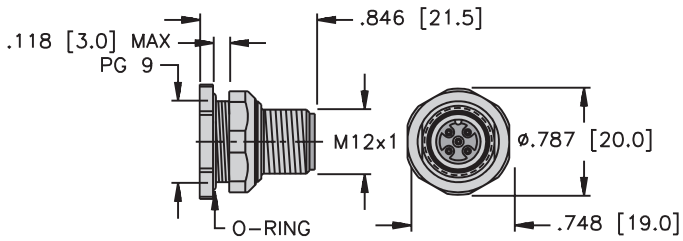


Board Layout (reference only)
WFS



euofast® PCB Mount Male and Female Receptacles

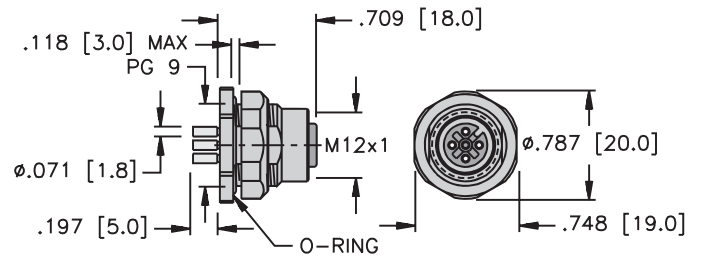
8



FSFDL ..

Page J16

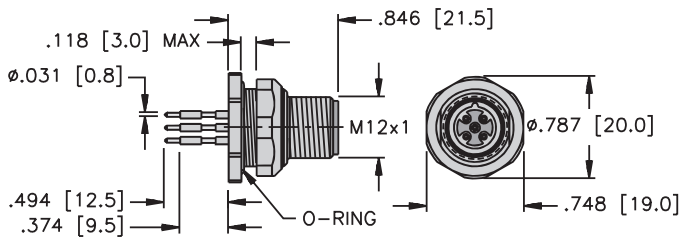
11



FKFDL ..

Page J16

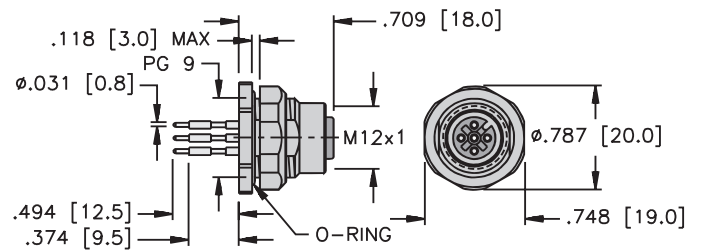
9



FSFD .. PCB

Page J16

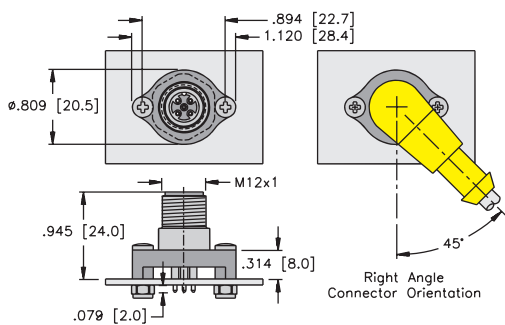
12



FKFD .. PCB

Page J16

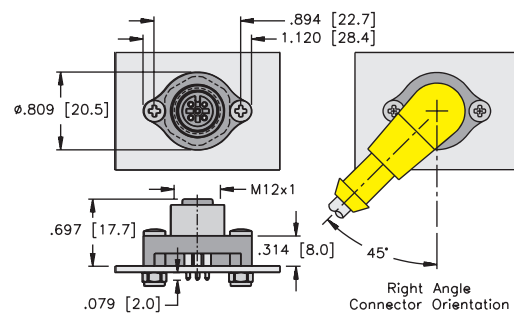
10



FS .. PCB KIT

Page J15

13

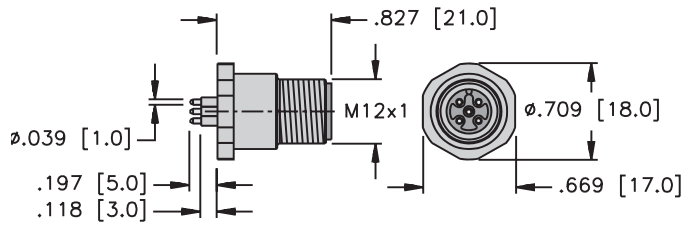


FK .. PCB KIT

Page J15

euromast® PCB Mount Male and Female Receptacles

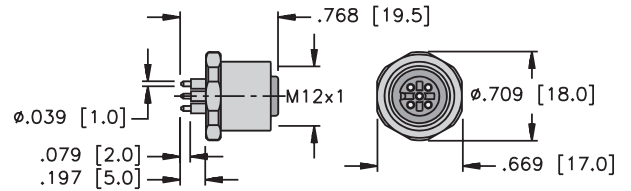
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FS .. PCB KIT

Page J15

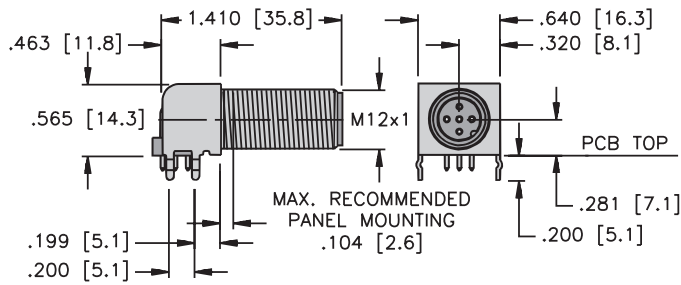
16



FK .. PCB KIT

Page J15

15



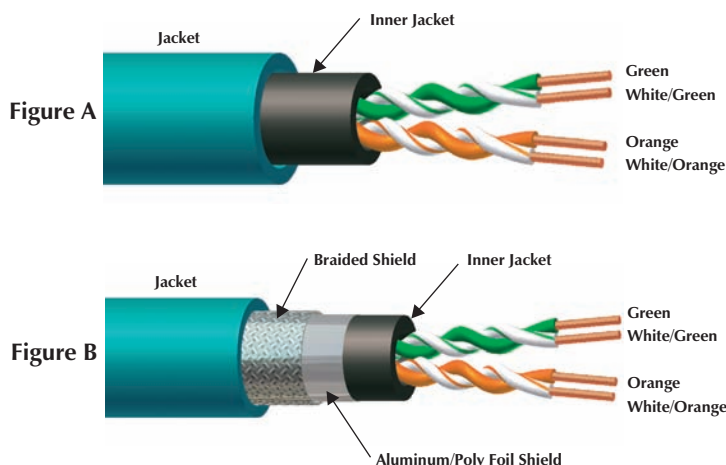
WFS .. PCB

Page J16

Ethernet Media

Ethernet, Cable Specifications, 4-wire

- Cable that Meets the Requirements of TIA/EIA568-B.2 Category 5e Performance Requirements Cable for 10 and 100 Base-T Ethernet
- Compliant with Ethernet/IP Standards
- Cable is UL Rated for Sunlight and Oil Resistant



Maximum 100 meters of cable of which:

- 90 meters Horizontal Cable (SOLID - 442 or 443)
- 2 x 5 meters Patch Cables (STRANDED - 440 or 441)

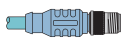
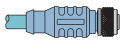
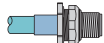
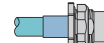


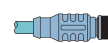
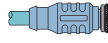

Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type		
440 75°C 300 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Stranded	28.6 Ohms PO	PVC Teal 6.9 mm (.270 in)	None	RB51210-*M 29 lbs.	A
441 75°C 300 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Stranded	28.6 Ohms PO	PVC Teal 7.2 mm (.285 in)	Foil/Braid	RB51211-*M 44 lbs.	B
442 75°C 100 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Solid	28.6 Ohms PO	PVC Teal 6.4 mm (.250 in)	None	RB51212-*M 27 lbs.	A
443 75°C 300 Volts	NEC CMR CEC C(UL) CMR	4/24 AWG Solid	28.6 Ohms PO	PVC Teal 7.1 mm (.280 in)	Foil/Braid	RB51213-*M 49 lbs.	B
4410 50°C 124 Volts	TSB-36 ISO/IEC 11801	4/26 AWG Stranded	37.3 Ohms PE	PUR Teal 6.1 mm (.240 in)	Foil/Braid	RB51306-*M 48 lbs. <i>flexlife</i> [®] † Halogen Free	A

* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

† 2.5 million flex motions at 12.5x cable diameter bend radius.

Ethernet, (M12x1) eurofast® Cables and Extensions - Cable Type 440 & 442 D-coded

		eurofast				
		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)	RJ45 Plug
		8  RSCD	9  RKCD	12  FSFDD	13  FKFDD	14  RJ45
 Bare		RSCD 44x-*M	RKCD 44x-*M	FSFDD 44x-*M	FKFDD 44x-*M	RJ45 44x-*M
eurofast	Pin (Male)	8  RSCD	RSCD RKCD 44x-*M	RSCD FSFDD 44x-*M	RSCD FKFDD 44x-*M	RSCD RJ45 44x-*M
	Socket (Female)	9  RKCD	RKCD RKCD 44x-*M	RKCD FSFDD 44x-*M	RKCD FKFDD 44x-*M	RKCD RJ45 44x-*M
	RJ45 Plug	14  RJ45		RJ45 FSFDD 44x-*M	RJ45 FKFDD 44x-*M	RJ45 RJ45 44x-*M

See pages J22 - J23 for dimensional drawings.

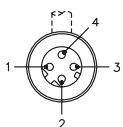
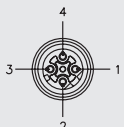
* Indicates length in meters.

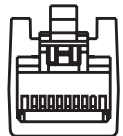
x Indicates cable type.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

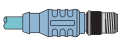
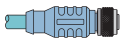
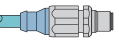
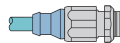


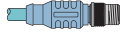
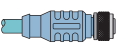

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSCD ... RSCDV, FSFDD ... FSFDDV.

eurofast	Pinouts	eurofast
Male 	1. White/Orange (+ tx) 2. White/Green (+rx) 3. Orange (-tx) 4. Green (-rx)	Female 

RJ45 Pinout	RJ45 Plug	RJ45 (CR) Pinout
1. White/Orange 2. Orange 3. White/Green 4. N/C 5. N/C 6. Green 7. N/C 8. N/C	Male  12345678	1. White/Green 2. Green 3. White/Orange 4. N/C 5. N/C 6. Orange 7. N/C 8. N/C

Ethernet, (M12x1) *eurofast*® Cables and Extensions - Cable Type 441 & 443 D-coded

		<i>eurofast</i>				
		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)	RJ45 Plug
		8  RSSD	9  RKSD	10  FSSDED	11  FKSDED	14  RJ45S
 Bare		RSSD 44x-*M	RKSD 44x-*M	FSSDED 44x-*M	FKSDED 44x-*M	RJ45S 44x-*M
<i>eurofast</i>	Pin (Male)	8  RSSD	RSSD RKSD 44x-*M	RSSD FSSDED 44x-*M	RSSD FKSDED 44x-*M	RSSD RJ45S 44x-*M
	Socket (Female)	9  RKSD	RKSD RKSD 44x-*M	RKSD FSSDED 44x-*M	RKSD FKSDED 44x-*M	RKSD RJ45S 44x-*M
	RJ45 Plug	14  RJ45S		RJ45S FSSDED 44x-*M	RJ45S FKSDED 44x-*M	RJ45S RJ45S 44x-*M

See pages J22 - J23 for dimensional drawings.

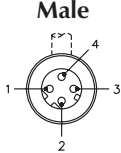
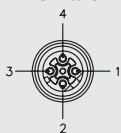
* Indicates length in meters.

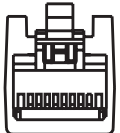
x Indicates cable type.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSSD ... RSSDV, FSSDED ... FSSDEDV.

<i>eurofast</i>	Pinouts	<i>eurofast</i>
Male 	1. White/Orange (+ tx) 2. White/Green (+rx) 3. Orange (-tx) 4. Green (-rx)	Female 

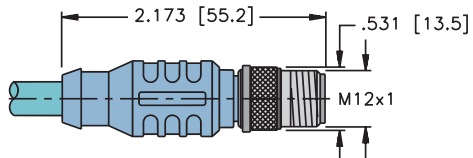
RJ45 Pinout	RJ45 Plug	RJ45 (CR) Pinout
1. White/Orange 2. Orange 3. White/Green 4. N/C 5. N/C 6. Green 7. N/C 8. N/C	Male  12345678	1. White/Green 2. Green 3. White/Orange 4. N/C 5. N/C 6. Orange 7. N/C 8. N/C

Ethernet, *euofast*® Cordset Connector Dimensions / Configuration

Specifications

Housing:	TPU (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	0° to +75°C (-22° to +167°F)

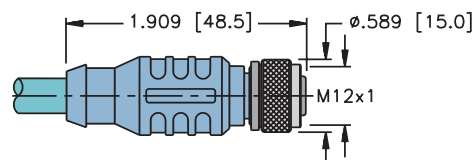
8



RSCD/RSSD ..

Pages J20 - J21

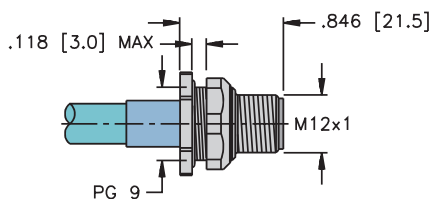
9



RKCD/RKSD ..

Pages J20 - J21

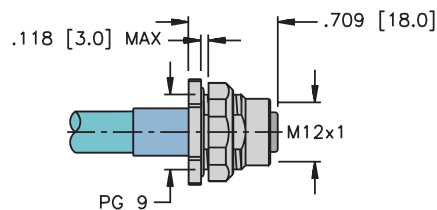
10



FSFDD ..

Pages J20 - J21

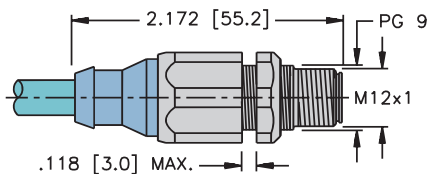
11



FKFDD ..

Pages J20 - J21

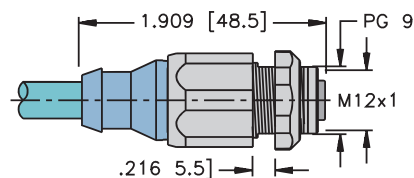
12



FSSDED ..

Pages J20 - J21

13



FKSDED ..

Pages J20 - J21

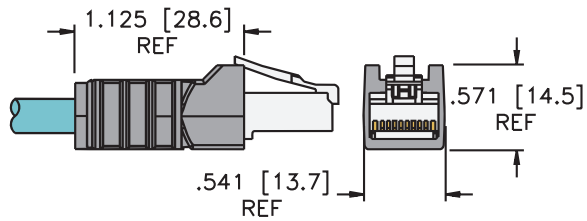
Ethernet

Ethernet, RJ45 Connector Dimensions / Configuration

Specifications

Housing:	Polyolefin
Protection:	NEMA 1, 3, 4, 6P and IEC IP 20
Rated Voltage:	42 V
Rated Current:	1.5 A
Ambient Temperature:	-25° to +80°C (-22° to +176°F)

14



RJ45/RJ45S ..

Pages J20 - J21

Notes:

Unmanaged Switches



- 5 and 9 Ports Available
- 10/100 Mbps
- IP 67 Protection
- 4-pin Ethernet Connectors

- SE-44X-E524**
- SE-44X-E924**
- SE-44X4-E524**
- SE-44X4-E924**

Electrical

- Power Consumption: 2 W (...-E524), 4 W (...-E924)
- Operating Voltage: 10-30 VDC

Mechanical

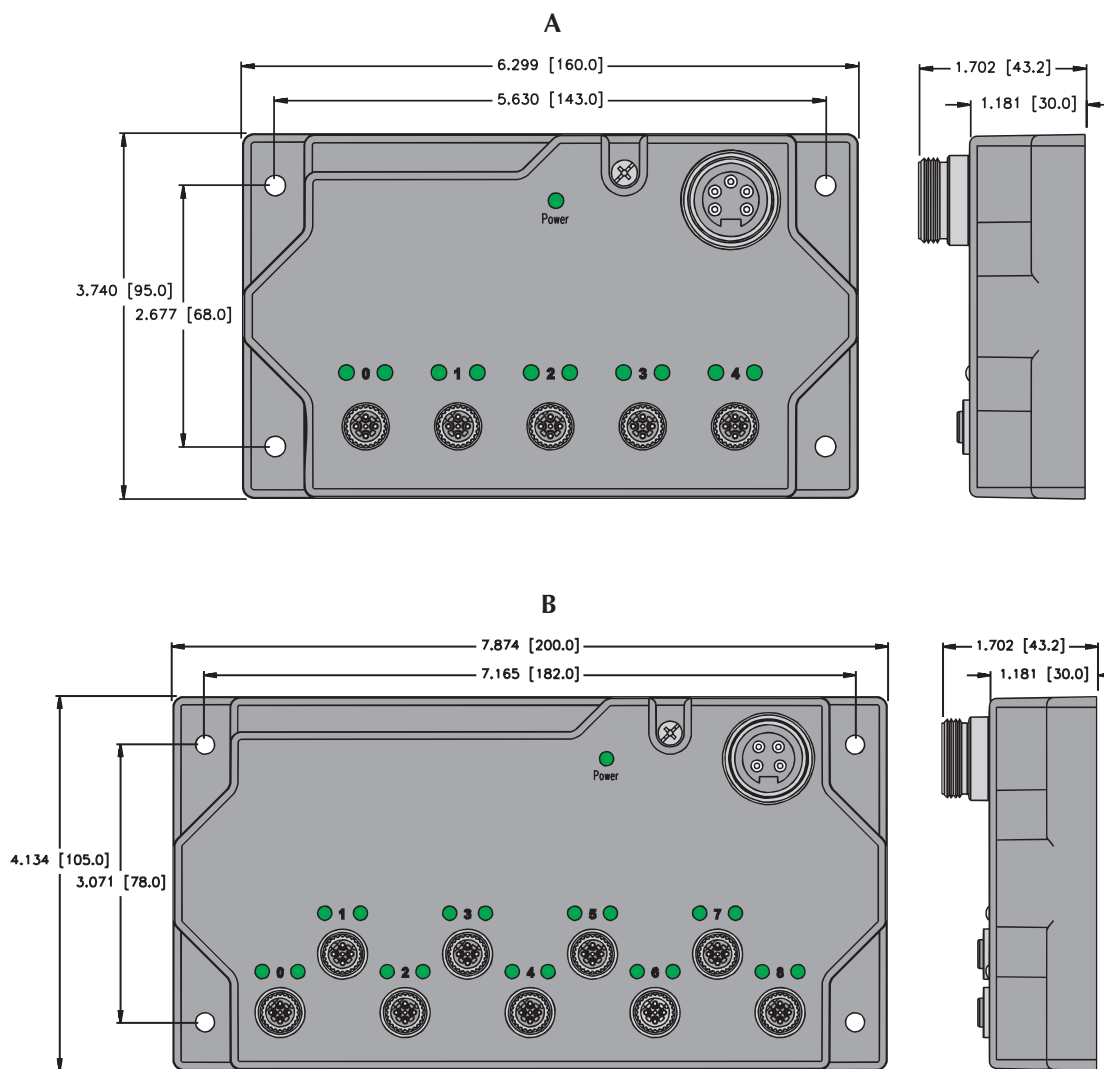
- Operating Temperature: -30 to +80°C (-22 to +176°F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

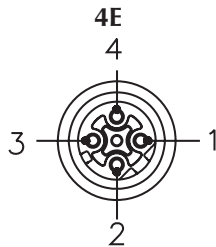
- LEDs to indicate status of Ethernet communication



Part Number	Ports*	Ethernet Pinouts	Power Pinout	Dimensions
SE-44X-E524	5	4E	5M	A
SE-44X-E924	9	4E	5M	B
SE-44X4-E524	5	4E	4M	A
SE-44X4-E924	9	4E	4M	B

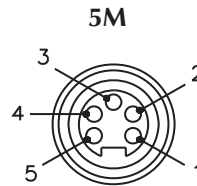
* Note: One port for each switch is a dedicated uplink port

Port/Power Connectors



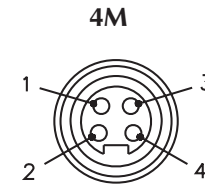
**4-pin eurofast®
Female**

- 1 = WH/OG (TX+)
- 2 = WH/GN (RX+)
- 3 = OG (TX-)
- 4 = GN (RX-)



**5-pin minifast®
Power**

- 1 = NC
- 2 = V-
- 3 = NC
- 4 = V+
- 5 = NC



4-pin minifast Power

- 1 = V+
- 2 = NC
- 3 = NC
- 4 = V-

Unmanaged switches



SE-84ST-E524/C1165
SE-84ST-E924/C1165
SE-84ST-E924/C1190

- Molded Cords for Panel Mounting
- 10/100 Mbps
- IP 67 Protection
- 8-pin Ethernet Connectors

Electrical

- Power Consumption: 2 W (...-E524), 4 W (...-E924)
- Operating Voltage: 10-30 VDC

Mechanical

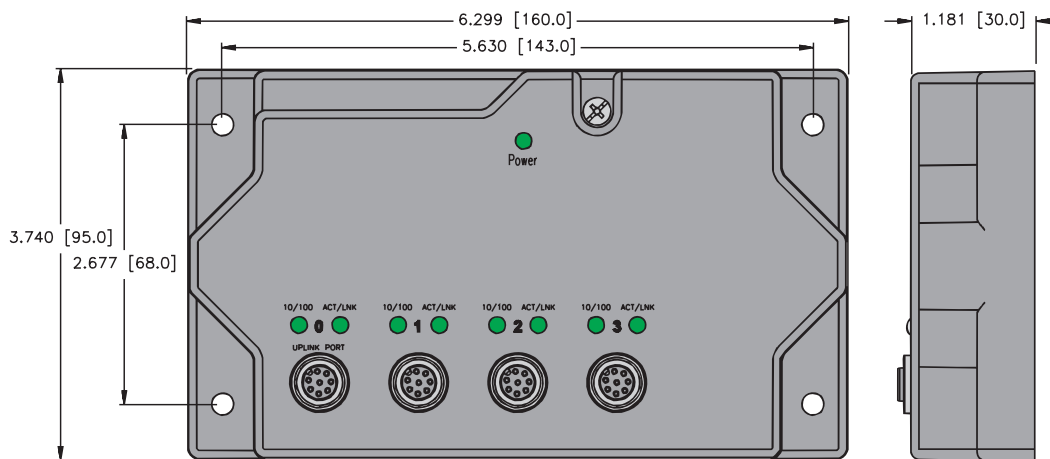
- Operating Temperature: -30 to +80 °C (-22 to +176 °F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

- LEDs to indicate status of Ethernet communication



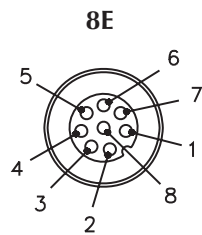
Part Number	Ports*	Ethernet Pinout	Power Pinout	Dimensions
SE-84ST-E524/C1165	5	8E	2Wire	A
SE-84ST-E924/C1165	9	8E	2Wire	B
SE-84ST-E924/C1190	9	8E	2Wire	B

Notes:

* One port for each switch is a dedicated uplink port.

.../C1165 have one port in the cabinet; .../C1190 has two ports in the cabinet.

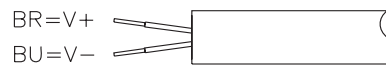
Port/Power Connectors



8-pin eurofast®

- 1 = WH/BU
- 2 = WH/BN
- 3 = BN
- 4 = OG (TX-)
- 5 = WH/GN (RX+)
- 6 = WH/OG (TX+)
- 7 = BU
- 8 = GN (RX-)

2-Wire



In-Cabinet Ethernet Connector



12345678

- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Managed switches

- 8 Ports Available
- Configuration Port
- IP 67 Protection
- 4-pin Ethernet Connectors



SE-44M-E924

Electrical

- Power Consumption: 4 W
- Operating Voltage: 10-30 VDC

Mechanical

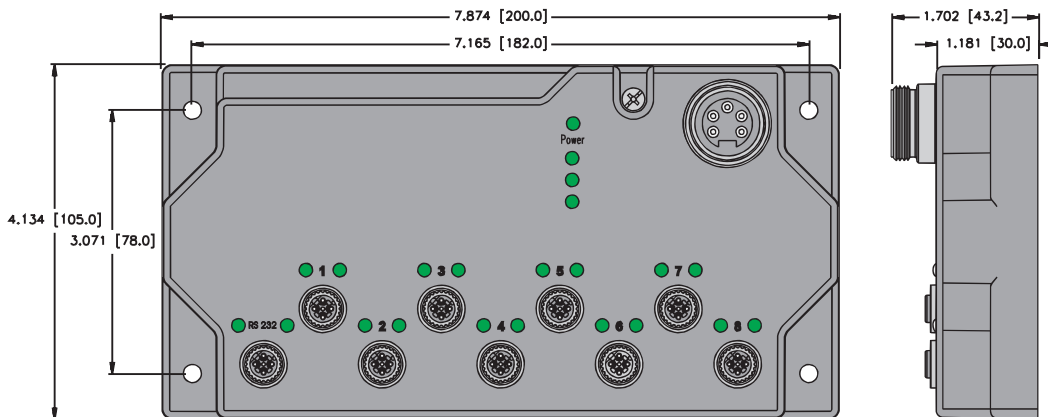
- Operating Temperature: -30 to +80 °C (-22 to +176 °F)
- Protection: NEMA 1,3,4,6,13 and IEC IP 67

Material

- Housing: Nylon 6 (other materials available on request)
- Connectors: Nickel-plated Brass (other materials available on request)

Diagnostics (Physical)

- LEDs to indicate status of Ethernet communication

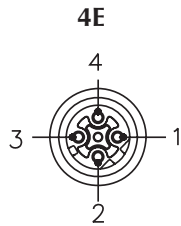


Inputs

Part Number	Ports*	Ethernet Pinout	Power Pinout	Dimensions
SE-44M-E924	8	4E	5M-2	A

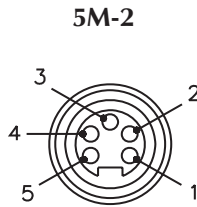
* Note: 8 Ethernet ports plus one RS232 configuration port

Port/Power Connectors



4-pin eurofast® Female

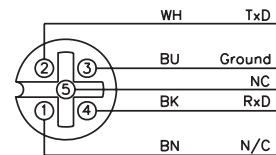
- 1 = WH/OG (TX+)
- 2 = WH/GN (RX+)
- 3 = OG (TX-)
- 4 = GN (RX-)



5-pin minifast® Power

- 1 = Gnd
- 2 = Gnd
- 3 = Ok
- 4 = V₁+
- 5 = V₂+

Configuration Port 232



Mating cordset:

RK 4.4T-* -RS 4.4T

Ethernet, Conduit Adapters, 4-wire

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

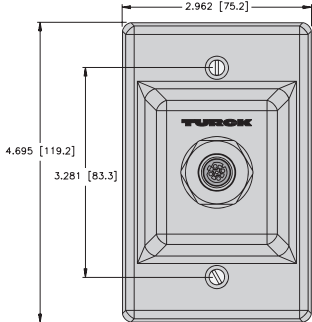
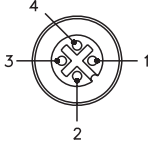
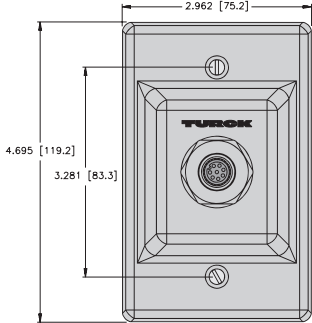
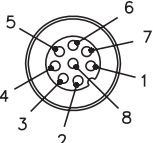


	Part Number	Specs	Application	Pinout
	BCA 44-E123	Nylon Housing 250 V, 9A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast ® connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	<p>Female</p>
	BCA 44-E223		Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast connector *Cross Hinds 3/4" Mark 9, Form 8 or Equivalent.	

Ethernet, Wall Plate Adapters, 4 and 8-wire

- Gasket and Mounting Screws Provided
- For Use with a Single Gang Electrical Box



	<p>BPA-44-E113</p>	<p>Stainless Steel 30 VAC/36 VDC, 1.5 A -40 to +70°C (-40 to +158°F)</p>	<p>Attaches to standard single gang electrical box for transition to 4-wire (7/8-16UN) eurofast connector w/punch-down blocks</p>		
	<p>BPA-84-E113</p>		<p>Attaches to standard single gang electrical box for transition to 8-wire (M12x1) eurofast connector w/punch-down blocks</p>		

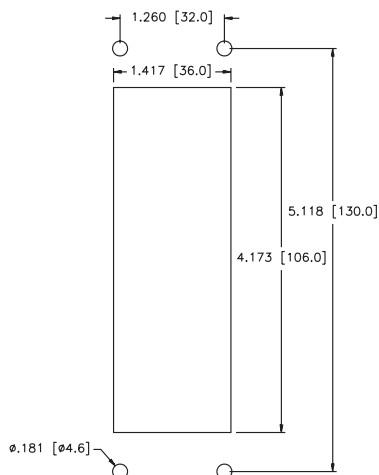
Ethernet, Cabinet Adapter, 4-wire

- Mounts to Any Cabinet for Transition from (M12x1) *eurofast*® 4-Pin Connectors to RJ45 Connectors
- Gasket and Mounting Hardware Included (8-32 x 1/2")



	Part Number	Specs	Application	Pinout
	BIC 44-E424	Nylon Housing 250 V, 4 A -40° to +75°C	Attaches to cabinet for transition to 4-wire (M12x1) <i>eurofast</i> connector	<p>Female</p>

Panel Dimensions

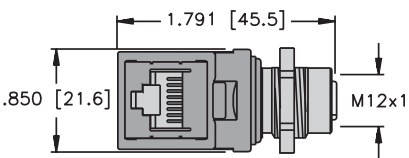


RJ45 Receptacle	Pinout
	<ol style="list-style-type: none"> 1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C

Ethernet, Receptacle

- Transitions from a RJ45 Connector to a 4-wire *eufofast*® Connector

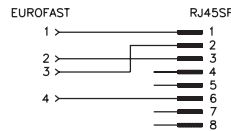


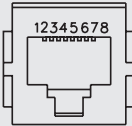
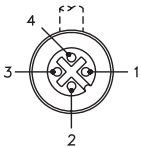
	Part Number	Application
	<p>FKSDD RJ45SF 44</p>	<p>Polyurethane PUR Overmold 42 V, 1.5 A -40° to +75°C</p>

Panel mounting clearance hole 19/32" (15 mm). Panel thickness: .060-.120" (1.5-3 mm)

Ethernet Media

Wiring Diagram



RJ45 Receptacle	Pinouts	<i>eufofast</i> Female
<p>Female</p> 	<ol style="list-style-type: none"> 1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C 	<p>Female</p> 

Ethernet, RJ45 Field Wireable

- Allows for Quick Connections in the Field
- Fully Shielded
- Includes Assembly Instructions



	Part Number	Application	Pinout
	Connector, RJ45S IDC	<i>RJ45 4-wire field wireable</i>	<p>Male</p>

RJ45 Plug	Pinout
<p>Male</p>	<ol style="list-style-type: none"> 1. White/Orange (+TX) 2. Orange (-TX) 3. White/Green (+RX) 4. N/C 5. N/C 6. Green (-RX) 7. N/C 8. N/C

Ethernet, 4-Pin D-coded Field Wireables

- Allows for Quick Connections when Pre-Molded Cables are not Available
- Available in Male, Straight and Right Angle Connector Configurations



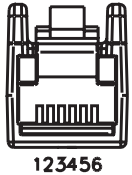
	Part Number	Application	Pinout
	CMBSD 8141-0/PG9	Mates with female 4-pin D-coded eurofast® cordsets and receptacles	<p>Male</p>
	CMBSD 8241-0/PG9		<p>Male</p>

Ethernet Media

Ethernet[®], RJ11 Cordsets

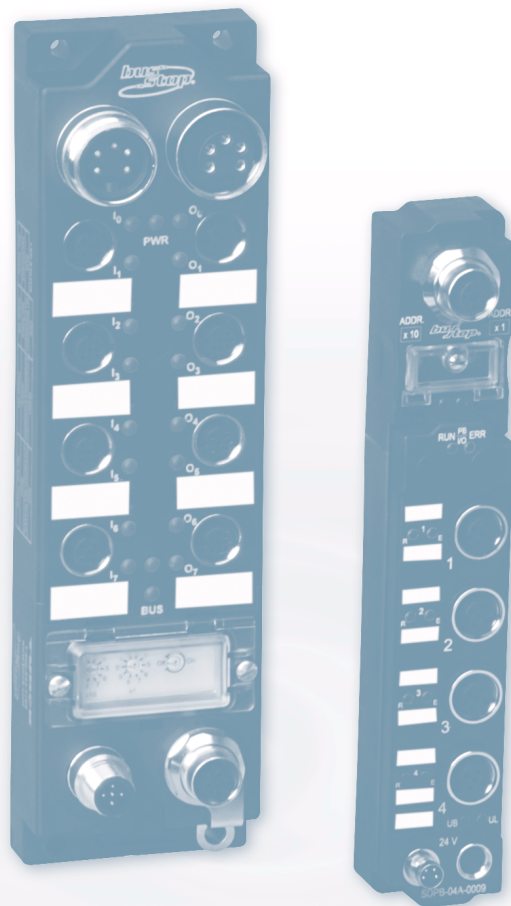
- Double Ended
- Available in 1, 2, 5 Meter Extended Lengths



Part Number	Specs	Application	Pinouts
RJ11S RJ11S 4412-*M	PVC 1.5 A 42 V -40° to +75°C	Industrial phone connection RJ11 connector	1. N/C 2. White/Orange (+TX) 3. Orange (-TX) 4. White/Green (+RX) 5. Green (-RX) 6. N/C  <p>123456</p>

Notes:

TURCK Industrial Connectivity Products



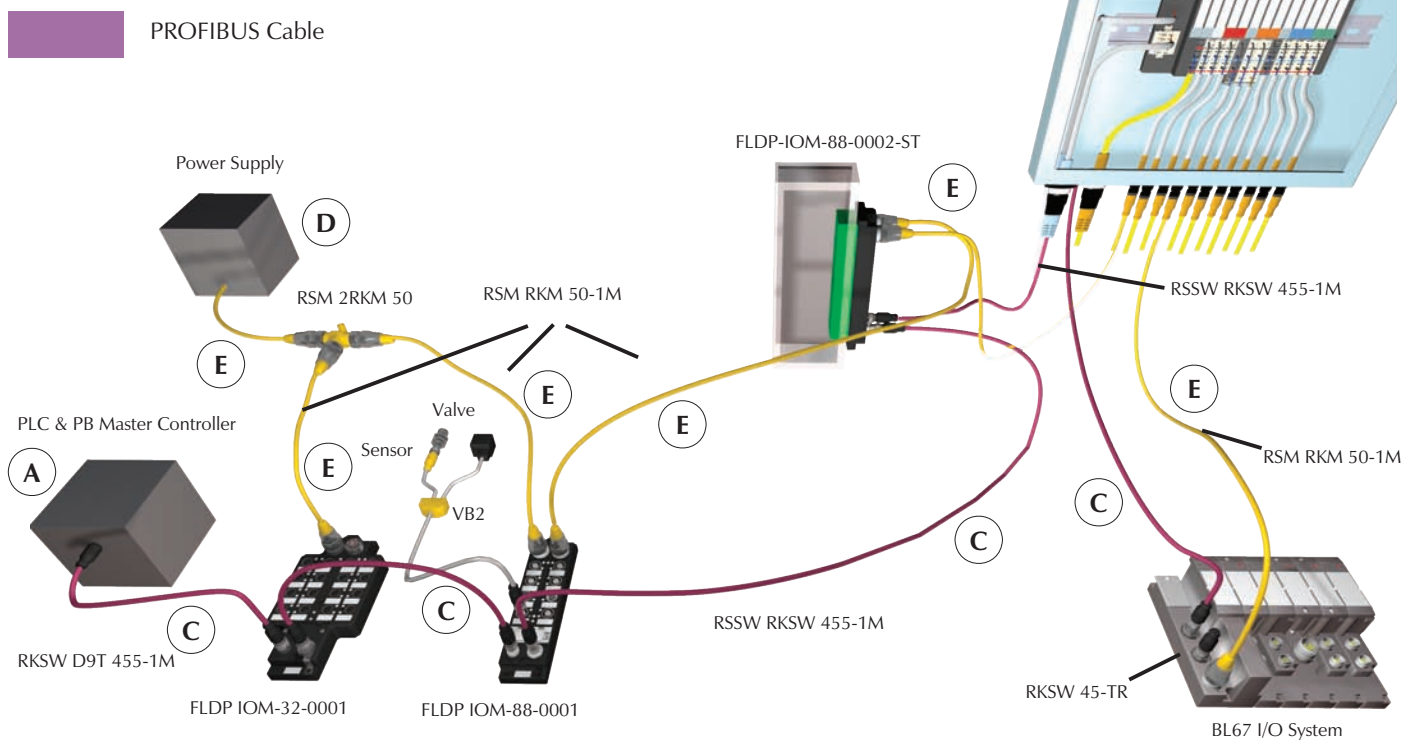
PROFIBUS[®]-DP System Description

PROFIBUS-DP is an industrial network protocol that connects field I/O devices in order to eliminate hard wiring. The network connection increases device-level diagnostic capabilities, while also providing high-speed communication between devices.

PROFIBUS-DP is based on the RS-485 serial data transfer standard. In most cases, the termination and physical media rules for PROFIBUS-DP are the same as those required for RS-485 communication. A PROFIBUS-DP network supports up to 126 nodes and virtually an unlimited amount of I/O. The bus uses a trunkline/dropline topology. Power and communication are provided via separate cables, allowing easy segmentation of the power structure to avoid overloading.

PROFIBUS-DP is capable of running at data rates as high as 12 Mbaud. When used at high data rates, the cable drop length from the trunk to a node is severely limited. For example, when used at 12 Mbaud, nodes must be directly connected to the trunk, with no drop length allowed.

Typical System Configuration



Basic Parts List

A typical PROFIBUS-DP system consists of the following parts:

- A - Master
- B - Slaves
- C - Communication cable
- D - Power supply
- E - Power cable

PROFIBUS-DP stations require a network master (also called a scanner) to interface the stations to the host controller.

TURCK PROFIBUS-DP stations are designed to be fully compatible with PROFIBUS-DP equipment from other manufacturers.

TURCK

Industrial Connectivity Products

Cordsets

TURCK offers a complete line of molded PROFIBUS-DP cordsets to facilitate network installation, resulting in a faster start-up and fewer wiring errors. The bus and drop cables are specially designed foil-shielded, high-flex cables with very low inductance and capacitance to minimize propagation delay time. PROFIBUS-DP cables consist of a shielded and twisted data pair with a bare drain wire.

In most cases, connections of the bus cable to the stations are made using 5-pin reverse-key **euromast**[®] (M12) connectors. A variety of stations are also available that support D9 type connections. Power for most stations is provided through one or two 5-pin **minifast**[®] (7/8-16UN) connectors.

TURCK cordsets for the PROFIBUS-DP system are available in standard lengths. Please contact your local sales representative to order custom lengths.

Diagnostics

TURCK network stations provide increased diagnostics over using traditional hard-wired I/O systems. **TURCK** stations also serve as a buffer between I/O devices and the PROFIBUS-DP network by detecting short circuits without disrupting communication.

The PROFIBUS-DP system includes a provision for special diagnostic data messages. These messages are triggered when a fault occurs at the station (for example a short circuit on a sensor). When the master asks the station for data, the station responds and includes a flag to indicate that diagnostic data is present. The master then asks for the diagnostic data, which is mapped to a special location in the controller's memory.

Addressing

The valid range of PROFIBUS-DP node addresses is 0 to 125. **TURCK** station's addresses are usually set via rotary dials or switches on the node. Changes to the address settings take effect when the station power is cycled or when the station receives a software reset. Care must be taken to prevent the same address from being assigned to more than one node in a system. Bihl+Wiedemann PROFIBUS-DP to AS-I gateways addresses are set in software using the on-unit display.

Communication Rate/Cycle Time

PROFIBUS-DP specifications define multiple transmission speeds ranging from 9.6 kbaud to 12 Mbaud. All nodes on a network must communicate at the same rate.

The complete cycle time of a PROFIBUS-DP system is affected by several factors:

- Number of nodes being scanned
- Amount of data produced and consumed by the nodes
- Network communication rate
- Cycle time of the control program

All of these factors must be considered when calculating the cycle time of a particular network.

GSD Files

GSD files contain detailed information about a PROFIBUS-DP device, including I/O data size and the devices configurable parameters. The information in an GSD file, when used with a PROFIBUS-DP configuration tool, guides a user through the steps necessary to configure a device. GSD files are available on the **TURCK** website (www.turck.com).

Maximum Ratings

The PROFIBUS-DP bus uses a trunkline/dropline topology. The trunk is the main communication cable and requires the appropriate RS-485 termination at both ends of the trunk. Terminating resistors are available as plug-in **eurofast**[®] modules or can be built into the D9 connectors. The length of the trunk depends on the communication rate. Drops or branches off the trunk are allowed, but are greatly limited as the communication rate increases. The table shows the maximum ratings for a trunk at different communication rates.

Communication Rate	Max. Segment Length
9.6 kbps	1200 m
19.2 kbps	1200 m
93.75 kbps	1200 m
187.5 kbps	1000 m
500 kbps	400 m
1.5 Mbps	200 m
12 Mbps	100 m

PROFIBUS-DP AIM™ Stations

TURCK's Advanced I/O Module (AIM) PROFIBUS stations are extremely rugged stations designed for machine mounting. These stations allow easy connection of standard I/O devices such as sensors, limit switches, valves and pilot lights to a PROFIBUS network, typically without a protective enclosure. This is made possible by epoxy-filled station housings, all-metal connectors and visible rotary address switches, among other things.

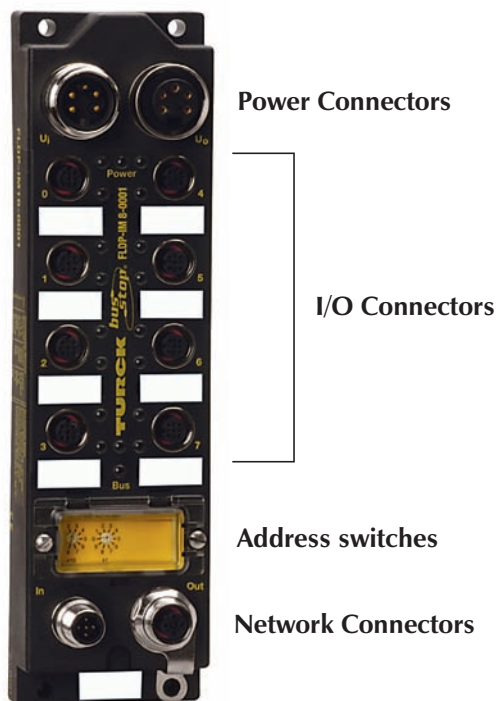
Mechanical Specifications

TURCK PROFIBUS AIM stations are designed for machine mounting with no separate enclosure or housing necessary. Quick-disconnect capability, combined with an epoxy-filled housing, creates an extremely durable station that can be mounted in most industrial environments. Detailed environmental specifications are as follows:

- Housing material: Nylon 6
- Connector material: Nickel-plated brass
- Protection level: NEMA 1,3,4,12,13; IEC IP 67
- Operating temperature: FLDP style 0° to +55°C (-40° to +158°F)
- FXDP style -25° to +55°C (-40° to +158°F)
- Vibration: 50 g @ 10 to 500 Hz

Other housing and connector materials available upon request.

The station's components are identified in the following figure.



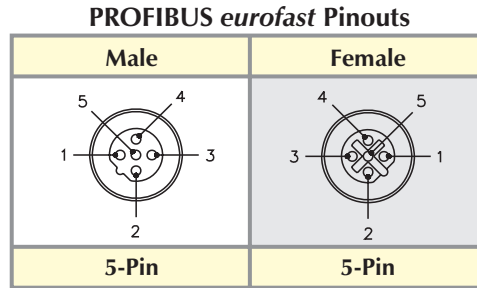
Connectors

PROFIBUS® AIM™ stations provide connections for the bus, I/O and auxiliary power.

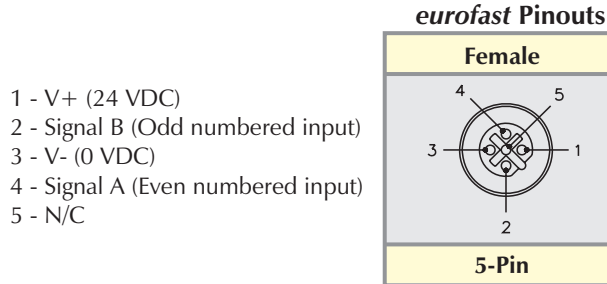
Bus Connectors

euromast® (M12) (reverse keyed) is the standard bus connector for PROFIBUS AIM stations.

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only



Different I/O connector pinouts are used for different station types. Stations are available with one or two inputs per connector, one or two outputs per connector, or one input and one output per connector. The pin assignments for these styles are:



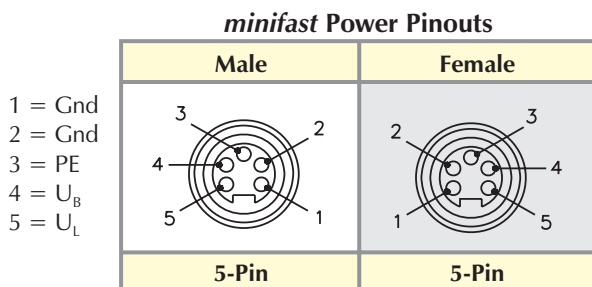
Screw Terminal I/O Connection

AIM stations with part numbers ending in “ST” support screw terminal I/O and bus connections. The screw terminals for these stations are located on the back of the station. The back of the station is also fitted with a foam gasket to allow the station to be mounted to the outside of a cabinet or field I/O box (i.e. motor control center).



Auxiliary Power Connectors

PROFIBUS® AIM™ stations accept one or two 24 VDC power supplies via the *minifast*® (7/8-16UN) connectors located at the top of the station. Stations with only inputs require the U_B supply to power station electronics and I/O. Stations with both inputs and outputs need both supplies (U_B and U_L) to be connected. In this case, U_B powers the station electronics and the inputs, while U_L powers the outputs. For further details, see the individual station entries in this catalog.



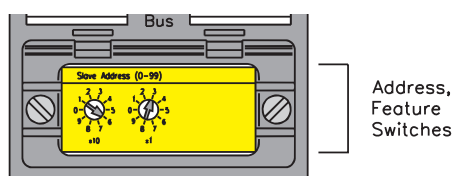
Power

Common power ratings for AIM stations include:

- Voltage: 18-30 VDC (both U_B and U_L)
- Input Voltage: 18-30 VDC (From U_B)
- Input Signal Current (each input): OFF < 2 mA; ON 4 mA (@ nominal 24 VDC)
- Input Delay: 2.5 ms

Addressing

PROFIBUS AIM stations must have a network address for communication. The address for AIM stations may be set via the visible rotary switches under the clear plastic cover on the front of the station.



The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the station, rotate the switches with a small slotted screwdriver until the arrows on the switch point to the appropriate numbers for the chosen address. Some stations (with outputs) have a third switch. This switch is used to enable auxiliary power diagnostics. If the switch is on, the loss of output power (U_L) will trigger a PROFIBUS diagnostic message.

Diagnostics

AIM™ stations provide two LEDs for diagnosing communication and power problems.

Bus

- Green: Working properly
- Red: No communication

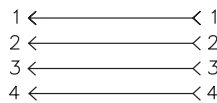
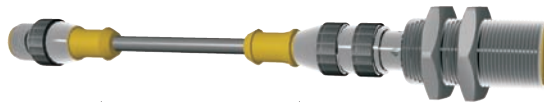
Power

- Off: No power
- Green: Power present
- Red: U_B present, but U_L missing (stations with outputs only)

There is an additional LED for each I/O point on the station. This LED indicates:

- Off: Point is off
- Green: Point is on
- Red: Point is in short-circuit state (advanced diagnostic stations only)

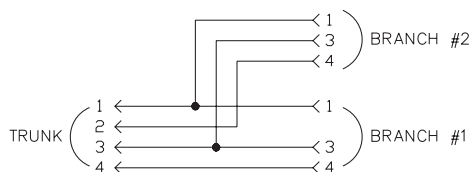
Abbreviations Used in Diagnostic Data Maps	
V_I	Missing input supply voltage
V_O	Missing output supply voltage
SC	Short circuit at the station (or at the particular I/O point if specified)



Connecting Devices to an AIM Station

AIM stations typically provide a **eurofast**® (M12) connection for each I/O point. Standard **TURCK** I/O cordsets can be used to connect physical devices in the field to the AIM station. Some AIM stations, specifically those with I/O counts greater than eight total points, connect two signals to each connector. If the signals being connected are on the same physical device (for example a sensor with two outputs), a simple four or five-wire cordset can be used for connection.

If the signals are on two separate devices, a splitter can be used to separate the AIM I/O connector into two individual **eurofast** connectors. The recommended splitter is wired such that the second signal pin on the AIM station (pin 2) is wired to the default signal pin (pin 4) on the second splitter arm - requiring no special wiring by the user. The splitter is simply plugged into the AIM I/O connector and each arm is plugged into the appropriate I/O devices, as shown:

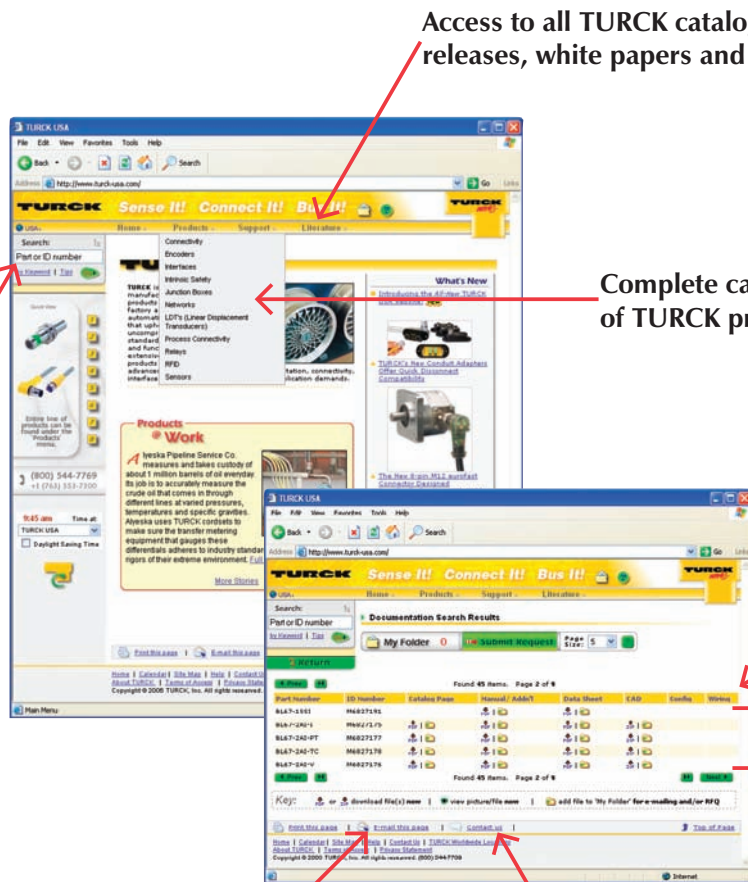


TURCK Modular Industrial I/O PROFIBUS®-DP Products



TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

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Option to e-mail pages

Contact a TURCK representative

www.turck.com

Ethernet™ Selection Guide

Housing	I/O Type	I/O Direction	Pages
	Discrete	Input	K11
		Output	K17
		Input & Output	K21
	Discrete	Input & Output	K35
	Repeater	N/A	K37
	Discrete	Input	K43
		Output	K47
		Input & Output	K45, K49
	Analog	Input	K51
		Output	K55
	Special Function	Counter	K57
		Encoder	K59
Serial	K61		
	BL67	N/A	K75
	BL20		K77
	AS-I		K67
	Piconet		K65
PROFIBUS®-DP &®-PA Media			L1

PROFIBUS-DP

Standard Input Stations



FLDP-IM 8-0001
FLDP-IM 16-0001



- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <math>< 110\text{ mA}</math> plus sum of input currents (from U_B)
- Sensor Current: <math>< 500\text{ mA}</math> per four inputs (from U_B)

Power Distribution

- Inputs: U_B power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

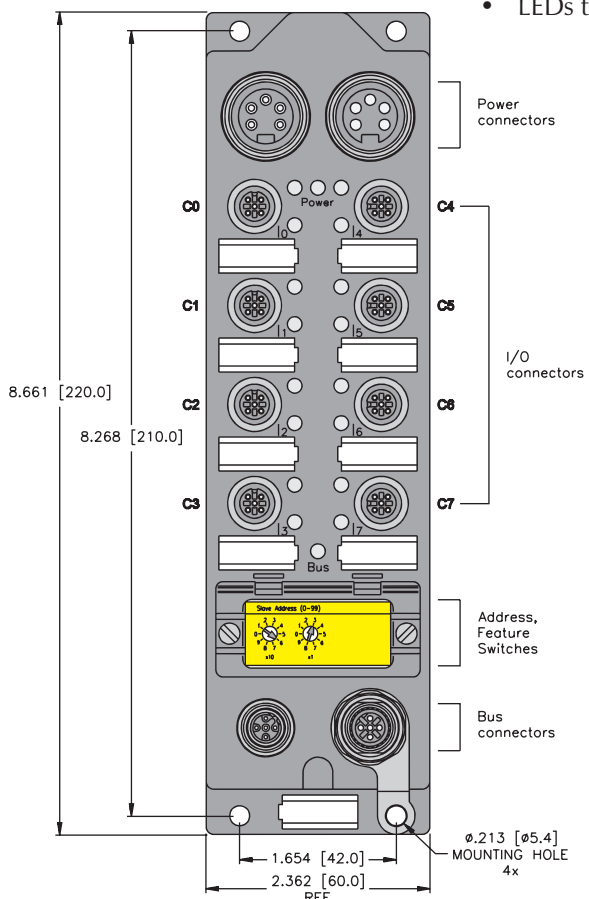
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One (...IM 8-0001) or two (...IM 16-0001) LEDs indicates short-circuit for I/O groups
- LEDs to indicate status of PROFIBUS communication and power supply



minifast® Power Pinouts

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = NC

Male	Female
5-Pin	5-Pin

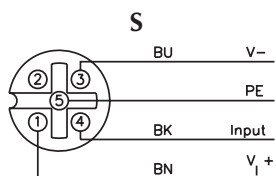
PROFIBUS eurofast® Pinouts

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

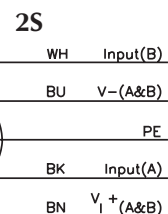
Male	Female
5-Pin	5-Pin

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IM 8-0001	8	0-7	S	1	PNP	X			1
FLDP-IM 16-0001	16	0-7	2S	2	PNP	X			2

Input Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	-	SC

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	-	SC

Standard Input Station



FLDP-IM 32-0001



- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <math>< 110\text{ mA}</math> plus sum of input currents (from U_B)
- Sensor Current: <math>< 500\text{ mA}</math> per eight inputs (from U_B)

Power Distribution

- Inputs: U_B power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

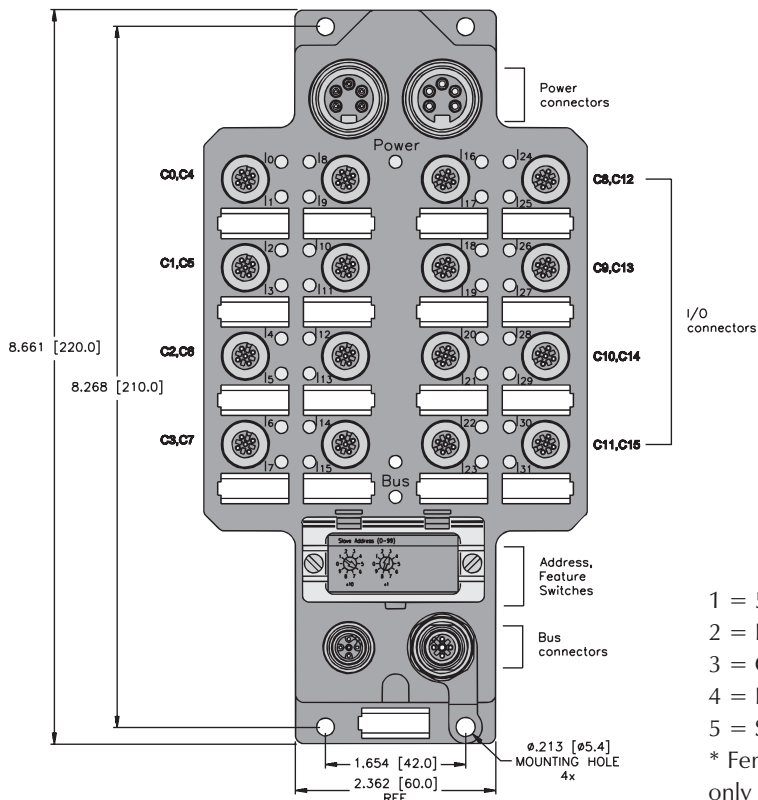
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- Four LED short-circuits for I/O (groups of eight inputs)
- LEDs to indicate status of PROFIBUS communication and power supply



minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = NC

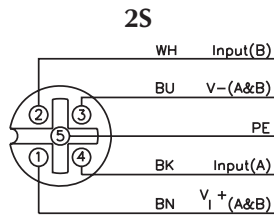
PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IM 32-0001	32	0-15	2S	2	PNP	X			1

Input Connectors



Mating cordset:

RK 4.4T-* -RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
	1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8
	2	I-23	I-22	I-21	I-20	I-19	I-18	I-17	I-16
	3	I-31	I-30	I-29	I-28	I-27	I-26	I-25	I-24
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	-	SC

Deluxe Input Stations



FXDP-IM 8-0001
FXDP-IM 16-0001

- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <70 mA plus sum of input currents (from U_B)
- Sensor Current: <120 mA per connector (input or pair of inputs) (from U_B)

Power Distribution

- Inputs: U_B power supply

Mechanical

- Operating Temperature: -25 to +55°C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

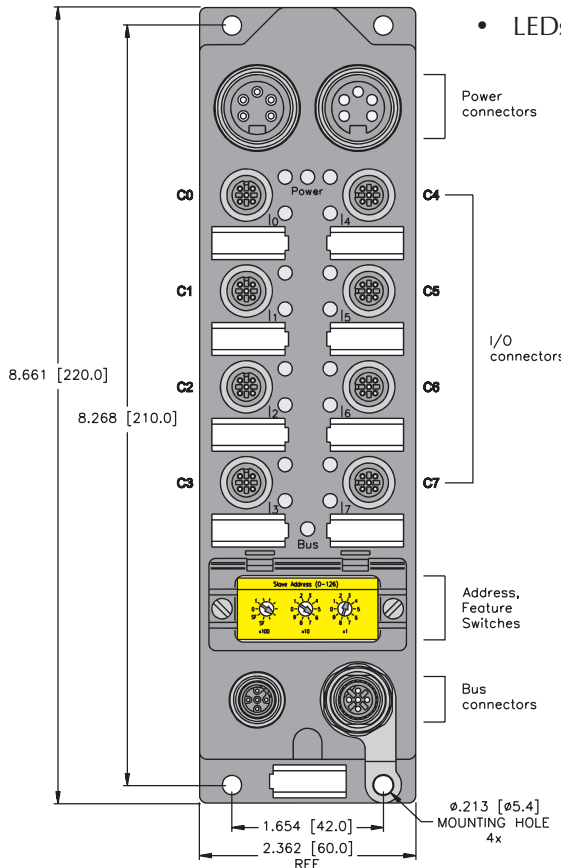
Diagnostics (Logical)

- Input short-circuit mapped to PROFIBUS diagnostic table, one bit indicating a fault for each connector (input or pair of inputs)
- One bit is mapped to PROFIBUS diagnostic table indicating the status of the power supply



Diagnostics (Physical)

- One LED indicates short-circuit for each I/O point
- LEDs to indicate status of PROFIBUS communication and power supply



minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = NC

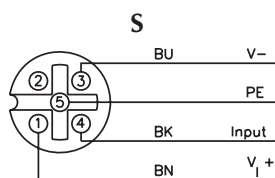
PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

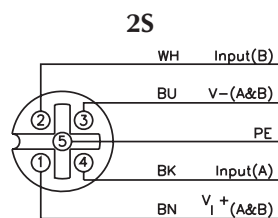
- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FXDP-IM 8-0001	8	0-7	S	1	PNP	X	X		1
FXDP-IM 16-0001	16	0-7	2S	2	PNP	X	X		2

Input Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*

PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	-	SC
	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
3	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-0	

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	-	SC
	1	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-
3	SC-15, 14	SC-13, 12	SC-11, 10	SC-9, 8	SC-7, 6	SC-5, 4	SC-3, 2	SC-1, 0	

Standard Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing



FLDP-OM 8-0001
FLDP-OM 8-0002
FLDP-OM 16-0001

Electrical

- Operating Current: <math>< 150 \text{ mA}</math> (from U_B)
- Output Current: <math>< 500 \text{ mA}</math> per output (...0001) or 2 A per output (...0002) (from U_L)

Power Distribution

- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55 °C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

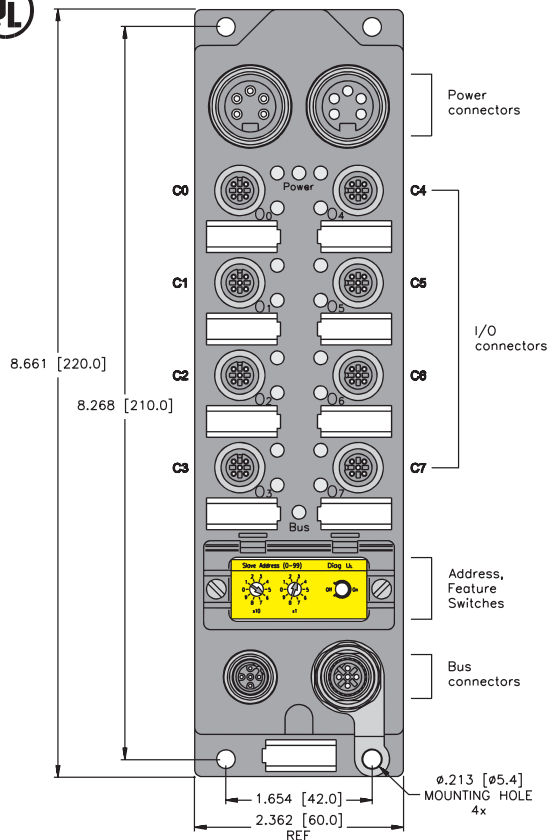
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- U_B and U_L power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS communication and power supplies



minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = U_L

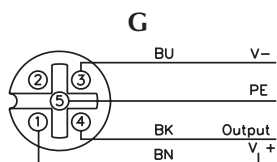
PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

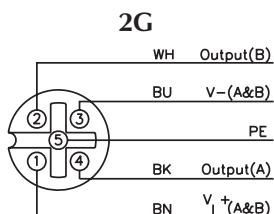
- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

Part Number	Outputs								Data
	Output Count	Connectors	Pinout	Outputs per Connector	Current	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-OM 8-0001	8	0-7	G	1	0.5 A				1
FLDP-OM 8-0002	8	0-7	H	1	2 A				1
FLDP-OM 16-0001	16	0-7	2G	2	0.5 A				2

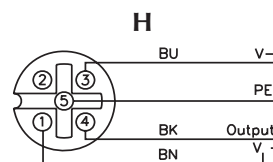
Input/Output Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T
Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
RK 4.5T-*-RS 4.5T

PROFIBUS-DP

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	-	-	-	-	-	-	V _i	V ₀	-

I/O Data Map 2

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	-	-	-	-	-	-	V _i	V ₀	-

Deluxe Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing



FXDP-OM 8-0001
FXDP-OM 16-0001

Electrical

- Operating Current: <70 mA (from U_B)
- Output Current: <1.4 A per output (from U_L)

Power Distribution

- Outputs: U_L power supply

Mechanical

- Operating Temperature: -25 to +55°C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

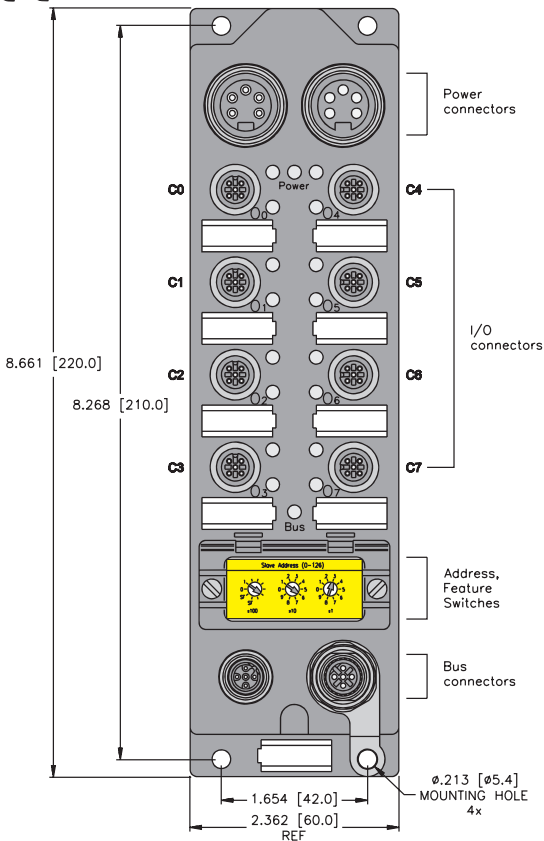
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Output short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating a fault for each output point

Diagnostics (Physical)

- One LED indicates short-circuit for each output point
- LEDs to indicate status of PROFIBUS communication and power supply



minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = U_L

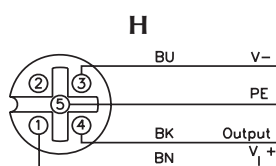
PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

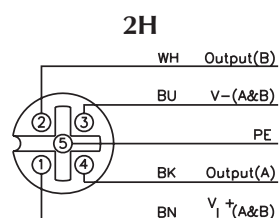
- 1 = 5 VDC*
 - 2 = BUS_A
 - 3 = Gnd
 - 4 = BUS_B
 - 5 = Shield
- * Female connector only

Outputs									Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
FXDP-OM 8-0001	8	0-7	H	1	1.4 A	X	X		1
FXDP-OM 16-0001	16	0-7	2H	2	1.4 A	X	X		2

Input/Output Connectors



Mating cordset:
 RK 4.4T-*/RS 4.4T



Mating cordset:
 RK 4.4T-*/RS 4.4T

Splitter:
 VBRS 4.4-2RK 4T-*/*

PROFIBUS-DP

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	V ₀	SC
	1	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-0
	2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	

I/O Data Map 2

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8	
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	V ₀	SC
	1	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-0
	2	SC-15	SC-14	SC-13	SC-12	SC-11	SC-10	SC-9	SC-8
3	-	-	-	-	-	-	-	-	

Standard Input/Output Stations



- FLDP-IOM 84-0001
- FLDP-IOM 88-0001
- FLDP-IOM 88-0002
- FLDP-IOM 88-0004



- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <150 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per group inputs (from U_B group is all inputs for IOM 84 and IOM 88-0002, two groups of four inputs for IOM 88-0001)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

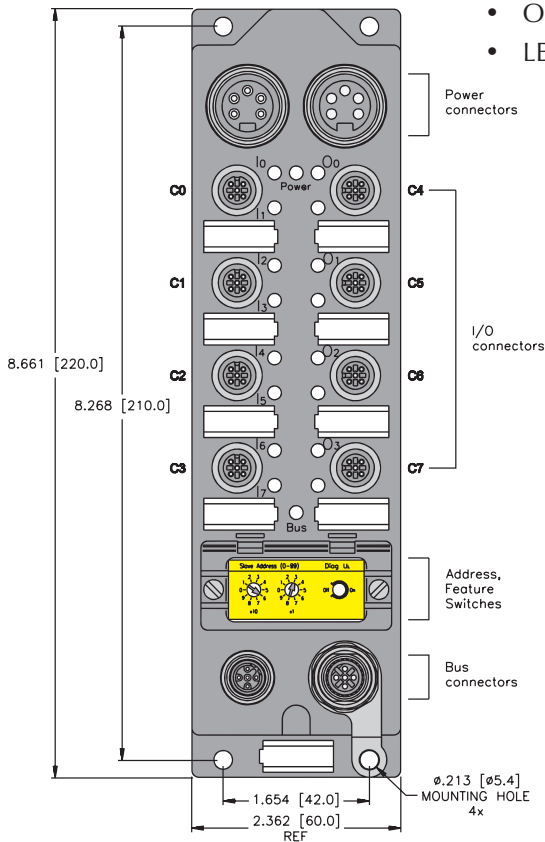
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One LED indicates short-circuit for all inputs
- LEDs to indicate status of PROFIBUS communication and power supply



- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = U_L

minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

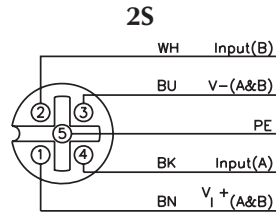
PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 84-0001	8	0-3	2S	2	PNP	X			4	4-7	H	1	2 A			1
FLDP-IOM 88-0001	8	0-7	C	1	PNP	X			8	0-7	C	1	0.5 A			2
FLDP-IOM 88-0002	8	0-3	2S	2	PNP	X			8	4-7	2G	2	0.5 A			2
FLDP-IOM 88-0004*	8	0-3	2S	2	PNP	X			8	4-7	2G	2	0.5 A			2

* High speed (0.2 ms) inputs

Input/Output Connectors

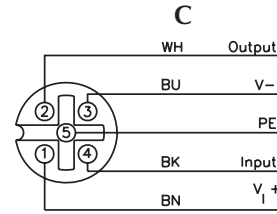


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

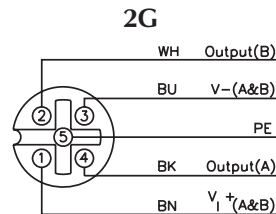


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

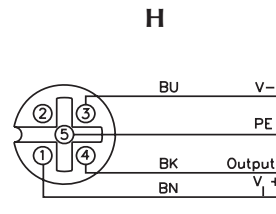


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*



Mating cordset:

RK 4.4T-*-RS 4.4T

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	-	0-6	-	0-4	-	0-2	-	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _i	V ₀	SC

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _i	V ₀	SC

Standard Input/Output Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Screw Terminal Connections
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <math>< 150\text{ mA}</math> plus sum of input currents (from U_B)
- Sensor Current: <math>< 500\text{ mA}</math> sum of all inputs (from U_B)
- Output Current: <math>< 500\text{ mA}</math> per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55 °C (+32 to +131 °F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

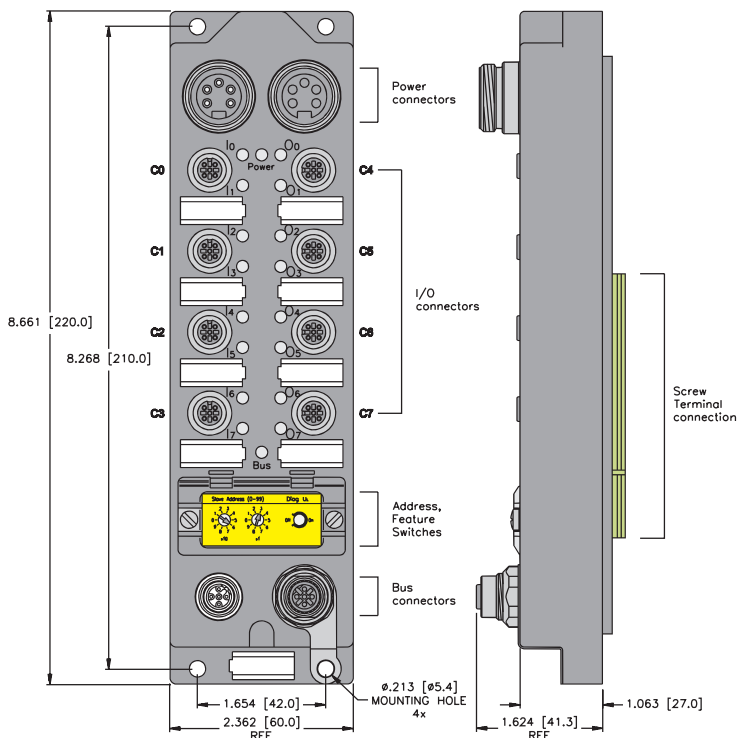
Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One LED indicates short-circuit for all inputs
- LEDs to indicate status of PROFIBUS communication and power supply

FLDP-IOM 88-0002-ST



- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = U_L

minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

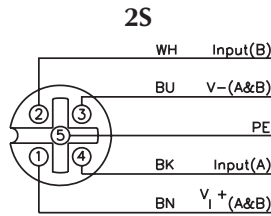
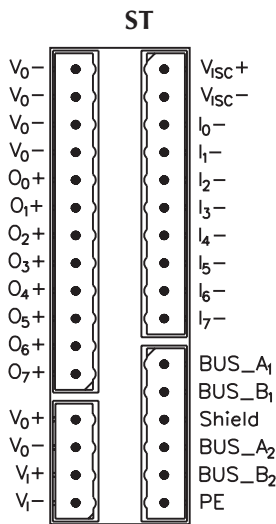
PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 88-0002-ST	8	0-3	ST, 2S	2	PNP	X			8	4-7	ST, 2G	2	0.5 A			1

Input/Output Connectors

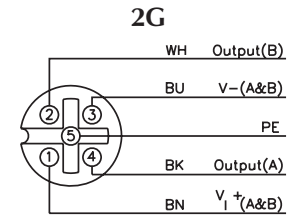


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*



Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _I	V ₀	SC

Standard Input/Output Stations



FLDP-IOM 1616-0001
FLDP-IOM 248-0001



- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <110 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per eight inputs (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

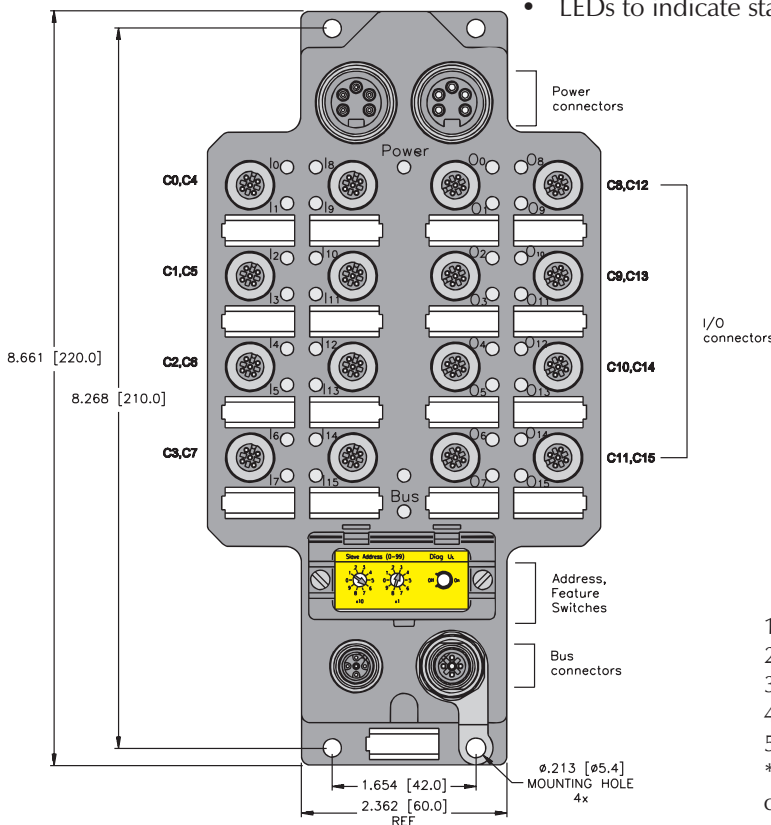
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One LED indicates short-circuit for each group of eight inputs
- LEDs to indicate status of PROFIBUS communication and power supply



- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = U_L

minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

PROFIBUS eurofast® Pinouts

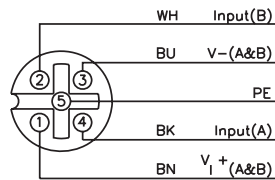
Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

Part Number	Inputs										Outputs				Data	
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 1616-0001	16	0-7	2S	2	PNP	X			16	8-15	2G	2	0.5 A			1
FLDP-IOM 248-0001	24	0-11	2S	2	PNP	X			8	12-15	2G	2	0.5 A			2

Input/Output Connectors

2S



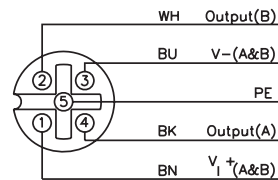
Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

2G



Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	2	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _i	V ₀	SC

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
2	I-23	I-22	I-21	I-20	I-19	I-18	I-17	I-16	
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	V _i	V ₀	SC

Input/Output Station for Robot Control

- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing



FLDP-IOM 2012-0001



Electrical

- Operating Current: <math>< 110\text{ mA}</math> plus sum of input currents (from U_B)
- Sensor Current: <math>< 500\text{ mA}</math> per group of eight or twelve inputs (from U_B)
- Output Current: <math>< 500\text{ mA}</math> per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

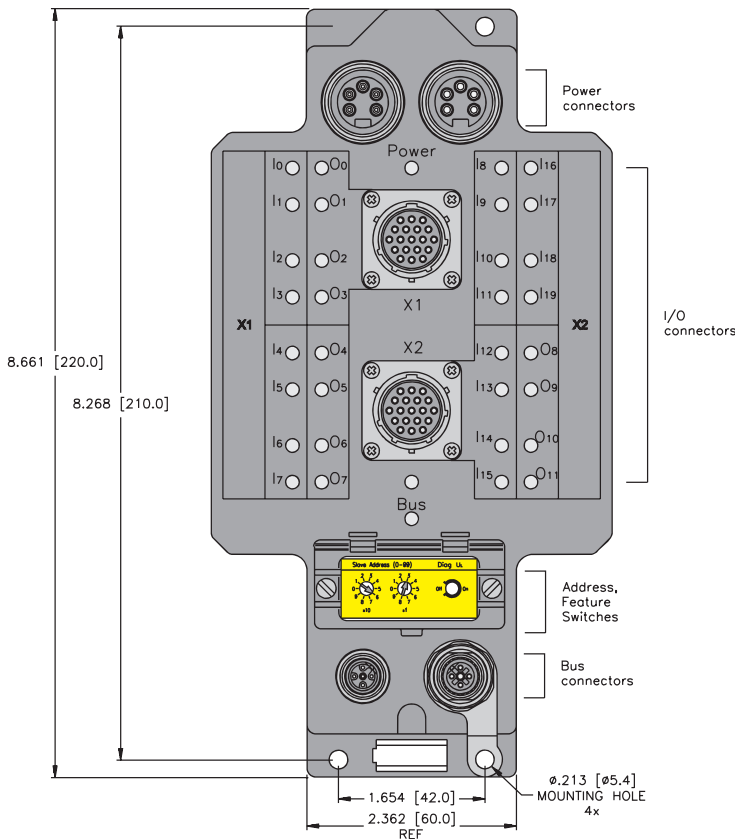
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One LED indicates short-circuit for each group of inputs
- LEDs to indicate status of PROFIBUS communication and power supply



PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

- 1 = Gnd2
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = U_L

Part Number	Inputs							Outputs					Data			
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM 2012-0001	20	X1,X2	B2	8, 12	PNP	X			12	X1,X2	B2	8,4	0.5 A			1

Input/Output Connectors

B2



	X1	X2
A	V+	V+
B	V-	V-
S	l ₀	l ₀
R	l ₁	l ₁
M	l ₂	l ₂
L	l ₃	l ₃
H	l ₄	l ₄
G	l ₅	l ₅
D	l ₆	l ₆
C	l ₇	l ₇
U	O ₀	l ₈
T	O ₁	l ₉
P	O ₂	l ₁₀
N	O ₃	l ₁₁
K	O ₄	O ₀
J	O ₅	O ₁
F	O ₆	O ₂
E	O ₇	O ₃
V	PE	PE

PROFIBUS-DP

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	X1I7	X1I6	X1I5	X1I4	X1I3	X1I2	X1I1	X1I0
	1	X2I7	X2I6	X2I5	X2I4	X2I3	X2I2	X2I1	X2I0
	2	-	-	-	-	X2I11	X2I10	X2I9	X2I8
Out	0	X1O7	X1O6	X1O5	X1O4	X1O3	X1O2	X1O1	X1O0
	1	-	-	-	-	X2O3	X2O2	X2O1	X2O0
Diagnosis									
Status	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	U ₁	U ₀	SC

Standard Input/Output Stations



FLDP-IOM124-0001
FLDP-IOM124-0002



- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <150 mA plus sum of input currents (from U_B)
- Sensor Current: <500 mA per group inputs (from U_B group is all inputs for IOM 84 and IOM 88-0002, two groups of four inputs for IOM 88-0001))
- Output Current: See table on facing page (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

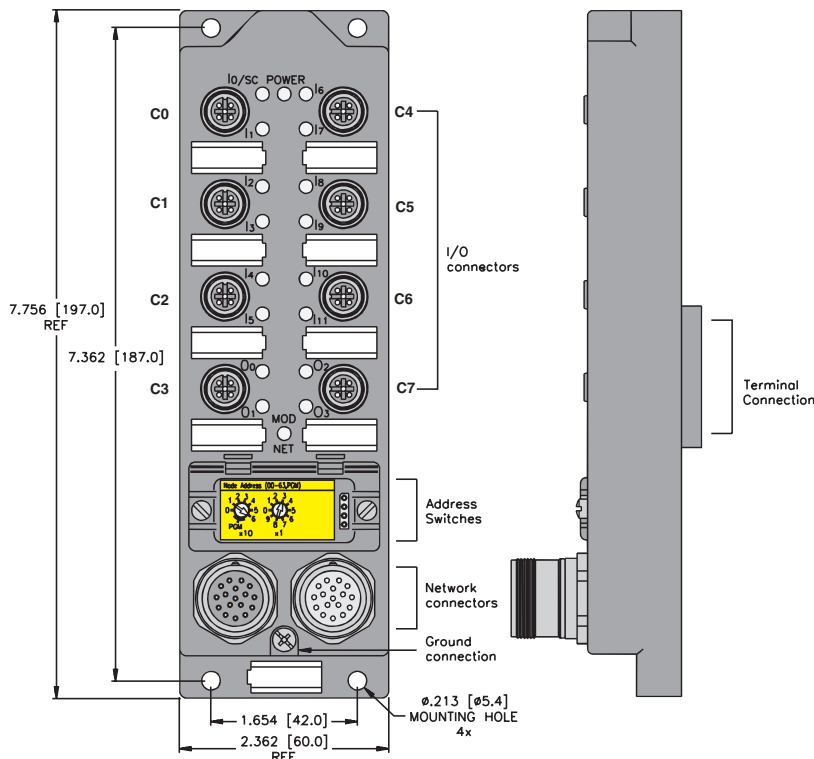
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- Input short-circuit and power supply status mapped to PROFIBUS diagnostic table, one bit indicating each fault for the entire station

Diagnostics (Physical)

- One LED indicates short-circuit for all inputs
- LEDs to indicate status of PROFIBUS communication and power supply



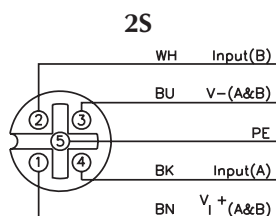
DeviceNet *multifast* Pinout

Male	Female
17-Pin	17-Pin

- | | |
|--------------|------------------|
| 1 = 0 V, us1 | 10 = KSR1 |
| 2 = 0 V, US2 | 11 = * |
| 3 = +24, US2 | 12 = Us CAN high |
| 4 = +24, US1 | 13 = Devnet high |
| 5 = PE | 14 = Devnet low |
| 6 = * | 15 = RBST |
| 7 = Us COM | 16 = UL |
| 8 = * | 17 = Us CAN low |
| 9 = KSR2 | |

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FLDP-IOM124-0001	12	6	2S	2	PNP	X			4	2	2G	2	2 A			1
FLDP-IOM124-0002	12	6	2S	2	PNP	X			4	2	2G	2	2 A			1

Input/Output Connectors

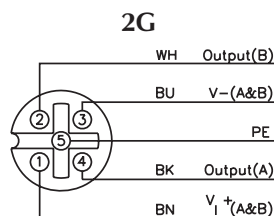


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*



Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

I/O Data Map 1

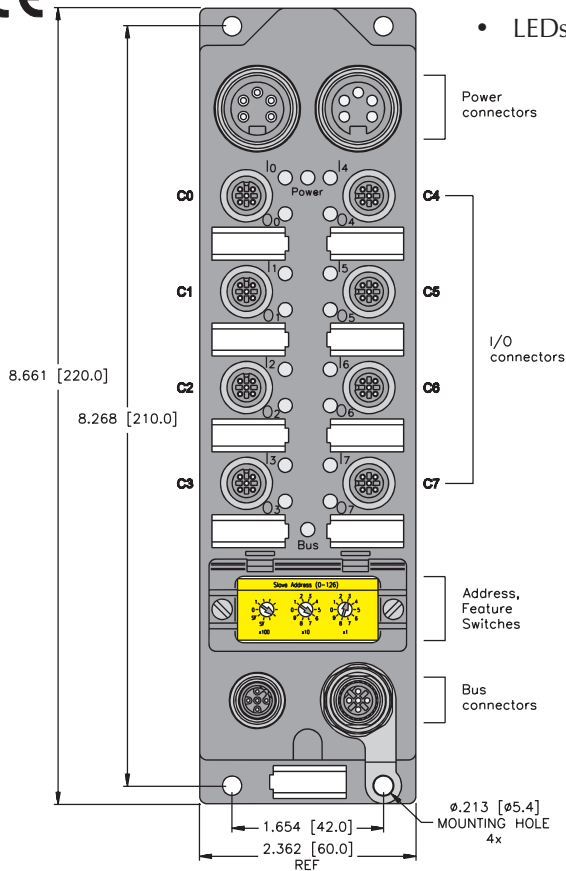
In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	C4P2	C4P4	C2P2	C2P4	C1P2	C1P4	C0P2	C0P4
	1	-	-	-	-	C6P2	C6P4	C5P2	C5P4
Out	0	-	-	-	-	C7P2	C7P4	C3P2	C3P4
Diagnosis									
Diag	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	-	-	-	-	-	U _B	U _L	SC

Deluxe Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Rotary Address Switches
- Automatic Baud Rate Sensing



FXDP-IOM 88-0001
FXDP-CSG 88-0001
FXDP-XSG 16-0001



Electrical

- Operating Current: <math><70\text{ mA}</math> plus sum of input currents (from U_B)
- Sensor Current: <math><120\text{ mA}</math> per connector (input or pair of inputs) (from U_B)
- Output Current: 1.4 A per output (from U_L)

Power Distribution

- Inputs: U_B power supply
- Outputs: U_L power supply

Mechanical

- Operating Temperature: -25 to +55°C (-13 to +131°F)
- Protection: NEMA 1,3,4,12,13 / IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- I/O and power supply faults mapped to PROFIBUS diagnostic table, one bit per output and one bit per input connector

Diagnostics (Physical)

- One LED indicates short-circuit for each I/O point
- LEDs to indicate status of PROFIBUS communication and power supply

minifast® Power Pinouts

Male	Female
5-Pin	5-Pin

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = U_L

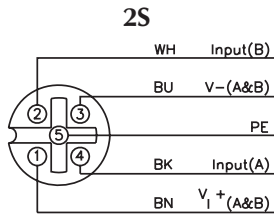
PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
 - 2 = BUS_A
 - 3 = Gnd
 - 4 = BUS_B
 - 5 = Shield
- * Female connector only

Part Number	Inputs								Outputs						Data	
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
FXDP-IOM 88-0001	8	0-3	2S	2	PNP		X		8	4-7	2G	2	1.4 A	X		1
FXDP-CSG 88-0001	8	0-7	C	1	PNP		X		8	0-7	C	1	1.4 A	X		2
FXDP-XSG 16-0001	16	0-7	2X	1	PNP		X		16	0-7	2X	1	1.4 A	X		3

Input/Output Connectors

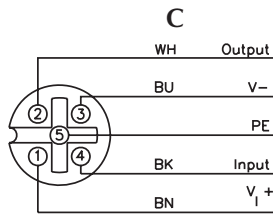


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

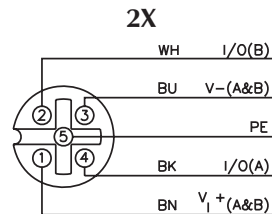


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VB2-RS 4.4T-1/2RK 4.4T-*/S651

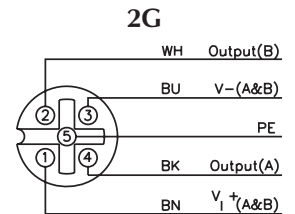


Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*



Mating cordset:

RK 4.4T-*-RS 4.4T

Splitter:

VBRS 4.4-2RK 4T-*/*

PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
Diag	0	-	-	-	-	-	UB	UL	SC
	1	SC-15	SC-14	SC-13	SC-12	SC-11	SC-10	SC-9	SC-8
	2	-	-	-	-	SC-7,6	SC-5,4	SC-3,2	SC-1,0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
Diag	0	-	-	-	-	-	UB	UL	SC
	1	SC-7	-	SC-5	-	SC-3	-	SC-1	-
	2	SC-15	-	SC-13	-	SC-11	-	SC-9	-
	3	SC-17	SC-16	SC-15	SC-14	SC-13	SC-12	SC-11	SC-10
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

I/O Data Map 3

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0	
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
Diag	0	-	-	-	-	-	UB	UL	SC
	1	SC-7	SC-6	SC-5	SC-4	SC-3	SC-2	SC-1	SC-1
	2	SC-15	SC-14	SC-13	SC-12	SC-11	SC-10	SC-9	SC-8
	3	SC-15,14	SC-13,12	SC-11,10	SC-9,8	SC-7,6	SC-5,4	SC-3,2	SC-1,0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0
	1	0-15	0-14	0-13	0-12	0-11	0-10	0-9	0-8

PROFIBUS-DP FDP20 Stations

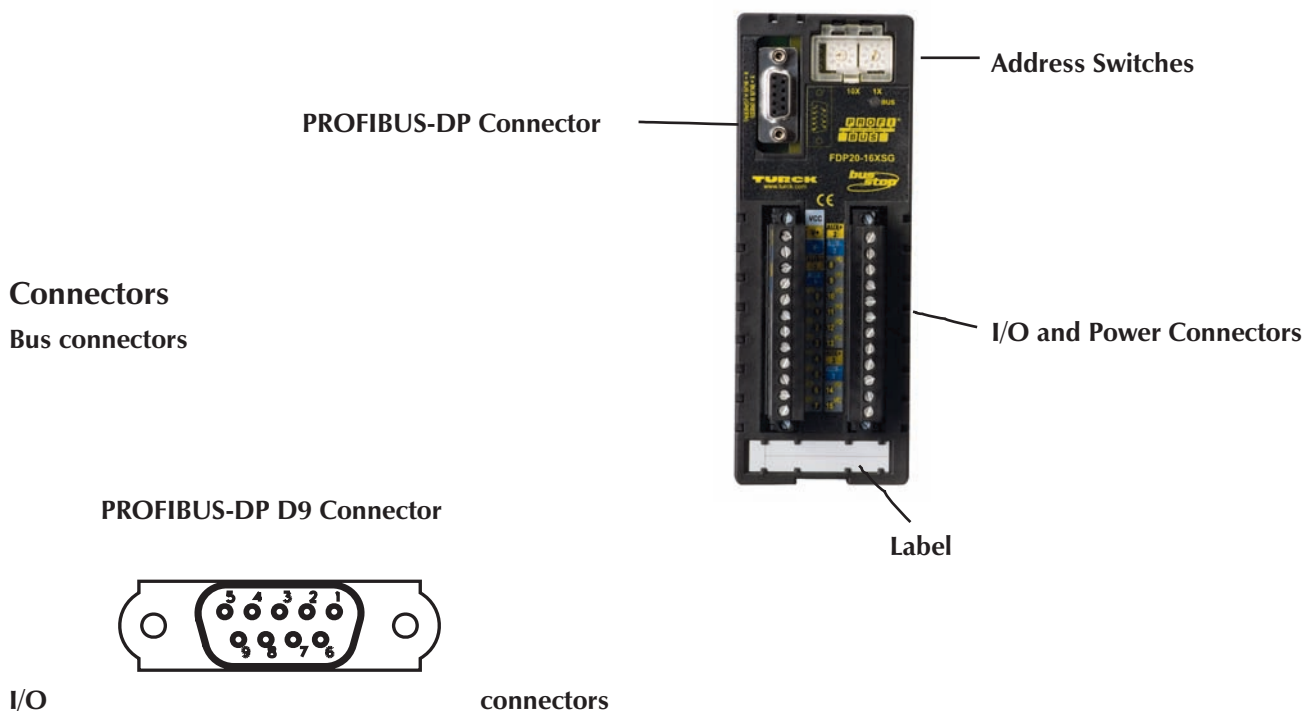
TURCK's FDP20 PROFIBUS stations are low-cost screw-terminal connection stations designed for mounting in an enclosure. These stations provide easy connection of standard I/O devices such as push buttons, pilot lights, motor starters and drives to a PROFIBUS network. FDP20 stations are designed to easily upgrade existing equipment to a PROFIBUS network.

Mechanical Specifications

TURCK FDP20 stations are designed to be mounted in standard equipment enclosures (operator stations, motor control centers, etc.). These stations use screw terminal connections for all I/O and network wiring. Detailed environmental specifications include:

- Housing material: Nylon 6
- Protection level: IP 20
- Operating temperature: 0 to +55°C (32 to +131°F)

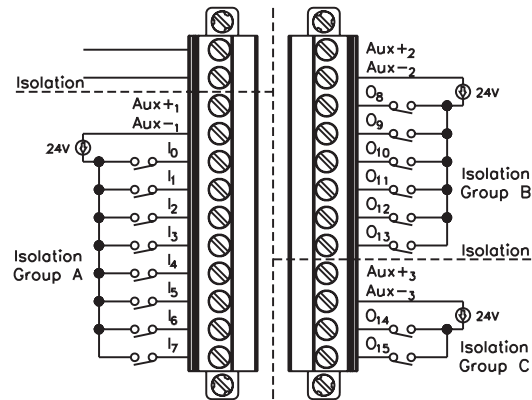
The station's components are identified in the figure below.



Each FDP20 version uses a different screw terminal connector. Detailed pinout information is given in the product information on the following pages.

Power

FDP20 stations provide an auxiliary power connection for I/O devices and station electronics. Power can be applied separately to different I/O groups as shown in the following diagram.

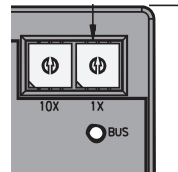


Power ratings for FDP20 stations:

- Operating Voltage: 18-30 VDC (24 VDC nominal)
- Internal Current Consumption: <75 mA (@ nominal 24 VDC) plus sum of I/O currents
- Input Signal Current (each input): OFF < 0.5 mA; ON 1-3.4 mA
- Input Delay: 2.5 ms
- Output Current: 1.8 A max per output (XSG version only)

Addressing

PROFIBUS® stations must have a network address for communication. The address for FDP20 stations may be set via the visible rotary switches on the front of the station.



The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the stations, rotate the switches with a small slotted screwdriver until the arrows are pointing at the appropriate numbers for the chosen address.

Diagnostics

FDP20 stations provide LEDs for diagnosing communication problems.

Bus

- Green: Normal operation
- Red: No communication

Voltage Supply

- Green: Power present
- Red: No power

Input/Output Status

- Off: Point is off
- Green: Point is on

Common short-circuit Indication (Two LEDs for entire station)

- Red: short-circuit within group of inputs

**Enclosure Mounted
 Input/Output Station**

- In-Cabinet I/O
- IP 20 Protection
- Ideal for Retrofits
- Automatic Baud Rate Detection



FDP20-16XSG
FDP20-16S



Electrical

- Operating Current: <75 mA plus sensor currents (from Auxiliary power)
- Input Current: <700 mA sum of all inputs (from Auxiliary power)
- Output Current: <1.8 A per output (from Auxiliary power)

Power Distribution

- Inputs: Auxiliary power
- Outputs: Auxiliary power supply

Mechanical

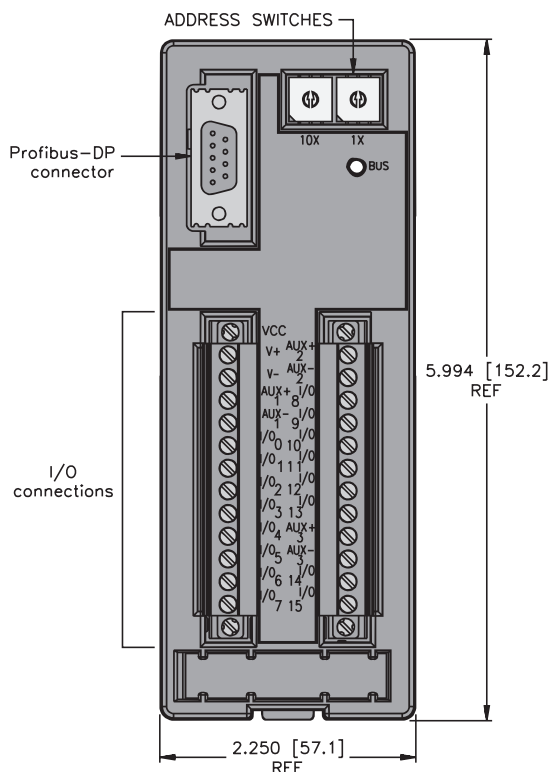
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 20

Material

- Housing: Nylon

Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP communication



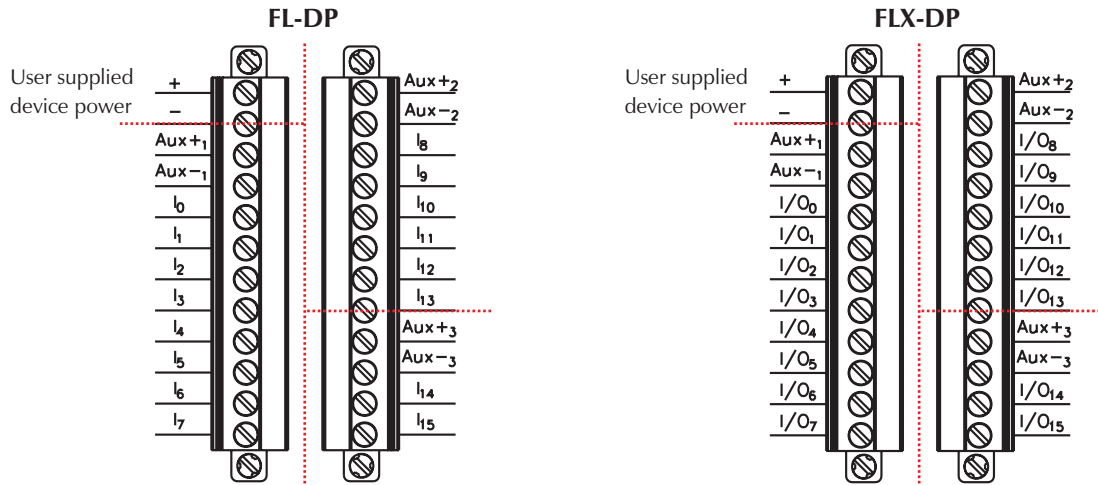
PROFIBUS-DP D9 Connector



- 3 = BUS_B
- 5 = DGnd
- 6 = +5VDC
- 8 = BUS_A

Part Number	Inputs						Outputs				Data	
	Input Count	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Data Map
FDP20-16XSG	16	FLX-DP	PNP				16	FLX-DP	0.5 A			1
FDP20-16S	16	FL-DP	PNP				0					2

Input/Output Connectors



..... Indicates I/O groups which can be powered from separate Aux. power supplies if desired

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	
Out	0	O-7	O-6	O-5	O-4	O-3	O-2	O-1	O-0
	1	O-15	O-14	O-13	O-12	O-11	O-10	O-9	O-8

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
1	I-15	I-14	I-13	I-12	I-11	I-10	I-9	I-8	

Profibus-DP Repeater



REP-DP-0002

- Extend Network Length
- Extend Drop Lengths
- Allows More Than 32 Stations on Network
- Isolate Communication Segments

Electrical

- Operating Current: <60 mA

Power Distribution

- Station: Auxiliary power supply (U_B)

Mechanical

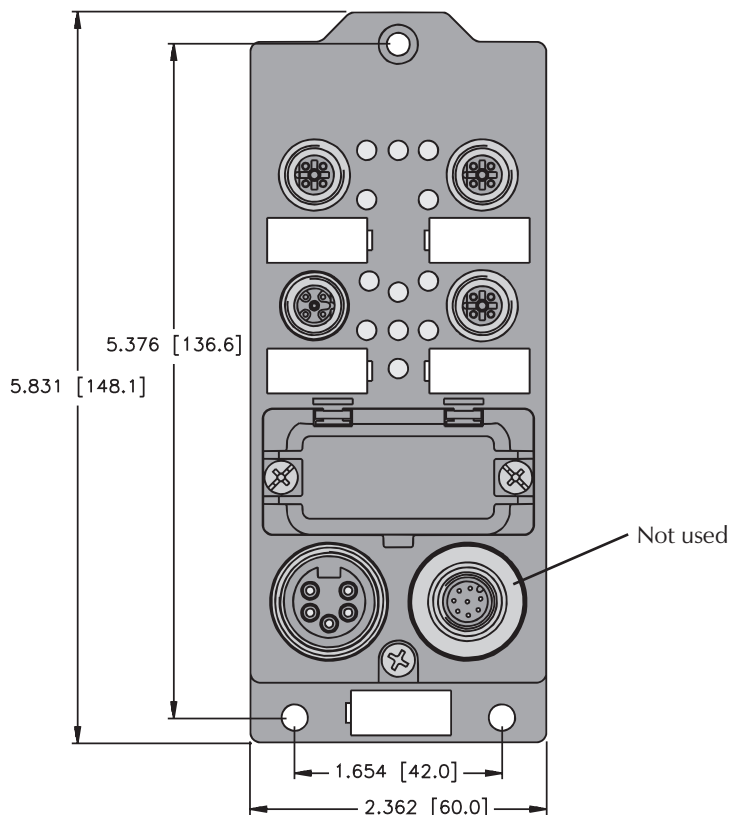
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: NEMA 1,3,4,12,13 and IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Physical)

- LEDs indicate communication status for each segment and power supply



PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

minifast® Power Pinouts

Male
5-Pin

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = U_B
- 5 = NC

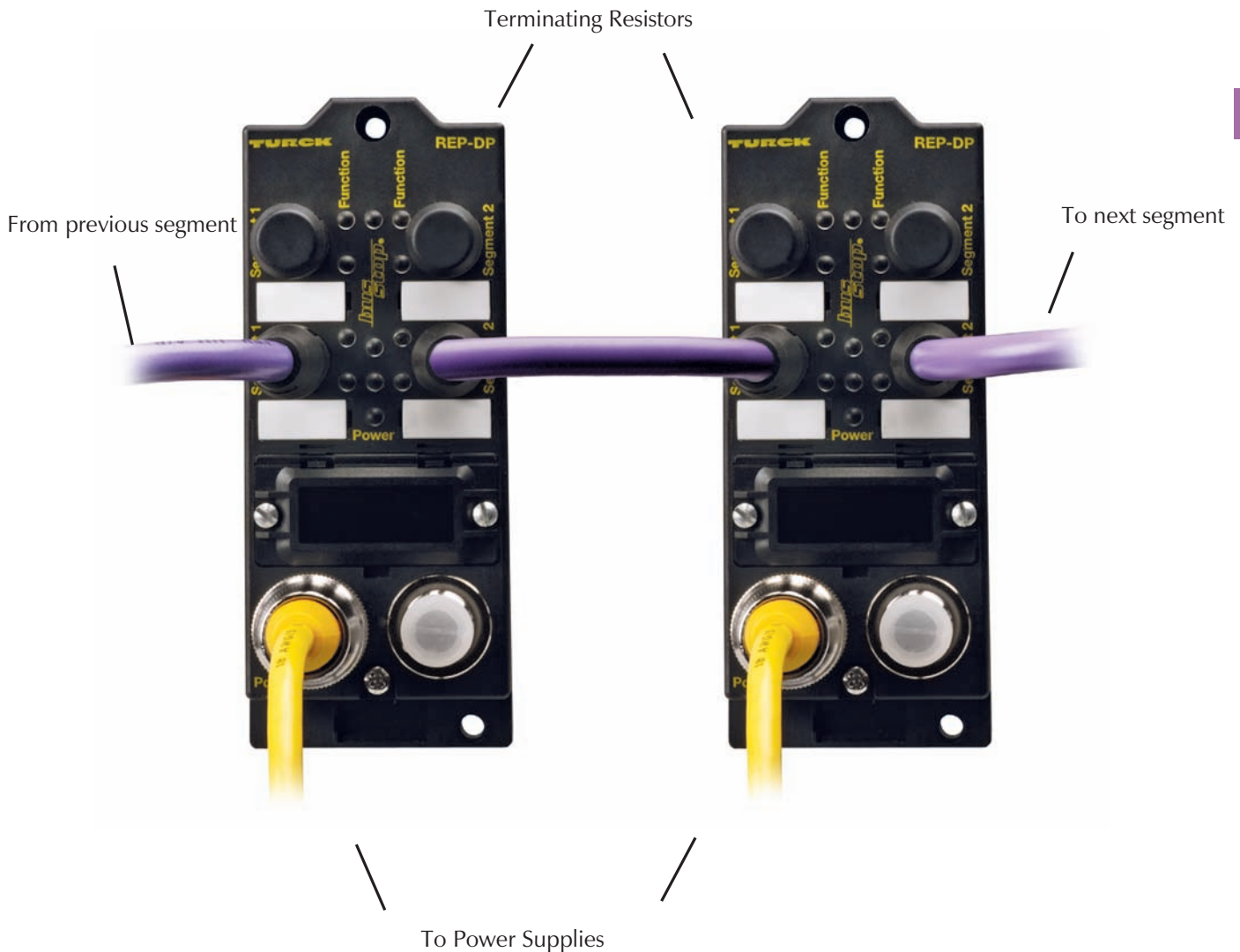
PROFIBUS[®]-DP Repeater

The **REP-DP** repeater serves to assemble two galvanically isolated PROFIBUS-DP segments in RS-485 technology with 32 participants each, and provides IP 67 protection. Up to four repeaters can be connected in series, so that up to 127 nodes can be operated via a single master; thus PROFIBUS networks can be extended significantly by using repeaters (depending on the baud rate).

The transmission rate is detected automatically (up to 12 Mbaud), and the signals are regenerated in amplitude. If there are faulty protocols in one of the segments (a wire-break, short-circuit in the bus line or by a defective node), that segment is decoupled and an error indication is provided by the LED.

Connection:

Individual PROFIBUS segments are connected via M12 connectors (see technical guidelines for PROFIBUS connection technology). The repeater is equipped with three female and one male connector; unused connections must be terminated with a terminating resistor (type: RSSW 45-TR). The shield of the PROFIBUS cable can be grounded directly via a grounding screw (internally the shield is coupled capacitively with the ground). Power (24 VDC) is supplied via standard 7/8 inch connectors.



PROFIBUS-DP

PROFIBUS-DP *piconet*® Stations

TURCK's PROFIBUS *piconet* stations are compact rugged stations designed for on-machine mounting. These stations allow easy connection to standard I/O devices such as sensors, limit switches, valves and pilot lights to a PROFIBUS network, typically without the need for a protective enclosure. This is made possible by epoxy-filled station housings, all-metal connectors and visible rotary address switches, among other things.

piconet's small size sets them apart from other stations. *piconet* stations are the smallest rugged I/O modules available, with a standard housing footprint of 30 x 175 mm. They are also available with M8 connectors for I/O, making them ideally suited for small-space applications.

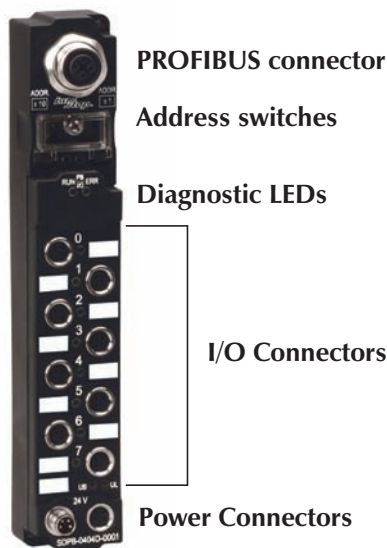
piconet stations are able to create a small distributed subnetwork from the PROFIBUS system, allowing the user to choose a gateway node (identified by the part number SDPL...) to connect to a PROFIBUS system. A fiber-optic network connects the gateway to the chosen I/O modules, creating a distributed system visible to PROFIBUS stations as a single node.

Mechanical Specifications

TURCK PROFIBUS *piconet* stations are designed to be mounted directly on machines and work cells with no separate enclosure or housing necessary. The epoxy-filled housing creates a durable station that allows it to be mounted in most industrial environments. Detailed environmental specifications include:

- Housing material: Glass filled nylon
- Connector material: Nickel-plated brass
- Protection level: NEMA 1,3,4,12,13; IEC IP 67
- Operating temperature: 0 to +55°C

The station's components are identified in the figure below.

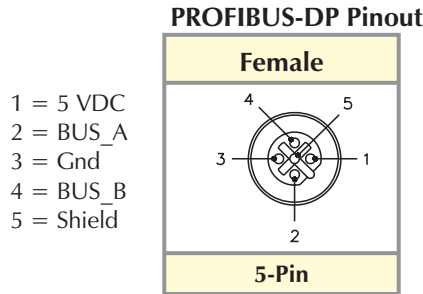


Connectors

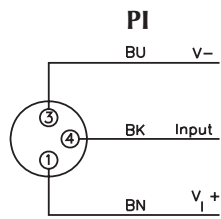
PROFIBUS *piconet* stations have connectors for the bus and I/O power, as well as for subnetwork communication for gateways. *piconet* stations power all I/O from auxiliary power.

Bus Connector:

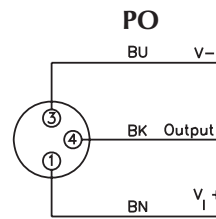
PROFIBUS *piconet* stations use *euromast*® (M12) connectors for bus connection.



piconet stations with discrete I/O are available with *picofast* connectors.



Mating cordset:
PSG 3M-*

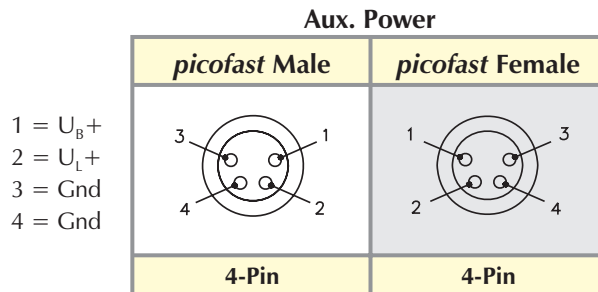


Mating cordset:
PSG 3M-*

piconet stations with analog and special function I/O are available with *euromast* connectors.

Auxiliary Power Connectors

piconet stations have two auxiliary power connectors, one male and one female, so the stations may be “daisy-chained” without requiring a T-connector. 4-pin *picofast* auxiliary power connectors are used to connect two power supplies: one for station electronics and inputs and one for outputs.



Subnetwork Connectors (Gateway modules only)

The *piconet* subnetwork uses a fiber-optic medium for communication. This is a ring network system, so it is important to connect the fiber-optic output from the last station back to the input on the gateway. The fiber used is plastic and features a simple snap-in connector. Some stations may be available with different connector options than the standards mentioned in this text. Consult your local sales representative if you need different connector options.



TURCK

Modular Industrial I/O PROFIBUS®-DP Products



Power

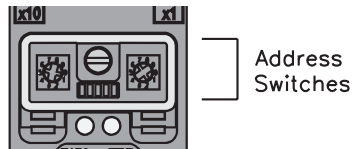
Power ratings for *piconet*® stations are listed below.

- Aux Power Voltage: 24 VDC (nominal)
- Input Voltage: 13-26 VDC (From auxiliary supply, V_B)
- Output Voltage: From auxiliary supply, V_L

Addressing

PROFIBUS stations must have a network address for communication. The address for *piconet* stations may be set via the visible rotary switches under the clear plastic cover on the front of the station.

Address = $6 \times 10 + 3 \times 1 = 63$



The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the station, rotate the switches with a small slotted screwdriver until the arrows are pointing at the appropriate numbers for the chosen address.

Diagnostics

piconet® stations provide LEDs for diagnosing communication problems.

Bus

- Green - Normal operation
- Red - No communication

Module Status

- Green - OK
- Red - Error

There is an additional LED for each I/O point on the station. This LED indicates:

- Off - Point is off
- Green - Point is on

There is also an LED to indicate the status of each of the two auxiliary power supplies.

- Off - Power is missing
- On - Power is present

TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

Visit our site for new product releases, approvals, white papers, application support and more.

Search for products by part number, ID number or key word

Access to all TURCK catalogs, press releases, white papers and tutorials

Complete category listing of TURCK products

Access to CAD, wiring and pinout diagrams

Download or e-mail files, request for quote

Option to e-mail pages

Contact a TURCK representative

Part Number	ID Number	Catalog Page	Manual / ADAMT	Data Sheet	CAD	Confile	Wires
BL47-12E1	M4027191						
BL47-12E2	M4027179						
BL47-240-PT	M4027177						
BL47-240-PC	M4027178						
BL47-240-W	M4027176						

PROFIBUS-DP

www.turck.com

Input Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDPB-0800D-0008

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

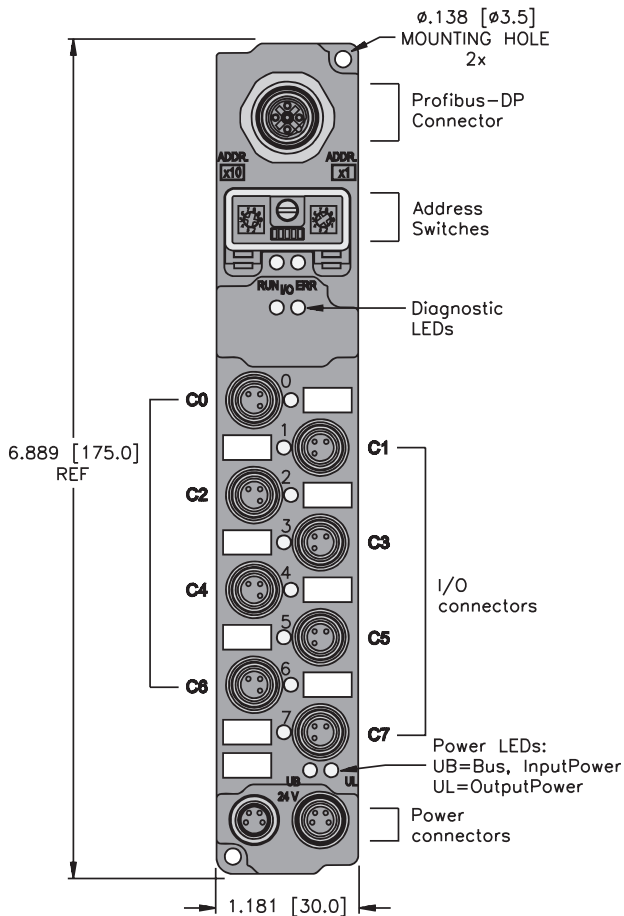
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

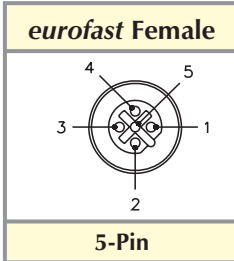
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

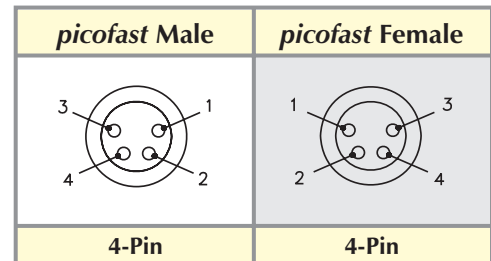


PROFIBUS-DP Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

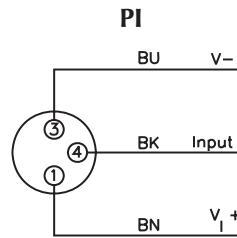
Aux. Power



- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Map
SDPB-0800D-0008	8	0-7	PI	1	PNP				1

Input Connectors



Mating cordset:
PSG 3M-*

PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0

Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

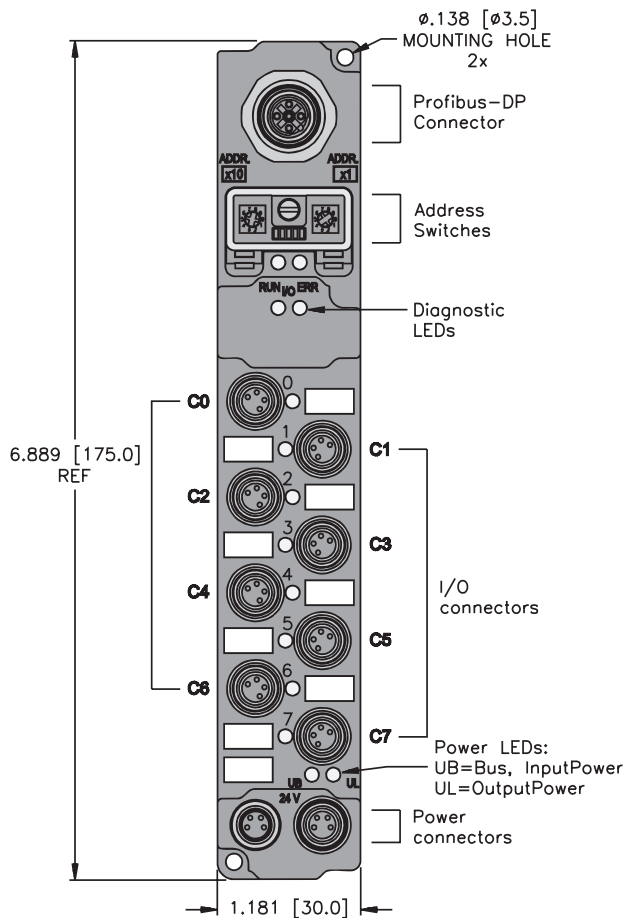
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

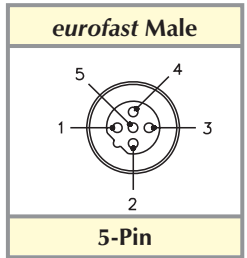
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

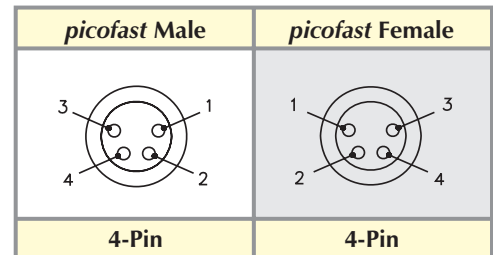
SDPB-0808D-0001



Profibus-DP Pinout

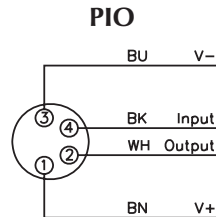


Aux. Power



Inputs										Outputs					Data	
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0808D-0001	8	0-7	PIO	1	PNP				8	0-7	PIO	1	0.5 A			1

Input/Output Connectors



Mating cordset:
PSG 4M-*

PROFIBUS-DP

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDPB-0008D-0006
SDPB-0008D-0002



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Outputs: U_L Power supply

Mechanical

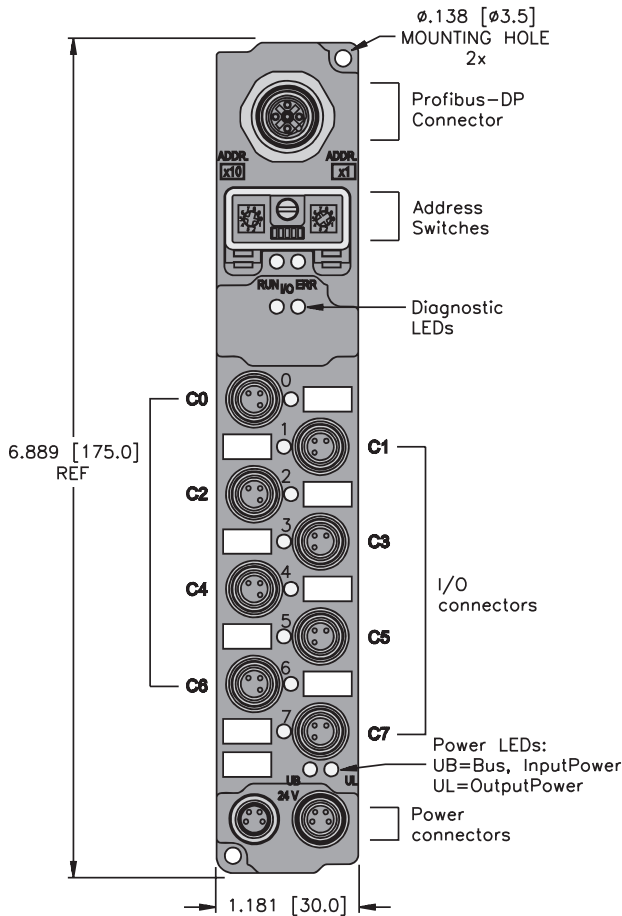
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

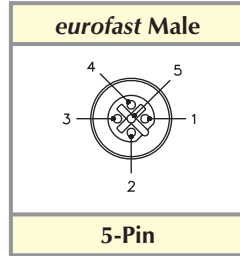
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

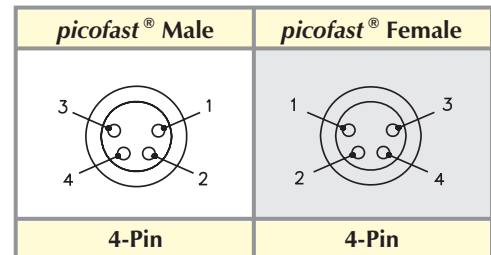


PROFIBUS-DP Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

Aux. Power

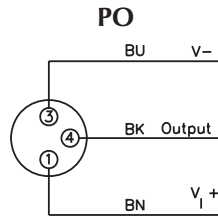


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0008D-0006	8	0-7	PO	1	0.5 A			1
SDPB-0008D-0002	8	0-7	PO	1	2 A*			1

*Note: Total output current is limited to 4 A.

Output Connectors



Mating cordset:
PSG 3M-*

PROFIBUS-DP

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

Discrete Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDPB-0404D-0005
SDPB-0404D-0001



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: See table on facing page from U_L

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

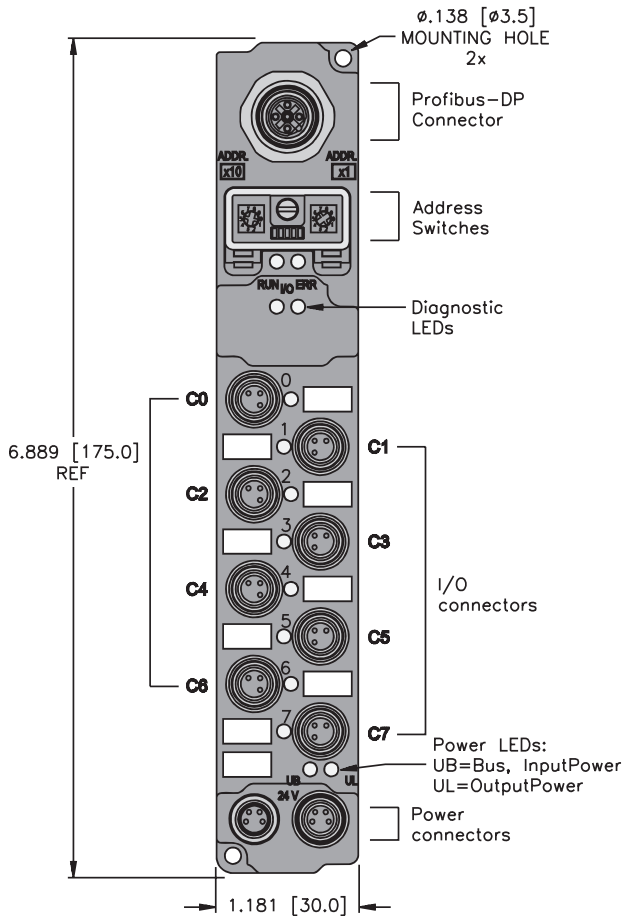
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

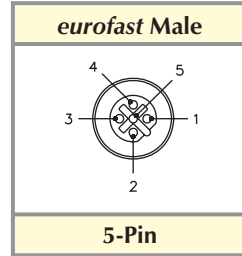
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

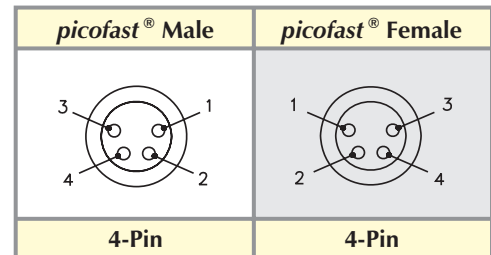
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication



PROFIBUS-DP Pinout



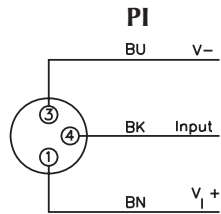
Aux. Power



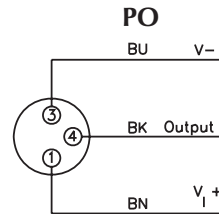
Inputs										Outputs				Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0404D-0005	4	0-3	PI	1	PNP				4	4-7	PO	1	2 A*			1
SDPB-0404D-0001	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

*Note: Total output current is limited to 4 A.

Input/Output Connectors



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

PROFIBUS-DP

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	-	-	-	-	I-3	I-2	I-1	I-0
Out	0	-	-	-	-	0-3	0-2	0-1	0-0

Analog Input Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDPB-40A-0005
SDPB-40A-0007



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

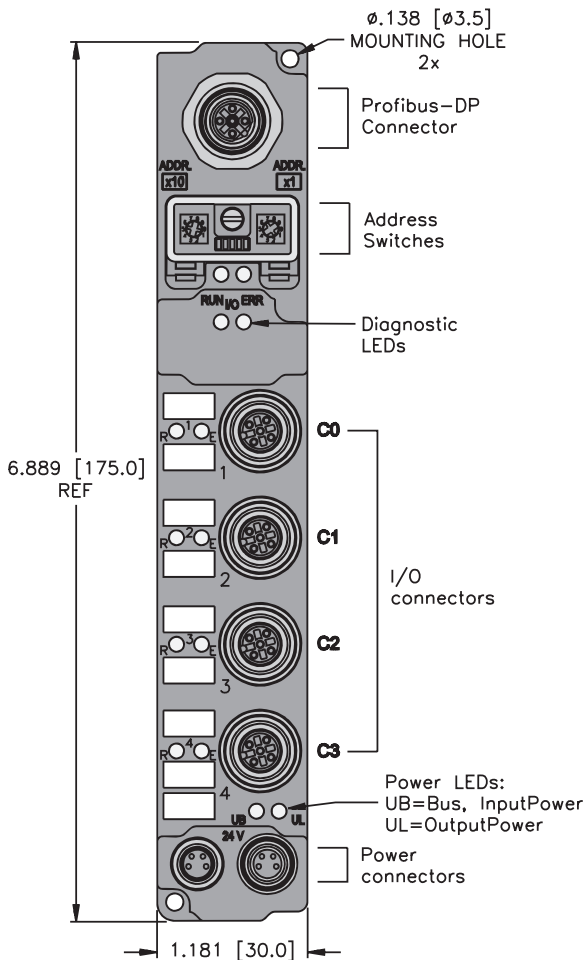
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

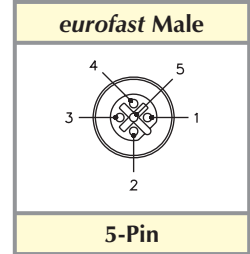
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

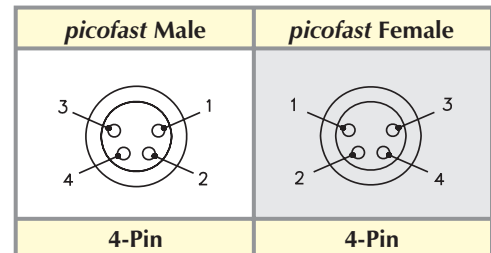


PROFIBUS-DP Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

Aux. Power

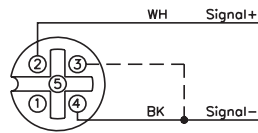


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

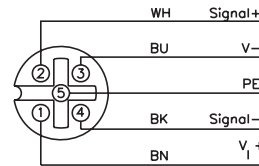
Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-40A-0005	4	0-3	AI	1	0 to 10 V				1
SDPB-40A-0007	4	0-3	AI	1	0 to 20 mA				1

Input/Output Connectors

AI



Loop Powered (Isolated)



DeviceNet Powered Transducer

Mating cordset:

RK 4.5T-*-RS 4.5T

Applications:

TURCK Sensors:
LU; RK 4.4T-*-RS 4.4T/S1118

LI; RK 4.4T-*-RS 4.4T/S1120

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0					Channel 0, MSB			
	1					Channel 0, LSB			
	2					Channel 1, MSB			
	3					Channel 1, LSB			
	4					Channel 2, MSB			
	5					Channel 2, LSB			
	6					Channel 3, MSB			
	7					Channel 3, LSB			

Temperature Input Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDPB-40A-0004
SDPB-40A-0009



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

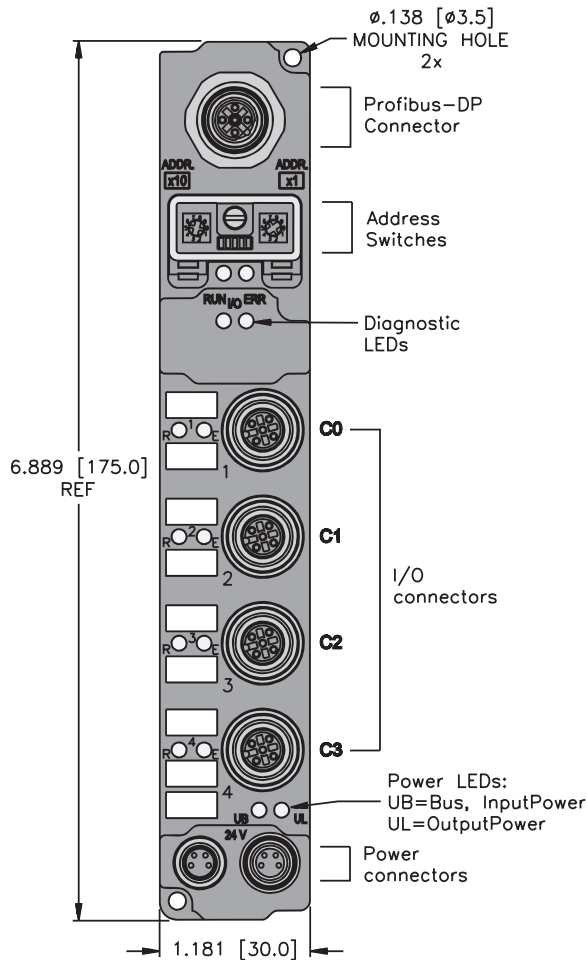
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

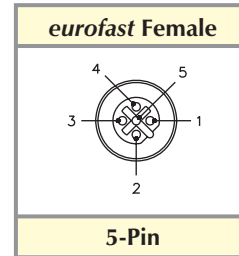
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of Profibus-DP communication

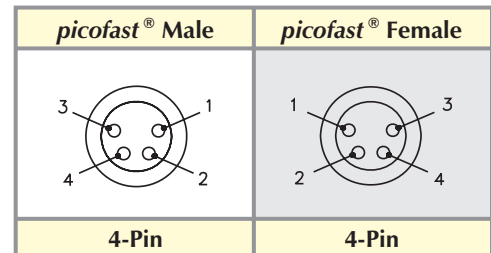


DeviceNet Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

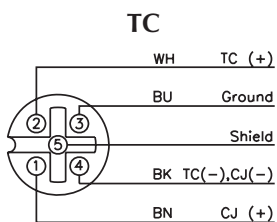
Aux. Power



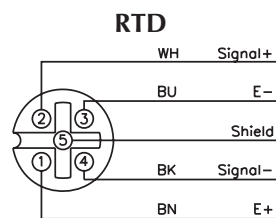
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-40A-0004	4	0-3	TC	1	TC				1
SDPB-40A-0009	4	0-3	RTD	1	RTD				1

Input/Output Connectors



Mating connector (field wireable):
 WAS5-THERMO
 (includes cold junction compensation)



Mating cordset:
 RK 4.5T-* -RS 4.5T

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0					Channel 0, MSB			
1					Channel 0, LSB				
2					Channel 1, MSB				
3					Channel 1, LSB				
4					Channel 2, MSB				
5					Channel 2, LSB				
6					Channel 3, MSB				
7					Channel 3, LSB				

Analog Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDPB-04A-0009
SDPB-04A-0007



Electrical

- Operating Current: <75 mA (from U_B)

Power Distribution

- Outputs: U_L Power supply

Mechanical

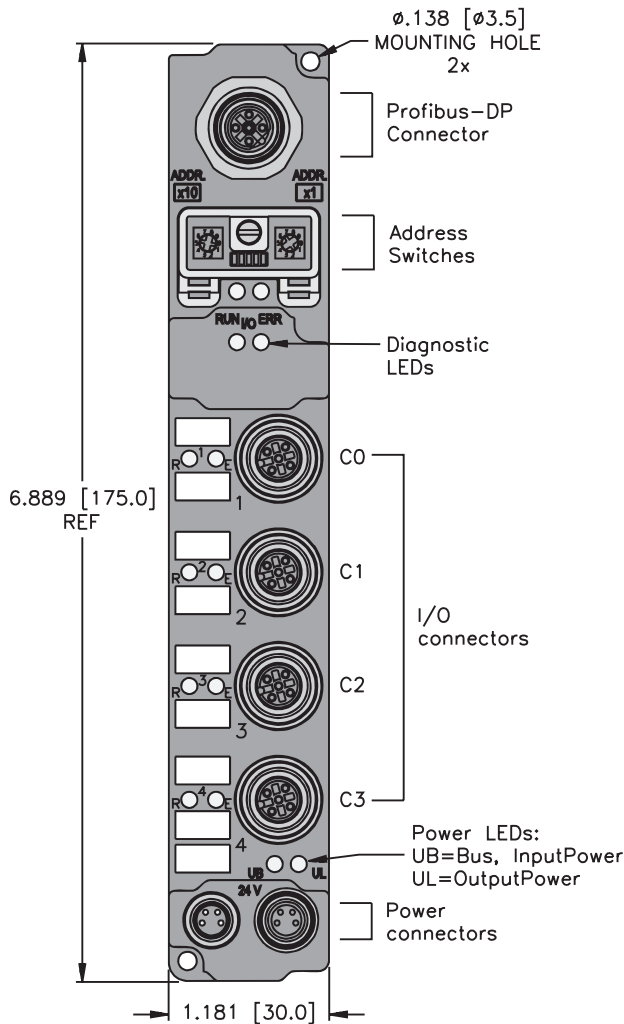
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

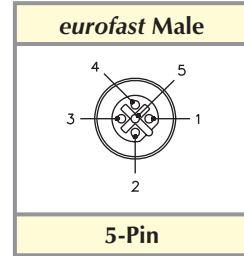
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of Profibus-DP communication

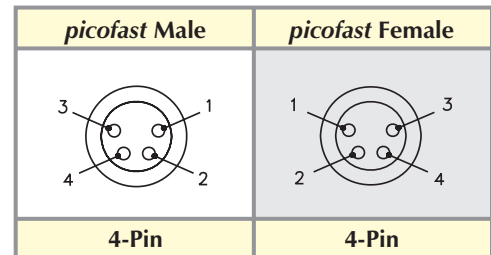


Proximus-DP Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

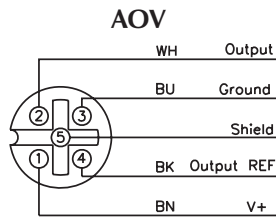
Aux. Power



- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

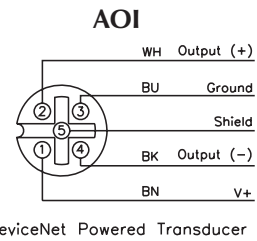
Outputs								Data
Part Number	Output Count	Connectors	Pinout	Output Style	Outputs per Connector	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-04A-0009	4	0-3	AOI	0 to 20 mA	1			1
SDPB-04A-0007	4	0-3	AOV	-10/0 to 10 V	1			1

Output Connectors



Mating cordset:
 RK 4.5T-*-RS 4.5T

Applications:
 TURCK Sensors:
 LU; RK 4.4T-*-RS 4.4T/S1118
 LI; RK 4.4T-*-RS 4.4T/S1120



Mating cordset:
 RK 4.5T-*-RS 4.5T

PROFIBUS-DP

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0								
1									Channel 0, LSB
2									Channel 1, MSB
3									Channel 1, LSB
4									Channel 2, MSB
5									Channel 2, LSB
6									Channel 3, MSB
7									Channel 3, LSB

Counter Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus device currents (from U_B)
- Input Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

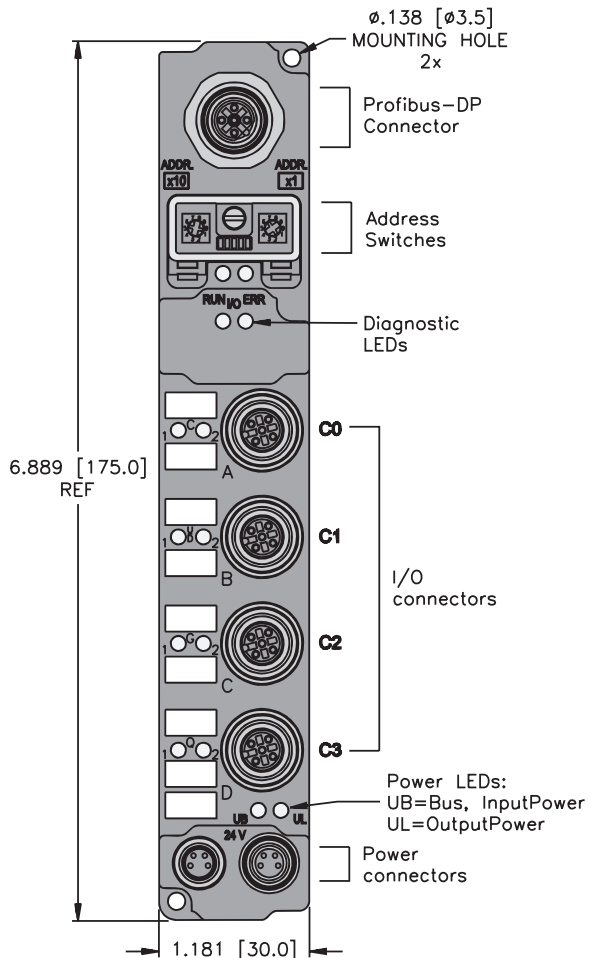
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

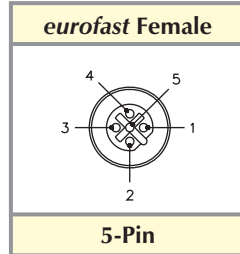
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

SDPB-0202D-0003

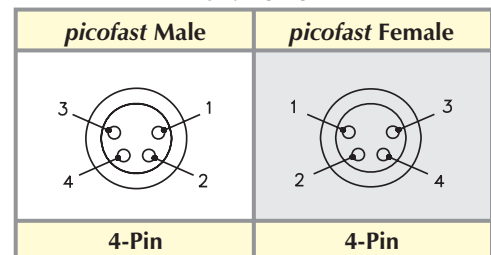


PROFIBUS-DP Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

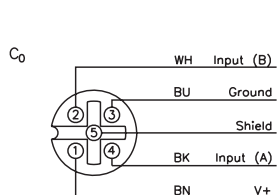
Aux. Power



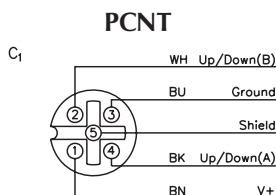
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

	Inputs										Outputs				Data	
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-0202D-0003	2	0-3	PCNT	2	Counter				2	0-3	PCNT	2	0.5 A			1

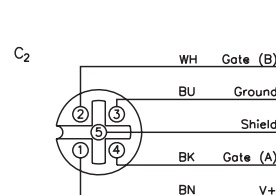
Input/Output Connectors



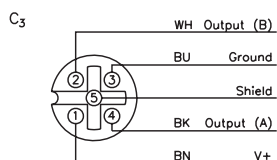
Mating cordset:
RK 4.5T-* -RS 4.5T



Mating cordset:
RK 4.5T-* -RS 4.5T



Mating cordset:
RK 4.5T-* -RS 4.5T



Mating cordset:
RK 4.5T-* -RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Channel 0 - Status							
	1	Channel 0, Byte 3 (MSB)							
	2	Channel 0, Byte 2							
	3	Channel 0, Byte 1							
	4	Channel 0, Byte 0 (LSB)							
	5	Channel 1 - Status							
	6	Channel 1, Byte 3 (MSB)							
	7	Channel 1, Byte 2							
	8	Channel 1, Byte 1							
Out	9	Channel 1, Byte 0 (LSB)							
	0	Channel 0 - Control							
	1	Channel 1 - Control							

Incremental Encoder Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SDPB-10S-0001



Electrical

- Operating Current: <75 mA plus device currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

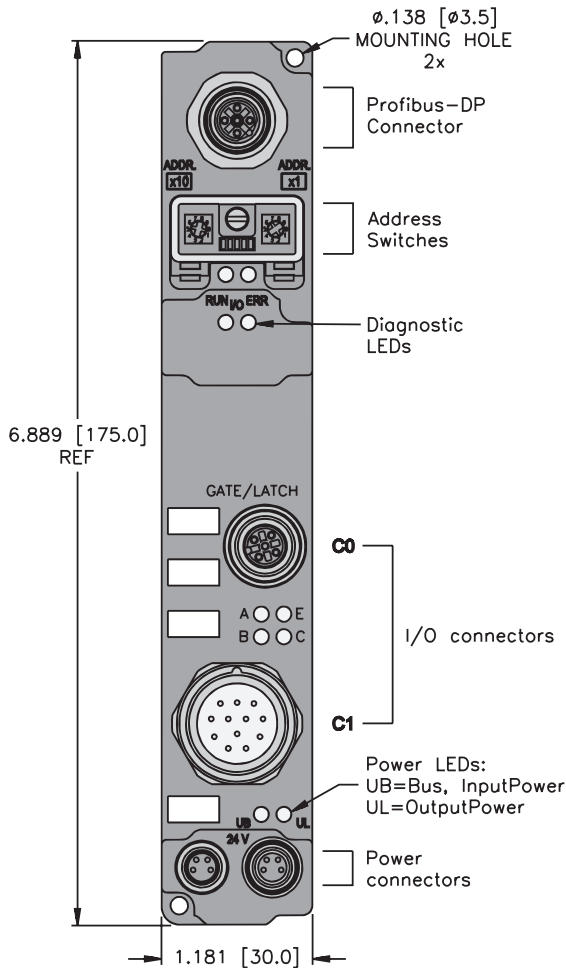
- Operating Temperature: 0 to +55°C
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

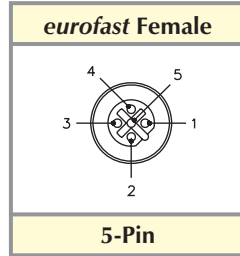
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

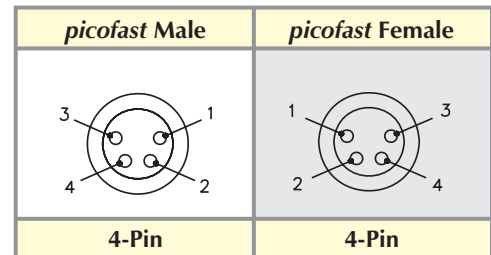


PROFIBUS-DP Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

Aux. Power

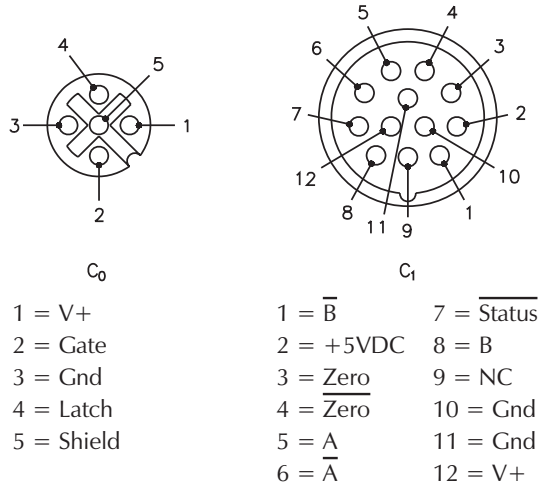


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-10S-0001	1	0-1	ENC	1	Encoder				1

Input/Output Connectors

ENC



PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
	0	Counter - Status								
	1	Count Value - High (MSB)								
	2	Count Value - Low (LSB)								

Serial Interface Stations



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

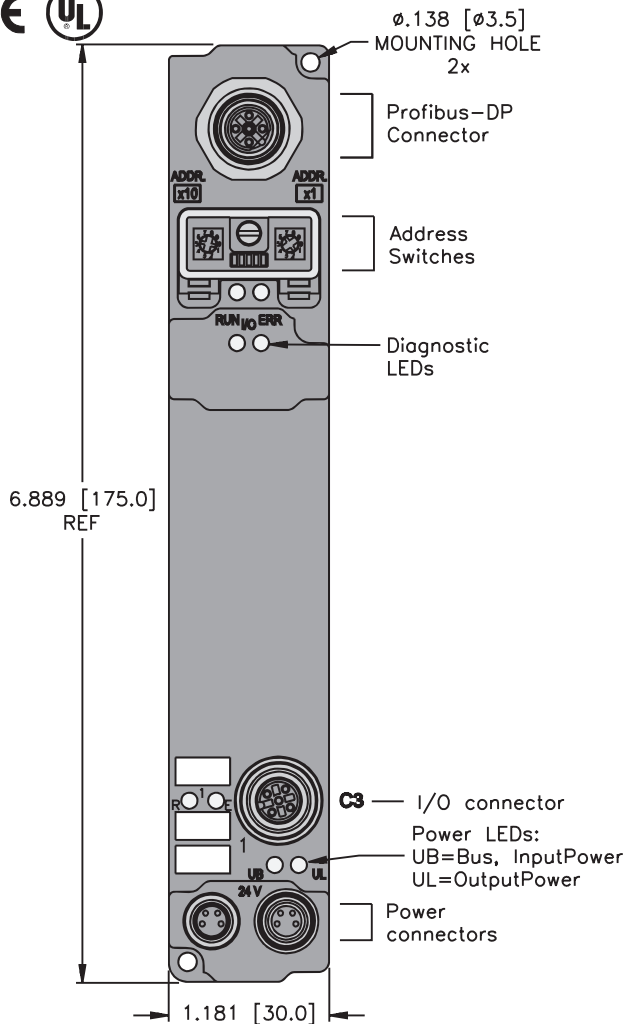
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

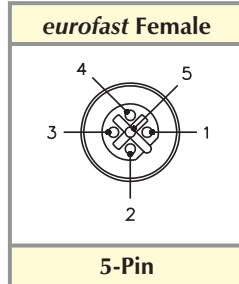
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

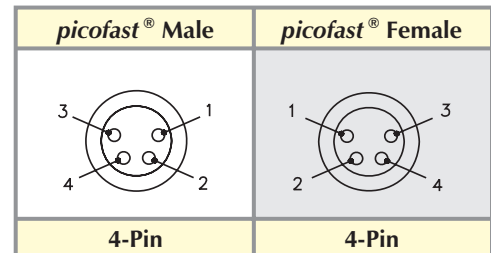
SDPB-10S-0002
SDPB-10S-0004



PROFIBUS-DP Pinout

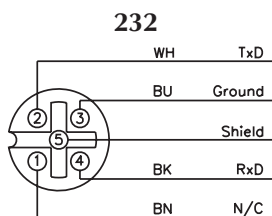


Aux. Power

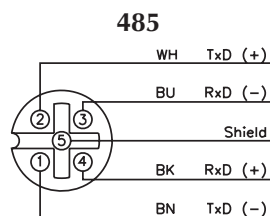


Part Number	I/O								Data
	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-10S-0002	0	3	232	1	RS232	3 to 5			1
SDPB-10S-0004	0	3	485	1	RS485/422	3 to 5			1

Input/Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T

PROFIBUS-DP

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data Byte 0							
	1	Status							
	2	Data Byte 2							
	3	Data Byte 1							
Out	0	Data Byte 0							
	1	Control							
	2	Data Byte 2							
	3	Data Byte 1							

Note: Default configuration shown. Up to five bytes can be transferred.

SSI Station

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

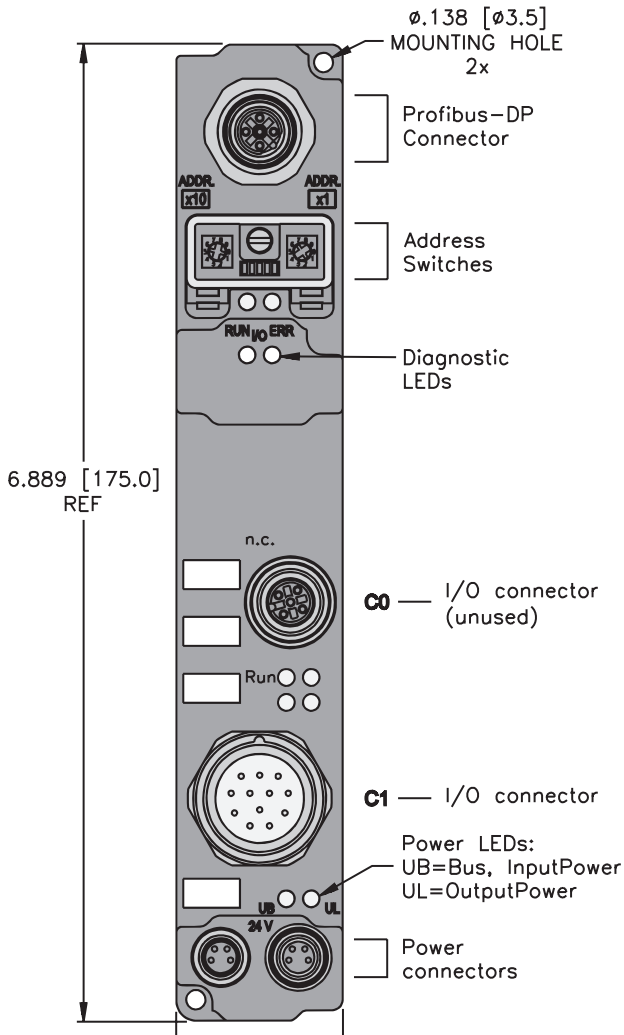
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

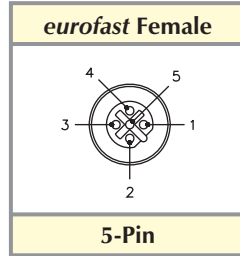
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

SDPB-10S-0005

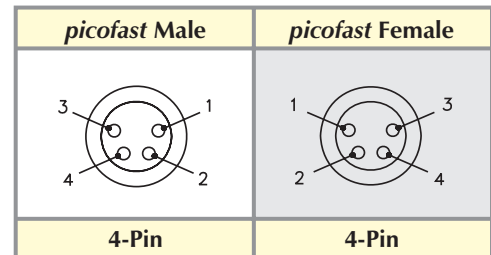


PROFIBUS-DP Pinout



- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

Aux. Power

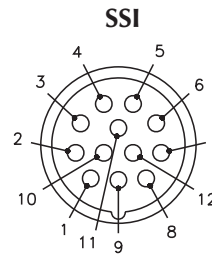


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPB-10S-0005	1	0	SSI	1	SSI	4			1

Input/Output Connectors

- 1 = Clock-
- 2 = Clock+
- 3 = Data+
- 4 = Data-
- 5 = NC
- 6 = NC
- 7 = NC
- 8 = NC
- 9 = NC
- 10 = NC
- 11 = V+
- 12 = Ground



Mating cordset:
CKM 12-12-*/S817

PROFIBUS-DP

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	Data Byte 1							
1	Data Byte 0 (LSB)								
2	Data Byte 3 (MSB)								
2	Data Byte 2								

Piconet Gateways

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of PROFIBUS-DP communication

- SDPL-0404D-0003
- SDPL-0404D-0004
- SDPL-0404D-1003
- SDPL-0404D-1004

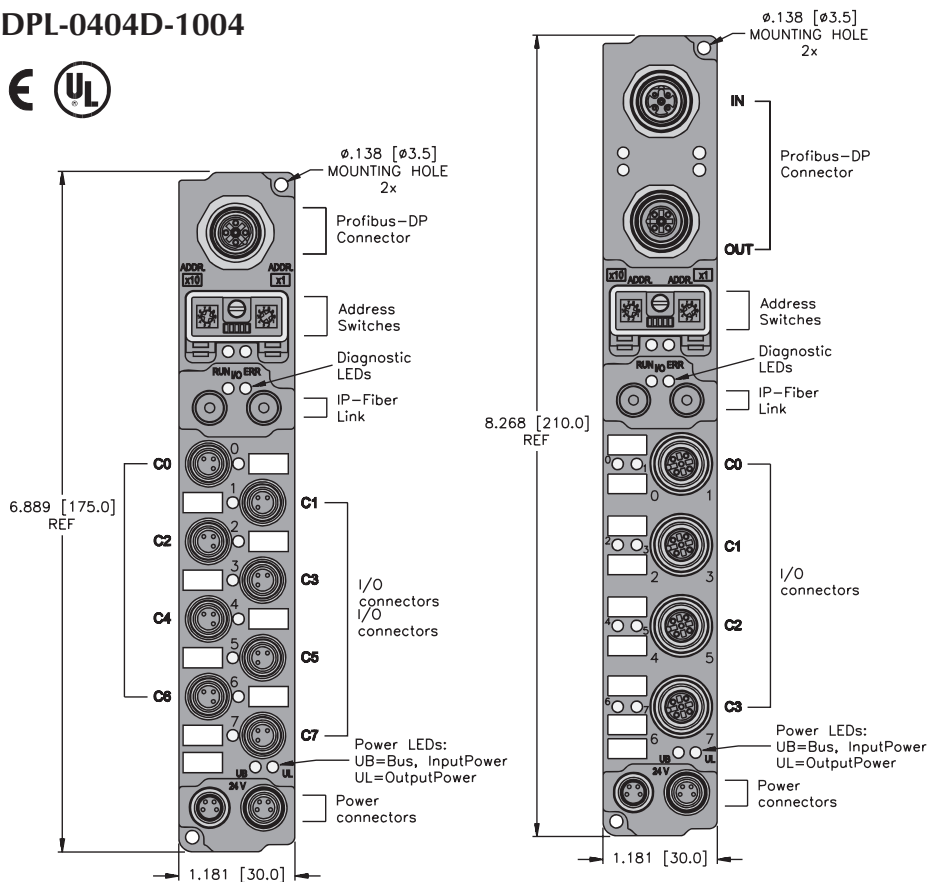


PROFIBUS eurofast® Pinouts

Male	Female
5-Pin	5-Pin

- 1 = 5 VDC
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield

...1003 and ...1004 have both male and female PROFIBUS-DP connectors



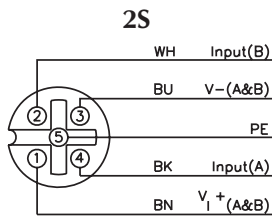
Aux. Power

picofast® Male	picofast® Female
4-Pin	4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

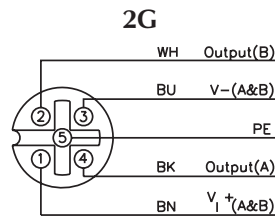
Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SDPL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1
SDPL-0404D-0004	4	0-3	2S	2	PNP				4	2-3	2G	2	0.5 A			1
SDPL-0404D-1003	4	0-3	PI	1	PNP				4	4-7	PO	2	0.5 A			1
SDPL-0404D-1004	4	0-3	2S	1	PNP				4	2-3	2G	2	0.5 A			1

Input/Output Connectors



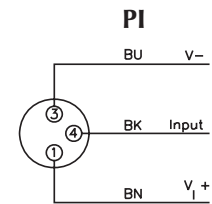
Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*

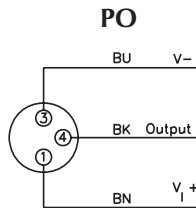


Mating cordset:
RK 4.4T-*-RS 4.4T

Splitter:
VBRS 4.4-2RK 4T-*/*



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

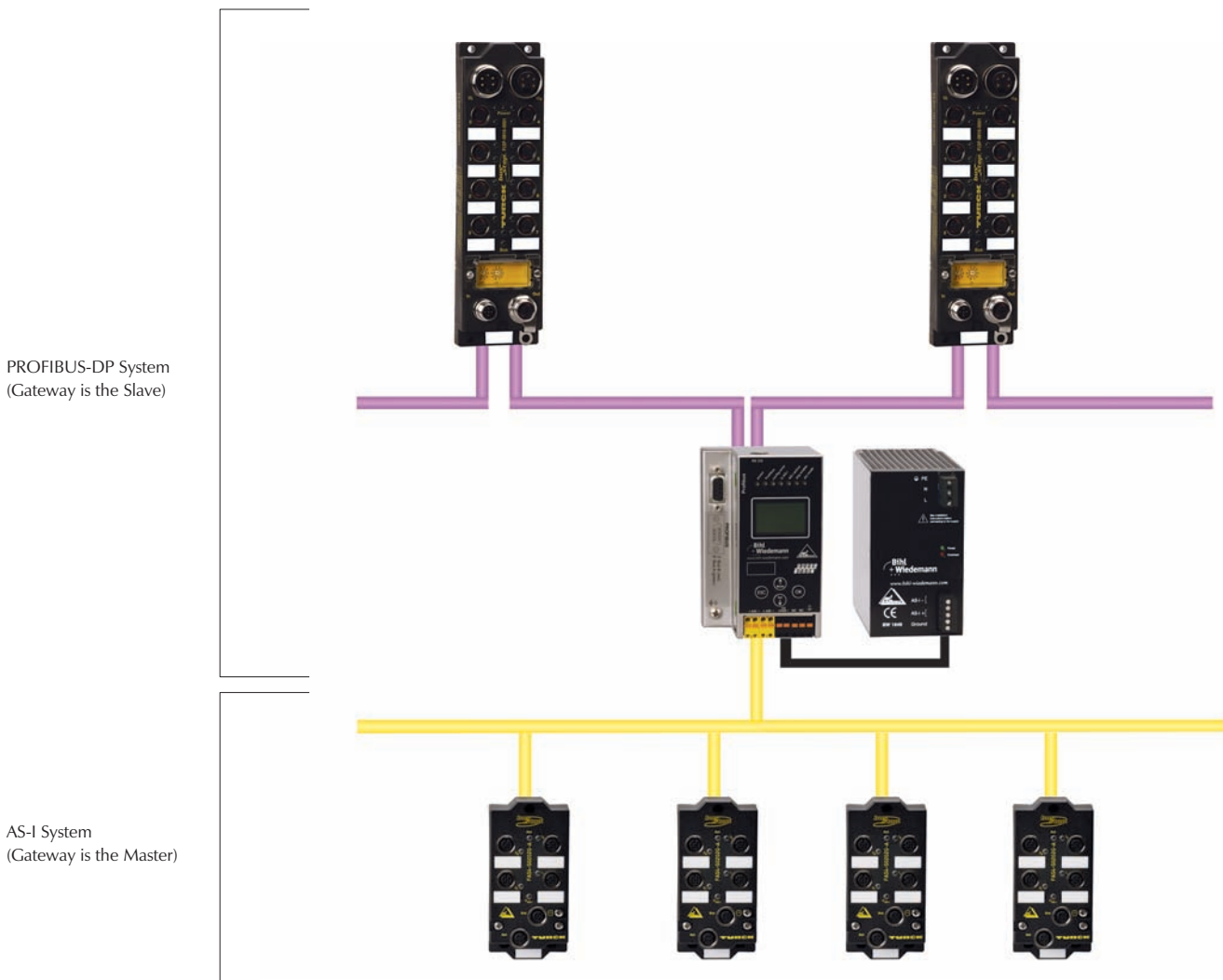
I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data from next input modules				I-3	I-2	I-1	I-0
Out	0	Data for next output modules				0-3	0-2	0-1	0-0

PROFIBUS-DP to AS-interface Gateways

AS-I systems can be easily connected to a higher-level network, like PROFIBUS, through a gateway master. The gateway acts as a master to the AS-I system(s) and a slave to the PROFIBUS system, mapping all of the AS-I data for PROFIBUS in a single block.

For AS-I specifications and rating details see section E of this catalog.



Addressing

PROFIBUS® stations must have a network address for communication. The address for AS-I/ PROFIBUS gateways may be set via the on-unit display and push buttons. Please consult the manual for a particular gateway for instruction on the procedure.

Diagnostics

AS-I/ PROFIBUS gateways contain LEDs for diagnosing I/O and communication problems for AS-I and PROFIBUS. For a detailed description of the LED states please see the Bihl+Wiedemann AS-I/ PROFIBUS Gateway User Manual available for download from www.bihl-wiedemann.com.

Power

Most AS-I/ PROFIBUS gateways draw power from the AS-I power supply. The option to use a separate, non-AS-I power supply is also available. Consult the gateway documentation to ensure that the gateway being selected meets the requirements of your system.

AS-I Profibus-DP Gateways in Stainless Steel



- ASI-DPG-SS BW1567*
- ASI-DPG-SS BW1568*
- ASI-DPG-SS BW1569*
- ASI-DPG-SS-SE BW1773*
- ASI-DPG-SS-SE BW1774*
- ASI-DPG-SS-C1D2 BW1653
- ASI-DPG-SS-C1D2 BW1654
- ASI-DPG-SS-C1D2 BW1655

* Not ETL Listed

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 200 mA from V_{AS-1} (Power Supply A)
 200 mA from V_{AS-11} , 70mA from V_{AS-12} (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

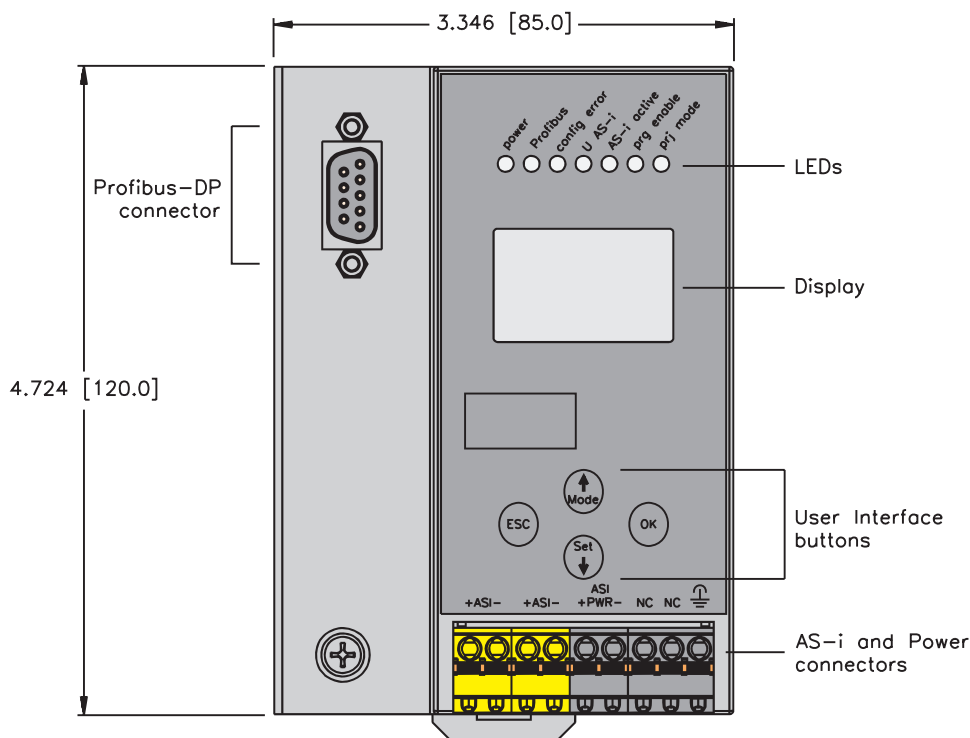
- Housing: Stainless Steel

Diagnostics (Logical)

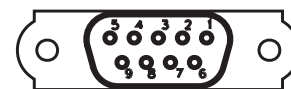
- Health of AS-I network is available via Proximus-DP interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



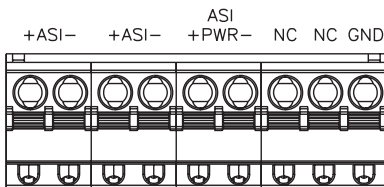
PROFIBUS-DP Connector



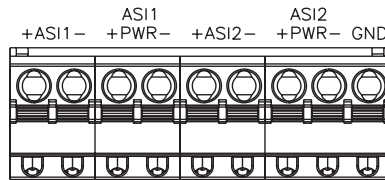
- 1 = Shield
- 3 = BUS_B
- 5 = DGnd
- 6 = +5 VDC
- 8 = BUS_A

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG-SS BW1567	PROFIBUS-DP	A	2.1	1	X	X
ASI-DPG-SS BW1568	PROFIBUS-DP	A2	2.1	2	X	X
ASI-DPG-SS BW1569	PROFIBUS-DP	E	2.1	2	X	X
ASI-DPG-SS-SE BW1773	PROFIBUS-DP	A	2.1	1		
ASI-DPG-SS-SE BW1774	PROFIBUS-DP	A2	2.1	2		
ASI-DPG-SS-C1D2 BW1653	PROFIBUS-DP	A	3.0	1		
ASI-DPG-SS-C1D2 BW1654	PROFIBUS-DP	A2	3.0	2		
ASI-DPG-SS-C1D2 BW1655	PROFIBUS-DP	E	3.0	2		

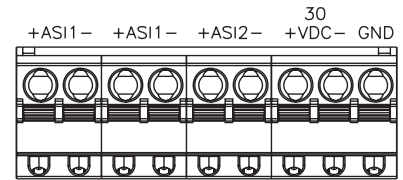
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

TURCK Modular Industrial I/O PROFIBUS®-DP Products



AS-I PROFIBUS-D Economy Gateways



- AS-I v3.0 Supported
- PROFIBUS-DP Support
- LED Display
- Integrated AS-I Diagnostics

Electrical

- Operating Current: <300 mA from AS-I

Power Distribution

- From AS-I supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Stainless Steel

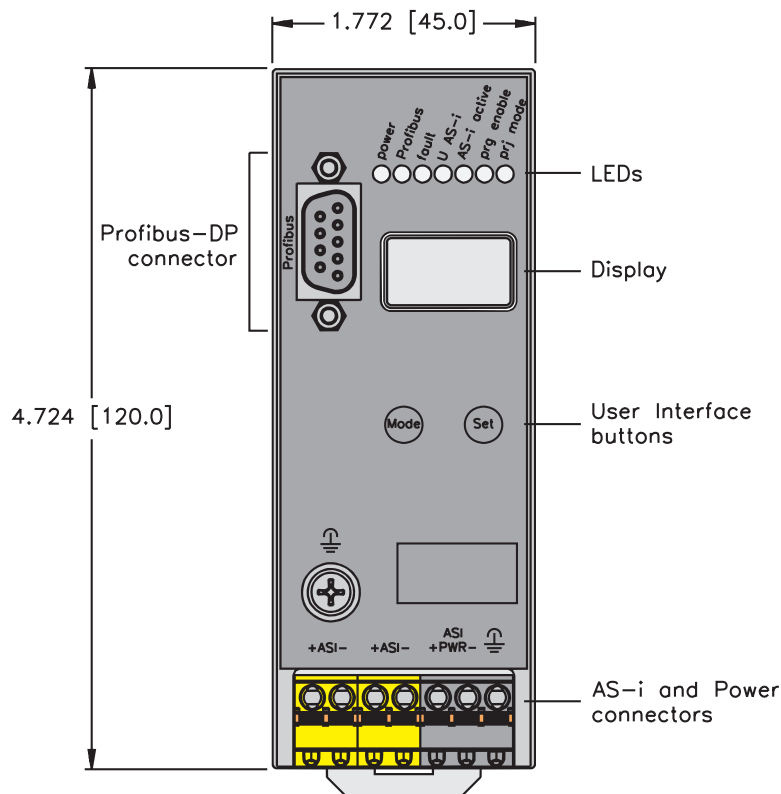
Diagnostics (Logical)

- AS-I diagnostic data is available via Network interface

Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply

ASI-DPG-SS-B BW1746

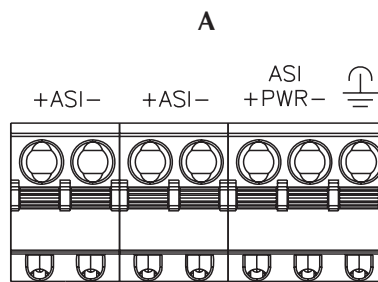


PROFIBUS-DP Connector



- 1 = Shield
- 3 = BUS_B
- 5 = DGnd
- 6 = +5 VDC
- 8 = BUS_A

Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters
ASI-DPB-SS BW1746	PROFIBUS-DP	A	2.1	A	1



TURCK Modular Industrial I/O PROFIBUS®-DP Products



AS-I PROFIBUS-DP Gateways



- AS-I v2.1 Supported
- 2-Digit Display
- IP 65 Protection
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 200 mA from V_{AS-I}

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 65

Material

- Housing: Plastic

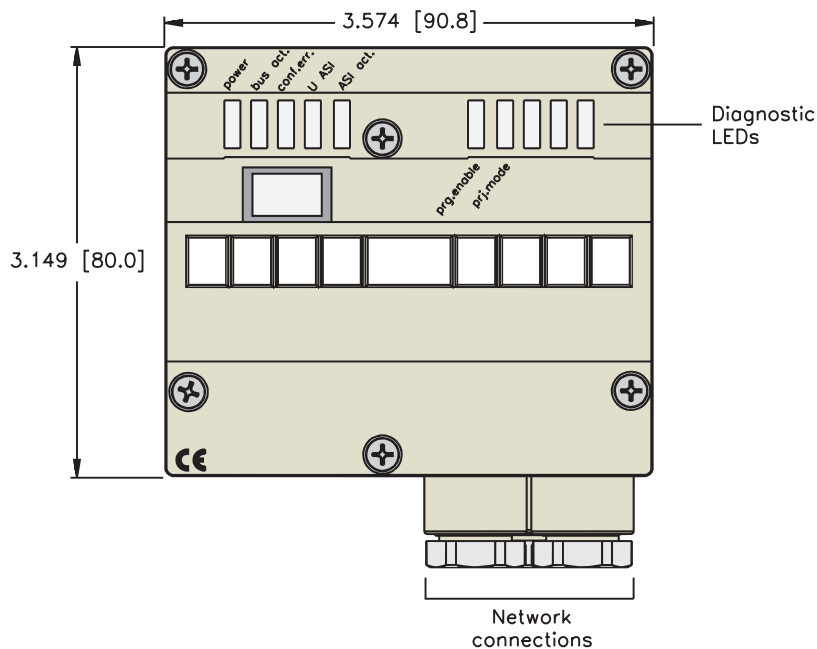
Diagnostics (Logical)

- Health of AS-I network is available via Network interface

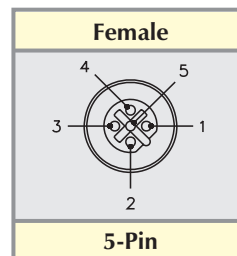
Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply

ASI-DPG BW1253
ASI-DPG BW1371



PROFIBUS eurofast® Pinouts



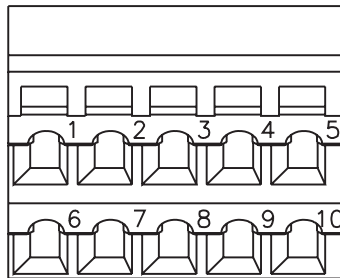
- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

BW1371 only

Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG BW1253	PROFIBUS-DP	A	2.1	1	1		
ASI-DPG BW1371	PROFIBUS-DP	A	2.1	1	1		

A - Single AS-I network is powered by and AS-I power supply

1



1	BUS_A
2	BUS_B
3	BUS_A
4	BUS_B
5	0V
6	Shield
7	FG (Function Gnd)
8	FG (Function Gnd)
9	Shield
10	+5V

PROFIBUS-DP

Note: AS-I connections are made via standard AS-I base modules ASI-BM BW1180 or ASI-BM BW1182 (see p. E103-104)

BL67 Gateway



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 50 \text{ mA}</math> from V_I
- Supply Current: <math>< 10 \text{ A}</math> to I/O (from V_I and V_O)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from V_I)

Mechanical

- Operating Temperature: -25 to +55°C (+32 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the PROFIBUS-DP interface

Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP and Module Bus communication

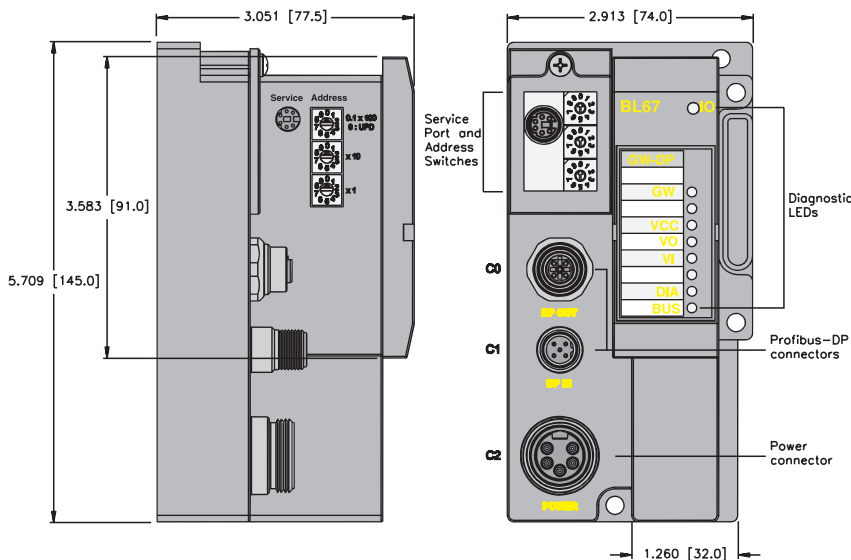
BL67-GW-DP



PROFIBUS eurofast® Pinouts

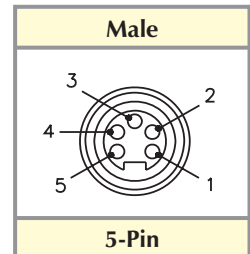
- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only

Male	Female
5-Pin	5-Pin



minifast® Power Pinouts

- 1 = Gnd
- 2 = Gnd
- 3 = PE
- 4 = V_I
- 5 = V_O



Note: Power feeding modules may be used for I/O current supply to prevent overloading the gateway power supply.

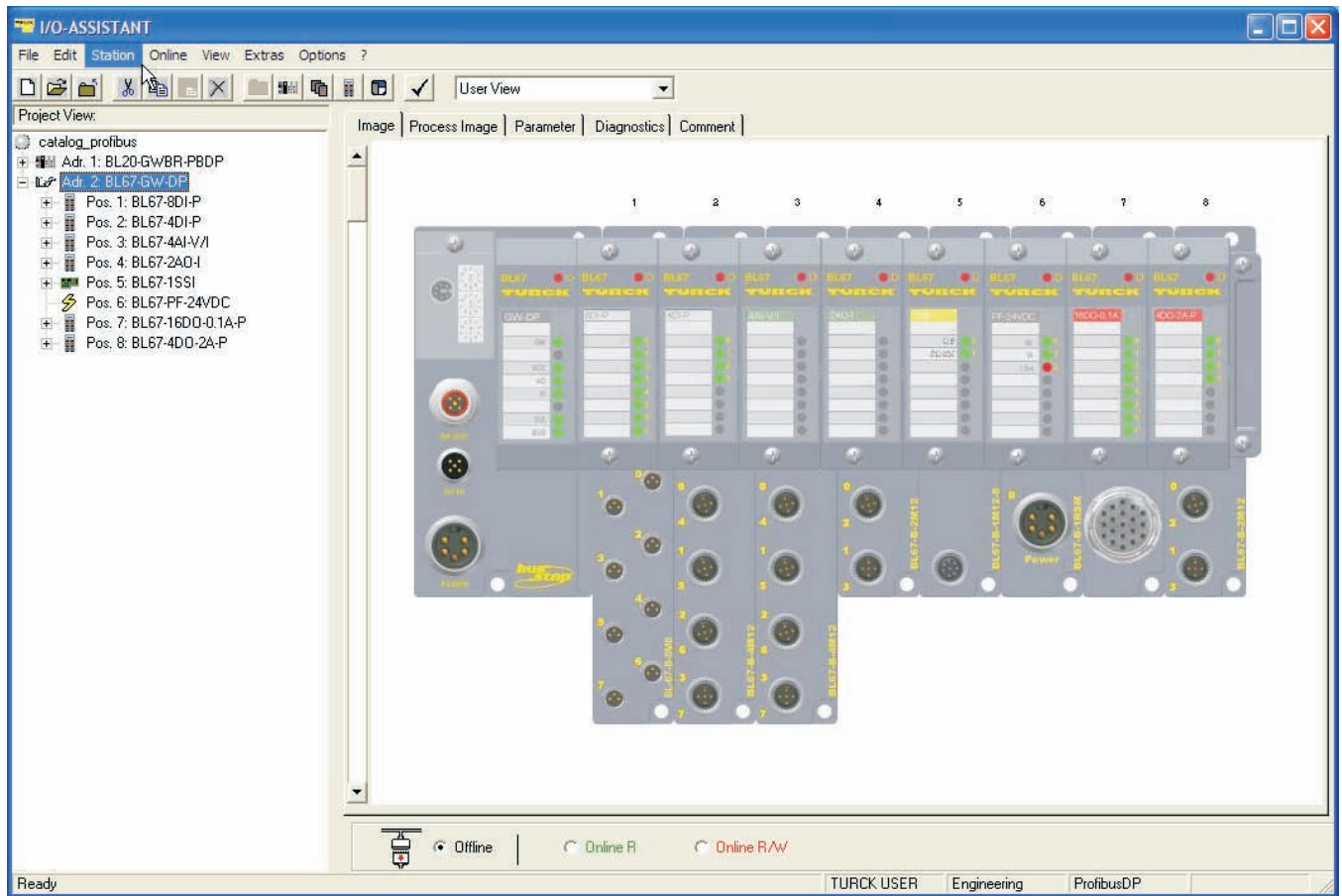
PROFIBUS[®]-DP BL67 Stations

TURCK's BL67 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 67 protection and metal threaded connectors, the BL67 can often be mounted in the physical process environment or directly on a machine without a separate enclosure for the I/O. This saves planning and installation time, as well as the cost of the enclosure itself.

The BL67 system supports several different network protocols, including PROFIBUS-DP. A BL67 station consists of a gateway module that interfaces to the PROFIBUS system, and several I/O modules that interface with the physical I/O in the field. Different connector options are available to allow a greater level of customization to the user.

For more details on the BL67 system, please see section G of this catalog.

TURCK's I/O Assistant software package is used to configure the BL67 system.



BL20 Gateway



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <430 mA from BR power supply (U_{sys})
- Supply Current: <10 A to I/O (from U_L)
 <1.5 A to backplane (from U_{sys})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5...100 Hz

Material

- Housing: PC-V0 (Lexan)

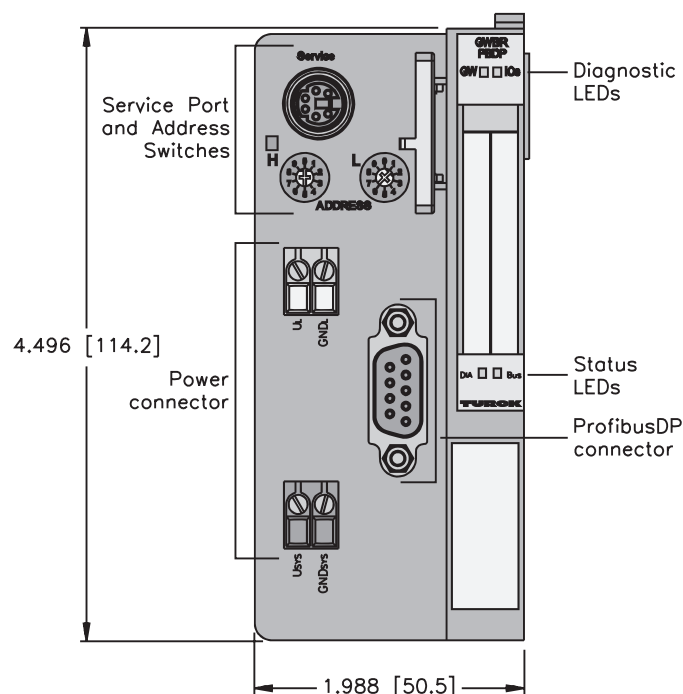
Diagnostics (Logical)

- Diagnostic information available through the PROFIBUS-DP interface

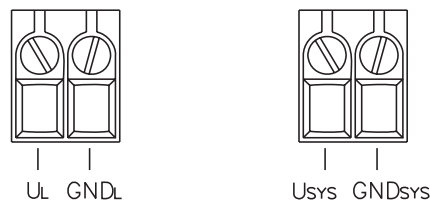
Diagnostics (Physical)

- LEDs to indicate status of PROFIBUS-DP and Module Bus communication

BL20-GWBR-PBDP



Power Connectors



PROFIBUS-DP Connector



- 1 = Shield
- 3 = BUS_B
- 5 = Gnd
- 6 = +VDC
- 8 = BUS_A

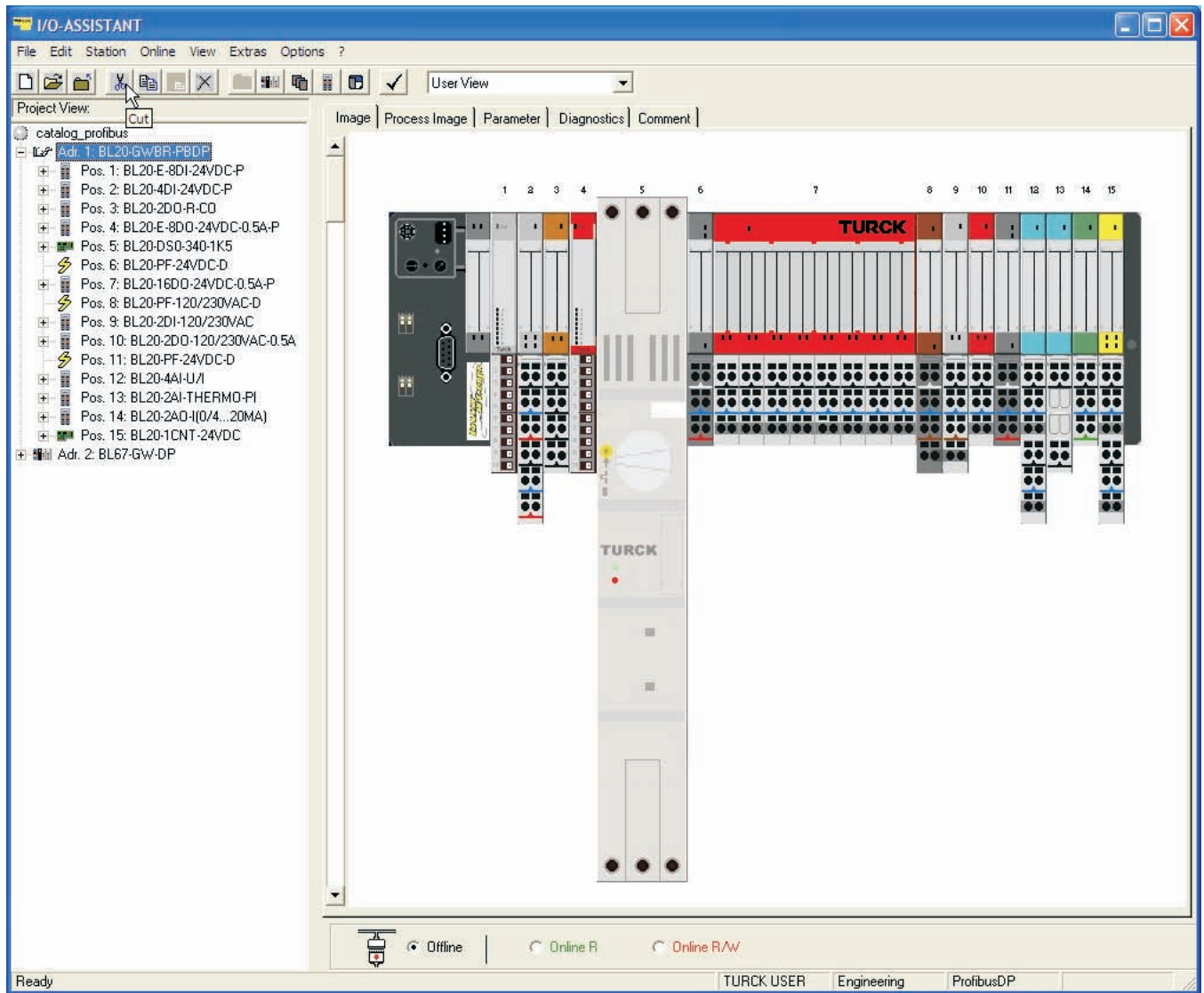
PROFIBUS[®]-DP BL20 Stations

TURCK's BL20 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 20 protection and terminal point connections, the BL20 is intended to be mounted in the control cabinet or in a field enclosure.

The BL20 system supports several different network protocols, including PROFIBUS-DP. A BL20 station consists of a gateway module that interfaces to the PROFIBUS system, and several I/O modules that interface with the physical I/O in the field. The terminal bases are available with tension clamp or screw terminal connector types.

For more details on the BL20 system, please see section H of this catalog.

TURCK's I/O Assistant software package is used to configure the BL20 system.



PROFIBUS-DP

PROFIBUS®-DP Media



PROFIBUS®-DP, Selection Guide



Cables	Terminating Resistors	Feed Through Connectors
L4 - L10	L12	L13



Bus Tees	Field Wireable Connectors	Receptacles
L14	L11, L15	L16



Wall Plate Adapters	PROFIBUS®-PA Media
L20	L19

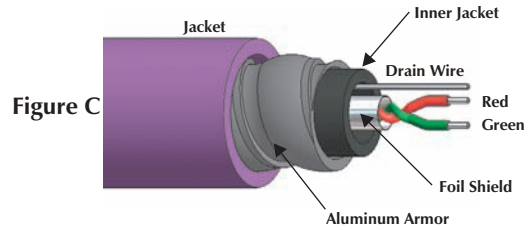
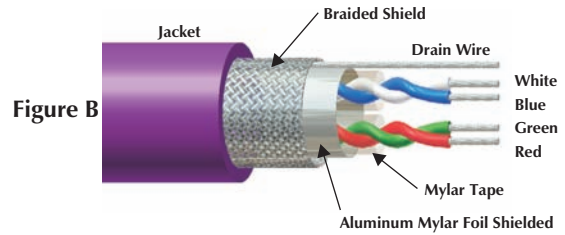
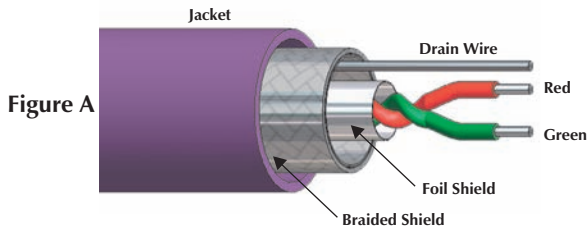
PROFIBUS-DP Media

TURCK
Network Media Products

Notes:

PROFIBUS®-DP, Cable Specifications

- Cable that Meets the Requirements of EN50170-2-2:1996 for Communications Up to 12 Mbaud



Baud Rate (k baud)	9.6	19.2	93.75	187.5	500	1500	1200
Maximum Trunk Length	1200 meters	1200 meters	1200 meters	1000 meters	400 meters	200 meters	100 meters

Type	Approvals	Data Pair		2nd Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire		
455 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PVC Purple 8.5 mm (.335 in)	Foil/Braid 22 AWG	RB50672-*M 62 lbs.	A
456 AWM 20233 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PUR Purple 7.9 mm (.310 in)	Foil/Braid 22 AWG	RB50683-*M 48 lbs.	A
457 75°C 300 Volts	NEC CMX	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PUR Purple 8.0 mm (0.315 in)	Foil/Braid No Drain	RB50708-*M 51 lbs.	A
458 AWM 20233 80°C 300 Volts	NEC AWM CEC AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	TPU Plum 8.5 mm (0.335 in)	Foil/Braid 22 AWG	RB50692-*M 58 lbs. <i>flexlife-10</i> [†]	A
4511 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PVC Purple 8.5 mm (.319 in)	Foil/Braid 22 AWG	RB50881-*M 64 lbs. <i>flexlife-10</i> [†]	A
4510A 75°C 300 Volts	NEC PLTC CEC CM-CMG HL ABCD	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	Aluminum Armor/PVC 15.4 mm (.605 in)	Foil/Braid 22 AWG	RB50875-*M 112 lbs. <i>armorfast</i> [®]	C
4515 80°C 300 Volts		2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PUR Purple 7.5 mm (0.295 in)	Foil/Braid 22 AWG	RB51225-*M 42 lbs. Halogen-Free ^{††}	A
4516 105° 300 Volt	NEC PLTC/ISO Open Wiring CEC CMG	2/22 AWG RD/GN	16.5 Ohms PE	None	N/A	PVC Purple 11.1 mm (.435 in)	Foil/Braid 22 AWG	RB51259-*M 93 lbs.	A
590 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/22 AWG RD/GN	16.5 Ohms PE	2/22 AWG BU/WH	16.5 Ohms PE	PVC Purple 9.6 mm (.380 in)	Foil/Braid 22 AWG	RB51057-*M 75 lbs.	B

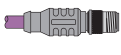

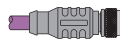
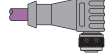
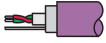
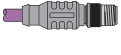
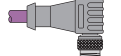
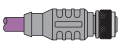
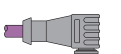
* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

† See page A6 for *flexlife* performance.

†† Zero Halogen: to DIN VDE 0472 part 815 + IEC 60754-1

PROFIBUS®-DP, (M12x1) eurofast® Cable and Cordset Selection Matrix

		eurofast			
		Pin (Male)		Socket (Female)	
		1  RSSW	3  WSSW	2  RКСW	4  WКСW
 Bare		RSSW 45x-*M	WSSW 45x-*M	RКСW 45x-*M	WКСW 45x-*M
eurofast	Pin (Male)				
	1  RSSW	RSSW RSSW 45x-*M	RSSW WSSW 45x-*M	RSSW RКСW 45x-*M	RSSW WКСW 45x-*M
	3  WSSW		WSSW WSSW 45x-*M	WSSW RКСW 45x-*M	WSSW WКСW 45x-*M
	Socket (Female)				
	2  RКСW			RКСW RКСW 45x-*M	RКСW WКСW 45x-*M
	4  WКСW				WКСW WКСW 45x-*M

See page L6 for dimensional drawings.

* Indicates length in meters.

x Indicates cable type.

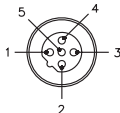
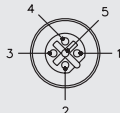
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSSW...RSSWV.

Change 45 to 59 for 59x series cordsets.

Pinouts

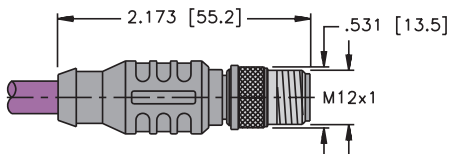
eurofast	45 series pinout	59 series pinout	eurofast
<p>Male</p> 	<ol style="list-style-type: none"> N/C Green (TxD) N/C Red (RxD) Bare (Shield Drain Wire) 	<ol style="list-style-type: none"> Blue (TxD_1) Green (TxD) White (RxD_1) Red (RxD) Bare (Shield Drain Wire) 	<p>Female</p> 

PROFIBUS®-DP, (M12x1) eurofast® Cable and Cordsets

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

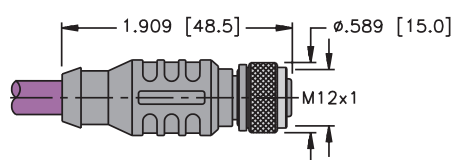
1



RSSW ..

Page L5, L7, L8

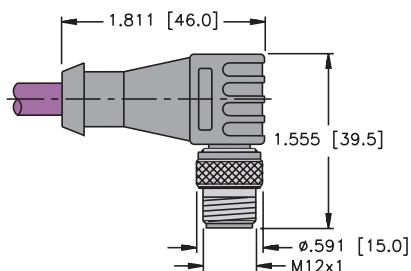
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RKSU ..

Page L5, L7, L8

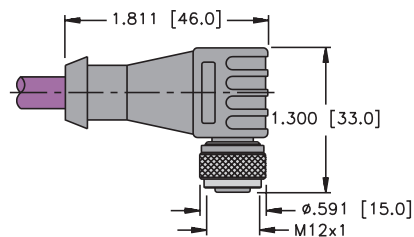
3



WSSW ..

Page L5, L7, L8

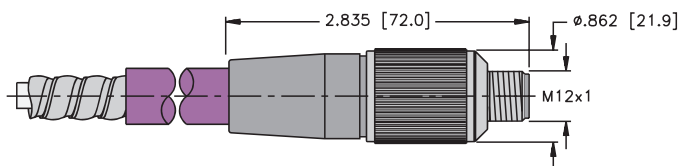
4



WKSU ..

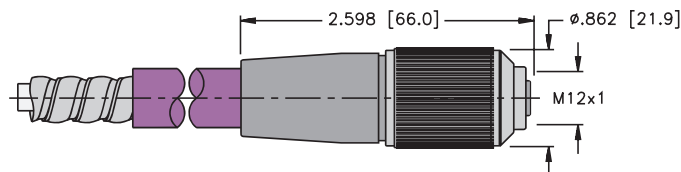
Page L5, L7, L8

PROFIBUS-DP Media



RSAW ..

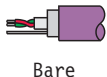

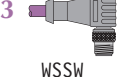




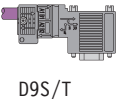
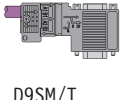
(armorfast only)



RKAW ..

(armorfast only)

PROFIBUS®-DP, (M12x1) eurofast® Cable and Cordset Selection Matrix

		eurofast						
		Pin (Male)		Socket (Female)		Pin (Male)	Socket (Female)	
			1 	3 	2 	4 	10 	11 
		Bare	RSSW	WSSW	RКСW	WКСW	FSSDWE	FKSDWE
9-Pin Sub D Connector	Terminator	 7 D9S/T	D9S/T 45x-*M RSSW D9S/T 45x-*M	WSSW D9S/T 45x-*M	RКСW D9S/T 45x-*M	WКСW D9S/T 45x-*M	FSSDWE D9S/T 45x-*M	FKSDWE D9S/T 45x-*M
	Master	 8 D9SM/T	D9SM/T 45x-*M RSSW D9SM/T 45x-*M	WSSW D9SM/T 45x-*M	RКСW D9SM/T 45x-*M	WКСW D9SM/T 45x-*M	FSSDWE D9SM/T 45x-*M	FKSDWE D9SM/T 45x-*M

See page L6 - L10 for dimensional drawings.

* Indicates length in meters.

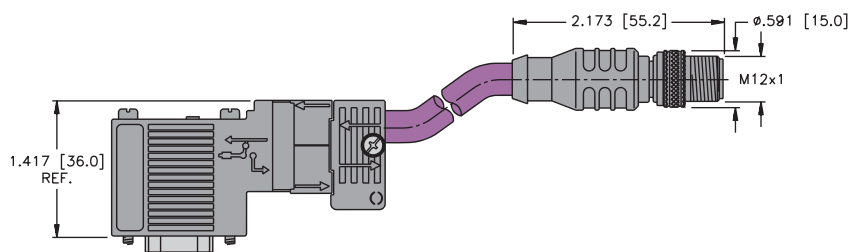
x Indicates cable type.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

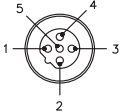
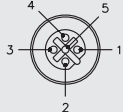
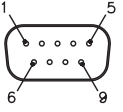
Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSSW...RSSW.

Extension example:



Pinouts

eurofast	45 series pinout	eurofast	D9	D9 pinout
<p>Male</p> 	<p>1. N/C 2. Green (TxD) 3. N/C 4. Red (RxD) 5. Bare (Shield Drain Wire)</p>	<p>Female</p> 	<p>Male</p> 	<p>1 = N/C 2 = N/C 3 = RD (RXD) 4 = N/C 5 = N/C 6 = N/C 7 = N/C 8 = GN (TXD) 9 = N/C</p>

PROFIBUS®-DP, (M12x1) eurofast® Cable and Cordset Selection Matrix

		eurofast						
		Pin (Male)			Socket (Female)		Pin (Male)	Socket (Female)
			1	3	2	4	10	11
		Bare	RSSW	WSSW	RKSX	WKSX	FSSDWE	FKSDWE
Node	7	D9S 45x-*M	RSSW D9S RSSW 45x-*M-*M	WSSW D9S WSSW 45x-*M-*M	RKSX D9S RKSX 45x-*M-*M	WKSX D9S WKSX 45x-*M-*M	FSSDWE D9S FSSDWE 45x-*M-*M	FKSDWE D9S FKSDWE 45x-*M-*M
	D9S							
Straight	9	SD9S 45x-*M	RSSW SD9S RSSW 45x-*M-*M	WSSW SD9S WSSW 45x-*M-*M	RKSX SD9S RKSX 45x-*M-*M	WKSX SD9S WKSX 45x-*M-*M	FSSDWE SD9S FSSDWE 45x-*M-*M	FKSDWE SD9S FKSDWE 45x-*M-*M
	SD9S							

		eurofast			
		Pin (Male)		Socket (Female)	
			1	3	10
		Bare	RSSW/RKSX	WSSW/WKSX	RSSW/RKSX
		2	4	11	
Node	7	D9S 45x-*M	RSSW D9S RKSX 45x-*M-*M	WSSW D9S WKSX 45x-*M-*M	FSSDWE D9S FKSDWE 45x-*M-*M
	D9S				
Straight	9	SD9S 45x-*M	RSSW SD9S RKSX 45x-*M-*M	WSSW SD9S WKSX 45x-*M-*M	FSSDWE SD9S FKSDWE 45x-*M-*M
	SD9S				

See page L6 - L10 for dimensional drawings.

* Indicates length in meters.

x Indicates cable type.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSSW...RSSW.

Pinouts

eurofast	45 series pinout	eurofast	D9	D9 pinout
<p>Male</p>	<p>1. N/C 2. Green (TxD) 3. N/C 4. Red (RxD) 5. Bare (Shield Drain Wire)</p>	<p>Female</p>	<p>Male</p>	<p>1 = N/C 2 = N/C 3 = RD (RXD) 4 = N/C 5 = N/C 6 = N/C 7 = N/C 8 = GN (TXD) 9 = N/C</p>

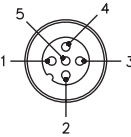
TURCK

Network Media Products

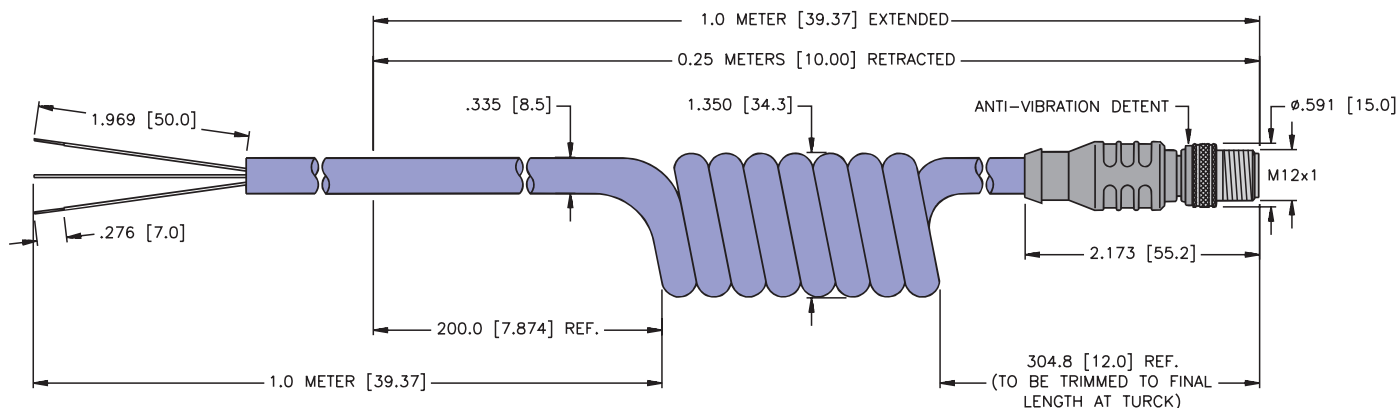
PROFIBUS® -DP (M12x1), eurofast® Retractable Cordsets

- Single or Double Ended
- Available in 1, 2, 5 Meter Extended Lengths



Part Number	Specs	Application	Pinouts
RSSW 456SP-1M	PUR (Polyurethane) 250 V, 4 A -40° to +80°C	(M12x1) eurofast male connector 1 M extended length .25 M retracted length	
RSSW 456SP-2M		(M12x1) eurofast male connector 2 M extended length .5 M retracted length	
RSSW 456SP-5M		(M12x1) eurofast male connector 5 M extended length 1.12 M retracted length	

Single ended cordset part numbers shown. Also available in double ended (M12x1) eurofast connectors.



PROFIBUS®-DP, Field Wireable D9 Connectors

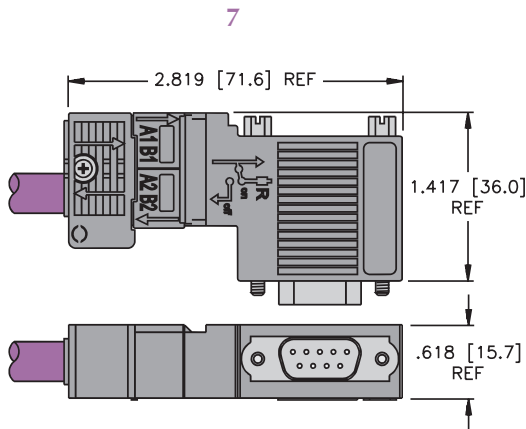
Specifications - (D9)

Housing: TPU (Polyurethane)
Terminating Switch: Yes
Protection: IEC IP 20
Rated Voltage: 250 V
Rated Current: 5 A
Temperature Rating: -25° to +60°C

*Max. Cable diameter: 8.5 mm

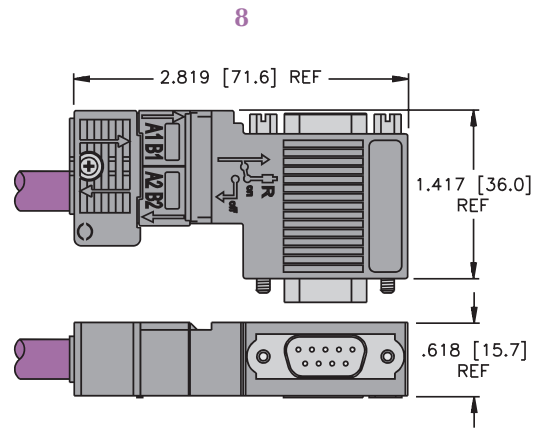
Specifications (FKSDWE .. FSPDWE)

Housing: PUR (Polyurethane)
Coupling Nut: Nickel Plated CuZn or Stainless Steel
Contact Carrier: TPU (Polyurethane) or POM (Nylon)
Contacts: Gold Plated CuZn
Protection: NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage: 250 V
Rated Current: 4 A
Temperature Rating: -40° to +75°C



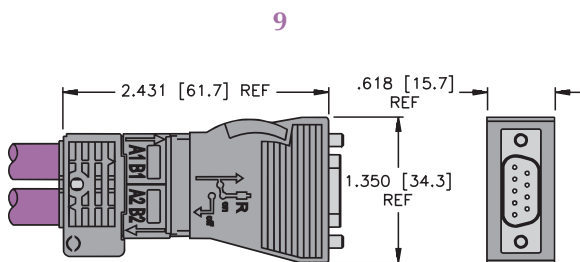
Connector, PDP, D9S

Page L7



Connector, PDP, D9SM

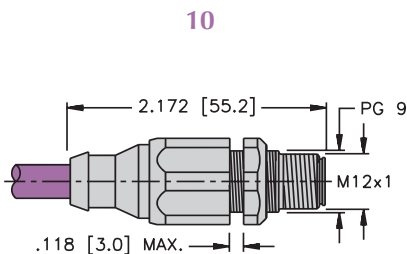
Page L7



Connector, PDP, SD9S

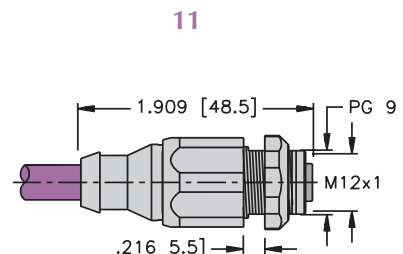
Page L7

Note: Part numbers are for ordering connector only.
 Cable must be ordered separately.



FSSDWE ..

Page L8



FKSDWE ..

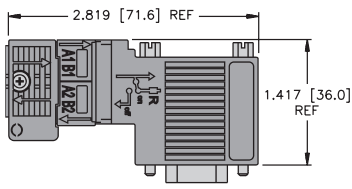
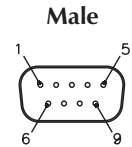
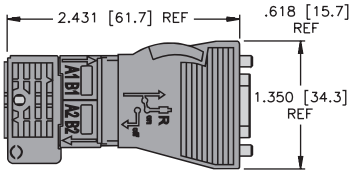
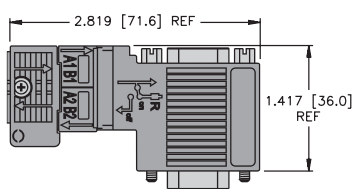
Page L8

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PROFIBUS® -DP, Field Wireable D9 Connectors

- Provides Connection to Master or Node in the field
- Maximum Cable O.D. is 8.5 mm

Housing	Part Number	Specs	Application	Pinouts
	Connector, PDP, D9S	250 V, 5 A -25° to +80°C	Right Angle, Terminating Switch	<ol style="list-style-type: none"> 1. N/C 2. N/C 3. RD (Bus_B) 4. N/C 5. N/C 6. N/C 7. N/C 8. Green (Bus_A) 9. N/C 
	Connector, PDP, SD9S		Straight, Terminating Switch	
	Connector, PDP, D9SM	250 V, 4 A -25° to +80°C	Right Angle, Master, Terminating Switch	

PROFIBUS®-DP, Terminating Resistors

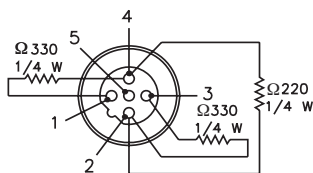
- Terminating Resistors Stabilize and Minimize Reflections on the Bus Line
- A Terminating Resistor is Required at the Beginning and End of the Main Bus Line



Housing	Part Number	Specs	Application	Pinouts
	RSSW 45-TR	Nickel Plated Brass 250 V, 4 A -40° to +75°C	eurofast® Terminating Resistor <ul style="list-style-type: none"> • Internal resistor • Male eurofast connector • Reverse keyed 	1. N/C 2. GN 3. N/C 4. RD 5. BARE
	RKSX 45-TR		eurofast Terminating Resistor <ul style="list-style-type: none"> • Internal resistor • Female eurofast connector • Reverse keyed 	1. N/C 2. GN 3. N/C 4. RD 5. BARE
	PDP-TRA		Active Terminating Resistor <ul style="list-style-type: none"> • External power supply minifast® and eurofast connector • LED signal for power status 	1. N/C 2. BUS_A 3. N/C 4. BUS_B 5. N/C

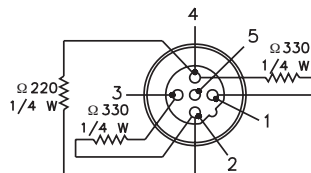
PROFIBUS-DP Media

Pinout Diagram, RSSW 45-TR



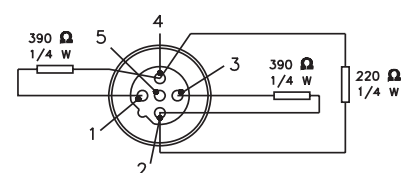
eurofast Male Connector

Pinout Diagram, RKSX 45-TR



eurofast Female Connector

Pinout Diagram, PDP-TRA



eurofast Male Connector

PROFIBUS®-DP, eurofast® Feed Through Receptacle

- Provides Bulkhead Panel Mount Connection



Housing	Part Number	Specs	Application	Pinouts
	FKW FSW 45/M12	Nickel Plated Brass or Stainless Steel 250 V, 4 A -40° to +75°C	eurofast Feed Through Connection <ul style="list-style-type: none"> • Straight male/female connector • For pre-molded reverse keyed eurofast cables 	<p>Male</p> <p>Female</p>

For stainless steel change part number to FKWW FSWV 45/M12

PROFIBUS®-DP, eurofast® Bus Tees

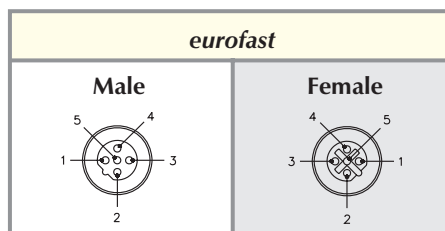
- Creates a Branch from the Main Bus Line



Housing	Part Number	Specs	Application	Wiring Diagrams
	RКСW 2RSSW 45		<p>eurofast Bus Tee</p> <ul style="list-style-type: none"> • Male eurofast drop connector • Fully shielded eurofast tee 	
	* RКСW 2RSSW 45-0001	PUR (Polyurethane) Nickel Plated Brass 250 V, 4 A -40° to +75°C	<p>eurofast Terminating Resistor</p> <ul style="list-style-type: none"> • Male eurofast connector • Fully shielded eurofast tee 	
	VB2/FSW/FKW/FSW 45		<p>Y Junction</p> <ul style="list-style-type: none"> • Fully shielded eurofast connectors 	

* This part must be used when joining two tees together directly. A female terminating resistor will not work with this tee since there is no ground and power connection on the male side.

Pinouts



PROFIBUS-DP Media

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Network Media Products

PROFIBUS®-DP, eurofast® Field Wireable Connectors

- Allows Transition from Hard Wiring to Quick Connection to Network

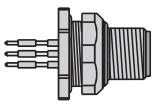
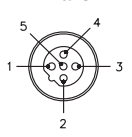
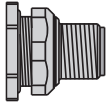
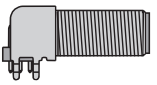
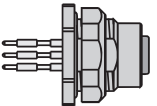
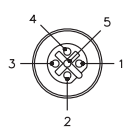
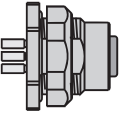


Housing	Part Number	Specs	Application	Pinouts	
	BMSWS 8151-8.5	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A	<ul style="list-style-type: none"> • Metal, fully shielded • Mates with reverse key 5-pin cordsets and receptacles 	<p>Male</p>	
	BMSWS 8251-8.5	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A		<ul style="list-style-type: none"> • Metal, fully shielded • Mates with reverse key 5-pin cordsets and receptacles 	<p>Female</p>
	BMWS 8151-8.5	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A			
	BMWS 8251-8.5	Nickel Plated Brass PG 9 cable gland, accepts 4-9 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 125 V, 4 A			

PROFIBUS®-DP, Circuit Board Connectors and OEM Receptacles

- Provides (M12x1) *eurofast*® Connection to Field Devices



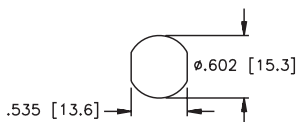
Housing	Part Number	Specs	Application	Pinouts	
<p>13</p> 	FSFDW 45 PCB	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Male <i>eurofast</i> PCB pins	<p>Male</p> 	
<p>12</p> 	FSFDLW 45		Male <i>eurofast</i> solder cups		
<p>14</p> 	WFSW 45 PCB		Male <i>eurofast</i> right angle PCB pins		
<p>16</p> 	FKFDW 45 PCB		Female <i>eurofast</i> PCB pins		<p>Female</p> 
<p>15</p> 	FKFDLW 45		Male <i>eurofast</i> solder cups		

PROFIBUS-DP Media

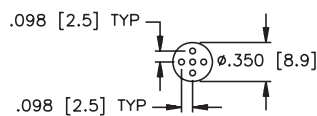
See pages L18 for dimensional drawings.

Standard housing material is nickel plated brass "FKFD .."; "FKFDV .." indicates 316 stainless steel.

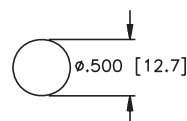
Panel Cutout
FKFD ... FSFD



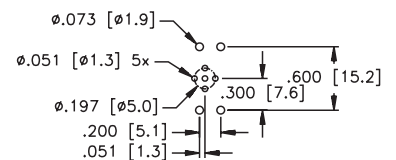
Board Layout (reference only)
FKFD ... FSFD



Panel Cutout
WFS



Board Layout (reference only)
WFS



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PROFIBUS® -DP, Circuit Board Connectors and OEM Receptacles

- Provides (M12x1) *eurofast*® Connection to Field Devices

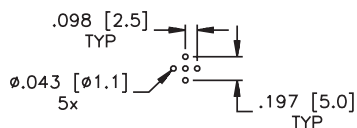


Housing	Part Number	Specs	Application	Pinouts
<p>17</p>	FSW 45 PCB KIT	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -30° to +75°C	<ul style="list-style-type: none"> • Male <i>eurofast</i> with mounting kit • Reverse key 	<p>Male</p>
<p>18</p>	FSW 45 PCB		<ul style="list-style-type: none"> • Male <i>eurofast</i> • Reverse key 	
<p>19</p>	FKW 45 PCB KIT		<ul style="list-style-type: none"> • Female <i>eurofast</i> with mounting kit • Reverse key 	<p>Female</p>
<p>20</p>	FK 45 PCB		<ul style="list-style-type: none"> • Female <i>eurofast</i> • Reverse key 	

See pages L19 for dimensional drawings.

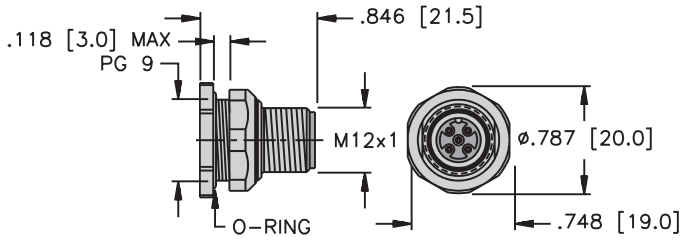
Standard housing material is nickel plated brass "FKFD .."; "FKFDV .." indicates 316 stainless steel.

Board Layout (reference only) FK ... FS



eurofast® PCB Mount Male and Female Receptacles

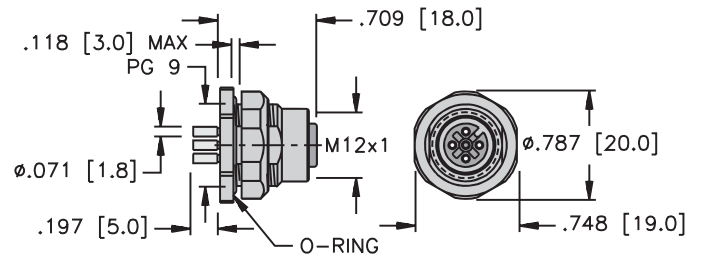
12



FSFDLW ..

Page L16

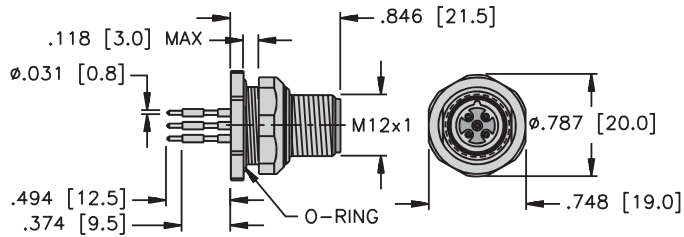
15



FKFDLW ..

Page L16

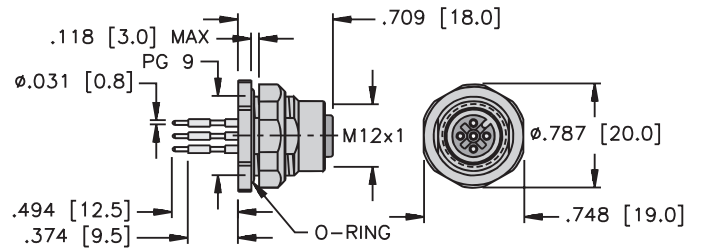
13



FSFDW ..PCB

Page L16

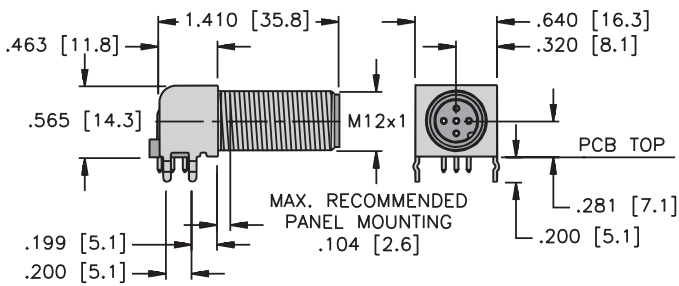
16



FKFDW ..PCB

Page L16

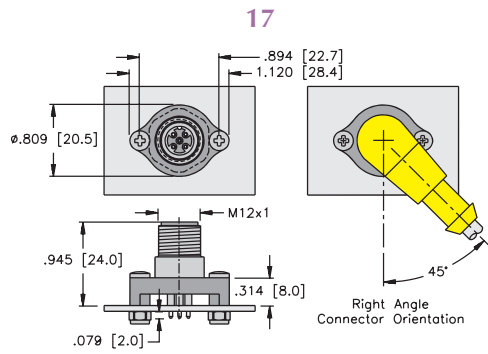
14



WFSW ..PCB

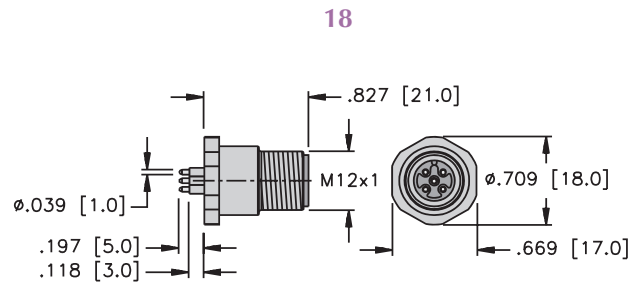
Page L16

PROFIBUS-DP Media



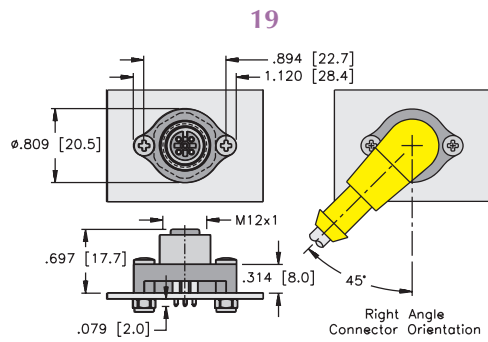
FSW 45 PCB KIT

Page L17



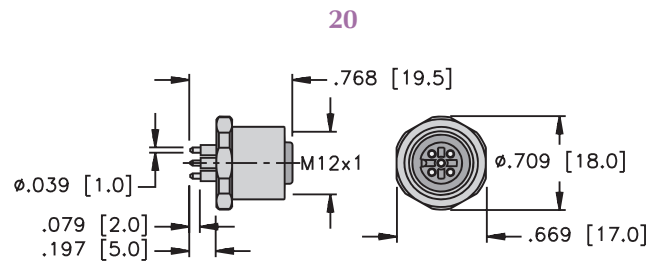
FSW 45 PCB

Page L17



FKW 45 PCB KIT

Page L17



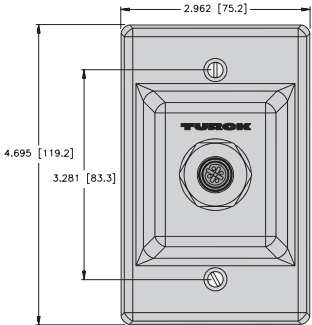
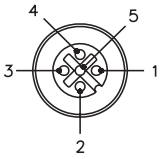
FK 45 PCB

Page L17

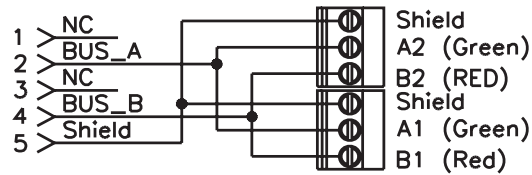
PROFIBUS®-DP, eurofast® Wall Plate Adapters

- Gasket and Mounting Screws Provided
- For Use with a Single Gang Electrical Box



Housing	Part Number	Specs	Application	Pinouts
	BPA-45-E113	Stainless Steel 250 V, 4.0 A -40 to +70°C (-40 to +158°F)	Attaches to standard single gang electrical box for transition to 5-wire (M12x1) eurofast connector	

PROFIBUS-DP Media



PROFIBUS®-PA



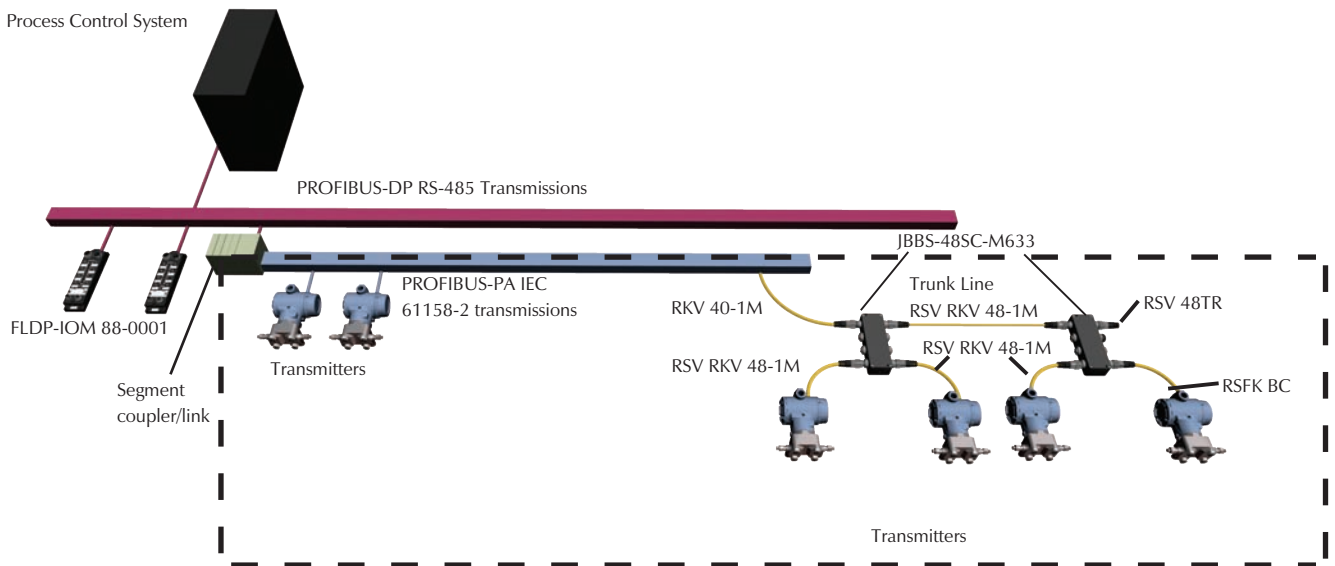
PROFIBUS®-PA Overview

PROFIBUS-PA (Process Automation) uses synchronous transfer mode technology, as defined in IEC 61158-2, to communicate between field devices and the RS 485 backbone of PROFIBUS®-DP. A segment coupler, or gateway is installed to bridge PROFIBUS-DP with PROFIBUS-PA. Otherwise, the protocols are identical, allowing transparent communication between general purpose automation systems and decentralized field devices.

PROFIBUS-PA is a master-slave bus. Transmitters used in the process industry are typically slave devices or passive stations which only communicate at the request of the master.

General Layout Topologies

The topology for PROFIBUS-DP is a linear bus. Branching can be accomplished with repeaters or, in the case of PROFIBUS-PA, this can be accomplished with the segment couplers. The PROFIBUS-PA topology follows the physical layer as defined in ISA SP50.02. Daisy chain or star topologies are allowed.



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PROFIBUS®-PA, Selection Guide



Cables	Terminating Resistors	Feed Through Connectors
L24 - L28	L29	L30



Junctions	Conduit Adapters	Tees
L31 - L43	L45	L47



Gender Changers	Surge Suppressor	Field Wireable Tees
L48	L49	L50



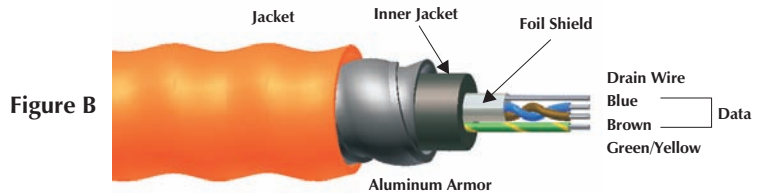
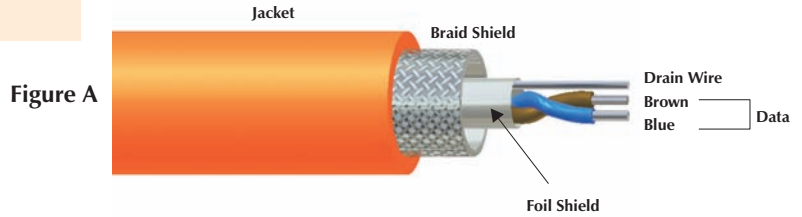
Receptacles	Field Wireable Connectors
L51 - L58	L59

PROFIBUS®-PA, Cable Specifications

- Cable that Meets the Requirements of ISA/SP50 and PROFIBUS-PA Requirements for Type A Cable
- All Cables are Rated -40° to +105°C and are Sunlight Resistant
- Available in 3-wire Versions with a Device Ground or 2-wire Versions

Type A Cable Specifications

- Designed for harsh environments
- Temperature range: -40° to +105°C
- Governed by: ISA SP50.02 specification
- Sunlight resistant per test
- PLTC and ITC rated (CSA FT4)
- Impedence [Z_0 at f_c (31.25 kHz)] = 100 Ohms \pm 20 %
- Maximum attenuation at 1.25 f_c (39 kHz) = 3.0 dB/km
- Maximum capacitive unbalance to shield = 2 nF/km
- Maximum DC resistance (per conductor) = 24 Ohms /km
- Maximum propagation delay variance 0.25 f_c to 1.25 f_c = 1.7 μ s/km
- Conductor cross-sectional area (wire size) = nominal 0.8 mm² (#18 AWG)
- Minimum shield coverage shall be 90%.



PROFIBUS-PA Media

Type	Approvals	Data Pair		Device Ground	Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	Material Color Nominal O.D.	Type Drain Wire		
483 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG]	2/18 AWG BU/BN	6.5 Ohms XLPE	None	PVC Orange 7.9 mm (.310 in)	Foil/Braid 20 AWG	RB50785-*M 59 lbs.	A
483B 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG]	2/18 AWG BU/BN	6.5 Ohms XLPE	None	PVC Blue 7.9 mm (.310 in)	Foil/Braid 20 AWG	RB50786-*M 59 lbs.	A
482A 105°C 300 Volts	NEC ITC PLTC/CM CEC [CMG HLBCD]	2/18 AWG BU/BN	6.5 Ohms PVC	18 AWG GN/YE	Armor/PVC Orange 14.9 mm (0.585 in)	Foil 20 AWG	RB50929-*M 96 lbs.	B
482BA 105°C 300 Volts	NEC ITC PLTC CEC [CMG]	2/18 AWG BU/BN	6.5 Ohms PE	18 AWG GN/YE	Armor/PVC Blue 14.9 mm (0.585 in)	Foil 20 AWG	RBS50929-*M 96 lbs.	B
483BK 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG]	2/18 AWG BU/BN	6.5 Ohms PE	None	PVC Black 7.9 mm (.310 in)	Foil/Braid 20 AWG	RB50860-*M 59 lbs.	A

* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

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Network Media Products

PROFIBUS®-PA, Cable and Cordset Selection Matrix

		minifast®				eurofast®	
		Pin (Male)		Socket (Female)		Pin (Male)	
		1  RSV	2  WSV	3  RKV	4  WKV	5  RSCV	
 Bare		RSV 48x-*M	WSV 48x-*M	RKV 48x-*M	WKV 48x-*M	RSCV 48x-*M	
minifast	Pin (Male)	1  RSV	RSV RSV 48x-*M	RSV WSV 48x-*M	RSV RKV 48x-*M	RSV WKV 48x-*M	RSV RSCV 48x-*M
	2  WSV		WSV WSV 48x-*M	WSV RKV 48x-*M	WSV WKV 48x-*M	WSV RSCV 48x-*M	
	3  RKV			RKV RKV 48x-*M	RKV WKV 48x-*M	RKV RSCV 48x-*M	
	4  WKV				WKV WKV 48x-*M	WKV RSCV 48x-*M	
eurofast	Pin (Male)	5  RSCV				RSCV RSCV 48x-*M	
	6  WSCV						
	7  RKCV						
	8  WKCVC						

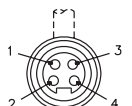
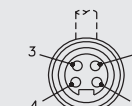
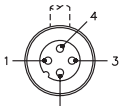
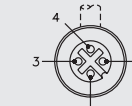
See pages L27 - L28 for dimensional drawings.

* Indicates length in meters.

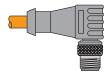
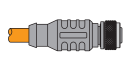
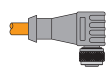
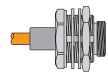
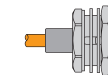
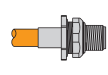
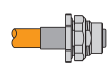
x Indicates cable type.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

minifast		Pinouts	eurofast	
Male	Female		Male	Female
		1. Brown (+ Voltage) 2. N/C 3. Blue (- Voltage) 4. Bare (Shield Drain Wire)		

PROFIBUS®-PA, Cable and Cordset Selection Matrix

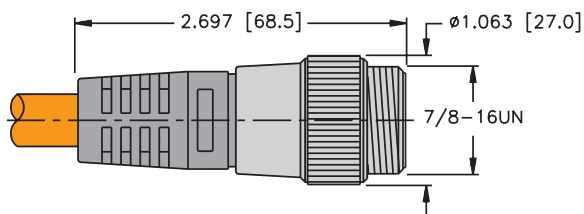
eurofast®			minifast® Bulkhead		eurofast Bulkhead	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6 	7 	8 	9 	10 	11 	12 
WSCV	RKCX	WKCX	RSFPV	RKFPV	FSFDV	FKFDV
WSCV 48x-*M	RKCX 48x-*M	WKCX 48x-*M	RSFPV 48x-*M	RKFPV 48x-*M	FSFDV 48x-*M	FKFDV 48x-*M
RSV WSCV 48x-*M	RSV RKCX 48x-*M	RSV WKCX 48x-*M	RSV RSFPV 48x-*M	RSV RKFPV 48x-*M	RSV FSFDV 48x-*M	RSV FKFDV 48x-*M
WSV WSCV 48x-*M	WSV RKCX 48x-*M	WSV WKCX 48x-*M	WSV RSFPV 48x-*M	WSV RKFPV 48x-*M	WSV FSFDV 48x-*M	WSV FKFDV 48x-*M
RKV WSCV 48x-*M	RKV RKCX 48x-*M	RKV WKCX 48x-*M	RKV RSFPV 48x-*M	RKV RKFPV 48x-*M	RKV FSFDV 48x-*M	RKV FKFDV 48x-*M
WKV WSCV 48x-*M	WKV RKCX 48x-*M	WKV WKCX 48x-*M	WKV RSFPV 48x-*M	WKV RKFPV 48x-*M	WKV FSFDV 48x-*M	WKV FKFDV 48x-*M
RSCV WSCV 48x-*M	RSCV RKCX 48x-*M	RSCV WKCX 48x-*M	RSCV RSFPV 48x-*M	RSCV RKFPV 48x-*M	RSCV FSFDV 48x-*M	RSCV FKFDV 48x-*M
WSCV WSCV 48x-*M	WSCV RKCX 48x-*M	WSCV WKCX 48x-*M	WSCV RSFPV 48x-*M	WSCV RKFPV 48x-*M	WSCV FSFDV 48x-*M	WSCV FKFDV 48x-*M
	RKCX RKCX 48x-*M	RKCX WKCX 48x-*M	RKCX RSFPV 48x-*M	RKCX RKFPV 48x-*M	RKCX FSFDV 48x-*M	RKCX FKFDV 48x-*M
		WKCX WKCX 48x-*M	WKCX RSFPV 48x-*M	WKCX RKFPV 48x-*M	WKCX FSFDV 48x-*M	WKCX FKFDV 48x-*M

PROFIBUS®-PA, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40°C to +105°C (-40° to +221°F)

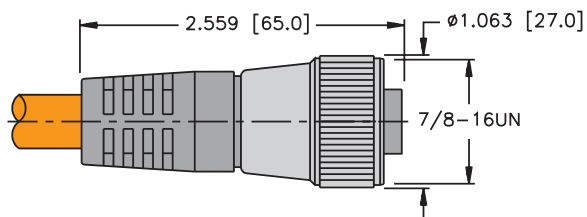
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RSV ..

Pages L25 - L26

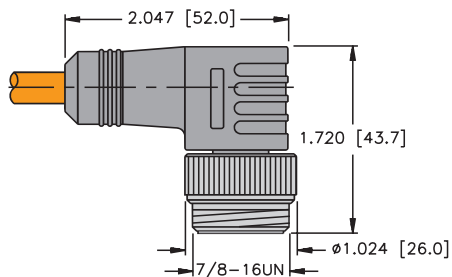
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RKV ..

Pages L25 - L26

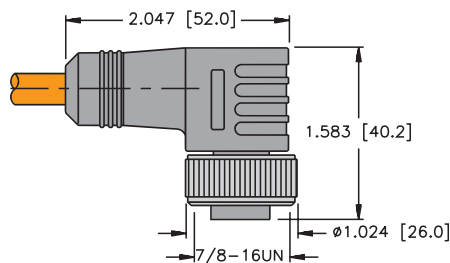
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WSV ..

Pages L25 - L26

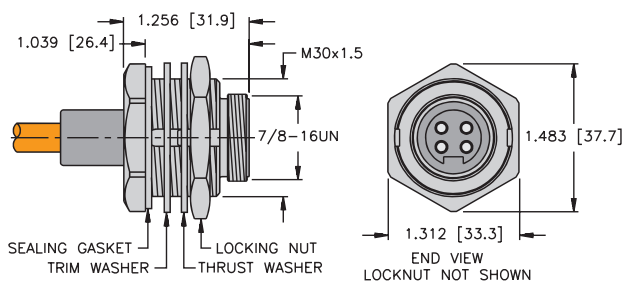
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WKV ..

Pages L25 - L26

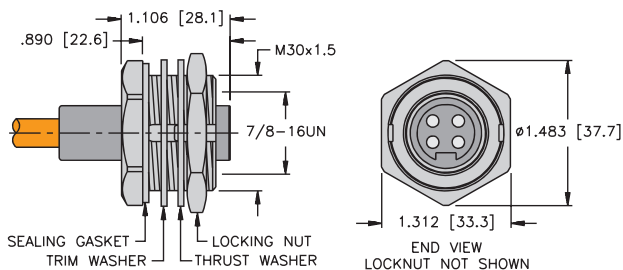
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RSPV ..

Pages L25 - L26

10



RKFPV ..

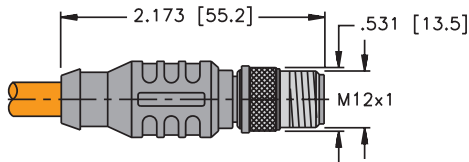
Pages L25 - L26

PROFIBUS®-PA, eurofast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

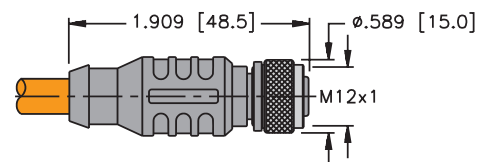
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RSCV ..

Pages L25 - L26

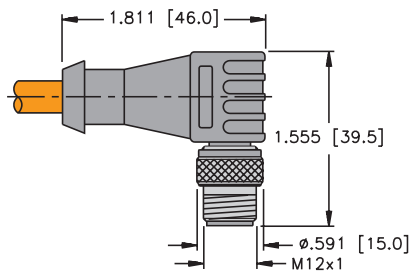
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RKCVC ..

Pages L25 - L26

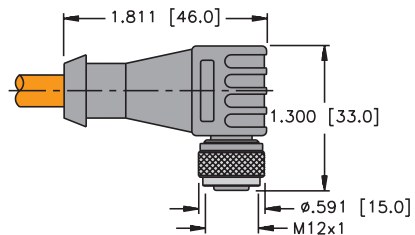
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WSCV ..

Pages L25 - L26

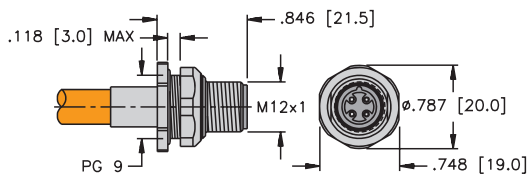
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WKCVC ..

Pages L25 - L26

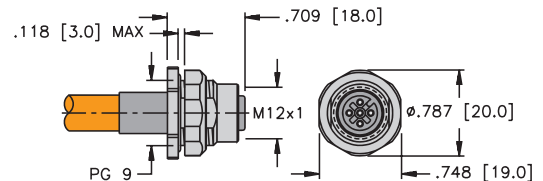
11



FSFDV ..

Pages L25 - L26

12



FKFDV ..

Pages L25 - L26

TURCK

Network Media Products

PROFIBUS®-PA, Terminating Resistors

- Terminating Resistors Stabilize and Minimize Reflections on the Bus Line
- A Terminating Resistor is Required at the Beginning and End of the Main Bus Line



Housing	Part Number	Specs	Application	Pinouts
	RSV 48-TR	Nickel Plated Brass or Stainless Steel 300 V, 9 A -40° to +75°C	minifast ® Terminating Resistor <ul style="list-style-type: none"> • Male minifast connector 	<p>Male</p>
	RSEV 48-TR	Nickel Plated Brass or Stainless Steel 250 V, 4 A -40° to +75°C	eurofast ® Terminating Resistor <ul style="list-style-type: none"> • Male eurofast connector 	<p>Male</p>

PROFIBUS®-PA, Feed Through Connectors

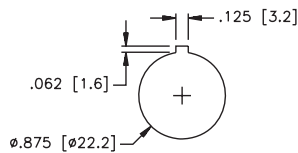
- Receptacles Provide Transition from Male to Female Connectors
- Available for Bulkhead and Feed Through Applications



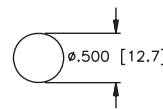
Housing	Part Number	Specs	Application	Pinouts
	RSFV RKFV 48/22	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +75°C	minifast ® Bulkhead Receptacle <ul style="list-style-type: none"> • Straight male/female feed through • For use with DeviceNet minifast cordsets 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Male</p> </div> <div style="text-align: center;"> <p>Female</p> </div> </div>
	FKV FSV 48/M12	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	eurofast ® Feed Through Connection <ul style="list-style-type: none"> • straight male/female connector • for pre-molded eurofast cables 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Male</p> </div> <div style="text-align: center;"> <p>Female</p> </div> </div>

Standard housing material is nickel plated brass. "RSF RKF.."; "RSFV RKFV.." indicates stainless steel housing.

Panel Cutout
RSFV RKFV 48/22



Panel Cutout
FKV FSV 48/M12



TURCK

Network Media Products

PROFIBUS®-PA, *minifast*® Passive Multiport Junctions (Bricks)

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

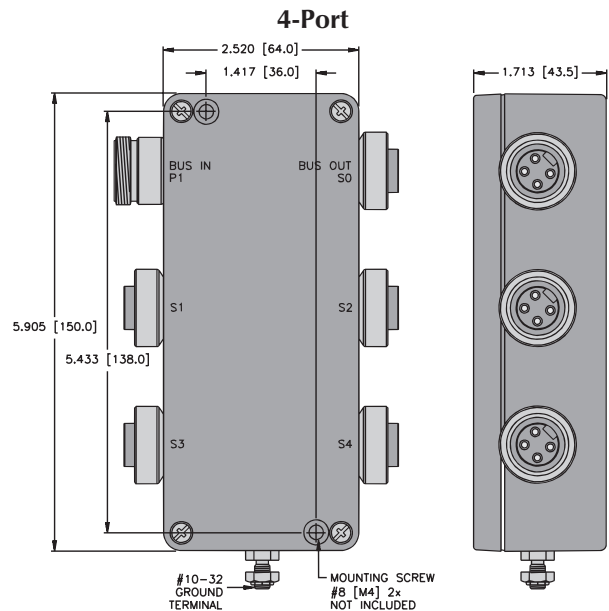
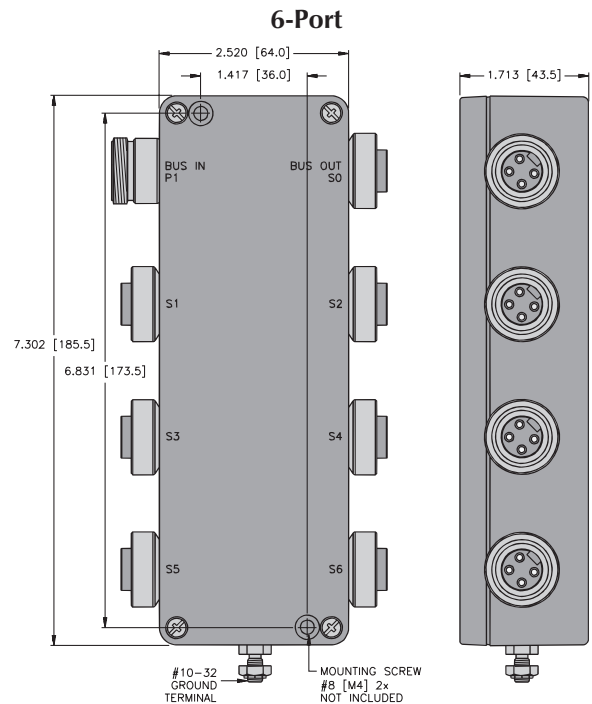
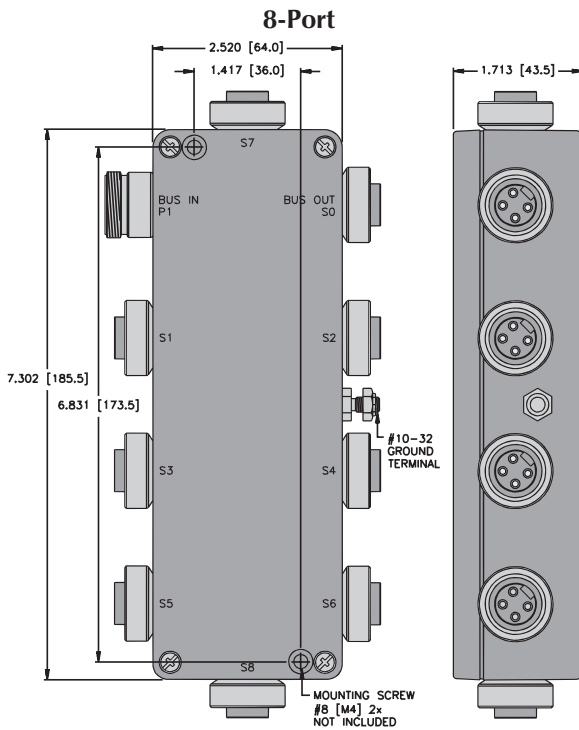


Part Number	Specs	Application	Wiring Diagrams
JBBS-48-M413	No short-circuit protection	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-48SC-M413	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		
JBBS-48-M613	No short-circuit protection	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-48SC-M613	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		
JBBS-48-M813	No short-circuit protection	8-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Eight (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-48SC-M813	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		

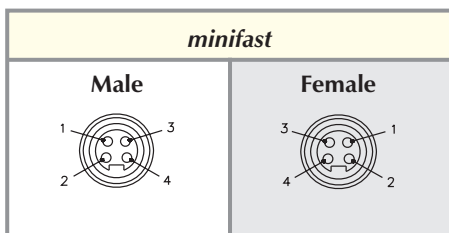
Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



Pinouts



TURCK

Network Media Products

PROFIBUS®-PA, *minifast*® Passive Multiport Junctions (Bricks)

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

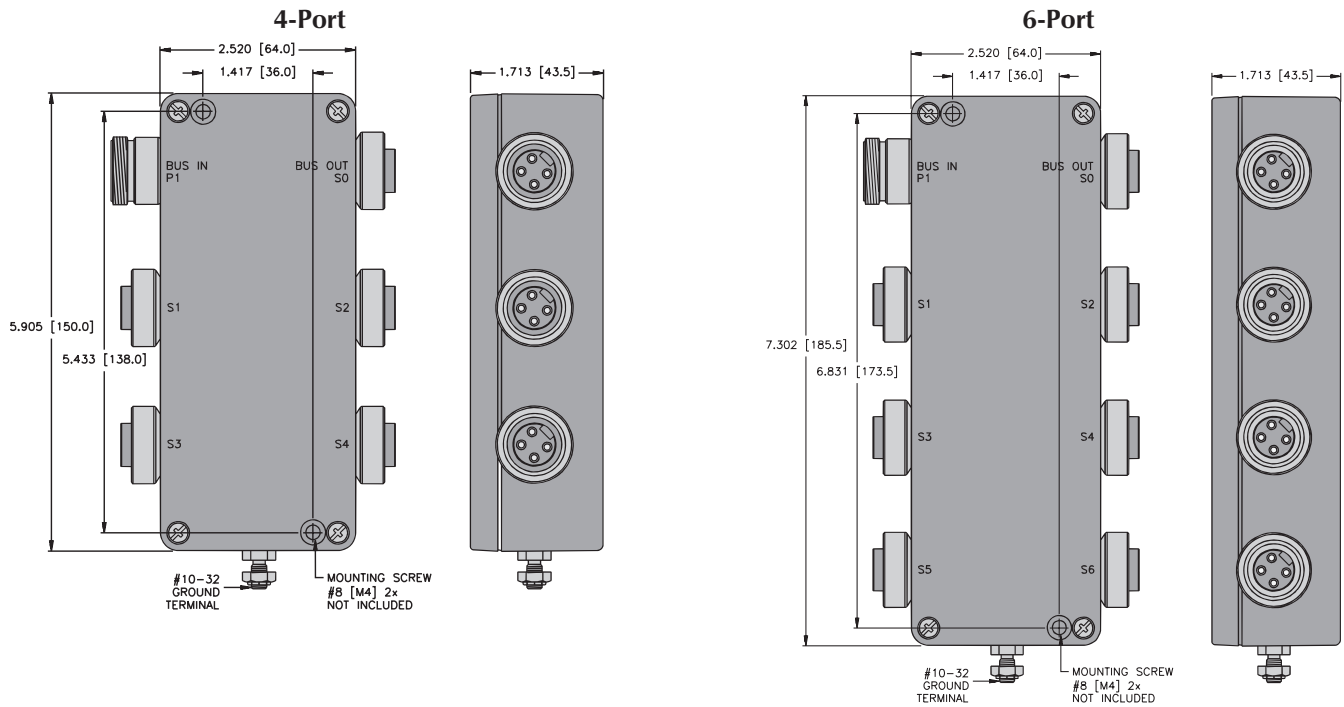


Part Number	Specs	Application	Wiring Diagrams
JBBS-48-M423	No short-circuit protection Fiberglass housing	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	
JBBS-48-M623	No short-circuit protection Fiberglass housing	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)	

Specifications

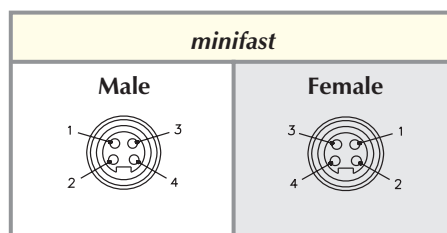
Housing:	Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



PROFIBUS-PA Media

Pinouts



TURCK

Network Media Products

PROFIBUS®-PA, eurofast® Passive Multiport Junctions (Bricks)

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

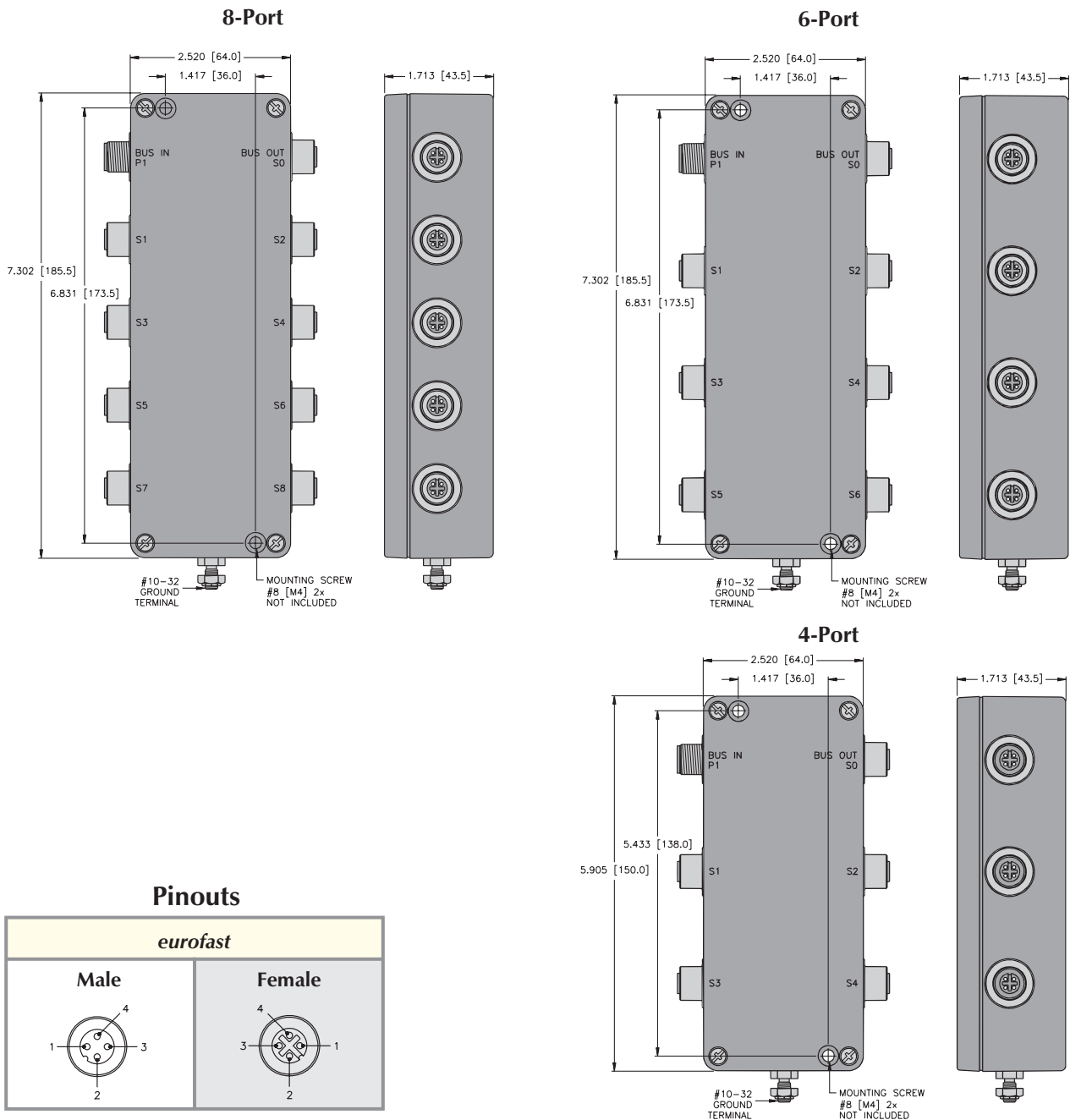


Part Number	Specs	Application	Wiring Diagrams
JBBS-48-E413	No short-circuit protection	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Four (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-48SC-E413	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		
JBBS-48-E613	No short-circuit protection	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Six (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-48SC-E613	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		
JBBS-48-E813	No short-circuit protection	8-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Eight (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-48SC-E813	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



TURCK

Network Media Products

PROFIBUS®-PA, *eurofast*® Passive Multiport Junctions (Bricks), Short-Circuit Protected

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications



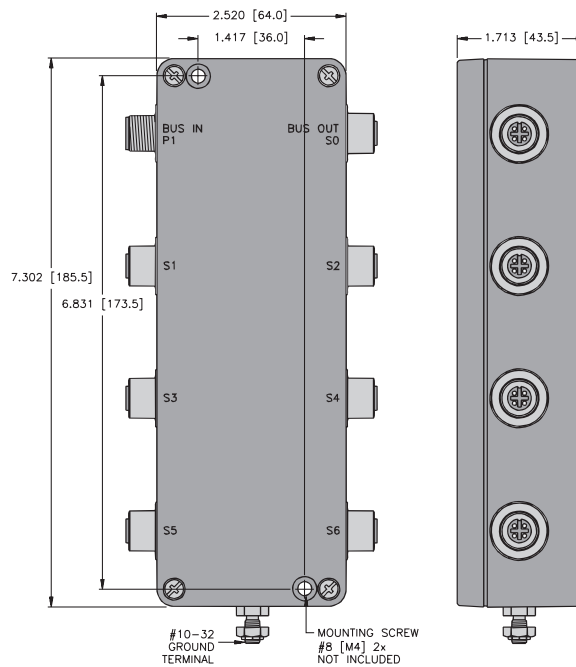
Part Number	Specs	Application	Wiring Diagrams
<p>JBBS-48SC-E613/EX</p>	<p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted • Short-Circuit Protection ≤ 35 mA • Current consumption ≤ 7 mA • Voltage drop ≤ 0.3 V 	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) <i>eurofast</i> • Six (M12x1) <i>eurofast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) FISCO/ENTITY Field Device</p>	

Specifications

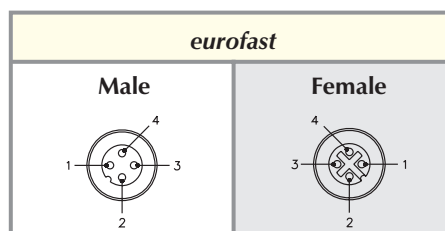
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

6-Port



Pinouts



TURCK

Network Media Products

PROFIBUS®-PA, eurofast® Passive Multiport Junctions (Bricks)

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

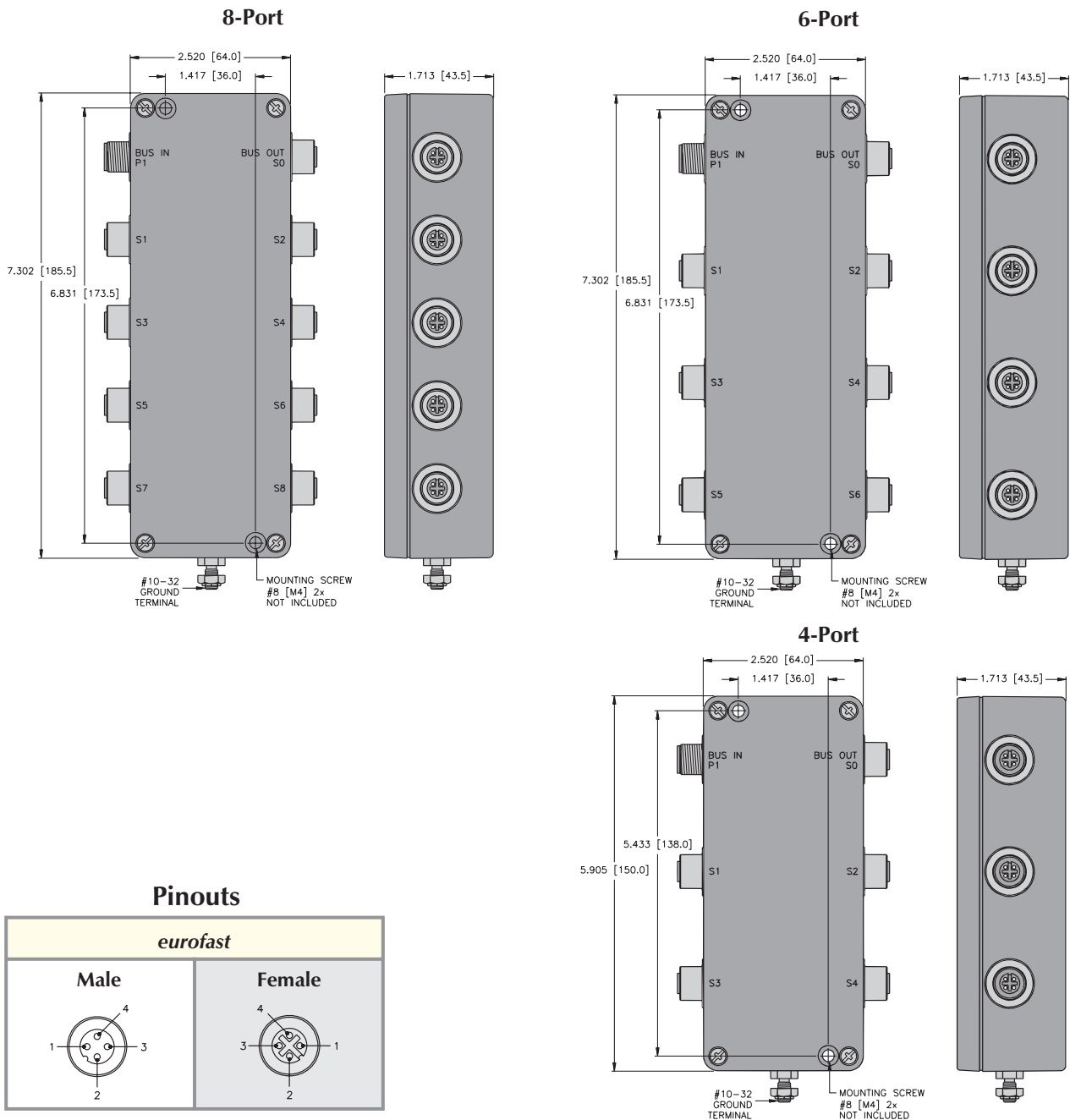


Part Number	Specs	Application	Wiring Diagrams
JBBS-48-E414	No short-circuit protection	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Four (M12x1) eurofast connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	
JBBS-48-E614	No short-circuit protection	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Six (M12x1) eurofast connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	
JBBS-48-E814	No short-circuit protection	<p>8-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Eight (M12x1) eurofast connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



PROFIBUS-PA Media

PROFIBUS®-PA, *minifast*® Junction Tees

- **Indoor Use Only**
(for outdoor applications use *JBBS* family)
- **Multi-port Junction Provides a Rugged Connection to Network Devices**
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**



Part Number	Specs	Application	Wiring Diagrams
JTBS-48-M433	No short-circuit protection	4-port Junction Tee	
JTBS-48SC-M433	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Four (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 48SC-M434 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JTBS-48-M633	No short-circuit protection	6-port Junction Tee	
JTBS-48SC-M633	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 48SC-M634 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

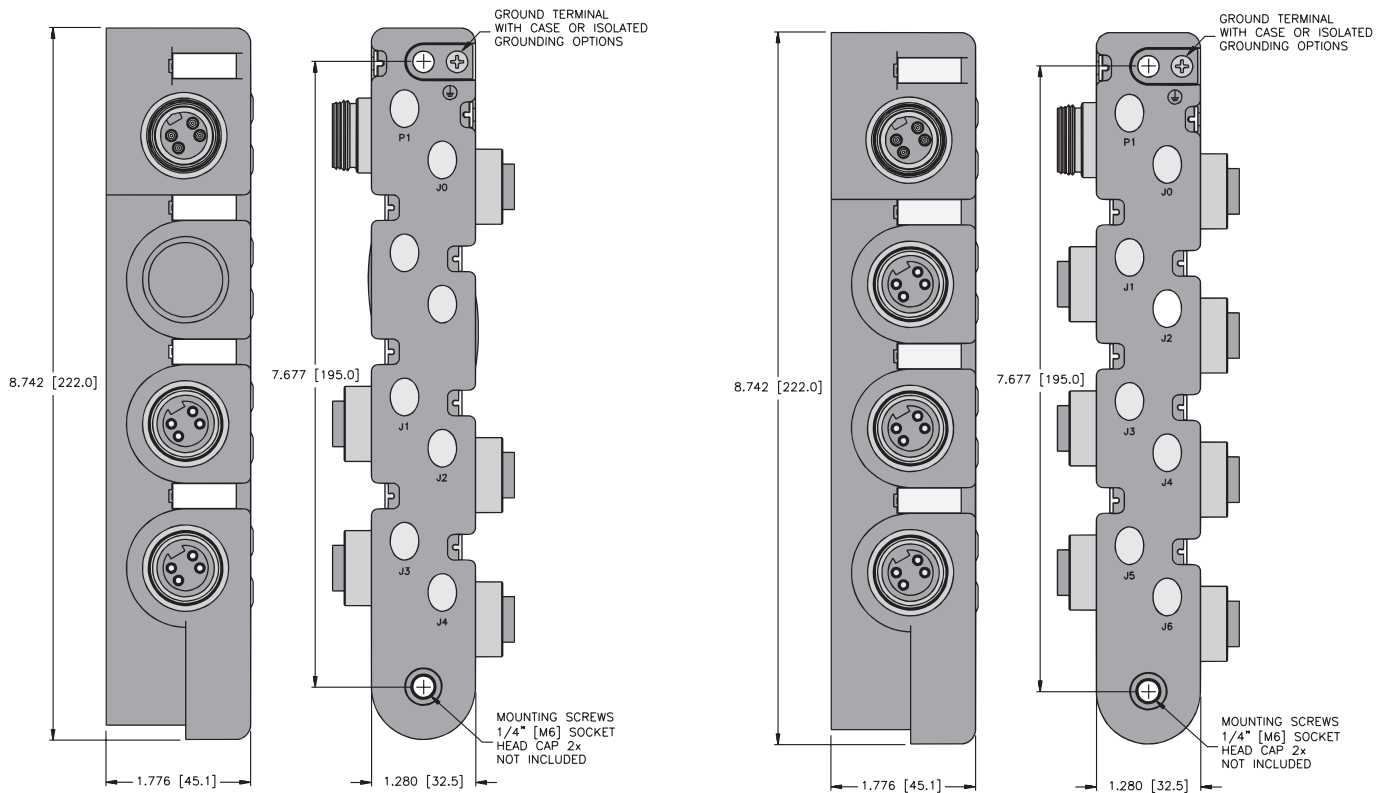
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

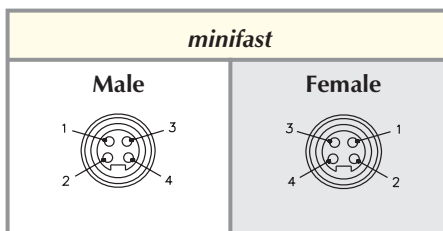
4-port

6-port



PROFIBUS-PA Media

Pinouts



TURCK

Network Media Products

PROFIBUS®-PA, eurofast® Junction Tee

- **Indoor Use Only**
(for outdoor applications use JBBS family)
- **Multi-port Junction Provides a Rugged Connection to Network Devices**
- **Bus-in/Bus-out Feature Eliminates Need for Splitter Tee**



Part Number	Specs	Application	Wiring Diagrams
JTBS-48-E433	No short-circuit protection	4-port Junction Tee	
JTBS-48SC-E433	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (M12x1) eurofast bus in/bus out connections • Four (M12x1) eurofast device ports • For nickel plated brass connectors change part number to JTBS 48SC-E434 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JTBS-48-E633	No short-circuit protection	6-port Junction Tee	
JTBS-48SC-E633	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (M12x1) eurofast bus in/bus out connections • Six (M12x1) eurofast device ports • For nickel plated brass connectors change part number to JTBS 48SC-E634 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

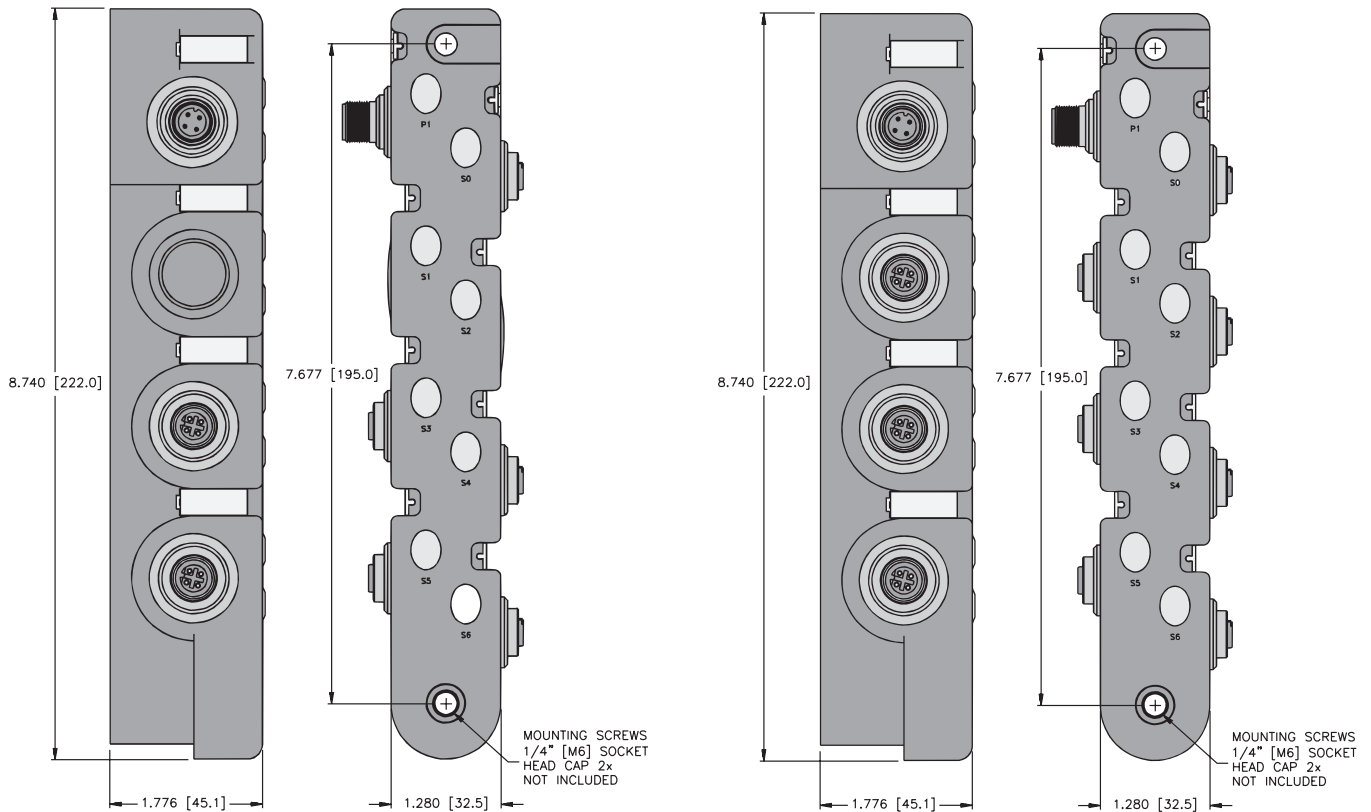
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)




Dimensions

4-port

6-port



Pinouts

<i>minifast</i>		<i>eurofast</i>
Male	Female	Female
		

TURCK

Network Media Products

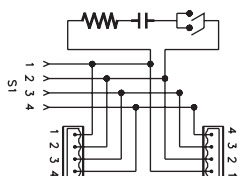
PROFIBUS®-PA, *minifast*® Conduit Adapters

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

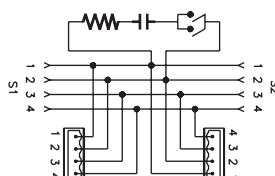


Housing	Part Number	Specs	Application	Pinout
	BCA 48-M123	Nylon Housing 300 V, 9 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (7/8-16UN) <i>minifast</i> connector	<p>Male</p>
	BCA 48-M223		Attaches to standard conduit body* for transition to 4-wire (7/8-16UN) <i>minifast</i> connector	

1-port Wiring Diagram



2-port Wiring Diagram



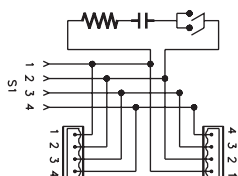
PROFIBUS®-PA, eurofast® Conduit Adapters

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

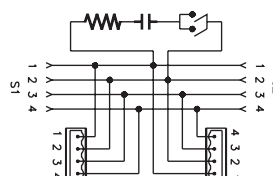


Housing	Part Number	Specs	Application	Pinout
	BCA 48-E123	Nylon Housing 250 V, 4 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast connector *Crouse-Hinds 3/4" Form 8, or Mark 9 or equivalent.	<p>Female</p>
	BCA 48-E223		Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast connector *Crouse-Hinds 3/4" Form 8, or Mark 9 or equivalent.	

1-port Wiring Diagram



2-port Wiring Diagram



PROFIBUS-PA Media

TURCK

Network Media Products

PROFIBUS® -PA, Tees

- Creates a Drop or Branch from the Main Bus Line
- *minifast*® Connectors on Bus or Drop Lines



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSV 2RKV 48		<i>minifast</i> Tee <ul style="list-style-type: none"> • Data, ground, shield • Stainless steel coupling nuts 	
	RSV FKV RKV 48	PUR (Polyurethane) 250 V, 4 A -40° to +75°C	<i>minifast</i> to <i>eurofast</i> ® Drop <ul style="list-style-type: none"> • Data, ground, shield • Stainless steel coupling nuts 	
	RSCS 2RKCS 48		<i>eurofast</i> Tee <ul style="list-style-type: none"> • Stainless steel coupling nuts 	

Pinouts

<i>minifast</i>		<i>eurofast</i>	
Male	Female	Male	Female

PROFIBUS®-PA, Gender Changers and Elbow Connectors

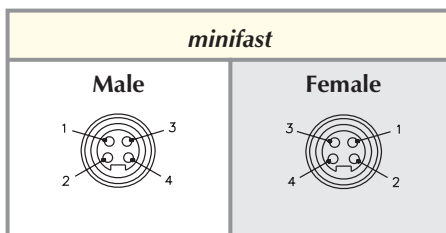
- Allows Quick and Easy Changes from Male to Female *minifast*® Connectors



Housing	Part Number	Specs	Application
	RSV RSV 48		Male <i>minifast</i> Gender Changer <ul style="list-style-type: none"> • Changes female cordset to male receptacle
	RKV RKV 48	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	Female <i>minifast</i> Gender Changer <ul style="list-style-type: none"> • Changes female cordset to male receptacle
	WSV RKV 48		<i>minifast</i> Elbow <ul style="list-style-type: none"> • Right angle male to female connector

PROFIBUS-PA Media

Pinouts



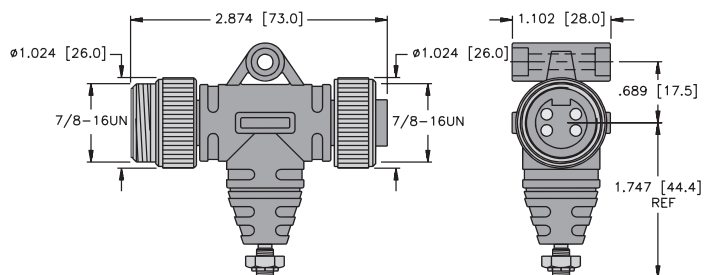
PROFIBUS®-PA, Surge Suppressor

- Protects Data Communication Lines (V+ and V-)
- Absorbs the Front End of the Transient, Responding in Less Than a Nanosecond
- Diverts the Surge Energy to Ground
- Automatically Resets and waits for Next Surge



Housing	Part Number	Specs	Application	Pinouts
See Drawing 1	RSV RKV 48 SS	<p>Electrical</p> <ul style="list-style-type: none"> • Maximum operating voltage: 27 Volts • Maximum operating current: 200 mA • Clamping Action Turn-on: 28.5 Volts • Maximum clamping at 2 kA: (8 x 20 Sec): 44 Volts • Maximum surge voltage: 20 kV • Maximum surge current: 2.5 kA • Current leakage/line at operating voltage: 5 A • Capacitance /line at operating voltage: 500 pF • Response time: Less than 1 nanosecond <p>Mechanical</p> <ul style="list-style-type: none"> • Ground Stud: 10-32 stainless steel • Operating temperature: -40° to +85°C 	Male and female <i>minifast</i> ®, 4-pin	<p>Male</p> <p>Female</p>

1

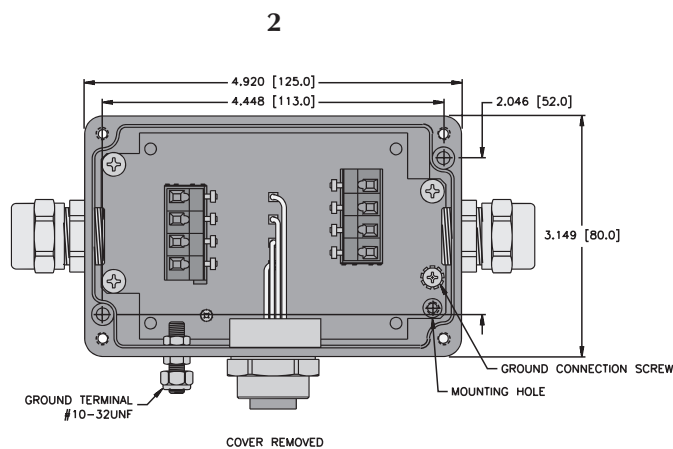
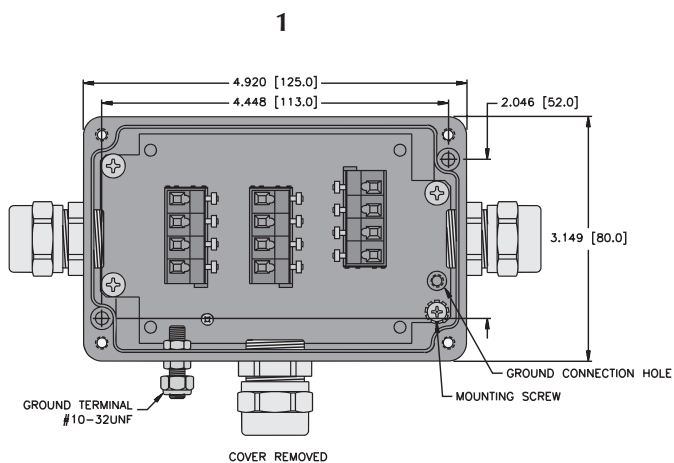


PROFIBUS®-PA, Field Wireable Tee

- A Hybrid Connection System Offering Reliable Connections on the Short Drops and Ease of Installation on the Long Trunk Runs
- Features Standard *minifast*® Connector for the Drop Connection and Terminal Connectors on the Trunk Connections



Housing Style	Part Number	Specs	Application	Pinout
See Drawing 1	SPTT1-A48	Anodized Aluminum 250 V, 4 A -40° to +75°C NEMA 1, 3, 4, 6P and IEC IP 68	(7/8-16UN) <i>minifast</i> connector for drop connection, and field wireable terminals on the trunk connections.	Female
See Drawing 2	SPTTM13-A48			



TURCK

Network Media Products

PROFIBUS®-PA, (7/8-16UN) *minifast*® Male Receptacles

- Provides Quick Connection to Field Devices
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
<p>13</p>	RSFV 48-*M/14.5	Nickel Plated CuZn or Stainless Steel 600 V, 9 A -40° to +105°C	1/2-14NPT full length threads	<p>Male</p>
<p>15</p>	RSFV 48-*M/14.75		3/4-14NPT full length threads	
<p>14</p>	RSFV 48-*M/M20		M20x1.5 threads	
<p>16</p>	RSFV 48-*M		1/2-14NPSM threads	
<p>17</p>	RSFV 48-*M/NPT		1/2-14NPT modified length threads	

See page L53 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.
 Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
 Standard housing material is nickel plated brass. "RKFV .."; indicates 316 stainless steel housing.
 For locknuts to be included, add "W/LN" to the end of the part number.

PROFIBUS®-PA, (7/8-16UN) *minifast*® Female Receptacles

- Provides Quick Connection to Field Devices
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
<p>18</p>	RKFV 48-*M/14.5	Nickel Plated CuZn or Stainless Steel 600 V, 9 A -40° to +105°C	1/2-14NPT full length threads	<p>Female</p>
<p>20</p>	RKFV 48-*M/14.75		3/4-14NPT full length threads	
<p>19</p>	RKFV 48-*M/M20		M20x1.5 threads	
<p>21</p>	RKFV 48-*M		1/2-14NPSM threads	
<p>22</p>	RKFV 48-*M/NPT		1/2-14NPT modified length threads	

PROFIBUS-PA Media

See page L54 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.
 Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
 Standard housing material is nickel plated brass. "RKFV .."; indicates 316 stainless steel housing.
 For locknuts to be included, add "W/LN" to the end of the part number.

TURCK

Network Media Products

PROFIBUS®-PA, (M12x1) eurofast® Male Receptacles

- Mounted for Quick Connection to Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinout
<p>23</p>	FSV 48-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	<p>Male</p>
<p>25</p>	FSV 48-*M/14.75		3/4-14NPT full length threads	
<p>24</p>	FSV 48-*M/M20		M20x1.5 threads	
<p>26</p>	FSV 48-*M		PG 9 threads	
<p>27</p>	FSV 48-*M/NPT		1/2-14NPT modified length threads	

See page L55 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.

Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.

Standard housing material is nickel plated brass. "RKFV .."; indicates 316 stainless steel housing.

PROFIBUS®-PA, (M12x1) eurofast® Female Receptacles

- Mounted for Quick Connection to Enclosures
- Available for 1/2-14 NPT, 1/2-14 NPSM, 3/4-14 NPT and M20 Threads



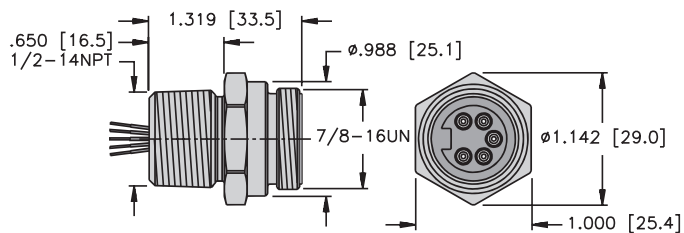
Housing	Part Number	Specs	Application	Pinouts
<p>28</p>	FKV 48-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	<p>Female</p>
<p>30</p>	FKV 48-*M/14.75		3/4-14NPT full length threads	
<p>29</p>	FKV 48-*M/M20		M20x1.5 threads	
<p>31</p>	FKV 48-*M		PG 9 threads	
<p>32</p>	FKV 48-*M/NPT		1/2-14NPT modified length threads	

See page L56 for dimensional drawings.

Standard cable length is 0.3 Meters. Consult factory for other lengths.
 Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
 Standard housing material is nickel plated brass. "RKFV .."; indicates 316 stainless steel housing.

minifast® Male Receptacles

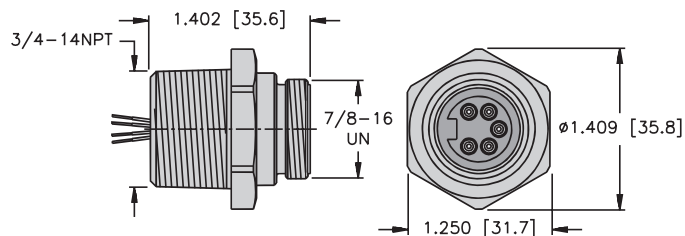
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RSFV .. 14.5

Page L49

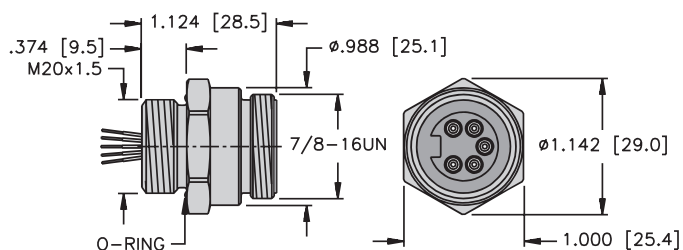
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RSFV .. 14.75

Page L49

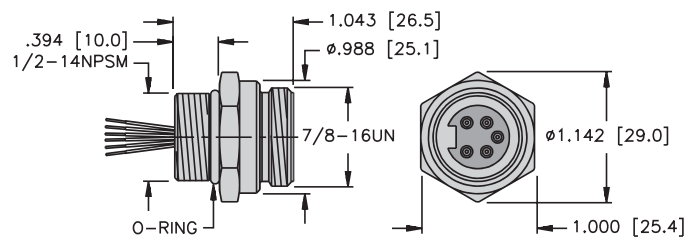
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RSFV .. M20

Page L49

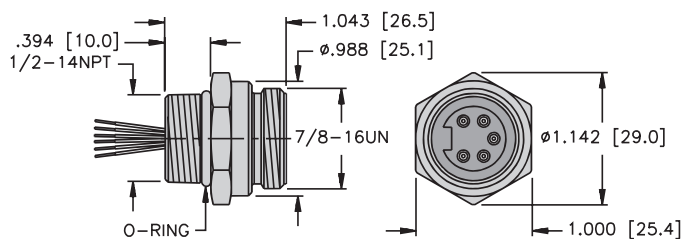
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RSFV ..

Page L49

17

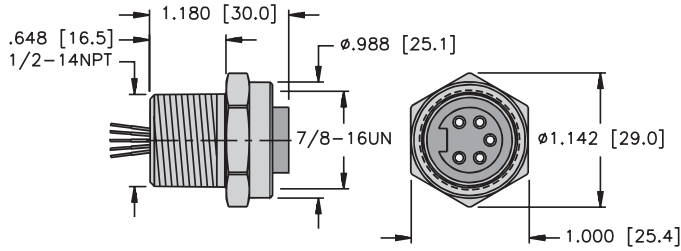


RSFV .. NPT

Page L49

minifast® Female Receptacles

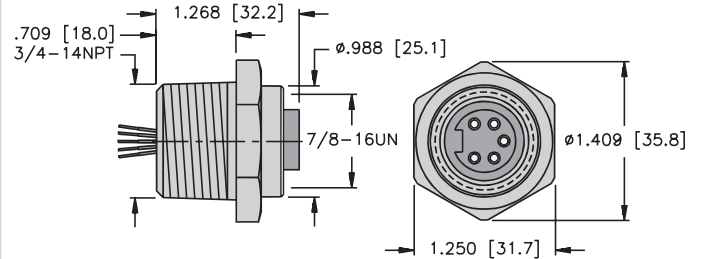
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RKFV .. 14.5

Page L50

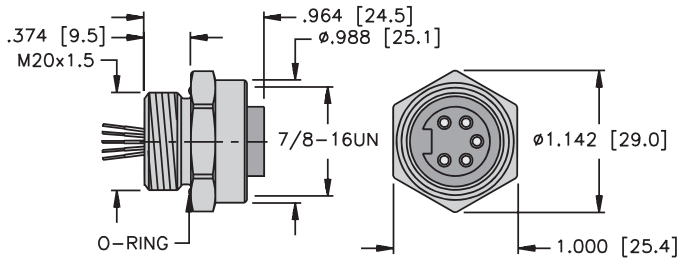
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RKFV .. 14.75

Page L50

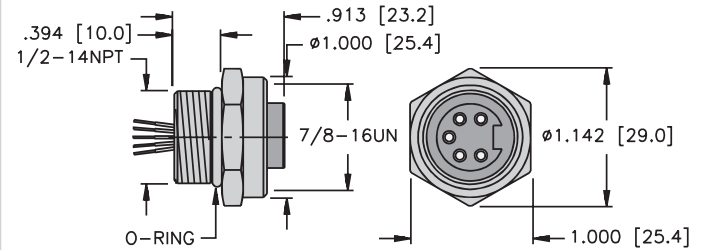
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RKFV .. M20

Page L50

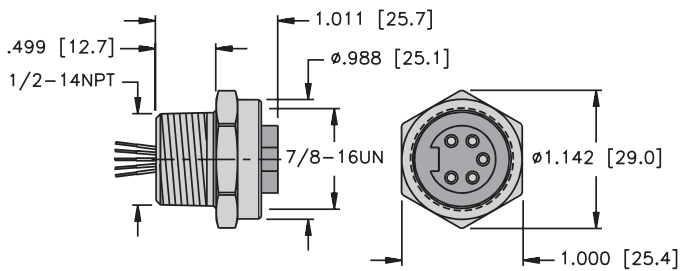
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RKFV ..

Page L50

22

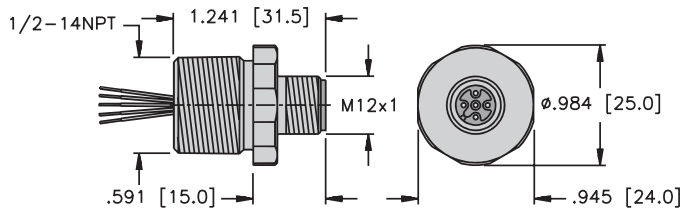


RKFV .. NPT

Page L50

euromast® Male Receptacles

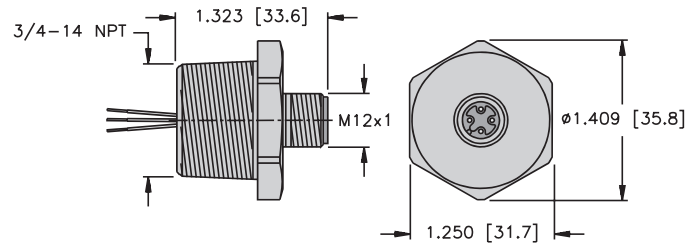
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FSV .. 14.5

Page L51

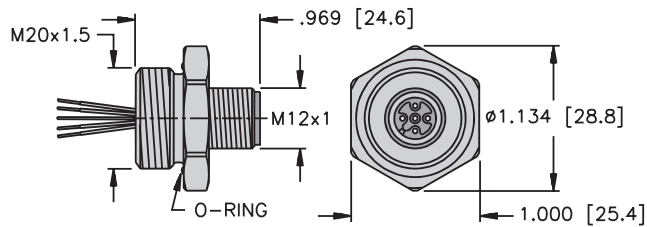
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FSV .. 14.75

Page L51

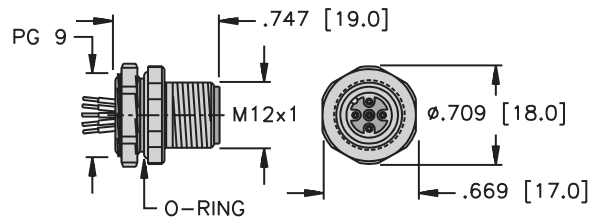
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FSV .. M20

Page L51

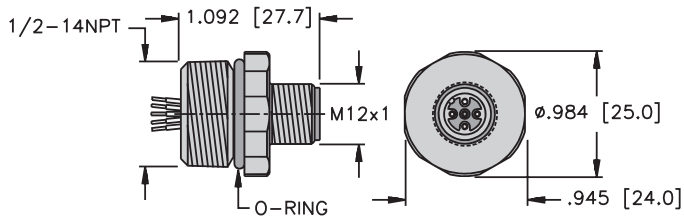
26



FSV ..

Page L51

27

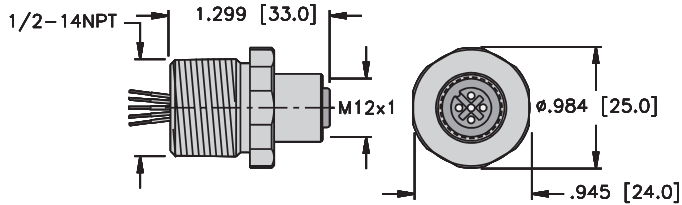


FSV .. NPT

Page L51

euromast® Female Receptacles

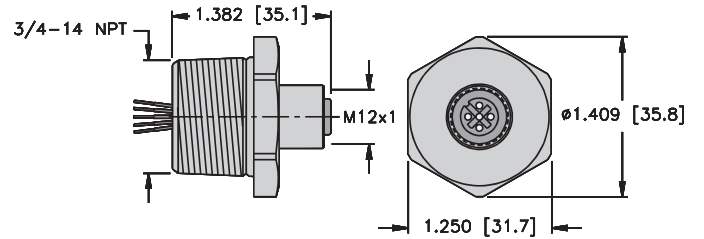
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FKV .. 14.5

Page L52

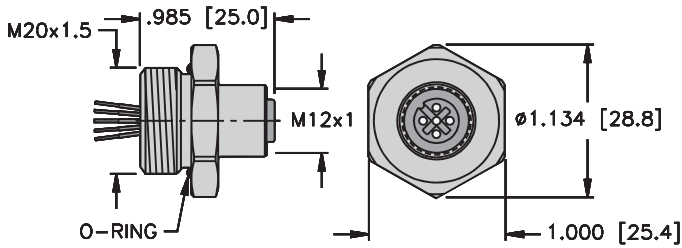
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FKV .. 14.75

Page L52

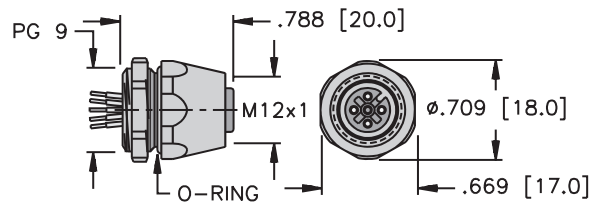
29



FKV .. M20

Page L52

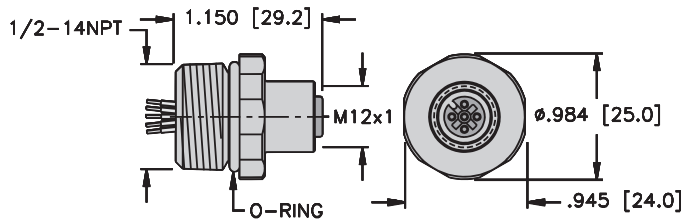
31



FKV ..

Page L52

32



FKV .. NPT

Page L52

TURCK

Network Media Products

PROFIBUS®-PA, *minifast*® Field Wireable Connectors

- Screw Terminals Accept up to 16 AWG Conductors



Housing	Part Number	Specs	Application	Pinout
	BS 4148-0/9	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A	Mates with all 4-pin <i>minifast</i> cordsets and receptacles	Female
	BS 4148-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		
	BK 4140-0/9	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A		Male
	B 4148-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		

For stainless steel coupling nuts change part number BS ... to BSV ... BK ... To BV

PROFIBUS®-PA, *eurofast*® Field Wireable Connectors

- Screw Terminals Accept up to 18 AWG Conductors



Housing	Part Number	Specs	Application	Pinouts
	BS 8141-0/PG9	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 125 V, 4 A	Mates with standard key 4-pin <i>eurofast</i> cordsets and receptacles	<p>Male</p>
	BS 8241-0/PG9	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 125 V, 4 A		
	B 8141-0/PG9	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 250 V, 4 A		<p>Female</p>
	B 8241-0/PG9	PBT, Black PG 7 cable gland, accepts 4-8 mm cable diameter 85°C 250 V, 4 A		

TURCK

Network Media Products

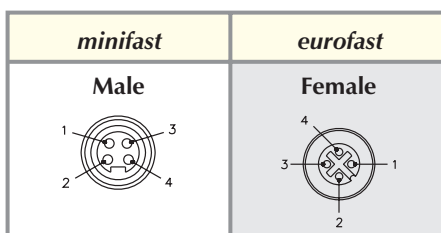
PROFIBUS®-PA, Gender Changers and Elbow Connectors

- Allows Quick and Easy Changes from Male to Female and *minifast*® to *eurofast*® Connectors



Housing	Part Number	Specs	Application	Wiring Diagram
	RSM 48-FK 4.4	Nickel plated brass CuZn or Stainless Steel 250 V, 4 A -40° to +80°C	Female <i>eurofast</i> , male <i>minifast</i> , 4-pin	

Pinouts



Notes:



AS-interface System Description

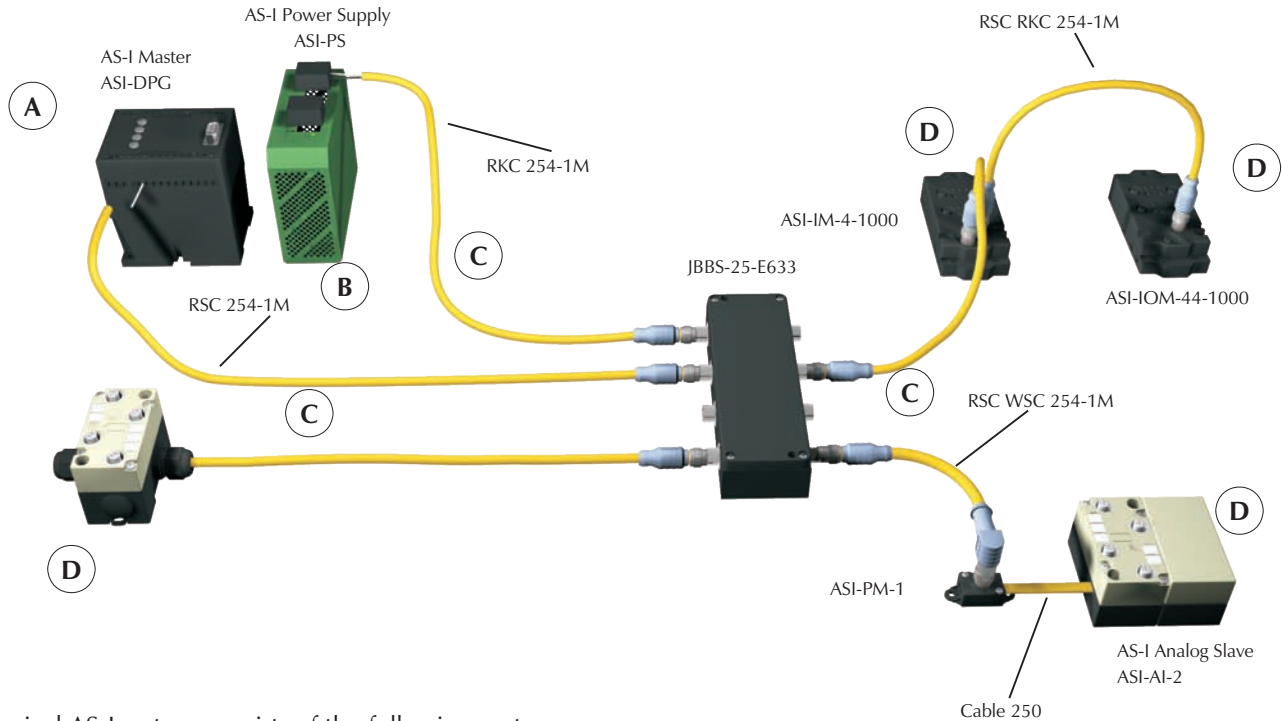
AS-interface (commonly referred to as AS-I) is a low-level I/O interface system. It was originally intended to be a simple, low cost system that would be easy to install and maintain. With that philosophy in mind, the original developers designed AS-I as a discrete-only two-wire system. It incorporated features like automatic station addressing, and power and data were carried on a single untwisted pair of wires.

As the demand for AS-I grew, so did the demand for more complex devices. The next major version of AS-I, v2.1, extended the protocol to include seamless transfer of analog data, transmission of simple diagnostic data and an extended addressing scheme that effectively doubled the number of stations allowed on the network. The newest version of AS-I, v3.0, has gone even further, allowing more options for analog data and much more detailed diagnostic information to be communicated. New versions of AS-I are backward compatible and support slaves from earlier versions. Additionally, AS-I was one of the first network systems to incorporate a safety protocol, allowing emergency-stop and machine-stop systems to be seamlessly integrated with the network.

AS-I can be used as a stand alone network or can be connected to a higher level system, such as DeviceNet™ or PROFIBUS®-DP, through a gateway. The gateway acts as a slave to the higher system and a master to the AS-I system.

Typical System Configuration

Basic Parts List



A typical AS-I system consists of the following parts:

- A = Master
- B = AS-I Power Supply
- C = AS-I Cable (See N2)
- D = AS-I I/O Modules (or Slaves)

AS-I stations require a network master (also called a scanner) to interface the stations to the host controller. In some cases the scanner and controller are packaged as a single unit; in other cases the scanner acts as a gateway to a higher level network or to a PLC. **TURCK** AS-I stations are designed to be fully compatible with AS-I equipment from other manufacturers.



TURCK & Bihl+Wiedemann

Bihl+Wiedemann, considered the "AS-I masters", is the leading supplier of AS-I master and gateway products. Their broad product range enables users to select from a wide variety of higher level fieldbuses or PC/PLC control solutions. Additionally, Bihl+Wiedemann provides a wide variety of analog AS-I slaves, PC-board level devices for OEMs and sophisticated AS-I accessory products. **TURCK** has partnered with Bihl+Wiedemann to distribute and support their products in North America.

Cordsets

TURCK offers a complete line of molded AS-I cordsets to facilitate network installation, resulting in a faster start-up and fewer wiring errors. The bus and drop cables are specially designed foil-shielded, high-flex cables with very low inductance and capacitance to minimize propagation delay time. AS-I cables consist of a single untwisted and unshielded wire pair that carries both 30 VDC power and the network data. AS-I was originally designed for use with flat cable using an insulation displacement connection technology, but the use of round cables with sealed connectors has become more common. **TURCK** provides both cable options.

Diagnostics

AS-I has limited field diagnostic capability, due to the limited amount of data transferred in each message. Although with v2.1, a peripheral fault bit can be reported by an AS-I station to indicate a fault with a field device. This allows the user to easily determine the location of a system fault down to the station level. AS-I v3.0 has even more diagnostic capabilities, allowing asynchronous "mailbox" messaging to receive more detailed error information.

Bihl+Wiedemann AS-I masters provide comprehensive information about the status of each station on the network by using register based tables to display each occupied network address.

Addressing

The original AS-I system allowed only 4 bits of data to be transferred in each message for a fast and efficient data transfer system. Slaves could be addressed from one to 31, but with the growth of the network more than 31 stations were often required. Beginning with AS-I v2.1 stations were available with "AB" addressing. This scheme allows the station to be addressed from 1A to 31A or 1B to 31B, with 62 total slaves with four discrete inputs and three discrete outputs each. The extended address range (and the three outputs) is achieved by using one output bit as an AB address.

When both A and B addressed slaves are on the same network, they are scanned on alternating cycles (first all the A slaves are scanned, then all the B slaves). Both AB and single-address slaves can be on the same network. In this case the single-address (non AB style) slaves are scanned every cycle. It's important to note that not all v2.1 slaves use this addressing scheme, although it is often referred to as v2.1 addressing.

Analog Data

Although the original AS-I version only allowed discrete data transfer, v2.1 and higher support seamless analog data transfer. This is accomplished by sending a portion of the analog data on each of several consecutive network cycles; for example, a 16-bit word of data requires seven network cycles. Further, AS-I v3.0 allows analog data to be transferred in a single cycle by consuming more than one address for the analog slave.

Communication Rate/Cycle Time

AS-I communicates at a fixed data rate of 167 kbps. The system's cycle time is very predictable because of the simple communication scheme and fixed data rate. For example, a network with 31 slaves will have a cycle time of less than 5 ms. A network with 62 slaves (all A and B addresses used) will have a cycle time of less than 10 ms. If analog slaves are being used, the cycle time will change to account for the fact that an analog word takes multiple network cycles to transmit.

Maximum Ratings

The AS-I system uses a freeform layout topology. Up to 100 m of cable can be used on a segment before a repeater or tuner needs to be installed to allow the network to be extended beyond the 100 m limit. No terminating resistors are required.

AS-interface Masters and Gateways

TURCK offers a wide variety of AS-I masters and gateways manufactured by Bihl+Wiedemann. These devices control communication on the AS-I network and provide a logical connection from the slave and I/O devices in the field to the host. The terms “master” and “gateway” as used here differ in the following way: A master is an AS-I controller that provides a direct link to the host (PLC, PC, DCS etc.); a gateway is an AS-I master, while also being a slave to a higher-level system (such as DeviceNet™, PROFIBUS®-DP or Ethernet). In the case of a gateway, the AS-I information is compiled by the AS-I master and communicated through the higher-level system as a standard slave data map.

AS-I masters and gateways are available in several different designs. The latest gateway versions incorporate stainless steel housing, support DeviceNet, EtherNet/IP™, Modbus-TCP, PROFIBUS-DP, CANopen and Modbus as higher-level networks, and are available with one or two AS-I masters. These gateways also feature AS-I v3.0 software, and a graphical display for configuration and maintenance with no need for a PC. Other new features include a direct serial connection to the AS-I Control Tools software (requires a connection cable that can be ordered with the software: part number ASI-CT-SS BW1602), ground fault detection and duplicate address detection.

Gateways for some higher-level systems are also available with nylon housing. Some of these feature a graphical display, while others contain a two-digit display for configuration. These gateways may be connected to the AS-I Control Tools software through the higher-level network interface by using a “master simulator”.

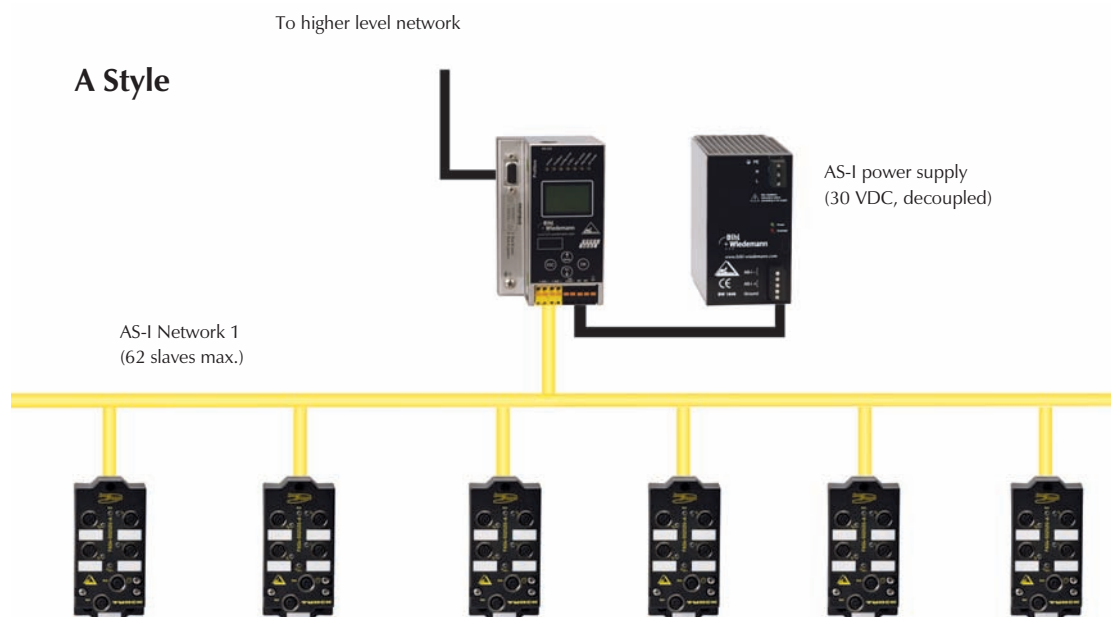
Masters are available as cards for Allen-Bradley® ControlLogix®, CompactLogix and MicroLogix 1500 PLCs, as well as in several different PC control form factors. Stand-alone masters with RS232, RS485 and RS422 serial connections are also available.

TURCK Industrial I/O AS-interface® Products

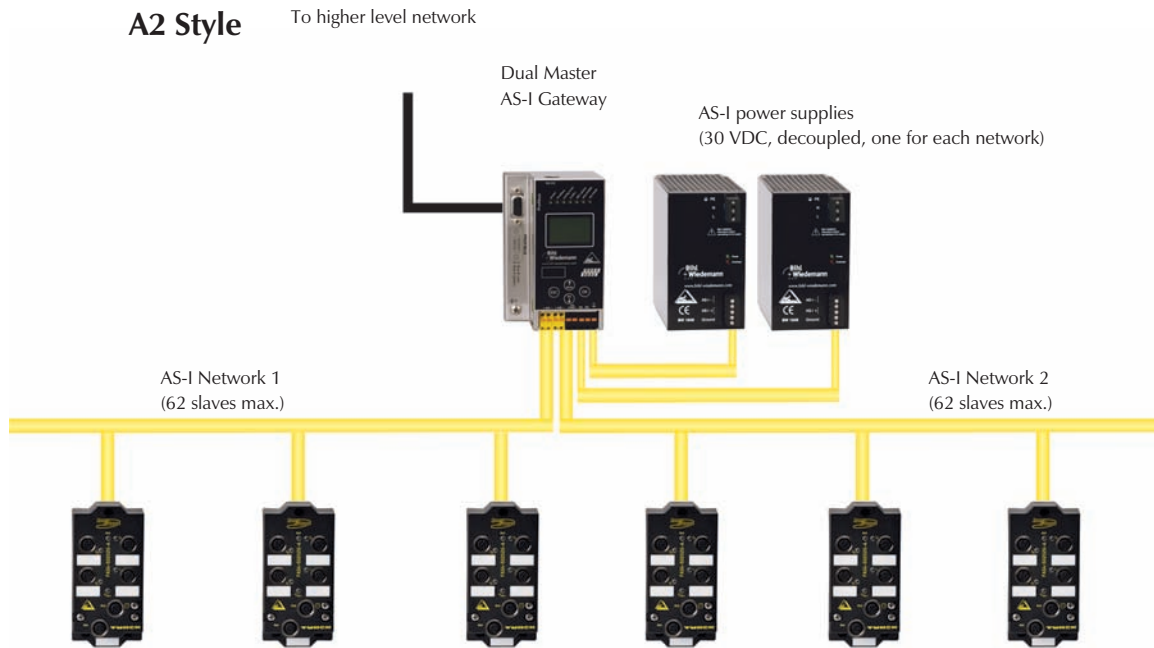


Features

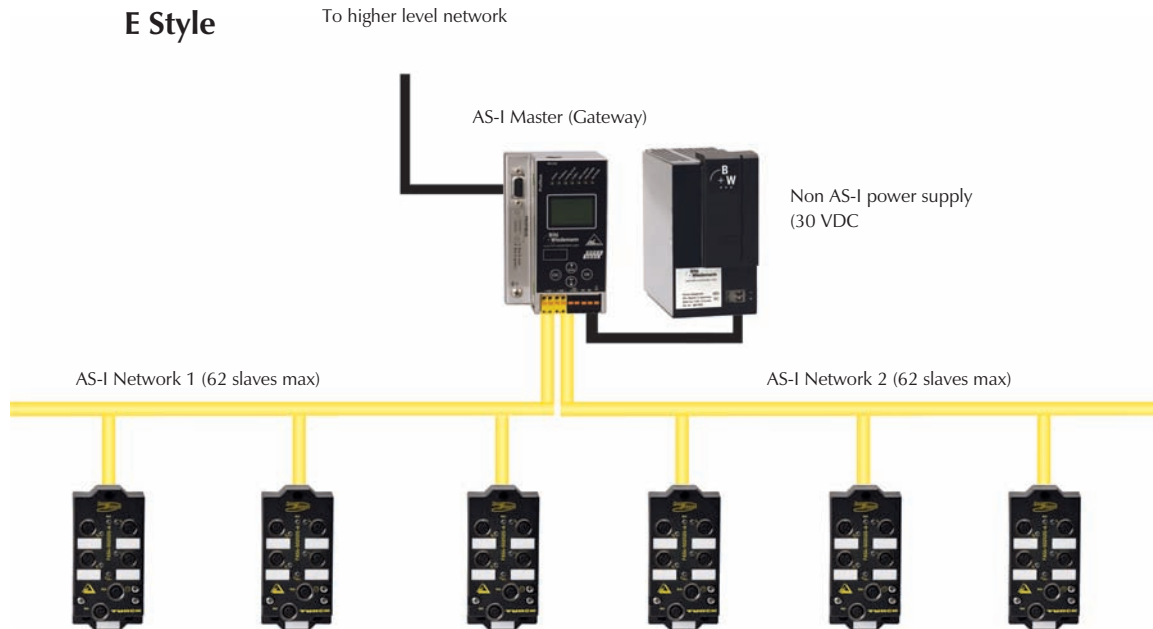
AS-I masters and gateways are available with one or two supported AS-I networks, referred to as “single masters” and “double masters”. Double masters can be used to save cost and cabinet space where the system being installed is too large (physically or due to the number of slaves) for one AS-I network. The master and power supply may be connected anywhere along the network, but should be located next to each other. Slaves and repeaters should not be connected between the master and the power supply, as doing so disables some diagnostic features (such as duplicate address detection and ground fault detection). An example of a system with the “A-style” power supply (gateway is powered from the AS-I power supply) is shown here.



Alternatively, two AS-I networks could be connected to one dual master, as shown. The dual master consists of two AS-I masters and one connection to the higher-level system (or backplane). Note that each AS-I network has its own power supply, but combining the two masters into one unit conserves cabinet space. This is the “A2” power supply configuration (gateway is powered from the AS-I supplies for each network).



A third option is to use a dual master with a single power supply (E-style power configuration). In this case, the master contains the necessary AS-I power supply decoupling circuit for each network. Therefore one 30 VDC power supply can be used for both networks saving even more space and product cost. More than one of these double masters can be supplied from the same 30 VDC source.



Addressing

Network addresses for all AS-I gateways are programmed via the push buttons on the face of the gateway. For more details, please consult the user manual for the specific gateway in question. Manuals can be downloaded from www.turck.com.

TURCK's USA website is your most complete and up-to-date source for product documentation, CAD files and more. Search results produce downloadable documentation or request for quote (RFQ). Additional product information or CAD files are easily requested and promptly filled.

Visit our site for new product releases, approvals, white papers, application support and more.

Search for products by part number, ID number or key word

Access to all TURCK catalogs, press releases, white papers and tutorials

Complete category listing of TURCK products

Access to CAD, wiring and pinout diagrams

Download or e-mail files, request for quote

Option to e-mail pages


Contact a TURCK representative



Part Number	ID Number	Catalog Page	Manual / Subst.	Data Sheet	CAD	Books	Wiring
BL67-241	M402184						
BL67-241-1	M402185						
BL67-241-PT	M402187						
BL67-241-TC	M402188						
BL67-241-V	M402189						

AS-interface

www.turck.com






AS-interface Selection Guide

Masters	Higher-Level	Pages
	Allen-Bradley	M11
	DeviceNet	M13
	Ethernet	M15 - M17
	PROFIBUS-DP	M19 - M23
	CANopen	M25
	Modbus	M27
	Modbus Plus	M29
	CC-Link	M31
	RS232	M33
	RS485	M33
	RS422	M33
	PCI	M35
	ISA	M35
	PC/104	M35
	OEM	M81
Safety Monitor	M99	

Power	Item	Style	Pages
	Supplies	Decoupled	M93
		Non-Decoupled	M95
	Decoupler	N/A	M98

Repeater	M75 - M78
Coupler	M103
Tuner	M79

AS-interface Selection Guide

Power	Item	Style	Pages
	Discrete	Input	M37
		Output	M45
		Input & Output	M39 - M45
	Discrete	Input & Output	M47
	Analog	Input	M49 - M55
		Output	M57 - M61
	Analog	Input	M65
		Output	M69
	Special Function	Code Block	M73
		Counter	M71
	Discrete	Input & Output	M85 - M91
	Safety	Input & Output	M101

AS-interface

AS-I Masters for AB PLCs



- PLC AS-I Masters
- Fit Standard Allen-Bradley Backplanes
- Analog and Discrete Data Support
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 70 mA from each AS-I supply, 390 mA from 5.1 V backplane supply, 150 mA from 24 V backplane supply (BW1488, BW1611) 100 mA from AS-I supply, 450 mA from 5 V backplane supply (BW1416, BW1610)

Power Distribution

- Power is drawn both from AS-I and the backplane

Mechanical

- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection: IP 20

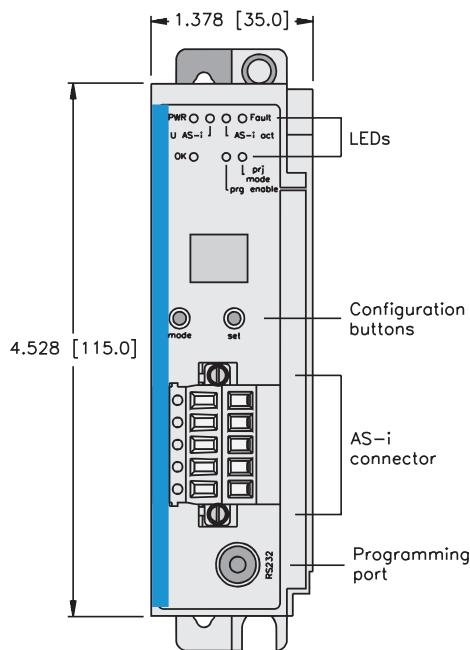
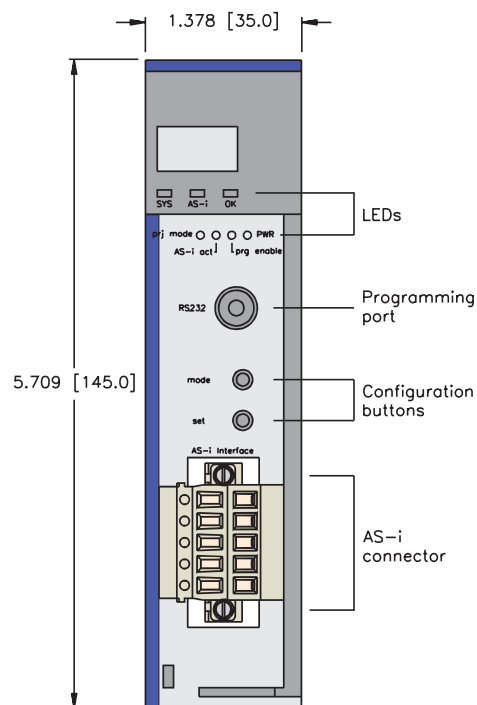
Diagnostics (Logical)

- AS-I I/O faults are reported via the peripheral fault bit for each slave (v2.1 and higher)

Diagnostics (Physical)

- LEDs to indicate status of AS-I and backplane communication and power supply

- ASI-SCAN-AB-BW1488
- ASI-SCAN-AB BW1416
- ASI-SCAN-AB/ACT BW1610
- ASI-SCAN-AB/ACT BW1611

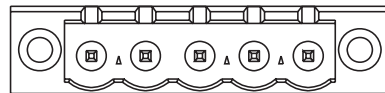


Note: BW1610 is BW1416 with configuration software. BW1611 is BW1488 with configuration software.

Part Number	PLC Format	AS-I Version	Connection Diagram	# of AS-I Masters	Included Software
ASI-SCAN-AB-BW1488	ControlLogix	2.1	A	2	
ASI-SCAN-AB BW1416	CompactLogix/MicroLogix1500	2.1	B	1	
ASI-SCAN-AB/ACT BW1610	CompactLogix/MicroLogix1500	2.1	B	1	X
ASI-SCAN-AB/ACT BW1611	ControlLogix	2.1	A	2	X

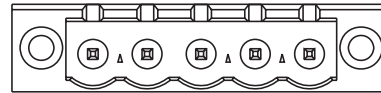
Input/Output Connectors

A



+ - PE + -
AS-i₂ AS-i₁

B



+ - PE + -
——AS-i——



AS-I Gateways in Stainless Steel

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics



- ASI-DNG-SS BW1818*
- ASI-DNG-SS BW1819*
- ASI-DNG-SS BW1820*
- ASI-DNG-SS-C1D2 BW1824
- ASI-DNG-SS-C1D2 BW1825
- ASI-DNG-SS-C1D2 BW1826

* not ETL Listed

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
 200 mA from V_{AS-i1} , 70mA from V_{AS-i2} (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: According to EN 61131-2

Material

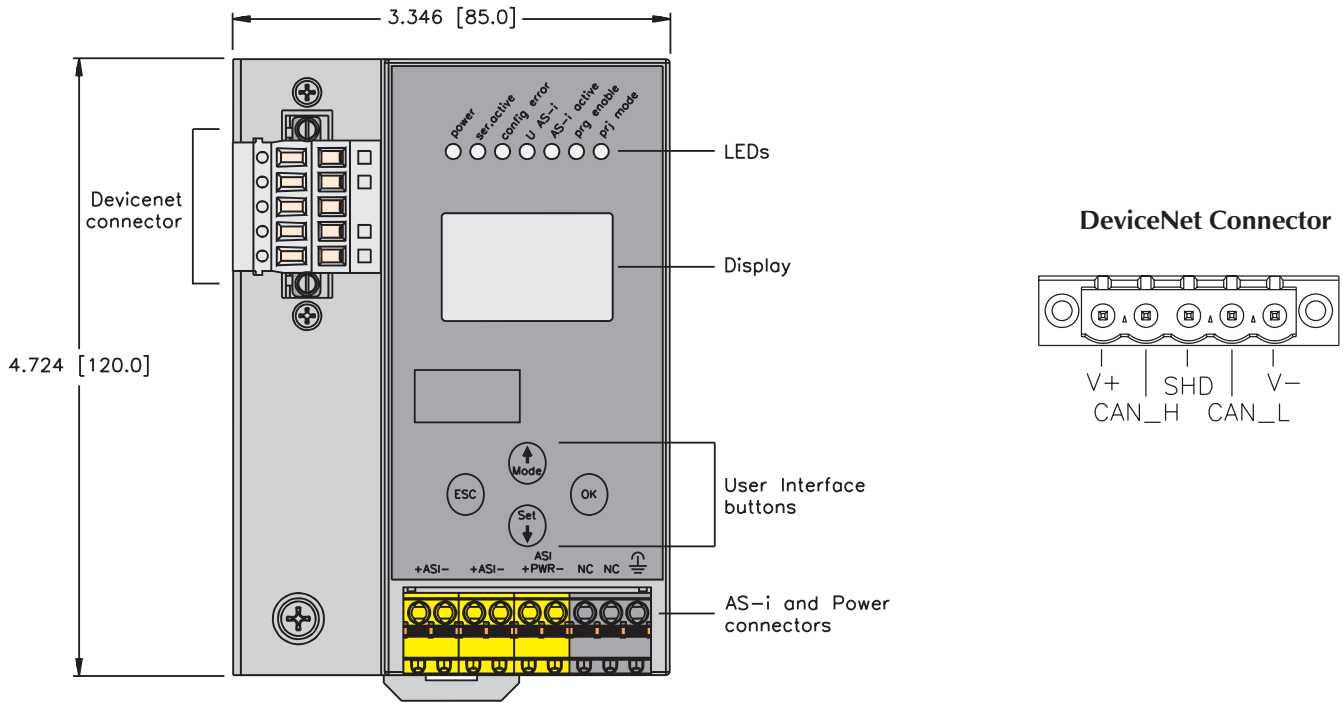
- Housing: Stainless Steel

Diagnostics (Logical)

- AS-I diagnostic data is available via Network interface

Diagnostics (Physical)

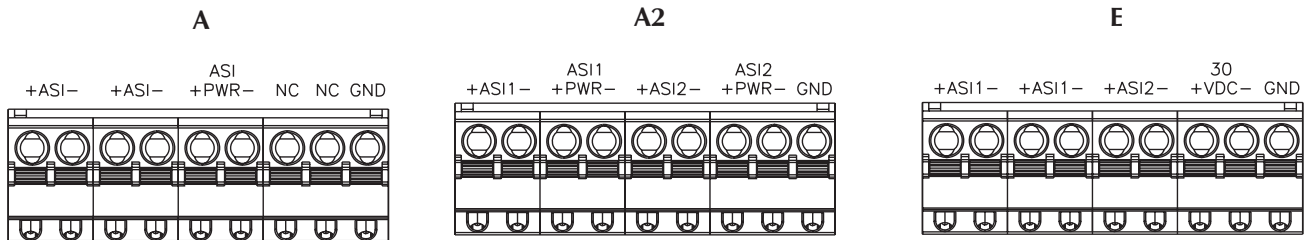
- LEDs to indicate status of network and AS-I communication and power supply



Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters
ASI-DNG-SS BW1818	DeviceNet	A	3.0	A	1
ASI-DNG-SS BW1819	DeviceNet	A2	3.0	A2	2
ASI-DNG-SS BW1820	DeviceNet	E	3.0	E	2
ASI-DNG-SS-C1D2 BW1824*	DeviceNet	A	3.0	A	1
ASI-DNG-SS-C1D2 BW1825*	DeviceNet	A2	3.0	A2	2
ASI-DNG-SS-C1D2 BW1826*	DeviceNet	E	3.0	E	2

* Approved for use in Class 1, Division 2 areas

Input/Output Connectors



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway



Modbus TCP Gateways in Stainless Steel



- ASI-ENG-SS BW1650***
- ASI-ENG-SS BW1651***
- ASI-ENG-SS BW1652***
- ASI-ENG-SS-C1D2 BW1659**
- ASI-ENG-SS-C1D2 BW1660**
- ASI-ENG-SS-C1D2 BW1661**

* not ETL Listed

- **AS-I v3.0 Supported**
- **Graphical Display**
- **Integrated Ground-Fault Detection**
- **Integrated AS-I Diagnostics**

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
 200 mA from V_{AS-i1} , 70mA from V_{AS-i2} (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

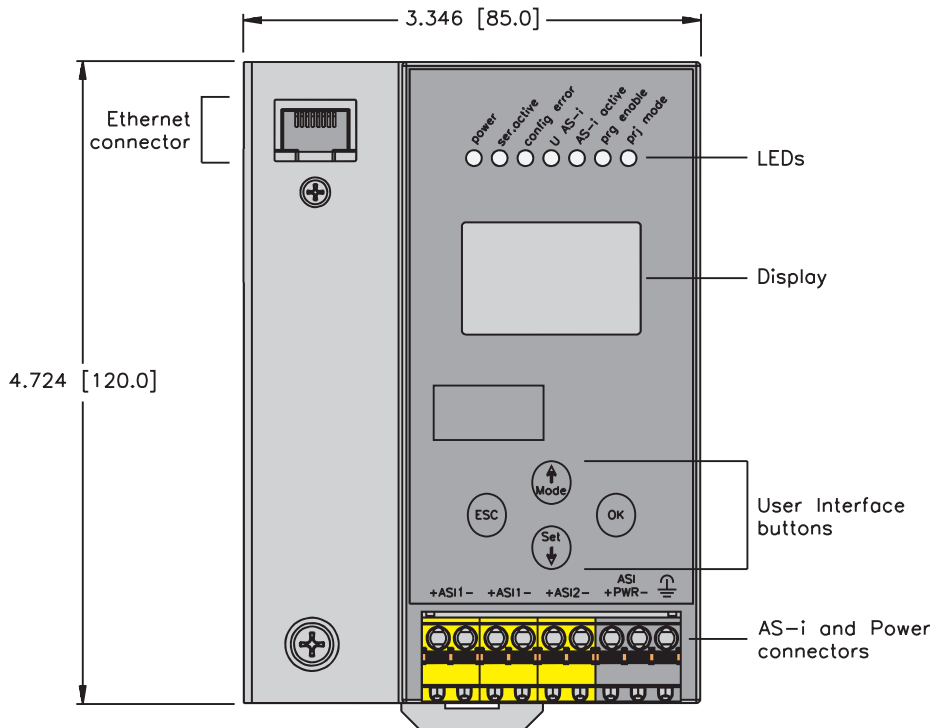
- Housing: Stainless Steel

Diagnostics (Logical)

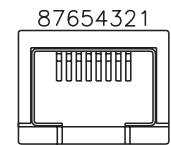
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RJ45 Ethernet Standard



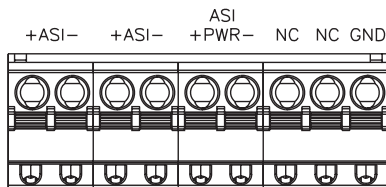
- 87654321
- 1 = WH/or (+TX)
 - 2 = OR (-TX)
 - 3 = WH/GN (+RX)
 - 4 = BU
 - 5 = WH/BU
 - 6 = GN (-RX)
 - 7 = WH/BN
 - 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-ENG-SS BW1650	ModbusTCP	A	3.0	1	X	X
ASI-ENG-SS BW1651	ModbusTCP	A2	3.0	2	X	X
ASI-ENG-SS BW1652	ModbusTCP	E	3.0	2	X	X
ASI-ENG-SS-C1D2 BW1659*	ModbusTCP	A	3.0	1		
ASI-ENG-SS-C1D2 BW1660*	ModbusTCP	A2	3.0	2		
ASI-ENG-SS-C1D2 BW1661*	ModbusTCP	E	3.0	2		

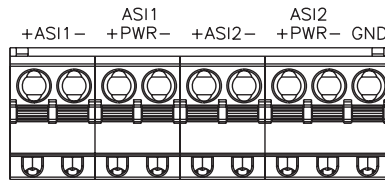
* Approved for use in Class 1, Division 2 areas

Input/Output Connectors

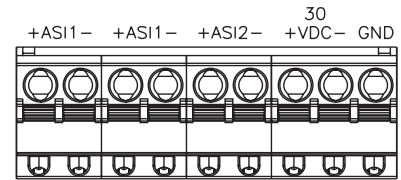
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway



AS-I Ethernet/IP Gateways in Stainless Steel

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics



- ASI-EIPG-SS BW1828*
- ASI-EIPG-SS BW1829*
- ASI-EIPG-SS BW1833*
- ASI-EIPG-SS-C1D2 BW1834
- ASI-EIPG-SS-C1D2 BW1835
- ASI-EIPG-SS-C1D2 BW1836

* not ETL listed

Electrical

- Operating Current: 300 mA from VAS₋₁ (Power Supply A)
 200 mA from VAS₋₁₁, 70mA from VAS₋₁₂ (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

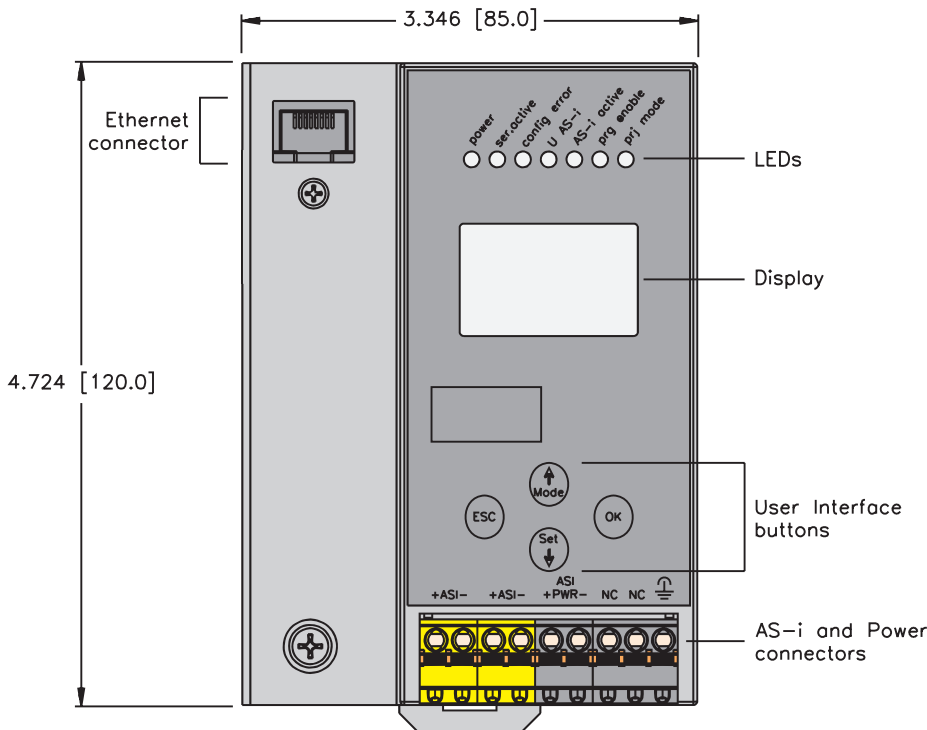
- Housing: Stainless Steel

Diagnostics (Logical)

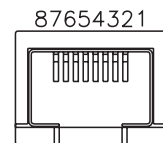
- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



RJ45 Ethernet Standard

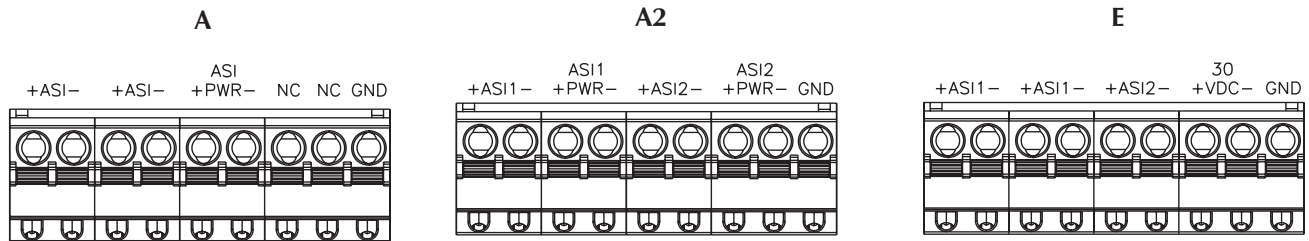


- 87654321
- 1 = WH/or (+TX)
 - 2 = OR (-TX)
 - 3 = WH/GN (+RX)
 - 4 = BU
 - 5 = WH/BU
 - 6 = GN (-RX)
 - 7 = WH/BN
 - 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-EIPG-SS BW1828	Ethernet/IP	A	3.0	1	X	X
ASI-EIPG-SS BW1829	Ethernet/IP	A2	3.0	2	X	X
ASI-EIPG-SS BW1833	Ethernet/IP	E	3.0	2	X	X
ASI-EIPG-SS-C1D2 BW1834*	Ethernet/IP	A	3.0	1		
ASI-EIPG-SS-C1D2 BW1835*	Ethernet/IP	A2	3.0	2		
ASI-EIPG-SS-C1D2 BW1836*	Ethernet/IP	E	3.0	2		

Approved for use in Class 1, Division 2 areas

Input/Output Connectors



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway



AS-I ProfiNET Gateways in Stainless Steel

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics



Electrical

- Operating Current: 300 mA from V_{AS-I} (Power Supply A)

Power Distribution

- From AS-I supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Stainless Steel

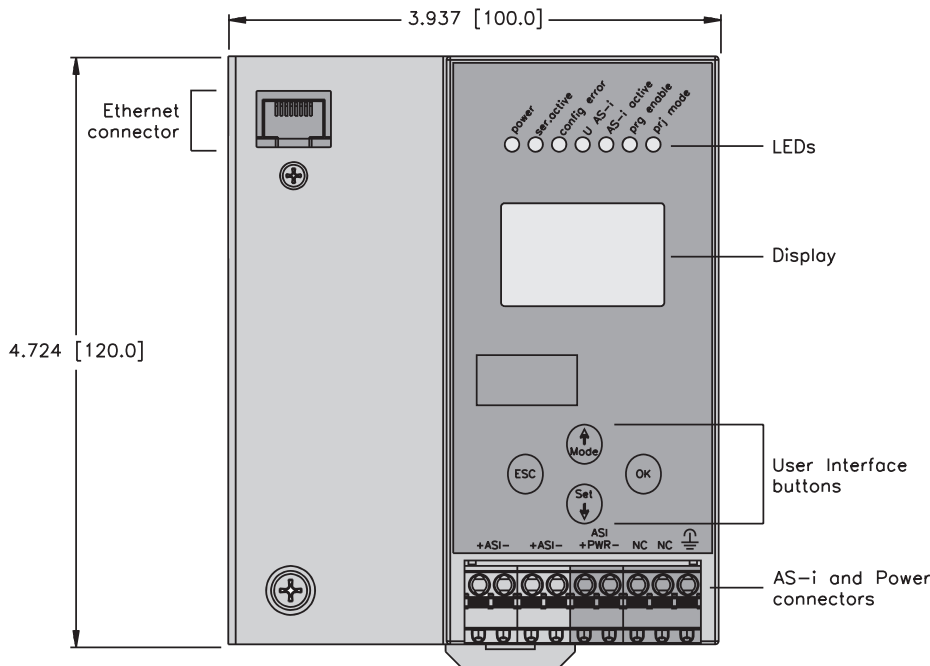
Diagnostics (Logical)

- Health of AS-I network is available via Network interface

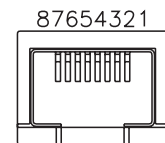
Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply

ASI-PNG-SS BW1912



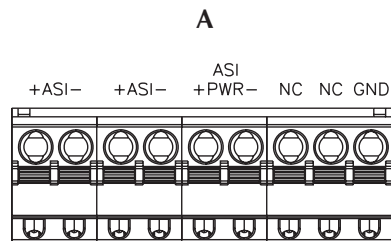
RJ45 Ethernet Standard



- 1 = WH/or (+TX)
- 2 = OR (-TX)
- 3 = WH/GN (+RX)
- 4 = BU
- 5 = WH/BU
- 6 = GN (-RX)
- 7 = WH/BN
- 8 = BN

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-PNG-SS BW1912	PROFINET	A	3.0	1	X	X

Input/Output Connectors



A - Single AS-I network is powered by and AS-I power supply



AS-I Profibus-DP Gateways in Stainless Steel



- ASI-DPG-SS BW1567*
- ASI-DPG-SS BW1568*
- ASI-DPG-SS BW1569*
- ASI-DPG-SS-SE BW1773*
- ASI-DPG-SS-SE BW1774*
- ASI-DPG-SS-C1D2 BW1653
- ASI-DPG-SS-C1D2 BW1654
- ASI-DPG-SS-C1D2 BW1655

* Not ETL Listed

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
 200 mA from V_{AS-i1} , 70mA from V_{AS-i2} (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
- From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

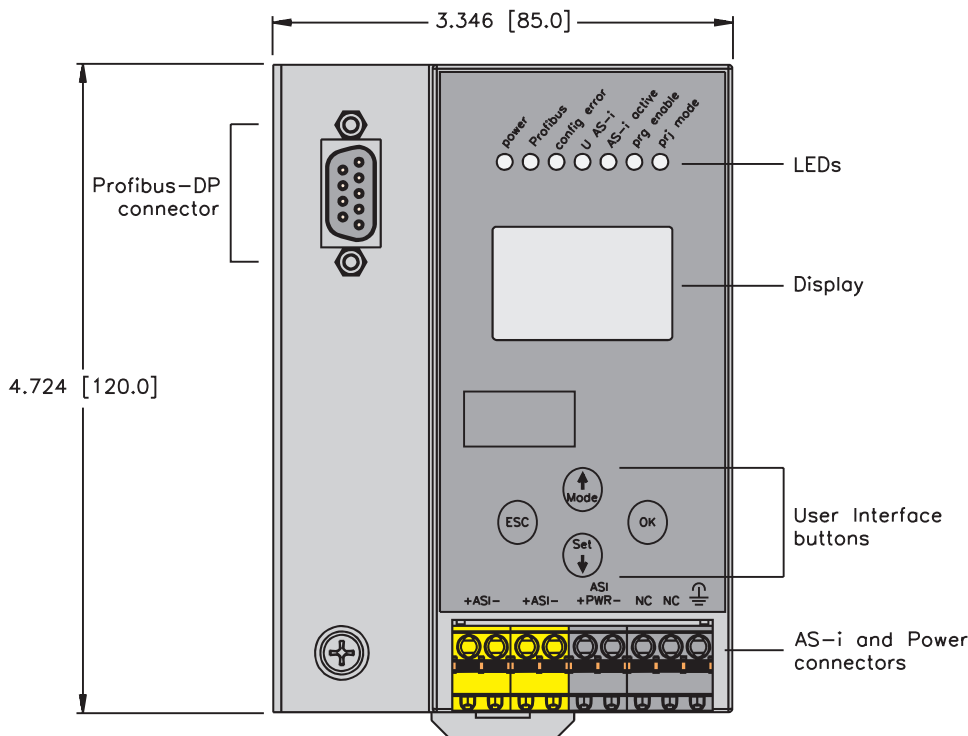
- Housing: Stainless Steel

Diagnostics (Logical)

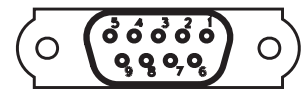
- Health of AS-I network is available via Proximus-DP interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply



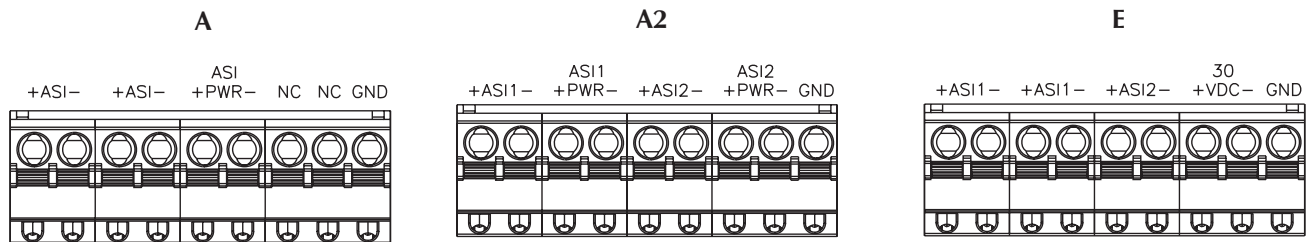
PROFIBUS-DP Connector



- 1 = Shield
- 3 = BUS_B
- 5 = DGnd
- 6 = +5 VDC
- 8 = BUS_A

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG-SS BW1567	PROFIBUS-DP	A	2.1	1	X	X
ASI-DPG-SS BW1568	PROFIBUS-DP	A2	2.1	2	X	X
ASI-DPG-SS BW1569	PROFIBUS-DP	E	2.1	2	X	X
ASI-DPG-SS-SE BW1773	PROFIBUS-DP	A	2.1	1		
ASI-DPG-SS-SE BW1774	PROFIBUS-DP	A2	2.1	2		
ASI-DPG-SS-C1D2 BW1653*	PROFIBUS-DP	A	3.0	1		
ASI-DPG-SS-C1D2 BW1654*	PROFIBUS-DP	A2	3.0	2		
ASI-DPG-SS-C1D2 BW1655*	PROFIBUS-DP	E	3.0	2		

* Approved for use in Class 1, Division 2 areas



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

AS-I PROFIBUS-D Economy Gateways

- AS-I v3.0 Supported
- PROFIBUS-DP Support
- LED Display
- Integrated AS-I Diagnostics



Electrical

- Operating Current: < 300 mA from AS-I

Power Distribution

- From AS-I supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Stainless Steel

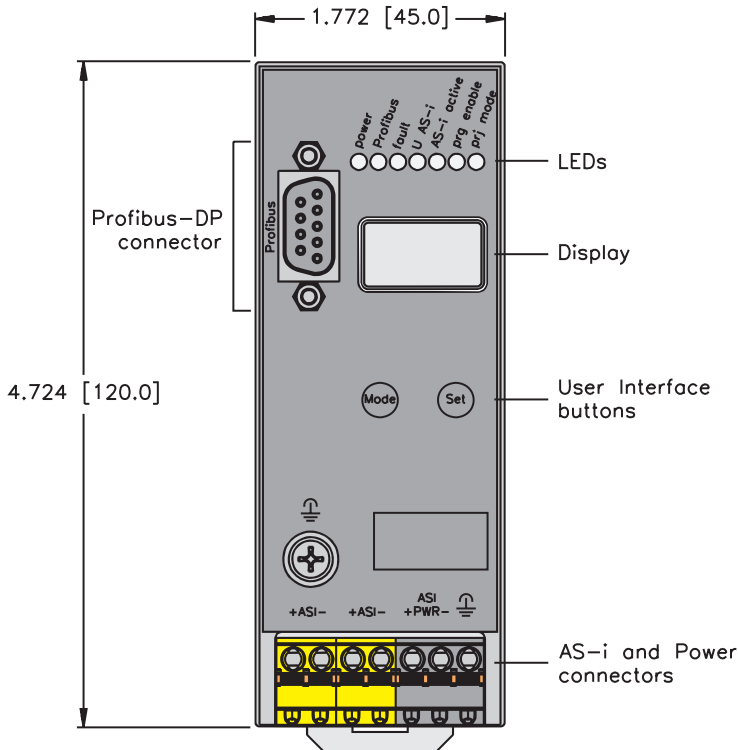
Diagnostics (Logical)

- AS-I diagnostic data is available via Network interface

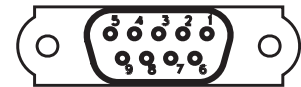
Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply

ASI-DPG-SS-B BW1746



PROFIBUS-DP Connector

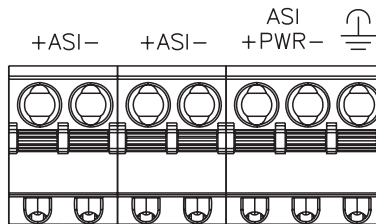


- 1 = Shield
- 3 = BUS_B
- 5 = Gnd
- 6 = +5VDC
- 8 = BUS_A

Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters
ASI-DPB-SS BW1746	PROFIBUS-DP	A	2.1	A	1

Input/Output Connectors

A



AS-I CANopen Gateways in Stainless Steel

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics



- ASI-COG-SS BW1821
- ASI-COG-SS BW1822
- ASI-COG-SS BW1823



Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
 200 mA from V_{AS-I1} , 70mA from V_{AS-I2} (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
 From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

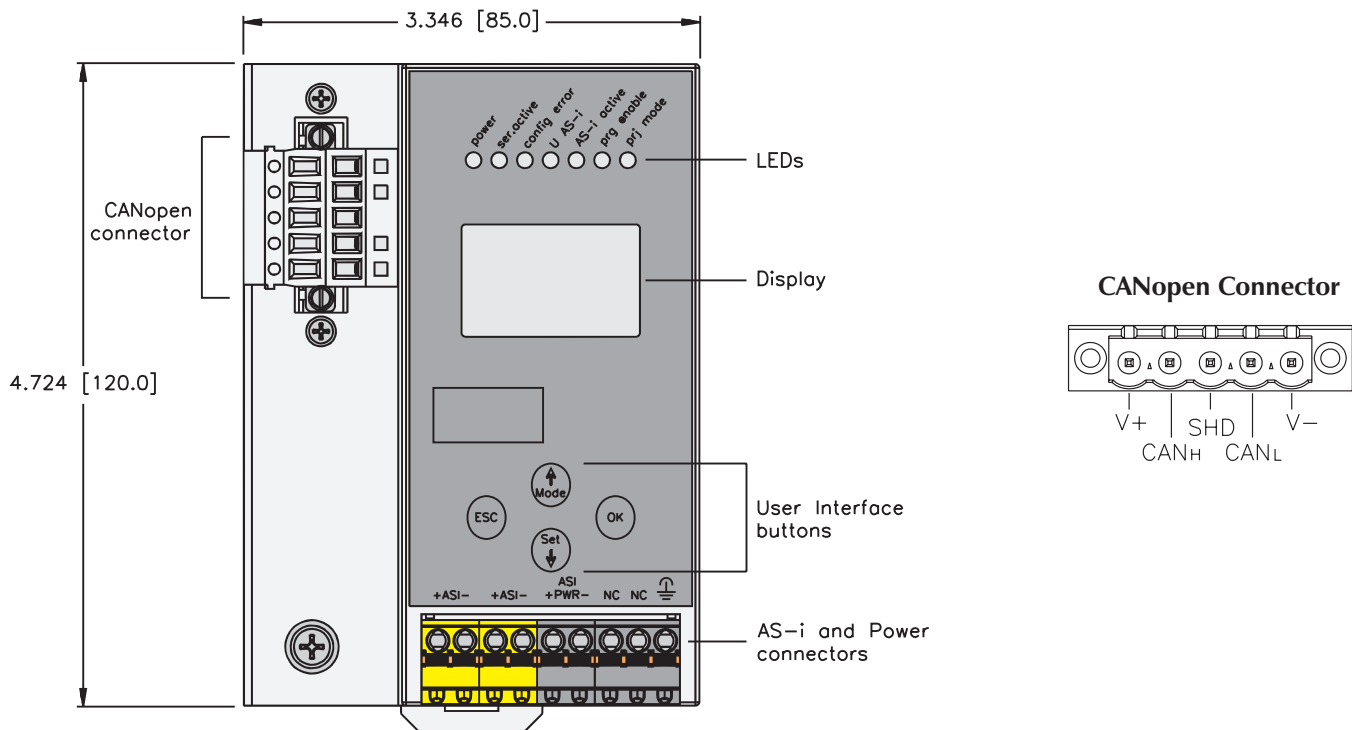
- Housing: Stainless Steel

Diagnostics (Logical)

- Health of AS-I network is available via CANopen interface

Diagnostics (Physical)

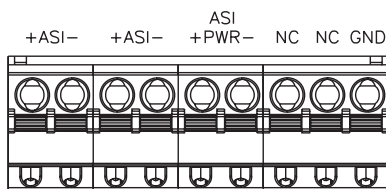
- LED to indicate status of network and AS-I communication and power supply



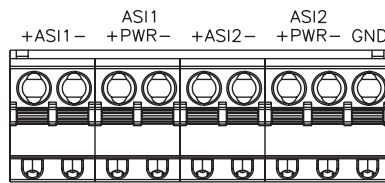
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-COG-SS BW1821	CANopen	A	3.0	1	X	X
ASI-COG-SS BW1822	CANopen	A2	3.0	2	X	X
ASI-COG-SS BW1823	CANopen	E	3.0	2	X	X

Input/Output Connectors

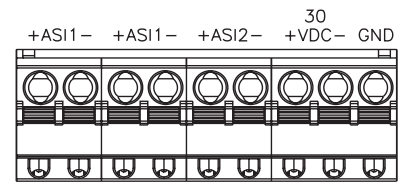
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway



AS-I Modbus Gateways in Stainless Steel



- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
 200 mA from V_{AS-i1} , 70mA from V_{AS-i2} (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
 From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Stainless Steel

Diagnostics (Logical)

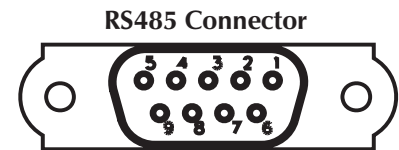
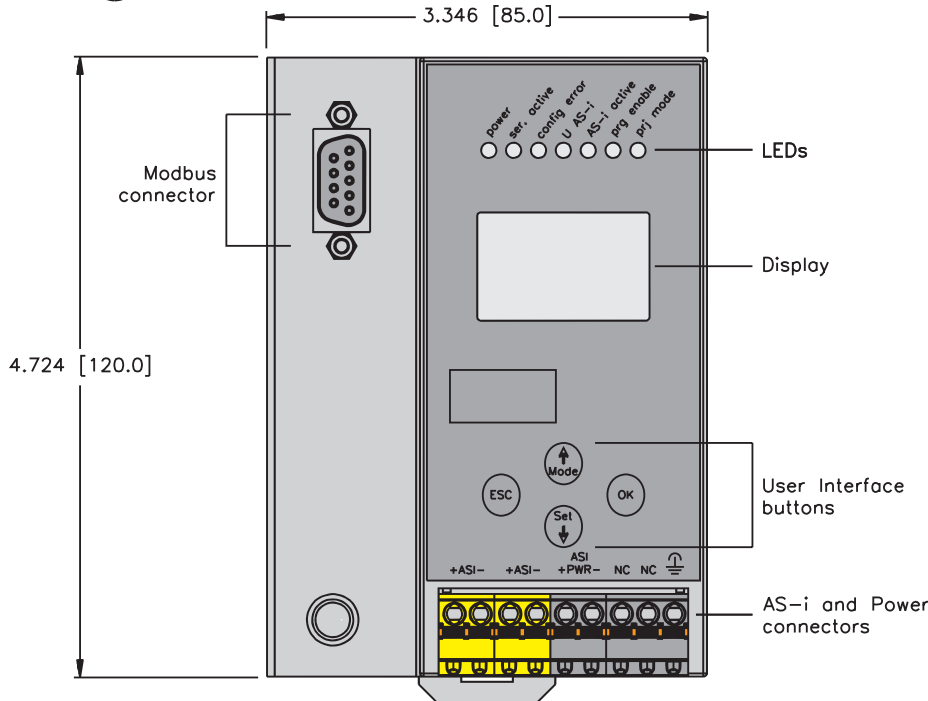
- Health of AS-I network is available via Modbus interface

Diagnostics (Physical)

- LED to indicate status of network and AS-I communication and power supply

- ASI-MBG-SS BW1641*
- ASI-MBG-SS BW1642*
- ASI-MBG-SS BW1643*
- ASI-MBG-SS-C1D2 BW1656
- ASI-MBG-SS-C1D2 BW1657
- ASI-MBG-SS-C1D2 BW1658

* not ETL listed

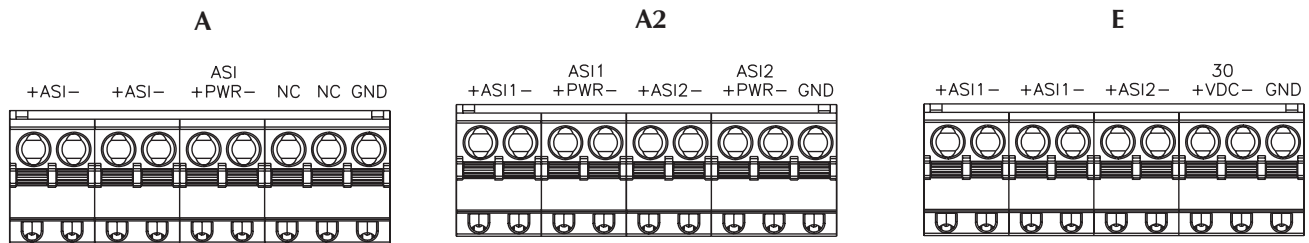


3 = BUS_A
 8 = BUS_B

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-MBG-SS BW1641	Modbus	A	3.0	1	X	X
ASI-MBG-SS BW1642	Modbus	A2	3.0	2	X	X
ASI-MBG-SS BW1643	Modbus	E	3.0	2	X	X
ASI-MBG-SS-C1D2 BW1656*	Modbus	A	3.0	1		
ASI-MBG-SS-C1D2 BW1657*	Modbus	A2	3.0	2		
ASI-MBG-SS-C1D2 BW1658*	Modbus	E	3.0	2		

* Approved for use in Class 1, Division 2 areas

Input/Output Connectors



AS-interface

A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

AS-I Gateways

- Connect to Higher-Level Network
- Multiple Networks Supported
- 2-Digit Display
- Integrated AS-I Diagnostics



ASI-MBPG BW1583



Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

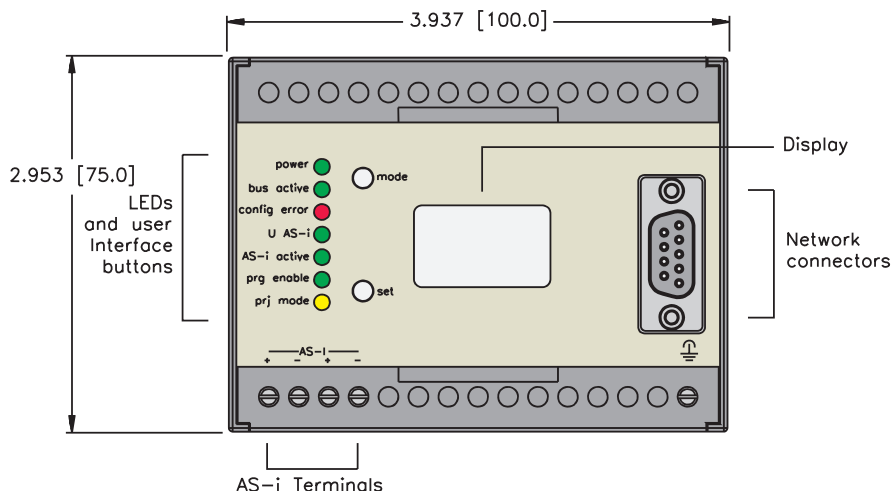
- Housing: Plastic

Diagnostics (Logical)

- Health of AS-I network is available via Network interface

Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply



Modbus Plus Connector



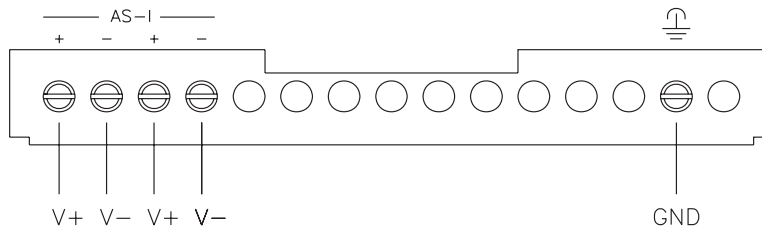
- 1 = Shield
- 2 = Data
- 3 = Data

ASI-MBPG BW1583

Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-MBPG BW1583	Modbus Plus	A	2.1	1		

AS-I Connectors

A



A - Single AS-I network is powered by and AS-I power supply

AS-I Gateways



ASI-DPG BW1253
ASI-DPG BW1371
ASI-CCG BW1435



- AS-I v2.1 Supported
- 2-Digit Display
- IP 65 Protection
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 200 mA from V_{AS-I}

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 65

Material

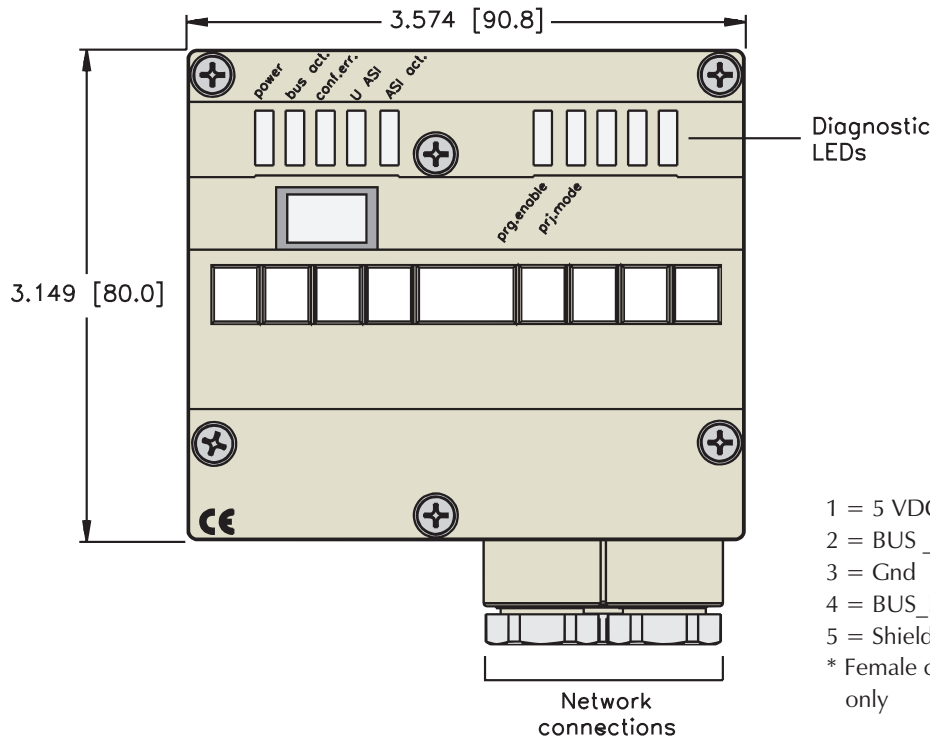
- Housing: Plastic

Diagnostics (Logical)

- Health of AS-I network is available via Network interface

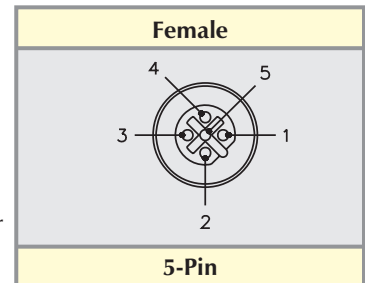
Diagnostics (Physical)

- LEDs to indicate status of network and AS-I communication and power supply



PROFIBUS eurofast® Pinouts

- 1 = 5 VDC*
- 2 = BUS_A
- 3 = Gnd
- 4 = BUS_B
- 5 = Shield
- * Female connector only



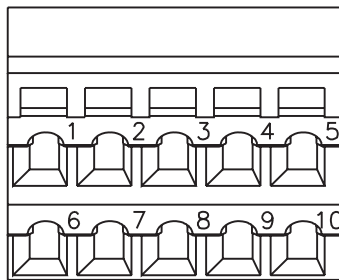
ASI-DPG BW1371 only

Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-DPG BW1253	PROFIBUS-DP	A	2.1	1	1		
ASI-DPG BW1371	PROFIBUS-DP	A	2.1	1	1		
ASI-CCG BW1435	CC-Link	A	2.1	2	1		

A - Single AS-I network is powered by and AS-I power supply

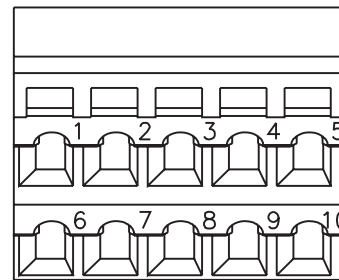
Input/Output Connectors

1



1	BUS_A
2	BUS_B
3	BUS_A
4	BUS_B
5	0V
6	Shield
7	FG (Function Gnd)
8	FG (Function Gnd)
9	Shield
10	+5V

2



1	FG (Function Gnd)
2	Shield
3	DG
4	DA
5	DB
6	FG (Function Gnd)
7	Shield
8	DG
9	DA
10	DB

Note: AS-I connections are made via standard AS-I base modules ASI-BM BW1180 or ASI-BM BW1182 (see pages E105-106).

AS-I Masters

- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics



Electrical

- Operating Current: 200 mA from V_{AS-I} (Power Supply A)
 200 mA from V_{AS-i1} , 70mA from V_{AS-i2} (Power Supply A2)

Power Distribution

- From AS-I supply for each network

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Stainless Steel

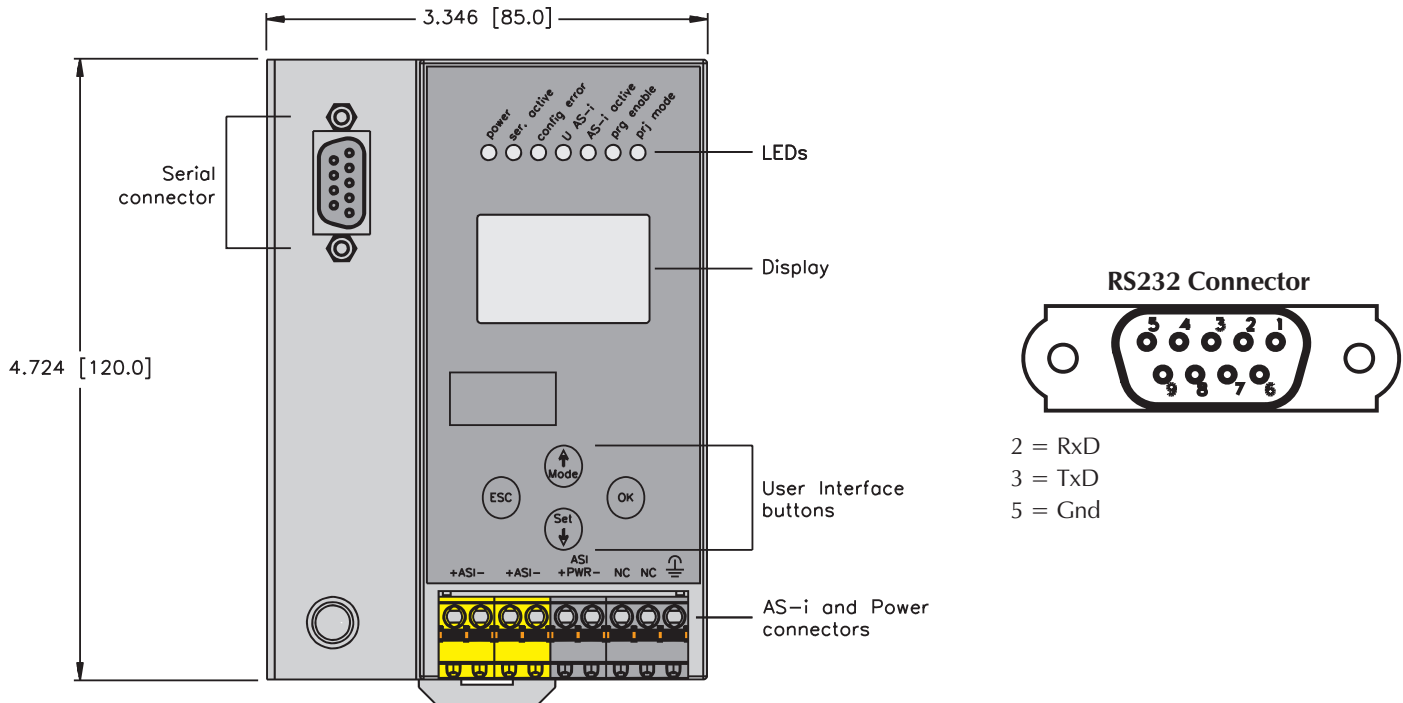
Diagnostics (Logical)

- Health of AS-I network is available via serial interface

Diagnostics (Physical)

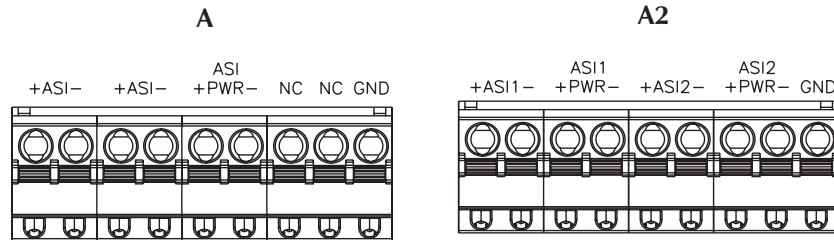
- LED to indicate status of serial and AS-I communication and power supply

ASI-MM232-SS BW1955
ASI-MM232-SS BW1944
ASI-MM232-SS-CTL BW1986



Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface	Mini PLC
ASI-MM232-SS BW1955	RS232	A	3.0	1	X	X	
ASI-MM232-SS BW1944	RS232	A2	3.0	2	X	X	
ASI-MM232-SS-CTL BW1986	RS232	A	3.0	1	X	X	X

Input/Output Connectors



A - Single AS-I network is powered by and AS-I power supply
 A2 - Dual AS-I networks are each powered by their own AS-I power supply

AS-I Masters for PC Control



ASI-MMPCI BW1195 shown

ASI-MMPCI-V3 BW1922

ASI-MMPCI-V3 BW1911

ASI-MMPCI BW1195

ASI-MMISA BW1228

ASI-MMPC104 BW1229

- AS-I v2.1, 3.0 Supported
- Masters for PC Control
- Selection of Form Factors
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 200 mA from PC (except BW1922 draws 300 mA @ 5 V, 100 mA @ 3.3 V)

Power Distribution

- From AS-I supply for each network
- From PC power supply

Mechanical

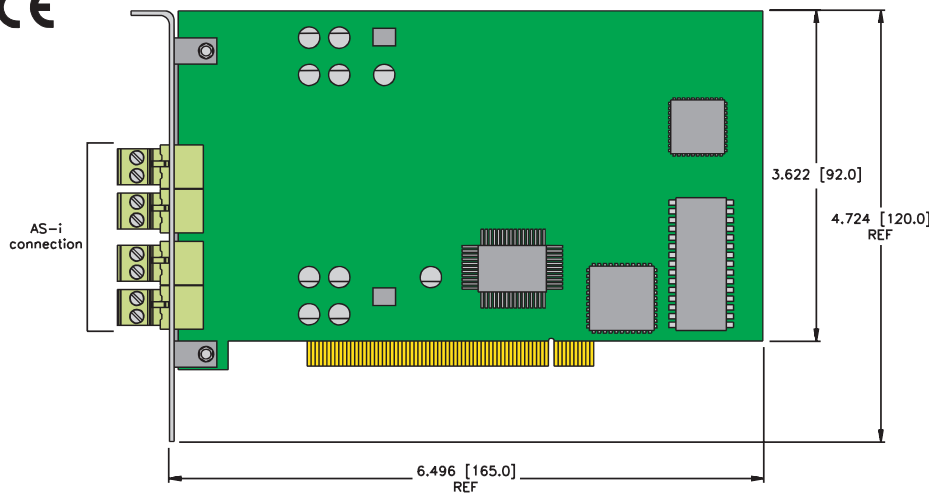
- Operating Temperature: 0 to +55°C (+32 to +131°F)

Diagnostics (Logical)

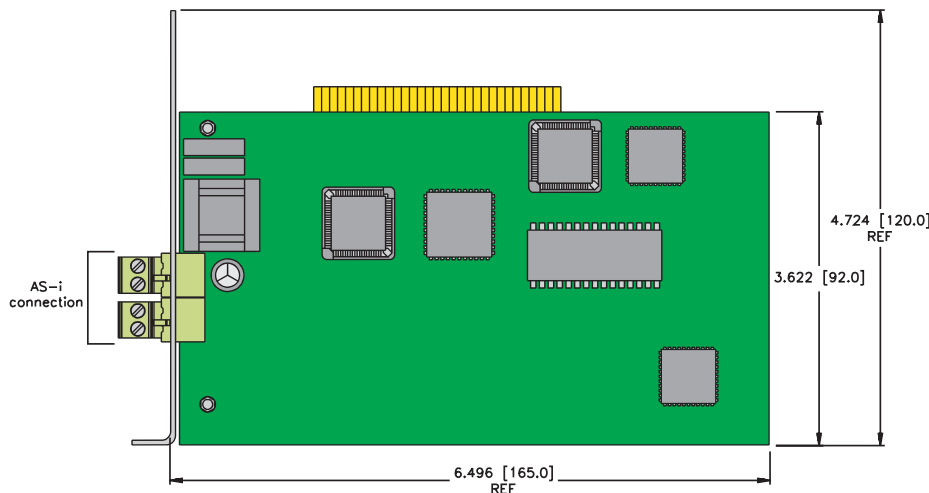
- Health of AS-I network is available via PC interface



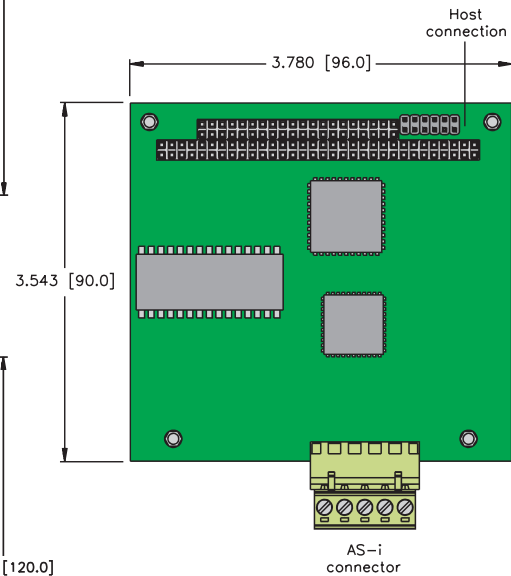
PCI



ISA

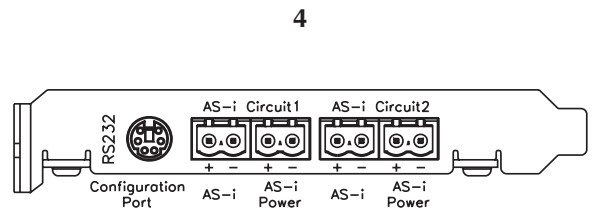
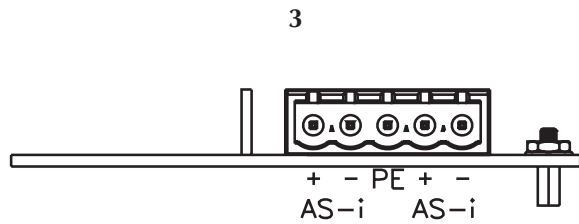
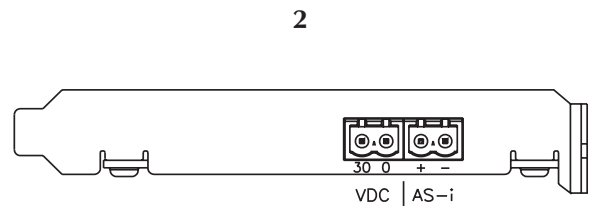
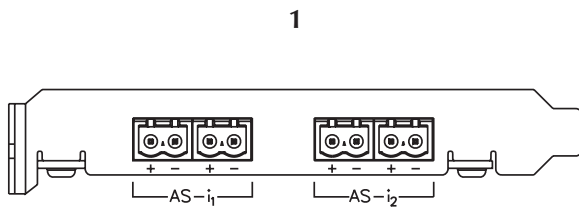


PC/104



Part Number	Higher Level Network	Power Style	AS-I Version	Connection Diagram	# of AS-I Masters	Duplicate Address Detection	Ground Fault Detection
ASI-MMPCI-V3 BW1922	PCI	PC	3.0	4	2	X	
ASI-MMPCI-V3 BW1911	Compact PCI	PC	3.0	1	2		
ASI-MMPCI BW1195	PCI	PC	2.1	1	2		
ASI-MMISA BW1228	ISA	PC	2.1	2	1		
ASI-MMPC104 BW1229	PC/104	PC	2.1	3	1		

Input/Output Connectors



AS-interface

Input Station



FAS4-S0400



- Rugged, Fully Potted Stations
- IP 67 Protection
- Flat and Round Cable Support
- AS-I Version 2.1

Electrical

- Operating Current: <75 mA plus input currents (from AS-I)
- Sensor Current: <200 mA sum of all inputs (from AS-I)

Power Distribution

- Inputs: AS-I power supply

Mechanical

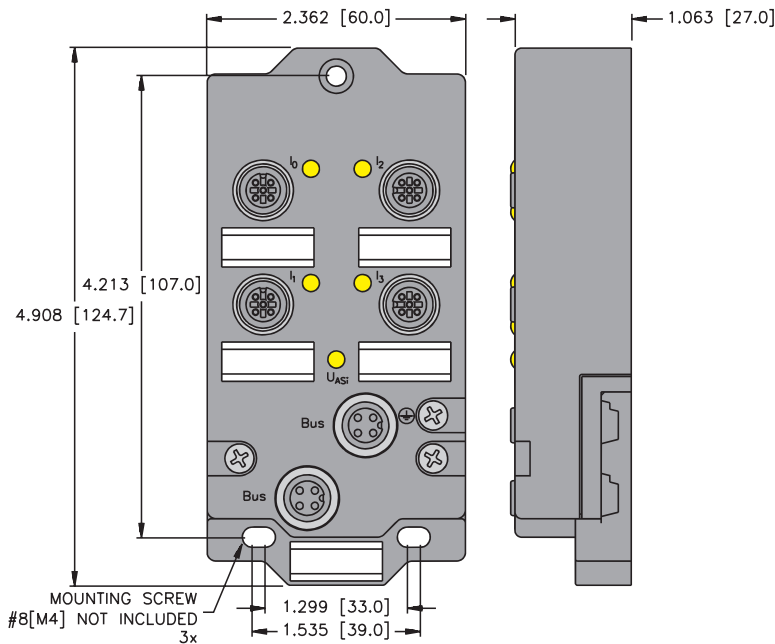
- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

- Connectors: Nickel-plated brass
- Housing: Nylon 6

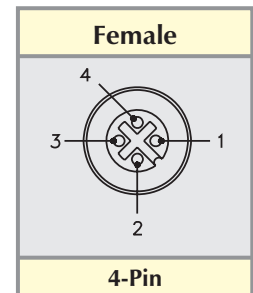
Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit.



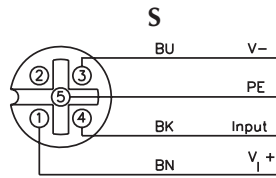
AS-I eurofast® Pinout

- 1. = AS-I+
- 2. = NC
- 3. = AS-I
- 4. = NC



Inputs											Data
Part Number	AS-I Version	Addressing Style	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-S0400	2.1	AB	4	0-3	S	1	PNP	X			0.A-E

Input/Output Connectors



Mating cordset:

RK 4.4T-*-RS 4.4T

Input/Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Flat and Round Cable Support
- AS-I Version 2.1



FAS4-CSG44
FAS4-CSG43*

* Not UL



Electrical

- Operating Current: < 50 mA plus I/O currents (from AS-I)
- I/O Current: < 200 mA sum of all inputs and outputs (from AS-I)
 (FAS4-CSG43) < 400 mA sum of all inputs and outputs from AS-I (FAS4-CSG44)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

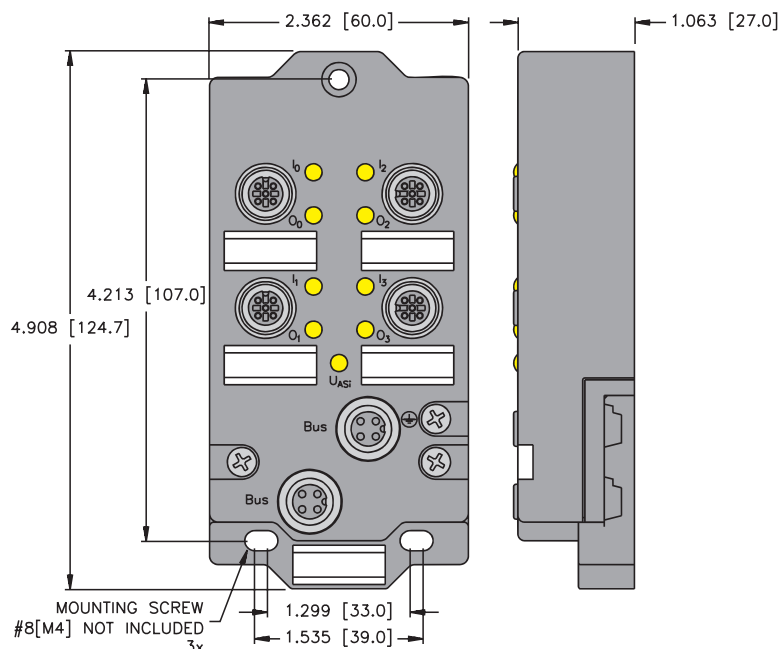
- Operating Temperature: -25 to +70 °C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

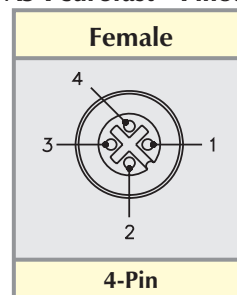
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit



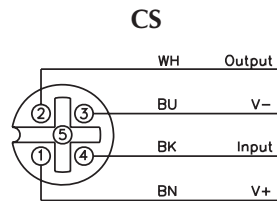
AS-I eurofast® Pinout



Inputs										Outputs			Data		
Part	AS-I Version	Addressing Style	In Count	Connector	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-CSG44	2.1	Single	4		CS	PNP	X			4	CS	0.4 A *			7.F-E
FAS4-CSG43	2.1	AB	4		CS	PNP	X			3	CS	0.2 A *			7.A-E

* Total current is shared by all I/O on station

Input/Output Connectors



Mating cordset:

RK 4.4T-*/-RS 4.4T

Splitter:

VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

Input/Output Stations



FAS4-CSG44-A
FAS4-CSG43-A*

* Not UL



- Rugged, Fully Potted Stations
- IP 67 Protection
- Auxiliary Powered Outputs
- AS-I Version 2.1

Electrical

- Operating Current: < 50 mA plus Input currents (from AS-I)
- I/O Current: < 200 mA sum of all inputs from AS-I (FAS4-CSG43-A)
 < 400 mA sum of all inputs from AS-I Power (FAS4-CSG44-A)
- Output Current: < 700 mA per output (from Aux. power)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

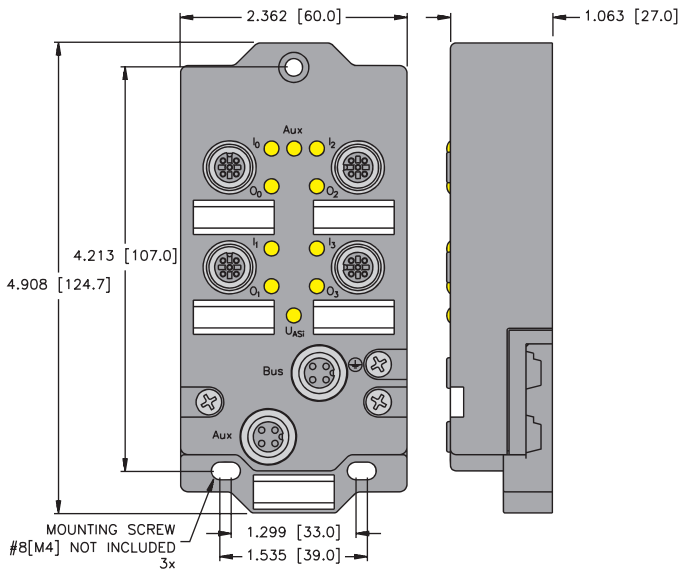
- Operating Temperature: -25 to +70 °C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

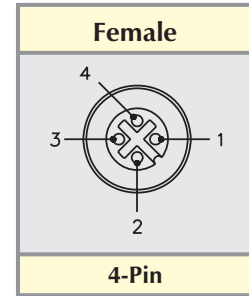
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit

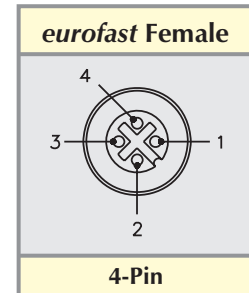


AS-I eurofast® Pinout



- 1. = AS-I+
- 2. = NC
- 3. = AS-I
- 4. = NC

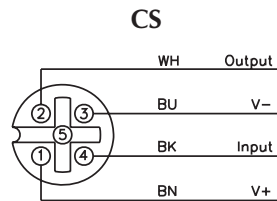
Aux. Power Pinout



- 1. = V_{AUX+}
- 2. = NC
- 3. = V_{AUX-}
- 4. = NC

		Inputs							Outputs					Data		
Part Number	AS-I Version	Addressing Style	In Count	Connectors	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-CSG44-A	2.1	Single	4	0-3	CS	PNP	X			4	0-3	CS	0.7 A			7.F-E
FAS4-CSG43-A	2.1	AB	4	0-2	CS	PNP	X			3	0-2	CS	0.7 A			7.A-E

Input/Output Connectors



Mating cordset:

RK 4.4T-*/RS 4.4T

Splitter:

VB2-RS 4.4T-1/2RK 4.4T-*/*/S651

Input/Output Stations



FAS4-S0202G-A



- Rugged, Fully Potted Stations
- IP 67 Protection
- Auxiliary Powered Outputs
- AS-I Version 2.1

Electrical

- Operating Current: < 50 mA plus Input currents (from AS-I)
- Input Current: < 200 mA sum of all inputs (from AS-I)
- Output Current: < 400 mA sum of all outputs (from Aux. power)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Power Distribution

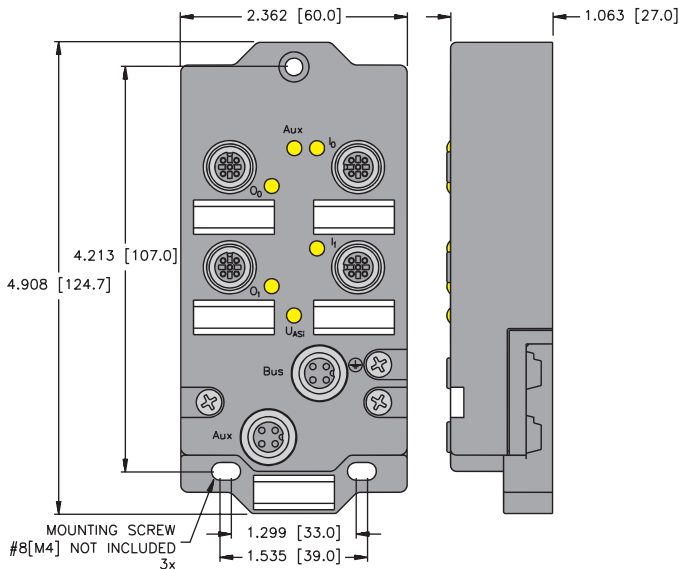
-

Material

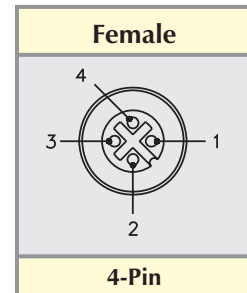
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

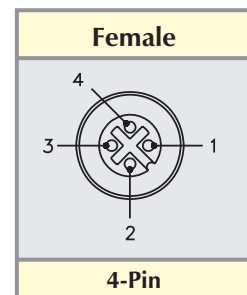
- I/O faults are reported via the AS-I peripheral fault bit



AS-I eurofast® Pinout

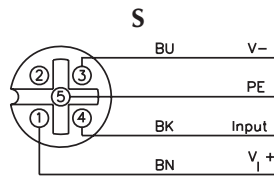


Aux. Power eurofast Pinout

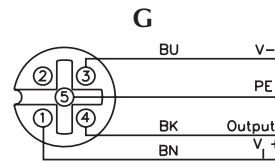


		Inputs								Outputs				Data		
Part Number	AS-I Version	Addressing Style	In Count	Connectors	Pinout	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output	Connectors	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-S0202G-A	2.1	AB	2	2-3	S	PNP	X			2	0-1	G	0.4 A			B.A-E

Input/Output Connectors



Mating cordset:
RK 4.4T-*-RS 4.4T



Mating cordset:
RK 4.4T-*-RS 4.4T

Output Station



FAS4-S0003G-A



- Rugged, Fully Potted Stations
- IP 67 Protection
- Auxiliary Powered Outputs
- AS-I Version 2.1

Electrical

- Operating Current: <50 mA (from AS-I)
- Output Current: <700 mA per output (from Aux. power)

Power Distribution

- Outputs: Auxiliary power supply

Mechanical

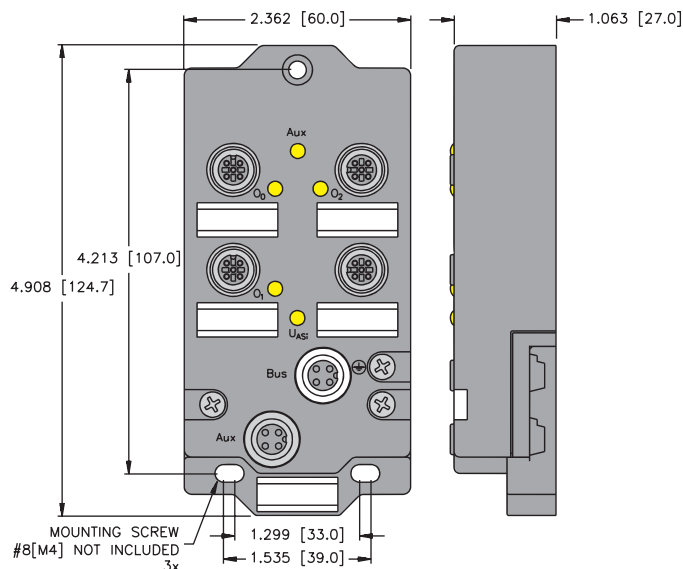
- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection: IEC IP 67
- Vibration: 50 g @ 10-500 Hz

Material

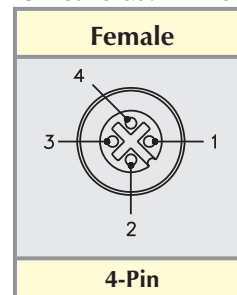
- Connectors: Nickel-plated brass
- Housing: Nylon 6

Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit

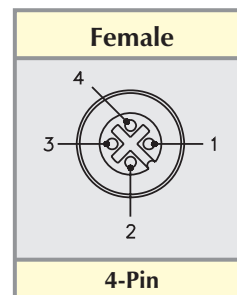


AS-I eurofast® Pinout



- 1 = AS-I+
- 2 = NC
- 3 = AS-I
- 4 = NC

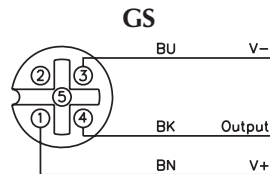
Aux. Power eurofast Pinout



- 1 = V_{AUX}+
- 2 = NC
- 3 = V_{AUX}-
- 4 = NC

Outputs									Data
Part Number	AS-I Version	Addressing Style	Output Count	Connectors	Pinout	Current	Individual Diagnostics	Wire-Break Detection	Slave Profile
FAS4-S0003G-A	2.1	AB	3	0-2	GS	0.7 A			8.A-E

Output Connectors



Mating cordset:

RK 4.4T-*-RS 4.4T

AS-I Conduit Adapter Slave

- **Slave Right in Conduit**
- **Ideal Where Conduit Is Required**
- **Fits Crouse-Hinds Bodies**
- **Bus Powered I/O**



BCS-ASI-CSG22

Electrical

- Operating Current: < 200 mA including all I/O current (from AS-I)
- Output Current: < 80 mA sum of all outputs (from AS-I)

Power Distribution

- Inputs: AS-I power supply
- Outputs: AS-I power supply

Mechanical

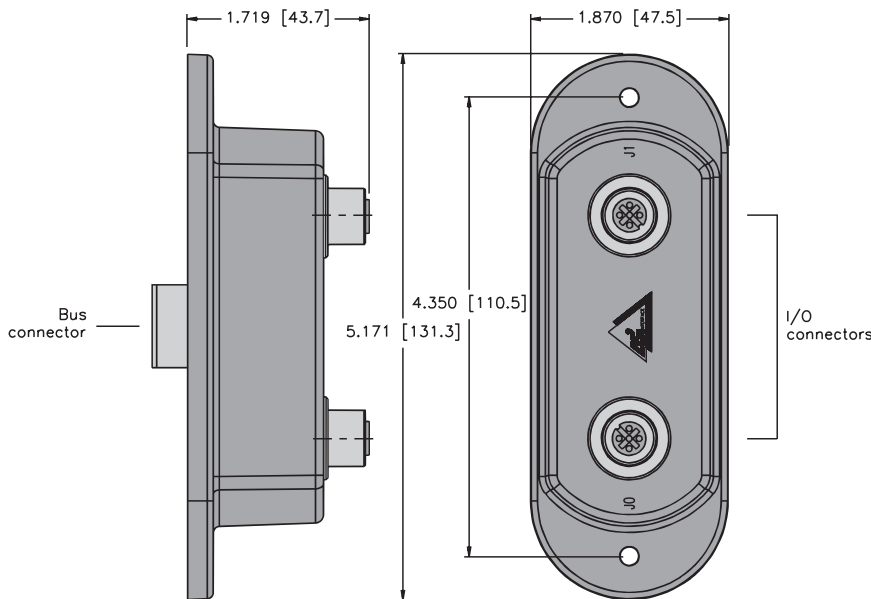
- Operating Temperature: -25 to +70°C (-25 to +158°F)
- Protection: IEC IP 67

Material

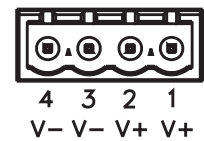
- Connectors: Nickel-plated brass (stainless steel available on request)
- Housing: Nylon (other materials available on request)

Diagnostics (Logical)

- I/O faults are reported via the AS-I peripheral fault bit

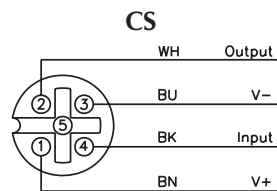


AS-I Connector



Inputs										Outputs				Data		
Part Number	AS-I Version	Addressing Style	Input Count	Connectors	Pinout	Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Current	Individual Diagnostics	OCD	Slave Profile
BCS-ASI-CSG22	2.1	AB	2	0-1	CS	PNP	X			2	0-1	CS	80 mA			B.A-E

Input/Output Connectors



Mating cordset:

RK 4.4T-* -RS 4.4T



Analog Input Stations

- Analog on AS-I
- IP 20 for In-the-Cabinet
- Powered by AS-I or Auxiliary Supply



ASI-AI-2 BW1345
ASI-AI-2 BW1447
ASI-AI-2A BW1726



Electrical

- Operating Current: < 80 mA (from AS-I)
- Sensor Current: < 40 mA per input

Power Distribution

- Inputs: AS-I or Auxiliary supply, selectable by user
 BW1345, BW1447 default sensor current from AS-I
 BW1726 default sensor current from auxiliary supply

Mechanical

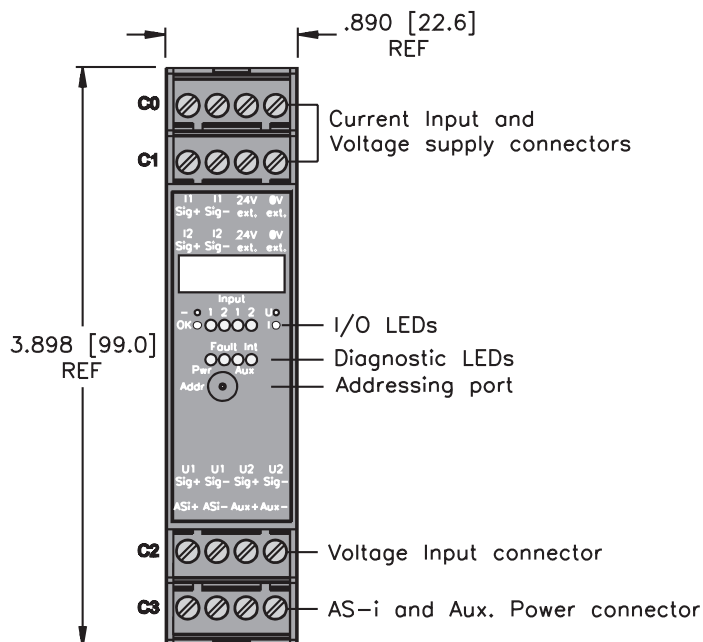
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

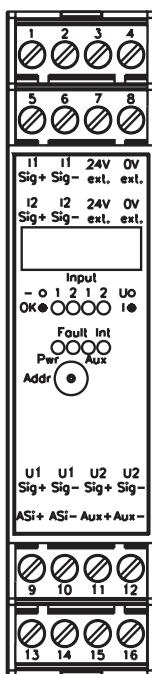
Diagnostics (Physical)

- One LED indicates an I/O fault (over or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



Inputs									Data
Part Number	AS-I Version	Addressing Style	In Count	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-2 BW1345	2.1	Single	2	4 to 20 mA/0 to 10 V	X	X	X	7.3-D	1
ASI-AI-2 BW1447	2.1	Single	2	4 to 20 mA/0 to 10 V	X	X	X	7.3-D	1
ASI-AI-2A BW1726	2.1	Single	2	4 to 20 mA/0 to 10 V	X	X	X	7.3-D	1

Input/Output Connectors



AS-interface

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

* Notes: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1345 and BW1726 use range of 4000...20000 for current and 0...10000 for voltage inputs. BW1447 uses range of 0...27648 (0x0000...0x6C00) for compatibility with existing Siemens based programs.

Analog Input Stations

- Analog on AS-I
- IP 65 Protection
- Powered by AS-I or Auxiliary Supply



ASI-AI-2 BW1232
ASI-AI-2 BW1233



Electrical

- Operating Current: <80 mA from AS-I
- Sensor Current: <40 mA per input

Power Distribution

- Inputs: AS-I or Auxiliary supply, selectable by user

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

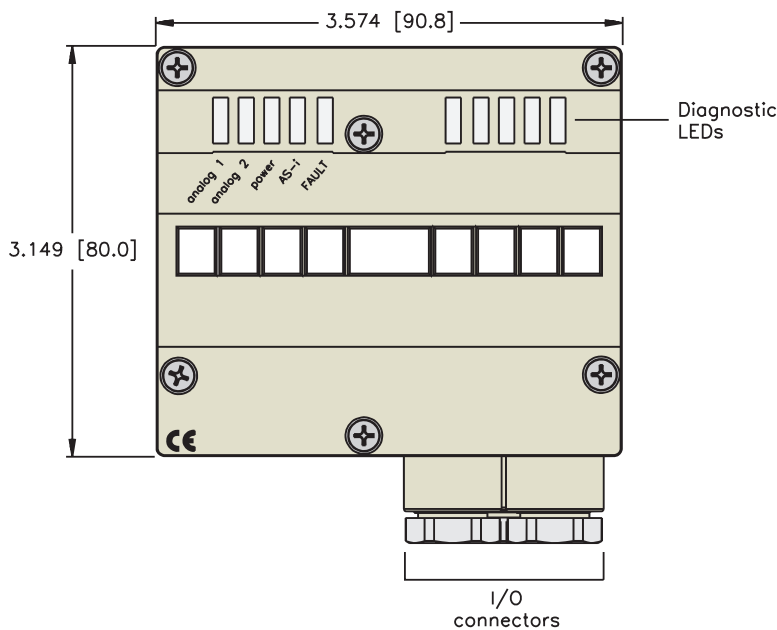
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

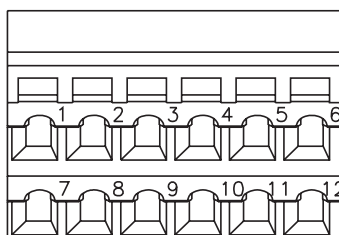
- LEDs indicate I/O faults (over- and under-current or voltage for each channel)
- LEDs to indicate status of AS-I communication and power supply



Inputs								Data	
Part Number	AS-I Version	Addressing Style	In Count	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-2 BW1232	2.1	Single	2	4 to 20 mA	X	X	X	7.3-D	1
ASI-AI-2 BW1233	2.1	Single	2	0 to 10 V	X	X	X	7.3-D	1

Input/Output Connectors

1



1	V _{AUX} ⁺
2	Signal1 ⁺
3	V _{AUX} ⁻
4	Signal1 ⁻
5	Shield
6	Shield
7	V _{AUX} ⁺
8	Signal0 ⁺
9	V _{AUX} ⁻
10	Signal0 ⁻
11	FG (Function Gnd)
12	FG (Function Gnd)

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1232 range of values is 4000-20000. BW1233 range of values is 0-10000.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

Analog Input Stations



- Analog on AS-I
- IP 20 for In-The-Cabinet
- Powered by AS-I or Auxiliary Supply
- Voltage, Current or Temperature Inputs

Electrical

- Operating Current: < 80 mA from AS-I
- Sensor Current: < 40 mA per input (BW1364 and BW1365)

Power Distribution

- Inputs: AS-I or Auxiliary supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

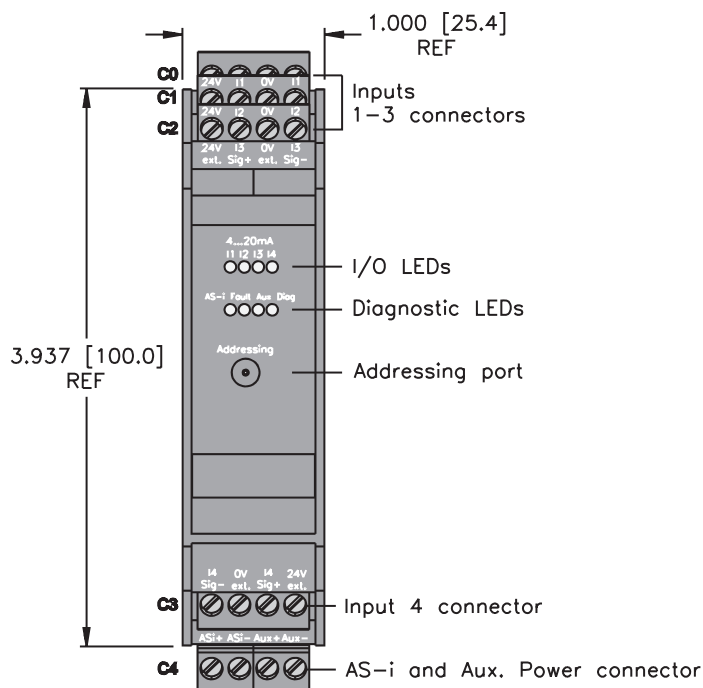
Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

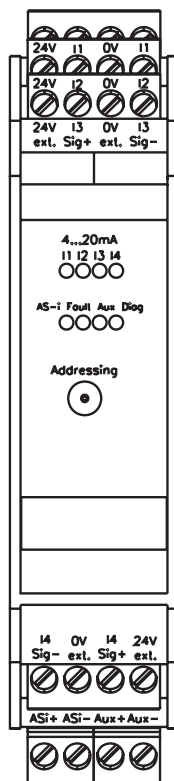
- LEDs indicate faults for each input
- LEDs to indicate status of AS-I communication and power supply

- ASI-AI-4 BW1364
- ASI-AI-4 BW1365
- ASI-AI-4PT100 BW1368



Inputs									Data	
Part Number	AS-I Version	Addressing Style	In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-4 BW1364	2.1	Single	4	1	4 to 20 mA	X	X	X	7.3-E	1
ASI-AI-4 BW1365	2.1	Single	4	1	0 to 10 V	X	X	X	7.3-E	1
ASI-AI-4PT100 BW1368	2.1	Single	4	2	RTD	X	X	X	7.3-5	1

Input/Output Connectors



AS-interface

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode, 1 mV/bit in voltage mode and 0.1 °C in temperature mode (range is -200 to +850°C).

Temperature Input Stations

- Analog on AS-I
- IP 20 for In-The-Cabinet
- Powered by AS-I or Auxiliary Supply
- Relay Output Option



ASI-AI-4PT100 BW1254
ASI-AI/DO-2RTD/2R BW1552



Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Inputs: AS-I or Auxiliary supply (BW1368 is only powered from AS-I)

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

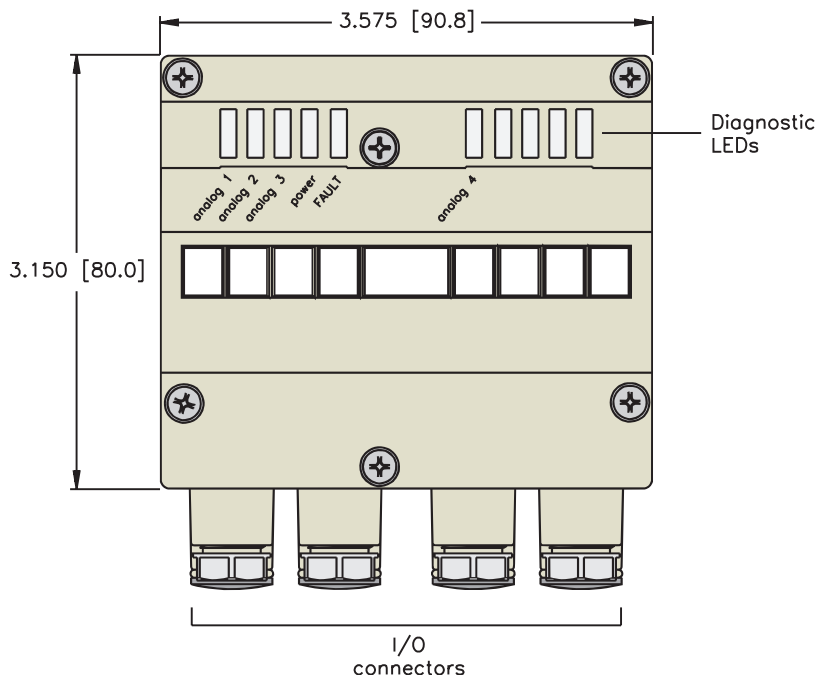
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

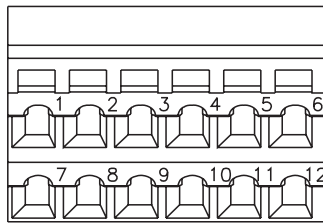
- LEDs indicate faults for each input
- LEDs to indicate status of AS-I communication and power supply



Part Number	AS-I Version	Addressing Style	Inputs						Outputs				Data	
			In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Out Count	Pinout	Current	Individual Diagnostics	Slave Profile	Map
ASI-AI-4PT100 BW1254	2.1	Single	4	1	RTD	X	X	X	0				7.3-E	1
ASI-AI/DO-2RTD/2R BW1552	2.1	Single	2	2	RTD	X	X	X	2	2	0.5 A		7.3-D	1

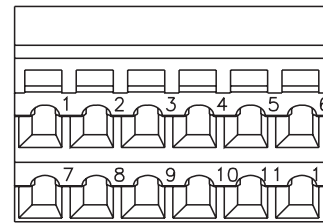
Input/Output Connectors

1



1	V+
2	Signal ₀ -
3	V0-
4	V+
5	Signal ₁ -
6	V ₁ -
7	V+
8	Signal ₂ -
9	V ₂ -
10	V+
11	Signal ₃ -
12	V ₃ -

2



1	V+
2	Signal ₀ -
3	V0-
4	V+
5	Signal ₁ -
6	V ₁ -
7	O ₀ (NO)
8	O ₀ -
9	O ₀ (NC)
10	O ₁ (NO)
11	O ₁ -
12	O ₁ (NC)

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

Note: Data map applies to each channel of analog data used. Resolution is 0.1 °C/bit in RTD mode (range is -200 to +850 C).

For BW1552 relay outputs are set via parameter bits 2 and 3.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

Analog Output Stations



ASI-AO-2 BW1412
ASI-AO-2A BW1727



- Analog on AS-I
- IP 20 for In-The-Cabinet
- Powered by AS-I or Auxiliary Supply
- Voltage and Current Outputs

Electrical

- Operating Current: < 80 mA from AS-I

Power Distribution

- Outputs: AS-I or Auxiliary supply, selectable by switch inside housing
 BW1412 default from AS-I
 BW1727 default from auxiliary supply

Mechanical

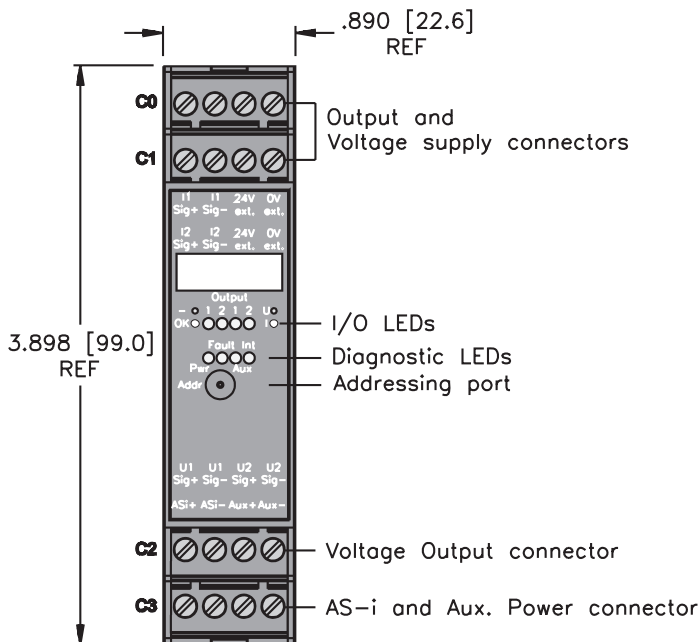
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

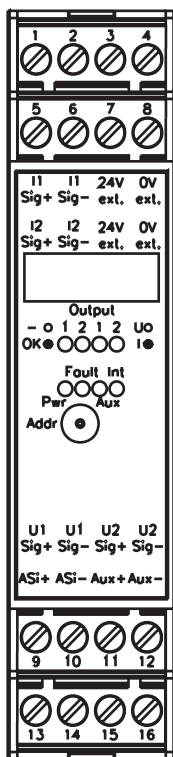
Diagnostics (Physical)

- LEDs indicates an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



Outputs							Data	
Part Number	AS-I Version	Addressing	Output Count	Style	Individual Diagnostics	OCD	Slave Profile	Map
ASI-A0-2 BW1412	2.1	Single	2	0 to 20 mA/0 to 10 V	X	X	7.3-5	1
ASI-A0-2A BW1727	2.1	Single	2	0 to 20 mA/0 to 10 V	X	X	7.3-5	1

Input/Output Connectors



AS-interface

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Out	0	Analog Value (LSB)							
	1	Analog Value (MSB)							

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit (0-20000 in current mode and 1 mV/bit (0-10000) in voltage mode.

Analog Output Stations

- Analog on AS-I
- IP 65 Protection
- Powered by AS-I or Auxiliary Supply
- Voltage or Current Outputs



ASI-AO-2 BW1234
ASI-AO-2 BW1235



Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Outputs: AS-I or Auxiliary supply, selectable by internal jumpers

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

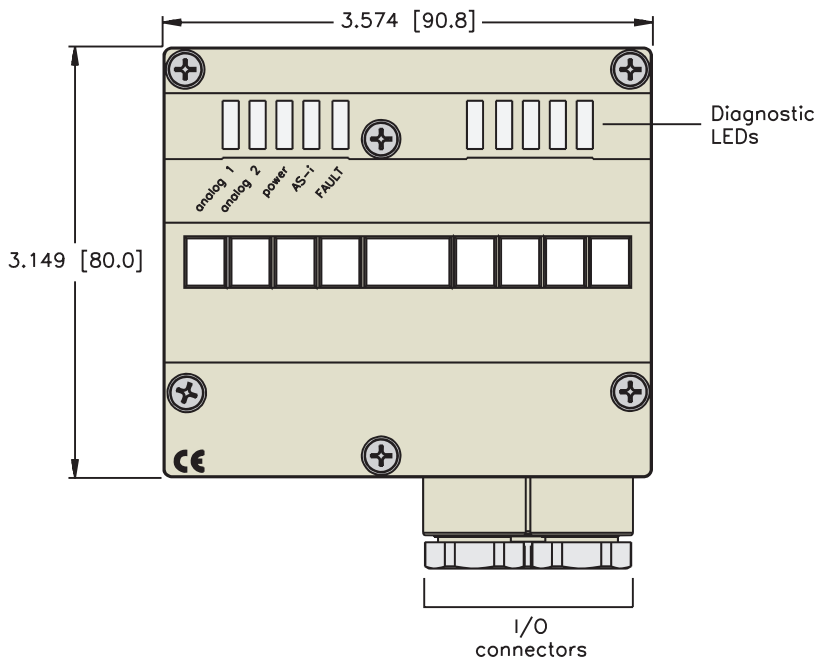
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

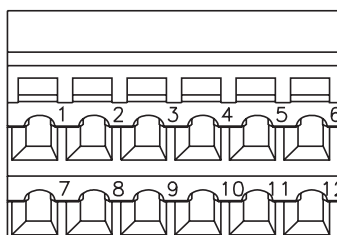
- LEDs indicates an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



			Outputs				Data	
Part Number	AS-I Version	Addressing Style	Output Count	Style	Individual Diagnostics	OCD	Slave Profile	Map
ASI-A0-2 BW1234	2.1	Single	2	0 to 20 mA	X	X	7.3-5	1
ASI-A0-2 BW1235	2.1	Single	2	0 to 10 V	X	X	7.3-5	1

Input/Output Connectors

1



1	V _{AUX} ⁺
2	Signal1 ⁺
3	V _{AUX} ⁻
4	Signal1 ⁻
5	Shield
6	Shield
7	V _{AUX} ⁺
8	Signal0 ⁺
9	V _{AUX} ⁻
10	Signal0 ⁻
11	FG (Function Gnd)
12	FG (Function Gnd)

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1234 range of values is 0-20000. BW1235 range of values is 0-10000.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

Analog Output Stations

- Analog on AS-I
- IP 20 Protection
- Powered by AS-I or Auxiliary Supply
- Voltage or Current Outputs



ASI-AO-4 BW1366
ASI-AO-4 BW1367



Electrical

- Operating Current: < 80 mA from AS-I

Power Distribution

- Outputs: AS-I or Auxiliary supply

Mechanical

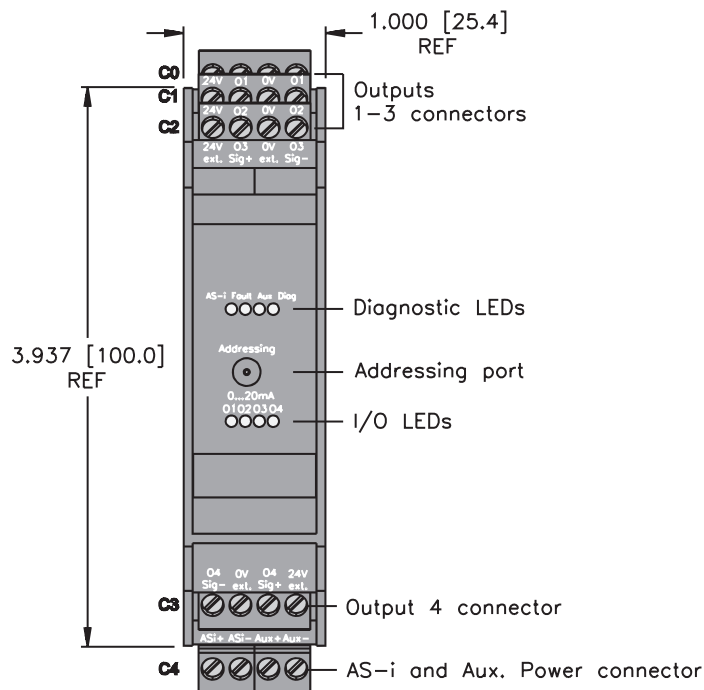
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 20

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

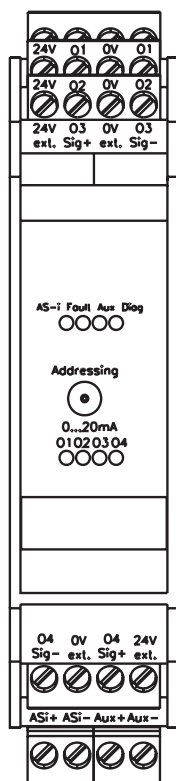
Diagnostics (Physical)

- LEDs indicates an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply



Part Number	Input Count	Addressing Style	Outputs				Data	
			Output Count	Style	Individual Diagnostics	OCD	Slave Profile	Map
ASI-A0-4 BW1366	2.1	Single	4	0 to 20 mA	X	X	7.3-6	1
ASI-A0-4 BW1367	2.1	Single	4	0 to 10 V	X	X	7.3-6	1

Input/Output Connectors



AS-interface

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1366 range of values is 4000-20000. BW1367 range of values is 0-10000.

Scale Input Station

- Analog on AS-I
- IP 65 Protection
- Power from AS-I
- Unique I/O Configurations



ASI-AI-1SCALE BW1465



Electrical

- Operating Current: <80 mA from AS-I

Power Distribution

- Inputs: AS-I power supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65
- Connections: Cage clamp block through gland fittings

Material

- Housing: Plastic

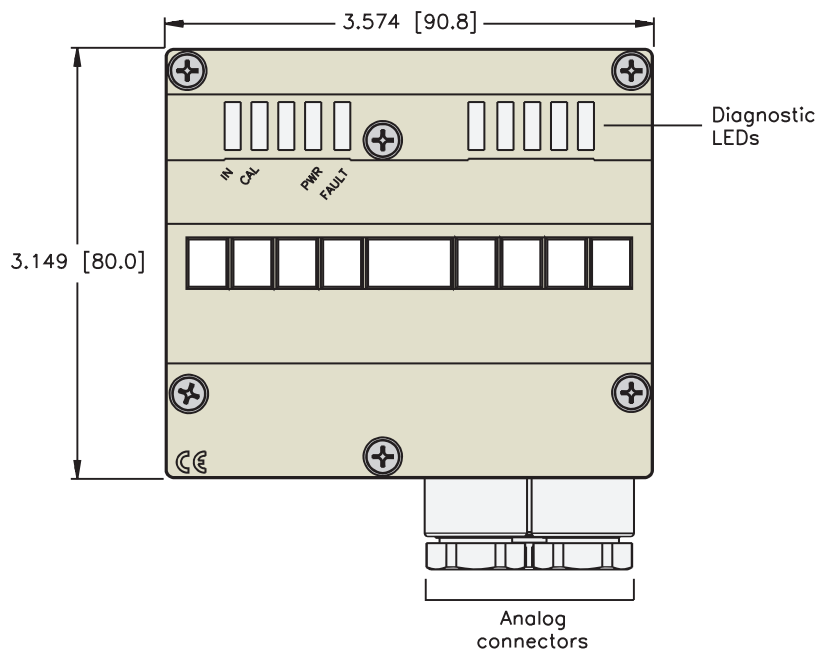
Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

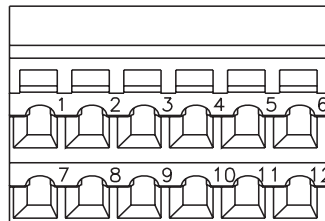
- LEDs indicate I/O faults
- LEDs to indicate status of AS-I communication and power supply

Note: This station is designed for connecting a load cell to AS-I.



			Inputs					Data	
Part Number	AS-I Version	Addressing Style	In Count	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-1SCALE BW1465	2.1	Single	1	Scale		X		7.3-C	1

Input/Output Connectors



1, 7	V+
2, 8	Signal1+
3, 9	Output+
4, 10	Output-
5, 11	Signal-
6, 12	V-

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

Note: Resolution is 16 bits.

Calibration is done via Windows software and the special BW1260 master.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) (see pages E105-106).

Analog Input Stations



ASI-AI-02-M12-V3 BW1893

ASI-AI-02-M12 BW1894

ASI-AI-02RTD-M12-V3 BW1895



- Analog on AS-I
- IP 65 Protection
- Power from AS-I
- Current or PT100 Inputs

Electrical

- Operating Current: <200 mA (BW1893, BW1894) or <80 mA (BW1895) from AS-I
- Sensor Current: <40 mA per input (BW1893, BW1894)

Power Distribution

- Outputs: AS-I power supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65

Material

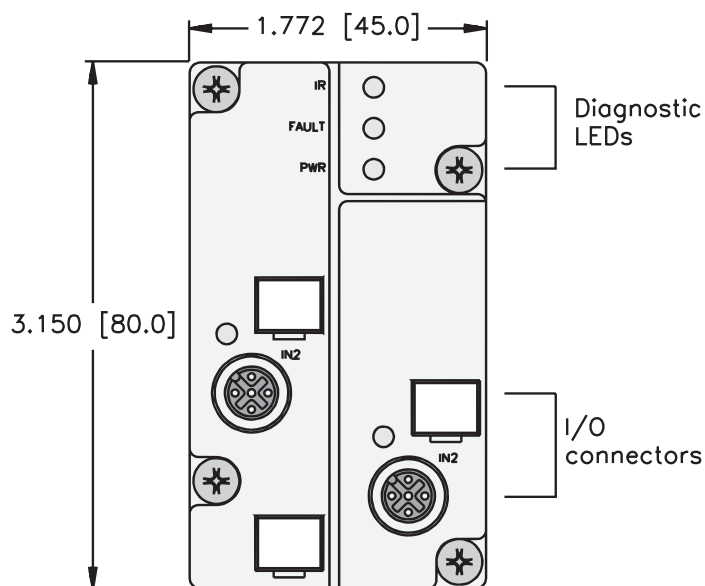
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

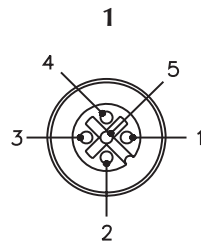
Diagnostics (Physical)

- LEDs indicate an I/O fault (over- or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply

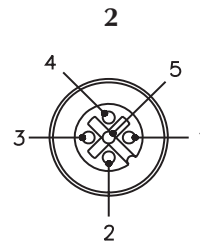


Part Number	AS-I Version	Addressing Style	Inputs						Data	
			In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map
ASI-AI-02-M12-V3 BW1893	3.0	AB	2	1	4 to 20 mA	X	X	X	7.A-9	1
ASI-AI-02-M12 BW1894	2.1	Single	2	1	4 to 20 mA	X	X	X	7.3-D	1
ASI-AI-02RTD-M12-V3 BW1895	3.0	AB	2	2	RTD	X	X	X	7.A-9	1

Input/Output Connectors



- 1 = V+
- 2 = Signal +
- 3 = 0 V
- 4 = 0 V
- 5 = Shield



- 1 = E+
- 2 = Signal +
- 3 = E -
- 4 = Signal -
- 5 = Shield

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
0	Analog Value (MSB)								

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 0.1 dC/bit in RTD mode. BW1893 and BW1894 default range of values is 4000-20000 (can be configured for 0-27648). BW1895 default range of values is -200...+850 C (can be configured for -120 to +130 C). AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) (see pages E105-106).

Analog Input Stations

- Analog on AS-I
- IP 65 Protection
- Current, Voltage or PT100 Inputs
- Powered by AS-I or Auxiliary Supply



- ASI-AI-4-M12 BW1359**
- ASI-AI-4-M12 BW1360**
- ASI-AI-4-M12 BW1742**
- ASI-AI-4PT100-M12 BW1363**



Electrical

- Operating Current: < 200 mA (except BW1363 is < 80 mA) from AS-I
- Sensor Current: < 40 mA per input (BW1359, BW1360, BW1742)

Power Distribution

- Inputs: AS-I or Auxiliary power supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
 (except BW1742 is -20 to +70° C) (-4 to +158°F)
- Protection: IP 65

Material

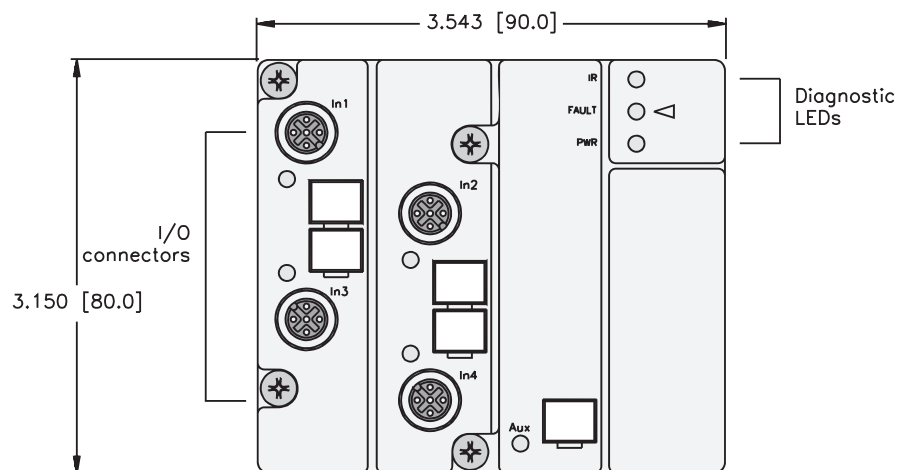
- Housing: Nylon

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

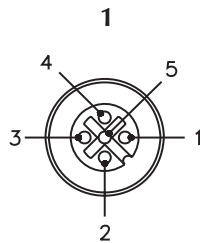
Diagnostics (Physical)

- LEDs indicates an I/O fault (over or under-range for each channel)
- LEDs to indicate status of AS-I communication and power supply

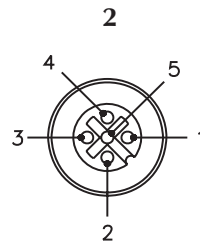


Part Number	AS-I Version	Addressing Style	Inputs							Data	
			In Count	Pinout	Style	Group Diagnostics	Individual Diagnostics	OCD	Slave Profile	Map	
ASI-AI-4-M12 BW1359	2.1	Single	4	1	4 to 20 mA	X	X	X	7.3-E	1	
ASI-AI-4-M12 BW1360	2.1	Single	4	1	0 to 10 V	X	X	X	7.3-E	1	
ASI-AI-4-M12 BW1742	2.1	Single	4	1	0 to 10 V	X	X	X	7.3-E	1	
ASI-AI-4PT100-M12 BW1363	2.1	Single	4	2	RTD	X	X	X	7.3-E	1	

Input/Output Connectors



- 1 = V+
- 2 = Signal +
- 3 = 0 V-
- 4 = Signal -
- 5 = Shield



- 1 = E+
- 2 = Signal +
- 3 = E -
- 4 = Signal -
- 5 = Shield

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode, 1 mV/bit in voltage mode and 0.1 C/bit in temperature mode.

BW1359 range of values is 4000-20000. BW1360, BW1742 range of values is 0-10000. BW1363 range is -200 to +850 C.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

Analog Output Stations

- Analog on AS-I
- IP 65 Protection
- Voltage or Current Outputs
- Powered by AS-I or Auxiliary Supply



- ASI-AO-4-M12 BW1361
- ASI-AO-4-M12 BW1362
- ASI-AO-4-M12 BW1722
- ASI-AO-4-M12 BW1736



Electrical

- Operating Current: <200 mA (except BW1722 is <100 mA) from AS-I
- Output Current: 1.1 A per output from auxiliary power (BW1722 only)

Power Distribution

- Outputs: AS-I power supply (except BW1722 is auxiliary power supply)

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
 (except BW1736 is -20 to +70°C (-4 to +158°F))
- Protection: IP 65

Material

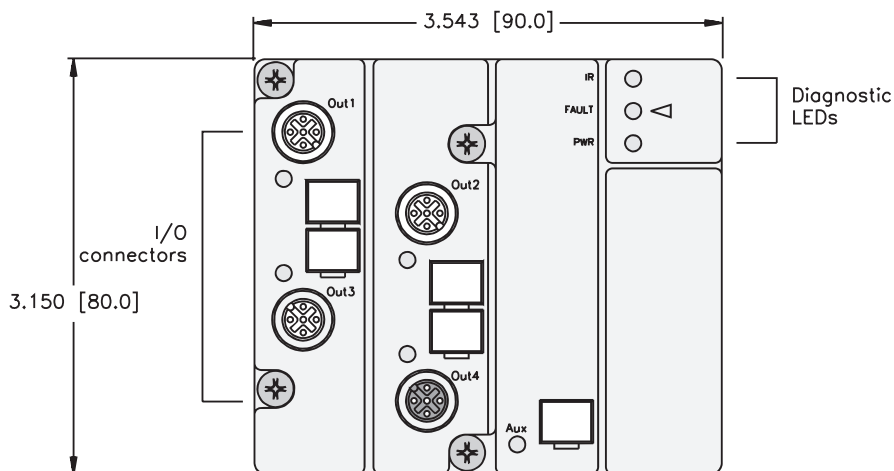
- Housing: Plastic

Diagnostics (Logical)

- I/O errors are indicated by the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

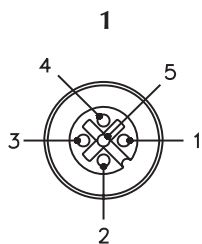
- LEDs indicate an I/O fault for each channel
- LEDs to indicate status of AS-I communication and power supply



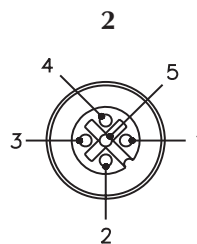
Note: ASI-AO-4-M12 BW1722 supplies up to 1.1 A for powering output devices.

Part Number	AS-I Version	Addressing Style	Outputs				Data	
			Out Count	Style	Pinout	OCD	Slave Profile	Map
ASI-A0-4-M12 BW1361	2.1	Single	4	0 to 20 mA	1	X	7.3-6	1
ASI-A0-4-M12 BW1362	2.1	Single	4	0 to 10 V	1	X	7.3-6	1
ASI-A0-4A-M12 BW1722	2.1	Single	4	0 to 20 mA	2	X	7.3-6	1
ASI-A0-4-M12 BW1736	2.1	Single	4	0 to 10 V	1	X	7.3-6	1

Input/Output Connectors



- 1 = Signal +
- 2 = NC
- 3 = Signal -
- 4 = NC
- 5 = Shield



- 1 = Signal +
- 2 = V+
- 3 = Signal -/V-
- 4 = NC
- 5 = Shield

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Analog Value (LSB)								
1	Analog Value (MSB)								

Note: Data map applies to each channel of analog data used. Resolution is 1 uA/bit in current mode and 1 mV/bit in voltage mode. BW1361, BW1722 range of values is 0-20000. BW1362, BW1736 range of values is 0-10000.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (see pages E105-106).

AS-I Counter Stations



- Count Signals Over AS-I
- IP 65 Protection
- 1 to 4 Channels
- Powered by AS-I or Auxiliary Supply

- ASI-AI-2C BW1574**
- ASI-AI-4C BW1710**
- ASI-AI-1C BW1723***
- ASI-AI-1C BW1711***

* Not UL



Electrical

- Operating Current: <200 mA (from U_B)
- Sensor Current: <150 mA from AS-I (except BW1723 is <700 mA from aux. supply)

Power Distribution

- Inputs: AS-I supply (except BW1723 from auxiliary supply)

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65

Material

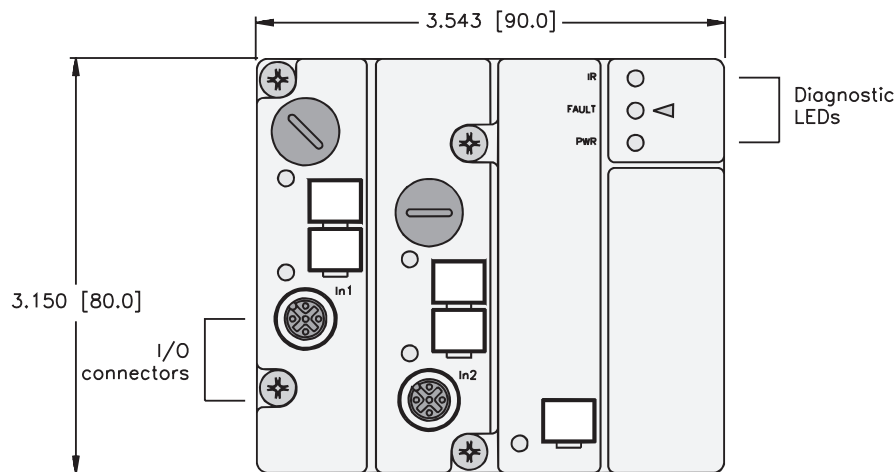
- Housing: Plastic

Diagnostics (Logical)

- Overflow and underflow errors are reported via the AS-I peripheral fault bit (except BW1711)

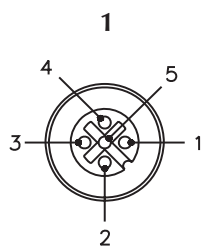
Diagnostics (Physical)

- LEDs indicate the status of each I/O point
- LEDs to indicate status of AS-I communication and power supply

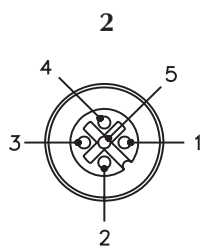


Part Number	AS-I Version	Addressing Style	Inputs				Data	
			In Count	Pinout	Style	Resolution	Slave Profile	Map
ASI-AI-2C BW1574	2.1	Single	2	1	Counter	16-bit	7.3-C	1
ASI-AI-4C BW1710	2.1	Single	4	2	Counter	16-bit	7.3-D	1
ASI-AI-1C BW1723	2.1	Single	1	3	Counter	16-bit	7.3-C	1
ASI-AI-1C BW1711	2.1	Single	1	4	Counter	4-bit	0.F-F-E	2

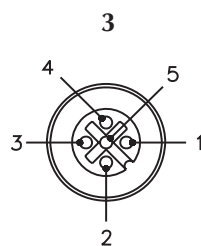
Input/Output Connectors



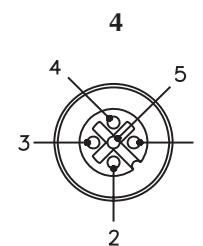
- 1 = V+
- 2 = Channel 1
- 3 = 0 V
- 4 = Channel 2
- 5 = NC



- 1 = V+
- 2 = Channel 1, 3
- 3 = 0 V
- 4 = Channel 2, 4
- 5 = NC



- 1 = V+
- 2 = Input
- 3 = 0 V
- 4 = Status In
- 5 = NC



- 1 = V+
- 2 = Input
- 3 = 0 V
- 4 = NC
- 5 = NC

AS-interface

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Count Value (LSB)								
1	Count Value (MSB)								

Note: Data map applies to each counter channel.
Range is -32768...+32767.

I/O Data Map 2

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Count Value								

Note: Range is 0...15.

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) if I/O is powered by AS-I or auxiliary supply base modules (ASI-BM BW1181, ASI-BM BW1183) if I/O is powered by auxiliary power (BW1723 only) (see pages E105-106).

AS-I Code Block



- Provides a Fixed Value
- IP 67 Protection
- Use to Code Tools or Machine Components
- Powered by AS-I

Electrical

- Operating Current: < 50 mA from AS-I

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 65

Material

- Housing: Plastic

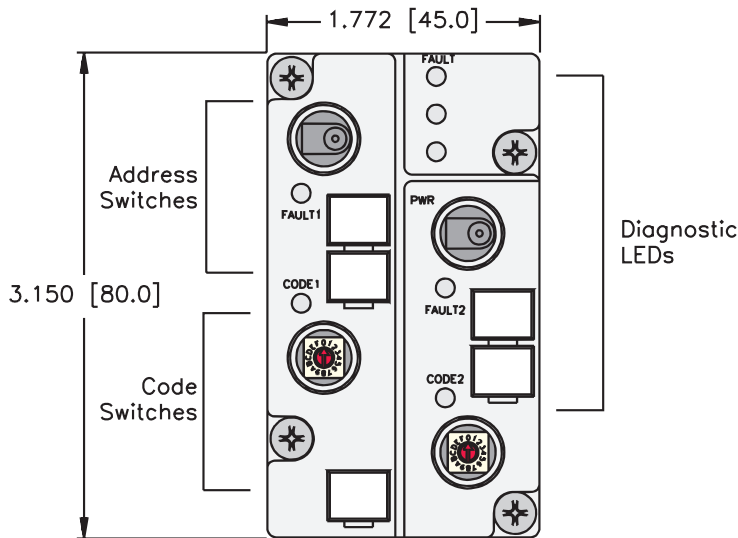
Diagnostics (Logical)

- Faults are reported via the AS-I peripheral fault bit (v2.1 and higher)

Diagnostics (Physical)

- LEDs indicate I/O faults
- LEDs to indicate status of AS-I communication and power supply

ASI-CODEBLK BW1527



Inputs						Data		
Part Number	AS-I Version	Addressing Style	In Count	# Addresses Occupied	Style	Range	Slave Profile	Map
ASI-CODEBLK BW1527	2.1	AB	8 bits	2	Code	0 to 255	0.A-F-E	1

Note: This station occupies two AS-I addresses, each with four inputs. The input values are fixed by two rotary switches to provide a code value

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	Code (High Nibble)				Code (Low Nibble)				

AS-I connections are made via standard AS-I base modules (ASI-BM BW1180, ASI-BM BW1182) (see pages E105-106).

AS-I Repeaters



- Extend AS-I Network Length
- IP 20 for In-The-Cabinet
- Isolate AS-I Power Segments
- Fault LED Aids in Diagnostics

Electrical

- Operating Current: <60 mA from each AS-I segment (<120 mA total)

Power Distribution

- Each isolated segment is powered from it's respective AS-I power supply

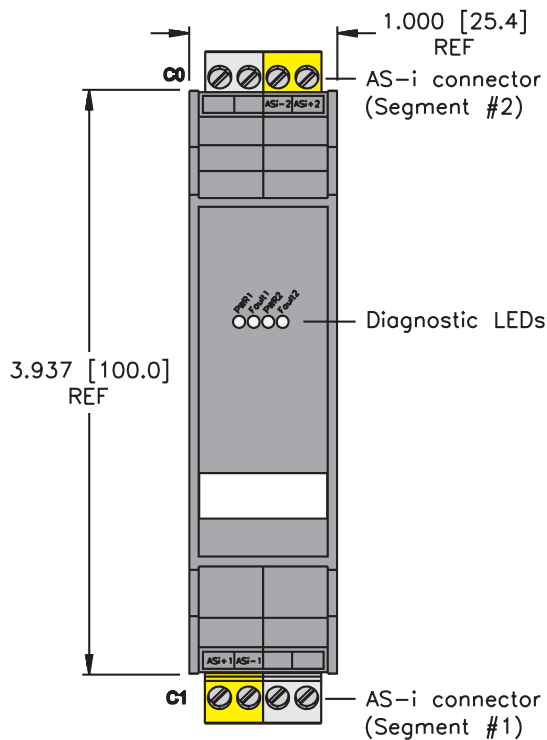
Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply

REP-ASI BW1855



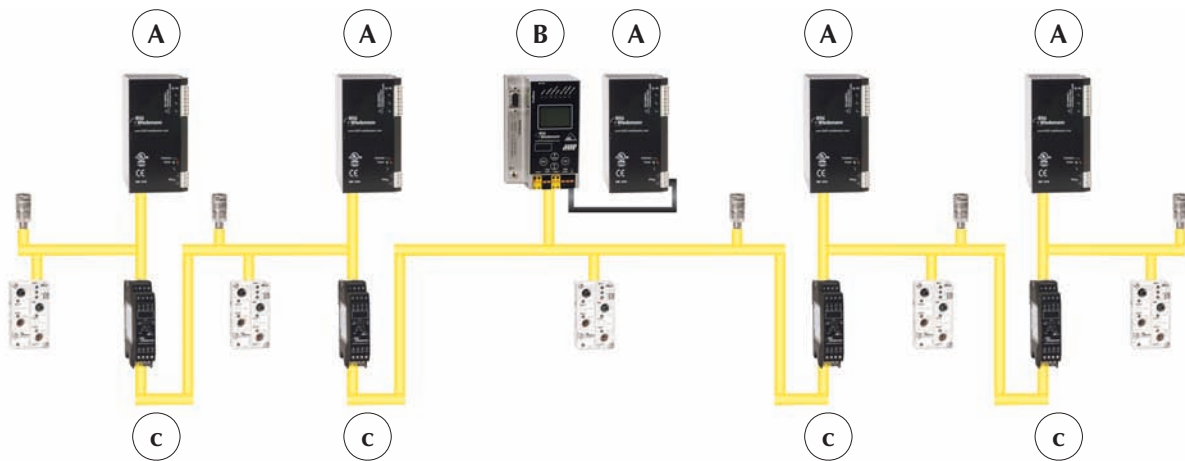
Enclosure Mounted AS-interface Repeater

The **REP-ASI BW1855** is an IP 20, DIN-rail mountable repeater for use as an enclosure mounted AS-I extension solution. Network segments attached by a repeater are considered separate physical networks (trunk and drop lengths for each segment are determined as if the other segments are not present), but one logical network (addresses cannot be duplicated; the scanner and configuration tools work as a single network).

The repeater does not consume an address and is invisible to all the other devices on the network. The repeater supports a network extension of one full segment (an additional 100 m of AS-I cable). The REP-ASI BW1855 can be used in conjunction with an AS-I Tuner (ASI-TUNER BW1648 or ASI-TUNER-DIAG BW1843) to extend the network with segment lengths greater than 100 m. Repeaters can also be used to isolate power supplies on networks with multiple supplies, allowing greater than 8 A on the entire AS-I system (no individual segment may carry more than 8 A).

Up to two repeaters are allowed between any slave and the master. Placing the master in the middle of the system allows a maximum linear system of 500 m (if standard repeaters are used) or potentially 1000 m (if terminators and advanced repeaters are used), as shown in the diagram below.

- A = Power supply
- B = Master
- C = Repeaters



AS-I Repeater

- Extend AS-I Network Length
- Isolate AS-I Power Segments
- IP65 Protection
- Fault LED Aids in Diagnostics



REP-ASI BW1273*
REP-ASI-C1D2 BW1712

* Not ETL listed



Electrical

- Operating Current: <60 mA from each segment (<120 mA total)

Power Distribution

- Each isolated segment is powered from it's respective AS-I power supply

Mechanical

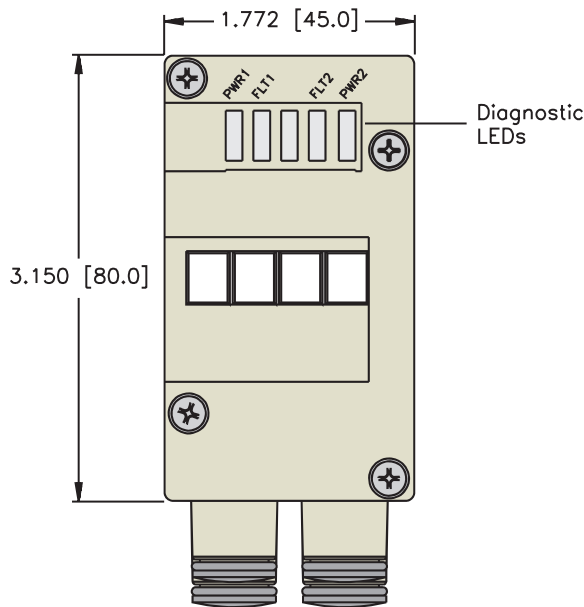
- Operating Temperature: -10 to +55°C (+14 to +131°F)
- Protection: IP65
- Connection: Via standard AS-I base module (flat or round cable)

Material

- Housing: Plastic

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply



Machine Mounted AS-interface® Repeater

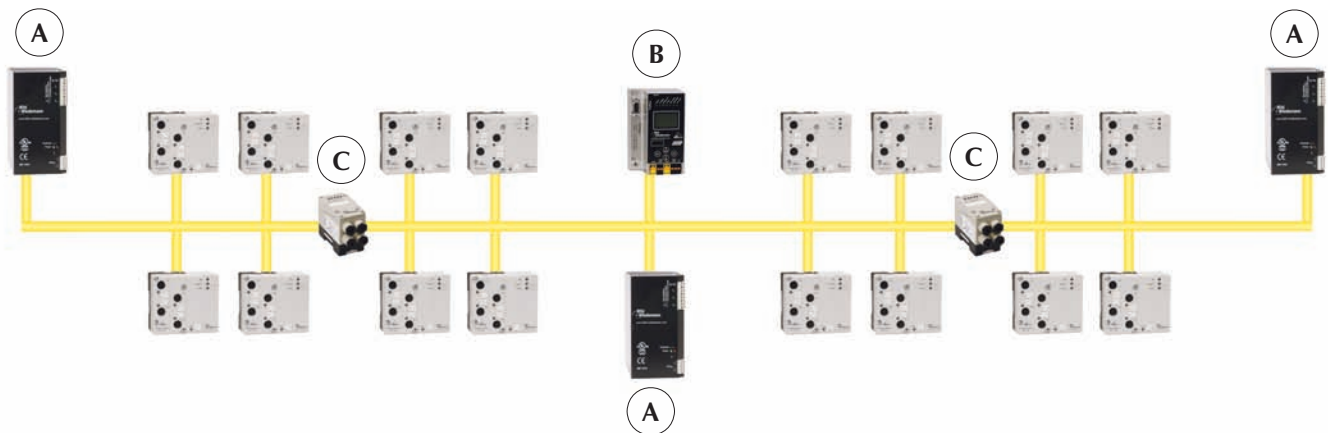
The **REP-ASI BW1273** is an IP 65 repeater for machine mounted AS-I extensions. Network segments attached by a repeater are considered separate physical networks (trunk and drop lengths for each segment are determined as if the other segments are not present), but one logical network (addresses cannot be duplicated; the scanner and configuration tools work as a single network).

The repeater does not consume an address and is invisible to all the other devices on the network. The **REP-ASI BW1273** supports a network extension of one full segment (an additional 100 m of AS-I cable). Repeaters can also be used to isolate power supplies on networks with multiple supplies, allowing greater than 8 A on the entire AS-I system (no individual segment may carry more than 8 A).

Up to two repeaters are allowed between any slave and the master. Placing the master in the middle of the system allows a maximum linear system of 500 m.

The **REP-ASI BW1273** physical wiring connections are made via standard AS-I base modules with two isolated ports (ASI-BM BW1181 for flat cable or ASI-BM BW1183 for round cable with screw terminal connections).

- A = Power supplies
- B = Master
- C = Repeaters



AS-I Tuners

- Extend AS-I Network Length
- Correct AS-I Communication Problems
- IP65 Protection
- Extended Diagnostics Available



- ASI-TUNER BW1648***
- ASI-TUNER-DIAG BW1843***
- ASI-TUNER-C1D2 BW1715**

* Not ETL listed



Electrical

- Operating Current: <60 mA (from AS-I)

Power Distribution

- AS-I Power supply

Mechanical

- Operating Temperature: 0 to +55 °C (+32 to +131°F)
- Protection: IP65

Material

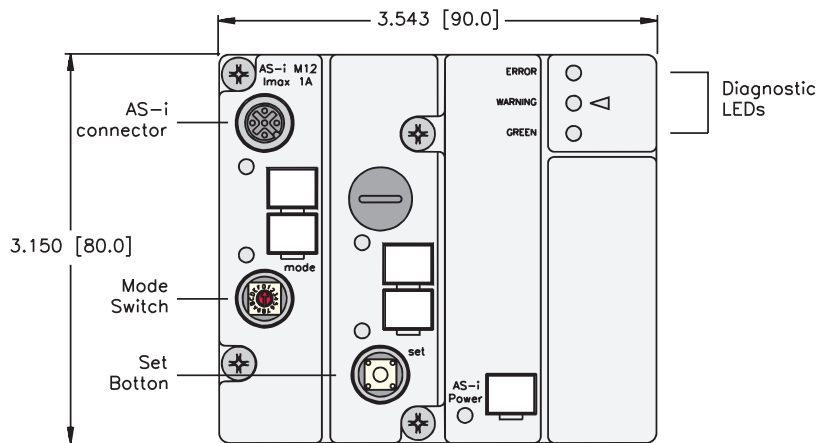
- Housing: Plastic

Diagnostics (Logical)

- BW1843 can be configured to be a slave on the AS-I network and report system and station health

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply

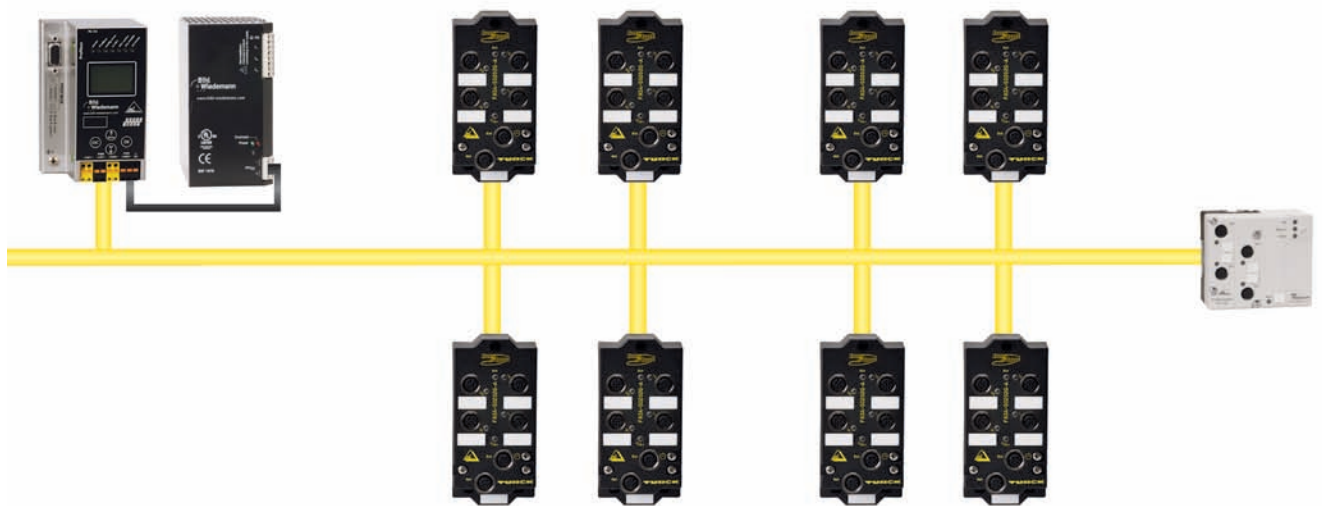


Machine Mounted AS-interface® Tuners

The **ASI-TUNER BW1648** and **ASI-TUNER-DIAG BW1843** are IP 65 tuners for machine mounted AS-I extension solutions. Tuners are active circuits designed to affect the impedance of an AS-I network so the system can communicate without errors at lengths longer than 100 m. The tuners are configured for the system by placing them in a "teach" mode where they "listen to" AS-I network traffic. In this mode, tuners cycle through LRC impedance values to find the setting where the errors are minimized. Once this value is found, tuners operate in the "run" mode. The tuners also provide a green/yellow/red LED indicating network status, so potential errors can be found early and corrected before they become critical.

The **ASI-TUNER BW1648** does not consume an address and is invisible to all the other devices on the network. The **ASI-TUNER-DIAG BW1843** may be configured as an AS-I slave to allow more detailed diagnostic information to be available as standard I/O data, as well as mailbox information per the AS-I v3.0 specification. The status of all AS-I slaves on the system, as well as the voltage level at the tuner, can be obtained in this mode. Tuners can be used to extend the network length up to 300 m for a single segment (without the need for a repeater). Ideal placement of the tuner on the network is at the furthest point from the power supply.

Tuners connect to the network via standard AS-I base modules (ASI-BM BW1180 for flat cable and ASI-BM BW1182 for round cable with screw terminal connections).



AS-I Masters for OEM Applications

- Board-level Masters
- 8-bit Host Interface
- Advanced AS-I Diagnostics
- Small Form Factor



ASI-MM-PCB BW1670
ASI-MM-PCB BW1588
ASI-MMPCB BW1554 (shown)



Electrical

- Operating Current: <70 mA from AS-I, 100 mA from external supply (5 VDC)

Power Distribution

- AS-I and external supplies

Mechanical

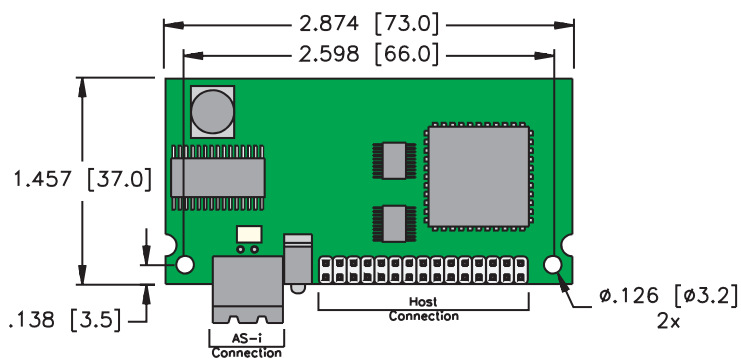
- Operating Temperature: 0 to +55 °C (+32 to +131°F)

Diagnostics (Logical)

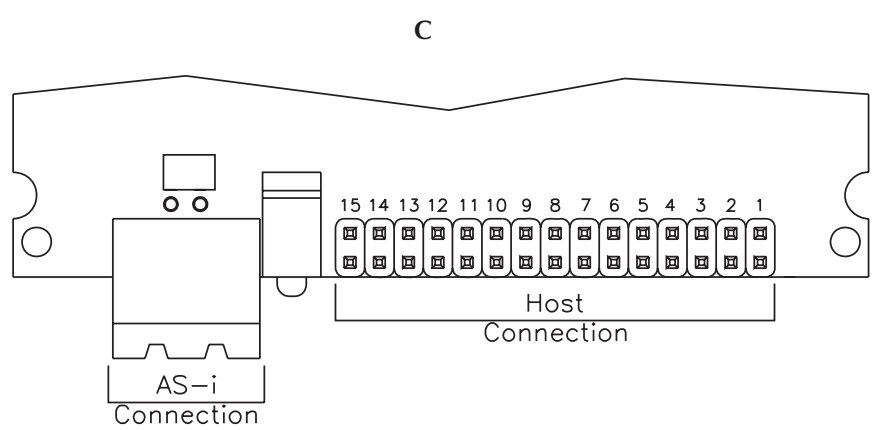
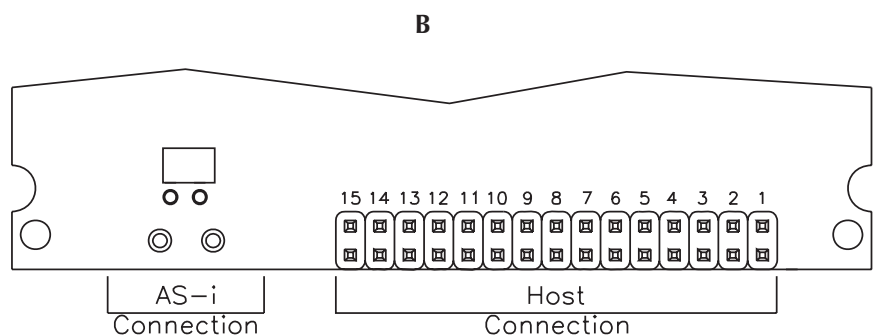
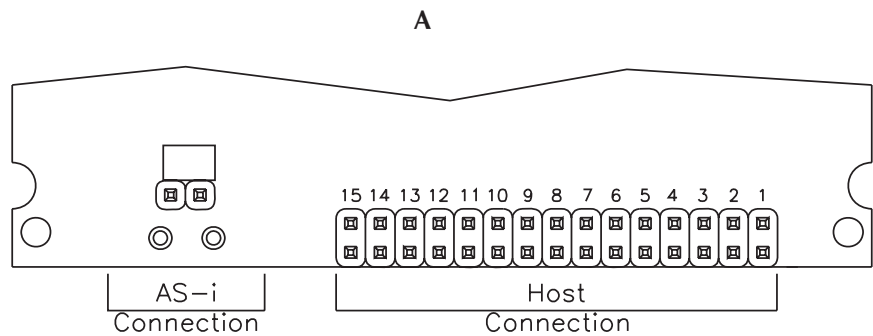
- AS-I I/O errors can be reported via the peripheral fault bit for each slave (v2.1 and higher)

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply (BW1554 only)



Part Number	AS-I Version	AS-I Connection	Diagram	# of AS-I Masters
ASI-MM-PCB BW1670*	2.1	Solder	A	1
ASI-MM-PCB BW1588	2.1	Solder	B	1
ASI-MM-PCB BW1554	2.1	Connector	C	1



AS-interface

*Note: ASI-MM-PCB BW1670 is intended for use with the evaluation kit ASI-EVAL-KIT BW1565 (M108).

OEM AS-I Slaves

- PC-board Level Slaves
- Connection Options
- Various I/O Configurations
- Powered by AS-I



ASI-IOM-0202-PCB BW1421 shown



Electrical

- Operating Current: <200 mA from AS-I (including all I/O)

Power Distribution

- Inputs: AS-I supply
- Outputs: AS-I supply

Mechanical

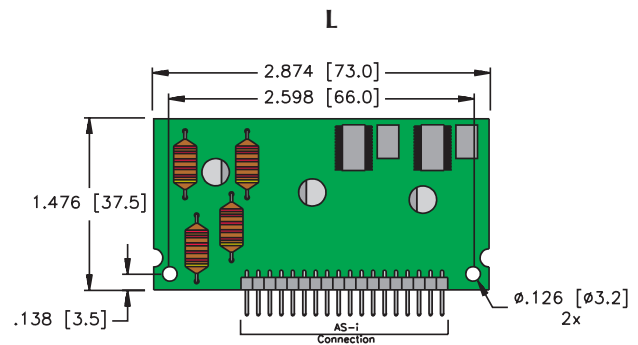
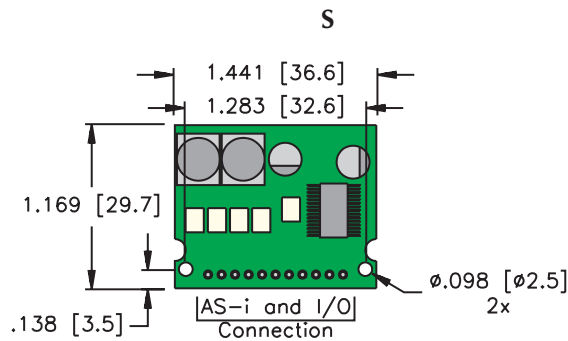
- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10...55 Hz

Diagnostics (Logical)

- I/O faults are indicated by the peripheral fault bit

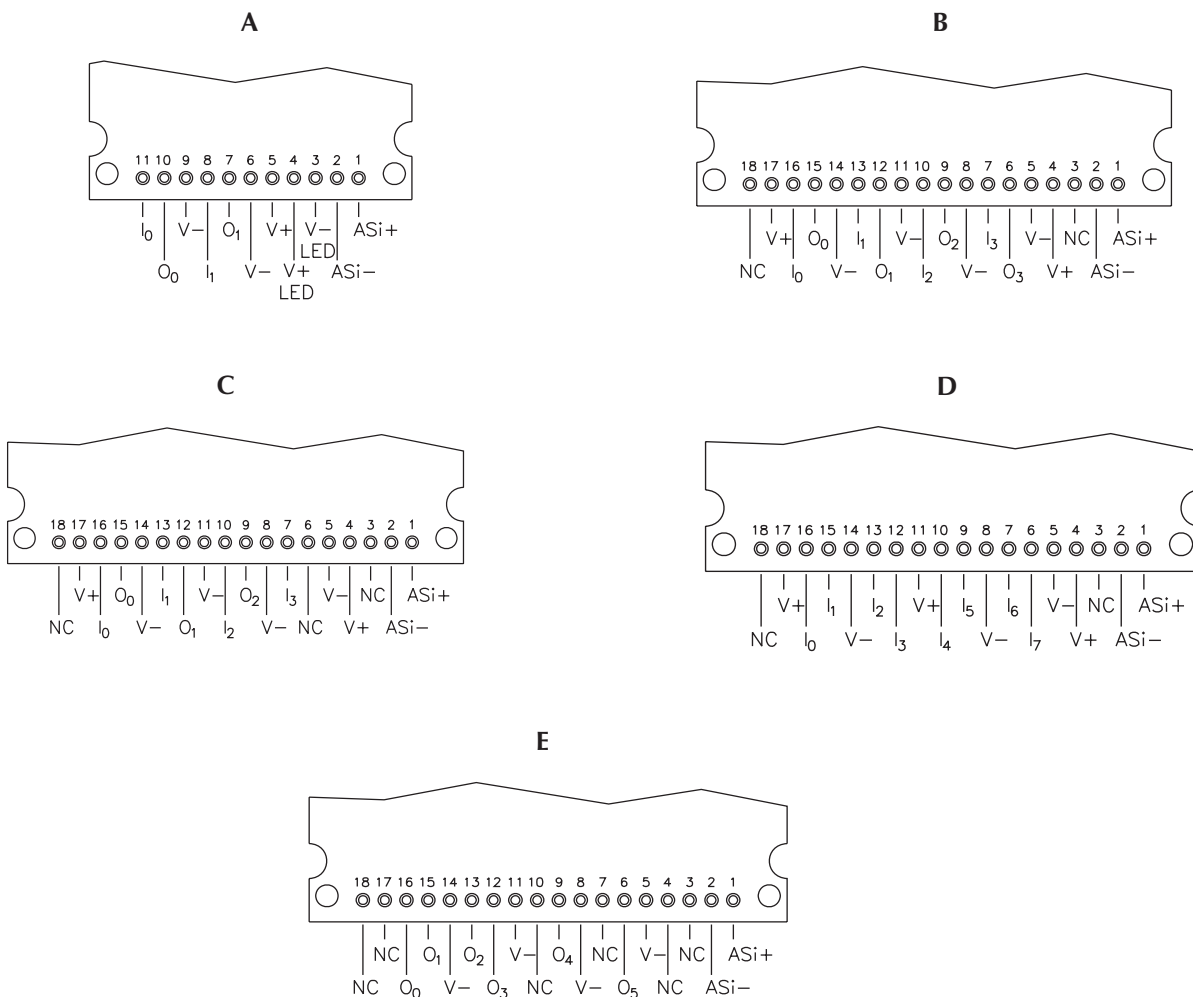
Diagnostics (Physical)

- One LED indicates an I/O fault for the slave



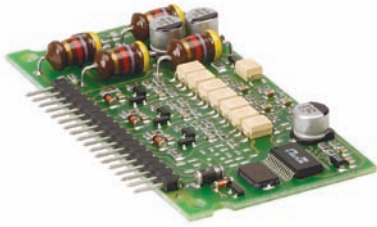
Part Number	Input Count	Output Count	Output Current (per Output)	Output Current (sum of all Outputs)	I/O Power	LEDs	Connector	A/B Address	Addresses	Slave Profile	Drawing	Pinout
ASI-IOM-0202-PCB BW1421	2	2	80 mA	80 mA	AS-I		NONE	Y	1	B.A-E	S	A
ASI-IOM-0202-PCB BW1443	2	2	80 mA	80 mA	AS-I		SCR	Y	1	B.A-E	S	A
ASI-IOM-0202-PCB BW1444	2	2	80 mA	80 mA	AS-I		PIN	Y	1	B.A-E	S	A
ASI-IOM-0403-PCB BW1386	4	3	80 mA	80 mA	AS-I		PIN	Y	1	7.A-E	L	C
ASI-IOM-0403-PCB BW1387	4	3	80 mA	80 mA	AS-I		SCR	Y	1	7.A-E	L	C
ASI-IOM-0404-PCB BW1218	4	4	100 mA	180 mA	AS-I		PIN	N	1	7.0-F	L	B
ASI-IOM-0404-PCB BW1219	4	4	100 mA	180 mA	AS-I		SCR	N	1	7.0-F	L	B
ASI-IOM-0404-PCB-L BW1470	4	4	100 mA	180 mA	AS-I	X	SCR	N	1	7.0-F	L	B
ASI-IOM-0006-PCB BW1627	0	6	100 mA	180 mA	AS-I		SCR	Y	2	8.A-0	L	E
ASI-IOM-0800-PCB BW1351	8	0	-	-	AS-I		PIN	Y	2	0.A-2	L	D
ASI-IOM-0800-PCB BW1352	8	0	-	-	AS-I		SCR	Y	2	0.A-2	L	D

Note: SCR=Screw Terminal connection; PIN=Edge Pin connection



OEM AS-I Slaves

- PC-board Level Slaves
- Connection Options
- A/B Address Support
- Powered by Auxiliary Power



Electrical

- Operating Current: <20 mA from AS-I
- Input Current: <180 mA from AS-I (BW1628 only)
- Output Current: see table on facing page

Power Distribution

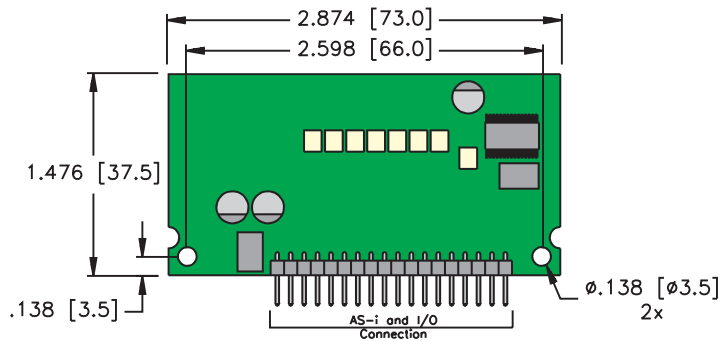
- Inputs: AS-I supply (BW1628)
 Auxiliary supply (BW1388, BW1389)
- Outputs: Auxiliary supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

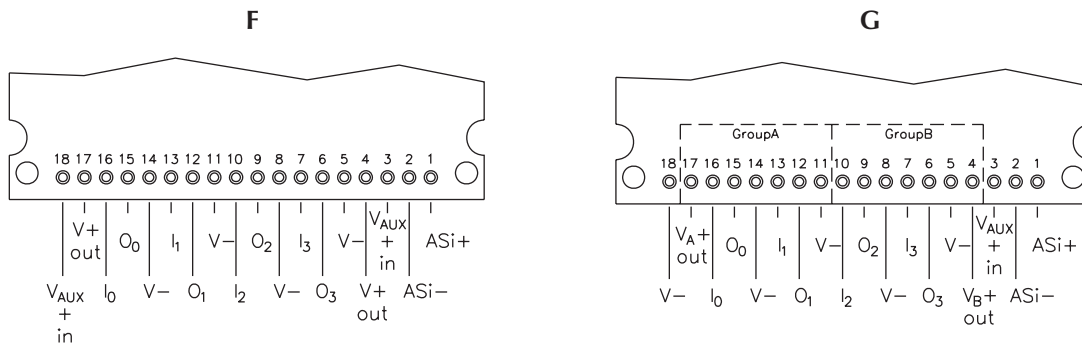
Diagnostics (Logical)

- I/O faults are indicated by the peripheral fault bit



Part Number	Input Count	Output	Output Current (per Output)	Output Current (sum of all Outputs)	I/O Power Source	LEDs	Connector	A/B Address	Addresses	Slave Profile	Drawing	Pinout
ASI-IOM-0404A-PCB-L-BW1628	4	4	150 mA	500 mA	AS-i/Aux	X	SCR	N	1	7.0-E	L	F
ASI-IOM-0404A-PCB-BW1388	4	4	100 mA	200 mA	Aux		PIN	N	1	7.0-F	L	G
ASI-IOM-0404A-PCB-BW1389	4	4	100 mA	200 mA	Aux		SCR	N	1	7.0-F	L	G

Note: SCR=Screw Terminal connection; PIN=Edge Pin connection



OEM AS-I Slaves



ASI-IOM-0808-PCB BW1898 shown

- ASI-IOM-0808-PCB -BW1898**
- ASI-IOM-0808-PCB-V3-BW1899**
- ASI-IOM-1616-PCB-BW1900**
- ASI-IOM-1616-PCB-V3-BW1901**

- PC-board Level Slaves
- Multiple Slaves on One Board
- I/O Count Choices
- Powered by AS-I

Electrical

- Operating Current: <400 mA (BW1898, BW1899), <500 mA (BW1900, BW1901) from AS-I (including all I/O)

Power Distribution

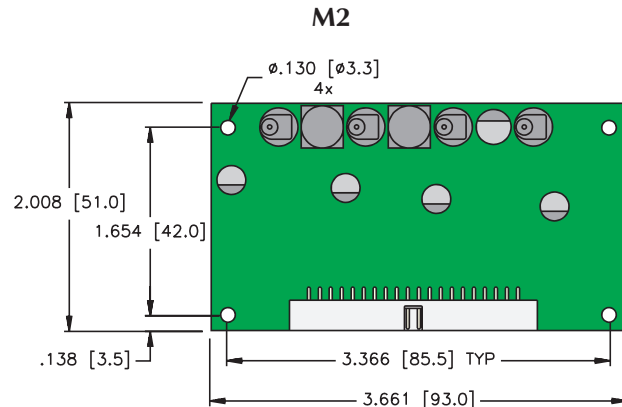
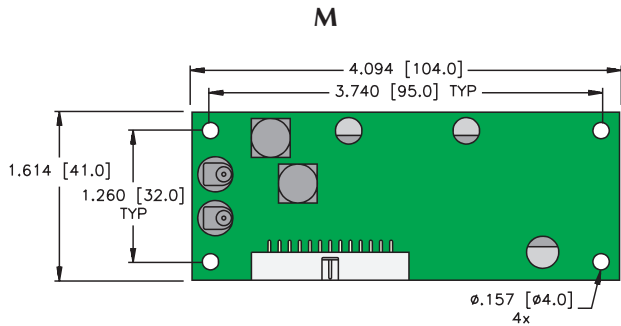
- Inputs: AS-I supply
- Outputs: AS-I supply

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

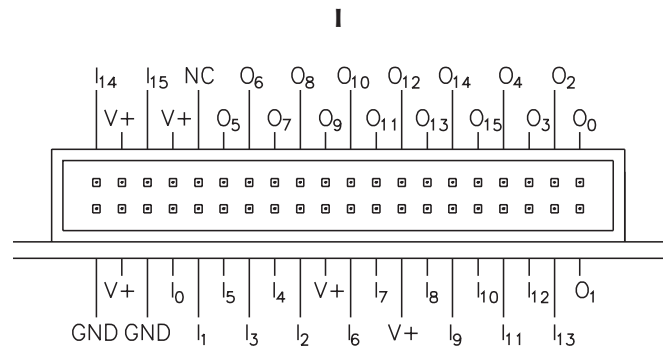
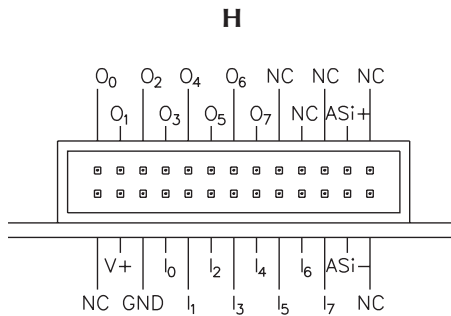
Diagnostics (Logical)

- I/O faults are indicated by the peripheral fault bit



Part Number	Input Count	Output Count	Output Current (per Output)	Output Current (sum of all Outputs)	I/O Power	LEDs	Connector	A/B Address	Addresses	Slave Profile	Drawing	Pinout
ASI-IOM-0808-PCB -BW1898	8	8	70	200 mA	AS-I		CON	N	2	7.F-F-E	M	H
ASI-IOM-0808-PCB-V3-BW1899	8	8	70	200 mA	AS-I		CON	Y	2	7.A-7-7	M	H
ASI-IOM-1616-PCB-BW1900	16	16	70	200 mA	AS-I		CON	N	4	7.F-F-E	M2	I
ASI-IOM-1616-PCB-V3-BW1901	16	16	70	200 mA	AS-I		CON	Y	4	7.A-7-7	M2	I

Note: CON=Plug In connection



OEM AS-I Slaves



- PC-board Level Slave
- Relay Outputs
- For AC Control
- Powered by AS-I

Electrical

- Operating Current: <85 mA from AS-I (including all I/O)
- Output Current: <10 A total (through relays)

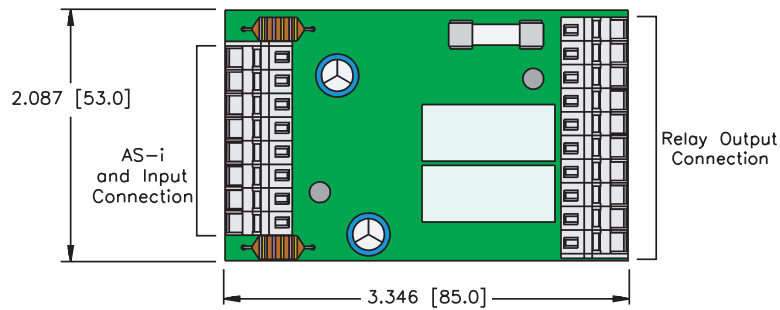
Power Distribution

- Inputs: AS-I supply
- Outputs: AS-I supply (switching)

Mechanical

- Operating Temperature: 0 to +60°C (+32 to +140°F)

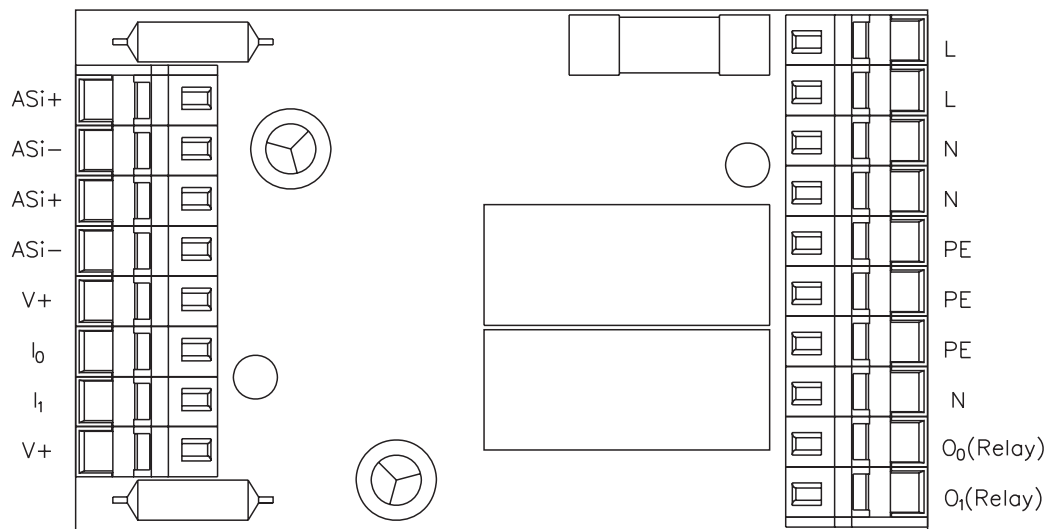
ASI-IOM-0202R-PCB BW1101



Part Number	Input Count	Output Count	Output Current (sum of all)	I/O Power Source	LEDs	Connector	A/B Address	Addresses Consumed	Slave Profile	Drawing	Pinout
ASI-10M-0202R-PCB BW1101	2	2	10 A	AS-I		CAG	N	1	B.F	R	J

Note: CAG=Cage Clamp connection

J



AS-interface

OEM Power Converter



ASI-OEM-PWR BW1485



- Coated PC-board
- Aux. Power From AS-I
- Can Eliminate the Need for a Separate Auxiliary Supply

Electrical

- Operating Voltage: 20 to 30 VDC (from AS-I)
- Output Current: <1.5 A

Mechanical

- Operating Temperature: -25 to +70°C (-13 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

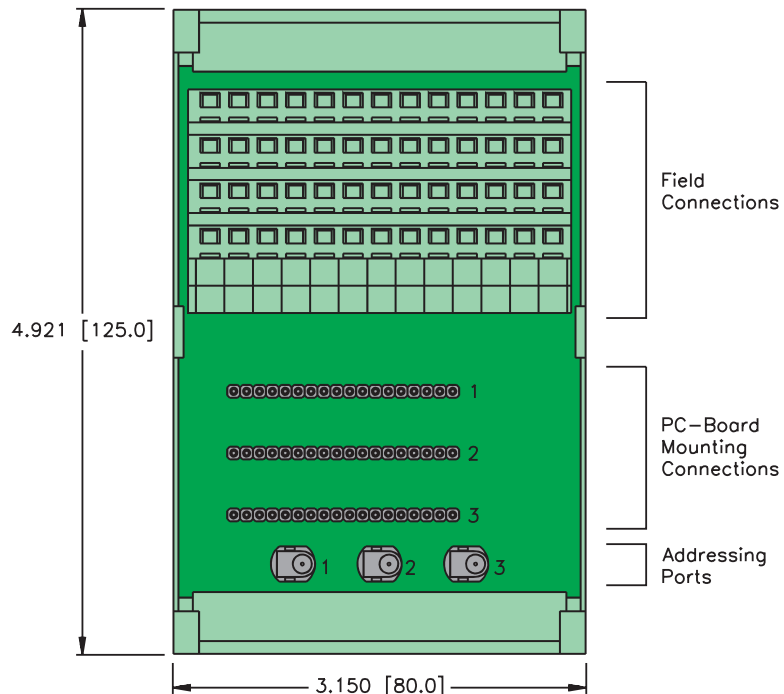
OEM AS-I Accessories



ASI-PCB-CARRIER BW1484



- Carrier of OEM Slaves
- Holds Up To 3 Boards
- Supports Wiring Pin Connections



Notes:

AS-I Power Supply



- Provide Decoupled Power to AS-I
- Status LEDs
- DIN-rail Mounting
- Maximum 4 A to AS-I

Electrical

- Input Voltage: 90 to 265 VAC (BW1649)
115 VAC or 230 VAC, switchable (BW1997)
- Input Current: ~0.6 A @ 230 VAC (BW1649)
~1.2 A @ 230 VAC (BW1997)
- Output Current: 4 A (BW1649)
8 A (BW1997)

Mechanical

- Operating Temperature: -10 to +55°C (-13 to +131°F)
- Protection: IP 20

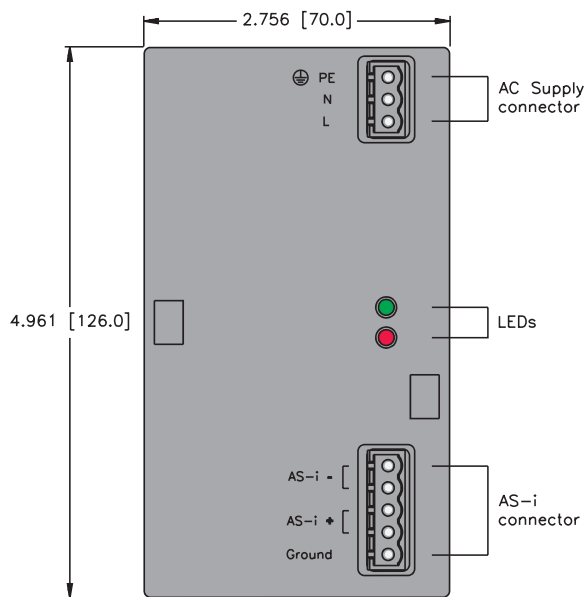
ASI-PS BW1649

ASI-PS-8A BW1997*

* Not UL listed

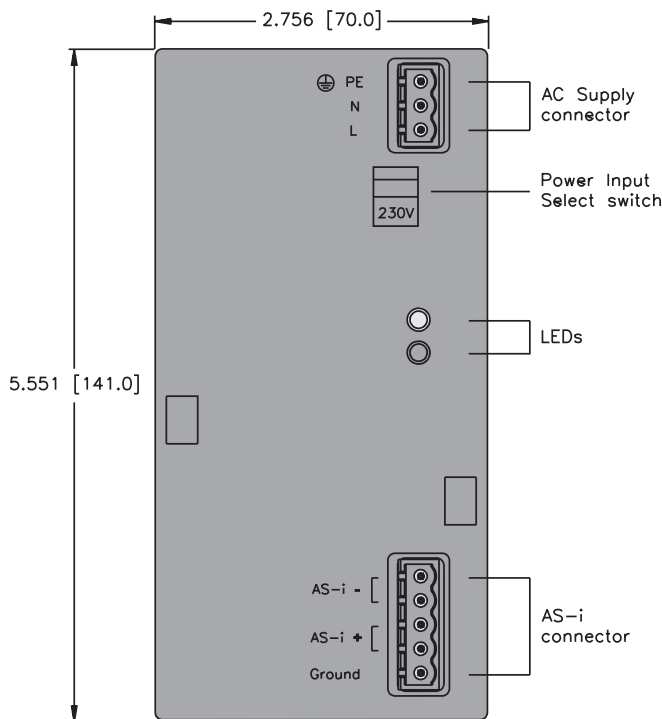


BW1649



Depth = 5.079 (129.0)

BW1997



Depth = 5.945 (151.0)

AS-I Power Supply



- Provide Decoupled Power to AS-I
- Status LEDs
- DIN-rail Mounting
- Power from 24VDC Supply

Electrical

- Input Voltage: 20 to 32 VDC (24 VDC nominal)
- Input Current: <6.3 A (fused internally)
- Output Voltage: 29.5 to 31.6 VDC, AS-I decoupled
- Output Current: 2 A

Mechanical

- Operating Temperature: 0 to +55°C (32 to +131°F)
- Protection: IP 20

ASI-PS-24/30VDC-2A BW1760



DC Power Supplies

- For Use With Stainless Steel AS-I Gateways
- 30 VDC Supplies
- Power One or More AS-I Networks with One Supply



Electrical

- Input Voltage: 93 to 132 VAC / 187 to 265 VAC
- Input Current: 0.9 A @ 230 VAC / 2.2 A @ 115 VAC (BW1597)
 1.8 A @ 230 VAC / 4.2 A @ 115 VAC (BW1593, BW1598)
- Output Current: 4 A, limited at 6 A (BW1597)
 8 A, limited at 12 A (BW1593, BW1598)

Mechanical

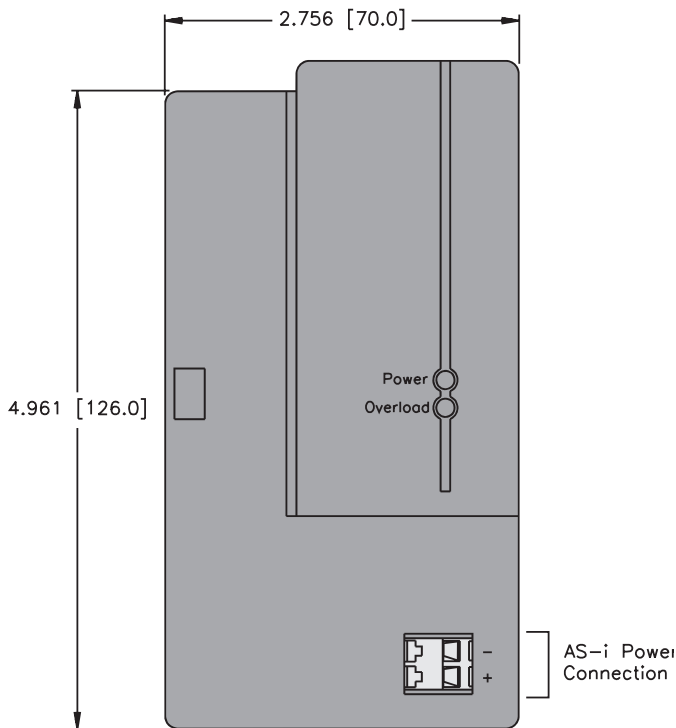
- Operating Temperature: 0 to +60°C (+32 to +140°F)

PS-30VDC-8A BW1593

PS-30VDC-4A-C1D2 BW1597*

PS-30VDC-8A-C1D2 BW1598*

* Not UL



3-Phase Power Supply



- For Use with AS-I Decoupling Products
- 30 VDC Output
- Power One or More AS-I Networks with One Supply

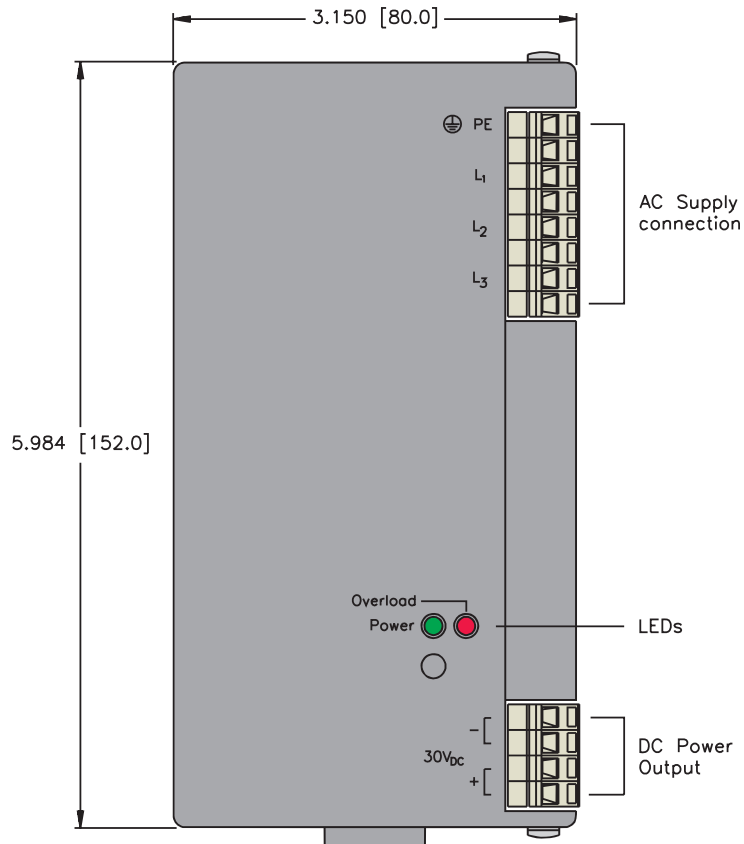
Electrical

- Input Voltage: 3 x 340 to 550 VAC (3-phase)
- Input Current: 3 x 0.7 A @ 400 VAC
- Output Current: <8 A (DC)

Mechanical

- Operating Temperature: 0 to +55°C (32 to +131°F)

PS-30VDC-3PH BW1676



AS-I Power Extenders

- Convert Standard Power to AS-I
- 2.8 or 4 A Available
- IP 65 Protection
- Use One Supply for Multiple Segments



- ASI-PE BW1197***
- ASI-PE BW1477***
- ASI-PE-2.8A-C1D2 BW1713**
- ASI-PE-4A-C1D2 BW1714**

* Not ETL Listed



Electrical

- Input Voltage: 30 VDC
- Output Voltage: 30 VDC
- Output Current: 2.8 A, limited to 3 A (BW1197, BW1713)
 4 A, limited to 6 A (BW1477, BW1714)

Mechanical

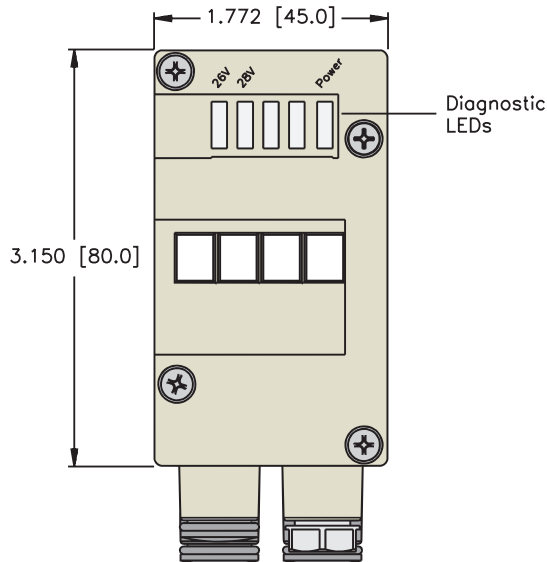
- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Protection: IP 65

Material

- Housing: Plastic

Diagnostics (Physical)

- LEDs to indicate power supply status



Note: AS-I and power connections are made via standard AS-I base modules with two isolated ports (ASI-BM BW1181 for flat cable, ASI-BM BW1183 for round cable with screw terminals). See pages E105-106.

AS-I Power Decoupler



ASI-PE-2 BW1943



- Convert Standard Power to AS-I
- 4 A per Network
- IP 20 Protection
- Use One Supply for Multiple Segments

Electrical

- Input Voltage: 30 VDC
- Output Voltage: 30 VDC
- Output Current: 4 A max. For each of up to 2 isolated AS-I networks

Mechanical

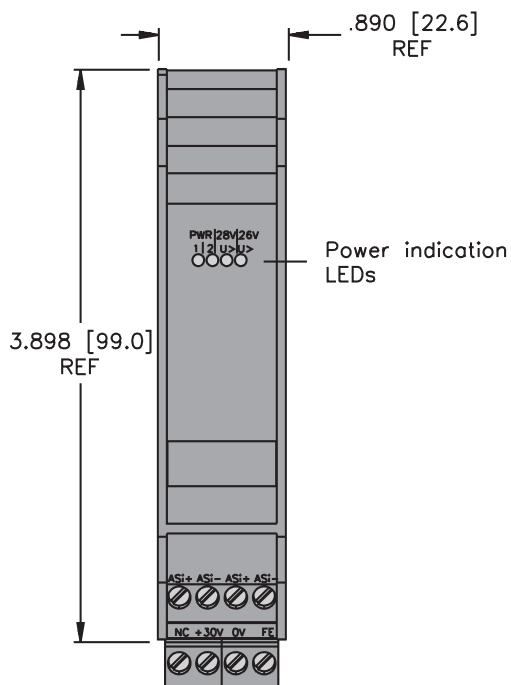
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

- Housing: Plastic

Diagnostics (Physical)

- LEDs to indicate power supply status



AS-I Safety Monitors

- AS-I Safety-at-Work
- 1 or 2 Safety Circuits
- Emergency Stop System over AS-I
- Fast Diagnosis of E-Stops



ASI-SM-1 BW1764
ASI-SM-2 BW1765



Electrical

- Operating Current: ~45 mA from AS-I
- ~150 mA (BW1764), ~200 mA (BW1765) from separate power
- Response Delay: <40 ms

Mechanical

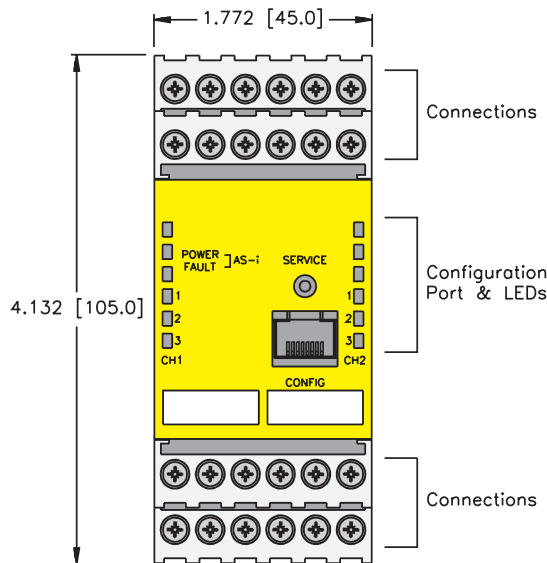
- Operating Temperature: -20 to +60°C (+32 to +131°F)
- Protection: IP 20

Diagnostics (Logical)

- E-stop fault information is transmitted via the AS-I master

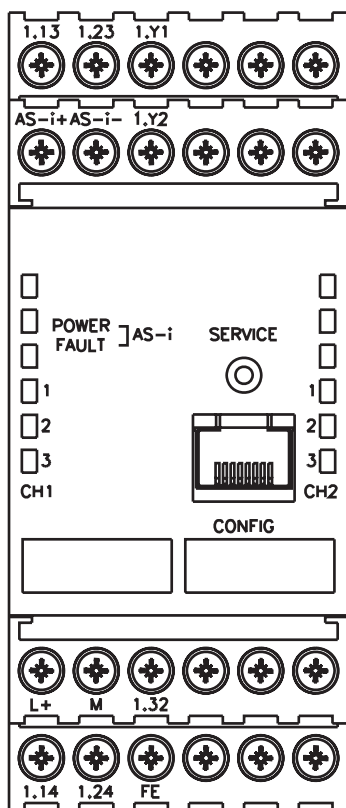
Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and e-stop system



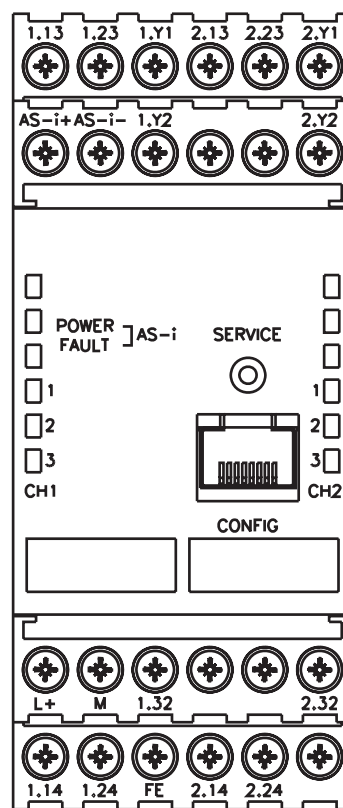
Part Number	Number of Safety Circuits	Connection Diagram	Configuration Port
ASI-SM-1 BW1764	1	A	X
ASI-SM-2 BW1765	2	B </td <td>X</td>	X

A



L+ = +24 VDC
M = Ref. Gnd
FE = Earth Gnd
1.Y1 = EDM 1
1.Y2 = Start 1
1.13/1.14 = Output 1
1.23/1.24 = Output 2
1.32 = Indicator Output

B



L+ = +24 VDC
M = Ref. Gnd
FE = Earth Gnd
1.Y1 = EDM 1
1.Y2 = Start 1
1.13/1.14 = Output 1 (Circuit 1)
1.23/1.24 = Output 2 (Circuit 1)
1.32 = Indicator Output (Circuit 1)
2.Y1 = EDM 2
2.Y2 = Start 2
2.13/2.14 = Output 1 (Circuit 2)
2.23/2.24 = Output 2 (Circuit 2)
2.32 = Indicator Output (Circuit 2)

Note: AS-I safety monitors are programmed via the ASIMON BW1770 software (sold separately).

OEM AS-I Safety Slaves



ASI-IOM-E0202A-PCB-ES BW1896

ASI-IOM-E0202A-PCB-ES BW1751

ASI-IOM-E0202A-PCB-ES BW1801



- PC-board Slaves
- AS-I Safety-at-Work
- Emergency Stop System Over AS-I
- Ideal for Push Button Stations

Electrical

- Operating Current: < 80 mA from AS-I
- Output Current: < 100 mA per output from aux. power

Power Distribution

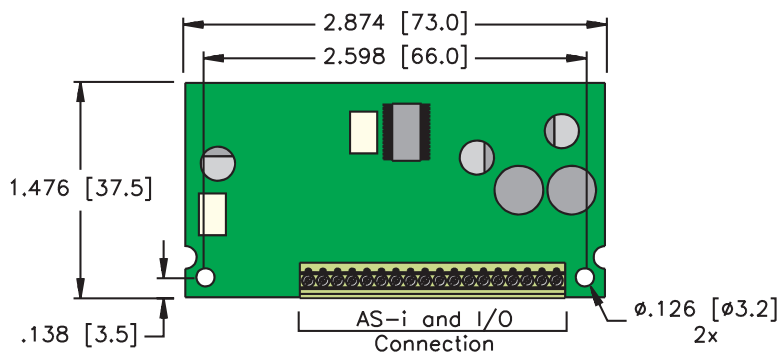
- Inputs: AS-I supply
- Outputs: Auxiliary supply

Mechanical

- Operating Temperature: 0 to +70°C (+32 to +158°F)
- Vibration: 15 g @ 10 to 55 Hz

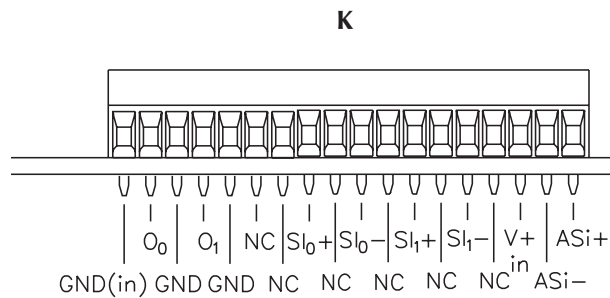
Diagnostics (Logical)

- AS-I safety information can be accessed from the safety monitor



Part Number	Input Count	Output Count	Output Current (sum of all)	I/O Power Source	LEDs	Connector	A/B Address	Addresses Consumed	Slave Profile	Drawing	Pinout
ASI-IOM-E0202A-PCB-ES BW1896	2	2	100 mA	AS-i/Aux		REM	N	1	7.B-0	S	K
ASI-IOM-E0202A-PCB-ES BW1751	2	2	100 mA	AS-i/Aux		SCR	N	1	7.B-0	S	K
ASI-IOM-E0202A-PCB-ES BW1801	2	2	100 mA	AS-i/Aux		PIN	N	1	7.B-0	S	K

Note: REM=Pull-out COMBICON style connection; SCR=Screw Terminal connection; PIN=Edge Pin connection



AS-I Couplers

- Connect 2 AS-I Networks Together
- Communicate Via Internal Slaves



ASI-CPL BW1187
ASI-CPL BW1280



Electrical

- Operating Current: <80 mA per AS-I Network

Power Distribution

- From each AS-I network

Mechanical

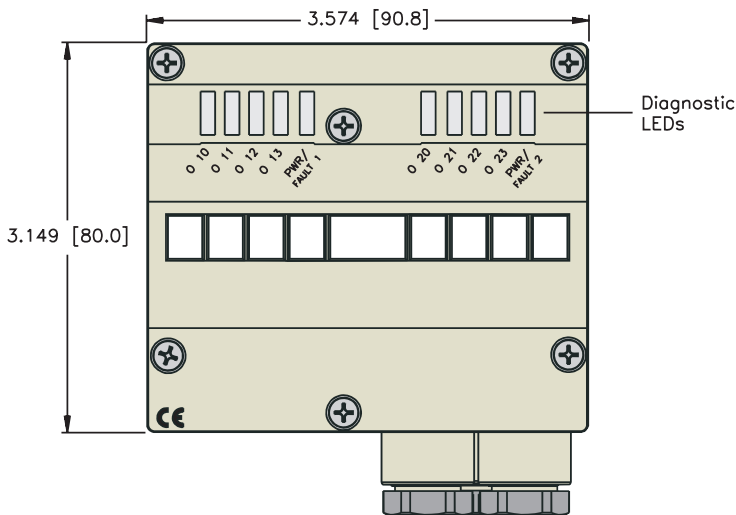
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20 (BW1187), IP65 (BW1280)

Material

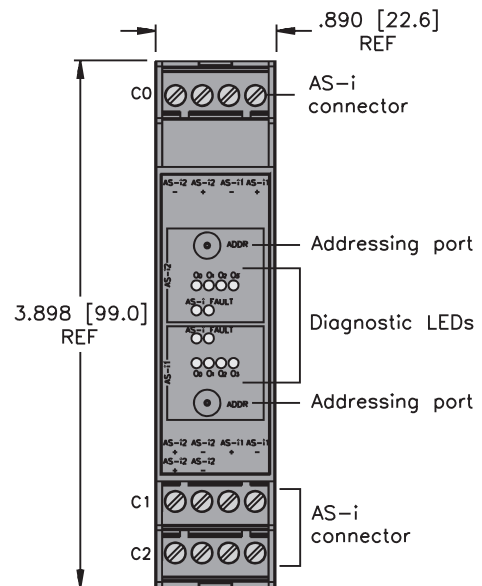
- Housing: Plastic

Diagnostics (Physical)

- LEDs to indicate status of AS-I communication and power supply



ASI-CPL BW1280



ASI-CPL BW1187

Note: ASI-CPL BW1280 makes connections to each AS-I network via standard base modules with two isolated ports (ASI-BM BW1181 for flat cable, ASI-BM BW1183 for round cable with screw terminals). See pages 105-106.

AS-interface® Couplers

AS-I Couplers provide a means to route data between two PLC's using AS-I. The couplers (similar to a DeviceNet™ spanner) directly connect AS-I networks, eliminating the need for a high level control network pyramid. This simple approach is extremely powerful and economical. It is simple because the coupler appears as a standard AS-I slave to each PLC; any AS-I scanner can send I/O data to the coupler without additional software or complex configuration procedures. It is economical because it replaces the high level control network, eliminating two control cards, wiring, conduit and programming.

Theory of Operation

A coupler transfers data between PLC A and PLC B by appearing as I/O to each PLC. The coupler immediately copies the output data from PLC A to the input data for PLC B. Similarly, PLC B's output data is copied to PLC A's input data. The data transfer may be four bits in each direction (the maximum allowable data size for one slave on one AS-I scan cycle).

Electrically

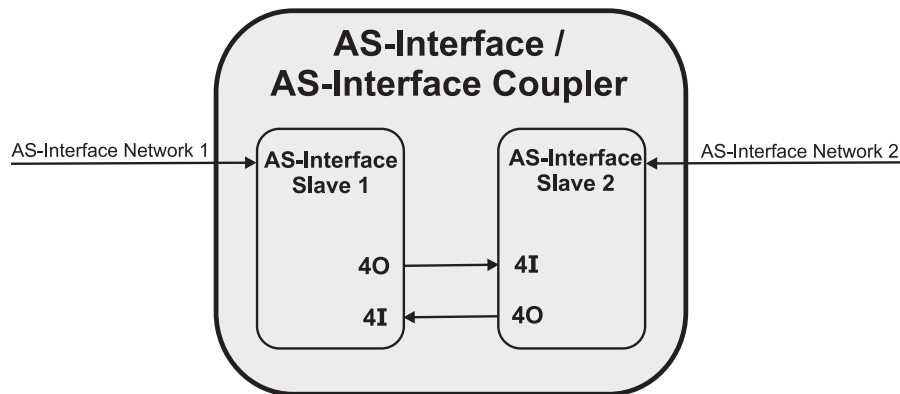
The coupler optically isolates network A from network B; the networks do not interact electrically in any way. The coupler is powered internally by the AS-I power supply for the two connected networks.

Addressing

Because the coupler is essentially two AS-I devices, one on network A and one on network B, it must be addressed as a slave on each network. The addresses for the two networks are independent of each other and do not need to be set to the same value.

Coupler Topology

The coupler is typically used to correct and coordinate multiple work cells.



Note: Physical AS-I connections are made via standard dual isolated port AS-I base modules (ASI-BM BW1181 for flat cable or ASI-BM BW1183 for round cable with screw terminal connections) on pages E105-106.

Network Master Simulators

- Connect AS-I Gateways to PC for Configuration and Troubleshooting
- Test and Troubleshoot Network Devices

MS-DP BW1131



MS-DP BW1131 is a PROFIBUS®-DP Master Simulator designed to connect PROFIBUS stations to a PC via the serial port. It is ideal for testing, troubleshooting and demonstrating PROFIBUS products. It communicates at rates up to 19.2 kbaud.

MS-DP BW1257



MS-DP BW1257 is a PROFIBUS-DP Master Simulator designed to connect PROFIBUS stations to a PC via the serial port. It features DPV1 communication capability. It is ideal for testing, troubleshooting and demonstrating PROFIBUS products. It communicates at rates up to 19.2 kbaud.

MS-DP BW1258



MS-DP BW1258 is a PROFIBUS-DP Master Simulator designed to connect PROFIBUS stations to a PC via the serial port. It features DPV1 communication capability. It is ideal for testing, troubleshooting and demonstrating PROFIBUS products. This version is powered from a separate 24 VDC supply, and communicates at rates up to 1.5 Mbaud.

IC-232-485 BW1094



IC-232-485 BW1094 is an interface converter that allows RS-485 devices to be connected to a PC RS232 serial port. It is used for connecting the RS-485 AS-I masters to the AS-I Control Tools software for configuration and maintenance.

MS-DN BW1420



MS-DN BW1420 is a DeviceNet™ Master Simulator designed to connect DeviceNet stations to a PC via the USB port. It is ideal for testing, troubleshooting and demonstrating DeviceNet products.

MS-DN BW1625



MS-DN BW1625 is a DeviceNet Master Simulator designed to connect DeviceNet stations to a PC via the PCI backplane. It is ideal for testing and troubleshooting DeviceNet products.

MS-CO BW1453



MS-CO BW1453 is a CANopen Master Simulator designed to connect CANopen stations to a PC via the USB port. It is ideal for testing, troubleshooting and demonstrating CANopen products.

CORD-DSUB BW1097



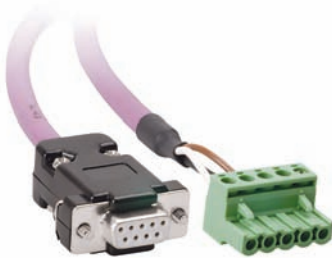
CORD-DSUB BW1097 is an RS-485 compatible cord that connects IP 65 masters and gateways (i.e. ASI-DPG BW1253) to a PC for commissioning and programming.

CORD-DSUB BW1058



CORD-DSUB BW1058 is a serial 9-in DSUB extension cord that connects masters and gateways to a PC for commissioning and programming.

CORD-DSUB BW1226



CORD-DSUB BW1226 is a CAN compatible cord that connects DeviceNet™ and CANopen gateways to the DeviceNet master simulators (BW1420, BW1625) for commissioning and programming.

ASI-PD BW1646



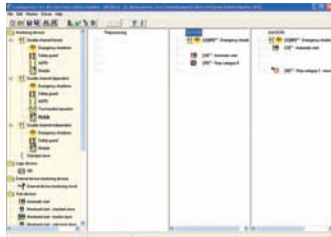
ASI-PD BW1646 is a handheld addressing tool for AS-I. It also allows the user to test I/O and slave functionality.

ASI-ANALYZER BW1415



The **ASI-ANALYZER BW1415** is a diagnostic and troubleshooting tool for AS-I systems. The analyzer displays the status of each slave on the network, as well as other details (such as power supply level), and can be used to provide diagnostics for low level AS-I messages. It allows the user to track and observe potential communication failures before they become real problems.

ASI-MON BW1770



ASI-MON BW1770 is a Windows program for use in configuring and diagnosing AS-I Safety at Work systems using the AS-I Safety Monitors. Connection to the safety monitors is made via the PC serial port.

ASI-SIM-SW BW1902

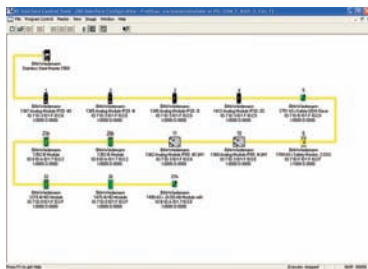


ASI-SIM-SW BE1902 is a MS Windows program that allows simulation and download of AS-I control programs for supported AS-I masters (masters with mini PLC capability). The package includes the ASI-SIM software, ASI-CT BW1203 AS-I Control Tools program and a cable to connect to the stainless steel programming port.

ASI-CT-SS BW1602

ASI-CT-AB BW1563

ASI-CT BW1203



AS-I Control Tools is a MS Windows program for commissioning and programming Bihl+Wiedemann AS-I masters and gateways. The program allows the user to set addresses of slaves, test and manipulate I/O and view diagnostic information.

The **BW1602** package includes a cable to connect gateways in the stainless steel housing to a PC serial port.

The **BW1563** package includes a cable to connect the ASI-SCAN-AB BW1416 and ASI-SCAN-AB BW1488 PLC cards to a PC serial port.

ASI-EVAL-KIT BW1565



The **ASI-EVAL-KIT BW1565** enables easy commissioning of the AS-I OEM master module (ASI-MM-PCB BW1670, p. E79-80). The carrier board has a 5 V controller and an RS232 converter to communicate with the OEM module via the AS-I Control Tools software. The board also has a terminal connector for connection to the AS-I system.

The kit is designed to aid users in developing applications for the OEM AS-I masters.

ASI-TERM BW1644



ASI-TERM BW1644 is an AS-I terminator designed to allow an AS-I segment to be extended up to 200 m. It includes an LED for basic system diagnostic information. It is a passive device, used in a similar manner to the active AS-I tuner (pages E69-70).

AS-I Standard Base Modules

- Connect IP 65 Stations to AS-I and Power
- Round or Flat Cable Supported

ASI-BM BW1180



Standard AS-I base module with two AS-I flat cable ports.

ASI-BM BW1181



Standard AS-I base module with one AS-I flat cable port and one isolated flat cable port. For use with AS-I devices requiring two separate connections (i.e. repeaters, power extenders, couplers, slaves with auxiliary powered I/O).

ASI-BM BW1438



Standard AS-I base module with two AS-I flat cable ports. Includes addressing port for handheld device.

ASI-BM BW1182



Standard AS-I base module with two AS-I round cable ports. Connections are made via screw terminals.

ASI-BM BW1183



Standard AS-I base module with one AS-I round cable port and one isolated round cable port. For use with AS-I devices requiring two separate connections (i.e. repeaters, power extenders, couplers, slaves with auxiliary powered I/O). Connections are made via screw terminals.

AS-interface®, Selection Guide



Cables	Junctions	Conduit Adapters
N4 - N8	N9 - N27	N29



Tees	Gender Changers	Field Wireable Tees
N31	N32	N33



Flat Cable and Adapters	Receptacles	Field Wireable Connectors
N34	N35 - N42	N43

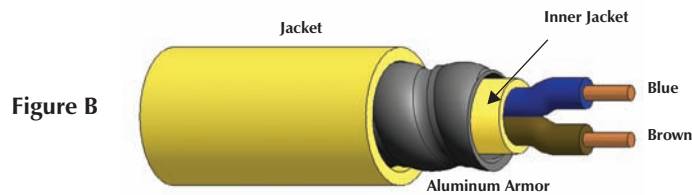
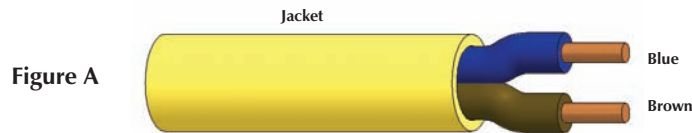
AS-interface Media



Notes:

AS-interface[®], Cable Specifications

- AS-interface Cable that Meets the Requirements of EN50295e for Communication up to 167 Kbaud
- Maximum Cable Length per Segment is 100 Meters



Type	Approvals	Data Pair		Outer Jacket	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.		
252BK AWM 2517 105°C 300 Volts	NEC ITC PLTC CEC [CMG]	2/18 AWG BU/BN	6.6 Ohms PVC	PVC Black 6.0 mm (.235 in)	RB50791-*M 34.4 lbs.	A
254 AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring Direct Burial CEC [CMG]	2/16 AWG BU/BN	4.1 Ohms PVC/Nylon	PVC Yellow 7.3 mm (.285 in)	RB50852-*M 53 lbs.	A
254B AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring Direct Burial CEC [CMG]	2/16 AWG BU/BN	4.1 Ohms PVC/Nylon	PVC Blue 7.3 mm (.285 in)	RB50962-*M 53 lbs.	A
255A 105°C 300 Volts	NEC ITC PLTC CEC [CMG] HL BCD	2/16 AWG BU/BN	4.1 Ohms PVC	Armor PVC Yellow 13.5 mm (.530 in)	RB50966-*M 105 lbs. <i>armorfast</i> [®]	B
256 AWM 21002 105°C 600 Volts	NEC AWM CEC AWM I/II A/B FT1	2/16 AWG BU/BN	4.5 Ohms PE	TPE Yellow 6.2 mm (.244 in)	RB51179-*M 36 lbs. <i>flexlife-10</i> [®] †	A
257 AWM 21002 105°C 300 Volts	NEC PLTC/ITC CEC AWM I/II A/B FT4	2/16 AWG BU/BN	4.1 Ohms PE	PUR Yellow 7.3 mm (.285 in)	RB51178-*M 53 lbs.	A

* Indicates length in meters.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

† See page A6 for *flexlife-10* performance.

AS-interface®, Cable and Cordset Selection Matrix

		minifast®				eurofast®
		Pin (Male)		Socket (Female)		Pin (Male)
		1 RSM	2 WSM	3 RKM	4 WKM	5 RSC
Bare		RSM 25x-*M	WSM 25x-*M	RKM 25x-*M	WKM 25x-*M	RSC 25x-*M
minifast	Pin (Male)	1 RSM RSM RSM 25x-*M	RSM WSM 25x-*M	RSM RKM 25x-*M	RSM WKM 25x-*M	RSM RSC 25x-*M
	Socket (Female)	2 WSM WSM WSM 25x-*M	WSM RKM 25x-*M	WSM WKM 25x-*M	WSM RSC 25x-*M	
	Socket (Female)	3 RKM RKM RKM 25x-*M		RKM WKM 25x-*M	RKM RSC 25x-*M	
	Socket (Female)	4 WKM WKM WKM 25x-*M			WKM RSC 25x-*M	
eurofast	Pin (Male)	5 RSC RSC RSC 25x-*M				
	Pin (Male)	6 WSC				
	Socket (Female)	7 RKC				
	Socket (Female)	8 WKC				

See pages N7-N8 for dimensional drawings.

* Indicates length in meters.

x Indicates cable type.

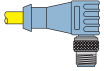
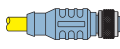
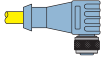
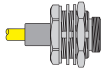
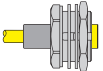
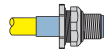
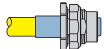
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM... to RSV, WSM... to WSV. For **eurofast armorfast**® change part number RSC... to RSA.

minifast		Pinouts	eurofast	
Male	Female	1. Brown (+ Voltage) 2. N/C 3. Blue (- Voltage) 4. N/C	Male	Female

AS-interface® , Cable and Cordset Selection Matrix

<i>euofast</i> ®			<i>minifast</i> ® Bulkhead		<i>euofast</i> Bulkhead	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6  WSC	7  RKC	8  WKC	9  RSFP	10  RKFP	11  FSFD	12  FKFD
WSC 25x-*M	RKC 25x-*M	WKC 25x-*M	RSFP 25x-*M	RKFP 25x-*M	FSFD 25x-*M	FKFD 25x-*M
RSM WSC 25x-*M	RSM RKC 25x-*M	RSM WKC 25x-*M	RSM RSFP 25x-*M	RSM RKFP 25x-*M	RSM FSFD 25x-*M	RSM FKFD 25x-*M
WSM WSC 25x-*M	WSM RKC 25x-*M	WSM WKC 25x-*M	WSM RSFP 25x-*M	WSM RKFP 25x-*M	WSM FSFD 25x-*M	WSM FKFD 25x-*M
RKM WSC 25x-*M	RKM RKC 25x-*M	RKM WKC 25x-*M	RKM RSFP 25x-*M	RKM RKFP 25x-*M	RKM FSFD 25x-*M	RKM FKFD 25x-*M
WKM WSC 25x-*M	WKM RKC 25x-*M	WKM WKC 25x-*M	WKM RSFP 25x-*M	WKM RKFP 25x-*M	WKM FSFD 25x-*M	WKM FKFD 25x-*M
RSC WSC 25x-*M	RSC RKC 25x-*M	RSC WKC 25x-*M	RSC RSFP 25x-*M	RSC RKFP 25x-*M	RSC FSFD 25x-*M	RSC FKFD 25x-*M
WSC WSC 25x-*M	WSC RKC 25x-*M	WSC WKC 25x-*M	WSC RSFP 25x-*M	WSC RKFP 25x-*M	WSC FSFD 25x-*M	WSC FKFD 25x-*M
	RKC RKC 25x-*M	RKC WKC 25x-*M	RKC RSFP 25x-*M	RKC RKFP 25x-*M	RKC FSFD 25x-*M	RKC FKFD 25x-*M
		WKC WKC 25x-*M	WKC RSFP 25x-*M	WKC RKFP 25x-*M	WKC FSFD 25x-*M	WKC FKFD 25x-*M

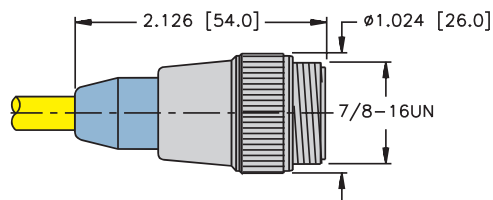
AS-interface Media

AS-interface®, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Housing: PUR (Polyurethane)
Coupling Nut: Nickel Plated CuZn or Stainless Steel
Contact Carrier: TPU (Polyurethane)
Contacts: Gold Plated CuZn
Protection: NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage: 300 V
Rated Current: 9 A
Ambient Temperature: -40° to +105°C (-40° to +221°F)

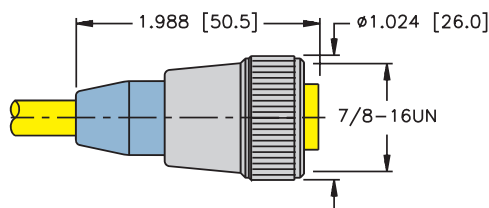
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RSM ..

Pages N5

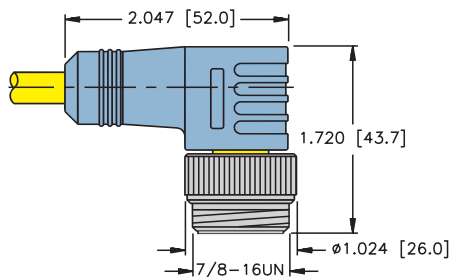
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RKM ..

Pages N5

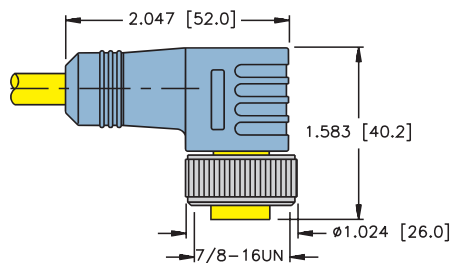
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WSM ..

Pages N5

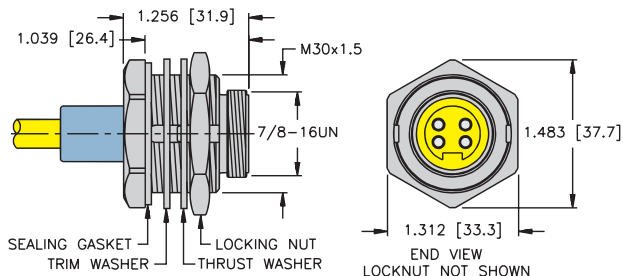
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WKM ..

Pages N5

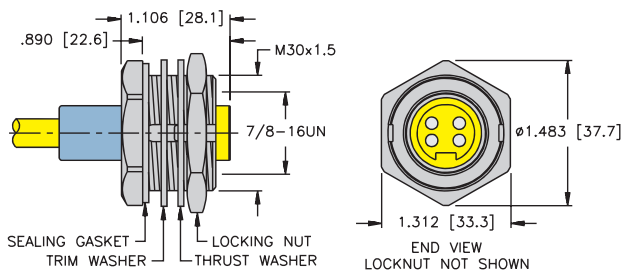
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RSFP ..

Pages N6

10



RKFP ..

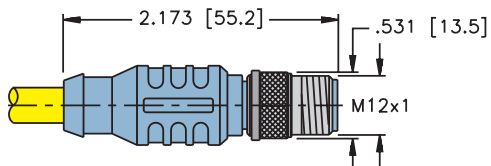
Pages N6

AS-interface®, eurofast® Cordset Connector Dimensions / Configuration

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40°C to +105°C (-40° to +221°F)

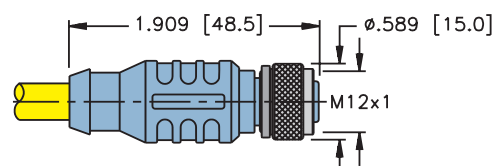
5



RSC ..

Pages N5 - N6

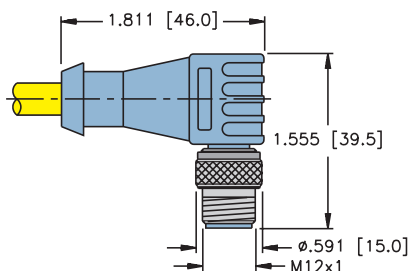
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RKC ..

Pages N5 - N6

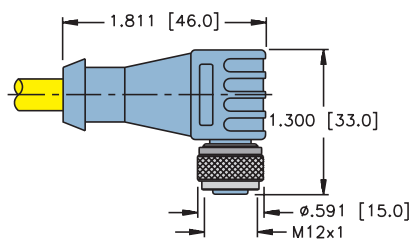
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WSC ..

Pages N5 - N6

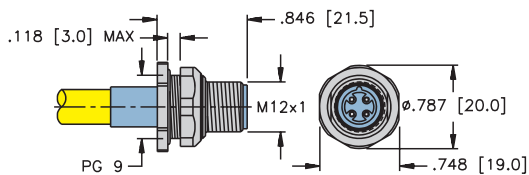
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WKC ..

Pages N5 - N6

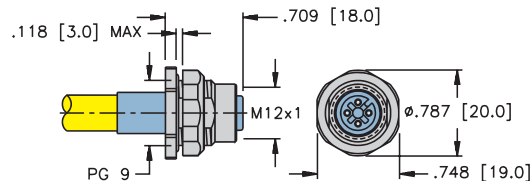
11



FSFD ..

Pages N5 - N6

12



FKFD ..

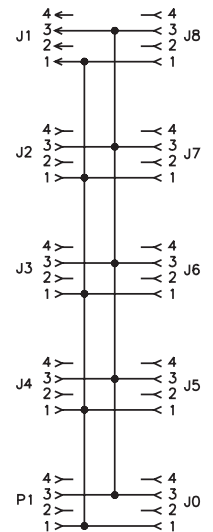
Pages N5 - N6

AS-interface Media

AS-interface®, *minifast*® to *euromast*® Passive Multiport Junction (Brick)

- For Connecting I/O in Concentrated Areas
- Available in Standard and With Short-Circuit Protection



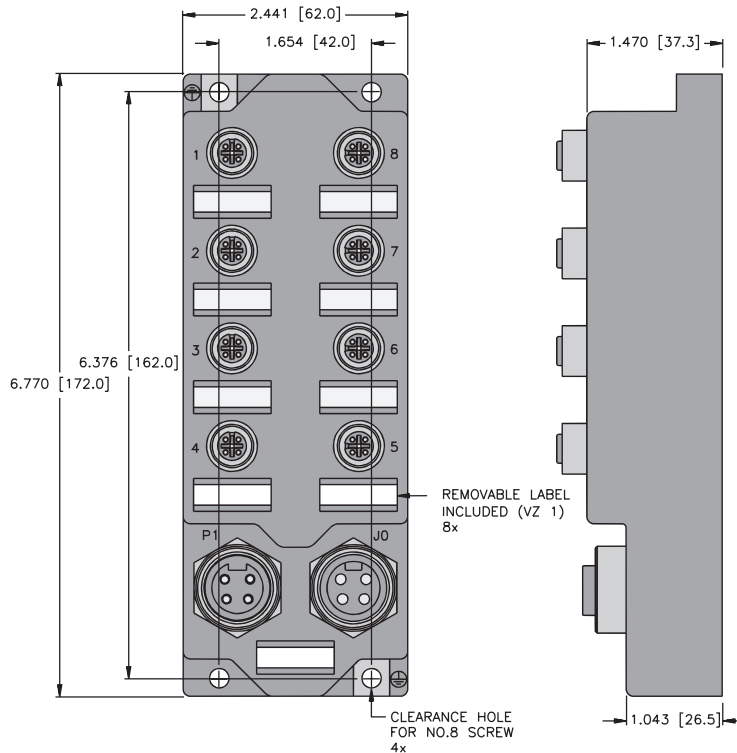
Part Number	Application	Wiring Diagram
<p>JBBS-25-E812</p>	<p>8 port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus-in/bus-out connections • Eight (M12x1) <i>euromast</i> device ports 	

Specifications

Housing:	POM (Nylon)
Coupling Nut:	Nickel Plated CuZn
Contact Carrier:	Nylon
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

8-port



AS-interface Media

Pinouts

<i>minifast</i>		<i>eurofast</i>	
Male	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C	Female	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C
		Female	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C



AS-interface®, *minifast*® Passive Multiport Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

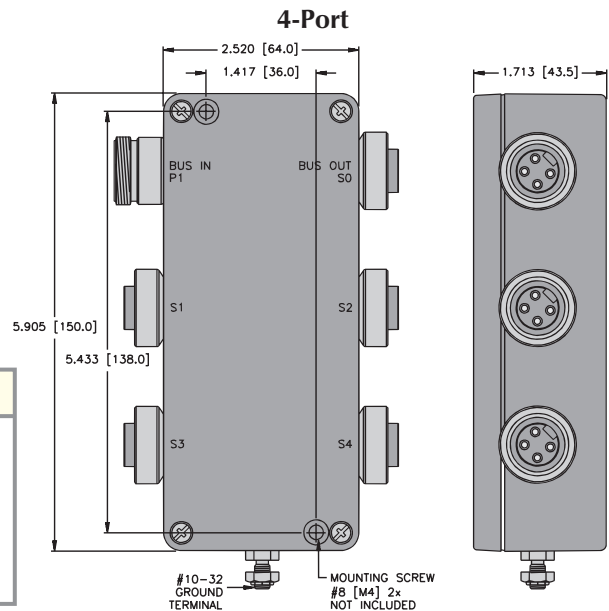
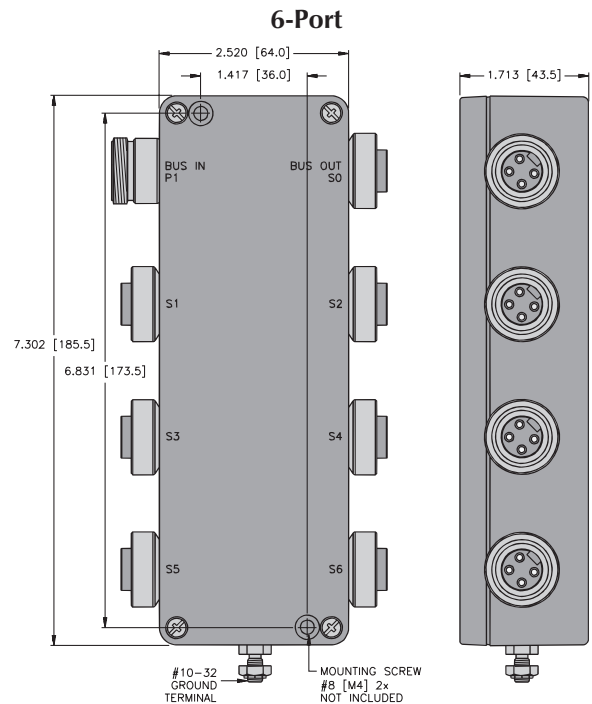
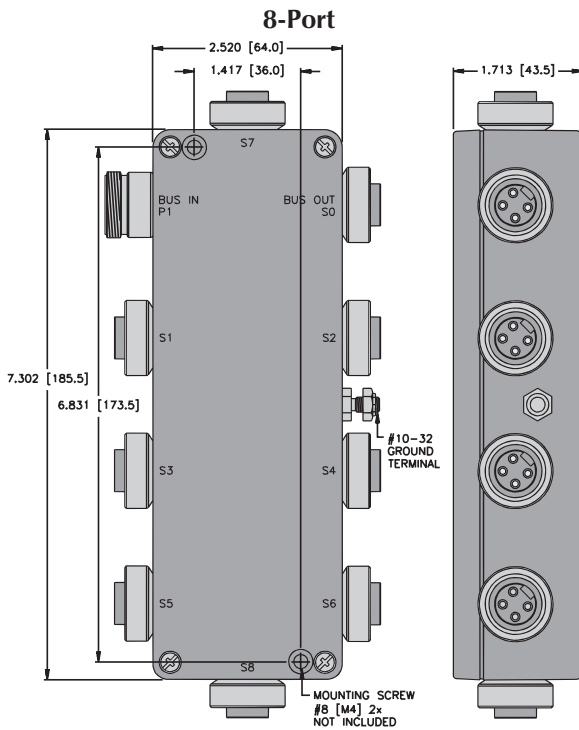


Part Number	Specs	Application	Wiring Diagrams
JBBS-25-M414	No short-circuit protection	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four <i>minifast</i> connectors for field devices 	
JBBS-25-M613 JBBS-25-M614	No short-circuit protection	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six <i>minifast</i> connectors for field devices 	
JBBS-25-M814	No short-circuit protection	<p>8-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Eight <i>minifast</i> connectors for field devices 	

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



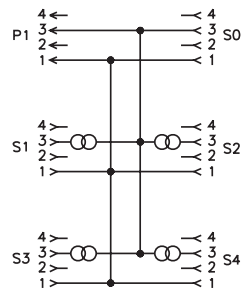
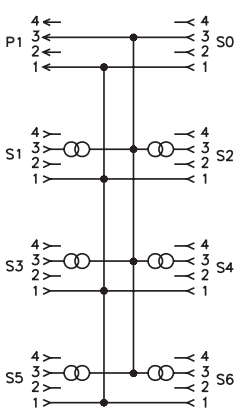
Pinouts

minifast			
Male		Female	
	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C		1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

AS-interface®, minifast® Passive Multiport Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

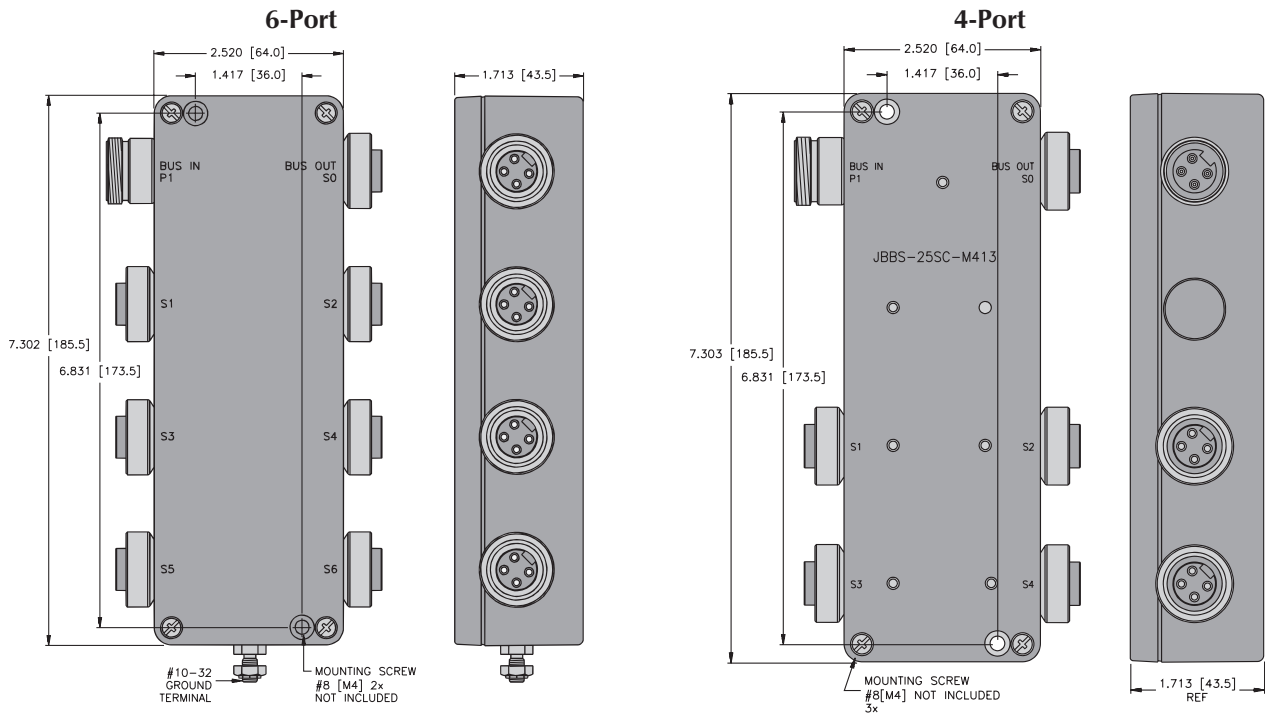


Part Number	Specs	Application	Wiring Diagrams
JBBS-25SC-M413	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) minifast <p>Four minifast connectors for field devices</p>	
JBBS-25SC-M613	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) minifast <p>Six minifast connectors for field devices</p>	

Specifications



Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



AS-interface Media

Pinouts

minifast			
Male		Female	
	1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C		1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C

AS-interface®, *eurofast*® Passive Multiport Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

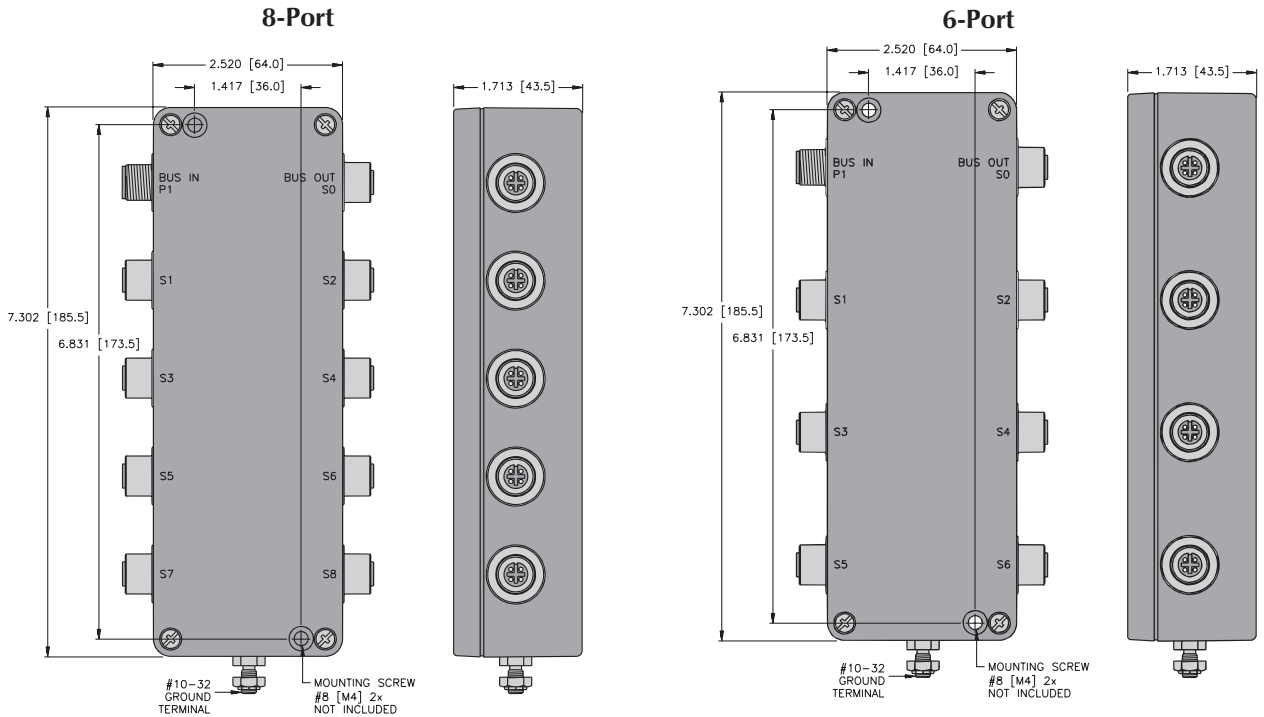


Part Number	Specs	Application	Wiring Diagrams
JBBS-25-E413	No short-circuit protection	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) <i>eurofast</i> • Four <i>eurofast</i> connectors for field devices 	
JBBS-25-E613	No short-circuit protection	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) <i>eurofast</i> • Six <i>eurofast</i> connectors for field devices 	
JBBS-25-E813	No short-circuit protection	8-port junction <ul style="list-style-type: none"> • bus in/bus out connections (M12x1) <i>eurofast</i> • eight <i>eurofast</i> connectors for field devices 	

Specifications

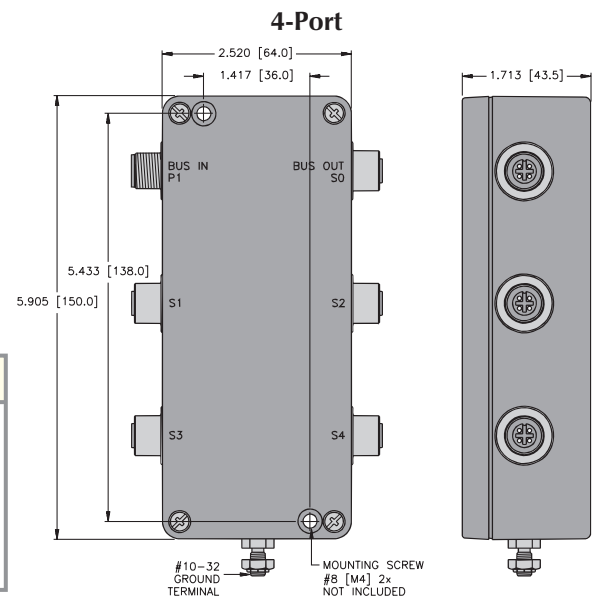
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



Pinouts

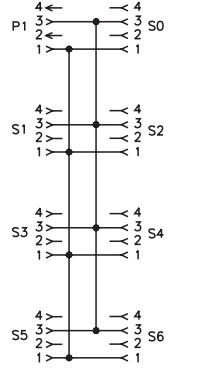
<i>euromast</i>			
Male		Female	
	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C		1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C



AS-interface®, *eurofast*® Passive Multiport Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

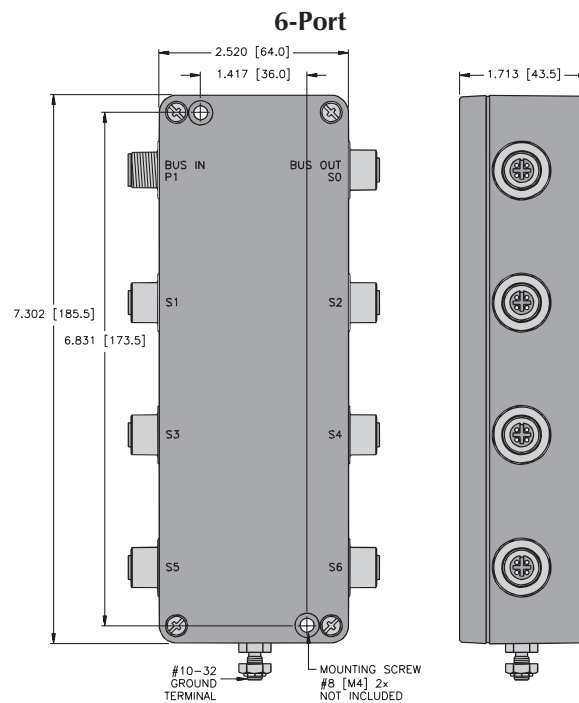


Part Number	Specs	Application	Wiring Diagrams
<p>JBBS-25-E623</p>	<p>No short-circuit protection</p>	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) <i>eurofast</i> • Six <i>eurofast</i> connectors for field devices 	

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



Pinouts

<i>eurofast</i>			
<p>Male</p>	<p>1 = Voltage + 2 = N/C 3 = Voltage - 4 = N/C</p>	<p>Female</p>	<p>1 = Voltage + 2 = N/C 3 = Voltage - 4 = N/C</p>

AS-interface®, eurofast® Passive Multiport Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Suitable for Outdoor Applications

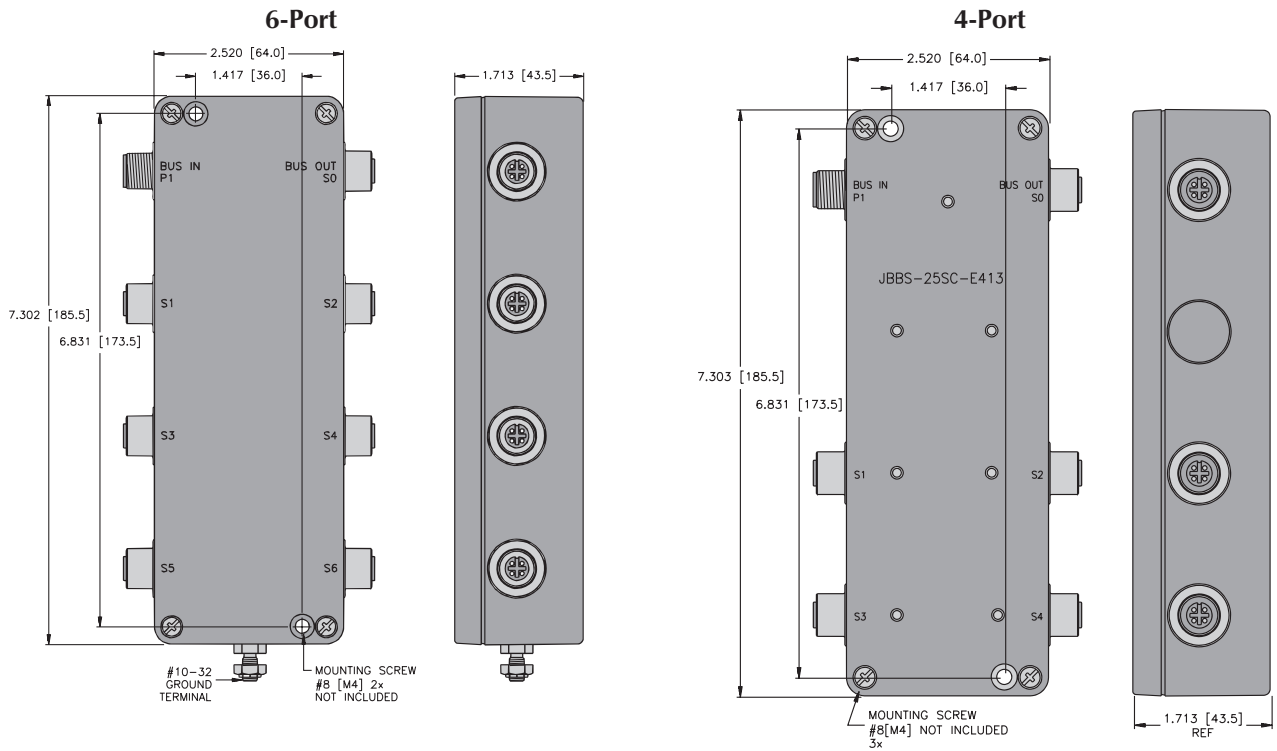


Part Number	Specs	Application	Wiring Diagrams
JBBS-25SC-E413	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> <p>Four <i>minifast</i> connectors for field devices</p>	
JBBS-25SC-E613	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> <p>Six <i>minifast</i> connectors for field devices</p>	

Specifications



Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	36 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions



AS-interface Media

Pinouts

<i>minifast</i>			
Male		Female	
	1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C		1 = BN (Voltage+) 2 = N/C 3 = BU (Voltage-) 4 = N/C



AS-interface®, *minifast*® Junction Tees

- Indoor Use Only
(for outdoor applications use JBBS family)
- Multi-port Junction Provides a Rugged Connection to Network Devices
- Bus-in/Bus-out Feature Eliminates Need for Splitter Tee
- Short-Circuit Protection Available



Part Number	Specs	Application	Wiring Diagrams
JTBS-25-M433	No short-circuit protection	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Four (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-M434 • Short-circuit threshold: 280 mA 	
JTBS-25-M633	No short-circuit protection	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-M634 • Short-circuit threshold: 280 mA 	

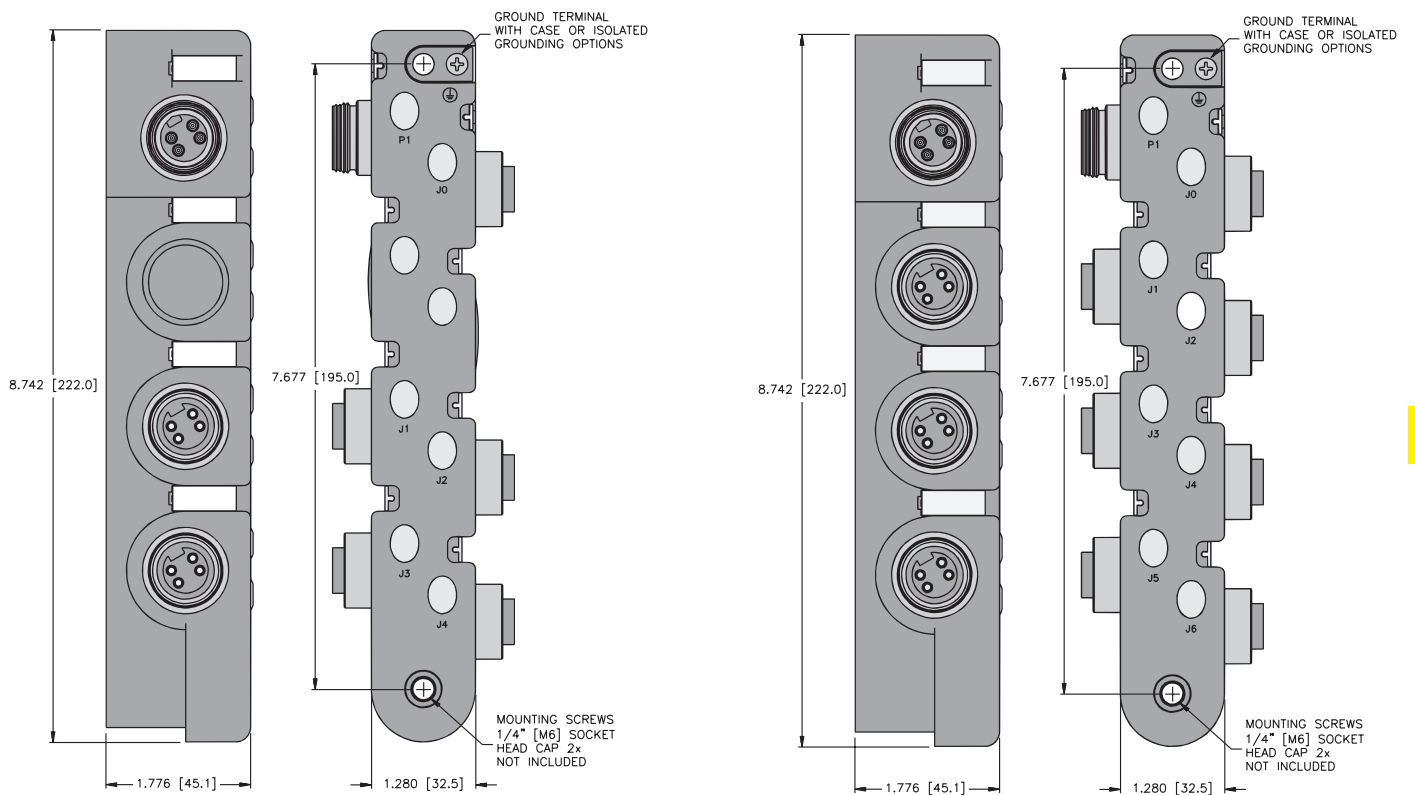
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6, 13 and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-30° to +80°C (-22° to +176°F)

Dimensions

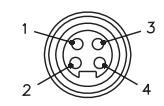
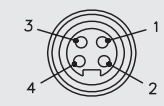
4-port

6-port



AS-interface Media

Pinouts

minifast			
Male		Female	
	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C		1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

AS-interface®, *minifast*® Junction Tees

- Indoor Use Only
(for outdoor applications use JBBS family)
- Multi-port Junction Provides a Rugged Connection to Network Devices
- Bus-in/Bus-out Feature Eliminates Need for Splitter Tee
- Short-Circuit Protection Available



Part Number	Specs	Application	Wiring Diagrams
JTBS-25SC-M433	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Four (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-M434 <p>Short-circuit threshold: 280 mA</p>	
JTBS-25SC-M633	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-M634 <p>Short-circuit threshold: 280 mA</p>	

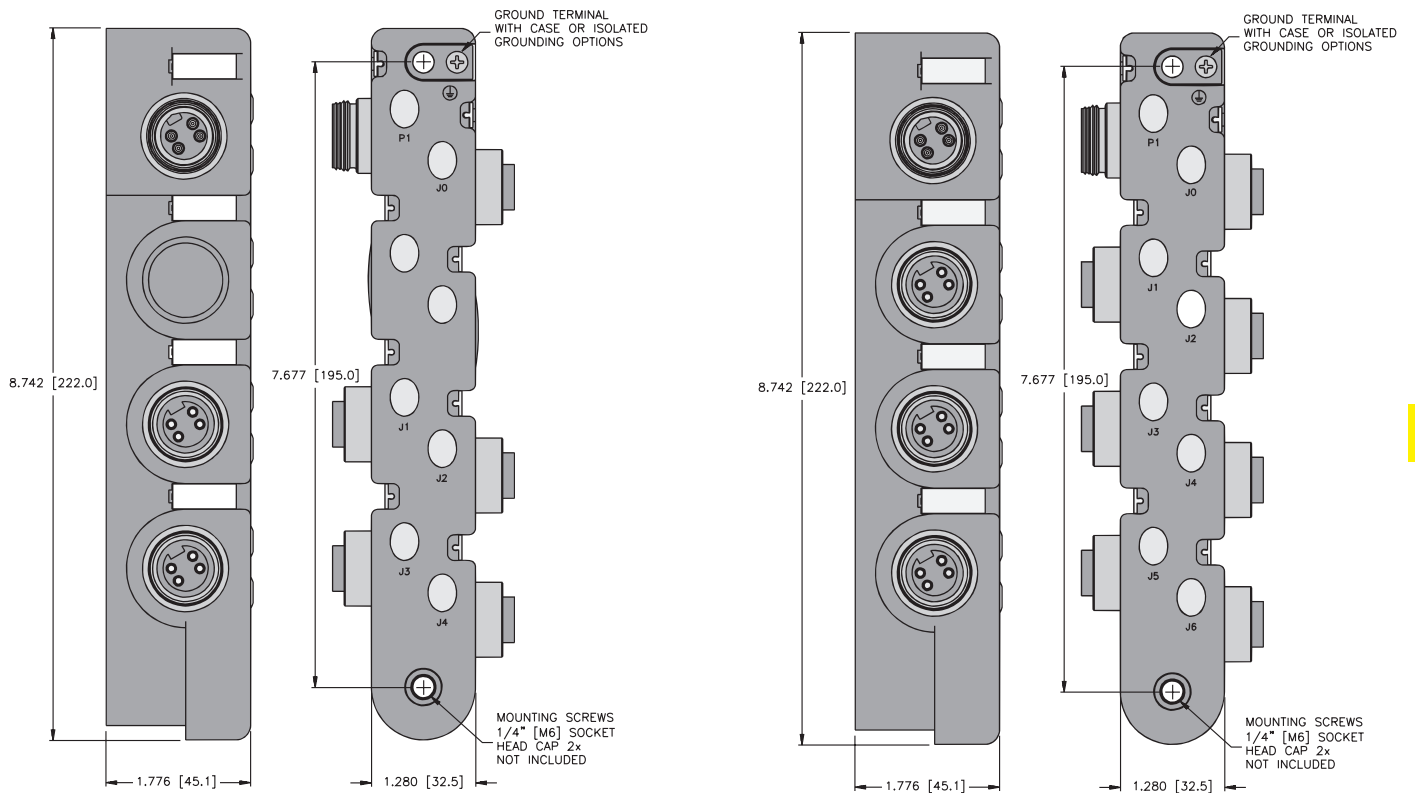
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6, 13 and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-30° to +80°C (-22° to +176°F)

Dimensions

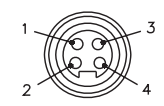
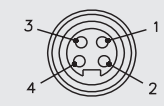
4-port

6-port



AS-interface Media

Pinouts

minifast			
Male		Female	
	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C		1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

AS-interface® *euromast*® Junction Tees

- Indoor Use Only
(for outdoor applications use JBBS family)
- Multi-port Junction Provides a Rugged Connection to Network Devices
- Bus-in/Bus-out Feature Eliminates Need for Splitter Tee
- Short-Circuit Protection Available



Part Number	Specs	Application	Wiring Diagrams
JTBS-25-E433	No short-circuit protection	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (M12x1) <i>euromast</i> bus in/bus out connections • Four (M12x1) <i>euromast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-E434 • Short-circuit threshold: 280 mA 	
JTBS-25-E633	No short-circuit protection	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (M12x1) <i>euromast</i> bus in/bus out connections • Six (M12x1) <i>euromast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-E634 • Short-circuit threshold: 280 mA 	

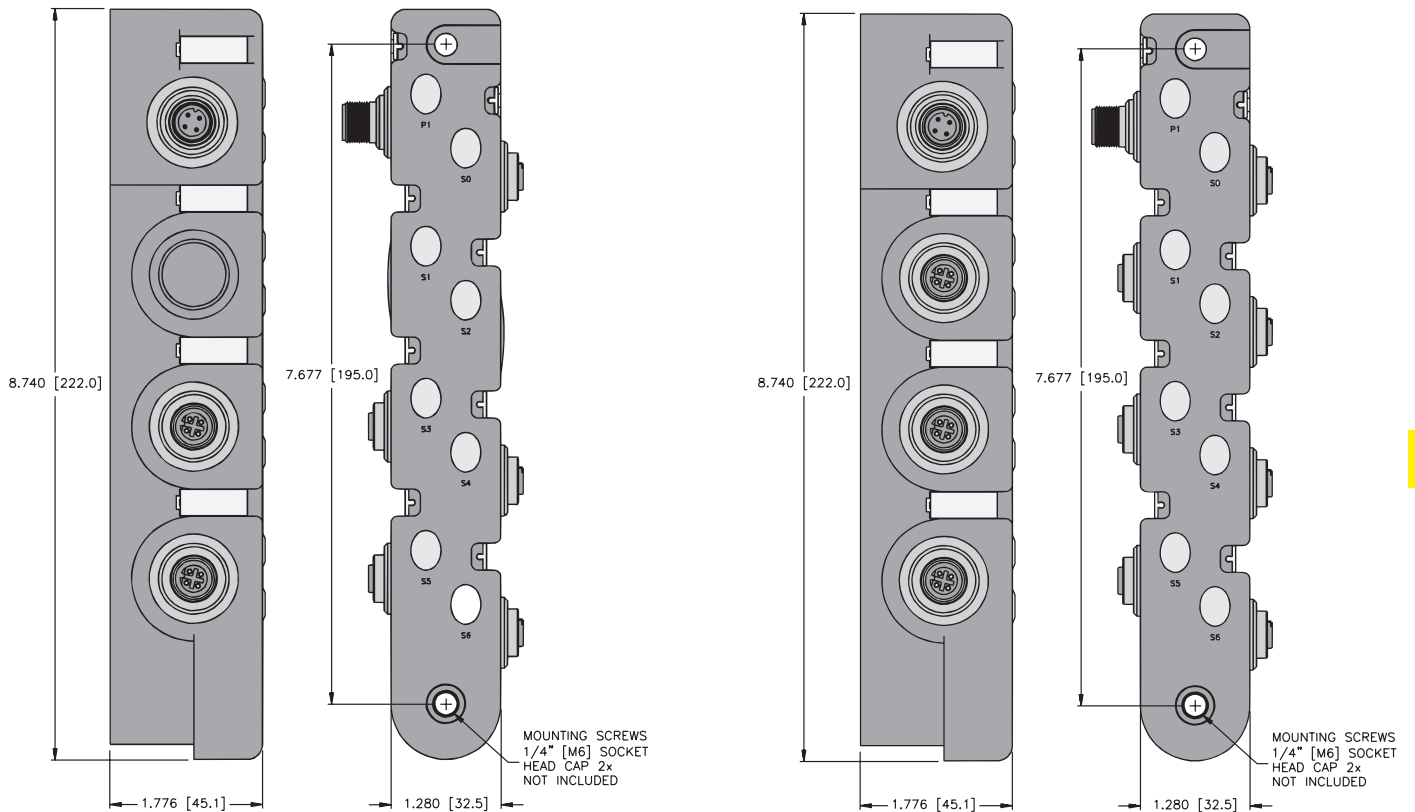
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

4-port

6-port



AS-interface Media

Pinouts

eurofast			
Male		Female	
	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C		1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

AS-interface® *euofast*® Junction Tees

- Indoor Use Only
(for outdoor applications use JBBS family)
- Multi-port Junction Provides a Rugged Connection to Network Devices
- Bus-in/Bus-out Feature Eliminates Need for Splitter Tee
- Short-Circuit Protection Available



Part Number	Specs	Application	Wiring Diagrams
JTBS-25SC-E433	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED Indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction Tee</p> <ul style="list-style-type: none"> • (M12x1) <i>euofast</i> bus in/bus out connections • Four (M12x1) <i>euofast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-E434 <p>Short-circuit threshold: 280 mA</p>	
JTBS-25SC-E633	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: 11 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction Tee</p> <ul style="list-style-type: none"> • (M12x1) <i>euofast</i> bus in/bus out connections • Six (M12x1) <i>euofast</i> device ports • For nickel plated brass connectors change part number to JTBS 25SC-E634 <p>Short-circuit threshold: 280 mA</p>	

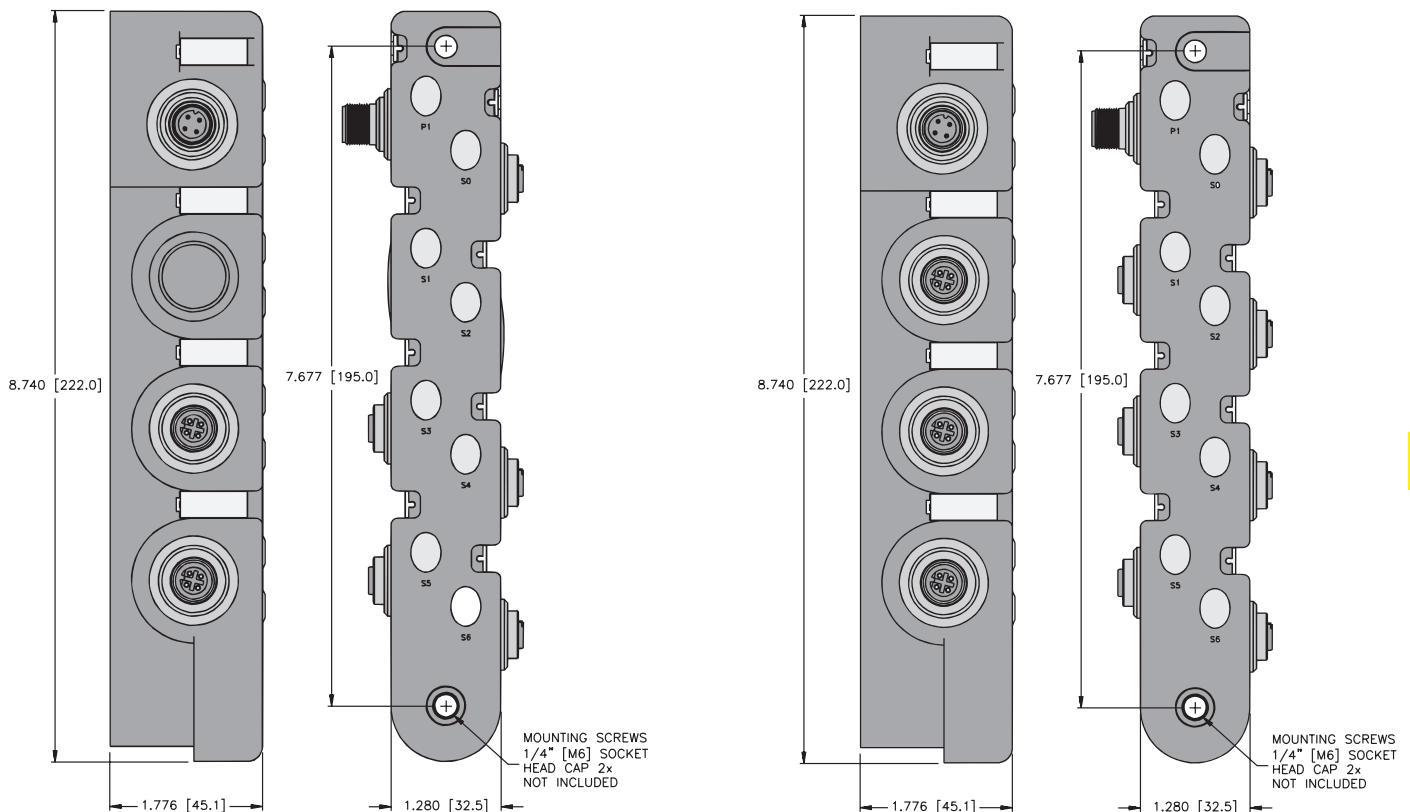
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

Dimensions

4-port

6-port



AS-interface Media

Pinouts

eurofast			
Male		Female	
	1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C		1 = Voltage+ 2 = N/C 3 = Voltage- 4 = N/C

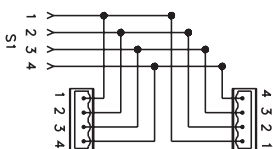
AS-interface®, *minifast*® Conduit Adapters

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

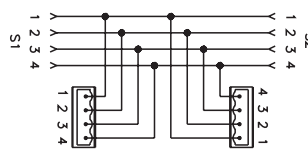


Housing	Part Number	Specs	Application	Pinout
	BCA 25-M123	Nylon Housing 300 V, 9 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (7/8-16UN) <i>minifast</i> connector	<p>Female</p>
	BCA 25-M223	Nylon Housing 300 V, 9 A -40° to +75°C	*Crouse Hinds 3/4" Form 8, Mark 9 or equivalent	

1-port Wiring Diagram



2-port Wiring Diagram



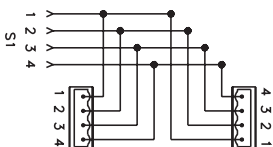
AS-interface®, eurofast® Conduit Adapters

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

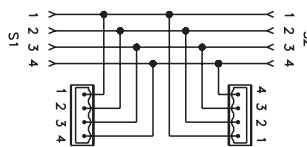


Housing	Part Number	Specs	Application	Pinout
	BCA 25-E123	Nylon Housing 250 V, 4 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast connector	<p>Female</p>
	BCA 25SC-E123	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA • Open circuit voltage: 33 VDC <p>Diagnostics</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		
	BCA 25-E223	Nylon Housing 250 V, 4 A -40°C to +75°C	*Crouse Hinds 3/4" Form 8, Mark 9 or equivalent	
	BCA 25SC-E223	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 280 mA • Open circuit voltage: 33 VDC <p>Diagnostics</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		

1-port Wiring Diagram



2-port Wiring Diagram



AS-interface® , Gender Changers and Elbow Connectors

- Allows Quick and Easy Change from Male to Female *minifast*® Connectors



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSM RSM 25		<i>minifast</i> Male Gender Changer <ul style="list-style-type: none"> • Female cordset to male receptacle 	
	RKM RKM 25	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	<i>minifast</i> Female Gender Changer <ul style="list-style-type: none"> • Male cordset to female receptacle 	
	WSM RKM 25		<i>minifast</i> Elbow <ul style="list-style-type: none"> • Right angle male to female connector 	

AS-interface Media

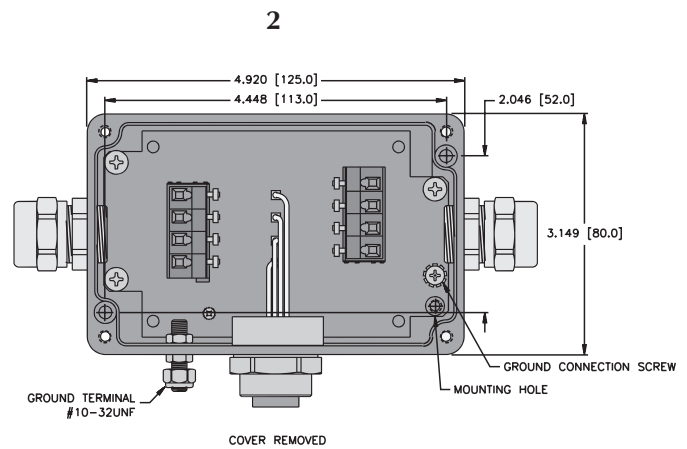
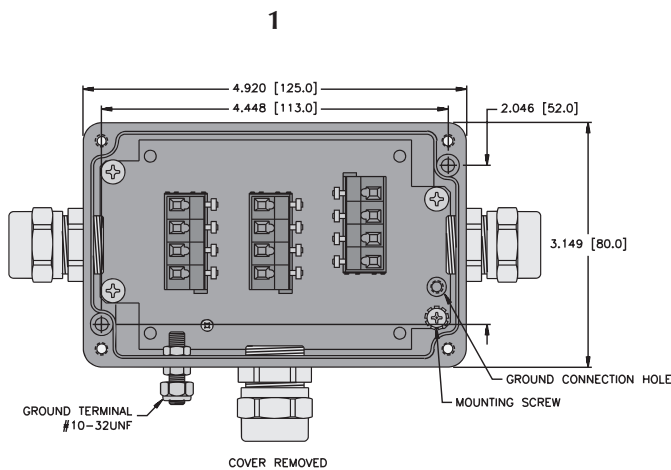
<i>minifast</i>	Pinouts	<i>minifast</i>
<p>Male</p>	1. Brown (+ Voltage) 2. N/C 3. Blue (- Voltage) 4. N/C	<p>Female</p>

AS-interface®, Field Wireable Tees

- A Hybrid Connection System Offering Reliable Connections on the Short Drops and Ease of Installation on the Long Trunk Runs
- Features Standard *minifast*® Connector for the Drop Connection and Terminal Connectors on the Trunk Connections



Housing	Part Number	Specs	Application	Pinout
See Drawing 1	SPTT1-A25	Anodized Aluminum 300 V, 9 A -40° to +75°C NEMA 1, 3, 4, 6P and IEC IP 68	Field wireable terminals and (7/8-16UN) <i>minifast</i> connector on drop connection	<p>Female</p>
See Drawing 2	SPTTM13-A25			



AS-interface®, eurofast® Flat Cable Adapter

- Allows the Mixing of Standard AS-I Flat Cable with eurofast Round Cable in Same System
- May be Needed when Going from a Dry to a Wet Environment or an Area Where Better Sealing and Rugged Connectors are Required



Housing	Part Number	Specs	Pinout
	ASI-PM-1 BW1238	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	
	ASI-PM-1 BW1239		
	ASI-PM 41		

AS-interface Media

	Type	Approvals	Data Pair		Outer Jacket	Bulk Cable Part Number / Weight/300 M
			AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	
	250 105°C 300 Volts		2/18 AWG BU/BN	6.5 Ohms TPE-S	TPE Yellow Flat	RB21603-*M 40 lbs.
	251 105°C 300 Volts		2/18 AWG BU/BN	6.5 Ohms TPE-S	TPE Black Flat	RB21605-*M 40 lbs.
	253 105°C 300 Volts	NEC ITC PLTC CEC [CMG]	2/18 AWG BU/BN	6.5 Ohms PVC	PVC Light Grey Flat	RB50782-*M 42 lbs.
	253G 105°C 300 Volts	NEC PLTC CEC AWM I/II A/B FT4	16 AWG BU/BN	4.1 Ohms PVC	TPE Grey Flat	RB51240-*M 42 lbs.
	253BK 105°C 300 Volts	NEC PLTC CEC AWM I/II A/B FT4	16 AWG BU/BN	4.1 Ohms PVC	TPE Black Flat	RB51241-*M 42 lbs.
	253Y 105°C 300 Volts	NEC PLTC CEC AWM I/II A/B FT4	16 AWG BU/BN	4.1 Ohms PVC	TPE Yellow Flat	RB51242-*M 42 lbs.

* Indicates length in meters. Standard cable lengths are 1, 2, 4, 5, 6, 8, 10, 15, and in +5 meter increments from there. Consult factory for other lengths.

AS-interface®, *minifast*® Male Receptacles

- Provides Quick Connection to Field Devices or Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads
- (7/8-16UN) *minifast* Connection



Housing	Part Number	Specs	Application	Pinouts
<p>13</p>	RSF 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	<p>Male</p>
<p>15</p>	RSF 25-*M/14.75		3/4-14NPT full length threads	
<p>14</p>	RSF 25-*M/M20		M20x1.5 threads	
<p>16</p>	RSF 25-*M		1/2-14NPSM threads	
<p>17</p>	RSF 25-*M/NPT		1/2-14NPT modified length threads	

See page N39 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.

Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

For locknuts to be included, add "W/LN" to the end of the part number.

AS-interface[®], minifast[®] Female Receptacles

- Provides Quick Connection to Field Devices or Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads
- (7/8-16UN) minifast Connection



Housing	Part Number	Specs	Application	Pinouts
<p>18</p>	RKF 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	Female
<p>20</p>	RKF 25-*M/14.75		3/4-14NPT full length threads	
<p>19</p>	RKF 25-*M/M20		M20x1.5 threads	
<p>21</p>	RKF 25-*M		1/2-14NPSM threads	
<p>22</p>	RKF 25-*M/NPT		1/2-14NPT modified length threads	

AS-interface Media

See page N40 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.
 Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.
 Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.
 For locknuts to be included, add "W/LN" to the end of the part number.

AS-interface®, eurofast® Male Receptacles

- Mounted for Quick Connection to Enclosures
- (M12x1) eurofast Connectors



Housing	Part Number	Specs	Application	Pinout
<p>33</p>	FS 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	<p>Male</p>
<p>35</p>	FS 25-*M/14.75		3/4-14NPT full length threads	
<p>34</p>	FS 25-*M/M20		M20x1.5 threads	
<p>36</p>	FS 25-*M		PG 9 threads	
<p>37</p>	FS 25-*M/NPT		1/2-14NPT modified length threads	

See page N41 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.

Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

AS-interface® , eurofast® Female Receptacles

- Mounted for Quick Connection to Enclosures
- (M12x1) eurofast Connectors



Housing	Part Number	Specs	Application	Pinouts
<p>28</p>	FK 25-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	<p>Female</p>
<p>30</p>	FK 25-*M/14.75		3/4-14NPT full length threads	
<p>29</p>	FK 25-*M/M20		M20x1.5 threads	
<p>31</p>	FK 25-*M		PG 9 threads	
<p>32</p>	FK 25-*M/NPT		1/2-14NPT modified length threads	

AS-interface Media

See page N42 for dimensional drawings.

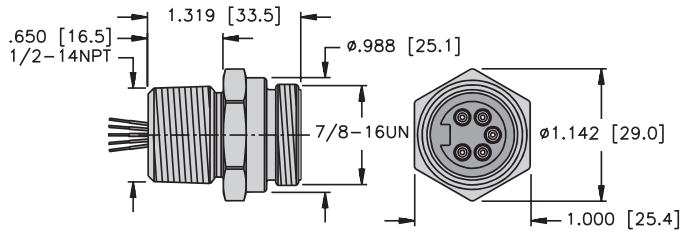
Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.

Standard housing material is nickel plated brass. "RKF .."; "RKFV .." indicates 316 stainless steel housing.

minifast® Male Receptacles

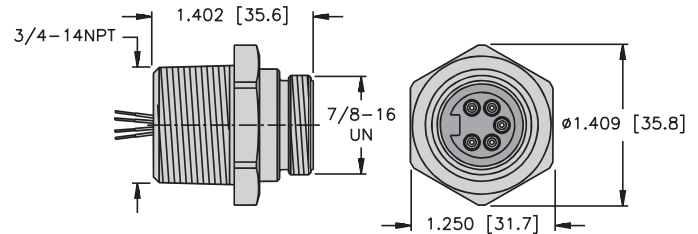
13



RSF .. 14.5

Page N35

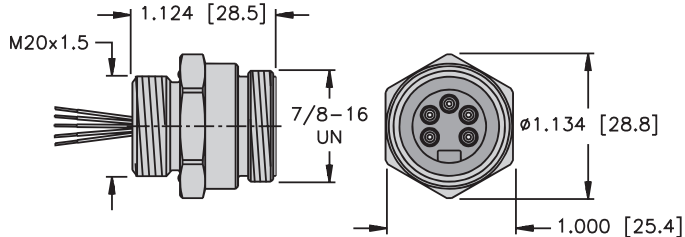
15



RSF .. 14.75

Page N35

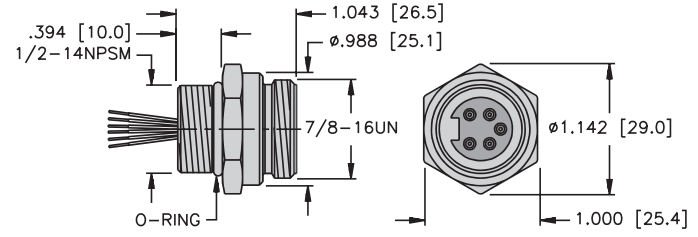
14



RSF .. M20

Page N35

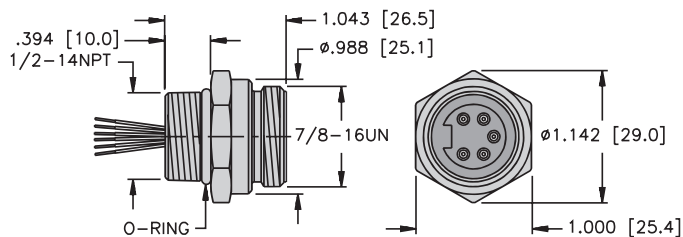
16



RSF ..

Page N35

17

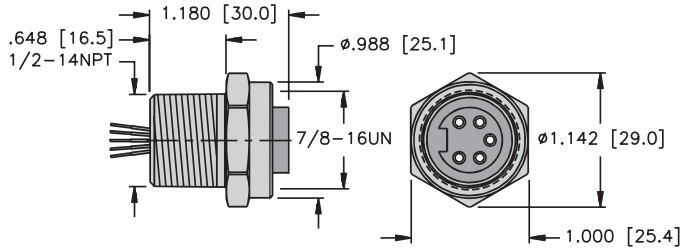


RSF .. NPT

Page N35

minifast® Female Receptacles

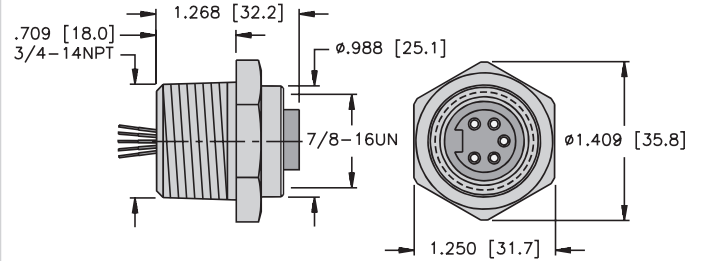
18



RKF .. 14.5

Page N36

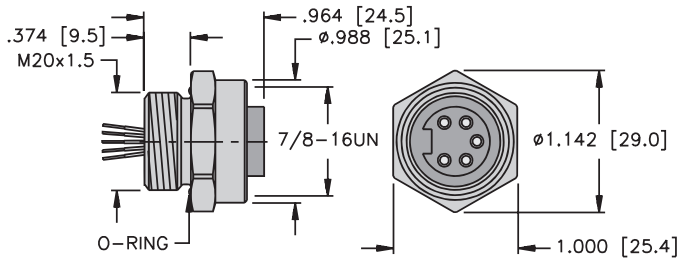
20



RKF .. 14.75

Page N36

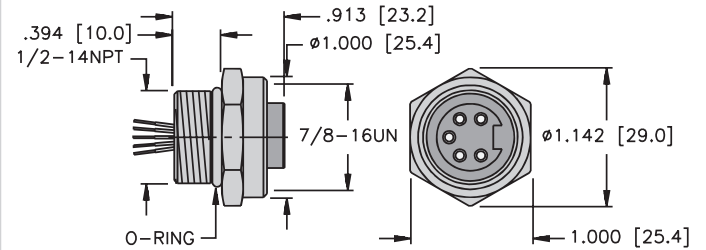
19



RKF .. M20

Page N36

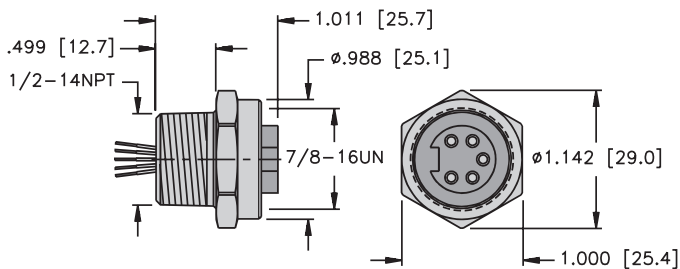
21



RKF ..

Page N36

22

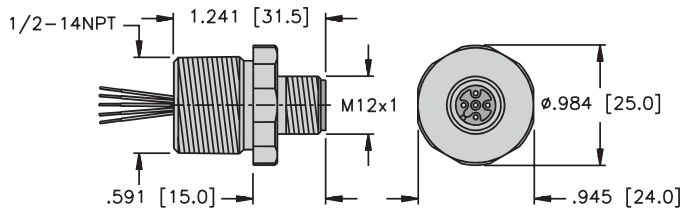


RKF .. NPT

Page N36

euromast® Male Receptacles

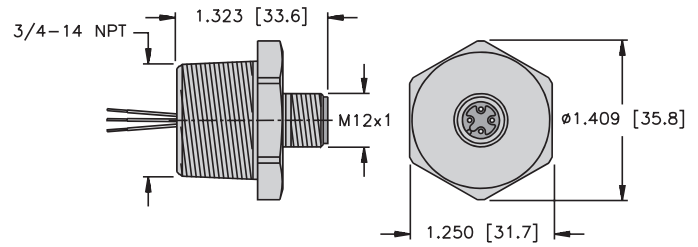
23



FS .. 14.5

Page N37

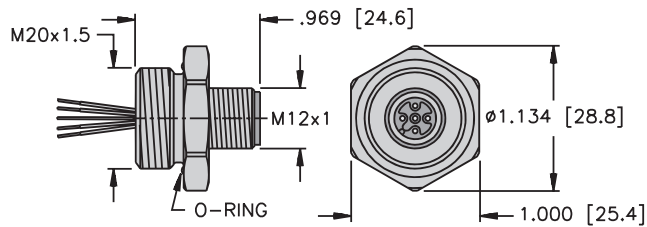
25



FS .. 14.75

Page N37

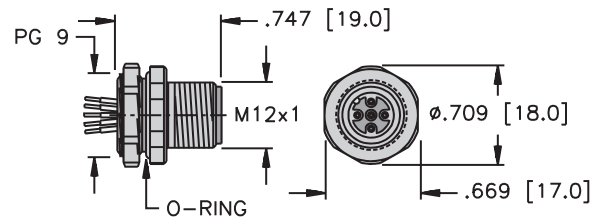
24



FS .. M20

Page N37

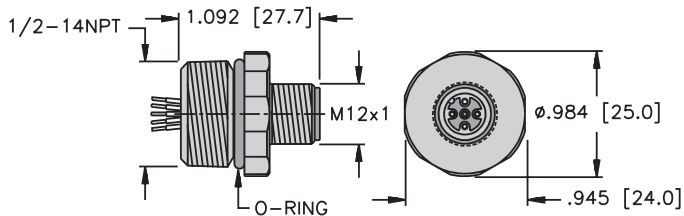
26



FS ..

Page N37

27

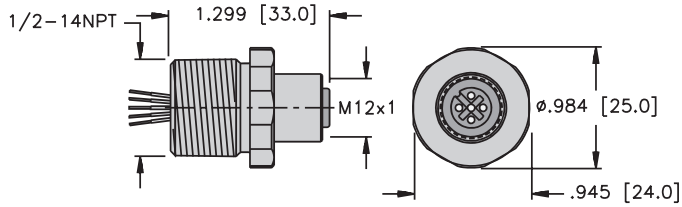


FS .. NPT

Page N37

eurofast® Female Receptacles

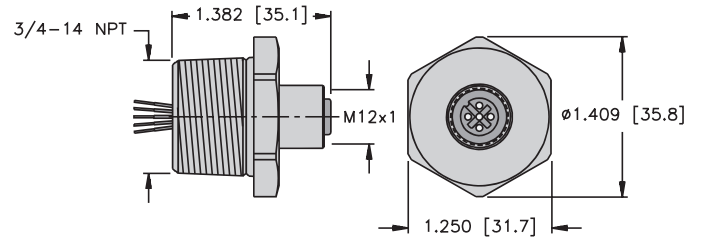
28



FK .. 14.5

Page N38

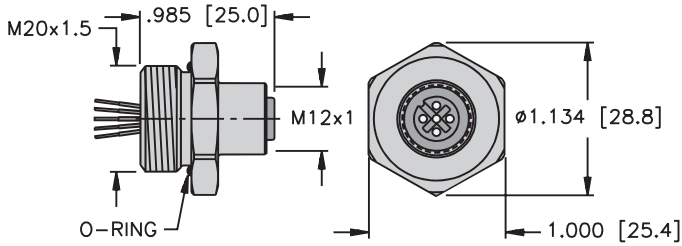
30



FK .. 14.75

Page N38

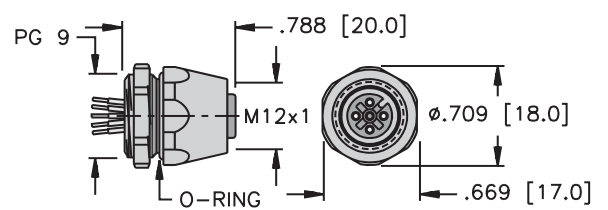
29



FK .. M20

Page N38

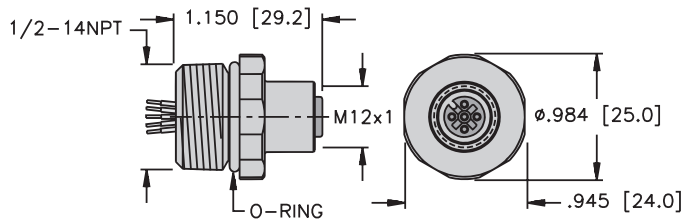
31



FK ..

Page N38

32



FK .. NPT

Page N38

AS-interface®, *minifast*® Field Wireable Connectors

- Screw Terminals Accept up to 16 AWG Conductors



Housing	Part Number	Specs	Application	Pinouts
	BS 4149-0/9	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A	Mates with all 4-pin <i>minifast</i> cordsets and receptacles	Male
	BS 4149-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		
	B 4149-0/9	Glass filled nylon PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A		Female
	B 4149-0/13.5	Glass filled nylon PG 13.5 cable gland accepts 10-12 mm cable diameter 85°C 250 V, 9 A		

AS-interface®, eurofast® Field Wireable Connectors

- Screw Terminals Accept up to 18 AWG Conductors



Housing	Part Number	Specs	Application	Pinouts
	BS 8141-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 125 V, 4 A	Mates with 4-pin eurofast cordsets and receptacles	<p>Male</p>
	BS 8241-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 125 V, 4 A		
	B 8141-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 250 V, 4 A		<p>Female</p>
	B 8241-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 250 V, 4 A		

AS-interface Media

AS-interface®, Gender Changer

- Allows Quick and Easy Change from Male to Female and (7/8-16UN) *minifast*® to (M12x1) *eurofast*® Connectors



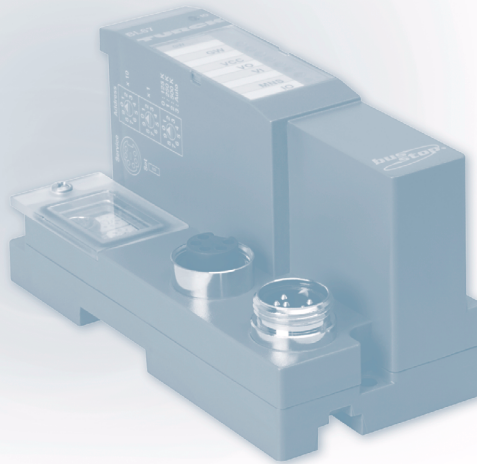
Housing	Part Number	Specs	Application	Wiring Diagram
	RSM 25-FK 4.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40°C to +75°C	Female <i>eurofast</i> , male <i>minifast</i> , 4-pin	

Pinouts

<i>minifast</i>	<i>eurofast</i>
<p>Male</p>	<p>Female</p>

Notes:

TURCK Industrial I/O CANopen Products



System Description

CANopen is a higher-layer system based on the CAN (controller area network) specification that defines device and communication profiles. Device profiles standardize the data contents of the various supported device types, while communication profiles determine the method of data exchange between the devices. The basic communication methods are real time data (process data objects - PDO) and parameter data (service data objects - SDO).

CANopen defines different communication modes for the transmission of process data (PDOs):

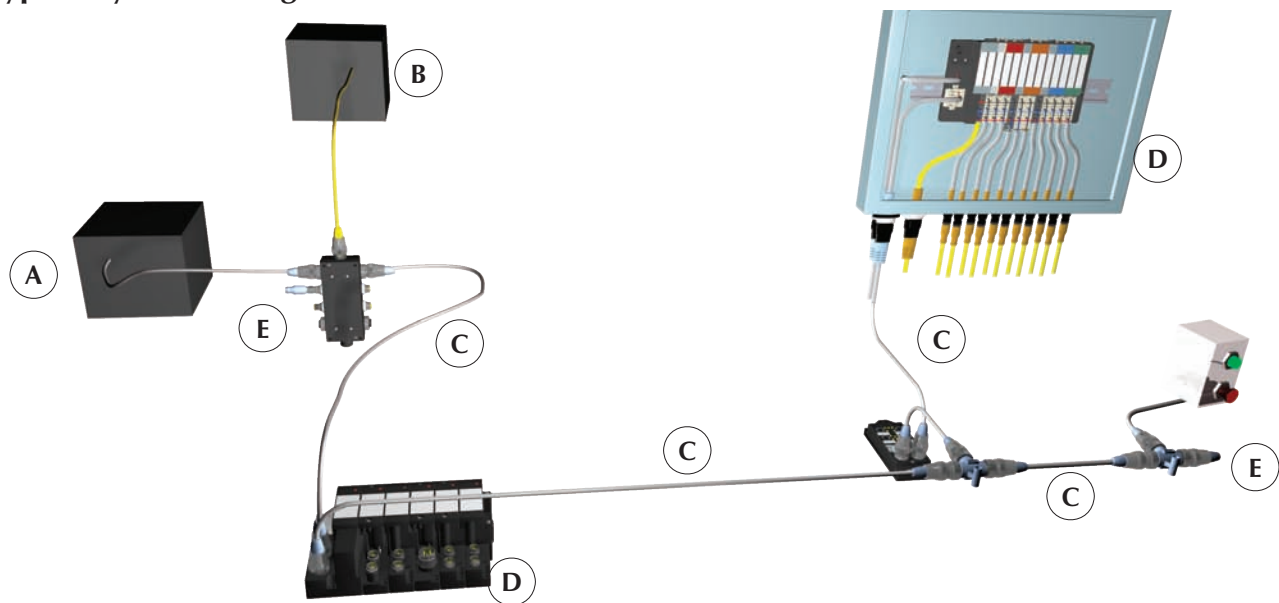
- Event-controlled: Messages are sent as soon as the contents change. Only the modifications are transmitted, therefore the process image/mapping is not transferred permanently.
- Cyclic synchronous mode: The modules accept the output data received and send new input data via a SYNC telegram.
- Request-controlled: The modules are triggered to send their input data via a CAN data request message.

CANopen devices are parameterized via SDOs, primarily to transfer parameters during device configuration and to transmit longer data fields. Due to effective usage of the bus bandwidth, CANopen offers short system response times at a relatively low transmission speed (max. 1 Mbps).

Configuration/Parameterization

CANopen allows node addresses from 1 to 126. **TURCK** stations are typically addressed via two or three decimally coded rotary switches. In situations where two switches are used, the node may only be addressed as high as 99. The system speed corresponds to the transmission rate set via the master, and is automatically detected by the *piconet*[®] modules (auto baud). Manufacturer provided EDS (electronic data sheet) files configure the individual CANopen nodes. **TURCK** also offers *I/Oassistant* software, a helpful tool for configuration, parameterization and set-up of the individual modules.

Typical System Configuration



Basic Parts List

A typical CANopen system consists of the following parts:

- A = Controller
- B = Power Supply
- C = CAN Cable
- D = CANopen I/O Modules (or Slaves)
- E = Terminating Resistors

TURCK

Industrial I/O CANopen Products

Cordsets & Media

CANopen follows the CAN specification, and requires cabling to carry CAN High, CAN Low and ground signals. Optional signals include Shield, V+ (device power) and V- (device power). **TURCK** CANopen cables include the required signals, as well as the shield and power supply signals, with a common reference on the ground wire.

There are several different standardized connectors for CANopen. **TURCK** normally offers cordsets with *minifast*[®] (7/8-16 UN), *eurofast*[®] (M12) and open style options. Cables are available in different physical sizes for more flexibility (thin cable) or longer trunk lengths (thick cable). **TURCK** cordsets for the CANopen system are available in standard lengths. Please contact your local sales representative to order custom lengths.

Addressing

CANopen systems allow up to 127 devices on the network. **TURCK** CANopen stations may be addressed between 1 and 99 via rotary decimal coded switches.

Maximum Ratings

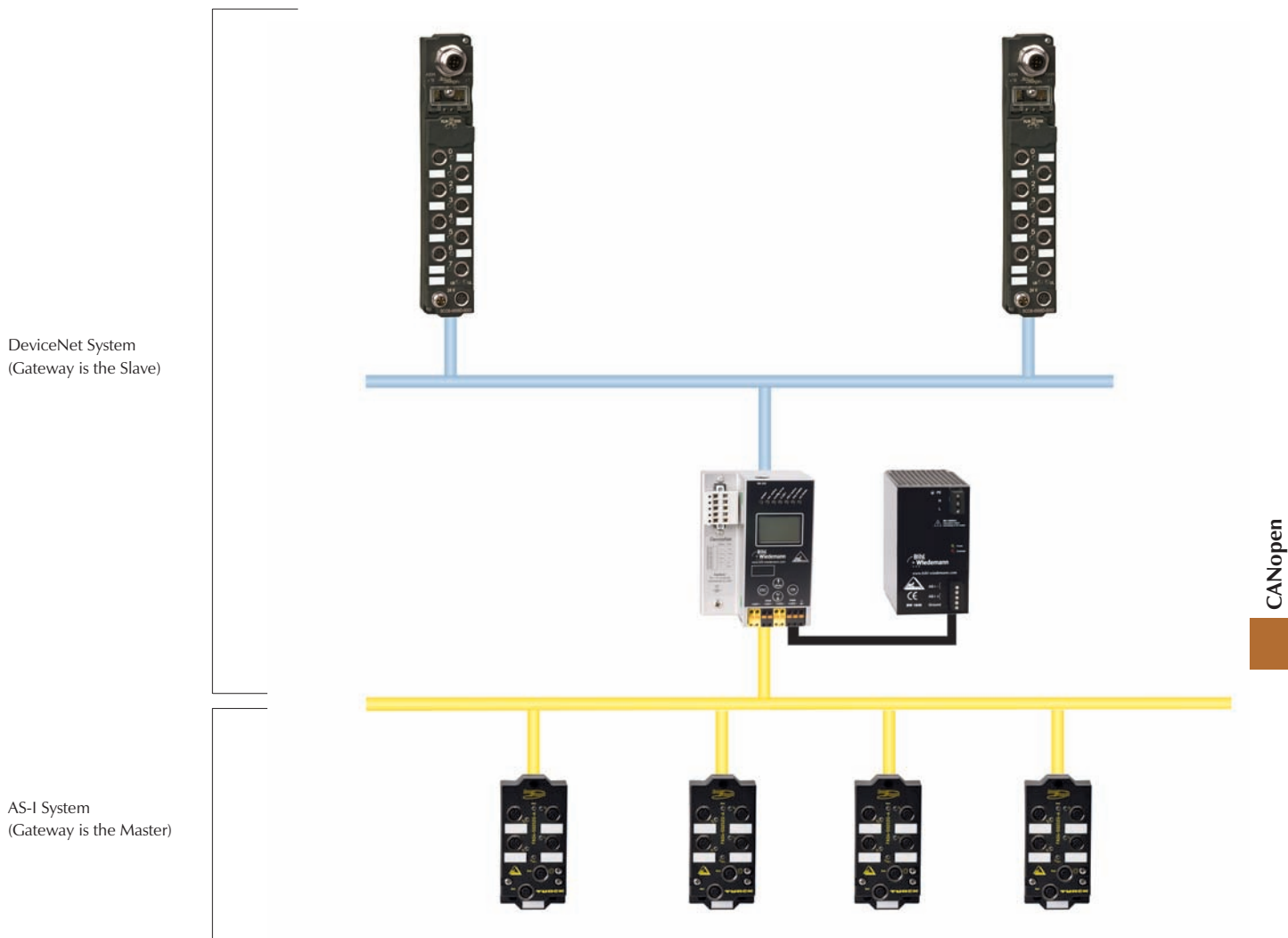
CANopen can operate at data rates from 10 kbaud to 1 Mbaud, with trunk lengths ranging from 5000 m at the low speed to 25 m at the highest speed.

Communication Rate	Trunk Length
10 kbps	5000 m
20 kbps	2500 m
50 KBit/s	1000 m
125 kbps	500 m
250 kbps	250 m
500 KBit/s	100 m
800 kbps	50 m
1000 kbps	25 m

CANopen to AS-interface® Gateways

AS-I systems can easily be connected to a higher-level network, such as CANopen, through a gateway master. The gateway acts as a master to the AS-I system(s) and a slave to the CANopen system, mapping all of the AS-I data for CANopen in a single block.

For AS-I specifications and rating details see section E.



TURCK

Industrial I/O CANopen Products

Addressing

CANopen stations must have a network address for communication. The address for AS-i/CANopen gateways may be set via the on-unit display and push buttons. Please consult the manual for a particular gateway for instruction on the procedure.



Diagnostics

AS-i/CANopen gateways contain LEDs for diagnosing I/O and communication problems for CANopen and AS-I. For a detailed description of the LED states please see the Bihl+Wiedemann AS-i/CANopen Gateway User Manual available for download from www.bihl-wiedemann.com.

Power

Most of the AS-i/CANopen gateways available draw power from the AS-I power supply. The option to use a separate, non-AS-I power supply is also available. Consult the gateway documentation to ensure the gateway being selected meets the requirements of your system.

CANopen Selection Guide

Housing	I/O Type	I/O Direction	Pages
Piconet 	Discrete	Input	P19
		Output	P23
		Input & Output	P21, P25
	Analog	Input	P27
		Output	P31
	Special Function	Serial	P35
Encoder		P33	
Gateways 	BL67	N/A	P9
	BL20		P11
	AS-I		P7
	Piconet		P13

TURCK

Industrial I/O CANopen Products

AS-I CANopen Gateways in Stainless Steel



ASI-COG-SS BW1821
 ASI-COG-SS BW1822
 ASI-COG-SS BW1823



- AS-I v3.0 Supported
- Graphical Display
- Integrated Ground-Fault Detection
- Integrated AS-I Diagnostics

Electrical

- Operating Current: 200 mA from VAS₋₁ (Power Supply A)
 200 mA from VAS₋₁₁, 70mA from VAS₋₁₂ (Power Supply A2)
 250 mA from V_{AUX} (Power Supply E)

Power Distribution

- From AS-I supply for each network (Power Supply A, A2)
 From external supply (Power Supply E)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20

Material

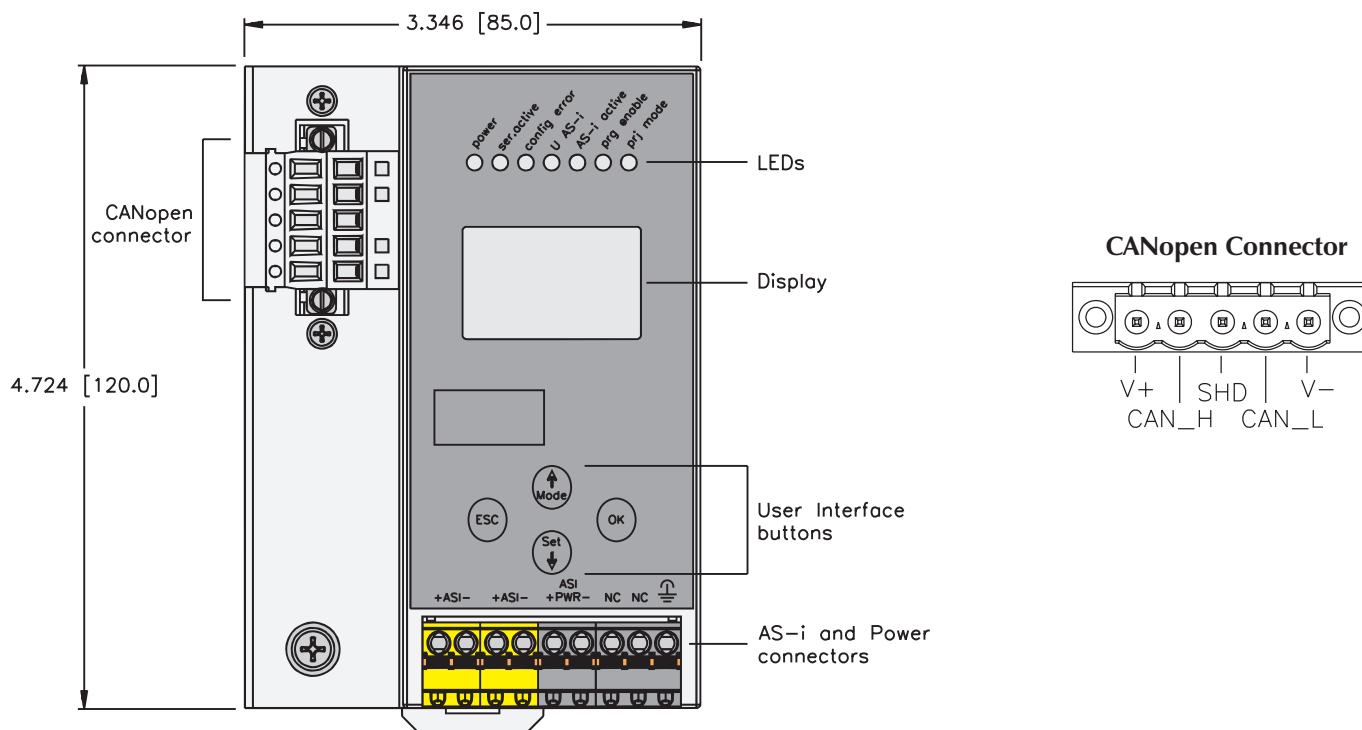
- Housing: Stainless Steel

Diagnostics (Logical)

- Health of AS-I network is available via CANopen interface

Diagnostics (Physical)

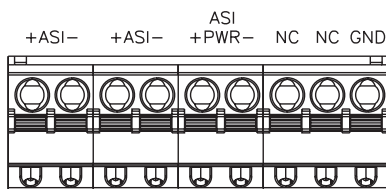
- LED to indicate status of network and AS-I communication and power supply



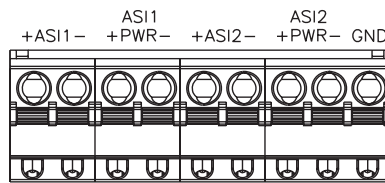
Part Number	Higher Level Network	Power Style	AS-I Version	# of AS-I Masters	Duplicate Address Detection	Programming Interface
ASI-COG-SS BW1821	CANopen	A	3.0	1	X	X
ASI-COG-SS BW1822	CANopen	A2	3.0	2	X	X
ASI-COG-SS BW1823	CANopen	E	3.0	2	X	X

Input/Output Connectors

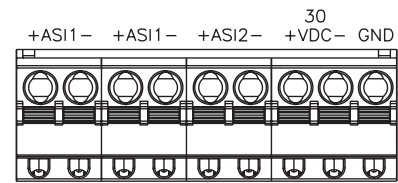
A



A2



E



A - Single AS-I network is powered by and AS-I power supply

A2 - Dual AS-I networks are each powered by their own AS-I power supply

E - Dual AS-I networks are both powered by a single 30 VDC supply, decoupled through the gateway

TURCK

Industrial I/O CANopen Products

BL67 Gateway



- Modular I/O
- IP 67 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 600 \text{ mA}</math> from V_I
- Supply Current: <math>< 10 \text{ A}</math> to I/O (from V_I and V_O)
- Backplane Current: <math>< 1.5 \text{ A}</math> (from V_I)

Mechanical

- Operating Temperature: -25 to $+55^\circ\text{C}$ ($+32$ to $+131^\circ\text{F}$)
- Protection: IP 67
- Vibration: 5 g @ 10 to 500 Hz

Material

- Housing: PC-V0 (Lexan)

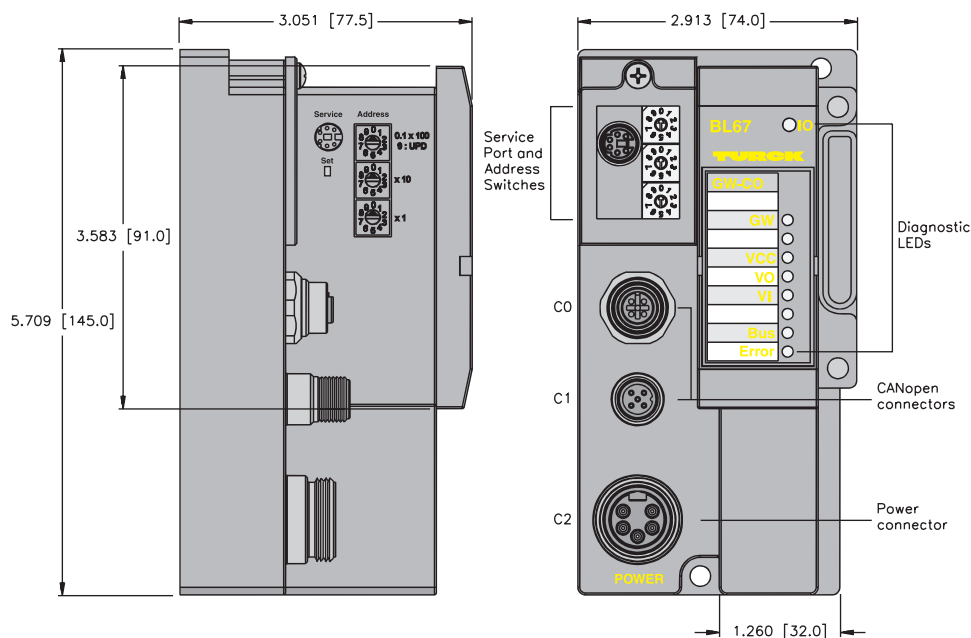
Diagnostics (Logical)

- Diagnostic information available through the CANopen interface

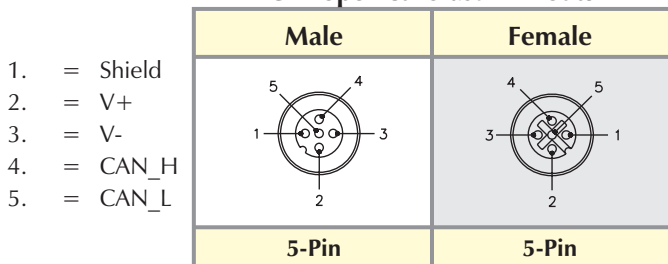
Diagnostics (Physical)

- LEDs to indicate status of CANopen and Module Bus communication

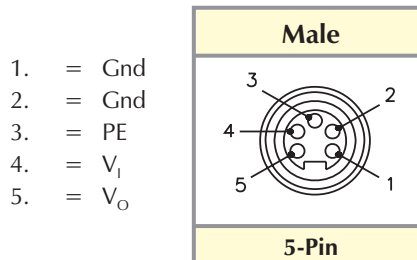
BL67-GW-CO



CANopen eurofast® Pinouts



minifast® Power Pinouts



Note: Power feeding modules may be used for I/O current supply to prevent overloading the gateway power supply.

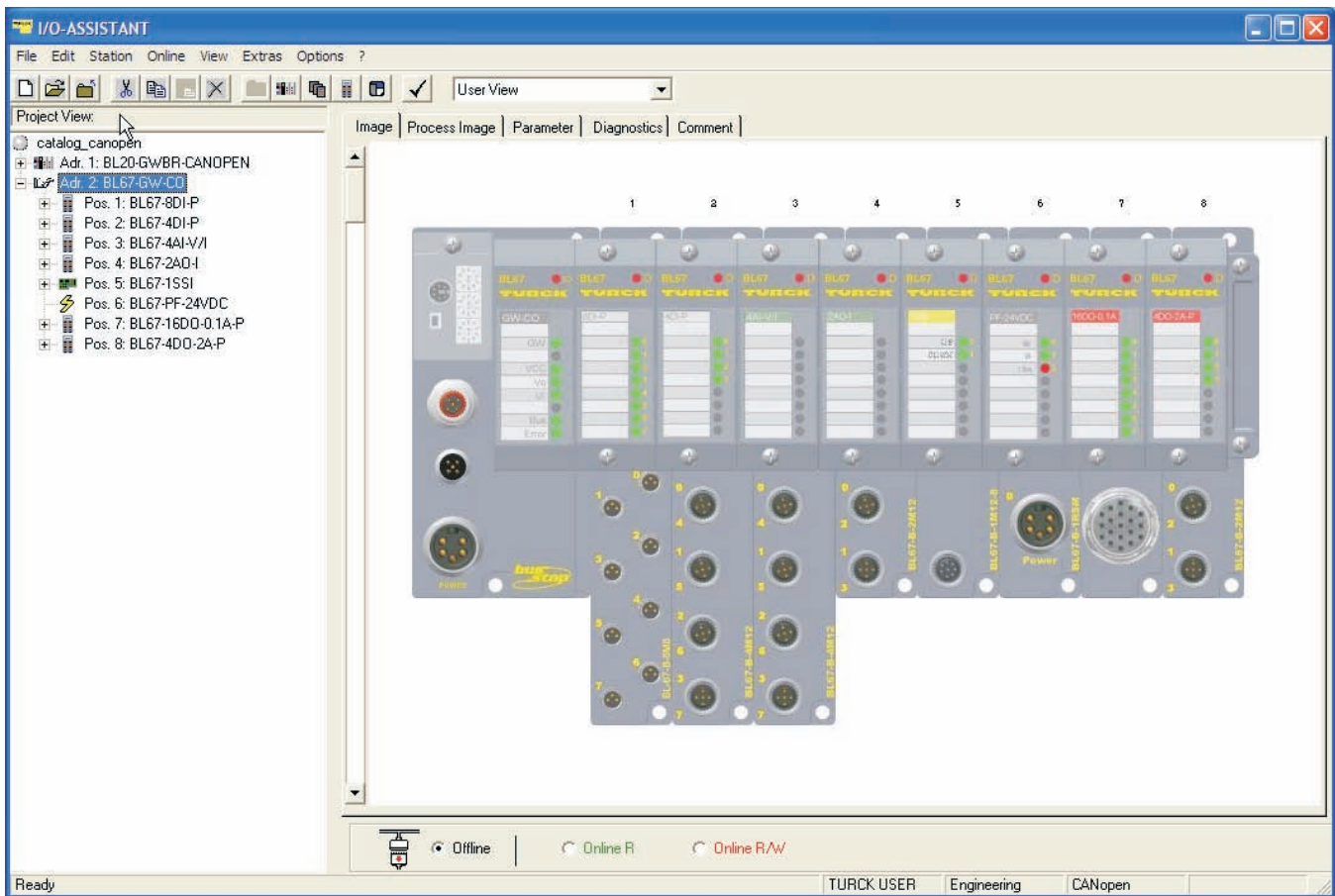
CANopen BL67 Stations

TURCK's BL67 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 67 protection and metal threaded connectors, the BL67 can often be mounted in the physical process environment or directly on a machine without a separate enclosure for the I/O. This saves planning and installation time, as well as the cost of the enclosure itself.

The BL67 system supports several different network protocols, including CANopen. A BL67 station consists of a gateway module that interfaces to the CANopen system, and several I/O modules that interface with the physical I/O in the field. Different connector options are available to allow a greater level of customization to the user.

For more details on the BL67 system, please see section G of this catalog.

TURCK's I/O Assistant software package is used to configure the BL67 system.



TURCK

Industrial I/O CANopen Products

BL20 Gateway



BL20-GWBR-CANOPEN



- Modular I/O
- IP 20 Protection
- Fieldbus Independent Configuration
- Various I/O Styles

Electrical

- Operating Current: <math>< 350 \text{ mA}</math> from BR power supply (U_{SYS})
- Supply Current: <math>< 10 \text{ A}</math> to I/O (from U_L)
<math>< 1.5 \text{ A}</math> to backplane (from U_{SYS})

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IP 20
- Vibration: 1 g @ 5 to 100 Hz

Material

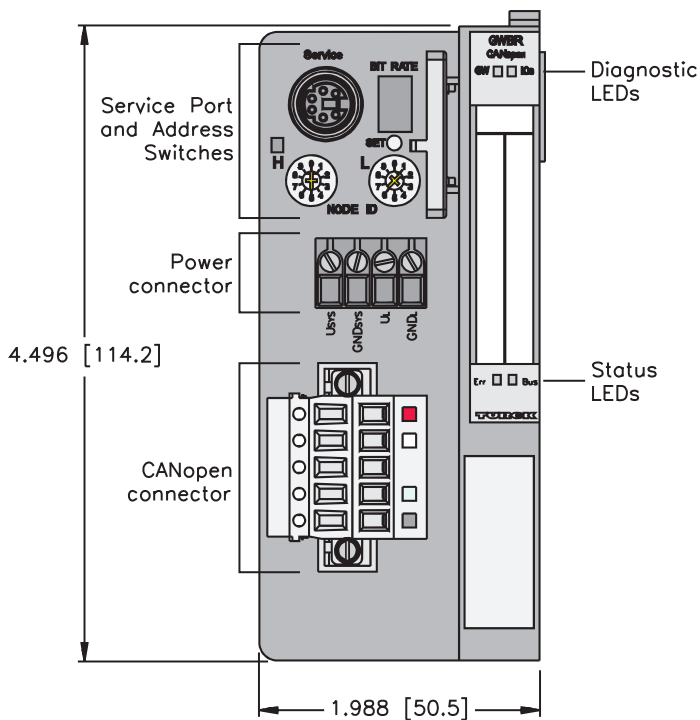
- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

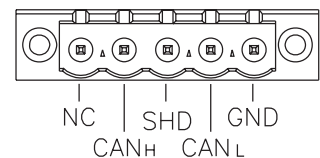
- Diagnostic information available through the CANopen interface

Diagnostics (Physical)

- LEDs to indicate status of CANopen and Module Bus communication

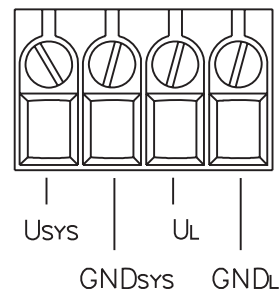


CANopen connector



Power connector

- 1 = U_L+
- 2 = V_L-
- 3 = $U_{\text{SYS}}+$
- 4 = $U_{\text{SYS}}-$



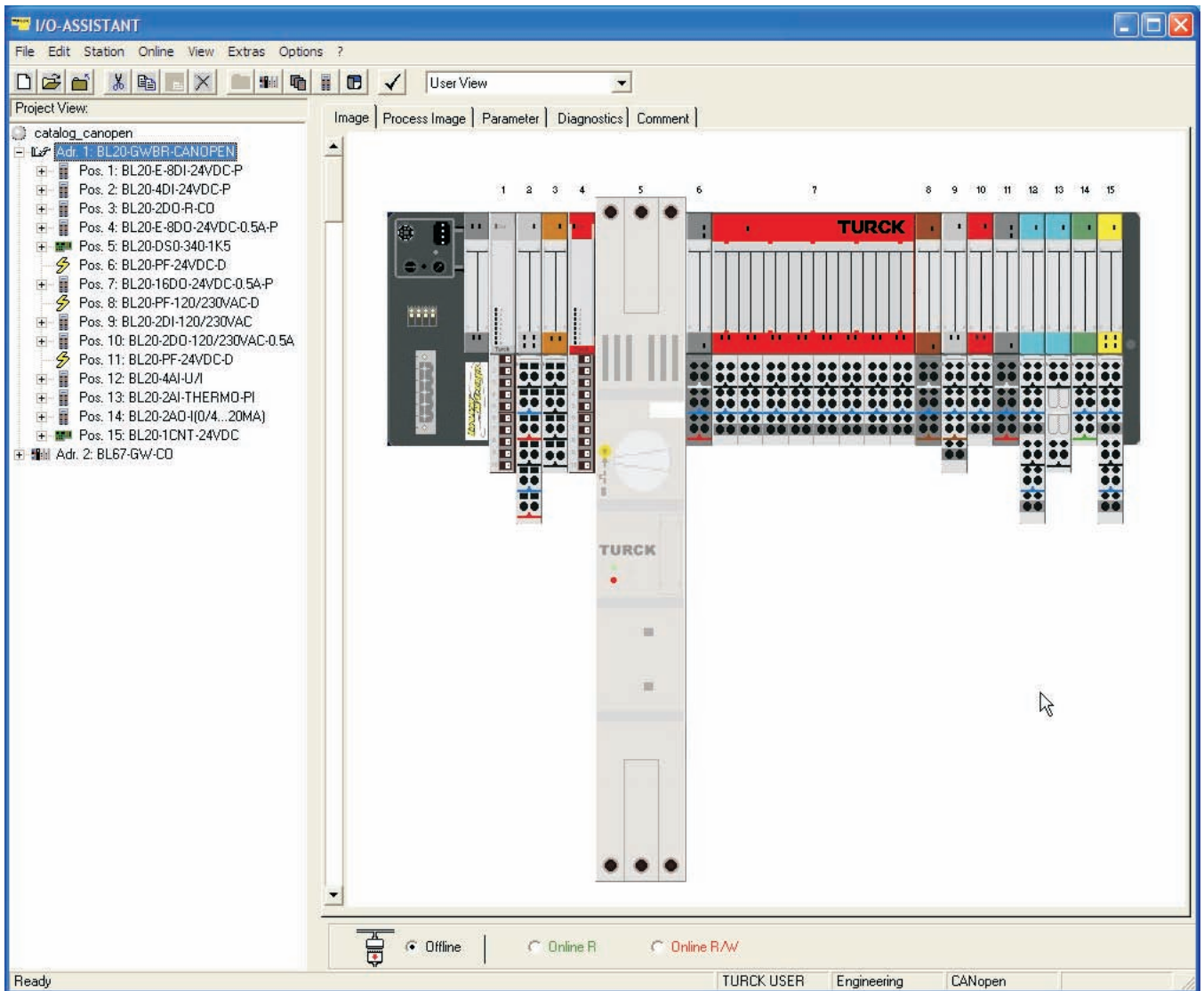
CANopen BL20 Stations

TURCK's BL20 is a modular, user configurable network I/O system designed to allow installation of nodes containing different types and sizes of I/O depending on the users needs for a particular area. Featuring IP 20 protection and terminal point connections, the BL20 is intended to be mounted in the control cabinet or in a field enclosure.

The BL20 system supports several different network protocols, including CANopen. A BL20 station consists of a gateway module that interfaces to the CANopen system, and several I/O modules that interface with the physical I/O in the field. The terminal bases are available with tension clamp or screw terminal connector types.

For more details on the BL20 system please see the section H of this catalog.

TURCK's I/O Assistant software package is used to configure the BL20 system.



CANopen

TURCK

Industrial I/O CANopen Products

piconet Gateway



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Flexible I/O Subnetwork

Electrical

- Operating Current: <math>< 75 \text{ mA}</math> plus sensor currents (from U_B)
- Sensor Current: <math>< 500 \text{ mA}</math> total of all sensors (from U_B)
- Output Current: <math>< 500 \text{ mA}</math> per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

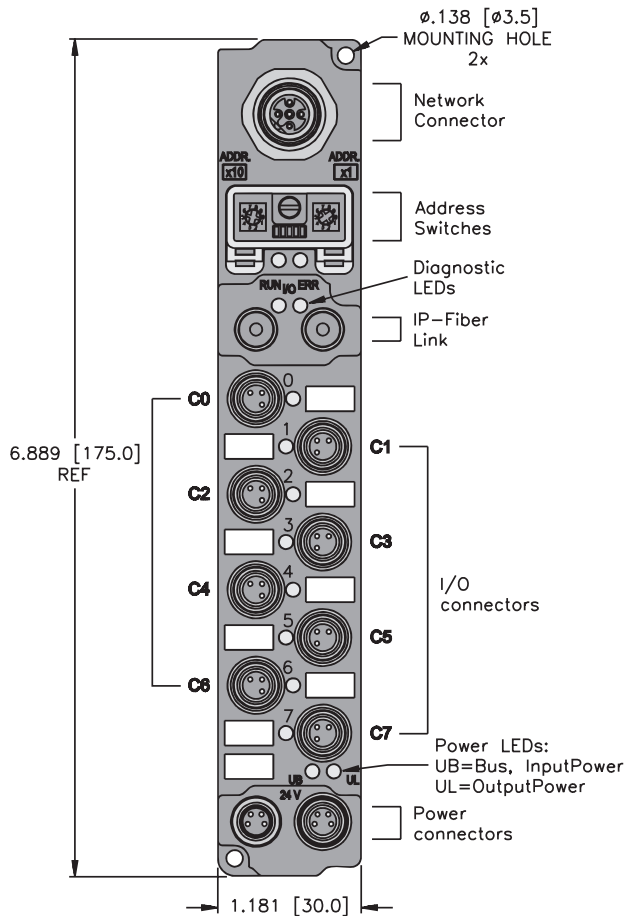
- Connectors: Nickel-plated brass
- Housing: Nylon

SCOL-0404D-0003



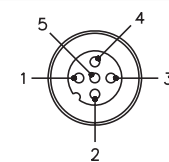
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication



CANopen Pinout

eurofast Male

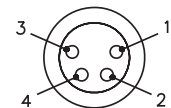


5-Pin

- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

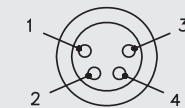
Aux. Power

picofast® Male



4-Pin

picofast® Female

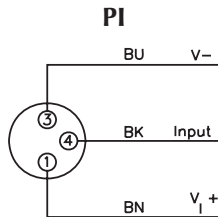


4-Pin

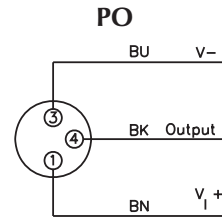
- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Part Number	Inputs								Outputs					Data		
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOL-0404D-0003	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

Input/Output Connectors



Mating cordset:
PSG 3M-*



Mating cordset:
PSG 3M-*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	Data from next input modules				I-3	I-2	I-1	I-0
Out	0	Data for next output modules				0-3	0-2	0-1	0-0

TURCK

Industrial I/O CANopen Products

CANopen *piconet* Stations

TURCK's CANopen *piconet* stations are compact rugged stations designed for machine mounting. These stations allow easy connection of standard I/O devices such as sensors, limit switches, valves and pilot lights to a CANopen network, typically without a protective enclosure. This is made possible by epoxy-filled station housings, all-metal connectors and visible rotary address switches, among other things.

piconet's small size sets them apart from other stations. *piconet* stations are the smallest rugged I/O modules available with a standard housing footprint of 30 x 175 mm. They are available with *picofast*® (M8) connectors for I/O, making them ideally suited for small-space applications.

piconet stations are also able to create a small distributed subnetwork from the CANopen system, allowing the user to choose a gateway node (identified by the part number SDPL...) to connect to a CANopen system. A fiber-optic network connects the gateway to the chosen I/O modules creating a distributed system that is visible to CANopen as a single node.

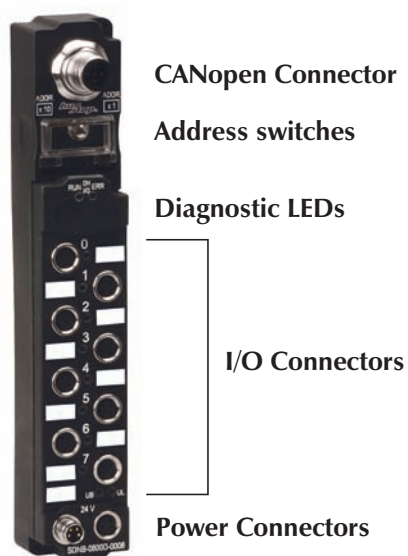
Specifications

Mechanical

TURCK CANopen *piconet* stations are designed to be mounted directly on machines and work cells with no separate enclosure or housing necessary. Epoxy-filled housing creates a durable station that allows it to be mounted in most industrial environments. Detailed environmental specifications are as follows:

- Housing material: Glass filled nylon
- Connector material: Nickel-plated brass
- Protection level: NEMA 1,3,4,12,13; IEC IP 67
- Operating temperature: 0 to 55°C

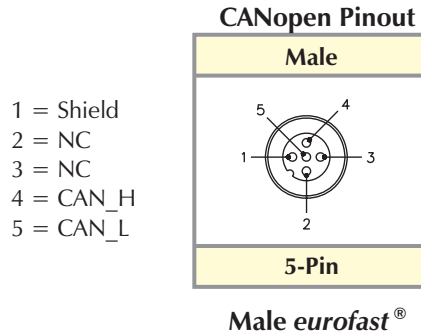
The station's components are identified in the following figure.



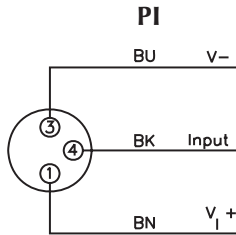
Connectors

CANopen *piconet*® stations have connectors for bus and I/O power, in addition to subnetwork communication for gateways. *piconet* stations use auxiliary power for all I/O.

Bus Connector



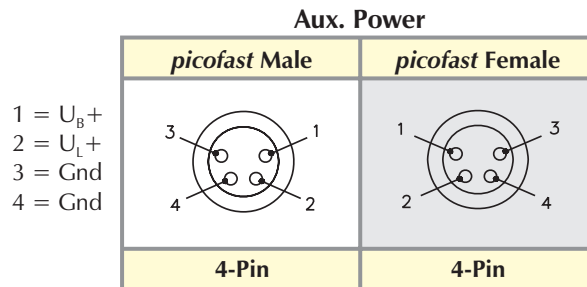
piconet stations with discrete I/O are available with *picofast* (M8) connectors.



piconet stations with analog and special function I/O are available with *eurofast* connectors.

Auxiliary Power Connectors

piconet stations have two 4-pin *picofast* auxiliary power connectors, one male and one female, that allow the stations to be “daisy-chained” from one power supply to another without using a T-connector. Two power supplies are connected through the auxiliary supply; one for the station electronics and inputs and one for outputs.



TURCK

Industrial I/O CANopen Products

Subnetwork Connectors (Gateway modules only)

piconet® subnetworks use a fiber-optic medium for communication. This is a ring network system, so it is important to connect the fiber-optic output from the last station back to the input on the gateway. The fiber used is plastic and features a simple snap-in connector.



Fiber-optic connectors

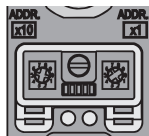
Stations may be available with different connector options than the standards mentioned here. Consult your local sales representative if you need different connector options.

Power

- Aux Power Voltage: 24 VDC (nominal)
- Input Voltage: 13-26 VDC (From Auxiliary supply, VB)
- Output Voltage: From Auxiliary supply, VL

Addressing

CANopen stations must have a network address for communication. The address for **piconet** stations may be set via the visible rotary switches under the clear plastic cover on the front of the station.



Address Switches

The pair of switches represents the address as a decimal number; the left switch being the 10's multiplier and the right switch the 1's multiplier. To program the station, rotate the switches with a small slotted screwdriver until the arrows are pointing at the appropriate numbers for the chosen address.

piconet stations provide LEDs for diagnosing communication problems.

Bus

- Green: Normal operation
- Red: No communication

Module Status

- Green: OK
- Red: Error

There is an additional LED for each I/O point on the station. This LED indicates:

- Off: Point is off
- Green: Point is on

There is also an LED to indicate the status of each of the two auxiliary power supplies.

- Off: Power is missing
- On: Power is present

TURCK

Industrial I/O CANopen Products

Input Station



SCOB-0800D-0008



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

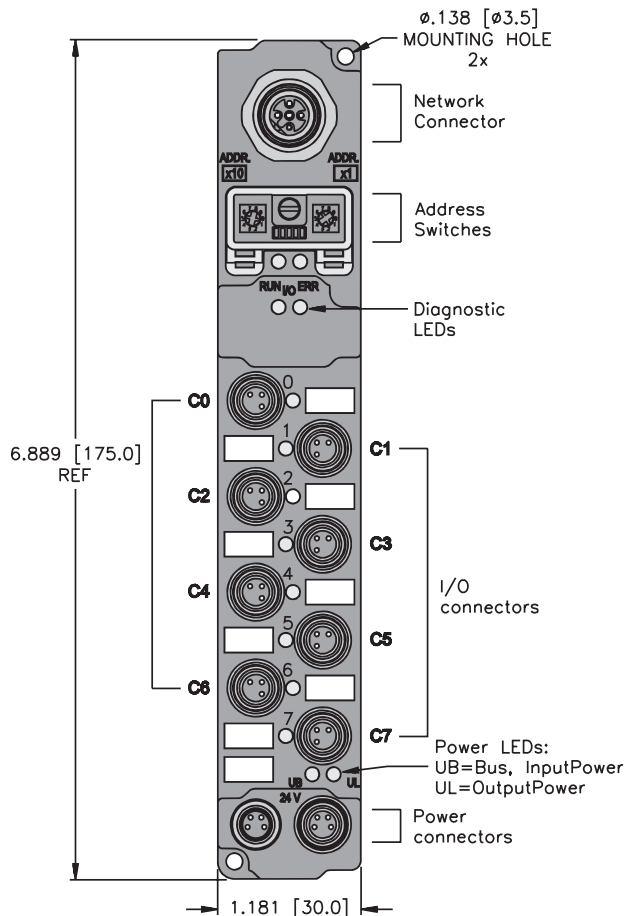
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

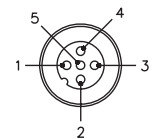
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication



CANopen Pinout

euromast Male

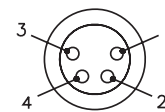


5-Pin

- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

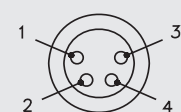
Aux. Power

picofast Male



4-Pin

picofast Female

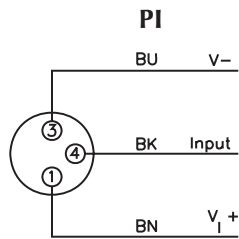


4-Pin

- 1 = U_B +
- 2 = U_L +
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Map
SCOB-0800D-0008	8	0-7	PI	1	PNP				1

Input Connectors



I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0

TURCK

Industrial I/O CANopen Products

Input/Output Stations



SCOB-0808D-0001



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <75 mA plus sensor currents (from U_B)
- Sensor Current: <500 mA total of all sensors (from U_B)
- Output Current: <500 mA per output (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

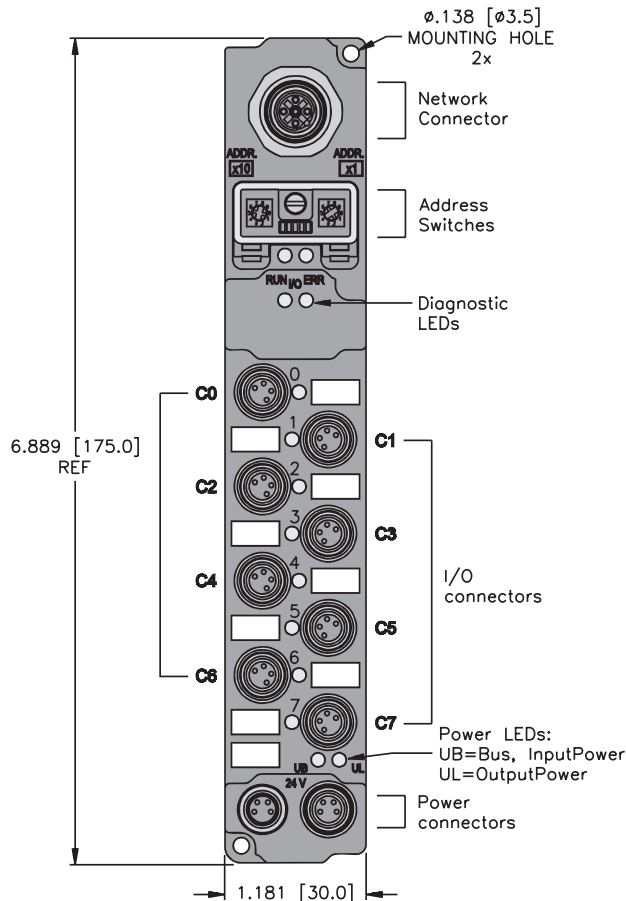
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

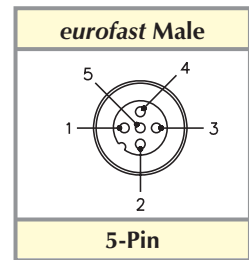
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication

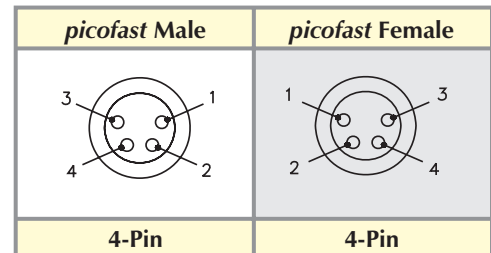


euromast CANopen Pinout



- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

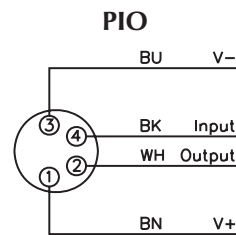
Aux. Power



- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs										Outputs				Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SC0B-0808D-0001	8	0-7	PIO	1	PNP				8	0-7	PIO	1	0.5 A			1

Input/Output Connectors



Mating cordset:
PSG 4M-*

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	I-7	I-6	I-5	I-4	I-3	I-2	I-1	I-0
Out	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

TURCK

Industrial I/O CANopen Products

Output Stations



SCOB-0008D-0006
SCOB-0008D-0002



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <math><75\text{ mA}</math> (from U_B)
- Output Current: see table on facing page (from U_L)

Power Distribution

- Outputs: U_L Power supply

Mechanical

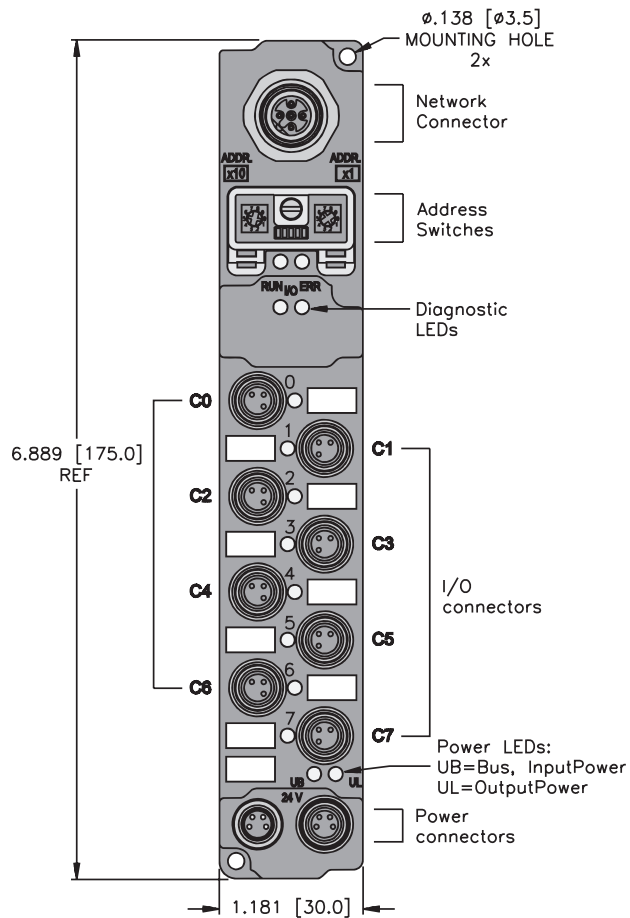
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

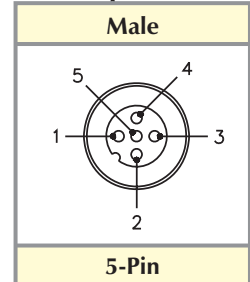
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication

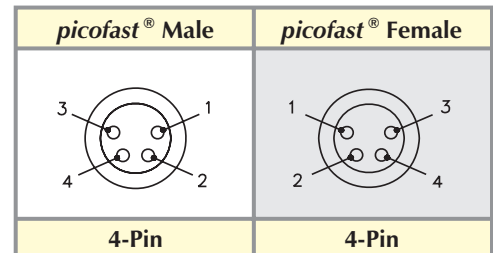


CANopen Pinout



- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

Aux. Power

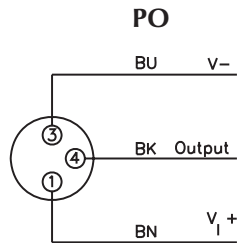


- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Outputs								Data
Part Number	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SC0B-0008D-0006	8	0-7	PO	1	0.5 A			1
SC0B-0008D-0002	8	0-7	PO	1	2 A*			1

*Note: Total output current for the station is 4 A.

Output Connectors



I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0	0-7	0-6	0-5	0-4	0-3	0-2	0-1	0-0

TURCK

Industrial I/O CANopen Products

Input/Output Stations



SCOB-0404D-0005
SCOB-0404D-0001



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <math>< 75 \text{ mA}</math> plus sensor currents (from U_B)
- Sensor Current: <math>< 500 \text{ mA}</math> total of all sensors (from U_B)
- Output Current: See table on facing page (from U_L)

Power Distribution

- Inputs: U_B Power supply
- Outputs: U_L Power supply

Mechanical

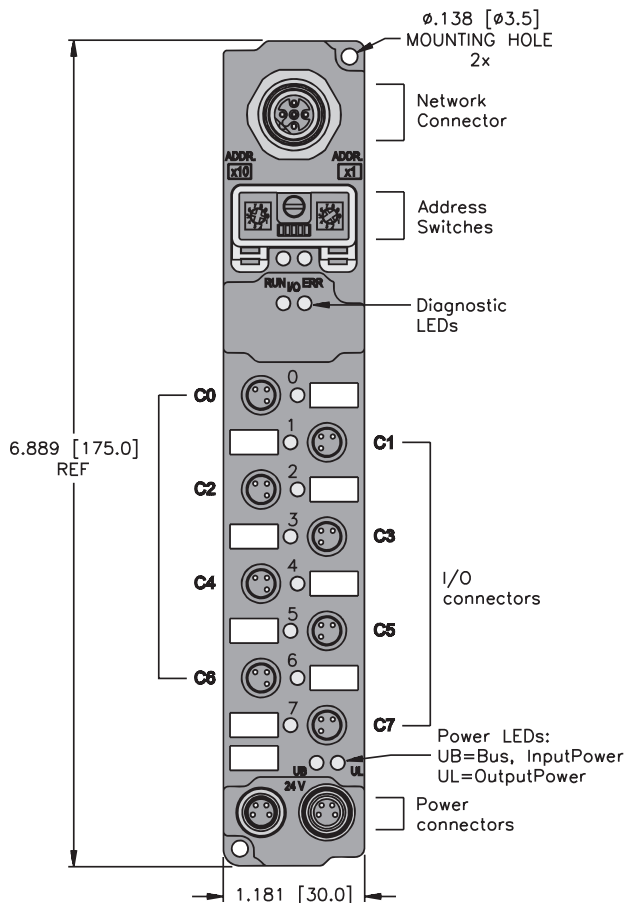
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

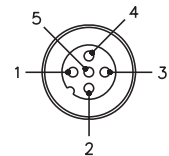
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication



CANopen Pinout

euromast Male

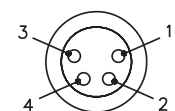


5-Pin

- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

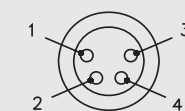
Aux. Power

picofast® Male



4-Pin

picofast® Female



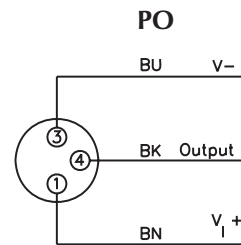
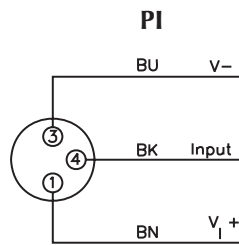
4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs										Outputs				Data		
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Current	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOB-0404D-0005	4	0-3	PI	1	PNP				4	4-7	PO	1	2 A*			1
SCOB-0404D-0001	4	0-3	PI	1	PNP				4	4-7	PO	1	0.5 A			1

*Note: Total output current for the station is 4 A.

Input/Output Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	-	-	-	-	I-3	I-2	I-1	I-0
Out	0	-	-	-	-	O-3	O-2	O-1	O-0

TURCK

Industrial I/O CANopen Products

Analog Input Stations



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <math>< 75 \text{ mA}</math> plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

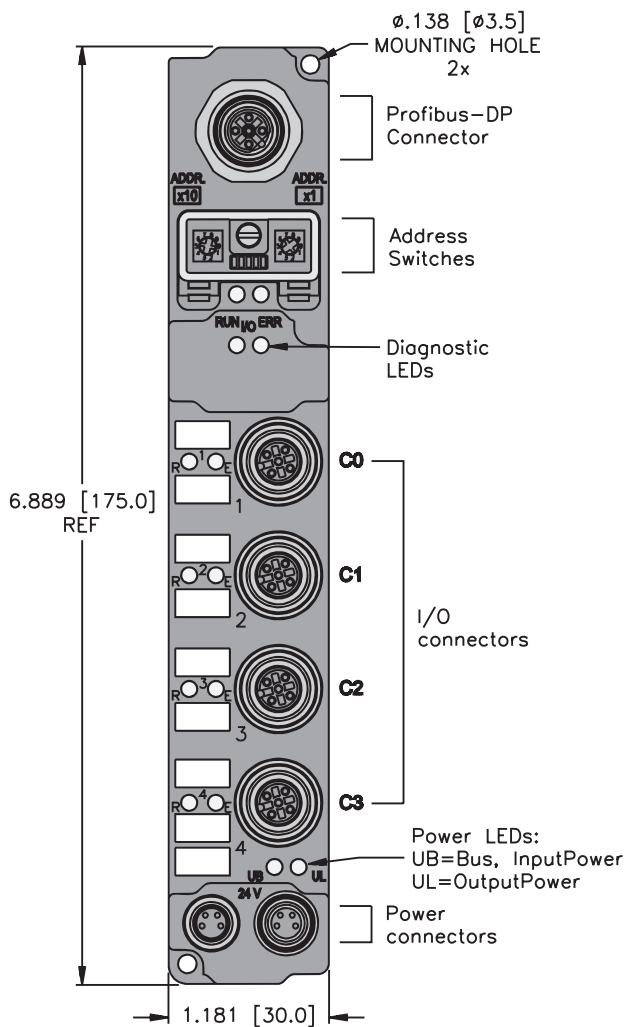
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

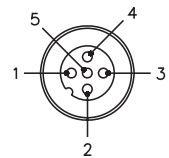
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication

SCOB-40A-0005
SCOB-40A-0007



CANopen Pinout

euromast Male

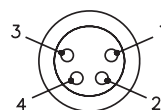


- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

5-Pin

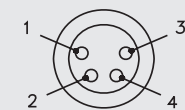
Aux. Power

picofast Male



4-Pin

picofast Female

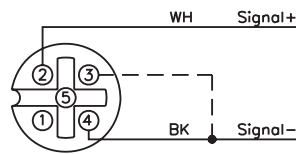


4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

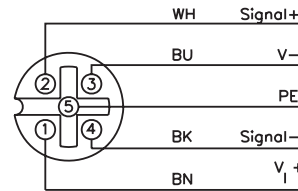
Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOB-40A-0005	4	0-3	AI	1	0 to 10V				1
SCOB-40A-0007	4	0-3	AI	1	0 to 20mA				1

Input/Output Connectors



Loop Powered (Isolated)

AI



DeviceNet Powered Transducer

Mating cordset:

RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0								Channel 0, MSB
	1								Channel 0, LSB
	2								Channel 1, MSB
	3								Channel 1, LSB
	4								Channel 2, MSB
	5								Channel 2, LSB
	6								Channel 3, MSB
	7								Channel 3, LSB

TURCK

Industrial I/O CANopen Products

Temperature Input Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SCOB-40A-0004
SCOB-40A-0009



Electrical

- Operating Current: <math>< 75 \text{ mA}</math> plus sensor currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

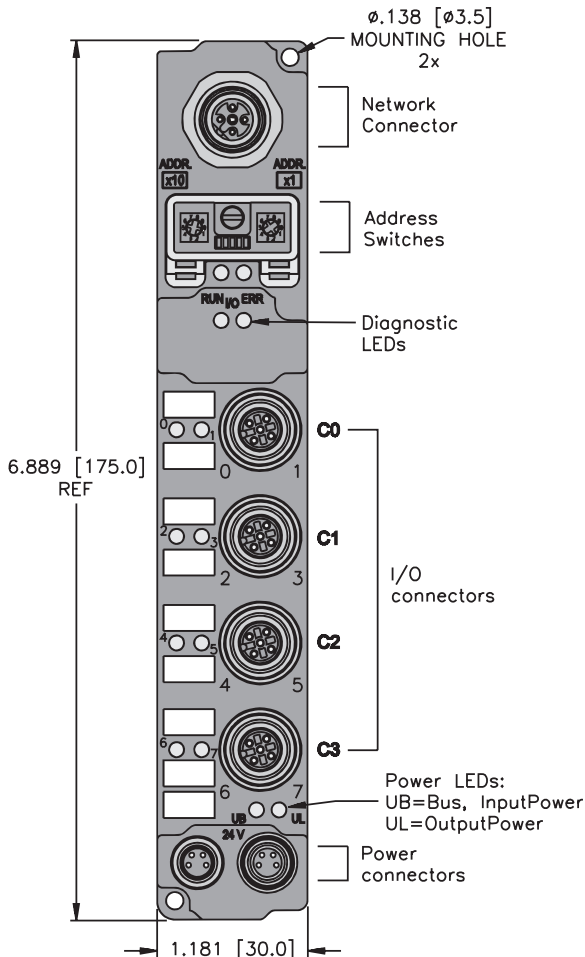
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

- Connectors: Nickel-plated brass
- Housing: Nylon

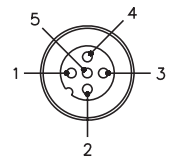
Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication



CANopen Pinout

eurofast Male

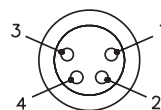


5-Pin

- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

Aux. Power

picofast Male



4-Pin

picofast Female

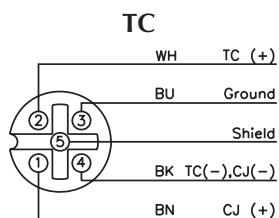


4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

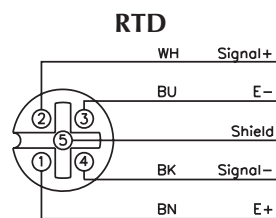
Part Number	Inputs								Data
	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOB-40A-0004	4	0-3	TC	1	TC				1
SCOB-40A-0009	4	0-3	RTD	1	RTD				1

Input/Output Connectors



Mating connector (field wireable):

WAS5-THERMO
(includes cold junction compensation)



Mating cordset:

RK 4.5T-* -RS 4.5T

I/O Data Map 1

In	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	0					Channel 0, MSB			
1					Channel 0, LSB				
2					Channel 1, MSB				
3					Channel 1, LSB				
4					Channel 2, MSB				
5					Channel 2, LSB				
6					Channel 3, MSB				
7					Channel 3, LSB				

TURCK

Industrial I/O CANopen Products

Analog Output Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



SCOB-04A-0009
SCOB-04A-0007



Electrical

- Operating Current: <math>< 75 \text{ mA}</math> (from U_B)

Power Distribution

- Outputs: U_L Power supply

Mechanical

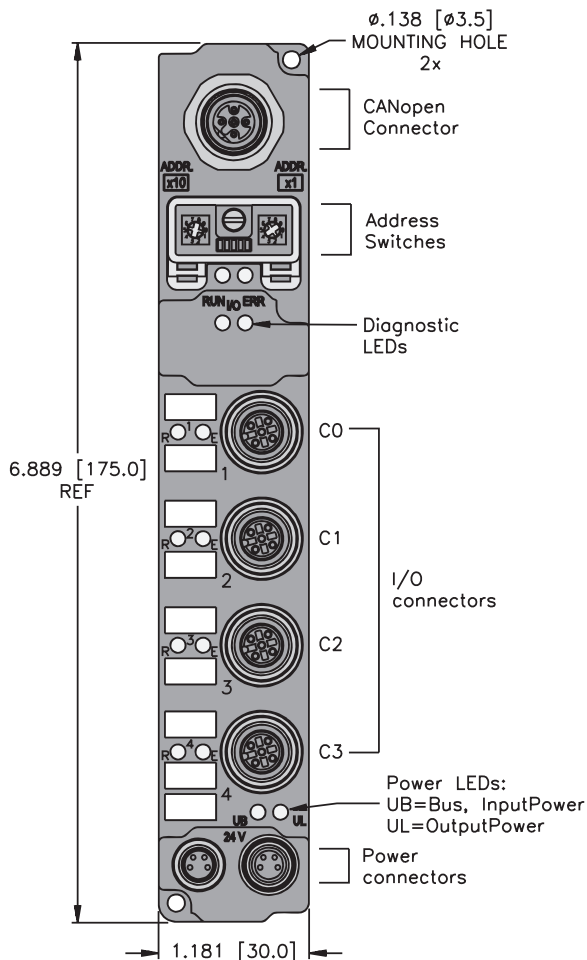
- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

Material

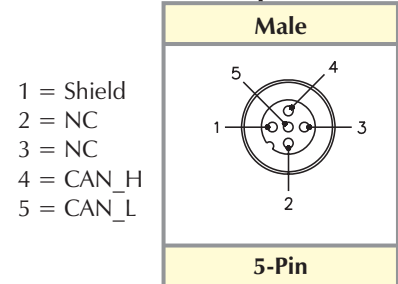
- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

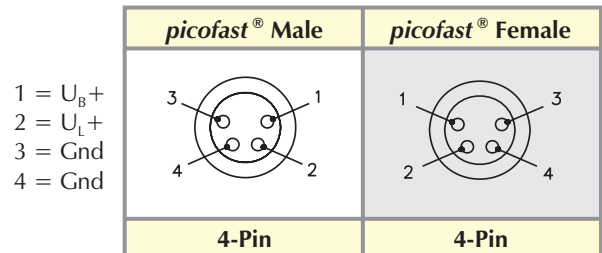
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication



CANopen Pinout

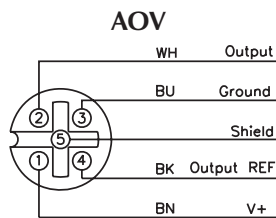


Aux. Power

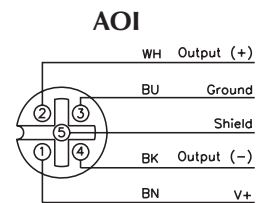


Part Number	Outputs							Data
	Output Count	Connectors	Pinout	Outputs per Connector	Output Type	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOB-04A-0009	4	0-3	AOI	1	0 to 20 mA			1
SCOB-04A-0007	4	0-3	AOV	1	-10/0 to 10 V			1

Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



DeviceNet Powered Transducer

Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

Out	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
	0	Channel 0, MSB								
	1	Channel 0, LSB								
	2	Channel 1, MSB								
	3	Channel 1, LSB								
	4	Channel 2, MSB								
	5	Channel 2, LSB								
	6	Channel 3, MSB								
	7	Channel 3, LSB								

TURCK

Industrial I/O CANopen Products

Incremental Encoder Station



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <math>< 75 \text{ mA}</math> plus device currents (from U_B)

Power Distribution

- Inputs: U_B Power supply

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

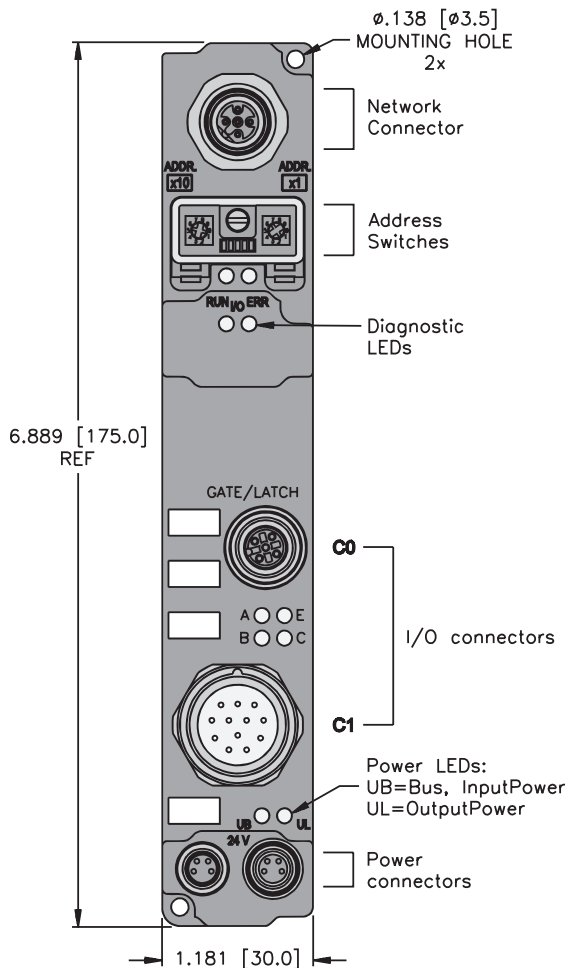
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

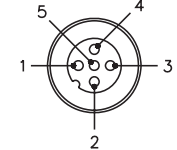
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication

SCOB-10S-0001



CANopen Pinout

euromast Male

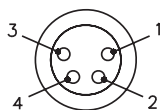


5-Pin

- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

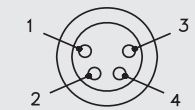
Aux. Power

picofast Male



4-Pin

picofast Female

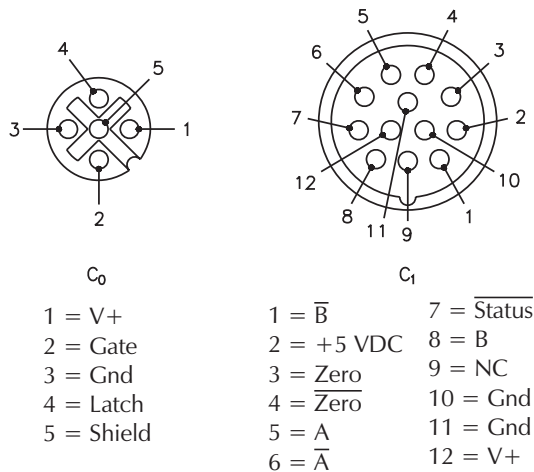


4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs									Data
Part Number	Input Count	Connectors	Pinout	Inputs per Connector	Sensor Style	Group Diagnostics	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOB-10S-0001	1	0-1	ENC	1	Encoder				1

Input/Output Connectors



I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Counter - Status							
	1	Count Value - High (MSB)							
	2	Count Value - Low (LSB)							
Out	0	Counter - Control							
	1	Set Value - High (MSB)							
	2	Set Value - Low (LSB)							

TURCK

Industrial I/O CANopen Products

Serial Interface Stations

- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing



Electrical

- Operating Current: <math>< 75 \text{ mA}</math> (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

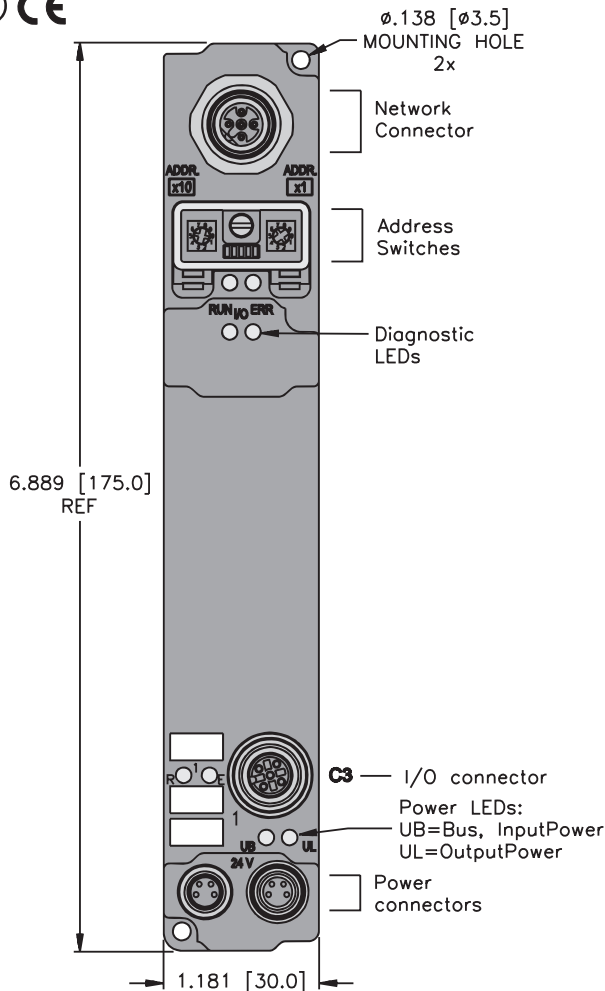
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

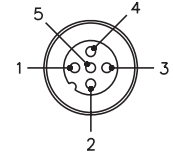
- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication

SCOB-10S-0002
SCOB-10S-0004



CANopen Pinout

eurofast Male

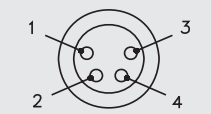
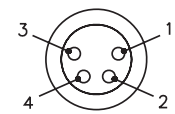


5-Pin

Aux. Power

picofast® Male

picofast® Female

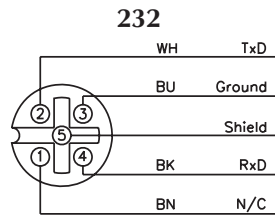


4-Pin

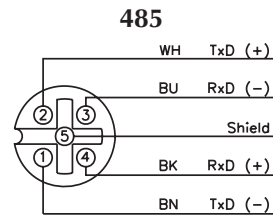
4-Pin

Part Number	Inputs								Outputs					Data	
	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	Output Count	Connectors	Pinout	Outputs per Connector	Individual Diagnostics	Wire-Break Detection	I/O Map
SCOB-10S-0002	1	0	232	1	RS232	3 to 5			1	0	232	1			1
SCOB-10S-0004	1	0	485	1	RS485/422	3 to 5			1	0	485	1			1

Input/Output Connectors



Mating cordset:
RK 4.5T-*-RS 4.5T



Mating cordset:
RK 4.5T-*-RS 4.5T

I/O Data Map 1

	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data Byte 0							
	1	Status							
	2	Data Byte 2							
	3	Data Byte 1							
Out	0	Data Byte 0							
	1	Control							
	2	Data Byte 2							
	3	Data Byte 1							

Note: Default configuration for 3 byte per message transfer shown. Up to 5 bytes may be transferred per message.

TURCK

Industrial I/O CANopen Products

SSI Station



- Rugged, Fully Potted Stations
- IP 67 Protection
- Small Footprint
- Automatic Baud Rate Sensing

Electrical

- Operating Current: <math>< 75 \text{ mA}</math> plus sensor currents (from U_B)

Mechanical

- Operating Temperature: 0 to +55°C (+32 to +131°F)
- Protection: IEC IP 67
- Vibration: IEC 68, part 2-6

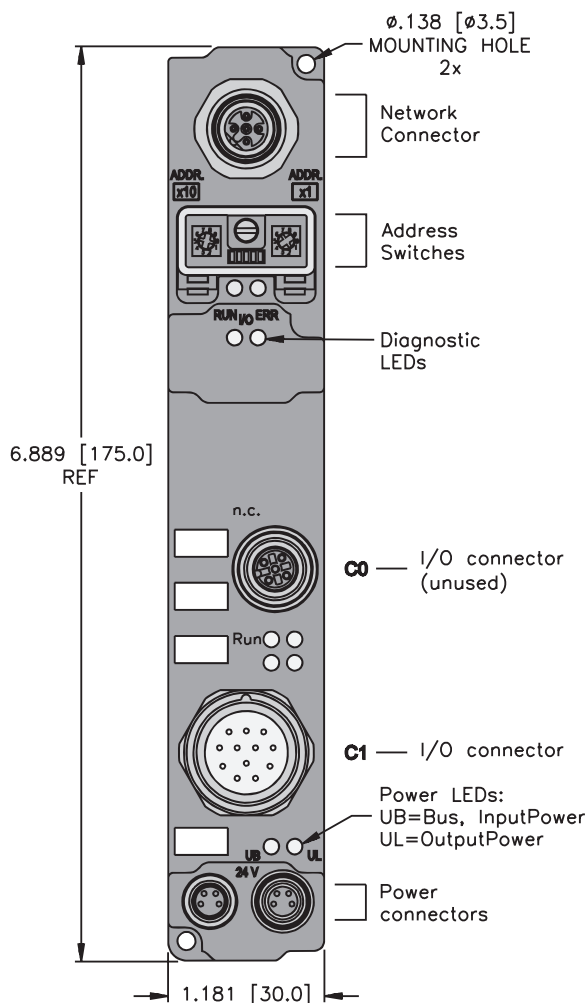
Material

- Connectors: Nickel-plated brass
- Housing: Nylon

Diagnostics (Physical)

- One LED indicates an I/O fault for the entire station
- LEDs to indicate status of CANopen communication

SCOB-10S-0005



CANopen Pinout

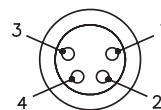
eurofast Male

- 1 = Shield
- 2 = NC
- 3 = NC
- 4 = CAN_H
- 5 = CAN_L

5-Pin

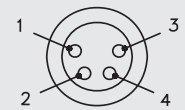
Aux. Power

picofast Male



4-Pin

picofast Female



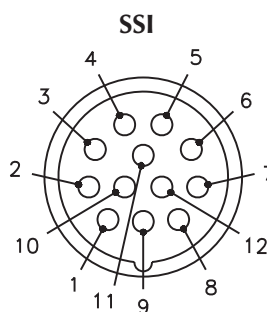
4-Pin

- 1 = U_B+
- 2 = U_L+
- 3 = Gnd
- 4 = Gnd

Inputs										Data
Part Number	Channel Count	Connectors	Pinout	Channels per Connector	Interface Type	Data bytes per transaction	Individual Diagnostics	Wire-Break Detection	I/O Map	
SCOB-10S-0005	1	0		1	SSI	4			1	

Input/Output Connectors

- 1 = Clock-
- 2 = Clock+
- 3 = Data+
- 4 = Data-
- 5 = NC
- 6 = NC
- 7 = NC
- 8 = NC
- 9 = NC
- 10 = NC
- 11 = V+
- 12 = Ground



Mating cordset:

CKM 12-12-*/S817

I/O Data Map 1

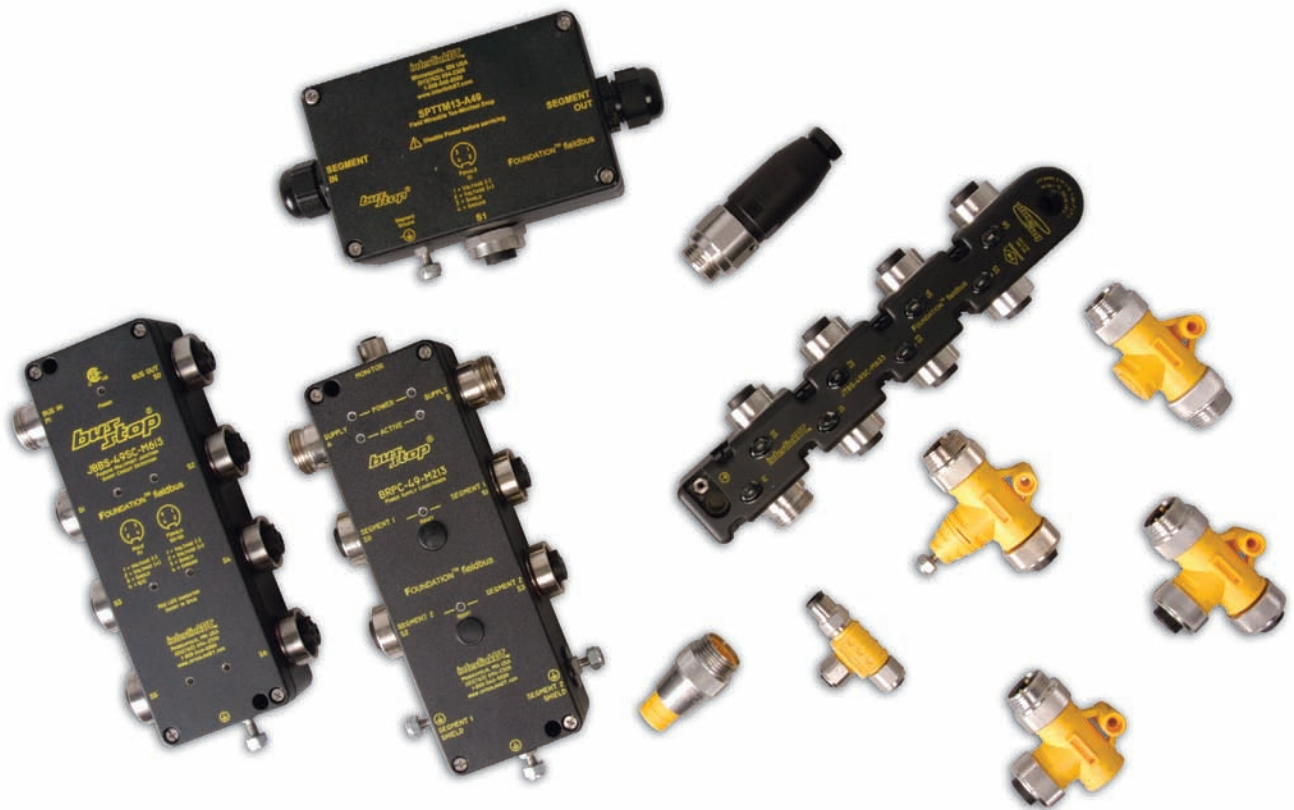
	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
In	0	Data Byte 1							
	1	Data Byte 0 (LSB)							
	2	Data Byte 3 (MSB)							
	3	Data Byte 2							

* Note: One additional status byte (in) and control byte (out) may be configured.

TURCK
Network Media Products

Notes:

FOUNDATION™ fieldbus



FOUNDATION fieldbus

TURCK

Network Media Products

FOUNDATION™ fieldbus General Specifications

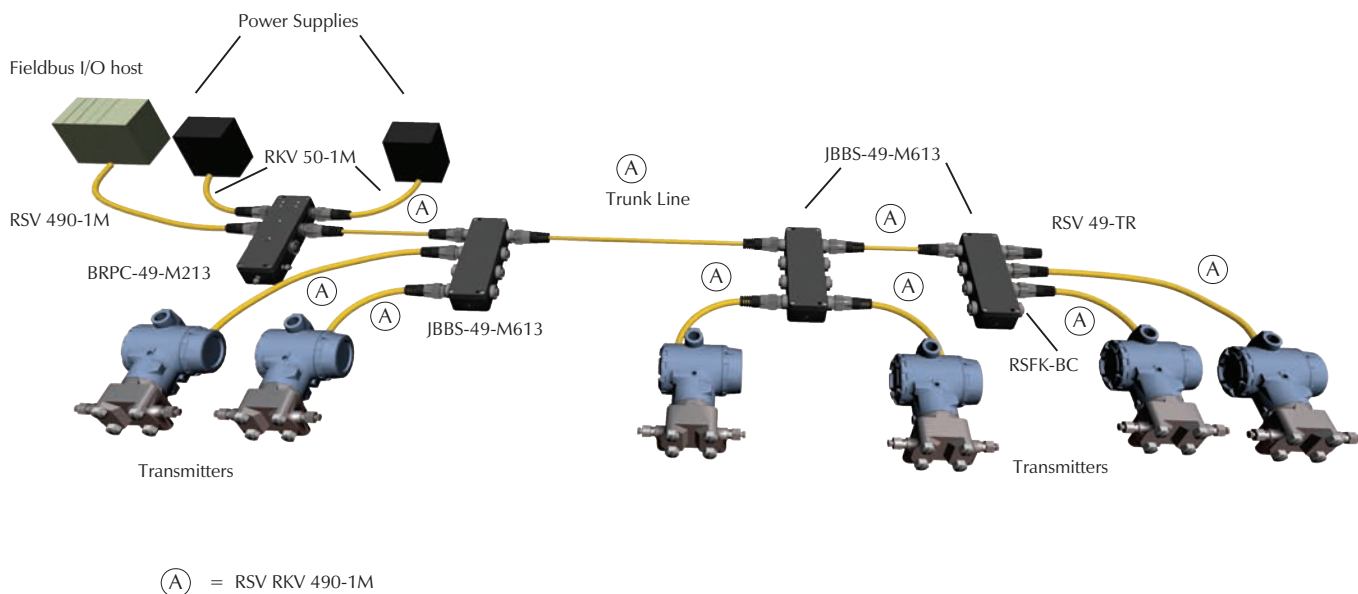
FOUNDATION fieldbus is a communication protocol and physical method to interconnect smart devices such as temperature transmitters, pressure transmitters and valve actuators. The physical layer conforms to ISA SP50.02 and IEC 1158-2 standards for fieldbuses.

Fieldbus technology allows many smart devices to share one communication medium. The digital communication signal is superimposed onto a DC carrier. This reduces the amount of terminations to connect all the field devices to a host system and allows greater flexibility for future additions of I/O points.

A FOUNDATION fieldbus device is addressable and can store and transmit data. The devices can store values, track changes and use pre-set alarms to trigger. Based on pre-defined tag names host systems can read transmitter values such as temperature and pressure to set values of a valve actuator.

Digital signal encoding is done using Manchester BiPhase-L and error checking is done with the CRC method. FOUNDATION fieldbus has two types of devices - A Basic Device (BD) which reads inputs, track values and set outputs if programmed to do so - A Link Active Scheduler (LAS) performs the same features as a BD and handles network communication timing between all the active devices on the network.

Topology



FOUNDATION™ fieldbus, Selection Guide



Power Conditioner	Cables	Terminating Resistors	Feed Through Connectors
R5 - R14	R15	R22	R23



Field Wireable Tee	Junctions	Conduit Adapters
R24	R25	R51



Power Supply Conditioner	Tees	Gender Changers
R53	R55	R56, R68



Surge Suppressor	Receptacles	Field Wireable Connectors
R57	R58	R66

FOUNDATION fieldbus

TURCK

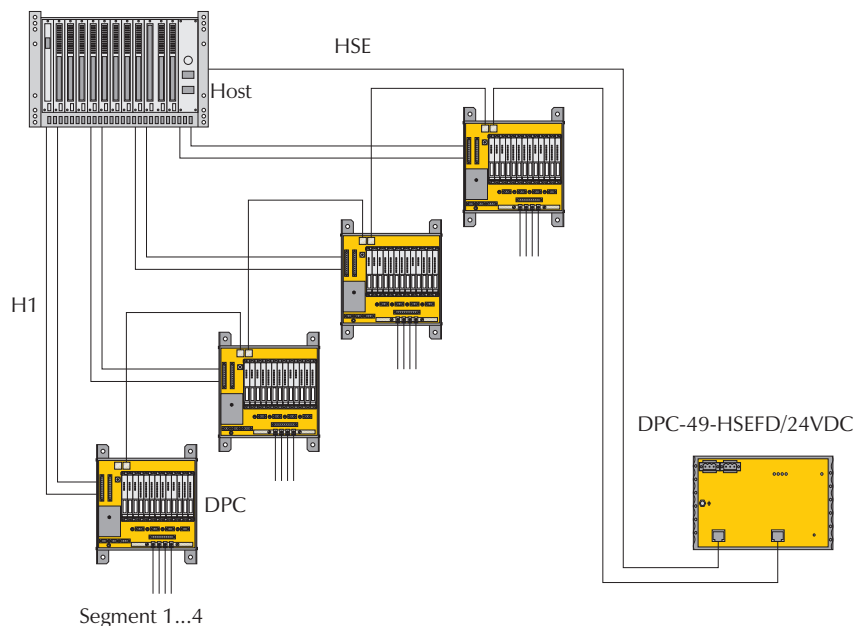
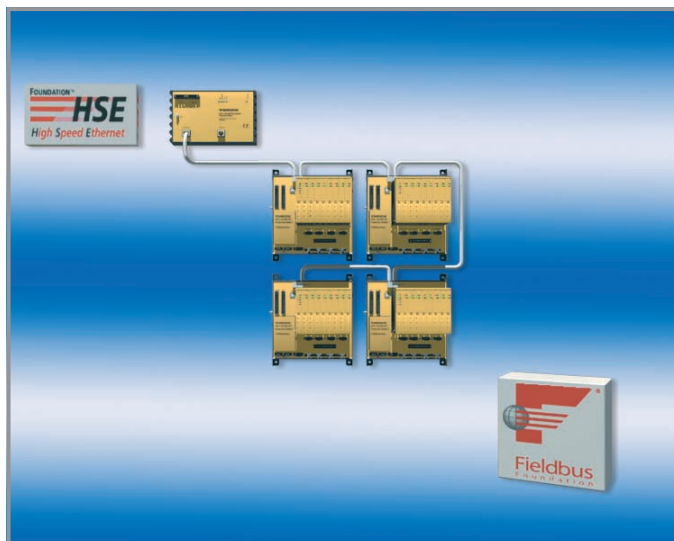
Network Media Products

The DPC-System (Diagnostic Power Conditioner System) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It provides comprehensive diagnostic functions for the monitoring of FOUNDATION fieldbus segments and supports asset management for the entire system.

A DPC system consists of one or more module racks (DPC-49-MB-RC) each with up to eight power supply modules (DPC-49-IPS) and one diagnostic module (DPC-49-ADU). Up to four H1 segments for each module rack can be operated and monitored redundantly. The diagnostic data from the H1 segments are transmitted via the HSE interface module (DPC-49-HSEFD/24VDC) to the higher level asset management system.

The diagnostic module (DPC-49-ADU) is used as a communication and diagnostic interface between the H1 segments and the power supply module. The diagnostics module monitors the electrical parameters and the communication parameters of the H1 segments. Operation without diagnostic module is possible. In this configuration, simple diagnostics are provided locally.

The diagnostic information is collected in the device and transmitted via the HSE interface module to the higher fieldbus level (e.g. to the host) as diagnostic and alarm data. The diagnostic module can be plugged in and unplugged during operation (hot swappable).



DPC system configuration



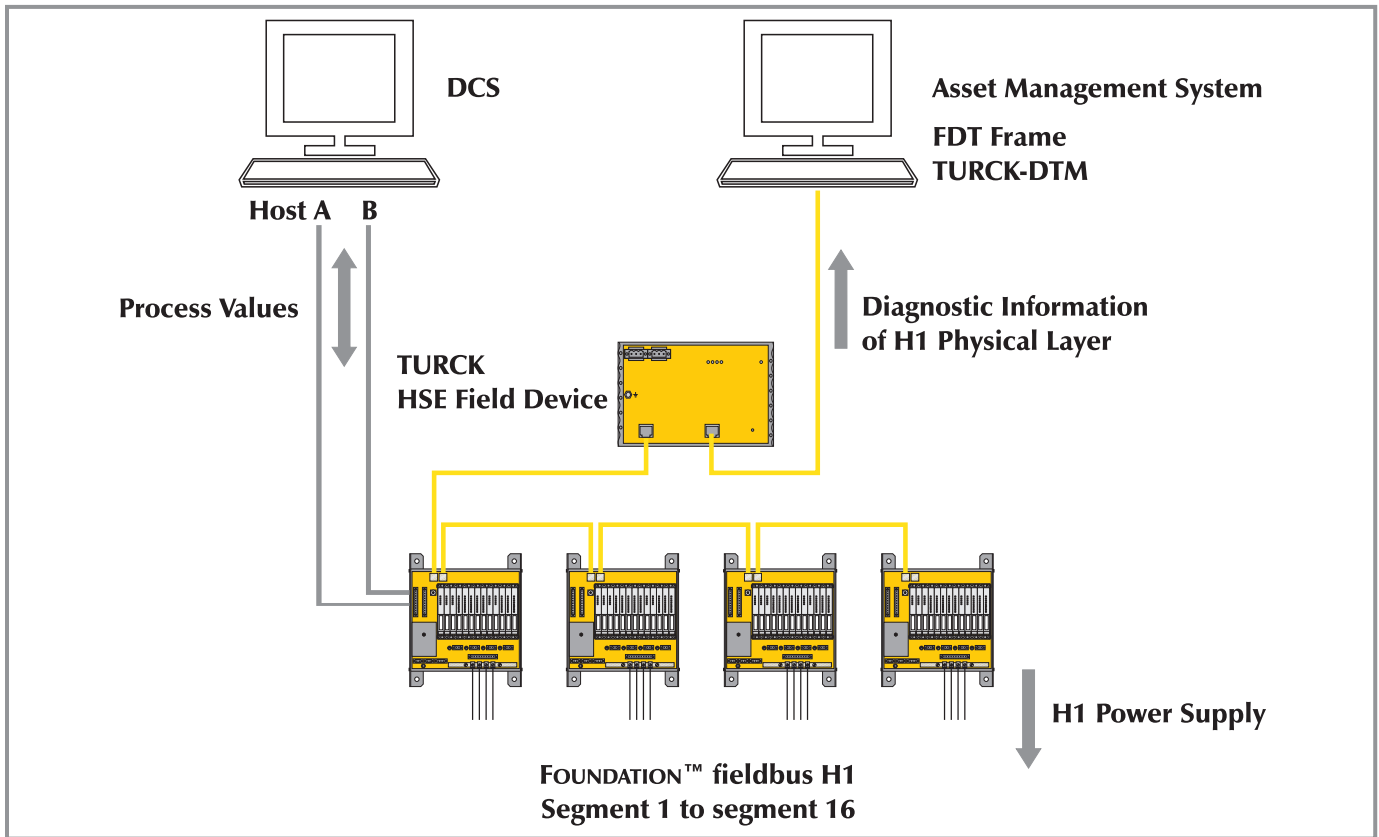
Diagnostics via DTM

Fieldbus - The dynamic asset

Information concerning the components of the control system and field devices are typically stored and monitored by that system. Information on assets that make up the communication infrastructure (physical layer components) have been simply stored in an asset management system. With the DPC system, the physical layer components are continuously monitored providing virtually instantaneous information regarding the quality and the status of the communication link.

This aspect of the system is the key to achieving the main objective of asset management to minimize maintenance and lower system operating costs.

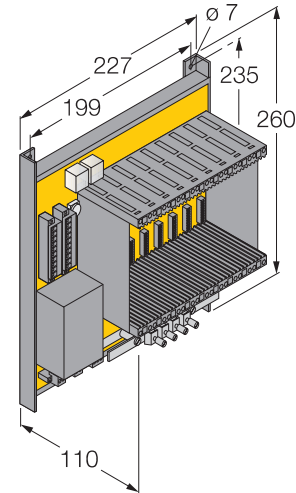
TURCK has drastically improved on existing physical layer components for use in FOUNDATION™ fieldbus applications. The introduction of this system allows the continuous monitoring of every physical layer component, thus treating the entire physical layer as an asset and providing the means for it to be managed as such.



FOUNDATION fieldbus

The DPC System detects errors that may develop over an extended period of time or through typical failure modes. These changes can occur due to many factors, such as environmental changes, deterioration of components over time, and any other factors that may affect the physical components of a fieldbus segment. Some of these factors may appear as changes in jitter, hum, noise levels etc. Alarm strategies may be employed that will warn of typical asset errors, potential errors or failures. Preventive measures can be implemented well in advance of a potential system failure. Most common failures can be completely avoided when a preventive maintenance schedule is implemented. The DPC system also supports the set-up of fieldbus assets by using expedient localization of error sources, as well as documentation indicating a "good condition" of the segment structure.

The DPC system provides an option for redundant segment supplies. The system, fully loaded, can accommodate up to 16 fully redundant FOUNDATION fieldbus segments each with an output of 800 mA and 30 VDC. Diagnostic data is available via a DTM, standard FOUNDATION fieldbus function block libraries or an embedded web server in the HSE field device.



The DPC-System (Diagnostic-Power-Conditioner-System) is a power supply system for the installation of FOUNDATION™ fieldbus H1 segments. It offers comprehensive diagnostic functions for the monitoring of FOUNDATION™ fieldbus segments and thus supporting Asset Management for the whole system.

A DPC system consists of one or more module racks DPC-49-MB-RC each with up to eight power supply modules DPC-49-IPS and one diagnostic module DPC-49-ADU. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus. The diagnostic data from the H1 segments are transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level Asset-Management-System.

The module rack DPC-49-MB-RC consists of a backplane and the actual rack system for the power supply modules and the diagnostic module.

The single components of the system are electrically linked via the connection terminals of the backplane from the user side. Thereby from an electrical perspective, the backplane is to be considered passive.

The power can be supplied via two 2-pole screw connectors. The connection to the host system is established via two system cables. Optional Pre-assembled system cables are available at **TURCK**.

For the connection of the H1 segments to the fieldbus side a 2-pole screw connector terminal is provided for each segment, or alternatively a 10-pole screw connector terminal for all segments together on the system side (system connection). Each H1 segment is equipped with a terminating resistor.

Shielding is established via a shielding bus bar DPC-49-SB4 or via the system connection, which is internally connected with the M5 threaded bolt for equipotential bonding.

A connection to the relay alarm contact of the diagnostic module is available for simple diagnostics processing. Additionally a terminal for the connection of test devices is available for each H1 segment.

The rack system is made of extruded aluminum sections. Thus high system stability and shielding is guaranteed. The module rack is suited for wall mounting as well as for 19" rail mounting.

Features:

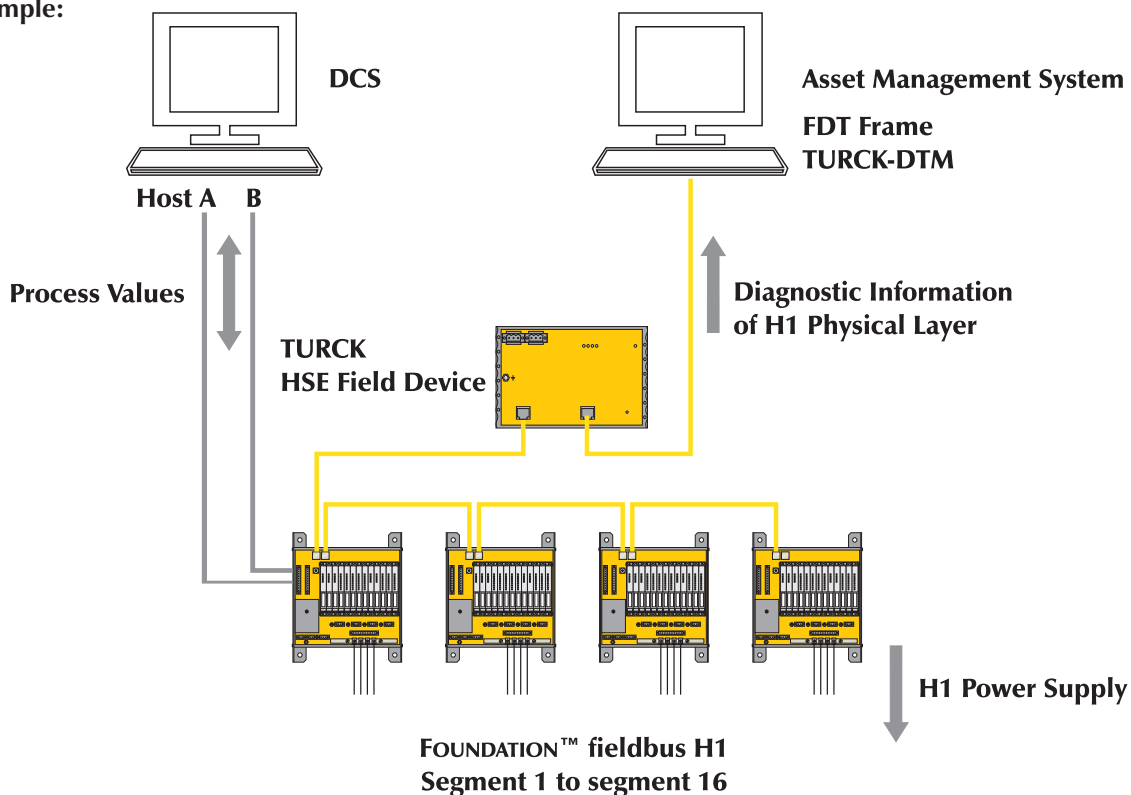
- Backplane for up to 8 power conditioner modules and 1 diagnostics module
- Exchangeable EMC filter
- Redundant host connection
- Redundant power supply
- Removable terminal blocks with screw connection
- RJ45 connector for HSE fieldbus diagnostics
- Insulated shield terminals
- Terminating resistor with segment output

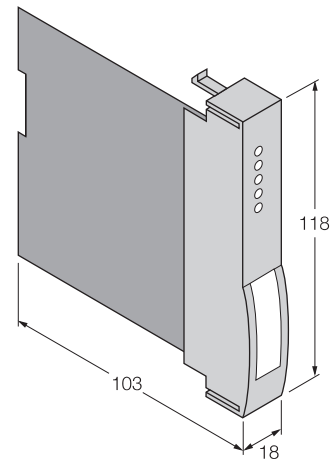
Backplane for the DPC System

DPC-49-MB-RC

Part Number	DPC-49-MB-RC
ID Number	M6882010
Fieldbus Standard	IEC 61158-2
Operating Voltage (Pwr)	18 to 32 VDC
Surge / Overvoltage Suppression	< 250 mA
Connection	Removable terminal block, reverse polarity protected, screw connection RJ45 socket
Protection Degree	IP 20
Ambient Temperature	-20 to +60°C (-4 to +140°F)
Housing Material	Aluminum
Housing Color	Black / Yellow
Dimensions	227 x 260 x 110 mm
Mounting	Flush Panel

Installation Example:





The DPC-System (Diagnostic-Power-Conditioner-System) is a power supply system for the installation of FOUNDATION™ H1 segments. It offers comprehensive diagnostic functions for the monitoring of FOUNDATION™ fieldbus segments and thus supporting Asset Management for the whole system.

A DPC system consists of one or more module racks DPC-49-MB-RC each with up to eight power supply modules DPC-49-IPS and one diagnostic module DPC-49-ADU. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus. The diagnostic data from the H1 segments are transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level Asset-Management-System.

The power supply module provides up to 30 VDC and 800 mA for the installation of the segment. Due to this maximum output power broad segment allocation (up to 1900 m) is possible without restriction.

If two power supply modules are applied, a redundant operation of the segment is possible. Therefore the power supply modules can be plugged in and unplugged shock-free (Hot swappable in run).

Due to complete galvanic isolation:

- H1 to H1
- H1 for the internal supply
- H1 to the diagnostics module
- H1 to the HSE diagnostics bus

Potential transfer is avoided and an error-free communication is insured. In order to simplify the start-up and the diagnostics on site, the following LED functions are available:

- Pwr: green: Operational readiness
- On / Off yellow: Output switched on
- Load: yellow: Recognition of consumers (field device) at the segment
- Com: yellow: Communication display
- Fault: red: Short-circuit message

Features:

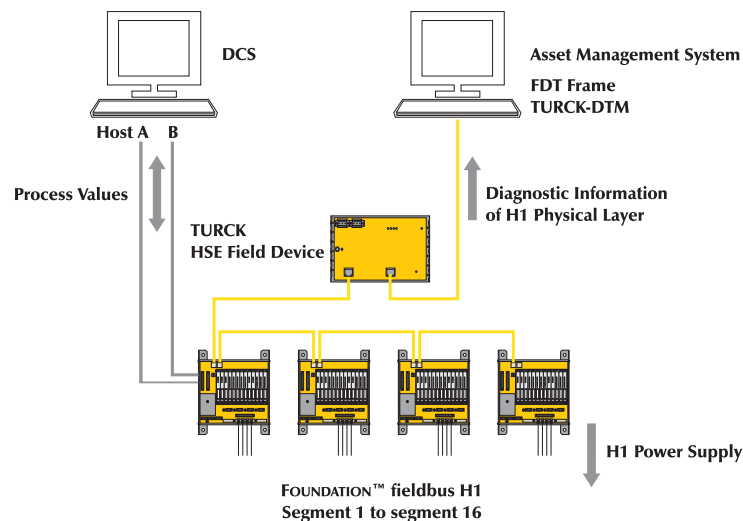
- Supply of a FOUNDATION™ fieldbus H1 segment
- Output current: 800 mA
- Output voltage: 28 to 30 VDC
- Local diagnostics via LEDs
- Complete galvanic isolation

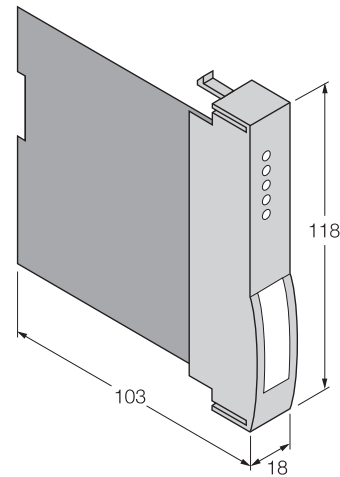
Power Supply Module DPC-49-IPS

Part Number	DPC-49-IPS
ID Number	M6882013
Fieldbus Standard	IEC 61158-2
Supply Voltage	Via the backplane
Current Consumption	0.8 to 1.7 A
Galvanic Isolation	Complete galvanic isolation, test voltage 500 VAC
Output Circuits	Field
Output Current	≤ 800 mA
Output Voltage	> 28 VDC
Short-circuit Protection	≤ 850 mA
Efficiency	80%
Output Circuits	HOST
Output Current	< 30 mA
Output Voltage	< 27 VDC
Indication	
Operational Readiness	1 x green
Output Active	1 x yellow
Output Current	1 x yellow
Short-circuit Message	1 x red
Bus Communication	1 x yellow
Protection Degree	IP 20
Ambient Temperature	-20 to +60°C (-4 to +140°F)
Housing Material	Plastic / flammability class V-0 to UL 96
Housing Color	Yellow
Dimensions	18 x 118 x 103 mm

FOUNDATION fieldbus

Installation Example:





The DPC-System (Diagnostic-Power-Conditioner-System) is a power supply system for the installation of FOUNDATION fieldbus™ H1 segments. It offers comprehensive diagnostic functions for the monitoring of FOUNDATION fieldbus™ segments and thus supporting Asset Management for the whole system.

A DPC system consists of one or more module racks DPC-49-MB-RC each with up to eight power supply modules DPC-49-IPS and one diagnostic module DPC-49-ADU. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION fieldbus™. The diagnostic data from the H1 segments are transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level Asset-Management-System.

The diagnostic module DPC-49-ADU is used as a communication and diagnostic interface between the H1 segments and the power supply module. The diagnostics module monitors the electrical parameters and the communication parameters of the H1 segments. Operation without diagnostic module is possible.

The diagnostic information is collected in the device and transmitted via the HSE interface module to the higher fieldbus level (e.g. to the host) as diagnostic and alarm data. The diagnostic module can be plugged in and unplugged during operation (Hot swap-able in run).

The device features a LED display which indicates the operating status of the H1 segments. A pre-alarm is indicated yellow and a main alarm red on the LED display. Alarm signals can also be transmitted via a relay contact.

Features:

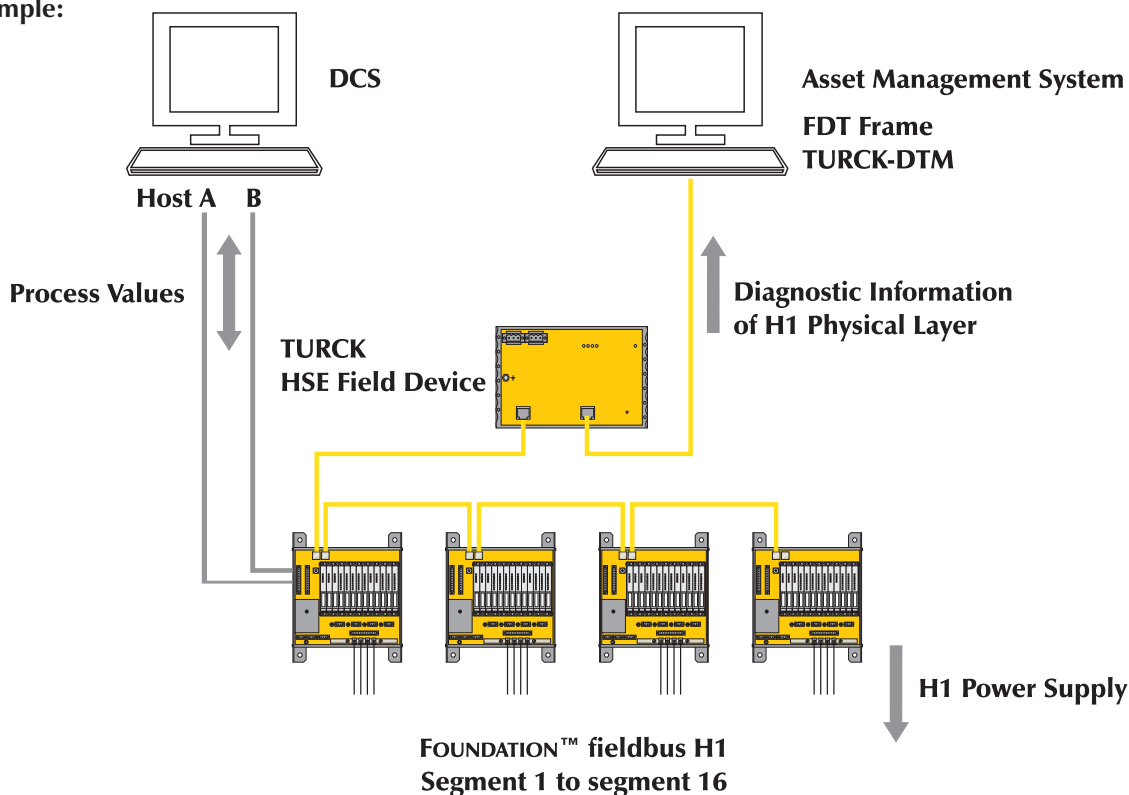
- Continuous diagnostics for 4 H1 segments
- Local diagnostics via LEDs
- Alarm signal via relay contact
- Complete galvanic isolation

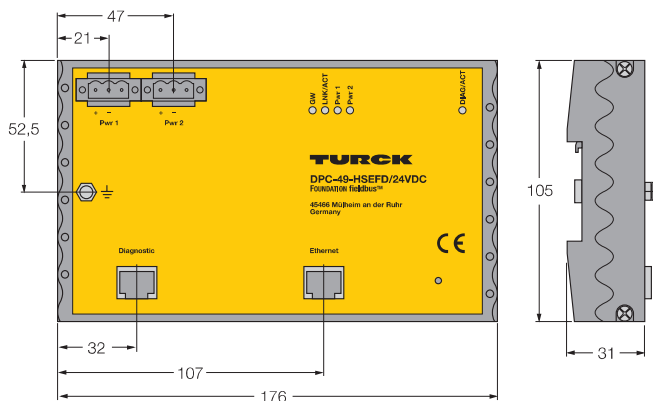
Diagnostics Module

DPC-49-ADU

Part Number	DPC-49-ADU
ID Number	M6882012
Fieldbus Standard	IEC 61158-2
Supply Voltage	Via the backplane
Current Consumption	< 100 mA
Galvanic Isolation	Complete galvanic isolation, test voltage 500 VAC
Diagnosis	1 x relay
Switching Current	≤ 1000 mA
Switching Voltage	≤ 30 VDC galvanically isolated against other electronic parts
Operational Readiness	1 x green / red
Alarm	4 x yellow / red
Protection Degree	IP 20
Ambient Temperature	-20 to +60°C (-4 to +140°F)
Housing Material	Plastic
Housing Color	Yellow
Dimensions	18 x 118 x 103 mm

Installation Example:





The DPC-System (Diagnostic-Power-Conditioner-System) is a power supply system for the installation of Foundation fieldbus™ H1 segments. It offers comprehensive diagnostic functions for the monitoring of FOUNDATION™ fieldbus segments thus supporting Asset Management for the whole system.

A DPC system consists of one or more module racks DPC-49-MB-RC, each with up to eight power supply modules DPC-49-IPS and one diagnostic module DPC-49-ADU. Up to four H1 segments for each module rack can be operated and monitored redundantly in the FOUNDATION™ fieldbus.

The diagnostic data from the H1 segments are transmitted via the HSE interface module DPC-49-HSEFD/24VDC to the higher level Asset-Management-System. Only the diagnostics data of the diagnostic module DPC-49-ADU are transmitted with the HSE interface module, not the process data of the H1 field device. Each diagnostic module monitors up to four H1 segments.

The HSE interface module is a FOUNDATION™ fieldbus field device, which contains one resource and one transducer block and various standard function blocks. On the basis of these standard function blocks, suitable applications for the analysis of the diagnostics data can be programmed in the control system.

Features:

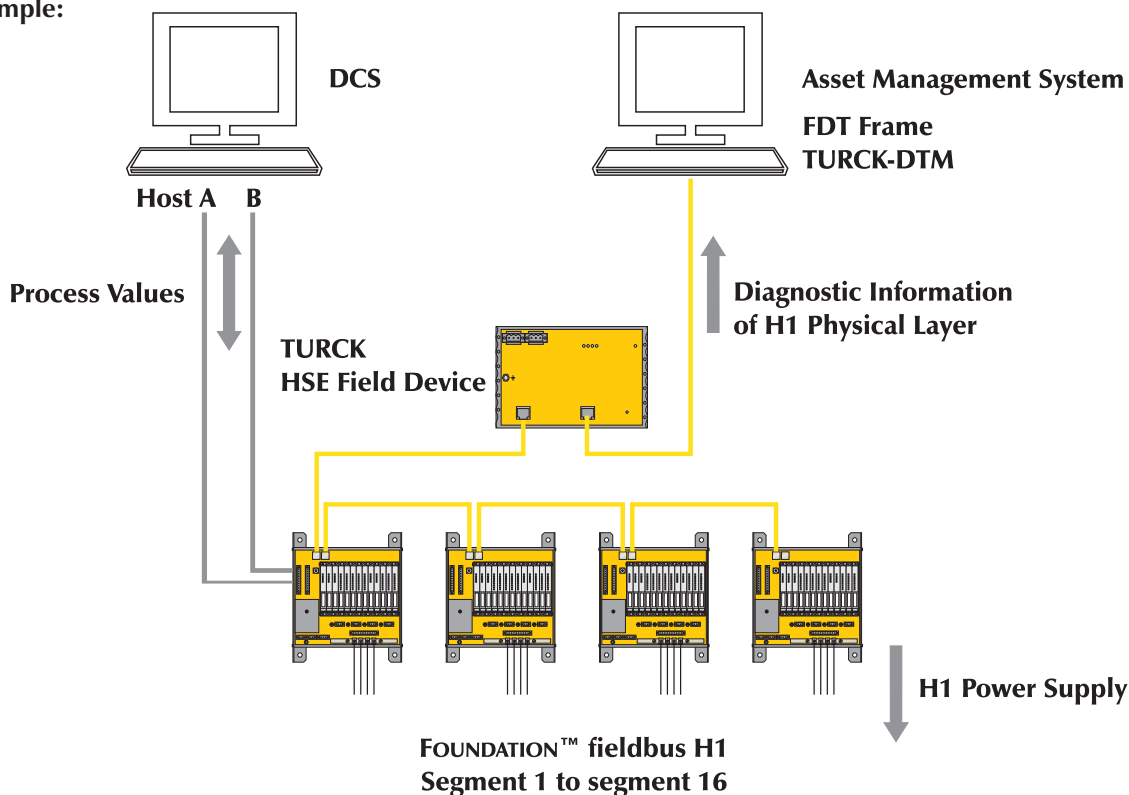
- HSE interface module for the transmission of diagnostic data
- FOUNDATION™ fieldbus function blocks for remote diagnostics
- Diagnostics via LEDs
- Continuous diagnostics for sixteen H1 segments
- Complete galvanic isolation
- Complete galvanic isolation

HSE Field Device

DPC-49-HSEFD/24VDC

Part Number	DPC-49-HSEFD/24VDC
ID Number	M6882014
Fieldbus Standard	IEC 61158-2
Supply Voltage	Two power terminals - PWR1 & PWR2
Current Consumption	< 100 mA
Galvanic Isolation	Complete galvanic isolation, test voltage 500 VAC
Indication	
Operational Readiness	2 x green
State / Fault	1 x yellow / red
Bus Communication	1 x green / yellow
Int. Communication (CAN)	1 x yellow / red
Protection Degree	IP 20
Ambient Temperature	-20 to +60°C (-4 to +140°F)
Housing Material	Aluminum
Housing Color	Black / Yellow
Dimensions	176 x 105 x 31 mm
Connection Mode	Snap-on DIN rail (DIN 50022)

Installation Example:



FOUNDATION™ fieldbus, Cable Specifications

- Cable that Meets the Requirements of ISA/SP50 and FOUNDATION™ fieldbus Requirements for Type A Cable
- Cables are Available in 3-wire Versions with a Device Ground or 2-wire Versions

Type A Cable Specifications

- Temperature range: -40 to +105°C
- Governed by: ISA SP50.02 specification
- Sunlight Resistant
- PLTC and ITC Rated (CSA FT4)
- Impedance [Z_0 at f_c (31.25 kHz)] = 100 Ohms \pm 20 %
- Maximum Attenuation at 1.25 f_c (39 kHz) = 3.0 dB/km
- Maximum Capacitive Unbalance to Shield = 2 nF/km
- Maximum DC Resistance (per conductor) = 24 Ohms/km
- Maximum Propagation Delay Variance 0.25 f_c to 1.25 f_c = 1.7 μ s/km
- Conductor Cross-sectional area (wire size) = nominal 0.8 mm² (#18 AWG) or 1.2 mm² (#16 AWG)
- Shield Coverage = 100 % (90 % minimum)

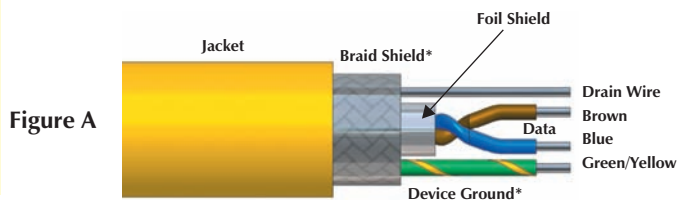


Figure A

*Available on some cable types

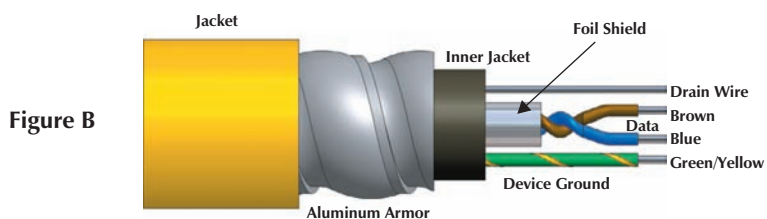


Figure B

Type	Approvals	Data Pair		Device Ground	Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	Material Color Nominal O.D.	Type Drain Wire		
490 AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG] AWM I/II A/B FT4	2/18 AWG BU/BN	6.5 Ohms XLPE	18 AWG GN/YE	PVC Yellow 8.4 mm (.330 in)	Foil 20 AWG	RB50693-*M 58 lbs.	A
490B AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG] AWM I/II A/B FT4	2/18 AWG BU/BN	6.5 Ohms XLPE	18 AWG GN/YE	PVC Blue 8.4 mm (.330 in)	Foil 20 AWG	RB50783-*M 58 lbs.	A
492A 105°C 300 Volts	NEC ITC PLTC/CM CEC [CMG HLBCD]	2/18 AWG BU/BN	6.5 Ohms XLPE	18 AWG GN/YE	Armor/PVC Yellow 14.9 mm (0.585 in)	Foil 18 AWG	RB50874-*M 96 lbs. armorfast®	B
492BA 105°C 300 Volts	NEC ITC PLTC/CM CEC [CMG HLBCD]	2/18 AWG BU/BN	6.5 Ohms XLPE	18 AWG GN/YE	Armor/PVC Blue 14.9 mm (0.585 in)	Foil 18 AWG	RB50803-*M 96 lbs. armorfast®	B
493 AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG] AWM I/II A/B FT4	2/18 AWG BU/BN	6.5 Ohms XLPE	None	PVC Yellow 8.5 mm (.335 in)	Foil/Braid 20 AWG	RB50784-*M 59 lbs.	A
493B AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG] AWM I/II A/B FT4	2/18 AWG BU/BN	6.5 Ohms XLPE	None	PVC Blue 8.5 mm (.335 in)	Foil/Braid 20 AWG	RB50786-*M 59 lbs.	A

* Indicates length in meters.
Standard cable lengths are 30, 75, 150, 225 and 300 meters.

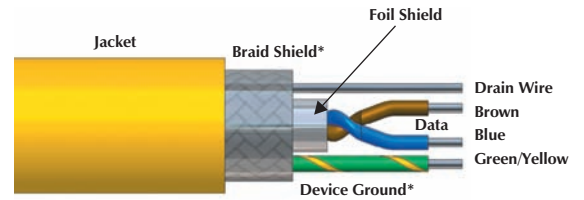
FOUNDATION™ fieldbus, Cable Specifications

- Cable that Meets the Requirements of ISA/SP50 and FOUNDATION™ fieldbus Requirements for Type A Cable
- Cables are Available in 3-wire Versions with a Device Ground or 2-wire Versions

Type A Cable Specifications

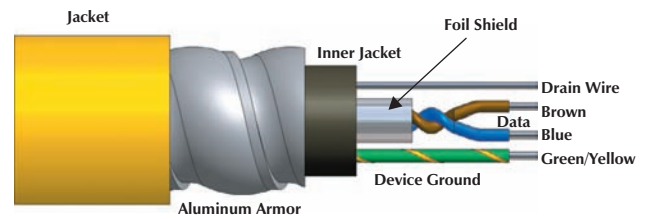
- Temperature range: -40 to +105°C
- Governed by: ISA SP50.02 specification
- Sunlight Resistant
- PLTC and ITC Rated (CSA FT4)
- Impedance [Z_0 at f_r (31.25 kHz)] = 100 Ohms \pm 20 %
- Maximum Attenuation at 1.25 f_r (39 kHz) = 3.0 dB/km
- Maximum Capacitive Unbalance to Shield = 2 nF/km
- Maximum DC Resistance (per conductor) = 24 Ohms/km
- Maximum Propagation Delay Variance 0.25 f_r to 1.25 f_r = 1.7 μ s/km
- Conductor Cross-sectional area (wire size) = nominal 0.8 mm² (#18 AWG) or 1.2 mm² (#16 AWG)
- Shield Coverage = 100 % (90 % minimum)

Figure A



*Available on some cable types

Figure B



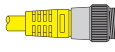

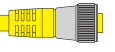

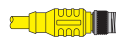

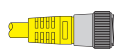


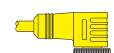
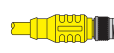
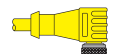


Type	Approvals	Data Pair		Device Ground	Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	Material Color Nominal O.D.	Type Drain Wire		
4930 AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG] AWM I/II A/B FT4	2/18 AWG BU/BN	6.5 Ohms XLPE	None	PVC Orange 8.5 mm (.335 in)	Foil/Braid 20 AWG	RB50785-*M 59 lbs.	A
496 AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG] AWM I/II A/B FT4	2/16 AWG BU/BN	4.1 Ohms XLPE	None	PVC Yellow 9.6 mm (.378 in)	Foil 18 AWG	RB50891-*M 64 lbs.	A
496BK AWM 2517 105°C 300 Volts	NEC ITC PLTC Open Wiring CEC [CMG] AWM I/II A/B FT4	2/16 AWG BU/BN	4.1 Ohms XLPE	None	PVC Black 9.6 mm (.378 in)	Foil 18 AWG	RB51300-*M 64 lbs.	A

* Indicates length in meters.
Standard cable lengths are 30, 75, 150, 225 and 300 meters.

TURCK

Network Media Products

FOUNDATION™ fieldbus, Cable and Cordset Selection Matrix

		<i>minifast</i> ®				<i>eurofast</i> ®	
		Pin (Male)		Socket (Female)		Pin (Male)	
		1  RSV	2  WSV	3  RKV	4  WKV	5  RSCV	
 Bare		RSV 49x-*M	WSV 49x-*M	RKV 49x-*M	WKV 49x-*M	RSCV 49x-*M	
<i>minifast</i>	Pin (Male)	1  RSV	RSV RSV 49x-*M	RSV WSV 49x-*M	RSV RKV 49x-*M	RSV WKV 49x-*M	RSV RSCV 49x-*M
	2  WSV		WSV WSV 49x-*M	WSV RKV 49x-*M	WSV WKV 49x-*M	WSV RSCV 49x-*M	
	3  RKV			RKV RKV 49x-*M	RKV WKV 49x-*M	RKV RSCV 49x-*M	
	4  WKV				WKV WKV 49x-*M	WKV RSCV 49x-*M	
<i>eurofast</i>	Pin (Male)	5  RSCV				RSCV RSCV 49x-*M	
	6  WSCV						
	7  RSCV						
	8  WSCV						

See pages R19 - R20 for dimensional drawings.

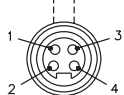
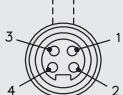
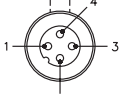
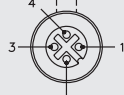
* Indicates length in meters.

x Indicates cable type.



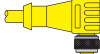


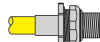

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 0.3, 0.5, 1.0, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 8.0, 10, 15....50 Meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV. For *eurofast armorfast*® cable RSC ... to RSA.

<i>minifast</i>		Pinouts	<i>eurofast</i>	
Male	Female	<ol style="list-style-type: none"> Blue (- Voltage) Brown (+ Voltage) Bare (Shield Drain Wire) Green/Yellow (Ground) 	Male	Female
				

FOUNDATION™ fieldbus, Cable and Cordset Selection Matrix

eurofast®		minifast® Bulkhead		eurofast Bulkhead		
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6 	7 	8 	9 	10 	11 	12 
WSCV	RKCX	WKCX	RSFPV	RKFPV	FSFDV	FKFDV
WSCV 49x-*M	RKCX 49x-*M	WKCX 49x-*M	RSFPV 49x-*M	RKFPV 49x-*M	FSFDV 49x-*M	FKFDV 49x-*M
RSV WSCV 49x-*M	RSV RKCX 49x-*M	RSV WKCX 49x-*M	RSV RSFPV 49x-*M	RSV RKFPV 49x-*M	RSV FSFDV 49x-*M	RSV FKFDV 49x-*M
WSV WSCV 49x-*M	WSV RKCX 49x-*M	WSV WKCX 49x-*M	WSV RSFPV 49x-*M	WSV RKFPV 49x-*M	WSV FSFDV 49x-*M	WSV FKFDV 49x-*M
RKV WSCV 49x-*M	RKV RKCX 49x-*M	RKV WKCX 49x-*M	RKV RSFPV 49x-*M	RKV RKFPV 49x-*M	RKV FSFDV 49x-*M	RKV FKFDV 49x-*M
WKV WSCV 49x-*M	WKV RKCX 49x-*M	WKV WKCX 49x-*M	WKV RSFPV 49x-*M	WKV RKFPV 49x-*M	WKV FSFDV 49x-*M	WKV FKFDV 49x-*M
RSCV WSCV 49x-*M	RSCV RKCX 49x-*M	RSCV WKCX 49x-*M	RSCV RSFPV 49x-*M	RSCV RKFPV 49x-*M	RSCV FSFDV 49x-*M	RSCV FKFDV 49x-*M
WSCV WSCV 49x-*M	WSCV RKCX 49x-*M	WSCV WKCX 49x-*M	WSCV RSFPV 49x-*M	WSCV RKFPV 49x-*M	WSCV FSFDV 49x-*M	WSCV FKFDV 49x-*M
	RKCX RKCX 49x-*M	RKCX WKCX 49x-*M	RKCX RSFPV 49x-*M	RKCX RKFPV 49x-*M	RKCX FSFDV 49x-*M	RKCX FKFDV 49x-*M
		WKCX WKCX 49x-*M	WKCX RSFPV 49x-*M	WKCX RKFPV 49x-*M	WKCX FSFDV 49x-*M	WKCX FKFDV 49x-*M

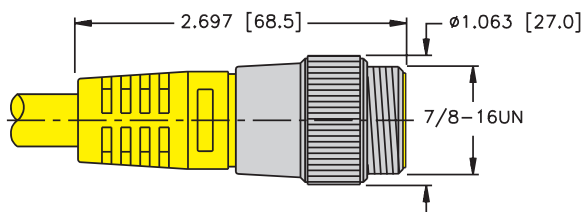
FOUNDATION fieldbus

FOUNDATION™ fieldbus, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

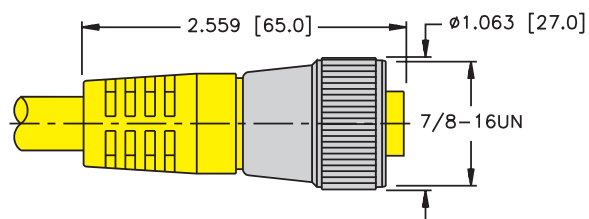
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RSV ..

Pages R17 - R18

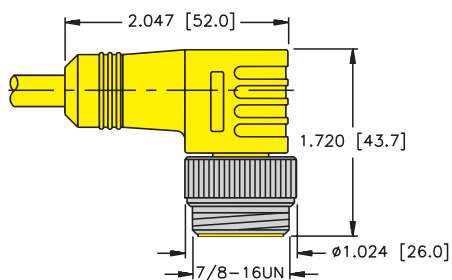
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RKV ..

Pages R17 - R18

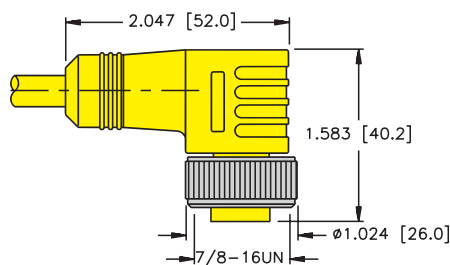
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WSV ..

Pages R17 - R18

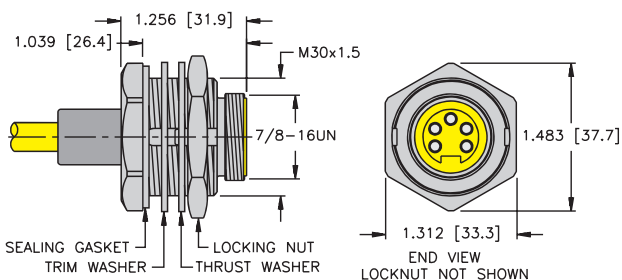
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WKV ..

Pages R17 - R18

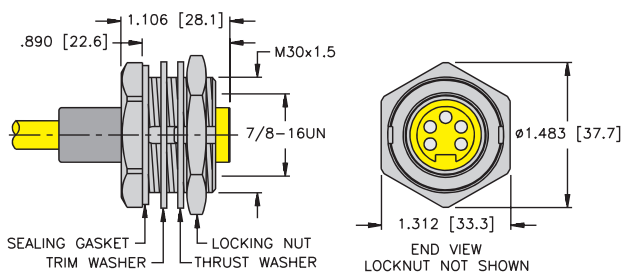
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RSFPV ..

Pages R17 - R18

10



RKFPV ..

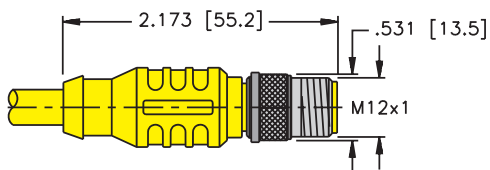
Pages R17 - R18

FOUNDATION™ fieldbus, eurofast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

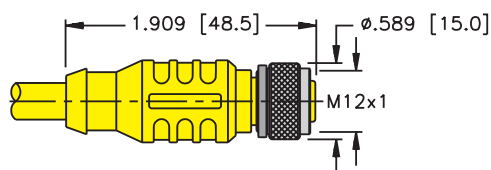
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RSCV ..

Pages R17 - R18

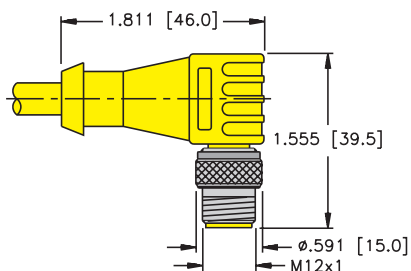
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RKCVC ..

Pages R17 - R18

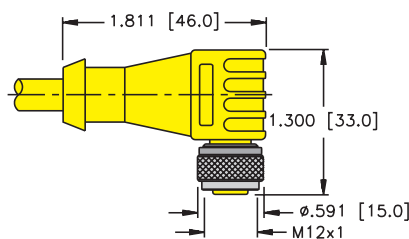
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WSCV ..

Pages R17 - R18

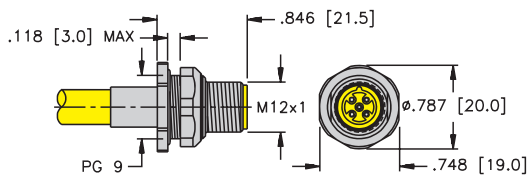
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WKCVC ..

Pages R17 - R18

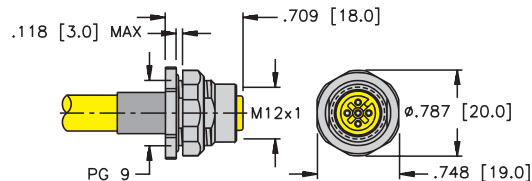
11



FSFDV ..

Pages R17 - R18

12



FKFDV ..

Pages R17 - R18

FOUNDATION fieldbus

FOUNDATION™ fieldbus, eurofast® Heavy Duty Cordsets

- Heavy Duty Coupling Nut Completely Supports the Molded Plug Body
- Provides Superior Strength



Housing	Part Number	Specs	Applications	Pinouts
	RSGV-49x-*M	TPU (Polyurethane) Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	eurofast Heavy Duty Cordsets <ul style="list-style-type: none"> • Heavy coupling nut completely supports the molded plug body to provide superior strength 	Male
	RKGV-49x-*M			Female

* Indicates length in meters.

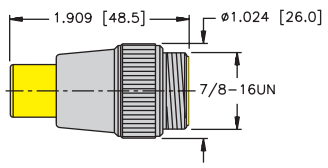
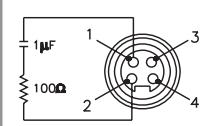
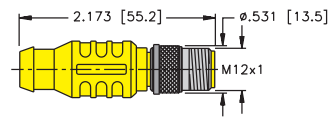
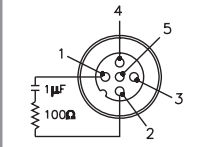
x Indicates cable type.

For nickel plated brass coupling nut change: RSGV ... to RSG ... or RKGV ... to RKG ...

FOUNDATION™ fieldbus, Terminating Resistors

- Terminating Resistors Stabilize and Minimize Reflections on the Bus Line
- A Terminating Resistor is Required at the Beginning and End of the Main Bus Line



Housing	Part Number	Specs	Application	Pinouts
	RSV 49-TR	Nickel Plated Brass or Stainless Steel 250 V, 4 A -40° to +75°C	minifast ® Terminating Resistor <ul style="list-style-type: none"> • Male minifast connector 	Male 
	RSEV 49-TR		eurofast ® Terminating Resistor <ul style="list-style-type: none"> • Male eurofast connector 	Male 

FOUNDATION™ fieldbus, Feed Through Connectors

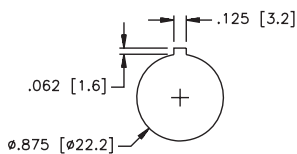
- Receptacles Provide Transition from Male to Female Connectors
- Available for Bulkhead and Feed Through Applications



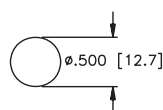
Housing	Part Number	Specs	Application	Pinouts
	RSFV RKFV 49/22	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +75°C	minifast® Bulkhead Receptacle <ul style="list-style-type: none"> • Straight male/female feed-through • For use with minifast cordsets 	<p>Male</p> <p>Female</p>
	FKV FSV 49/M12	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	eurofast® Bulkhead Receptacle <ul style="list-style-type: none"> • Straight male/female connector • For use with eurofast cordsets 	<p>Male</p> <p>Female</p>

Standard housing material is nickel plated brass. "RSF RKF .."; "RSFV RKFV .." indicates stainless steel housing.

Panel Cutout
RSF RKF 49/22




Panel Cutout
FKM FS 49/M12

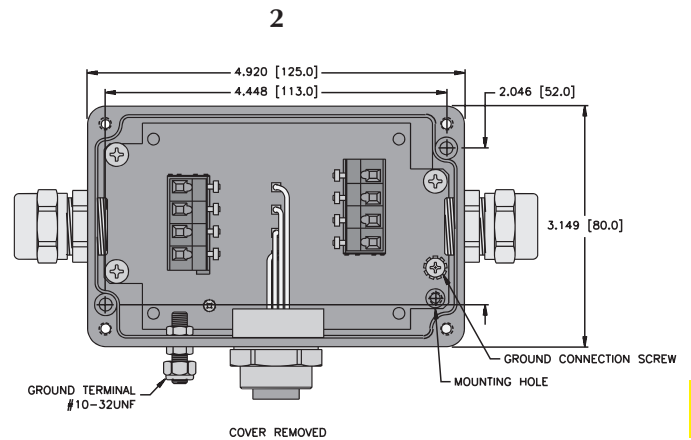
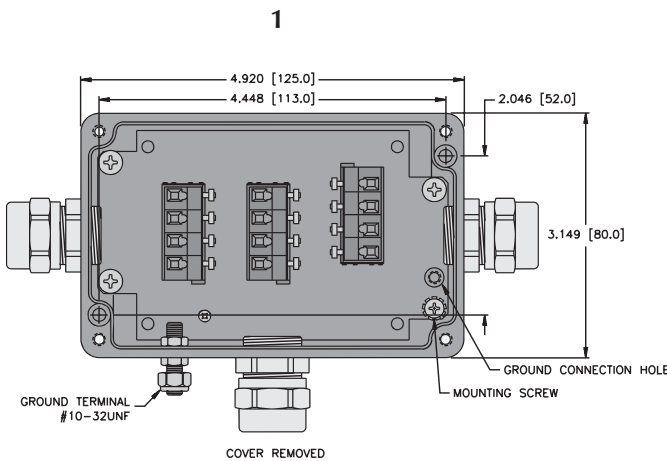


FOUNDATION™ fieldbus, Field Wireable Tee

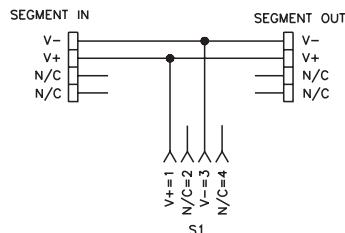
- A Hybrid Connection System Offering Reliable Connections on Short Drops and Ease of Installation on Long Trunk Runs
- Features Standard *minifast*® Connector for the Drop Connection and Terminal Connectors on the Trunk Connections



Housing	Part Number	Specs	Application	Pinout
See Drawing 1	SPTT1-A49	Anodized Aluminum 250 V, 4 A -40° to +75°C	Field wireable terminals and (7/8-16UN) <i>minifast</i> connector on drop connection	Female 
See Drawing 2	SPTTM13-A49	NEMA 1, 3, 4, 6P and IEC IP 68		



Wiring Diagram



TURCK

Network Media Products

FOUNDATION™ fieldbus, Junction Box for Din Rail Mounting

- IP20 DIN Rail Mounted Junctions
- Available in 4, 6, and 8 Channel



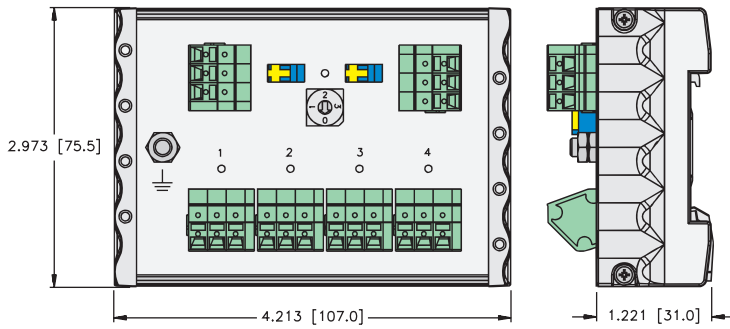
Part Number	Application	Wiring Diagram
JRBS-40-4/EX	4-port Junction Tee <ul style="list-style-type: none"> • Four cage clamp device ports • Approval: ATEX II 2 G EEx ib IIC/IIB T4 	
JRBS-40SC-4/EX	4-port Junction Tee <ul style="list-style-type: none"> • Four cage clamp device ports • Short-circuit protection: adjustable 30, 35, 45, 60 mA • Open circuit voltage: 32 V • Current consumption: 7 mA • LED indicators Power: Green = On Short-circuit: Red = On • Approval: ATEX II 2 G EEx ib IIC/IIB T4 	
JRBS-40-6/EX	6-port Junction Tee <ul style="list-style-type: none"> • Six cage clamp device ports • Approval: ATEX II 2 G EEx ib IIC/IIB T4 	
JRBS-40SC-6/EX	6-port Junction Tee <ul style="list-style-type: none"> • Six cage clamp device ports • Short-circuit protection: adjustable 30, 35, 45, 60 mA • Open circuit voltage: 32 V • Current consumption: 7 mA • LED indicators Power: Green = On Short-circuit: Red = On • Approval: ATEX II 2 G EEx ib IIC/IIB T4 	
JRBS-40-8/EX	8-port Junction Tee <ul style="list-style-type: none"> • Eight cage clamp device ports • Approval: ATEX II 2 G EEx ib IIC/IIB T4 	
JRBS-40SC-8/EX	8-port Junction Tee <ul style="list-style-type: none"> • Eight cage clamp device ports • Short-circuit protection: adjustable 30, 35, 45, 60 mA • Open circuit voltage: 32 V • Current consumption: 7 mA • LED indicators Power: Green = On Short-circuit: Red = On • Approval: ATEX II 2 G EEx ib IIC/IIB T4 	

Specifications

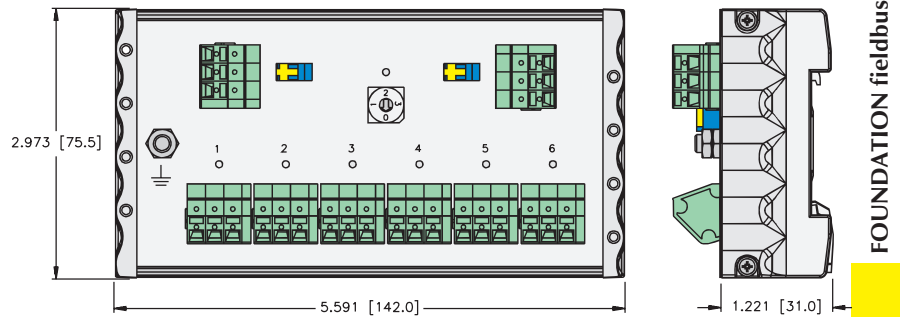
Housing:	Aluminum
Contact Carrier:	PA (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1 and IP 20
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-25° to +70°C (-13° to +158°F)

Dimensions

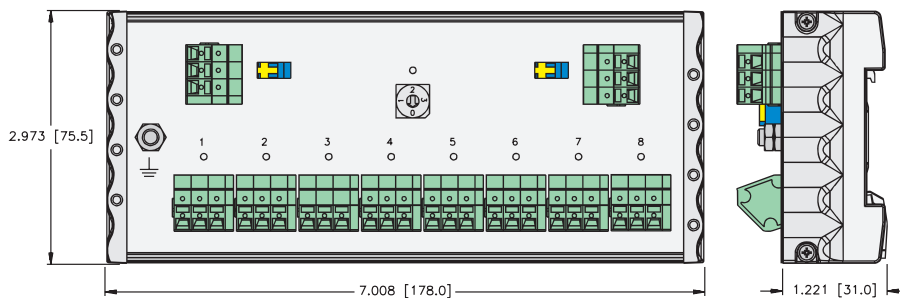
4 Channel



6 Channel



8 Channel



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FOUNDATION™ fieldbus, Junction Box for Din Rail Mounting

- IP 20 DIN Rail Mounted Junctions
- 8 Channel



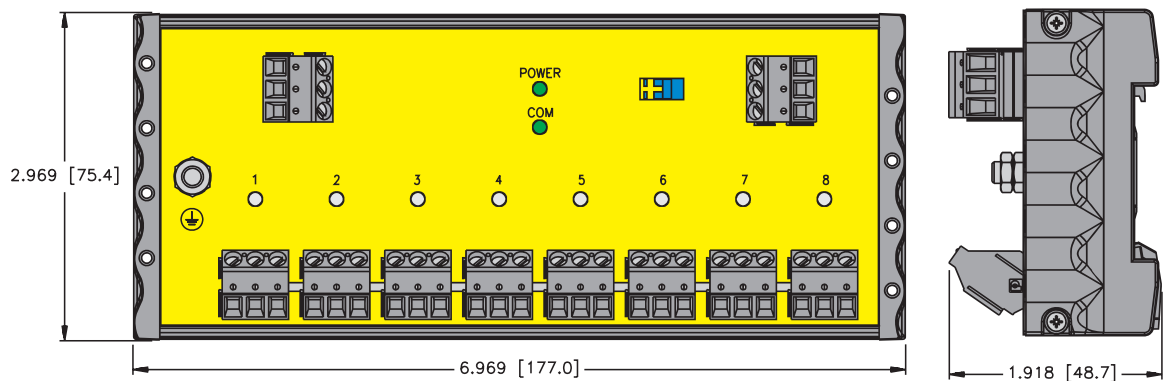
Part Number	Application	Wiring Diagram
<p>JRBS-49SC-8</p>	<p>8-port Junction Tee</p> <ul style="list-style-type: none"> • Eight cage clamp device ports • 55 mA Short-circuit protected • Open circuit voltage: 33 V • Current consumption: 15 mA • LED indicators Power: Green = On Comm: Green = Data transfer Short-circuit: Red = On • Switchable terminating resistor 	

Specifications

Housing:	Aluminum
Contact Carrier:	PA (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1 and IP 20
Connection Mode:	Snap-on DIN RAIL (DIN 50022)
Ambient Temperature:	-25° to +70°C (-13° to +158°F)

Dimensions

8 Channel



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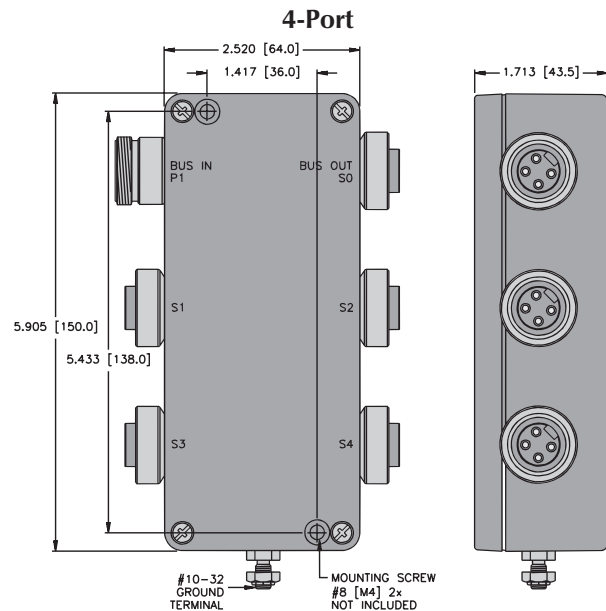
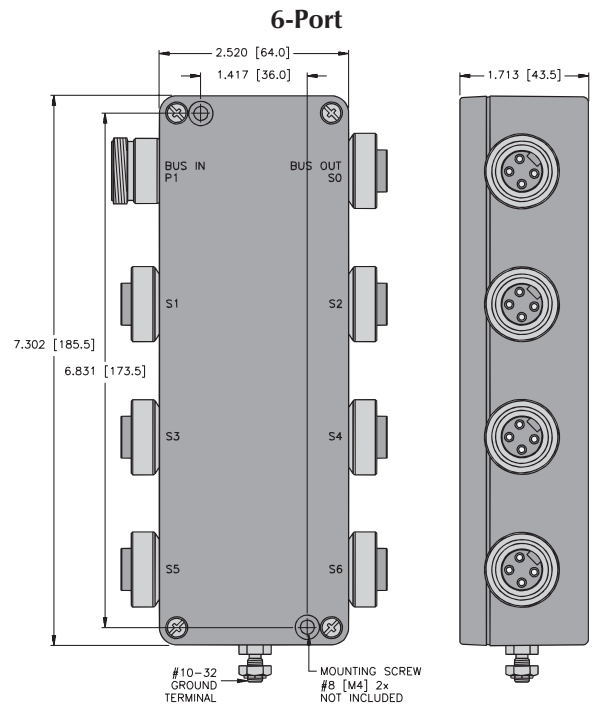
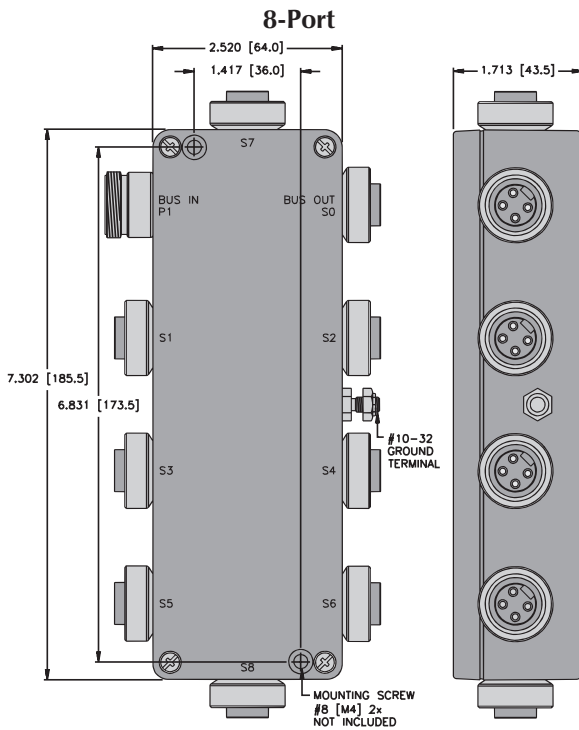


Part Number	Specs	Application	Wiring Diagrams
JBBS-49-M413 JBBS-49-M414	No short-circuit protection	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-M613 JBBS-49-M614	No short-circuit protection	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-M813 JBBS-49-M814	No short-circuit protection	8-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Eight (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

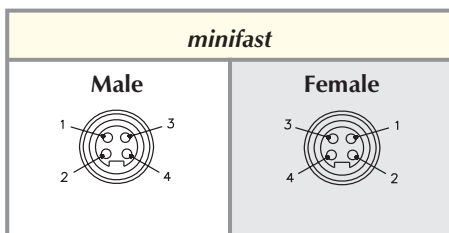
Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



Pinouts



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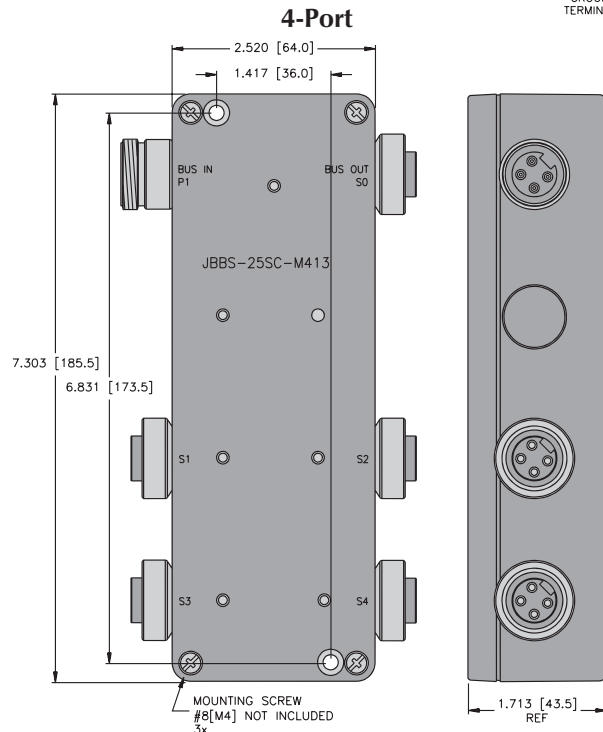
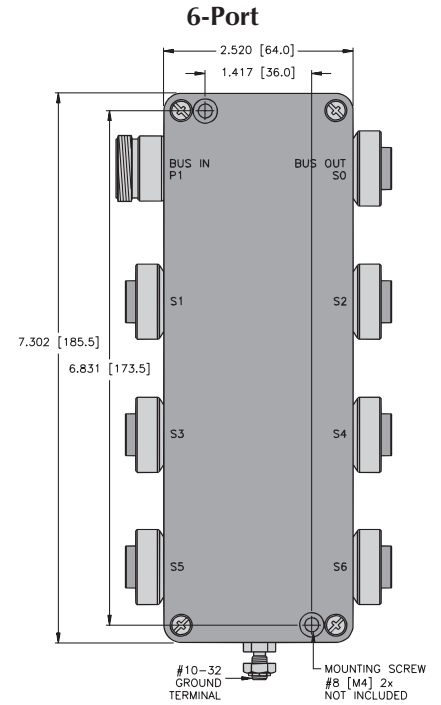
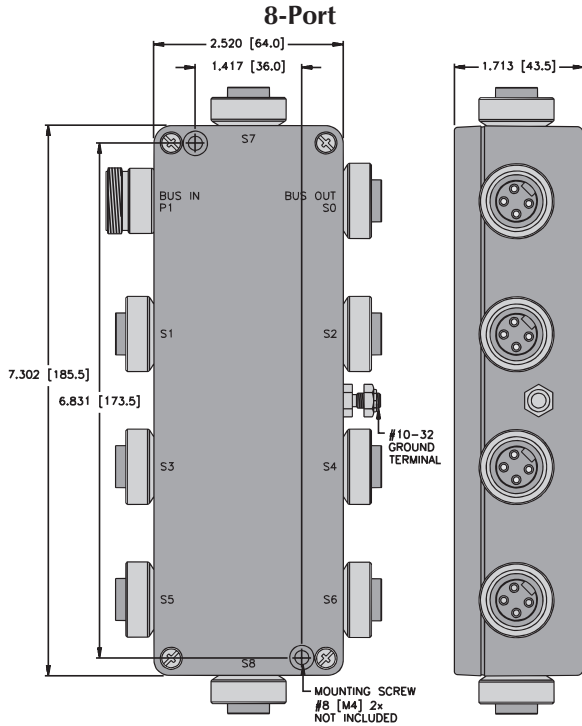


Part Number	Specs	Application	Wiring Diagrams
JBBS-49SC-M413	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: <60 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	
JBBS-49SC-M613	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: <60 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	
JBBS-49SC-M813	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 33 VDC • Current consumption: <60 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>8-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Eight (7/8-16UN) <i>minifast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	

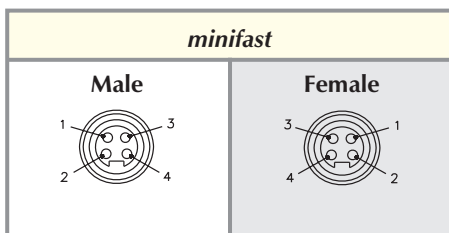
Specifications

- Housing:** Anodized Aluminum
- Coupling Nut:** Stainless Steel
- Contact Carrier:** TPU (Polyurethane)
- Contacts:** Gold Plated CuZn
- Protection:** NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
- Rated Voltage:** 300 V
- Rated Current:** 9 A
- Ambient Temperature:** -40° to +75°C (-22° to +167°F)

Dimensions



Pinouts



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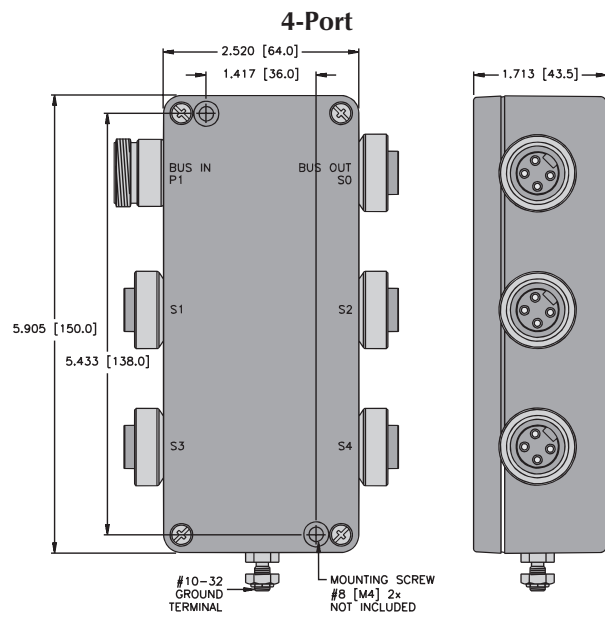
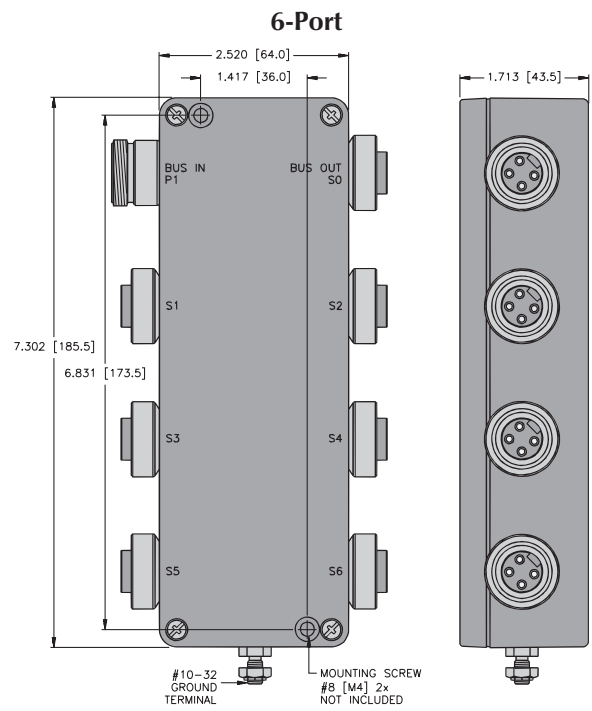
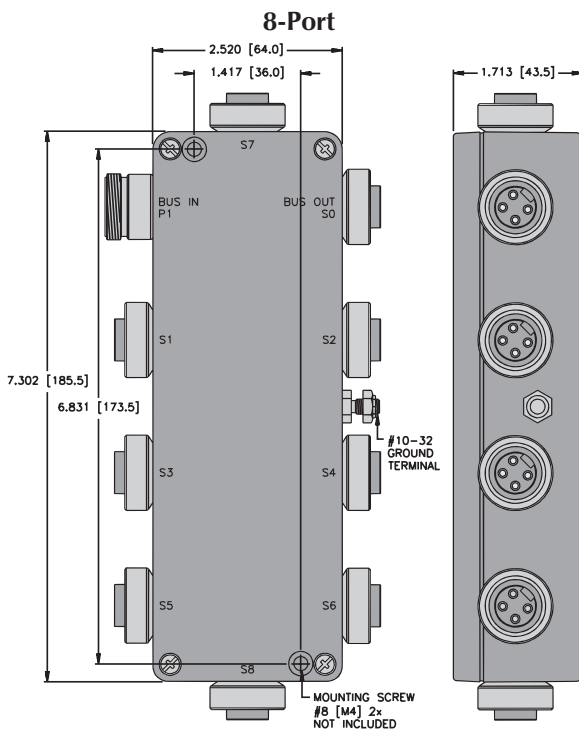


Part Number	Specs	Application	Wiring Diagrams
JBBS-49-M423 JBBS-49-M424	No short-circuit protection Fiberglass housing	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-M623 JBBS-49-M624	No short-circuit protection Fiberglass housing	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-M823 JBBS-49-M824	No short-circuit protection Fiberglass housing	8-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Eight (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

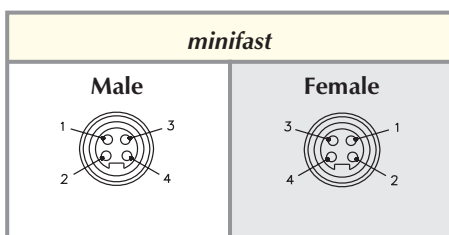
Specifications

Housing:	Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



Pinouts



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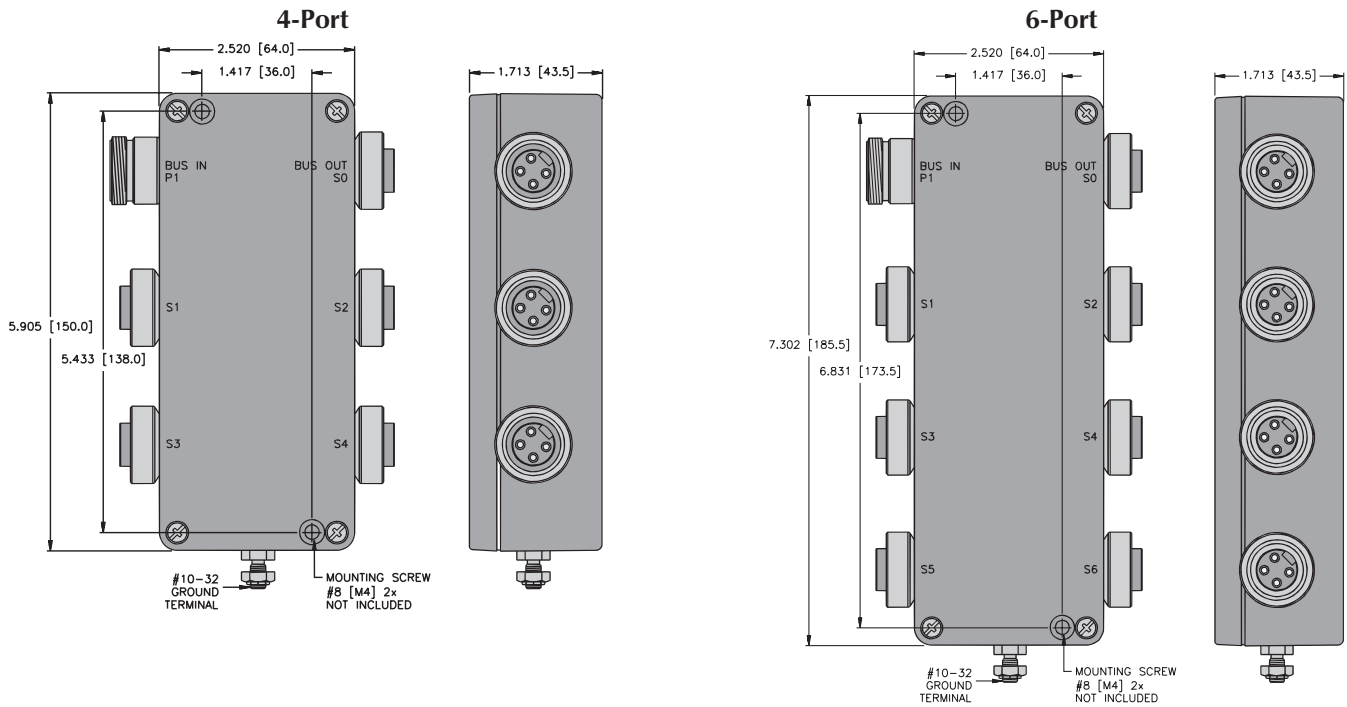


Part Number	Specs	Application	Wiring Diagrams
JBBS-49-M413/EX	No short-circuit protection	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) • FISCO/ENTITY Field Device 	
JBBS-49-M613/EX	No short-circuit protection	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) • FISCO/ENTITY Field Device 	

Specifications

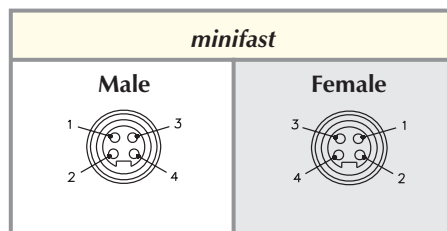
Housing:	Anodized Aluminum
Coupling Nut:	Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



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Pinouts



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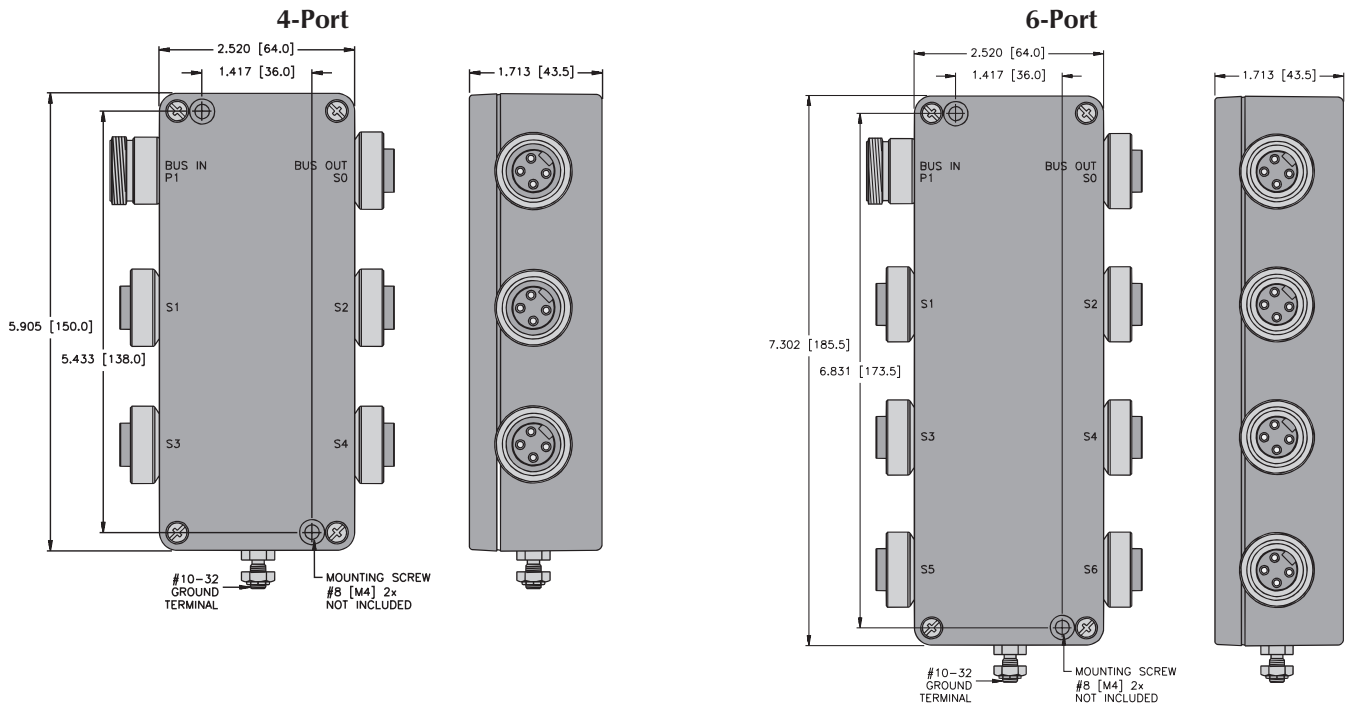


Part Number	Specs	Application	Wiring Diagrams
JBBS-49SC-M413/EX	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p> <p>FISCO/ENTITY Field Device</p>	
JBBS-49SC-M613/EX	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p> <p>FISCO/ENTITY Field Device</p>	

Specifications

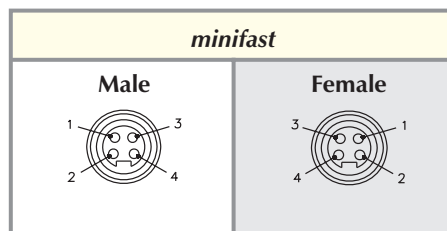
Housing:	Anodized Aluminum
Coupling Nut:	Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



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Pinouts



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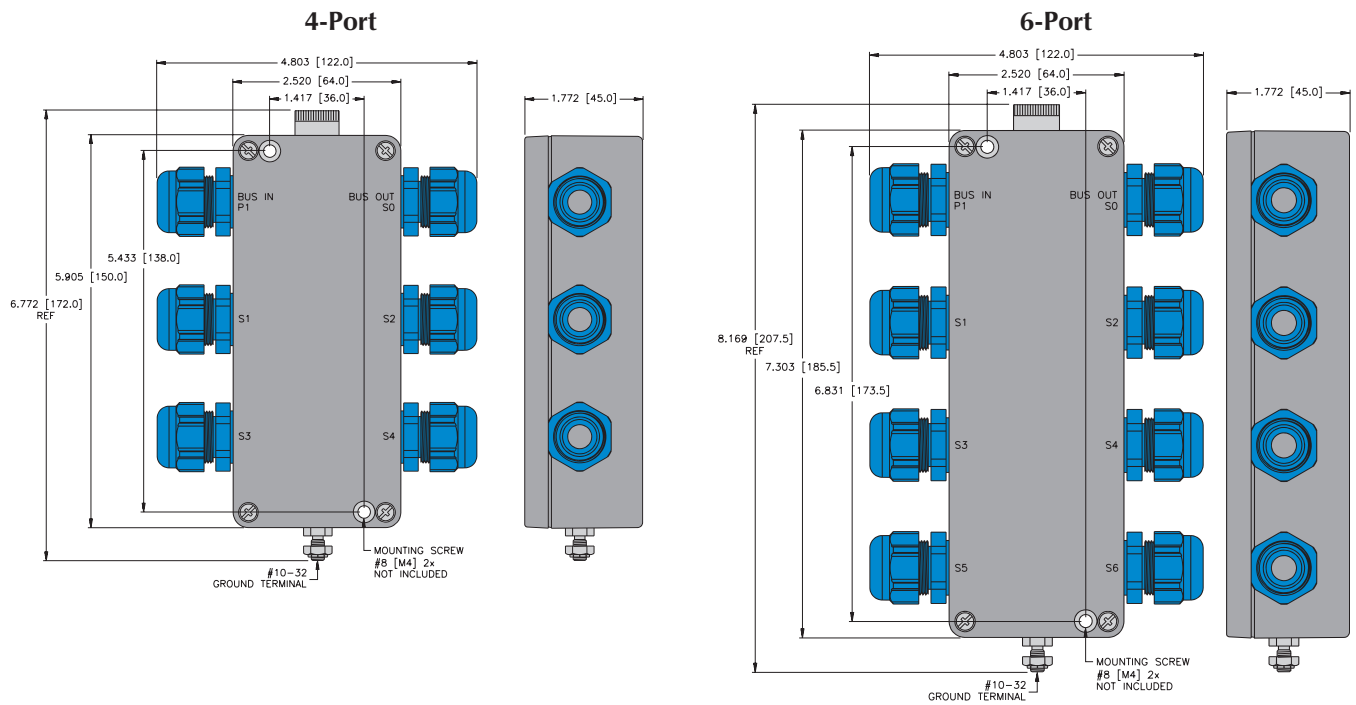


Part Number	Specs	Application	Wiring Diagrams
JBBS-49SC-T415B/EX	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 35 mA (Isc) • Voltage drop: 0.3 V • Current consumption: 7 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Four (7/8-16UN) <i>minifast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p> <p>FISCO/ENTITY Field Device</p>	
JBBS-49SC-T615B/EX	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 35 mA (Isc) • Voltage drop: 0.3 V • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (7/8-16UN) <i>minifast</i> • Six (7/8-16UN) <i>minifast</i> connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p> <p>FISCO/ENTITY Field Device</p>	

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Cable Glands
Contact Carrier:	TPU (Polyurethane)
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



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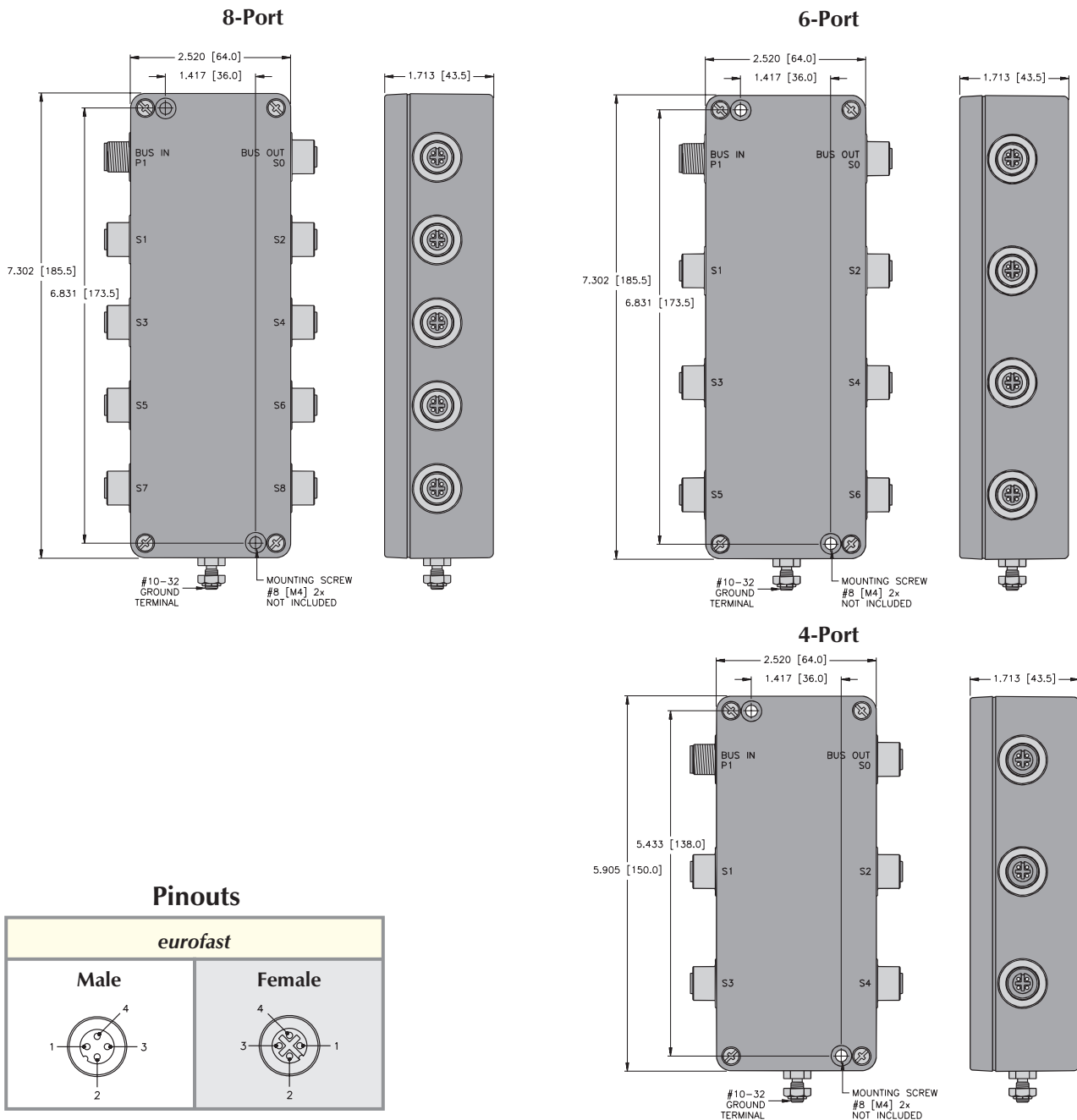


Part Number	Specs	Application	Wiring Diagrams
JBBS-49-E413 JBBS-49-E414	No short-circuit protection	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Four (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-E613/3GD JBBS-49-E614	No short-circuit protection	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Six (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-E813 JBBS-49-E814	No short-circuit protection	8-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Eight (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



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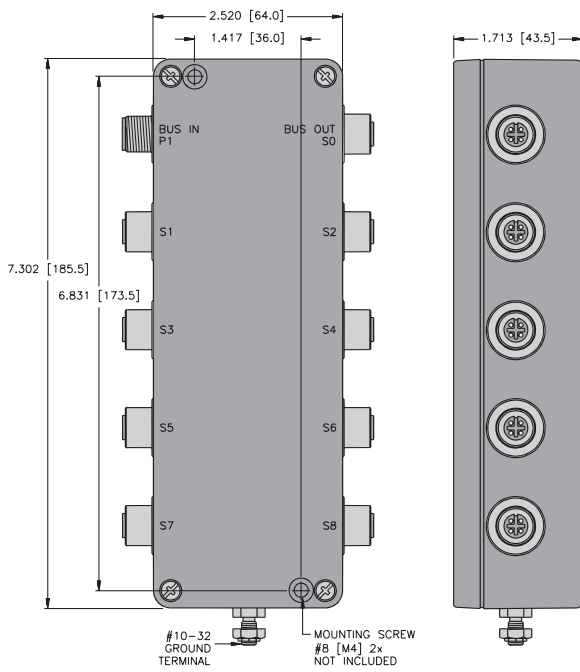
Part Number	Specs	Application	Wiring Diagrams
JBBS-49SC-E413	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Four (M12x1) eurofast connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	
JBBS-49SC-E613	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Six (M12x1) eurofast connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	
JBBS-49SC-E813	<p>Electrical</p> <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA <p>Diagnostic</p> <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<p>8-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Eight (M12x1) eurofast connectors for field devices <p>CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only)</p>	

Specifications

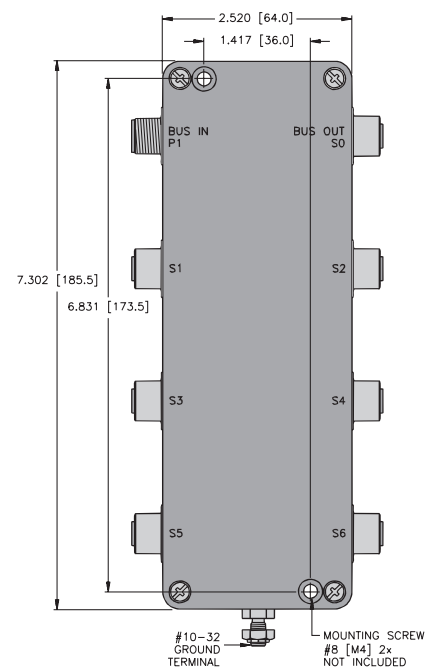
Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions

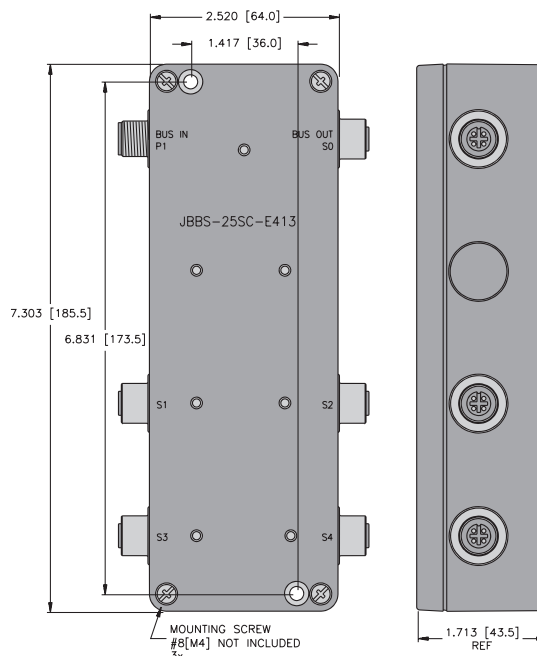
8-Port



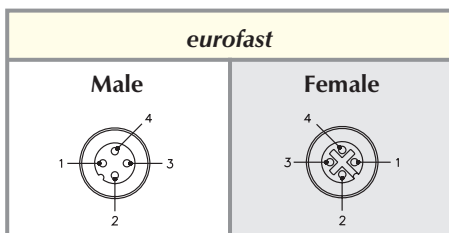
6-Port



4-Port



Pinouts



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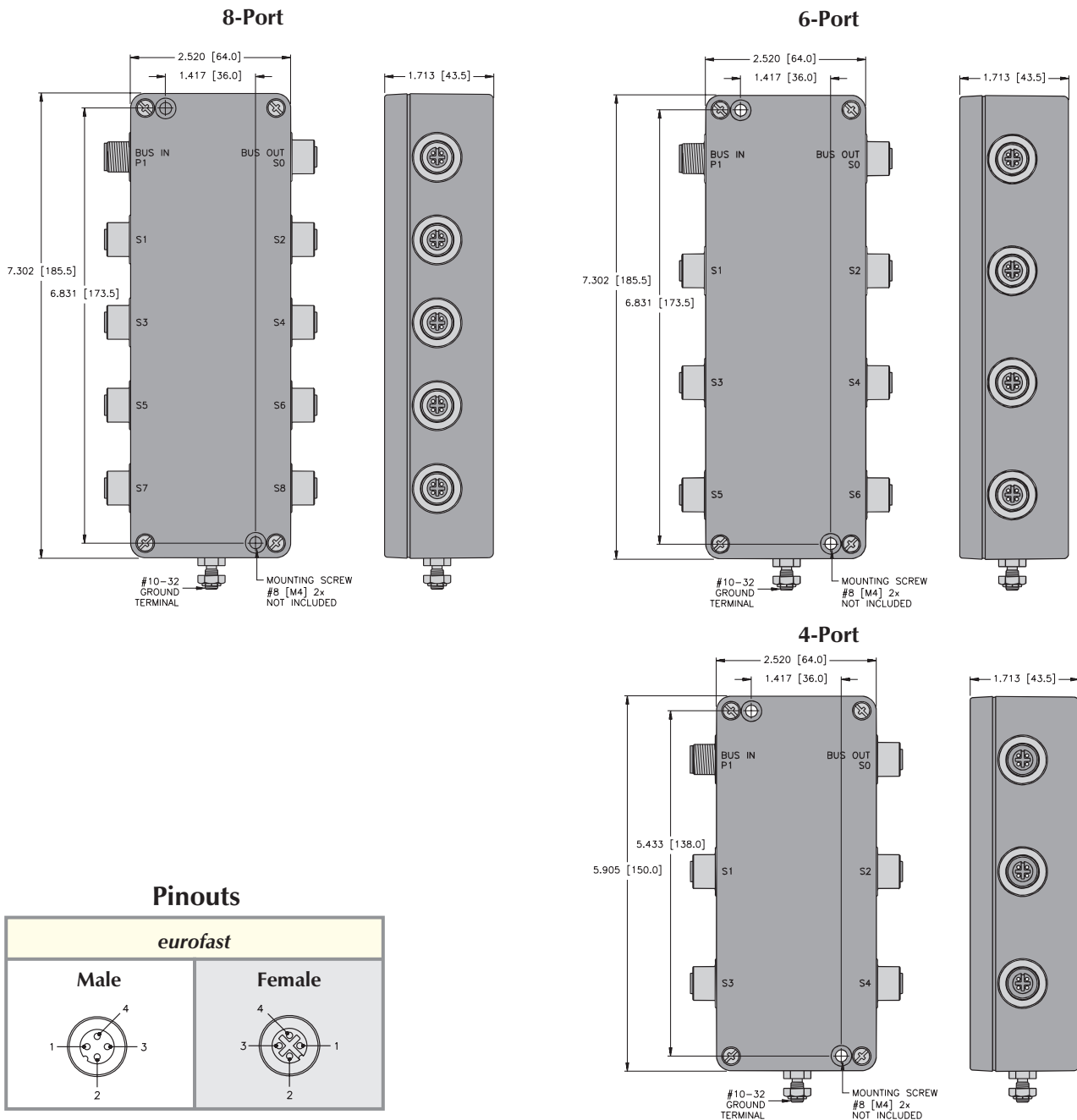


Part Number	Specs	Application	Wiring Diagrams
JBBS-49-E423 JBBS-49-E424	No short-circuit protection	4-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Four (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-E623 JBBS-49-E624	No short-circuit protection	6-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Six (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JBBS-49-E823 JBBS-49-E824	No short-circuit protection	8-port Junction <ul style="list-style-type: none"> • Bus in/bus out connections (M12x1) eurofast • Eight (M12x1) eurofast connectors for field devices • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

Specifications

Housing:	Fiberglass
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67, IP 68, IP 69K
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



FOUNDATION fieldbus

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Network Media Products

FOUNDATION™ fieldbus, minifast® Junction Tees

- Indoor Use Only (for outdoor applications use JBBS family)
- Multi-port Junction Provides a Rugged Connection to Network Devices
- Bus-in/Bus-out Feature Eliminates Need for Splitter Tee
- Short-Circuit Protection Available



Part Number	Specs	Application	Wiring Diagrams
JTBS-49-M433	No short-circuit protection	4-port Junction Tee	
JTBS-49SC-M433	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Four (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 49SC-M434 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JTBS-49-M633	No short-circuit protection	6-port Junction Tee	
JTBS-49SC-M633	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (7/8-16UN) <i>minifast</i> bus in/bus out connections • Six (7/8-16UN) <i>minifast</i> device ports • For nickel plated brass connectors change part number to JTBS 49SC-M634 • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

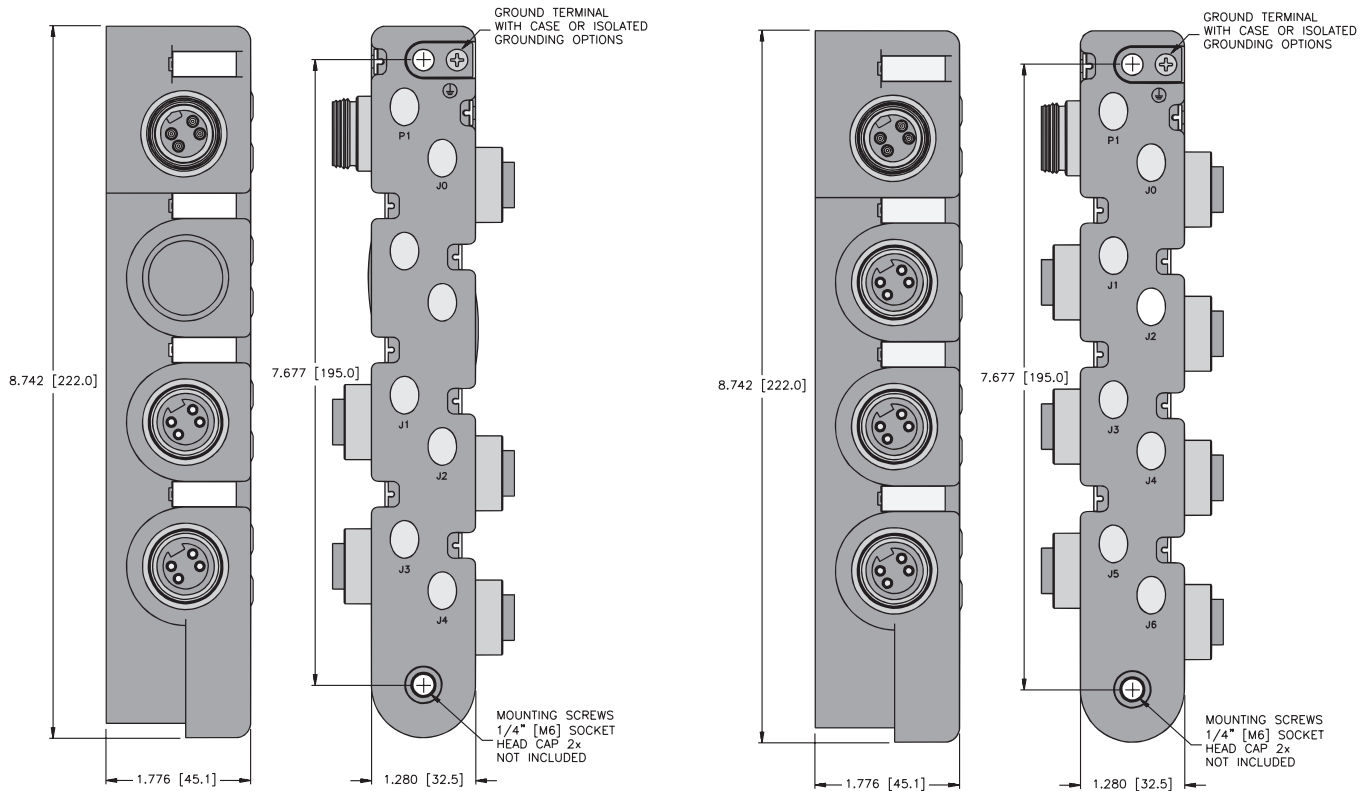
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions

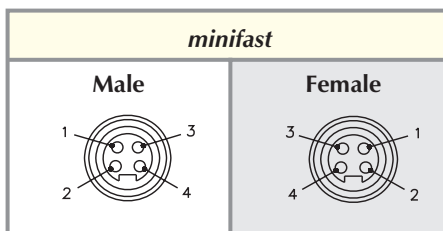
4-port

6-port



FOUNDATION fieldbus

Pinouts



TURCK

Network Media Products

FOUNDATION™ fieldbus, eurofast® Junction Tees

- Indoor Use Only (for outdoor applications use JBBS family)
- Multi-port Junction Provides a Rugged Connection to Network Devices
- Bus-in/Bus-out Feature Eliminates Need for Splitter Tee
- Short-Circuit Protection Available



Part Number	Specs	Application	Wiring Diagrams
JTBS-49-E433	No short-circuit protection	4-port Junction Tee	
JTBS-49SC-E433	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (M12x1) eurofast bus in/bus out connections • Four (M12x1) eurofast device ports • For nickel plated brass connectors change part number to JTBS 49SC-E434 • Short-circuit threshold: 280 mA • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	
JTBS-49-E633	No short-circuit protection	6-port Junction Tee	
JTBS-49SC-E633	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA (Isc) • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostic <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 	<ul style="list-style-type: none"> • (M12x1) eurofast bus in/bus out connections • Six (M12x1) eurofast device ports • For nickel plated brass connectors change part number to JTBS 49SC-E634 • Short-circuit threshold: 280 mA • CL I, Div 2; Groups A-D see TURCK drawing N1-2.400 T6, Ta = 70°C (SC Only) 	

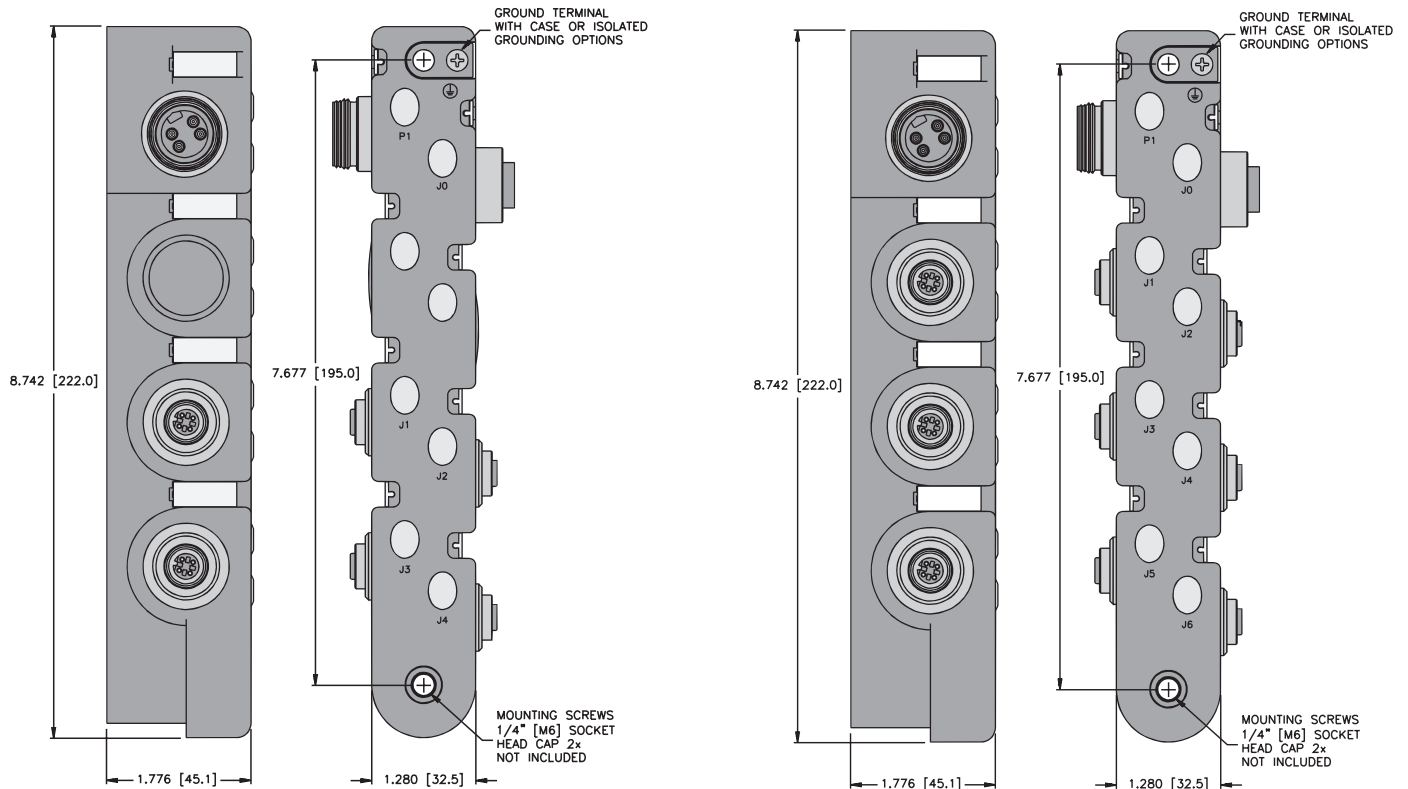
Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions



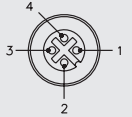
4-port

6-port



FOUNDATION fieldbus

Pinouts

<i>minifast</i>		<i>eurofast</i>
Female	Male	Female
		

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Network Media Products

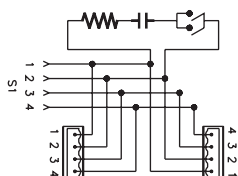
FOUNDATION™ fieldbus, minifast® Conduit Adapters

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

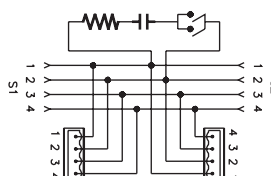


Housing	Part Number	Specs	Application	Pinout
	BCA 49-M123	Nylon Housing 300 V, 9 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (7/8-16UN) <i>minifast</i> connector	<p>Female</p>
	BCA 49SC-M123	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostics <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		
	BCA 49-M223	Nylon Housing 300 V, 9 A -40° to +75°C	*Crouse Hinds 3/4" Form 8, Mark 9 or equivalent	
	BCA 49SC-M223	Electrical <ul style="list-style-type: none"> • Short-circuit protection: 55 mA • Open circuit voltage: 35 VDC • Current consumption: 5 mA Diagnostics <ul style="list-style-type: none"> • LED indicators Power: Green = On Short-circuit: Red = Shorted 		

1-port Wiring Diagram



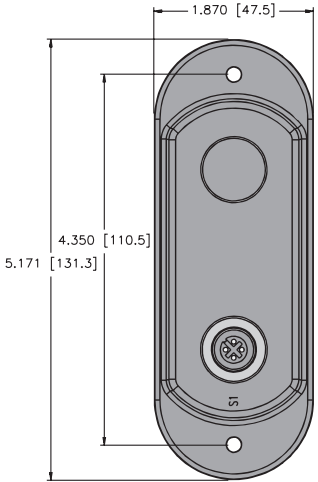
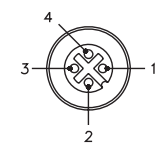
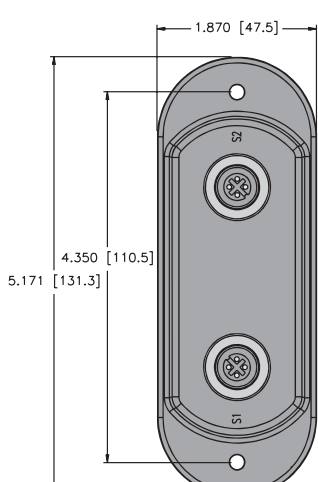
2-port Wiring Diagram



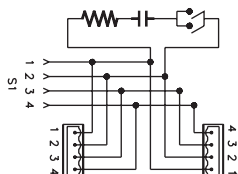
FOUNDATION™ fieldbus, eurofast® Conduit Adapters

- Gasket and Mounting Screws Provided
- Same Housing Style for Single or Double Port

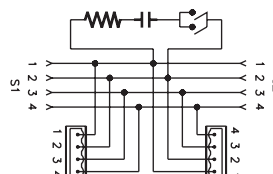


Housing	Part Number	Specs	Application	Pinout
	BCA 49-E123	Nylon Housing 250 V, 4 A -40° to +75°C	Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast connector	<p>Female</p> 
	BCA 49-E223		Attaches to standard conduit body* for transition to 4-wire (M12x1) eurofast connector	

1-port Wiring Diagram



2-port Wiring Diagram



FOUNDATION™ fieldbus, Power Supply Conditioner

- Meets the Needs of Redundant Power Supplies for FOUNDATION fieldbus
- Has Primary and Secondary Power Inputs to Supply Two Fieldbus H1 Segments
- Filters the Fieldbus Signal from the Power Source



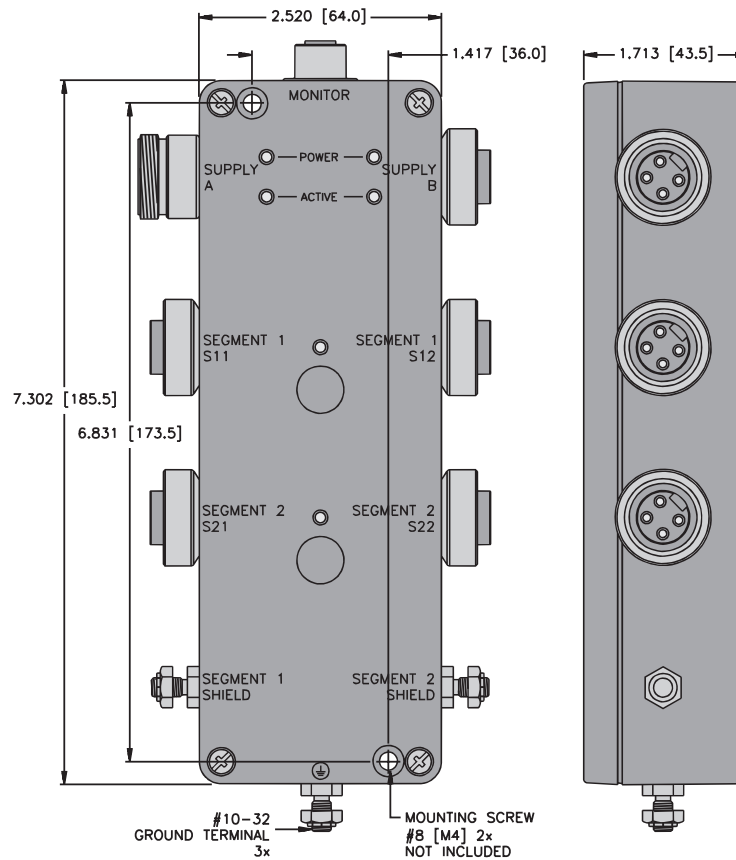
Part Number	Specs	Application
<p>BRPC-49-M213</p>	<p>Electrical</p> <ul style="list-style-type: none"> • Supply voltage (Supply A & B): 12-32 VDC • Supply surge protection (Supply A & B): > 36 VDC • Supply redundancy (Supply A & B): Supply "A" is primary. If Supply "A" Voltage drops below 11 Volts, Supply "B" becomes Active. Supply "A" becomes active once voltage >11 Volts • Output voltage (Segment 1 & 2): Input Voltage - 3 Volts • Output current (Segment 1 & 2): <1 Amp • Short-circuit protection (Segment 1 & 2): > 1 Amp to infinite <p>Diagnostic</p> <ul style="list-style-type: none"> • Power LED indications: Green - Active / Red - No Power • Segment LED indications: Green - Active • Supply monitor contacts (Supply A & B): Solid State, AC/DC <400 Volts, <70 mA when supply voltage >11 Volts, contact is closed. 	<p>4-port Power Supply Conditioner</p> <ul style="list-style-type: none"> • Primary and secondary power inputs • Diagnostics for each power supply • Internal switches for terminators

Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-22° to +167°F)

Dimensions

BRPC-49-M213



FOUNDATION fieldbus

Pinouts

<i>minifast</i>		<i>eurofast</i>
Female	Male	Female

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Network Media Products

FOUNDATION™ fieldbus, Tees

- Creates a Drop or Branch from the Main Bus Line
- *minifast*® Connectors on Bus Line
- *minifast* or *eurofast*® Connectors on Dropline



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSV 2RKV 49		<i>minifast</i> Tee <ul style="list-style-type: none"> • Data, ground, shield • Stainless steel coupling nuts 	
	RSV FKV RKV 49	PUR (Polyurethane) 250 V, 4 A -40° to +75°C	<i>minifast</i> to <i>eurofast</i> Drop <ul style="list-style-type: none"> • Data, ground, shield • Stainless steel coupling nuts 	
	RSCV 2RKCV 49		<i>eurofast</i> Tee <ul style="list-style-type: none"> • Stainless steel coupling nuts 	

Pinouts

<i>minifast</i>		<i>eurofast</i>	
Male	Female	Male	Female

FOUNDATION™ fieldbus, Gender Changers and Elbow Connectors

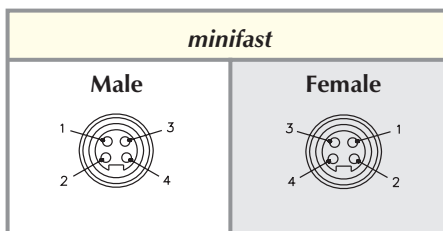
- Allows Quick and Easy Changes from Male to Female *minifast*® Connectors



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSV RSV 49		Male <i>minifast</i> Gender Changer <ul style="list-style-type: none"> • Changes female cordset to male receptacle 	
	RKV RKV 49	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	Female <i>minifast</i> Gender Changer <ul style="list-style-type: none"> • Changes female cordset to male receptacle 	
	WSV RKV 49		<i>minifast</i> Elbow <ul style="list-style-type: none"> • Right angle male to female connector 	

FOUNDATION fieldbus

Pinouts



TURCK

Network Media Products

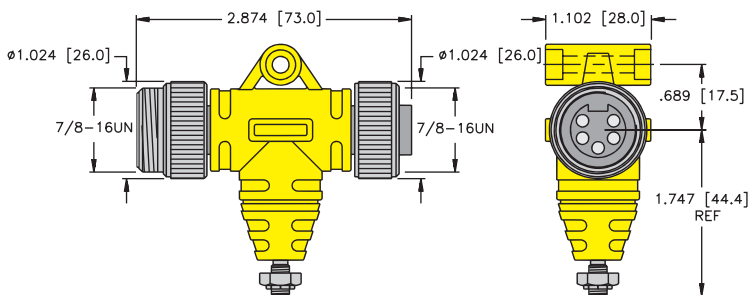
FOUNDATION™ fieldbus, Surge Suppressor

- Protects Data Communication Lines (V+ and V-)
- Absorbs the Front End of the Transient, Responding in Less Than a Nanosecond
- Diverts the Surge Energy to Ground
- Automatically Resets and waits for Next Surge



Housing	Part Number	Specs	Application	Pinouts
See Drawing 1	RSV RKV 49 SS	<p>Electrical</p> <ul style="list-style-type: none"> • Maximum operating voltage: 27 Volts • Maximum operating current: 200mA • Clamping action turn-on: 28.5 Volts • Maximum clamping at 2 kA: (8 x 20 Sec): 44 Volts • Maximum surge voltage: 20 kV • Maximum surge current: 2.5 kA • Current leakage/line at operating voltage: 5 A • Capacitance /line at operating voltage: 500 pF • Response time: less than 1 nanosecond <p>Mechanical</p> <ul style="list-style-type: none"> • Ground stud: 10-32 stainless steel • Operating temperature: -40° to +85°C 	Male and Female <i>minifast</i> ®, 4-pin	<p>Male</p> <p>Female</p>

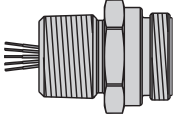
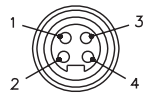
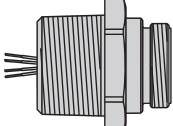
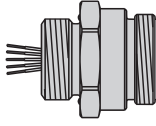
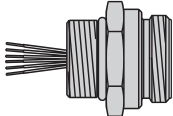
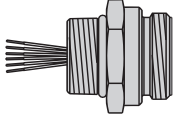
1



FOUNDATION™ fieldbus, (7/8-16UN) minifast® Male Receptacles

- Provides Quick Connection to Field Devices
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
<p>13</p> 	RSFV 49-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	<p>Male</p> 
<p>15</p> 	RSFV 49-*M/14.75		3/4-14NPT full length threads	
<p>14</p> 	RSFV 49-*M/M20		M20x1.5 threads	
<p>16</p> 	RSFV 49-*M		1/2-14NPSM threads	
<p>17</p> 	RSFV 49-*M/NPT		1/2-14NPT modified length threads	

See page R62 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.

Standard housing material is stainless steel. "RKF .."; "RKFV .." indicates 316 nickel plated brass housing.

For locknuts to be included, add "W/LN" to the end of the part number.

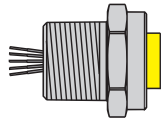
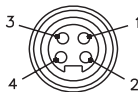
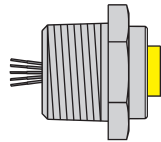
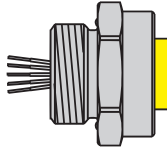
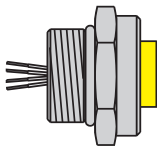
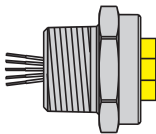
TURCK

Network Media Products

FOUNDATION™ fieldbus, (7/8-16UN) *minifast*® Female Receptacles

- Provides Quick Connection to Field Devices
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
18 	RKFV 49-*M/14.5	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40° to +105°C	1/2-14NPT full length threads	Female 
20 	RKFV 49-*M/14.75		3/4-14NPT full length threads	
19 	RKFV 49-*M/M20		M20x1.5 threads	
21 	RKFV 49-*M		1/2-14NPSM threads	
22 	RKFV 49-*M/NPT		1/2-14NPT modified length threads	

See page R63 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.

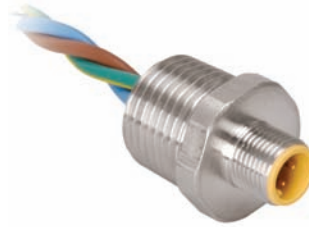
Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.

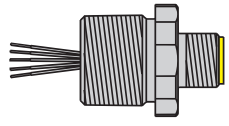
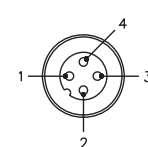
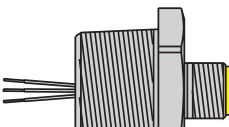
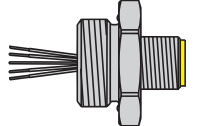
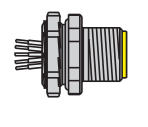
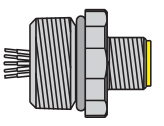
Standard housing material is stainless steel. "RKF .."; indicates 316 nickel plated brass housing.

For locknuts to be included, add "W/LN" to the end of the part number.

FOUNDATION™ fieldbus, (M12x1) eurofast® Male Receptacles

- Mounted for Quick Connection to Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinout
<p>23</p> 	FSV 49-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT full length threads	<p>Male</p>  <p>1. BU 2. BN 3. N/C 4. GN/YE</p>
<p>25</p> 	FSV 49-*M/14.75		3/4-14NPT full length threads	
<p>24</p> 	FSV 49-*M/M20		M20x1.5 threads	
<p>26</p> 	FSV 49-*M		PG 9 threads	
<p>27</p> 	FSV 49-*M/NPT		1/2-14NPT modified length threads	

See page R64 for dimensional drawings.

Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.

Standard housing material is stainless steel. "RKF .."; indicates 316 nickel plated brass housing.

TURCK

Network Media Products

FOUNDATION™ fieldbus, (M12x1) eurofast® Female Receptacles

- Mounted for Quick Connection to Enclosures
- Available for 1/2-14NPT, 1/2-14NPSM, 3/4-14NPT and M20 Threads



Housing	Part Number	Specs	Application	Pinouts
<p>28</p>	FKV 49-*M/14.5	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +105°C	1/2-14NPT Full Length Threads	<p>Female</p>
<p>30</p>	FKV 49-*M/14.75		3/4-14NPT Full Length Threads	
<p>29</p>	FKV 49-*M/M20		M20x1.5 Threads	
<p>31</p>	FKV 49-*M		PG 9 Threads	
<p>32</p>	FKV 49-*M/NPT		1/2-14NPT Modified Length Threads	

See page R65 for dimensional drawings.

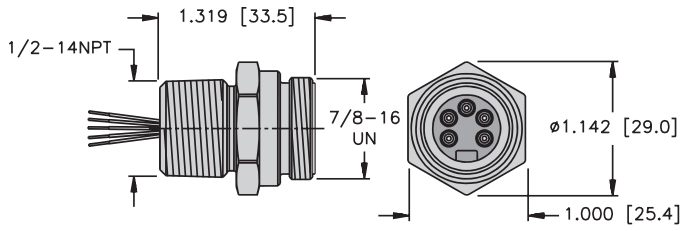
Standard cable length is 0.3 meters. Consult factory for other lengths.

Receptacles require a 13/16" (21.0 mm) clearance hole for panel mounting.

Standard housing material is stainless steel. "RKF .."; "RKFV .." indicates 316 nickel plated brass housing.

minifast® Male Receptacles

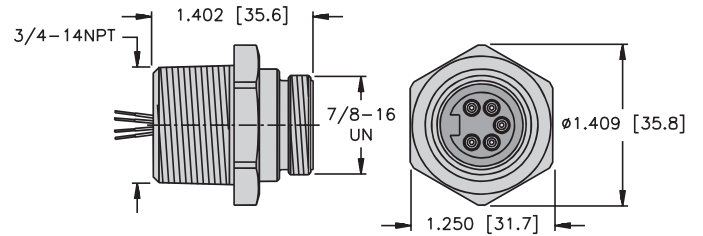
13



RSFV .. 14.5

Page R58

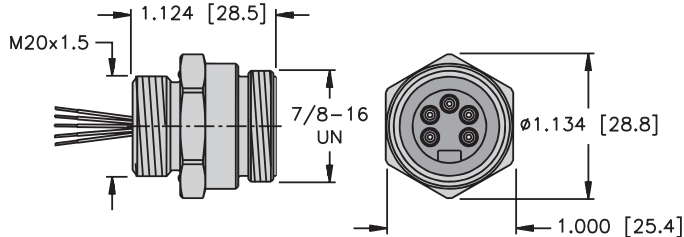
15



RSFV .. 14.75

Page R58

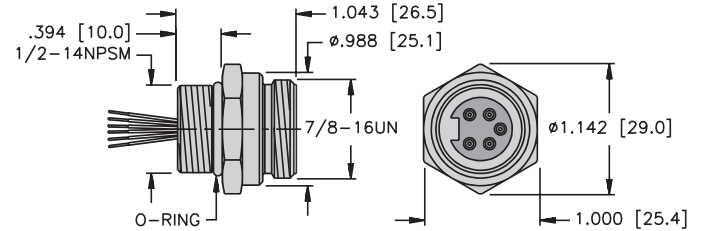
14



RSFV .. M20

Page R58

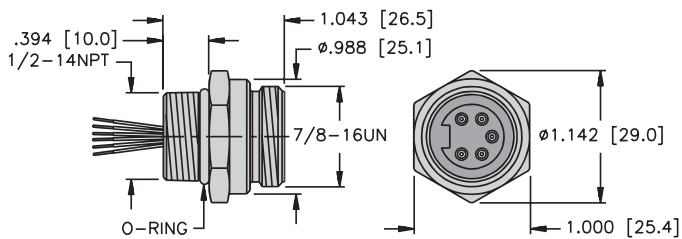
16



RSFV ..

Page R58

17

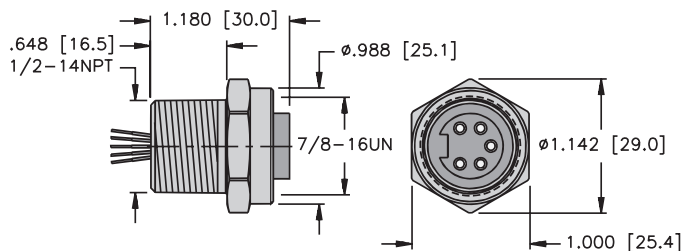


RSFV .. NPT

Page R58

minifast® Female Receptacles

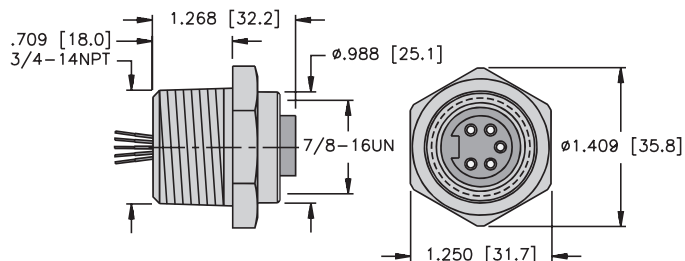
18



RKFV .. 14.5

Page R59

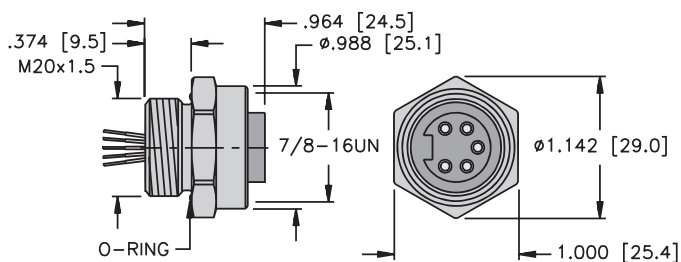
20



RKFV .. 14.75

Page R59

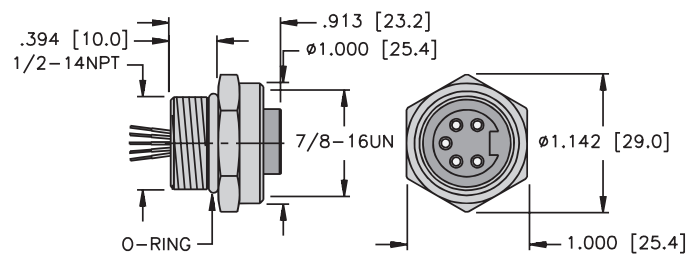
19



RKFV .. M20

Page R59

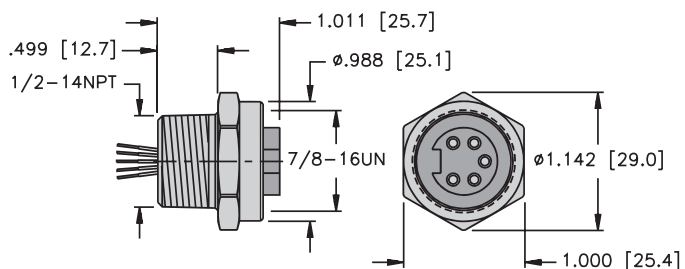
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RKFV ..

Page R59

22

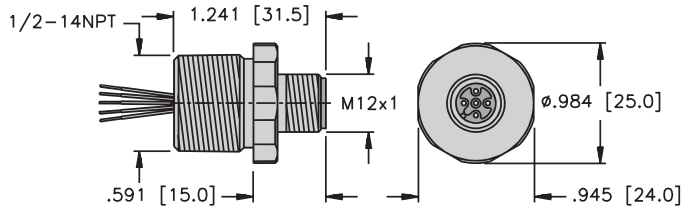


RKFV .. NPT

Page R59

euromast[®] Male Receptacles

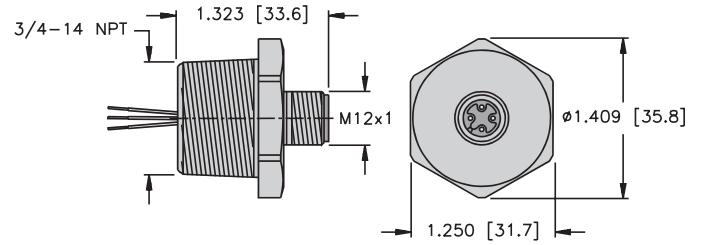
23



FSV .. 14.5

Page R60

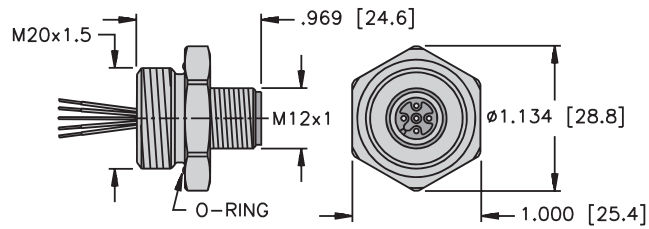
25



FSV .. 14.75

Page R60

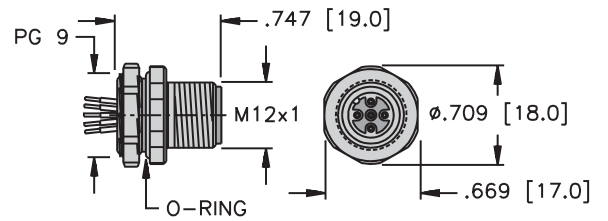
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FSV .. M20

Page R60

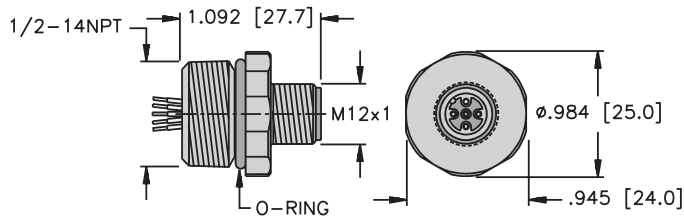
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FSV ..

Page R60

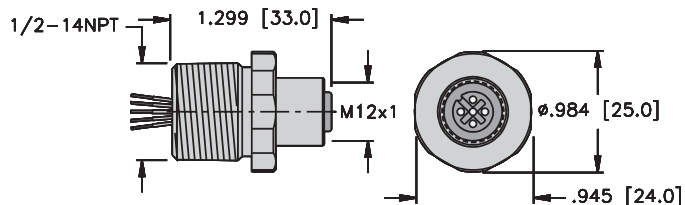
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FSV .. NPT

Page R60

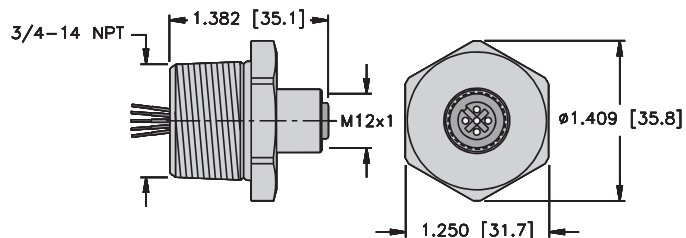
28



FKV .. 14.5

Page R61

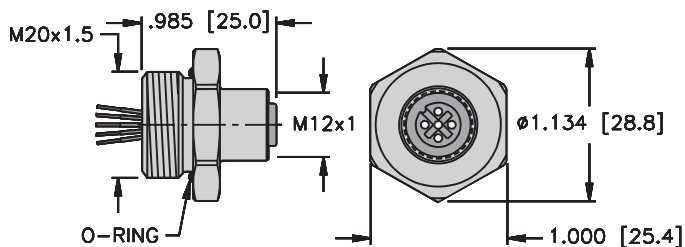
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FKV .. 14.75

Page R61

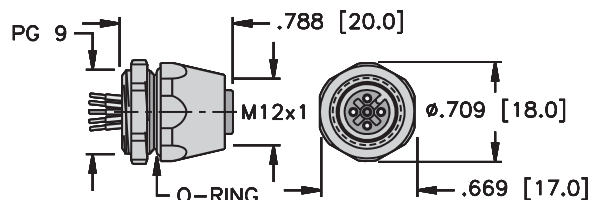
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FKV .. M20

Page R61

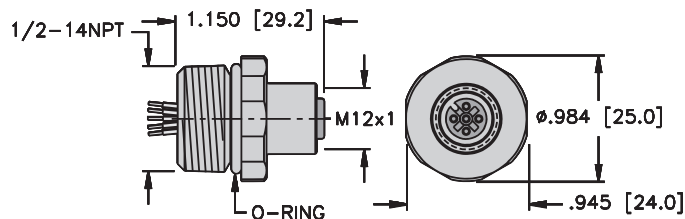
31



FKV ..

Page R61

32



FKV .. NPT

Page R61

FOUNDATION™ fieldbus, minifast® Field Wireable Connectors

- Screw Terminals Accept up to 16 AWG Conductors



Housing	Part Number	Specs	Application	Pinouts
	BSV 4149-0/9	Glass filled nylon, stainless steel coupling nut PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A	Mates with all 4-pin cordsets and receptacles	Male
	BSV 4149-0/16	Glass filled nylon, stainless steel coupling nut PG 13.5 cable gland accepts 12-14 mm cable diameter 85°C 250 V, 9 A		
	BV 4149-0/9	Glass filled nylon, stainless steel coupling nut PG 9 cable gland, accepts 6-8 mm cable diameter 85°C 250 V, 9 A		Female
	BV 4149-0/16	Glass filled nylon, stainless steel coupling nut PG 13.5 cable gland accepts 12-14 mm cable diameter 85°C 250 V, 9 A		

FOUNDATION fieldbus

TURCK

Network Media Products

FOUNDATION™ fieldbus, eurofast® Field Wireable Connectors

- Screw Terminals Accept up to 18 AWG Conductors



Housing	Part Number	Specs	Application	Pinouts
	BS 8141-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 125 V, 4 A	Mates with standard key 4-pin cordsets and receptacles	Male
	BS 8241-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 125 V, 4 A		
	B 8141-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 250 V, 4 A		Female
	B 8241-0/PG9	PBT, Black PG 7 cable gland accepts 6-8 mm cable diameter 85°C 250 V, 4 A		

FOUNDATION™ fieldbus, Gender Changer

- Allows Quick and Easy Changes from Male to Female and *minifast*® to *eurofast*® Connectors



Housing	Part Number	Specs	Application	Wiring Diagram
	RSM 49-FK 4.4	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40° to +75°C	Female <i>eurofast</i> , male <i>minifast</i> , 4-pin	

Pinouts

<i>minifast</i>	<i>eurofast</i>
<p>Male</p>	<p>Female</p>

Data Highway Plus (Blue Hose[®])

The Data Highway Plus (DH+) network is a local area network that is very simple to implement. It is designed to provide simple communication between PLC's, SLC's and PC's.

The Data Highway Plus network allows connection to a maximum of 64 devices per link although 15 or fewer nodes are recommended per link. Devices include:

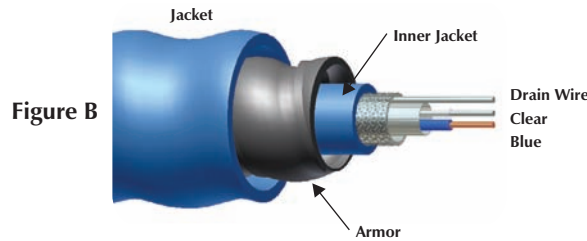
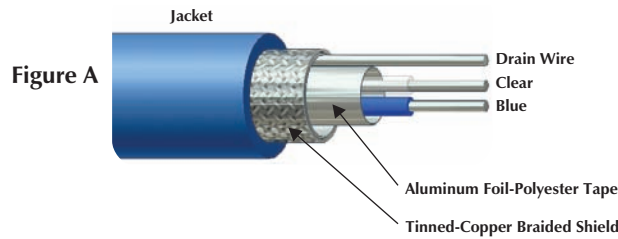
- PLC-5 and SLC 5/04 programmable controllers
- Color graphics systems
- Personal computers
- Host computers
- Numerical controls
- Programmable RS-232-C/RS-422 devices

A network can be configured with 99 links. With a multi-link network, more nodes in the network are possible.

By placing nodes in the proper link with some nodes and separate from other nodes, the efficiency of message delivery can be improved. Using simple twisted-pair wiring, DH+ can be configured as a trunk-line drop or a daisy-chain topology.

Data Highway Plus (Blue Hose®), Cable Specifications

Blue Hose is a shielded, twisted pair network cable. The cable consists of blue, clear and shield wires. A terminating resistor must be attached across the blue and clear wires at each end of the network. The resistor value depends on the baud rate selected. The cable shield must be connected to chassis ground only at the scanner end of the network.

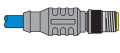

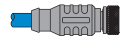

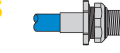
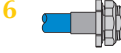

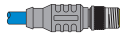
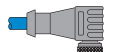
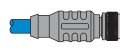
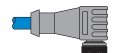


Baud Rate	Maximum Cable Length
57.6 Kbps	10,000 feet (3048 meters)
115.2 Kbps	5,000 feet (1524 meters)
230.4 Kbps	2,500 feet (762 meters)

Type	Approvals	Data Pair		Outer Jacket Material Color Nominal O.D.	Shields Type Drain Wire	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation				
390 AWM 2464 80°C 300 Volts	NEC CC CL2 CEC CC	2/20 AWG BU, Clear	9.5 Ohms PC	PC Blue 6 CC (.238 in)	Braid/Coil 20 AWG	RB51157-*M 36 lbs.	A
391A 60°C 300 Volts	NEC CC CL2 CEC CC CCG FT4 [HLBCD]	2/20 AWG BU, Clear	9.5 Ohms PC	Aluminum Armor/PC Blue	Armor Foil Braid	RB51199-*M 122 lbs. <i>armorfast</i> ®	B

* Indicates length in meters.
Blue Hose is a registered trademark of Belden CDT Inc.
Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10....15 meters.

Data Highway Plus (Blue Hose®), Cable and Cordset Selection Matrix

		eurofast®				eurofast Bulkhead		
		Pin (Male)		Socket (Female)		Pin (Male)	Socket (Female)	
		1  RSC	3  WSC	2  RKC	4  WKC	5  FSFD	6  FKFD	
 Bare		RSC 39x-*M	WSC 39x-*M	RKC 39x-*M	WKC 39x-*M	FSFD 39x-*M	FKFD 39x-*M	
eurofast	Pin (Male)	1  RSC	RSC RSC 39x-*M	RSC WSC 39x-*M	RSC RKC 39x-*M	RSC WKC 39x-*M	RSC FSFD 39x-*M	RSC FKFD 39x-*M
		3  WSC		WSC WSC 39x-*M	WSC RKC 39x-*M	WSC WKC 39x-*M	WSC FSFD 39x-*M	WSC FKFD 39x-*M
	Socket (Female)	2  RKC			RKC RKC 39x-*M	RKC WKC 39x-*M	RKC FSFD 39x-*M	RKC FKFD 39x-*M
		4  WKC				WKC WKC 39x-*M	WKC FSFD 39x-*M	WKC FKFD 39x-*M

See page S4 for dimensional drawings.

* Indicates length in meters.

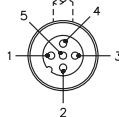

x Indicates cable type.

For **armorfast**® cable: Change part number (RSC RSC 39-*M to RSA RSA 391A-*M)

For stainless steel connectors: Change part number (RSC RSC 39-*M to RSCV RSCV 39-*M)

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

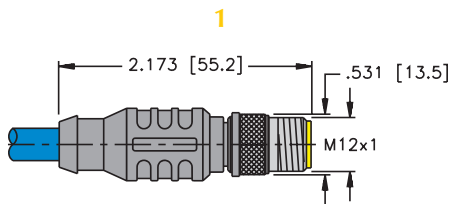
Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10....15 Meters.

eurofast	Pinouts	eurofast
<p>Male</p> 	<ol style="list-style-type: none"> 1. Drain (Shield) 2. Clear (RIO #2) 3. Blue (RIO #1) 4. N/C 5. N/C 	<p>Female</p> 

Data Highway Plus (Blue Hose®), eurofast® Cordset and Receptacle Connector Dimensions

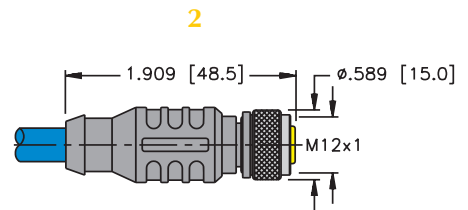
Specifications

Housing:	PUR (polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +60°C (-40° to +140°F)



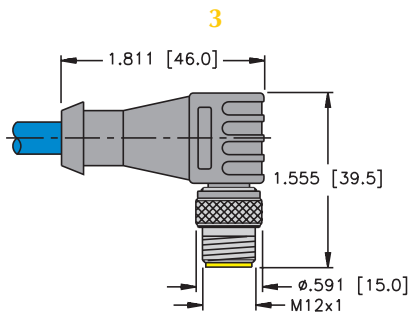
RSC ..

Page S3



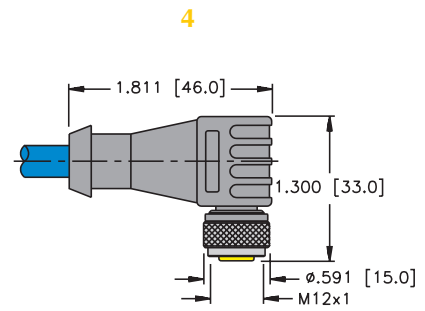
RKC ..

Page S3



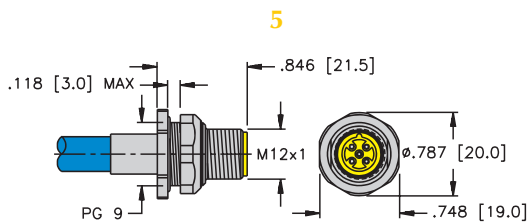
WSC ..

Page S3



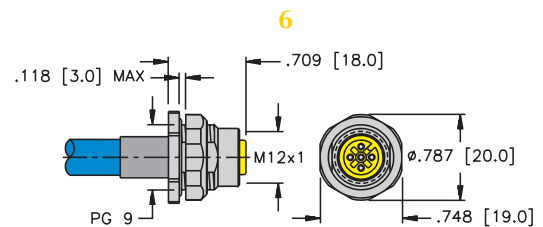
WKC ..

Page S3



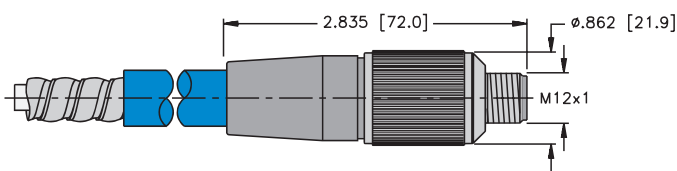
FSFD ..

Page S3



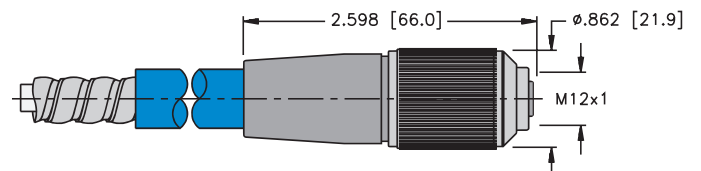
FKFD ..

Page S3



RSA ..

(armorfast® only)



RKA ..

(armorfast only)

Blue Hose

Notes

CC-Link

CC-Link (Control & Communication Link) is a field network system that processes control and information data at high speed while ensuring a deterministic response.

Features include:

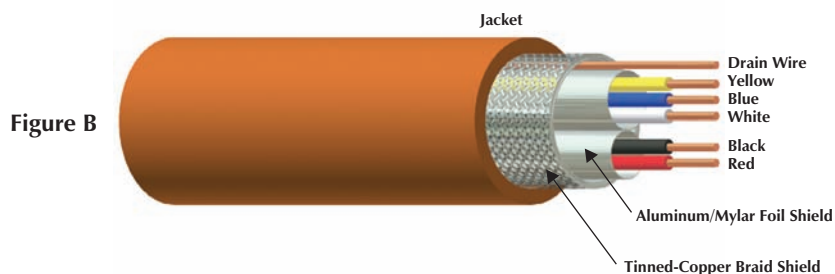
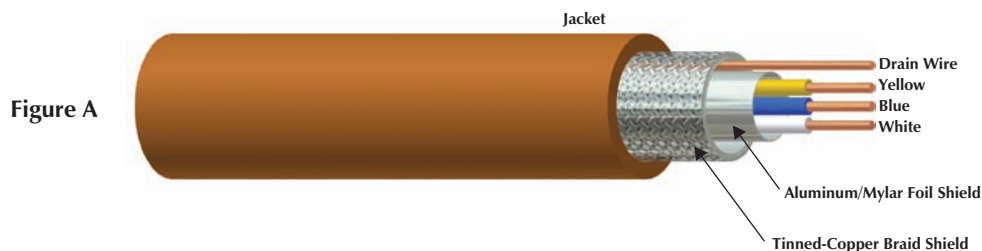
- Simple communication programming - configuration software available but not required
- Allows automation controllers to be programmed and monitored over the network
- Provides network diagnostic information
- A standby network master to assume network control if primary master goes off-line
- Bypasses network devices needing service without disrupting network traffic
- Automatically restores off-line, bypassed devices to the network
- Network devices can be added while network is operating

	CC-Link	CC-Link / LT
Maximum Number of Slaves	64	64
Max. No. of Addressable I/O Points (bit)	8192 in / 8192 out	1024 in / 1024 out
Maximum Number of Addressable Numerical Data Values (word)	2048 in / 2048 out	---
Typical Scan Rate for 64 Stations	4 ms @ 10 Mbps	2 ms @ 2.5 Mbps
Network Topology	Multi-drop, T branch, Star	T branch, Star
Error Detection System	CRC	CRC
Physical Layer	RS-485	RS-485
Media	Shielded Twisted 3-wire Cable	4-wire Flat Cable (includes power)
Communication Method	Broadcast, Polling	BITR Method
Transmission Format	HDLC	HDLC

CC-Link

CC-Link, Cable Specifications

- Cable Certified by the CC-Link Partner Association (CLPA) to Ver. 1.10 Cable Standard
- Cables are Available in 3 Conductor and 5 Conductor (with power conductors) Versions



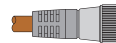










Communication Speed	Maximum Transmission Distance	
	CC-Link Cable Ver. 1.10 CC-Link High Performance Cable	CC-Link Cable
10 Mbps	100 meters (328 feet)	100 meters (328 feet)
5 Mbps	160 meters (525 feet)	150 meters (492 feet)
2.5 Mbps	400 meters (1312 feet)	200 meters (656 feet)
625 Kbps	900 meters (2953 feet)	600 meters (1968 feet)
156 Kbps	1200 meters (3937 feet)	1200 meters (3937 feet)

Type	Approvals	Data Triad		Power Pair	Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		AWG Color Code	DCR (/1000 feet) Insulation	Power	Material Color Nominal O.D.	Type Drain Wire		
430 AWM 2464 75°C 300 Volts	NEC PLTC CEC [CMG]	3/20 AWG WH, YE, BU	11.4 Ohms PE	---	PVC Brown 7.7 mm (.305 in)	Foil/Braid 22 AWG	RB51126-*M 55 lbs.	A
630 AWM 2464 75°C 300 Volts	NEC PLTC CEC [CMG]	3/20 AWG WH, YE, BU	11.4 Ohms PE	2/18 AWG RD, BK	PVC Brown 10.5 mm (.413 in)	Foil/Braid 22 AWG	RB51127-*M 101 lbs.	B

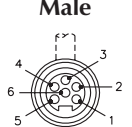
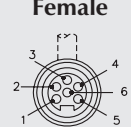
* Indicates length in meters.
 Standard cable lengths are 30, 75, 150, 225 and 300 meters.

CC-Link, 630 Communication/Power Cable and Cordset Selection Matrix



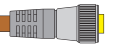
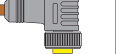
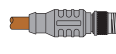




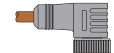
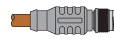

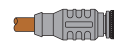
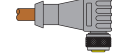
		<i>minifast</i> [®]				<i>minifast</i> Bulkhead		
		Pin (Male)		Socket (Female)		Pin (Male)	Socket (Female)	
		1  RSM	2  WSM	3  RKM	4  WKM	9  RSFP	10  RKFP	
 Bare		RSM 630-*M	WSM 630-*M	RKM 630-*M	WKM 630-*M	RSFP 630-*M	RKFP 630-*M	
<i>minifast</i>	Pin (Male)	1  RSM	RSM RSM 630-*M	RSM WSM 630-*M	RSM RKM 630-*M	RSM WKM 630-*M	RSM RSFP 630-*M	RSM RKFP 630-*M
	2  WSM		WSM WSM 630-*M	WSM RKM 630-*M	WSM WKM 630-*M	WSM RSFP 630-*M	WSM RKFP 630-*M	
	3  RKM			RKM RKM 630-*M	RKM WKM 630-*M	RKM RSFP 630-*M	RKM RKFP 630-*M	
	4  WKM				WKM WKM 630-*M	WKM RSFP 630-*M	WKM RKFP 630-*M	

See page S11 for dimensional drawings.

- * Indicates length in meters.
Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10...15 Meters. Consult factory for other lengths.
For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

<i>minifast</i>	Pinouts	<i>minifast</i>
<p>Male</p> 	<p>1. Blue (DA) 2. White (DB) 3. Yellow (DG) 4. Red (V+) 5. Black (V-) 6. Drain (Shield)</p>	<p>Female</p> 

CC-Link, 430 Communication Cable and Cordset Selection Matrix

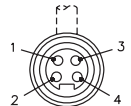
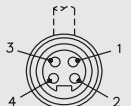
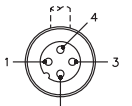
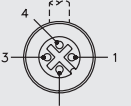
		<i>minifast</i> [®]				<i>eurofast</i> [®]	
		Pin (Male)		Socket (Female)		Pin (Male)	
		1  RSM	2  WSM	3  RKM	4  WKM	5  RSC	
 Bare		RSM 430-*M	WSM 430-*M	RKM 430-*M	WKM 430-*M	RSC 430-*M	
<i>minifast</i>	Pin (Male)	1  RSM	RSM RSM 430-*M	RSM WSM 430-*M	RSM RKM 430-*M	RSM WKM 430-*M	RSM RSC 430-*M
	Pin (Male)	2  WSM		WSM WSM 430-*M	WSM RKM 430-*M	WSM WKM 430-*M	WSM RSC 430-*M
	Socket (Female)	3  RKM			RKM RKM 430-*M	RKM WKM 430-*M	RKM RSC 430-*M
	Socket (Female)	4  WKM				WKM WKM 430-*M	WKM RSC 430-*M
<i>eurofast</i>	Pin (Male)	5  RSC					RSC RSC 430-*M
	Pin (Male)	6  WSC					
	Socket (Female)	7  RKC					
	Socket (Female)	8  WKC					

See pages S11 - S12 for dimensional drawings.

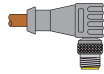
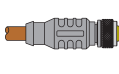
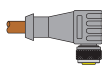
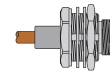
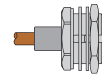
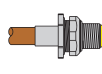
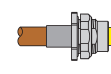
* Indicates length in meters.

Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10...15 Meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM... to RSV, WSM... to WSV.

<i>minifast</i>		Pinouts	<i>eurofast</i>	
Male	Female	1. Grey (Drain) 2. White (DB) 3. Yellow (DG) 4. Blue (DA)	Male	Female
				

CC-Link, 430 Communication Cable and Cordset Selection Matrix

<i>euromast</i> [®]			<i>minifast</i> [®] Bulkhead		<i>euromast</i> Bulkhead (Thin Only)	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6  WSC	7 	8 	9 	10 	11 	12 
WSC 430-*M	RKC 430-*M	WKC 430-*M	RSFP 430-*M	RKFP 430-*M	FSFD 430-*M	FKFD 430-*M
RSM WSC 430-*M	RSM RKC 430-*M	RSM WKC 430-*M	RSM RSFP 430-*M	RSM RKFP 430-*M	RSM FSFD 430-*M	RSM FKFD 430-*M
WSM WSC 430-*M	WSM RKC 430-*M	WSM WKC 430-*M	WSM RSFP 430-*M	WSM RKFP 430-*M	WSM FSFD 430-*M	WSM FKFD 430-*M
RKM WSC 430-*M	RKM RKC 430-*M	RKM WKC 430-*M	RKM RSFP 430-*M	RKM RKFP 430-*M	RKM FSFD 430-*M	RKM FKFD 430-*M
WKM WSC 430-*M	WKM RKC 430-*M	WKM WKC 430-*M	WKM RSFP 430-*M	WKM RKFP 430-*M	WKM FSFD 430-*M	WKM FKFD 430-*M
RSC WSC 430-*M	RSC RKC 430-*M	RSC WKC 430-*M	RSC RSFP 430-*M	RSC RKFP 430-*M	RSC FSFD 430-*M	RSC FKFD 430-*M
WSC WSC 430-*M	WSC RKC 430-*M	WSC WKC 430-*M	WSC RSFP 430-*M	WSC RKFP 430-*M	WSC FSFD 430-*M	WSC FKFD 430-*M
	RKC RKC 430-*M	RKC WKC 430-*M	RKC RSFP 430-*M	RKC RKFP 430-*M	RKC FSFD 430-*M	RKC FKFD 430-*M
		WKC WKC 430-*M	WKC RSFP 430-*M	WKC RKFP 430-*M	WKC FSFD 430-*M	WKC FKFD 430-*M

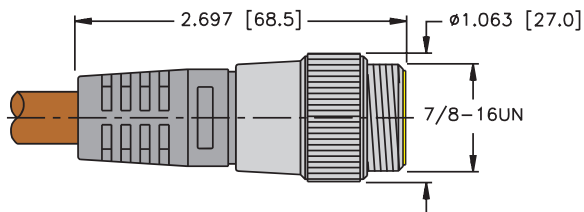
CC-Link

CC-Link, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	TPU (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40°C to +75°C

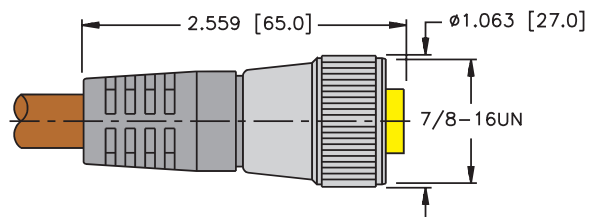
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RSM ..

Pages S8 - S10

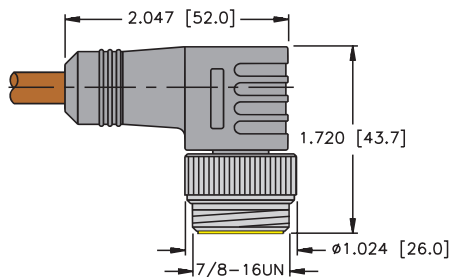
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RKM ..

Pages S8 - S10

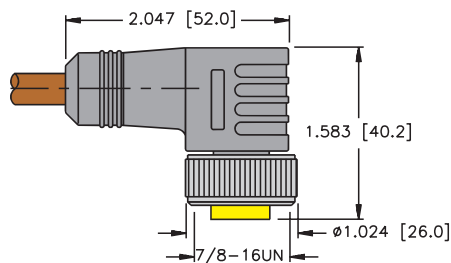
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WSM ..

Pages S8 - S10

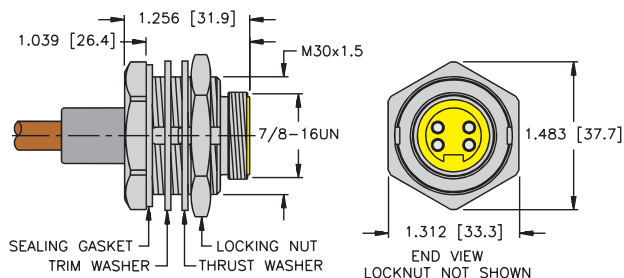
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WKM ..

Pages S8 - S10

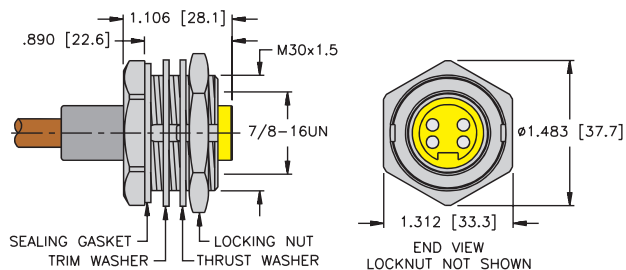
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RSFP ..

Pages S8 - S10

10



RKFP ..

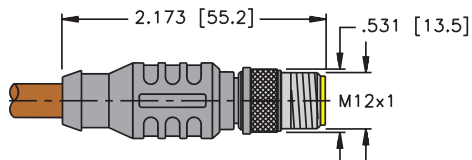
Pages S8 - S10

CC-Link, eurofast® Cordset and Receptacle Connector Dimensions

Specifications

Housing: PUR (Polyurethane)
Coupling Nut: Nickel Plated CuZn or Stainless Steel
Contact Carrier: TPU (Polyurethane) or POM (Nylon)
Contacts: Gold Plated CuZn
Protection: NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage: 250 V
Rated Current: 4 A
Ambient Temperature: -40°C to +75°C

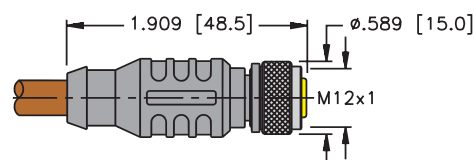
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RSC ..

Pages S8 - S10

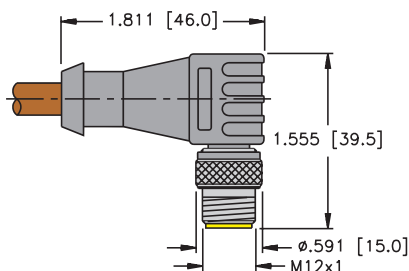
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RKC ..

Pages S8 - S10

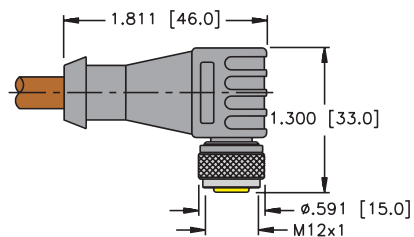
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WSC ..

Pages S8 - S10

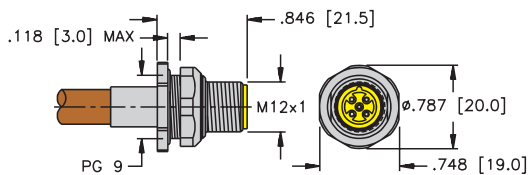
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WKC ..

Pages S8 - S10

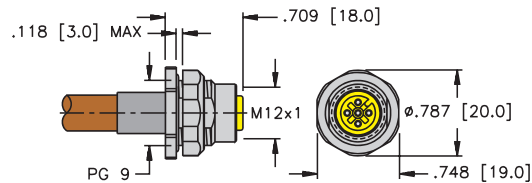
11



FSFD ..

Pages S8 - S10

12



FKFD ..

Pages S8 - S10

CC-link

CC-Link, (7/8-16UN) *minifast*® 4-wire Panel Mount Receptacles

- Mounted for Quick Connection to Enclosures



Housing	Part Number	Specs	Application	Pinouts	
<p>1</p>	RSFV 43	Nickel Plated CuZn or Stainless Steel 300 V, 9 A -40°C to +105°C	1/2-14NPT threads, standard duty	1. GY 2. WH 3. YE 4. BU	<p>Male</p>
<p>2</p>	RKFV 43				<p>Female</p>

See page S16 for dimensional drawings.

Standard cable length is 0.5 meters. Consult factory for other lengths.

Standard housing material is nickel plated cast zinc. "RKF .."; "RKFV .." indicates 316 stainless steel housing (leads only)

CC-Link, (M12x1) *euromast*® 4-wire Panel Mount Receptacles

- Mounted for Quick Connection to Enclosures



Housing	Part Number	Specs	Application	Pinouts	
<p>3</p>	FSV 43	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40°C to +105°C	PG 9 threads	1. GY 2. WH 3. YE 4. BU	<p>Male</p>
<p>4</p>	FKV 43				<p>Female</p>

See page S16 for dimensional drawings.

Standard cable length is 0.5 meters. Consult factory for other lengths.

Standard housing material is nickel plated cast zinc. "RKF .."; "RKFV .." indicates 316 stainless steel housing (leads only)

CC-Link, (7/8-16UN) *minifast*® 6-wire Panel Mount Receptacles

- Mounted for Quick Connection to Enclosures



Housing	Part Number	Specs	Application	Pinout
<p>1</p>	RSF 63	Nickel Plated CuZn or Stainless Steel 250 V, 4 A -40°C to +105°C	1/2-14NPT threads, standard duty	<p>Male</p>
<p>2</p>	RKF 63			<p>Female</p>

See page S16 for dimensional drawings.

Standard cable length is 0.5 Meters. Consult factory for other lengths.

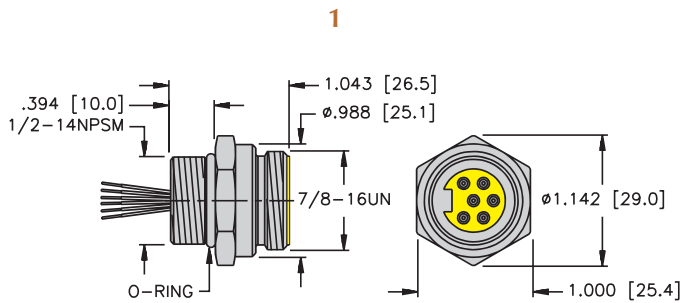
Receptacles require a 13/16" (21 mm) clearance hole for panel mounting.

Standard housing material is nickel plated cast zinc. "RKF .."; "RKFV .." indicates 316 stainless steel housing (leads only) and "RKFK .." indicates nylon housing.

For locknuts to be included, add "W/LN" to the end of the part number.

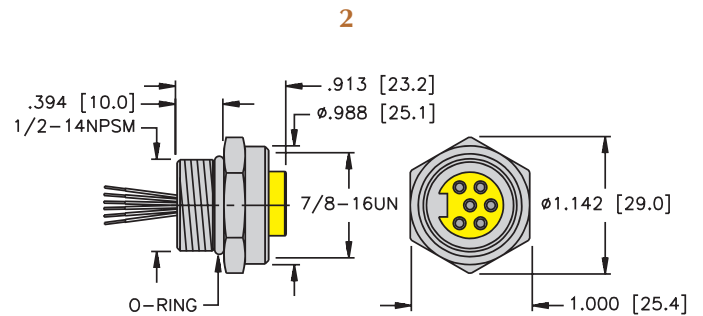
To specify PVC jacketed cable, add "/S717" to the end of the part number.

minifast® Male and Female Receptacles



RSF .. 1/2-14NPSM

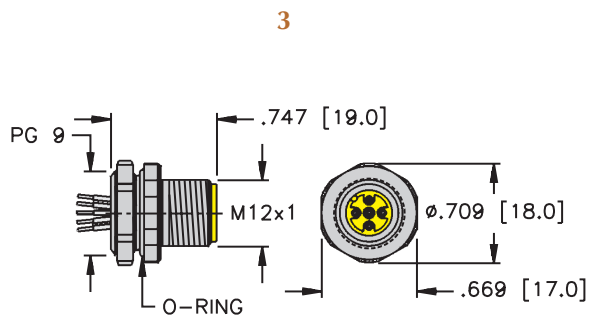
Page S13, S15



RKF .. 1/2-14NPT

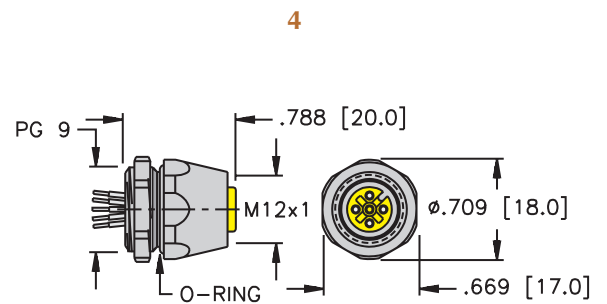
Page S13, S15

euofast® Male and Female Receptacles



FS .. PG 9

Page S14



FK .. PG 9

Page S14

Genius I/O

Genius bus from GE Fanuc is a proven I/O bus and communications network. It can handle large I/O and data transfers.

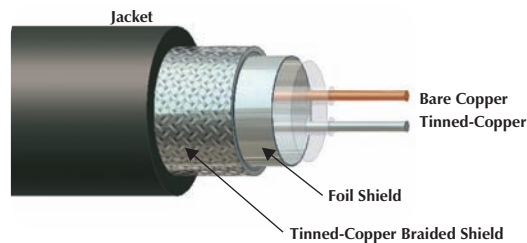
Features and benefits:

- Robust for superior data integrity and noise immunity
- Deterministic
- Supports redundant configurations (both cable and I/O)
- Available on a variety of GE Fanuc products

Supported by many third-party interfaces: variable frequency drives, operator interfaces, human machine interfaces, etc.

Genius I/O, 470 Cable Specifications

- Cable that Meets the Requirements of Genius I/O Systems and Communications Standard
- This is a Twin Axial Cable with 100 Ohm Impedance





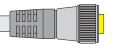
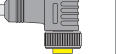






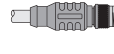
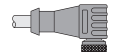
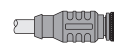
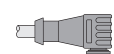
Max Bus Length:

- 7500 feet with 16 devices at 38.4 Kbaud
- 3500 feet with 32 devices at 153.6 Kbaud

Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire	
470 75°C 300 Volts	NEC CMG CL2 CEC CMG	2/20 AWG Natural, Natural	9.5 Ohms PE	PVC Black 8.4 mm (.330 in)	Foil/Braid	RB51153-*M 68 lbs.

* Indicates length in meters.
Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10....15 meters. Consult factory for other lengths.
Genius I/O is a registered trademark of GE.

Genius I/O, 470 Communication Cable and Cordset Selection Matrix





		<i>minifast</i> [®]				<i>eurofast</i> [®]	
		Pin (Male)		Socket (Female)		Pin (Male)	
		1  RSM	2  WSM	3  RKM	4  WKM	5  RSC	
 Bare		RSM 470-*M	WSM 470-*M	RKM 470-*M	WKM 470-*M	RSC 470-*M	
<i>minifast</i>	Pin (Male)	1  RSM	RSM RSM 470-*M	RSM WSM 470-*M	RSM RKM 470-*M	RSM WKM 470-*M	RSM RSC 470-*M
	Pin (Male)	2  WSM		WSM WSM 470-*M	WSM RKM 470-*M	WSM WKM 470-*M	WSM RSC 470-*M
	Socket (Female)	3  RKM			RKM RKM 470-*M	RKM WKM 470-*M	RKM RSC 470-*M
	Socket (Female)	4  WKM				WKM WKM 470-*M	WKM RSC 470-*M
<i>eurofast</i>	Pin (Male)	5  RSC					RSC RSC 470-*M
	Pin (Male)	6  WSC					
	Socket (Female)	7  RKC					
	Socket (Female)	8  WKC					

See pages S21 - S22 for dimensional drawings.


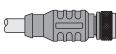

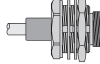

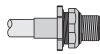

* Indicates length in meters.

Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10...15 meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM... to RSV, WSM... to WSV.

<i>minifast</i>		Pinouts	<i>eurofast</i>	
Male	Female	1. Silver 2. Copper 3. N/C 4. Drain	Male	Female
				

Genius I/O, 470 Communication Cable and Cordset Selection Matrix

<i>euromast</i> [®]			<i>minifast</i> [®] Bulkhead		<i>euromast</i> Bulkhead (thin only)	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6 	7 	8 	9 	10 	11 	12 
WSC	RKC	WKC	RSFP	RKFP	FSFD	FKFD
WSC 470-*M	RKC 470-*M	WKC 470-*M	RSFP 470-*M	RKFP 470-*M	FSFD 470-*M	FKFD 470-*M
RSM WSC 470-*M	RSM RKC 470-*M	RSM WKC 470-*M	RSM RSFP 470-*M	RSM RKFP 470-*M	RSM FSFD 470-*M	RSM FKFD 470-*M
WSM WSC 470-*M	WSM RKC 470-*M	WSM WKC 470-*M	WSM RSFP 470-*M	WSM RKFP 470-*M	WSM FSFD 470-*M	WSM FKFD 470-*M
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WKM WSC 470-*M	WKM RKC 470-*M	WKM WKC 470-*M	WKM RSFP 470-*M	WKM RKFP 470-*M	WKM FSFD 470-*M	WKM FKFD 470-*M
RSC WSC 470-*M	RSC RKC 470-*M	RSC WKC 470-*M	RSC RSFP 470-*M	RSC RKFP 470-*M	RSC FSFD 470-*M	RSC FKFD 470-*M
WSC WSC 470-*M	WSC RKC 470-*M	WSC WKC 470-*M	WSC RSFP 470-*M	WSC RKFP 470-*M	WSC FSFD 470-*M	WSC FKFD 470-*M
	RKC RKC 470-*M	RKC WKC 470-*M	RKC RSFP 470-*M	RKC RKFP 470-*M	RKC FSFD 470-*M	RKC FKFD 470-*M
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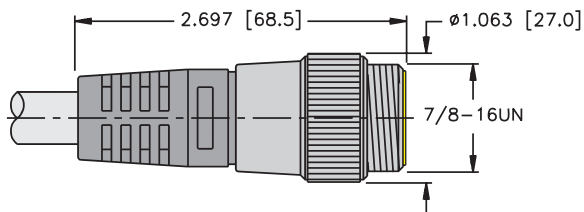
Genius I/O

Genius I/O, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40°C to +75°C

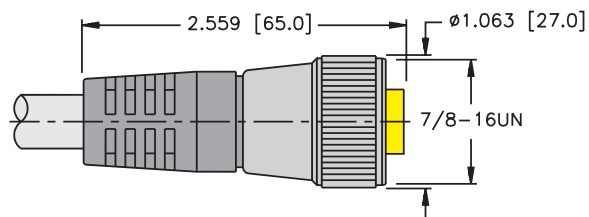
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RSM ..

Pages S19 - S20

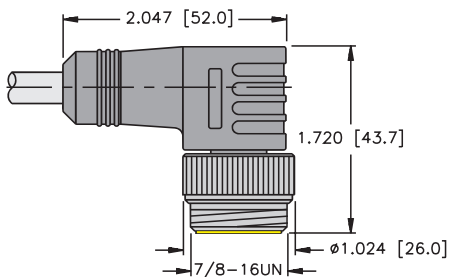
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RKM ..

Pages S19 - S20

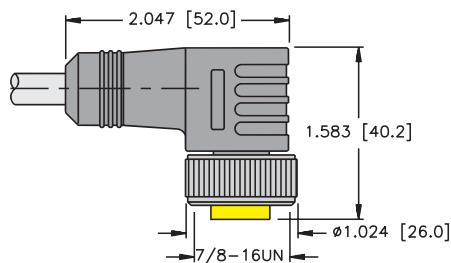
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WSM ..

Pages S19 - S20

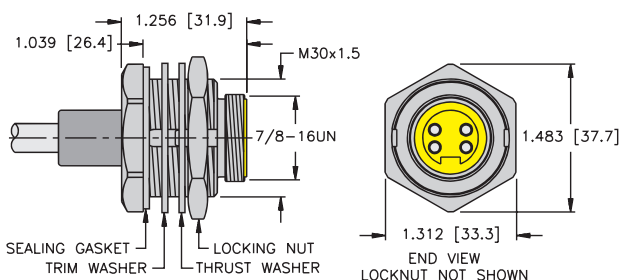
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WKM ..

Pages S19 - S20

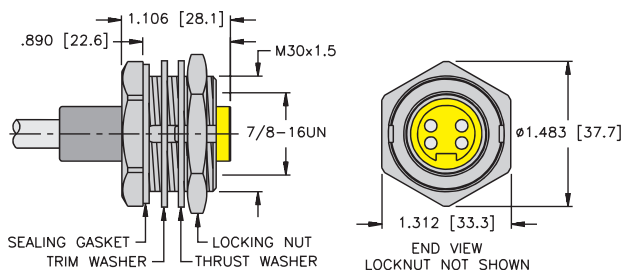
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RSFP ..

Pages S19 - S20

10



RKFP ..

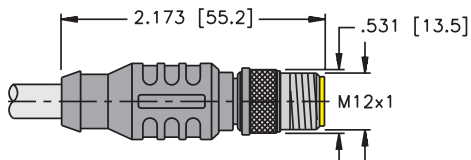
Pages S19 - S20

Genius I/O, eurofast® Cordset and Receptacle Connector Dimensions

Specifications

Housing: PUR (Polyurethane)
Coupling Nut: Nickel Plated CuZn or Stainless Steel
Contact Carrier: TPU (Polyurethane) or POM (Nylon)
Contacts: Gold Plated CuZn
Protection: NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage: 250 V
Rated Current: 4 A
Ambient Temperature: -40°C to +75°C

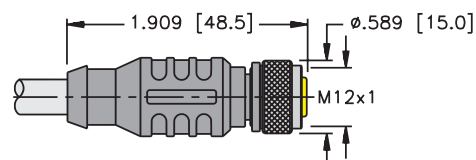
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RSC ..

Pages S19 - S20

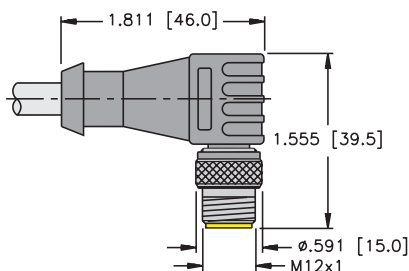
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RKC ..

Pages S19 - S20

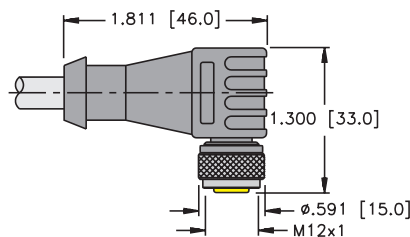
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WSC ..

Pages S19 - S20

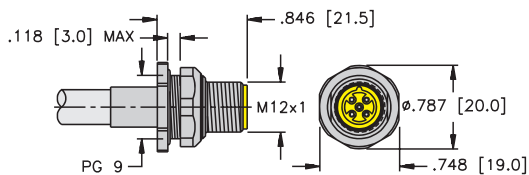
8



WKC ..

Pages S19 - S20

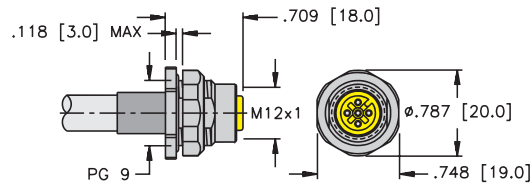
11



FSFD ..

Pages S19 - S20

12



FKFD ..

Pages S19 - S20

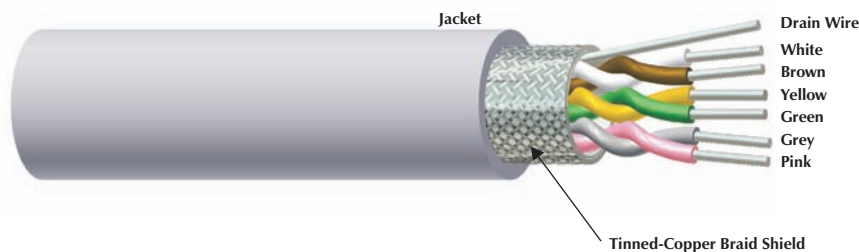
Interbus

Interbus has been designed as a fast sensor / actuator bus for transmitting process data in industrial environments.

Bus Type	Remote bus: token passing with repeater nodes; Local bus: master-to-slave
Maximum Number of Nodes	Remote bus: 64 in / 64 out; Local bus: 192 in / 192 out
Bus Topology	Remote bus: repeater ring; Local bus: bus
Maximum Network Length	400 meters between remote bus nodes; 10 meters on local bus (can accommodate three slaves)
Transmission Media	Remote bus: twisted pairs with shield/drain; Local bus: 5 pairs twisted
Inputs / Outputs bits Node	8/8 minimum for each node; 2048/2048 total for all nodes
Speed	500 Kbps
Bus Power (for field nodes)	From busline or separate power source
Duplicate Address Detection	To some degree: master assigns a virtual address based upon physical order
Attendance Check	Per scan
Error Detection	CRC checksum
Error Correction Type	Data not validated by checksum is flagged as bad and not used - nodes wait for 3 consecutive scans of validated data before data can be used
Determinism	Deterministic but not during error correction

Interbus[®], Cable Specifications

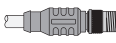



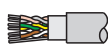
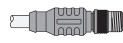
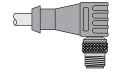
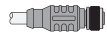
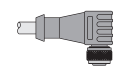
- Cable that Meets the Requirements of Interbus-S (IBS) Remote Bus Cable
- Remote Bus Cable Contains Three Twisted Pair Wires, and a Drain Wire for Communication Only, No Power



Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire	
660 AWM 2464 80°C 300 Volts	NEC AWM CEC AWM I/II A/B FT1	6/24 AWG PK/GY, GN/YE, WH/BN	26.2 Ohms PE	PVC Beige 7.4 mm (.290 in)	Braid 24 AWG	RB50699-*M 51 lbs.

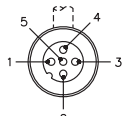

* Indicates length in meters.
Standard cable lengths are 30, 75, 150, 225, and 300 meters.
Interbus is a registered trademark of Phoenix Contact.

Interbus[®], Cable and Cordset Selection Matrix

		eurofast [®]				
		Pin (Male)		Socket (Female)		
		1  RSS	3  WSS	2  RKS	4  WKS	
 Bare		RSS 660-*M	WSS 660-*M	RKS 660-*M	WKS 660-*M	
eurofast	Pin (Male)	1  RSS	RSS RSS 660-*M	RSS WSS 660-*M	RSS RKS 660-*M	RSS WKS 660-*M
	3  WSS	WSS RSS 660-*M	WSS WSS 660-*M	WSS RKS 660-*M	WSS WKS 660-*M	
	2  RKS	RKS RSS 660-*M	RKS WSS 660-*M	RKS RKS 660-*M	RKS WKS 660-*M	
	4  WKS	WKS RSS 660-*M	WKS WSS 660-*M	WKS RKS 660-*M	WKS WKS 660-*M	

See page S26 for dimensional drawings.

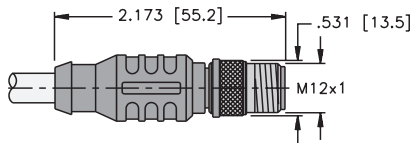
* Indicates length in meters.
Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10....15 Meters. Consult factory for other lengths.
For stainless steel coupling nuts change part number RSS... to RSV, WSS... to WSV.

eurofast	Pinouts	eurofast
<p>Male</p> 	<p>1. Yellow (DO) 2. Green (DO) 3. Grey (DI) 4. Pink (DI) 5. Brown (COM)</p>	<p>Female</p> 

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +80°C (-40° to +176°F)

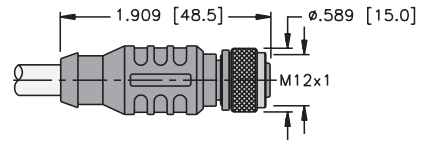
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RSS ..

Page S25

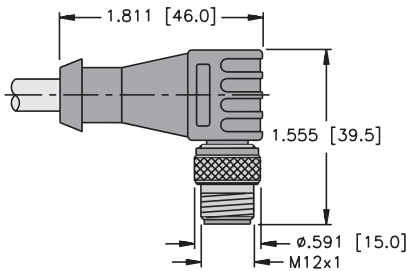
3



RKS ..

Page S25

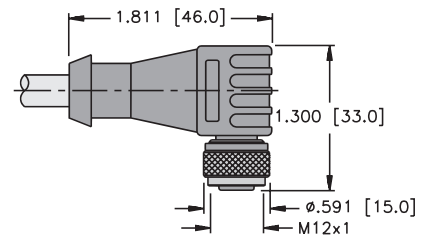
2



WSS ..

Page S25

4



WKS ..

Page S25

Notes

Smart Distributed System (SDS)

The Smart Distributed System, developed by Honeywell's MICRO SWITCH Division, is a bus system for intelligent sensors and actuators. The SDS system is based on **CAN** as defined in the Bosch V2.0 CAN Specification. SDS allows multiple nodes to share a single bus.

Over a single 4-wire cable, Smart Distributed System can interface up to 64 nodes with a maximum of 126 addresses. These intelligent sensor and actuator devices do more than just turn on and off. Smart Distributed System devices have advanced device-level functions, system and device diagnostics.

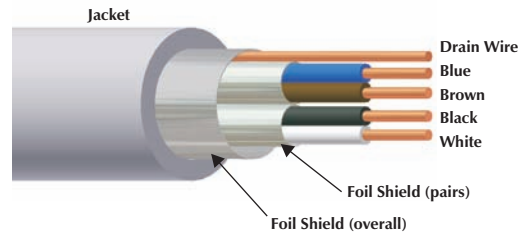
SDS is based on a three layer communication model. The **Application Layer** specifies system services and protocol. The **Data Link Layer** provides functions and procedures to establish, maintain and release data-link-connections among devices on the network and to transfer data-link-service-data-units. The **Physical Layer** provides the mechanical, electrical, functional and procedural means to activate, maintain and de-activate physical connections for bit transmission between data-link-entities. Physical Layer devices are interconnected by physical media.

TURCK

Network Media Products

SDS™, Micro Cable Specifications

- Cable that Meets the Physical Layer Specifications of Smart Distributed System (SDS)



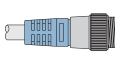
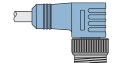
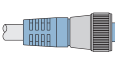
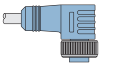
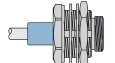
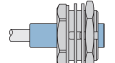

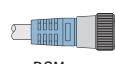
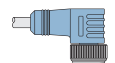
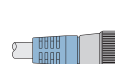

Maximum Trunk Lengths for various data rates independent of bus voltage drop

Maximum Trunk Length	Data Transmission Rate	Maximum Branch Length	Maximum Number of Nodes
22.8 meters (75 feet)	1 Mbit/s	0.3 meters (1 feet)	32
91.4 meters (300 feet)	500 Kbit/s	0.9 meters (3 feet)	64
182.8 meters (600 feet)	250 Kbit/s	1.8 meters (6 feet)	64
457.2 meters (1500 feet)	125 Kbit/s	3.6 meters (12 feet)	64

Type	Approvals	Power Pair		Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation			
532 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/22 AWG BU/BN	17 Ohms PVC	2/22 AWG WH/BK	17 Ohms PE	PVC Grey 7.3 mm (.285 in)	Foil 22 AWG	RB50604-*M 41 lbs.
531 AWM 2464 75°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/16 AWG BU/BN	4.3 Ohms PVC	2/22 AWG WH/BK	17 Ohms PE	PVC Grey 8.4 mm (.330 in)	Foil 22 AWG	RB50591-*M 69 lbs.
530 AWM 2464 80°C 300 Volts	NEC PLTC CEC AWM-I/II A/B FT4	2/16 AWG BU/BN	4.3 Ohms PVC	2/20 AWG WH/BK	10 Ohms PE	PVC Grey 10.4 mm (.409 in)	Foil 20 AWG	RB50628-*M 94 lbs.

* Indicates length in meters.

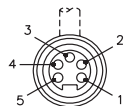
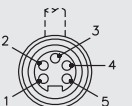
SDS™, Mini Cable and Cordset Selection Matrix - 530

		<i>minifast</i> ®				<i>minifast</i>		
		Pin (Male)		Socket (Female)		Pin (Male)	Socket (Female)	
		1 	2 	3 	4 	9 	10 	
		RSM	WSM	RKM	WKM	RSFP	RKFP	
		RSM 530-*M	WSM 530-*M	RKM 530-*M	WKM 530-*M	RSFP 530-*M	RKFP 530-*M	
Bare								
<i>minifast</i>	Pin (Male)	1 	RSM RSM 530-*M	RSM WSM 530-*M	RSM RKM 530-*M	RSM WKM 530-*M	RSM RSFP 530-*M	RSM RKFP 530-*M
		2 		WSM WSM 530-*M	WSM RKM 530-*M	WSM WKM 530-*M	WSM RSFP 530-*M	WSM RKFP 530-*M
		3 			RKM RKM 530-*M	RKM WKM 530-*M	RKM RSFP 530-*M	RKM RKFP 530-*M
	Socket (Female)	4 				WKM WKM 530-*M	WKM RSFP 530-*M	WKM RKFP 530-*M

See pages S33 for dimensional drawings.

* Indicates length in meters.

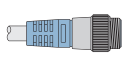
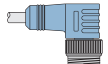
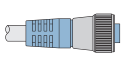
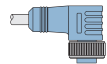
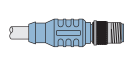
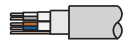
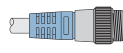
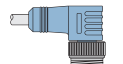
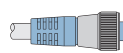
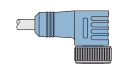
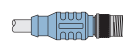
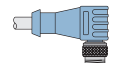
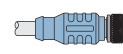
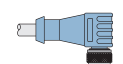
Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations. Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10...15 meters. Consult factory for other lengths. For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

<i>minifast</i>	Pinouts	<i>minifast</i>
<p>Male</p> 	<ol style="list-style-type: none"> 1. Bare (Shield Drain Wire) 2. Brown (+ Voltage) 3. Blue (- Voltage) 4. Black (CAN_H) 5. White (CAN_L) 	<p>Female</p> 

TURCK

Network Media Products

SDS™, Micro and Mid Cable and Cordset Selection Matrix - 532, 531

		<i>minifast</i> ®				<i>eurofast</i> ® (Thin/Mid Only)	
		Pin (Male)		Socket (Female)		Pin (Male)	
		1  RSM	2  WSM	3  RKM	4  WKM	5  RSC	
 Bare		RSM 53x-*M	WSM 53x-*M	RKM 53x-*M	WKM 53x-*M	RSC 53x-*M	
<i>minifast</i>	Pin (Male)	1  RSM	RSM RSM 53x-*M	RSM WSM 53x-*M	RSM RKM 53x-*M	RSM WKM 53x-*M	RSM RSC 53x-*M
	Pin (Male)	2  WSM		WSM WSM 53x-*M	WSM RKM 53x-*M	WSM WKM 53x-*M	WSM RSC 53x-*M
	Socket (Female)	3  RKM			RKM RKM 53x-*M	RKM WKM 53x-*M	RKM RSC 53x-*M
	Socket (Female)	4  WKM				WKM WKM 53x-*M	WKM RSC 53x-*M
<i>eurofast (thin/mid only)</i>	Pin (Male)	5  RSC					RSC RSC 53x-*M
	Pin (Male)	6  WSC					
	Socket (Female)	7  RKC					
	Socket (Female)	8  WKC					

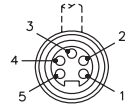
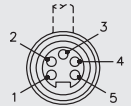
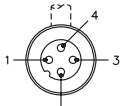
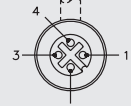
See pages S33 - S34 for dimensional drawings.

* Indicates length in meters.

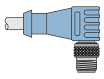

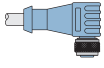
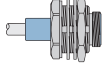
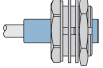
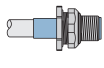
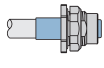
x Indicates cable type.

Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10....15 meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

<i>minifast</i>	Pinouts	<i>minifast</i>	<i>eurofast</i>	Pinouts	<i>eurofast</i>
Male 	1. Bare (Shield Drain Wire) 2. Brown (+ Voltage) 3. Blue (- Voltage) 4. Black (CAN_H) 5. White (CAN_L)	Female 	Male 	1. Brown (+ Voltage) 2. Blue (- Voltage) 3. White (CAN_L) 4. Black (CAN_H)	Female 

SDS™, Micro and Mid Cable and Cordset Selection Matrix - 532, 531

<i>euromast</i> ®			<i>minifast</i> ® Bulkhead		<i>euromast</i> Bulkhead	
Pin (Male)	Socket (Female)		Pin (Male)	Socket (Female)	Pin (Male)	Socket (Female)
6  WSC	7  RKC	8  WKC	9  RSFP	10  RKFP	11  FSFD	12  FKFD
WSC 53x-*M	RKC 53x-*M	WKC 53x-*M	RSFP 53x-*M	RKFP 53x-*M	FSFD 53x-*M	FKFD 53x-*M
RSM WSC 53x-*M	RSM RKC 53x-*M	RSM WKC 53x-*M	RSM RSFP 53x-*M	RSM RKFP 53x-*M	RSM FSFD 53x-*M	RSM FKFD 53x-*M
WSM WSC 53x-*M	WSM RKC 53x-*M	WSM WKC 53x-*M	WSM RSFP 53x-*M	WSM RKFP 53x-*M	WSM FSFD 53x-*M	WSM FKFD 53x-*M
RKM WSC 53x-*M	RKM RKC 53x-*M	RKM WKC 53x-*M	RKM RSFP 53x-*M	RKM RKFP 53x-*M	RKM FSFD 53x-*M	RKM FKFD 53x-*M
WKM WSC 53x-*M	WKM RKC 53x-*M	WKM WKC 53x-*M	WKM RSFP 53x-*M	WKM RKFP 53x-*M	WKM FSFD 53x-*M	WKM FKFD 53x-*M
RSC WSC 53x-*M	RSC RKC 53x-*M	RSC WKC 53x-*M	RSC RSFP 53x-*M	RSC RKFP 53x-*M	RSC FSFD 53x-*M	RSC FKFD 53x-*M
WSC WSC 53x-*M	WSC RKC 53x-*M	WSC WKC 53x-*M	WSC RSFP 53x-*M	WSC RKFP 53x-*M	WSC FSFD 53x-*M	WSC FKFD 53x-*M
	RKC RKC 53x-*M	RKC WKC 53x-*M	RKC RSFP 53x-*M	RKC RKFP 53x-*M	RKC FSFD 53x-*M	RKC FKFD 53x-*M
		WKC WKC 53x-*M	WKC RSFP 53x-*M	WKC RKFP 53x-*M	WKC FSFD 53x-*M	WKC FKFD 53x-*M

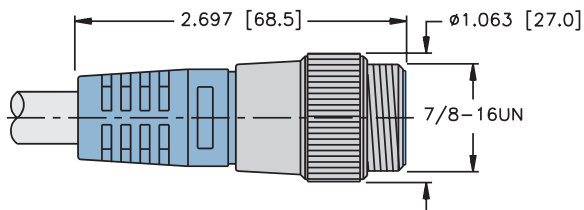
SDS

SDS™, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

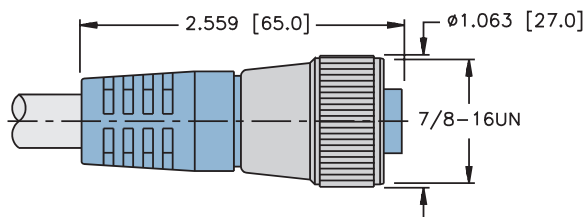
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RSM ..

Pages S30 - S32

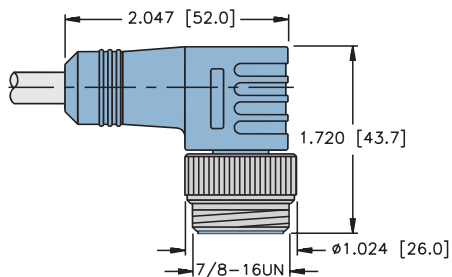
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RKM ..

Pages S30 - S32

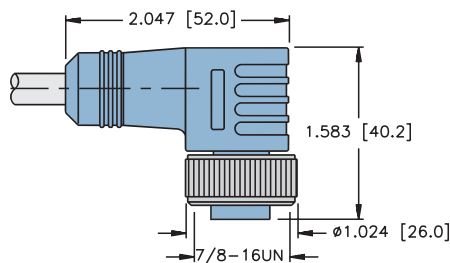
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WSM ..

Pages S30 - S32

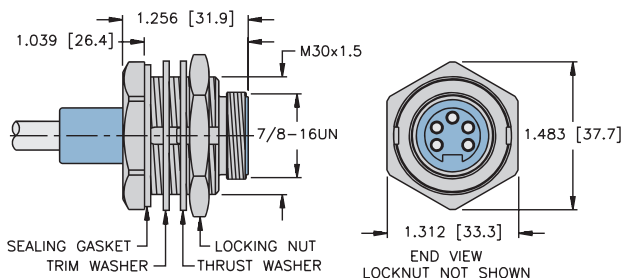
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WKM ..

Pages S30 - S32

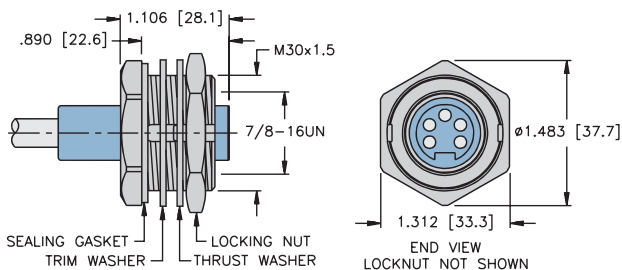
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RSFP ..

Pages S30 - S32

10



RKFP ..

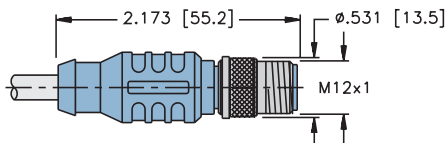
Pages S30 - S32

SDS™, eurofast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane) or POM (Nylon)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40° to +75°C (-40° to +167°F)

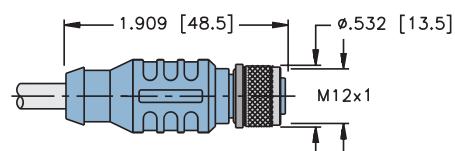
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RSC ..

Pages S30 - S32

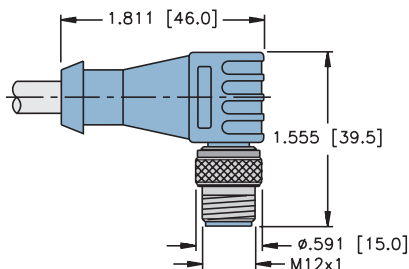
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RKC ..

Pages S30 - S32

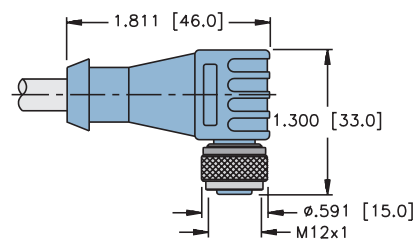
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WSC ..

Pages S30 - S32

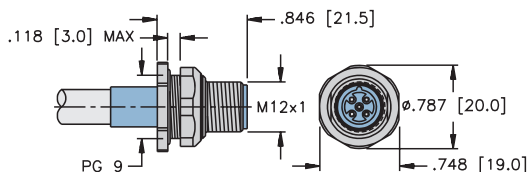
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WKC ..

Pages S30 - S32

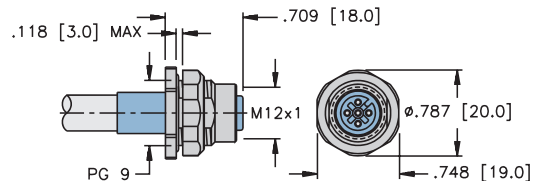
11



FSFD ..

Pages S30 - S32

12



FKFD ..

Pages S30 - S32

SDS

TURCK

Network Media Products

SDS™, eurofast® Passive Multiport Junctions

- Rugged, Fully Encapsulated Enclosure
- For Connecting I/O in Concentrated Areas
- Bus-In / Bus-Out Eliminates Need for Splitter Tee

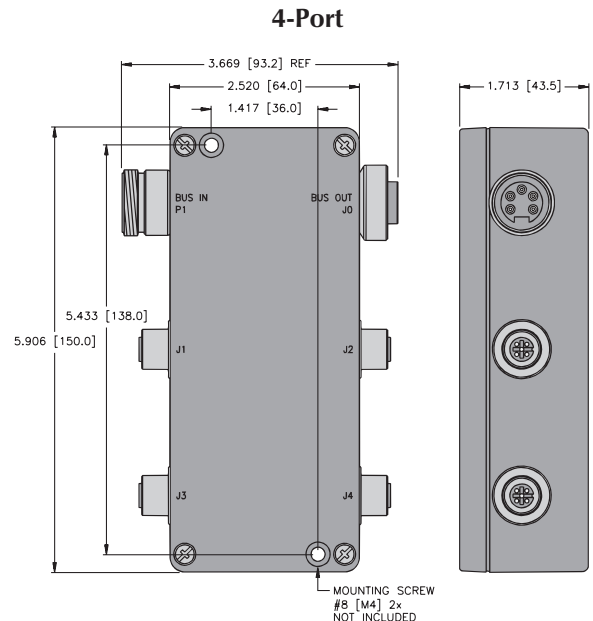
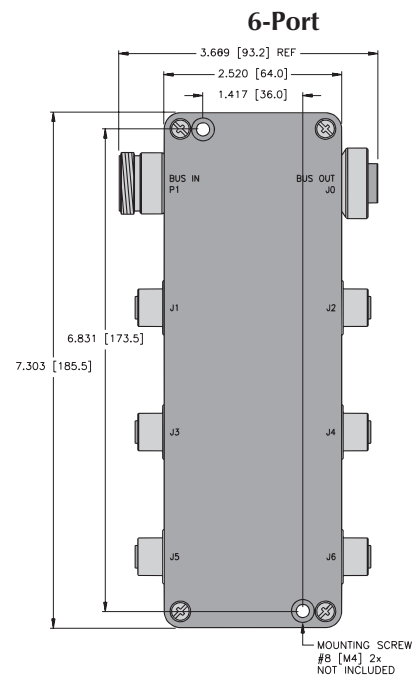
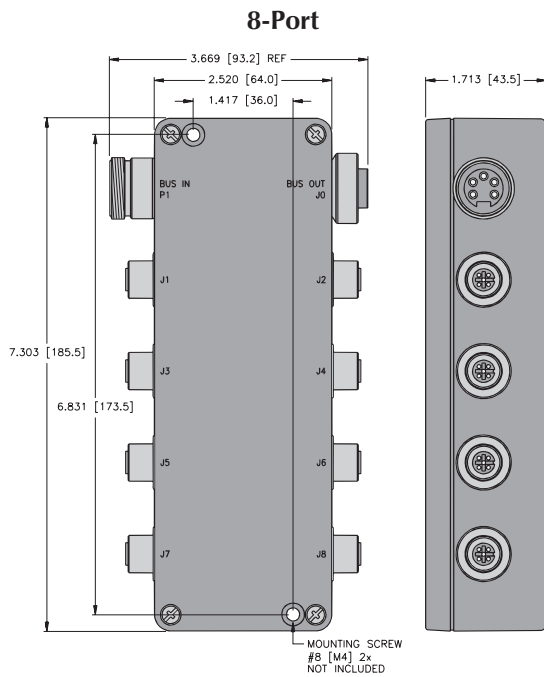


Part Number	Specs	Application	Wiring Diagrams
JBBS-53-E401		<p>4-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i>® through ports • Four device ports with (M12x1) <i>eurofast</i> connectors 	
JBBS-53-E601	Die-cast aluminum enclosure.	<p>6-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Six device ports with (M12x1) <i>eurofast</i> connectors 	
JBBS-53-E801		<p>8-port Junction</p> <ul style="list-style-type: none"> • Bus in/bus out straight (7/8-16UN) <i>minifast</i> through ports • Eight device ports with (M12x1) <i>eurofast</i> connectors 	

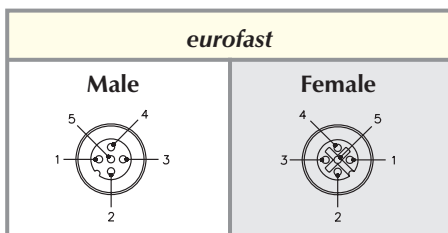
Specifications

Housing:	Anodized Aluminum
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (polyurethane or POM (Nylon))
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	250 V
Rated Current:	4 A
Ambient Temperature:	-40°C to +75°C

Dimensions



Pinouts



TURCK

Network Media Products

SDS™, Terminating Resistors

- Stabilize and Minimize Reflections on the Bus Line
- Required at the Beginning and End of Bus Line



Housing	Part Number	Specs	Application	Pinout
	RSM 53-TR2	Nickel Plated Brass or Stainless Steel 300 V, 9 A -40°C to +75°C	minifast ® Terminating Resistor <ul style="list-style-type: none"> • Internal resistor • Male minifast connector 	Male
	RSE 53-TR2	Nickel Plated Brass or Stainless Steel 250 V, 4 A -40°C to +75°C	eurofast ® Terminating Resistor <ul style="list-style-type: none"> • Internal resistor • Male eurofast connector 	Female

sensoplex[®]

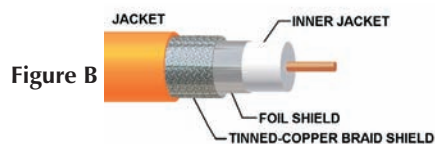
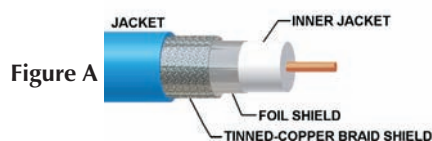
sensoplex is TURCK's own proprietary network originally introduced in 1987. *sensoplex* was designed for tough industrial environments and is highly noise resistant. It can interface to other device level networks, such as DeviceNet™, Modbus and PROFIBUS®-DP. An intrinsic safe version of *sensoplex* is available.

Bus Type	Master-to-slave
Bus Topology	Bus, straight feed-through
Transmission Speed	188 kBaud (fixed)
Transmission Medium	Coax Cable (supplies communication and power)
Transmission Signal	FSK (Frequency Shift Key) modulation; one data bit every 5.3 microseconds
Maximum Number of Nodes	32 to 64
Network Length	250 meters per branch
Address Setting	Via DIP Switch

sensoplex

sensoplex® , Cable Specifications

- Cable that Meets the Requirements of *sensoplex 2* Installations
- Cable is a 75 Ohm Impedance Coaxial Cable
- Coaxial Cable Allows both Power and Signal to be Transferred to the Field Devices



Type	Approvals	Inner Conductor		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M	Figure
		Type	Material Insulation	Material Color Nominal O.D.	Type		
Koax-75/B-Flex 80°C 30 Volts	VDE 04721/0298	Flexible	Copper Alloy PE	TPE Blue 7 mm (.276 in)	Foil/Braid	RB82701-*M 33 lbs.	A
Koax-75/B 80°C 30 Volts	VDE 04721/0298	Solid	Alloy PE	TPE Blue 7 mm (.276 in)	Foil/Braid	RB82702-*M 33 lbs.	A
Koax-75/OR-Flex 80°C 30 Volts	VDE 04721/0298	Flexible	Copper Alloy PE	TPE Orange	Foil/Braid	RB82700-*M 33 lbs.	B
Koax-75/OR 80°C 30 Volts	VDE 04721/0298	Solid	Alloy PE	TPE Orange	Foil/Braid	RB50100-*M 33 lbs.	B

* Indicates length in meters.

Standard cable lengths are 30, 75, 150, 225, and 300 meters.

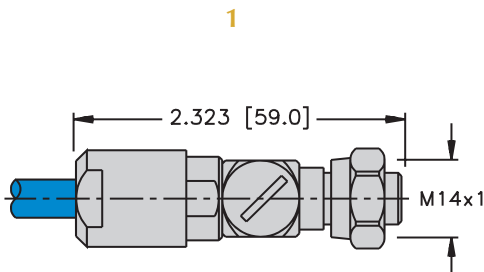
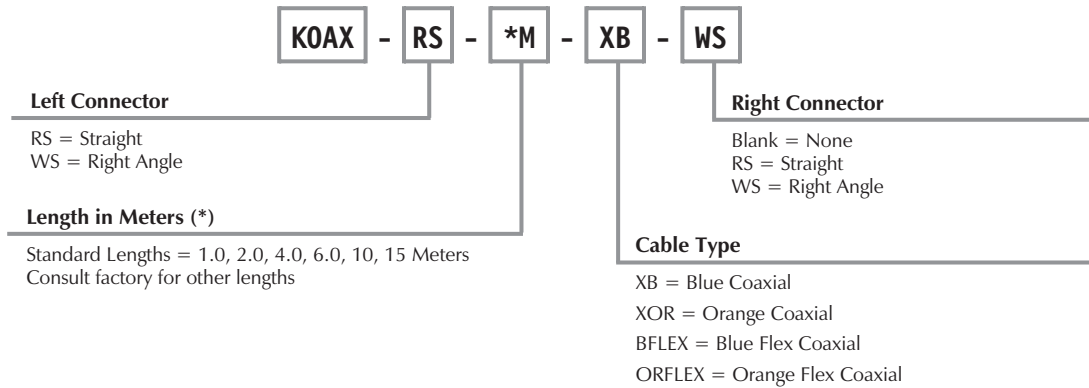
sensoplex[®], Cable and Cordset Selection Matrix

		Straight		Right Angle	
		1	RS	2	WS
Bare			KOAX-RS-*M-XX		KOAX-WS-*M-XX
Straight	1	RS	KOAX-RS-*M-XX-RS	WS	KOAX-RS-*M-XX-WS
	2	WS			KOAX-WS-*M-XX-WS

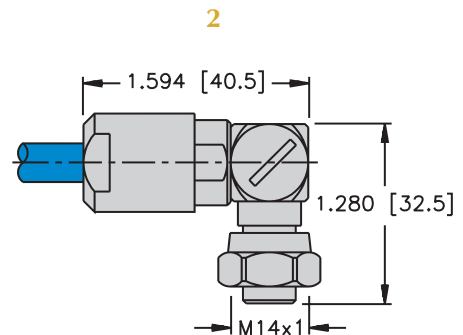
* Indicates length in meters.

Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10...15 Meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RS... to RSV, WS... to WSV.



RS ..



WS ..

Seriplex™

Seriplex is designed to be easy and simple to use where applications demand a very high speed. Response times are less than a millisecond for 128 points.

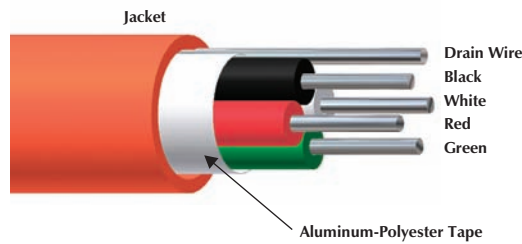
- Cable runs of 5,000+ feet
- System throughput time is 0.4 msec for 32 sensors plus 32 actuators (5 msec for 510 I/O)
- Supports more than 255 inputs and 255 outputs
- Flexibility of system without system reconfiguration
- Supports any wiring configuration - star, loop, tree, trunks, daisy chain

Seriplex media consists of a small, 4-wire shielded cable that provides both communications and power.

Bus Type	Master/slave and peer-to-peer
Bus Topology	Open - any combination of tree, loop, multi-drop, star, etc.
Maximum Number of Slaves	Non-multiplexed: 5010+ (225 input + 255 output) Multiplexed: 7.680 discrete or 480 analog or a combination
Data Packet Size	1-255 bits
Network Length	5,000 ft. or longer (without repeaters)
Bus Scan Time	Scalable - 0.72 ms for 31 sensors plus 31 actuators; 5.2 ms for 510 I/O devices
Error Detection System	Yes - CDR, digital debounce and diagnostic output
Transmission Signal	Binary, Analog, ASCII
Media	4-wire cable
Determinism	Yes - inherently deterministic

Seriplex™, Cable Specifications

- Cable that Meets the Requirements of Seriplex CBL 1622-PI
- Cable Consists of Two Wires for Clock and Data and Two for Power and Common

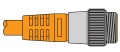



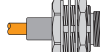
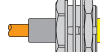







Maximum Distance = 1524 meters (5000 feet)

Type	Approvals	Data		Power		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire	
582 75°C 300 Volts	NEC CL2 CM CEC CM	2/22 AWG WH/GN	18.1 Ohms PE	2/16 AWG RD/BK	4.5 Ohms PE	PVC Orange 9.4 mm (.368 in)	Foil 22 AWG	RB50789-*M 56 lbs.

* Indicates length in meters.
Standard cable lengths are 30, 75, 150, 225 and 300 meters.

Seriplex™, Cable and Cordset Selection Matrix

		<i>minifast</i> ®				<i>minifast</i>		
		Pin (Male)		Socket (Female)		Pin (Male)	Socket (Female)	
		1  RSM	2  WSM	3  RKM	4  WKM	5  RSFP	6  RKFP	
 Bare		RSM 582-*M	WSM 582-*M	RKM 582-*M	WKM 582-*M	RSFP 582-*M	RKFP 582-*M	
<i>minifast</i>	Pin (Male)	1  RSM	RSM RSM 582-*M	RSM WSM 582-*M	RSM RKM 582-*M	RSM WKM 582-*M	RSM RSFP 582-*M	RSM RKFP 582-*M
		2  WSM		WSM WSM 582-*M	WSM RKM 582-*M	WSM WKM 582-*M	WSM RSFP 582-*M	WSM RKFP 582-*M
		3  RKM			RKM RKM 582-*M	RKM WKM 582-*M	RKM RSFP 582-*M	RKM RKFP 582-*M
	Socket (Female)	4  WKM				WKM WKM 582-*M	WKM RSFP 582-*M	WKM RKFP 582-*M

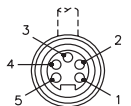
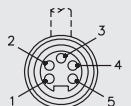
See page S44 for dimensional drawings.

* Indicates length in meters.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 1.0, 2.0, 4.0, 6.0, 10...15 Meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

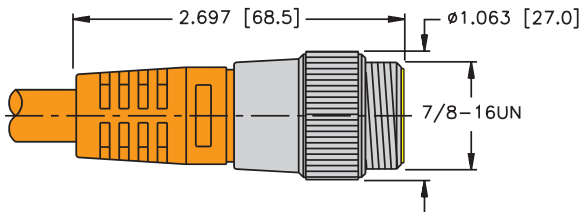
<i>minifast</i>	Pinouts	<i>minifast</i>
<p>Male</p> 	<ol style="list-style-type: none"> 1. Bare (Shield Drain Wire) 2. Red (+ Voltage) 3. Black (- Voltage) 4. Green (Clock) 5. White (Data) 	<p>Female</p> 

Seriplex™, minifast® Cordset and Receptacle Connector Dimensions

Specifications

Housing:	PUR (polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40°C to +75°C

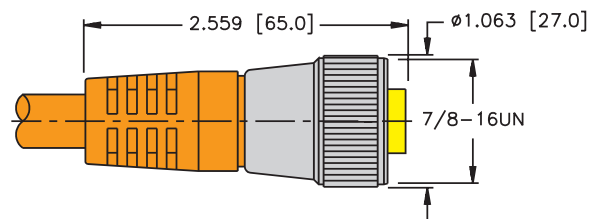
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RSM ..

Page S43

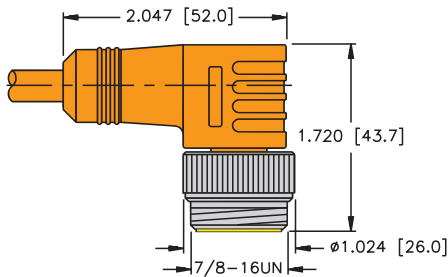
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RKM ..

Page S43

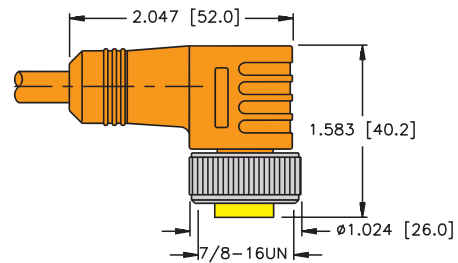
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WSM ..

Page S43

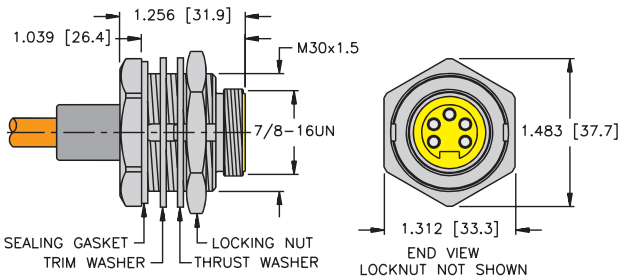
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WKM ..

Page S43

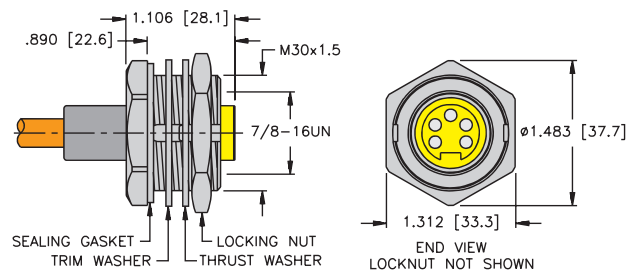
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RSFP ..

Page S43

6



RKFP ..

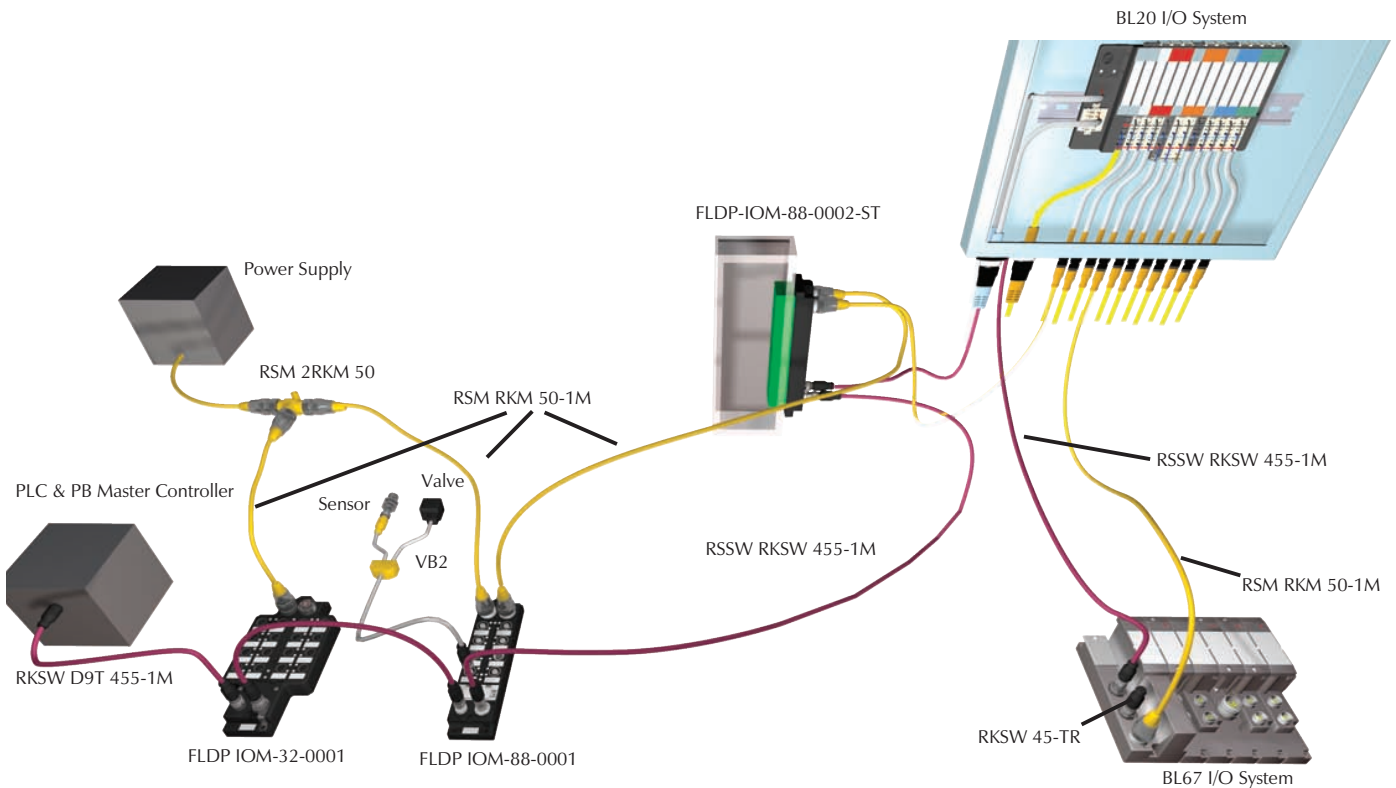
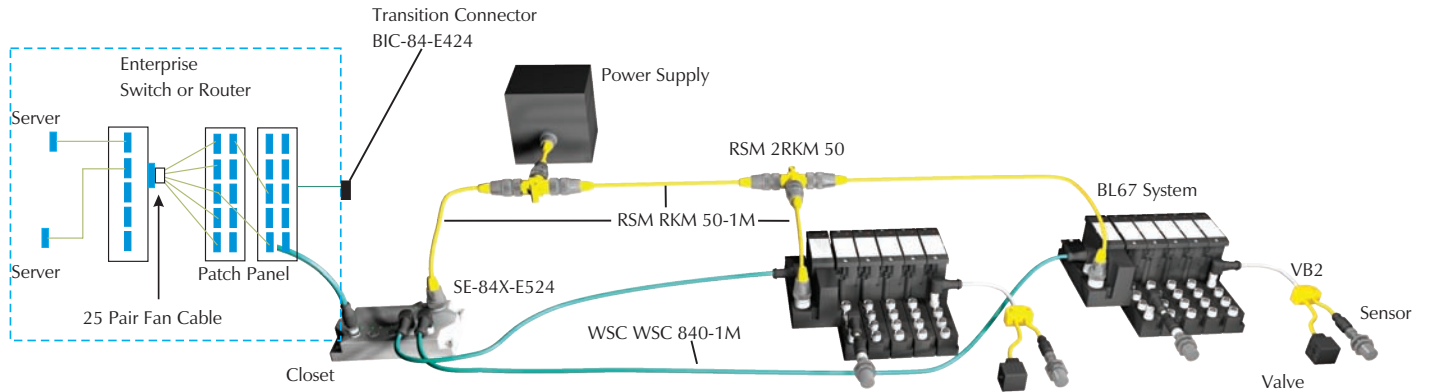
Page S43

Seriplex

Network Power Cordsets and Tees

Power Cordset and Tee Applications

This is only an example of the broad offering of power connectivity products.
See Connectivity Catalog B2005 for entire product line.



Power Cords

TURCK

Network Media Products

TURCK 5-Pin Power Cordsets, Cable Specifications

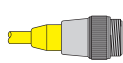
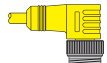
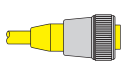
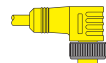
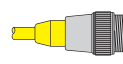



- NEMA 1, 3, 4, 6P and IEC IP 67 Protection
- 300 V, 9 A



Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire	
50 AWM 2517 105°C 300 Volts	NEC AWM CEC AWM FT1	5/18 AWG BK, BU, GN/YE, BN, WH	6.9 Ohms PVC	PVC Yellow 7.2 mm (.285 in)	None	RB50549-*M 60 lbs.

* Indicates length in meters.
Standard cable lengths are 30, 100 and 200 meters. Consult factory for other lengths.

TURCK 5-Pin Power, Cordset Selection Matrix

		<i>minifast</i> [®]				
		Pin (Male)		Socket (Female)		
		1  RSM	2  WSM	3  RKM	4  WKM	
Bare		RSM 50-*M	WSM 50-*M	RKM 50-*M	WKM 50-*M	
<i>minifast</i>	Pin (Male)	1  RSM	RSM RSM 50-*M	RSM WSM 50-*M	RSM RKM 50-*M	RSM WKM 50-*M
	2  WSM		WSM WSM 50-*M	WSM RKM 50-*M	WSM WKM 50-*M	
	3  RKM			RKM RKM 50-*M	RKM WKM 50-*M	
	4  WKM				WKM WKM 50-*M	

See pages S51 for dimensional drawings.

* Indicates length in meters.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 0.3, 0.5, 1.0, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 8.0, 10, 15....50 meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

Pinouts

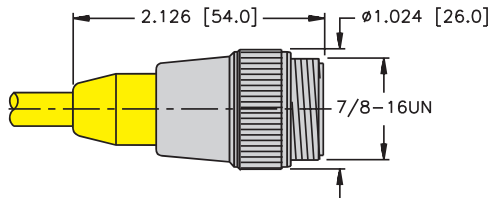
<i>minifast</i>		
Female		Male
	<ol style="list-style-type: none"> 1. Black 2. Blue 3. Green/Yellow 4. Brown 5. White 	

TURCK 5-Pin Power, Cordset Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	PUR (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 67
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

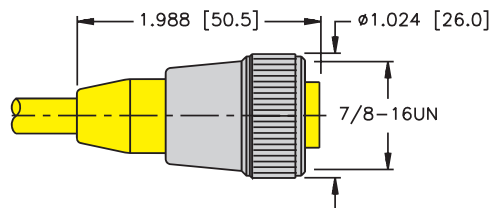
1



RSM ..

Pages S50

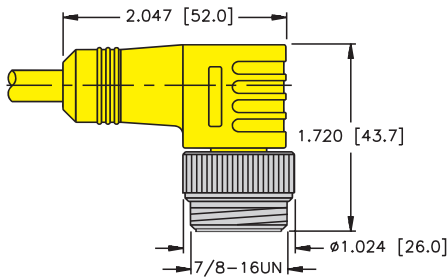
3



RKM ..

Pages S50

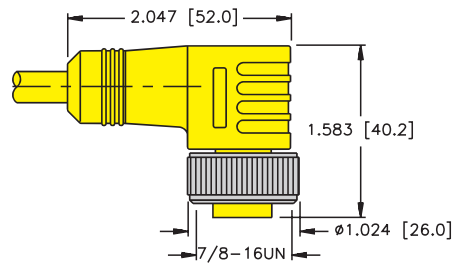
2



WSM ..

Pages S50

4



WKM ..

Pages S50

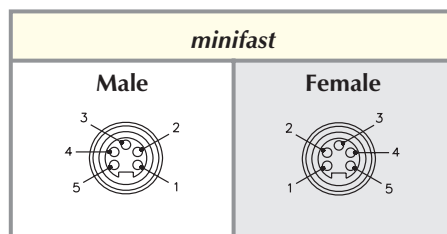
TURCK 5-Pin Power Tee

- Simplifies Wiring Installations
- Tough Molded Polyurethane Body



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSM 2RKM 50	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	<i>minifast</i> Power Tee <ul style="list-style-type: none"> • Data, ground, shield • Stainless steel coupling nuts 	

Pinouts



TURCK

Network Media Products

TURCK 4-Pin Power Cordsets, Cable Specifications

- NEMA 1, 3, 4, 6P and IEC IP 67 Protection
- 600 V, 9 A

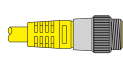

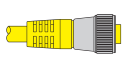
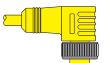
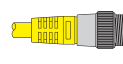





Type	Approvals	Data Pair		Outer Jacket	Shields	Bulk Cable Part Number / Weight/300 M
		AWG Color Code	DCR (/1000 feet) Insulation	Material Color Nominal O.D.	Type Drain Wire	
46 105°C 600 Volts	NEC STOW CEC STOW FT2	4/16 AWG BK, WH, RD, GN,	4.3 Ohms PVC	PVC Yellow 11 mm (.435 in)	None	RB50538-*M 120 lbs.

* Indicates length in meters.

Standard cable lengths are 30, 100 and 200 meters. Consult factory for other lengths.

TURCK 4-Pin Power, Cordset Selection Matrix

		<i>minifast</i> ®			
		Pin (Male)		Socket (Female)	
		1 	2 	3 	4 
		RSM	WSM	RKM	WKM
Bare		RSM 46-*M	WSM 46-*M	RKM 46-*M	WKM 46-*M
<i>minifast</i>	Pin (Male)				
	1 	RSM RSM 46-*M	RSM WSM 46-*M	RSM RKM 46-*M	RSM WKM 46-*M
	2 		WSM WSM 46-*M	WSM RKM 46-*M	WSM WKM 46-*M
	3 			RKM RKM 46-*M	RKM WKM 46-*M
Socket (Female)					
4 				WKM WKM 46-*M	

See pages S55 for dimensional drawings.

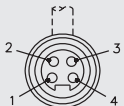
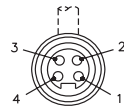
* Indicates length in meters.

Refer to the Cordset Builder at www.turck.com for assistance with cordset/cable combinations.

Standard cable lengths are 0.3, 0.5, 1.0, 2.0, 2.5, 3.0, 3.5, 4.0, 5.0, 6.0, 8.0, 10, 15....50 meters. Consult factory for other lengths.

For stainless steel coupling nuts change part number RSM ... to RSV, WSM ... to WSV.

Pinouts

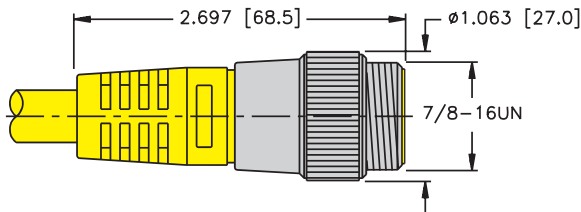
<i>minifast</i>		
Female		Male
	1. Black 2. White 3. Red 4. Green	

TURCK 4-Pin Power, Cordset Connector Dimensions

Specifications

Housing:	PUR (Polyurethane)
Coupling Nut:	Nickel Plated CuZn or Stainless Steel
Contact Carrier:	TPU (Polyurethane)
Contacts:	Gold Plated CuZn
Protection:	NEMA 1, 3, 4, 6P and IEC IP 68
Rated Voltage:	300 V
Rated Current:	9 A
Ambient Temperature:	-40° to +105°C (-40° to +221°F)

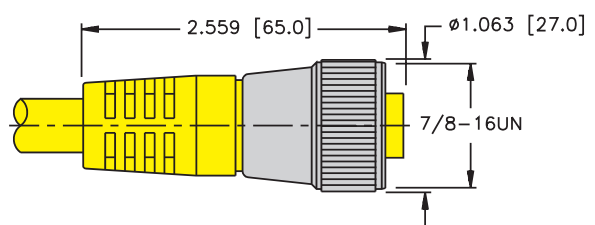
1



RSV ..

Pages S54

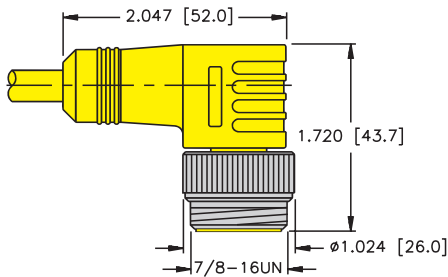
3



RKV ..

Pages S54

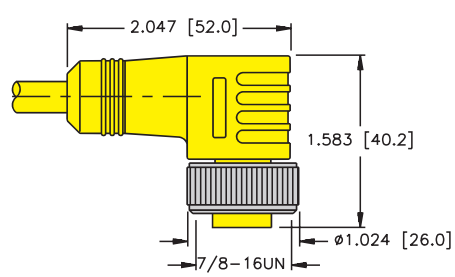
2



WSV ..

Pages S54

4



WKV ..

Pages S54

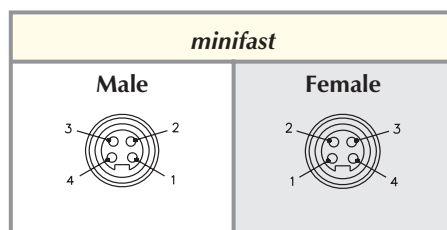
TURCK 4-Pin Power Tee

- Simplifies Wiring Installations
- Tough Molded Polyurethane Body



Housing	Part Number	Specs	Application	Wiring Diagrams
	RSM 2RKM 40	TPU (Polyurethane) 250 V, 4 A -40° to +75°C	<i>minifast</i> Power Tee <ul style="list-style-type: none"> • Data, ground, shield • Stainless steel coupling nuts 	

Pinouts



TURCK

Network Media Products

TURCK IP 67 Power Supplies

- Minimizes the required air gap between devices (0.4 mm according to EN 60 950)
- IP 67
- Insensitive to shock and vibration
- Flange mounting either on or off machine



Part Number	ID Number	Wattage	V Output	I Output	Dimensions (mm)
PSU67-11-2420/M	M6884140	50	24 VDC	2 A	166 x 85 x 35
PSU67-11-2440/M	M6884141	100	24 VDC	4 A	166 x 85 x 35

Specifications

Output Power:	50 W, 100 W, 200 W (Future Dual Output)
Input Voltage Range:	90-264 VAC / 110-375 VDC
Output Voltage:	24 VDC
Efficiency:	Up to $\geq 90\%$
Isolation Protection:	3.3 kVAC
Ambient Temp.:	-25 to +60°C (-13 to +140°F)
Case, Potting Mat.:	UL94-VO / Vacuum Encapsulated
Protection Class:	II
Derating:	2% K max
Connection Type:	7/8-16UN minifast
Mounting:	Flange
Approvals:	UL, CE, CAN/CSA

Input Power Cable

WKM 30-*M	Right Angle Female/Input Power
RKM 30-*M	Straight Female/Input Power

Output Power Cable (DeviceNet™)

RSM 40-* -WKM 50/DN

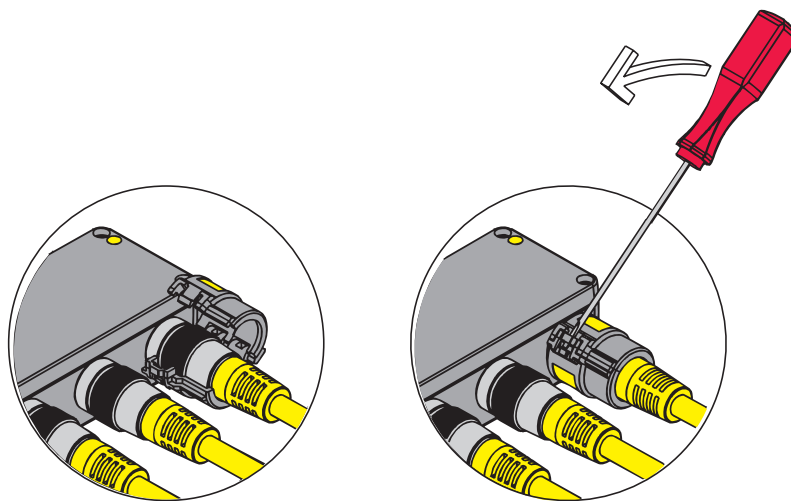
Output Power Cable (Profibus®)

RSM 40-* -WKM 50/BL67

Lokfast™ Guards

Housing	Part Number	Application
	SHLD, MINI	Trunk connections are to be locked with a Lokfast Guard to mechanically prevent separation.
	SHLD, MINI FW	
	SHLD, EURO	
	SHLD, EURO FW	

Lokfast Guards come 10 per bag.



Lokfast Assembly

Lokfast Disassembly

minifast® Closure Caps

Housing	Part Number	Specs	Application
	RKM-CC	Nickel plated brass 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to male cordsets, receptacles
	RKMV-CC	Stainless steel 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to male cordsets, receptacles
	RSM-CC	Nickel plated brass 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to female cordsets, receptacles
	RSMV-CC	Stainless steel 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to female cordsets, receptacles
	RKF-CC	Nickel plated brass 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to male receptacles
	RKFV-CC	Stainless steel 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to male receptacles
	RSF-CC	Nickel plated brass 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to female receptacles
	RSFV-CC	Stainless steel 7/8-16UN threads 6" stainless steel lanyard	Closure cap, mates to female receptacles
	RKF-MC	Nickel plated brass 7/8-16UN threads BUNA-N gasket	Closure cap, mates to male receptacles
	RKFV-MC	Stainless steel 7/8-16UN threads BUNA-N gasket	Closure cap, mates to male receptacles
	RSF-MC	Nickel plated brass 7/8-16UN threads BUNA-N gasket and O-ring	Closure cap, mates to female cordsets, receptacles
	RSFV-MC	Stainless steel 7/8-16UN threads BUNA-N gasket and O-ring	Closure cap, mates to female cordsets, receptacles

Accessories

TURCK

Network Media Products

euromast® Closure Caps

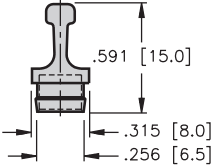
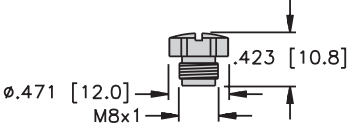
Housing	Part Number	Specs	Application
	RK-CC	Nickel plated brass M12x1 threads 6" lanyard	Mates to male cordsets and receptacles
	RKV-CC	Stainless steel M12x1 threads 6" lanyard	Mates to male cordsets and receptacles
	RS-CC	Nickel plated brass M12x1 threads 6" lanyard	Mates to female cordsets and receptacles
	RSV-CC	Stainless steel M12x1 threads 6" lanyard	Mates to female cordsets and receptacles
	FK-CC	Nickel plated brass M12x1 threads 6" lanyard with eyelet	Mates to male cordsets and receptacles
	FKV-CC	Stainless steel M12x1 threads 6" lanyard with eyelet	Mates to male cordsets and receptacles
	FS-CC	Nickel plated brass M12x1 threads 6" lanyard with eyelet	Mates to female cordsets and receptacles
	FSV-CC	Stainless steel M12x1 threads 6" lanyard with eyelet	Mates to female cordsets and receptacles
	FKK-CC	Plastic M12x1 threads 3" lanyard with eyelet	Mates to male cordsets and receptacles
	FSK-CC	Plastic M12x1 threads 3" lanyard with eyelet	Mates to female cordsets and receptacles

euromast® Closure Caps

Housing	Part Number	Specs	Application
	RKK-CC	Plastic M12x1 threads	Mates to male cordsets and receptacles
	RSK-CC	Plastic M12x1 threads	Mates to female cordsets and receptacles
	RK-MC	Nickel plated brass M12x1 threads No lanyard	Mates to male cordsets and receptacles
	RKV-MC	Stainless steel M12x1 threads No lanyard	Mates to male cordsets and receptacles
	RS-MC	Nickel plated brass M12x1 threads No lanyard	Mates to female cordsets and receptacles
	RSV-MC	Stainless steel M12x1 threads No lanyard	Mates to female cordsets and receptacles
	VZ3-RED (8/BAG)	Red Nylon	Mates to VB2 series junction boxes and female cordsets and receptacles
	VZ3 (8/BAG)	Nylon	Mates to VB2 series junction boxes and female cordsets and receptacles

Accessories

***picofast*[®] Closure Caps**

Housing	Part Number	Specs	Application
	<p>PSG-CC (8/BAG)</p>	<p>Nylon</p>	<p>Mates to female snap-lock cordsets, receptacles and junction boxes</p>
	<p>PSGM-CC (8/BAG)</p>	<p>Nylon</p>	<p>Mates to female threaded cordsets, receptacles and junction boxes</p>

Snap-in Labels

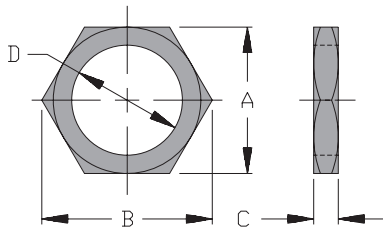
Housing	Part Number	Specs	Application
	<p>KS 5/10</p>	<p>10 white labels 5x10 mm each</p>	<p>Snap-in labels for <i>picofast</i>® junction boxes</p>
	<p>VZ 1</p>	<p>8 white labels 8x20 mm each Nylon</p>	<p>Snap-in labels for <i>eurofast</i>® and <i>minifast</i>® JTBS junction boxes</p>

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Network Media Products

Locknuts

Part Number	Specs	Application	A	B	C	D
LN-PG 9	Nickel plated brass PG 9 threads 5 locknuts per bag	Lock nut euofast receptacles	0.71" 18.0 mm	0.79" 20.0 mm	0.11" 2.8 mm	PG 9
LN-PG 13.5	Nickel plated brass PG 13.5 threads 5 locknuts per bag	Lock nut euofast receptacles	0.90" 23.0 mm	1.00" 25.5 mm	0.12" 3.0 mm	PG 13.5
LN 1/4-18/10	Nickel plated brass 1/4-18 threads 10 locknuts per bag	Lock nut euofast and microfast receptacles	0.43"	0.49"	0.22"	1/4-18
LN 1/2-14/10	Die-cast Zinc 1/2-14 threads 10 locknuts per bag	Lock nut minifast , euofast and microfast receptacles	0.74"	0.85"	0.43"	1/2-14



Notes

TURCK

Network Media Products

TURCK Standards

One or more of the following standards may apply to products or components of products in this catalog. This section is intended to provide a reference to the applicable standards only. Original or facsimiles of the original standards documents should be used for interpretation. It is the responsibility of the user to determine the suitability of use of the products represented in this catalog.

ANSI/B93.55M

Generally defines the geometry and connection scheme of “mini” type connectors used in fluid power (valve) applications. It defines the numerical marking of the pins and the conductor size and colors for 3 and 5 pin versions. This specification was the basis for the so-called “automotive” standard conductor colors that are widely used on sensors.

CENELEC EN 50 044

Identifies connections for inductive proximity switches. The specification defines conductor colors for proximity switches with 2, 3, or 4 conductors. It also defines numerical marking of the terminals, whether quick disconnect, or not. **TURCK** sensors and recommended cordsets that apply within the scope of the standard comply with CENELEC EN 50 044. The conventions defined in this standard have been widely adopted in industry to include photoelectric controls and other related sensing devices.

CSA

The Canadian equivalent of UL in Canada. It is a government-run organization that tests and certifies that products conform to their own set of safety-related specifications.

DIN 43650

Defines the geometry and other characteristics of the “square” connectors most frequently used on hydraulic and pneumatic solenoid valves and other devices in the fluid power industry.

MSHA

The Mine Safety and Health Administration - a US Government agency that ensures and regulates safety for mines and mine workers. The MSHA approval is required for products used in underground mines, including electrical equipment, power cords, and instrumentation components.

The MSHA standards require special fire-resistant properties and characteristics that prevent the propagation of flames.

NRTL

Nationally Recognized Test Laboratory - An independent laboratory authorized by the US Government to perform product safety evaluations. Test laboratories must meet government laboratory standards, and are audited annually by OSHA to maintain this credential. UL standards are adopted by the US government and OSHA as being “Safety Standards”, and these accredited labs then use the UL standards to perform product evaluations.

The Canadian Standards Association, (CSA) is authorized as a NRTL to perform product evaluations and tests to the UL Standards. The certification mark “CSA NRTL/C” is then applied to products that satisfy all construction and performance criteria for both US and Canada. This certification mark is generally accepted by local building, safety, and quality agencies as meeting safety, construction, and performance criteria in both the US and Canada.

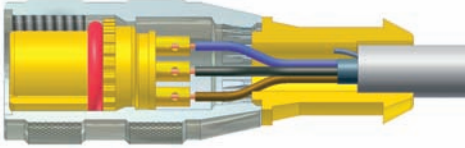
Shielded Cordsets

Whenever wire is used to transmit electrical data, it is possible for the wire to absorb external noise, possibly changing the characteristics of the electrical signal, or to give off noise that could cause changes in other electrical components that are near. Shielding is the act of placing conductive material between the potential noise emitters and receivers.

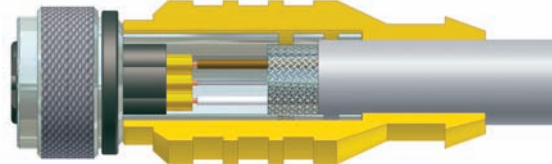
Electrical noise is usually classified as electro-magnetic interference (EMI) or radio frequency interference (RFI).

TURCK offers a number of shielding options:

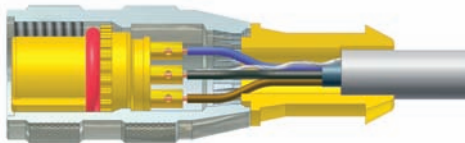
Foil shield with drain, drain not connected



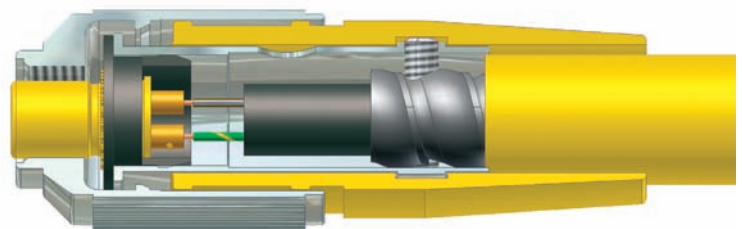
Foil and braid shield with shield tied to coupling nut



Foil shield with drain, drain connected to a pin



Aluminum armored cable with armor tied to coupling nut



For a shield to be effective, it must be tied to a ground at some point. It is usually preferred to not tie the shield to ground at more than one point to avoid ground loops. A shield not tied to a ground will reflect some noise and is better than no shield at all, but will be much more effective if tied to a ground.

High frequency noise, RFI, is handled well with a foil shield. The wavelength of RFI is usually small and can pass through the 'holes' in a braided shield. EMI is usually larger wavelengths and needs a braided shield to increase the mass of shielding material to be effective.

Aluminum armored cables provide the ultimate in noise immunity as they are basically flexible conduit.

Select the shielded cordset that best meets your needs. If it is easier to tie the shield to ground inside the panel, the foil/drain with the drain not connected inside the cordset is a good choice. If you can connect the drain via a pin inside the device being connected, the foil/drain with the drain connected to a pin is a good choice. Any environments with EMI noise from things like large motors or welding equipment will benefit from a braided shield tied to the coupling nut.

TURCK shielded cordsets with the shield tied to the coupling nut offer complete shielding for the entire length of the cordset. A metal sleeve inside the molded body connects the braid/foil shield of the cable to the metal coupling nut with no loss of shielding potential.

TURCK armored cordsets are the ultimate in shielded connectors. A **TURCK** patented process allows the interlocked aluminum armor to be connected directly to the coupling nut offering the same protection as running conductors inside metal conduit.

IP Protection Class

IP		Dust Protection						
		0_ Unprotected	1_ Objects ≥50mm	2_ Objects ≥12.5mm	3_ Objects ≥2.5mm	4_ Objects ≥1.0mm	5_ Dust Protected	6_ Dust Tight
Water Protection	_0 Unprotected	IP 00	IP 10	IP 20	IP 30	IP 40	IP 50	IP 60
	_1 Dripping water		IP 11	IP 21	IP 31	IP 41	IP 51	IP 61
	_2 Dripping water on 15° slant		IP 12	IP 22	IP 32	IP 42	IP 52	IP 62
	_3 Spraying water			IP 23	IP 33	IP 43	IP 53	IP 63
	_4 Splashing water				IP 34	IP 44	IP 54	IP 64
	_4K Splashing water high pressure				IP 34K	IP 44K	IP 54K	IP 64K
	_5 Jet water						IP 55	IP 65
	_6 Intense jet water						IP 56	IP 66
	_6K Intense jet water high pressure						IP 56K	IP 66K
	_7 Temporary immersion							IP 67
	_8 Continuous immersion as specified by manufacturer							IP 68
	_9K Water at high pressure/Steam jet cleaning							IP 69K

IP 67 Protection

First ID Number	Protection from Penetration of...	Requirements
0	Unprotected	N/A
1	Solid Foreign Particles Ø50 mm	No full penetration of sphere with Ø50 mm
2	Solid Foreign Particles Ø12.5 mm	No full penetration of sphere with Ø12.5 mm
3	Solid Foreign Particles Ø2.5 mm	No penetration of rod with Ø2.5 mm
4	Solid Foreign Particles Ø1.0 mm	No penetration of wire with Ø1.0 mm
5	Dust	Dust may only penetrate in such quantity that function and safety are not impacted
6	Dust	No penetration of dust

Second ID Number	Protection from Penetration of...	Requirements
0	Unprotected	N/A
1	Dripping water	Vertically falling drips may not cause any damage.
2	Dripping water when the enclosure is in a slanted position of up to 15°	Vertically falling drips may not cause any damage.
3	Spraying water	Spraying water, which is sprayed in a perpendicular angle of up to 60° may not cause any damage.
4	Splashing water	Water splashing against the enclosure from every direction may not cause any damage.
4K	Splashing water with increased pressure	Water splashing against the enclosure from every direction and with increased pressure may not cause any damage.
5	Jet water	Water which is hosed against the enclosure from every direction may not cause damage.
6	Intense jet water	Water which is hosed against the enclosure with high intensity may not cause any damage.
6K	Intense jet water with increased pressure	Water which is hosed against the enclosure with high intensity and increased pressure may not cause any damage.
7	Temporary immersion in water	Water may not enter the enclosure in such quantity as to cause damage when the enclosure is held under water for a set period of time using predetermined pressure (1 m for 30 min).
8	Continuous immersion in water	Water may not enter the enclosure in such quantity as to cause damage when the enclosure is held under water for a set period of time using predetermined pressure (TURCK standard is 6' of water, and other chemicals, for a period of 24 hours).
9K	Water at high-pressure/steam jet cleaning	Water which is directed against the enclosure from every direction with extremely high pressure may not cause any damage (14 to 16 l/min at 8,000 to 10,000 kPa).

TURCK

Network Media Products

NEMA Standards

NEMA		NEMA 1	NEMA 2	NEMA 12	NEMA 13	NEMA 3	NEMA 3R	NEMA 4	NEMA 4X	NEMA 6	NEMA 6P
Rating Type		Indoor				Outdoor		Indoor/Outdoor			
Protection against:	Test Number										
Incidental Contact	6.2	•	•	•	•	•	•	•	•	•	•
Falling Dirt	6.2	•	•	•	•	•	•	•	•	•	•
Rust	6.8	•		•	•	•	•	•	•	•	•
Circulating Dust, Lint, Fibers (nonhazardous)	6.5.1.2(2)			•	•	•		•	•	•	•
Windblown Dust	6.5.1.1(2)					•		•	•	•	•
Falling Liquids/Light Splashing	6.3.2.2		•	•	•	•		•	•	•	•
Rain	6.4.2.1					•	•	•	•	•	•
Rain	6.4.2.2					•		•	•	•	•
Snow and Sleet	6.6.2.2					•	•	•	•	•	•
Hose Down and Splashing Water	6.7							•	•	•	•
Occasional Prolonged Submersion	6.11(2)									•	•
Oil and Coolant Drip	6.3.2.2			•	•						
Oil and Coolant, Spray/Splash	6.12				•						
Corrosive Agents	6.9					•	•		•		•

NEMA

6.2 - Rod Entry Test

A 1/2" diameter rod may not enter the enclosure and a 1/8" rod cannot enter within 4" of live components

6.3 - Drip Test

20 drops per minute for 30 minutes with no water entering enclosure 6.3.2.2 Evaluation, no water shall enter enclosure

6.4 - Rain Test

All exposed surfaces are sprayed with 5 psi of water for 60 minutes at a rate of 18" per hour rise in a straight sided pan
6.4.2.1 Evaluation, No water shall have reached live parts, insulation, or mechanisms 6.4.2.2 Evaluation, No water shall have entered enclosure

6.5.1.1 (2) - Outdoor Dust Test (alternate method)

Stream of water at 45 gallons per minute from a 1" diameter nozzle, from all directions at a distance from 10' to 12'. Test time is a minimum of 5 minutes. No water shall enter enclosure.

6.5.1.2 (2) - Indoor Dust Test (alternate method)

Atomized water at 30 psi is sprayed from all directions from a distance of 12" to 15" at a rate of 3 gallons per hour. No water shall enter enclosure.

6.6 - External Icing Test

The enclosure is sprayed with water between 0°C and 3°C in a room at 2°C. The spray is between 1 and 2 gallons per hour per square foot. Spray for 1 hour. The room temp is then dropped to between -7°C and -3°C with the spray still going. Ice needs to build up on a test bar at a rate of 1/4 inch per hour. Spray continues until 3/4 inch of ice is on the enclosure. Room temperature is maintained for at least 3 hours. 6.6.2.2 Evaluation, enclosure is undamaged after ice has melted.

6.7 - Hose down Test

Stream of water at 65 gallons per minute from a 1" diameter nozzle from all angles at a distance of 10' to 12'. Test time is 48 seconds times (height + width + depth of enclosure in feet) or a minimum of 5 seconds. No water shall enter enclosure.

6.8 - Rust Resistance Test

Only applicable to enclosures incorporating external ferrous parts

6.9 - Corrosion Protection

Test per UL 508, 6.9 or 6.10.

6.11 (2) - Air Pressure Test (alternate method)

Enclosure is submerged in water at a pressure equal to a depth of 6' for 24 hours. No water shall enter enclosure.

6.12 - Oil Exclusion Test

Stream of test liquid at 2 gallons per minute from a 3/8" nozzle for 30 minutes. Water with 0.1% wetting agent is directed from all angles from a distance of 12" to 18". No test liquid shall enter the enclosure.

TURCK

Network Media Products

Conversion Chart		
AWG to Metric		
AWG	Diameter mm	Section mm ²
8	3.26	10
10	2.59	6
12	2.05	4
14	1.63	2.5
16	1.29	1.5
18	1.024	0.75
20	0.813	0.5
22	0.643	0.34
24	0.511	0.25
26	0.405	0.14
28	0.32	0.05
30	0.255	0.05

Thread Conversion Chart	
PG to Metric Threads	
PG	Diameter (mm)
7	12
9	16
11	20
16	25

Cable Length Tolerance Chart	
All Lengths	
Strip Length	Diameter (mm)
0-7 mm	±0.5 mm
8-29 mm	±1.0 mm
30-49 mm	±2.0 mm
50-69 mm	±3.0 mm
70-100 mm	±4.0 mm
Over 100 mm	±5.0 mm

Installing Cable Products in Accordance with the National Electrical Code (NEC)

The NEC is a set of guidelines for installation of electrical devices, including cables, meant to reduce the risk of electrical shock, fire, etc. The NEC is simply a code and local laws may or may not require installation based on the NEC. Check local laws for applicability.

The NEC generally does not cover cables installed inside a machine. Any cables installed in an exposed manner, on the outside of a machine or from one machine to something else, must be an approved type and installed in accordance with the appropriate NEC articles.

UL (Underwriters Laboratory) and CSA (Canadian Standards Association) are the primary sources in North America for approving cables to specific standards. While a cable installed within a piece of machinery does not fall under the NEC, most people want to install an approved cable. **TURCK** cables have both UL and CSA approvals. Many of these approvals are the UL AWM (Appliance Wiring) approvals and are acceptable for use in a UL approved device. A UL Listed cable may be installed outside a machine per the NEC standards. UL Listed cables available from **TURCK** include NEC designations for hard duty cables (SOOW, SJOOW, STOOW, SEOW), armored cables (MC), and tray-rated cables (PLTC, ITC).

Hard duty cables designations are:

- S - Service Grade (600 V)
- SJ - Service Grade Junior (300 V)
- ST - Service Grade Thermoplastic (600 V)
- SE - Service Grade Thermoplastic Elastomer (600 V)
- O - Oil resistant jacket material
- OO - Oil resistant jacket and conductor insulation
- W - Weather proof

TURCK armored cables are available in 3 different configurations. Type MC cables, type MC cables with ITC/PLTC approvals and simply ITC/PLTC approved. Armored cables with ITC/PLTC approvals may be installed in an exposed run without being offered additional mechanical protection.

Tray-rated cables from **TURCK** include Instrument Tray Cable (ITC) and/or Power Limited Tray Cable (PLTC).

TURCK NEC type approved cables are dual listed with other UL type approvals.

For example, the RKM 126-*M cordset has a 12 conductor 16 AWG cable with UL AWM 600V approval and ITC/PLTC approval.

Please refer to the NEC and local laws for specific installation requirements based on your environment.

Cable Applications

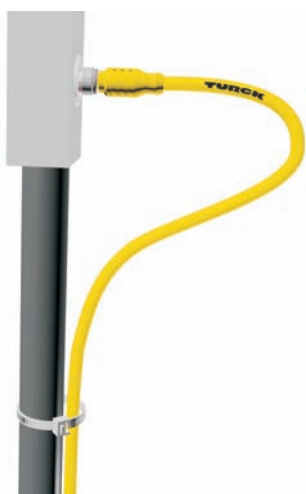
Proper management of cabling systems can mean the difference between a dependable and smooth operating installation and costly reoccurring down time. The suggestions outlined below illustrate some of the common sources of problems and provide simple and effective solutions.

Proper Bend Radius for Fixed and Moving Applications

Providing sufficient bend radius will allow the cable to absorb the energy of bending over a greater portion of its length, increasing its effective working life. Small increases in the radius of the bend can produce substantial increases in cable life.

Fixed Applications:

Minimum bend radius 10x cable diameter



Moving Applications:

Minimum bend radius 15x cable diameter



Eliminating Stress Points in Cable Dress

Installing cables to allow for adequate stress loops and freedom of motion increase the life of the cables. TURCK cordsets incorporate molded strain reliefs that will assist in preventing stress.

Tie Down Loops

Correct



Incorrect



Strain Relief

Correct



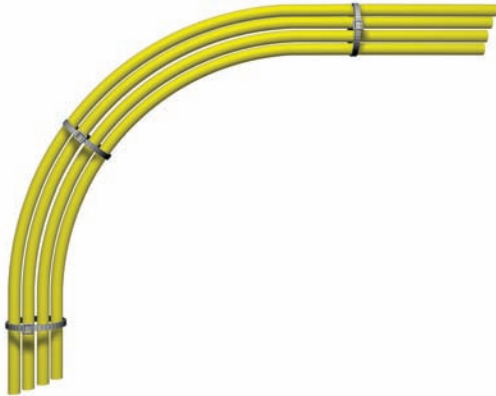
Incorrect



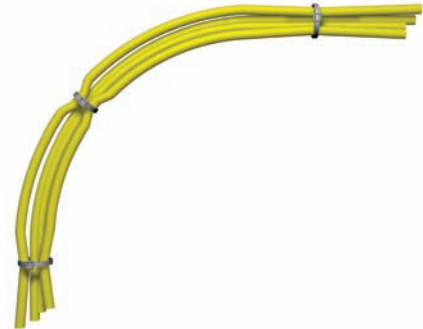
Cable Bundling Techniques

When bundling several cables together, always keep the bundle loose enough to move within itself. Tightly tied bundles create both compression and tension stresses when the bundle is moved.

Correct



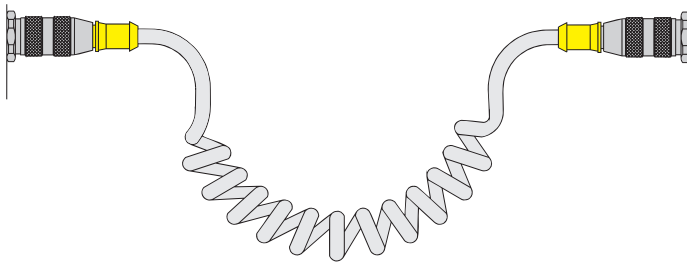
Incorrect



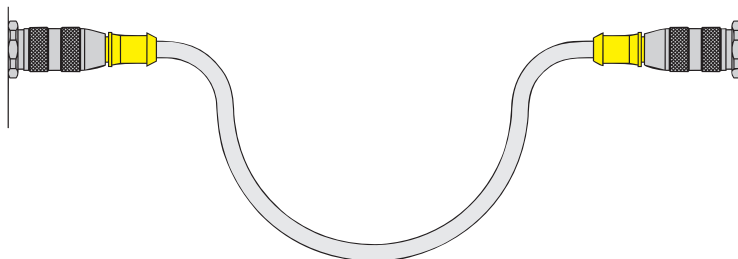
Cabling for Motion Applications

Where cabling is subjected to linear, angular or rotational motion between two points, always allow adequate cable length to absorb the energy imparted by the motion. Use of coiled cords, mechanical support mechanisms, or large, well supported cable loops will maximize cable life.

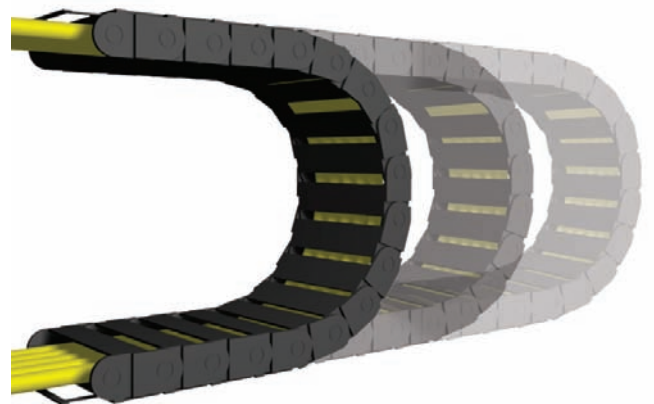
Coil Cord



Cable Loop



"C" Track

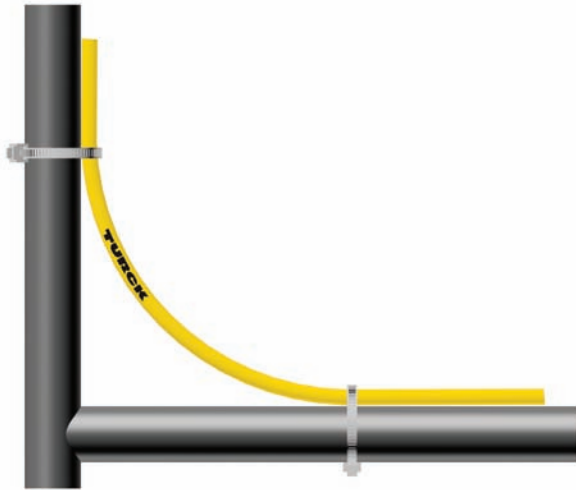


Reference

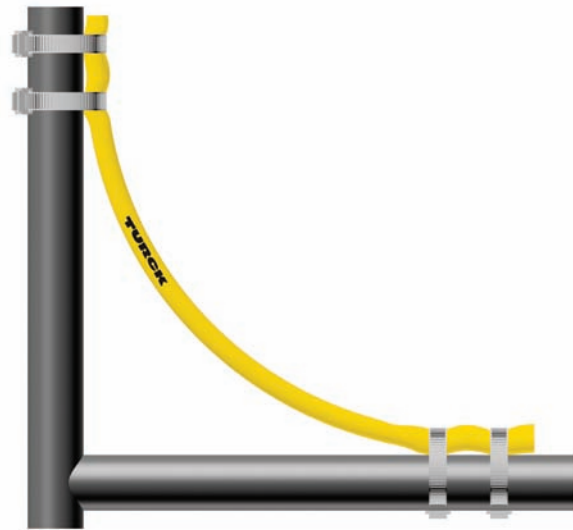
Tying Cables with Cable Ties

When tying cable with self locking cable ties, always leave the ties loose enough for the cables to slide freely under the tie. Over tightening will create stress concentrations that can cause the conductors to fail prematurely. Never tighten the tie to the point where the cable jacket becomes deformed or pinched.

Correct



Incorrect



Note: Do not use tools to tighten coupling nut. **Hand-tighten only!!**

Abrasion Resistance

Ability of wire, cable or material to resist surface wear.

ABS

American Bureau of Shipping. Establishes and administers standards for the design, construction, and operational maintenance of marine vessels and structures.

AC Alternating Current

Current in which the charge-flow periodically reverses and is represented by: $I = I_0 \cos(2\pi f t + \phi)$ [$I = I_m \cos(\omega t + \phi)$] where I is the current, I_0 is the amplitude, f the frequency, ϕ the phase angle.

Active Hub

A multiple port repeater or amplifier that lengthens the branching ability of a bus.

Address

A unique logical point on the bus.

Ambient Temperature

The temperature of a medium (gas or liquid) surrounding an object.

Ampere (A)

The unit of current. One ampere is the current flowing through one ohm of resistance at one volt potential.

Amplifier

A product that strengthens a signal in real time, precisely copying the old signal. Links two portions of the same bus together when the signal is weakened by electrical losses as it travels down a wire. An amplifier is used when the signal is weak, but not distorted.

Analog I/O

Variable 2-wire continuous low level current or voltage signal.

ANSI

Abbreviation for American National Standards Institute.

Armored Cable

A cable provided with a wrapping of metal for mechanical protection.

armorfast®

TURCK's brand name for a cordset with metal clad cable (NEC type MC)

AWG (American Wire Gauge)

The standard system used for designating wire diameter. The lower the AWG number, the larger the diameter. Also called the Brown and Sharpe (B&S) wire gauge.

AWM (Appliance Wiring Material)

A UL designation covering insulated wire and cable for internal wiring of appliances and equipment.

Axial Approach

The approach of the target with its center maintained on the sensor reference axis.

Axially Polarized Ring Magnet

A ring magnet whose poles are the two flat sides of the disk. Mounted on pistons for *permaprox*® cylinder position sensing through nonmagnetic cylinder walls.

BA - Bitwise Arbitration

A form of collision detection on a network. All senders must also be receivers. Bus line must be a specific length or less so all nodes hear the bit at the same time.

Barrier Box

Limits current voltage to an area.

Binder

A spirally served tape or thread used for holding assembled cable components in place awaiting subsequent manufacturing operations.

Bit Encoding

A time reference placed on an electrical or light signal to distinguish high and low bits.

Bit

One piece of data that means either 'High-Low' or 'ON-OFF'.

Braid

A fibrous or metallic group of filaments interwoven in cylindrical form to form a covering over one or more wires.

Branch

One type is a double-sided node that connects two connects two segments together that are the same protocol but different transmission speeds. The other is a smart repeater that only repeats the data between two bus segments when the source and destination are in different protocols.

Bus Junction

TURCK's designation for a Connectorized passive hub.

Bus Module

TURCK's designation for any field node, whether it uses terminal screws, connectors, or a combination of connecting means.

Bus Occupant

Any active or passive device on a network.

Bus Station

TURCK's designation for a fully Connectorized field node, but not a master or gateway.

Bus

A simple straight-line topology.

Busline

Any group of wires that carries data from node to node.

Byte

8 bits of information.

Cable

A stranded conductor with or without insulation and other coverings (single-conductor cable), or a combination of conductors (multiple-conductor cable).

Capacitive Proximity Sensor

A proximity sensor producing an electrostatic field that senses conductive targets and nonconductive materials having a dielectric constant of >1 within its sensing zone.

Carrier

The bit encoded signal carrying the data can ride on top of an AC or DC carrier. Advantages to using a carrier are that both power and data can be sent on just 2 wires and longer transmission capabilities without distortion.

CD - Collision Detection

A form of collision detection on a network. All senders must also be receivers. If two nodes start talking at the same time they will hear a collision. Both stop talking, wait a random amount of time, then look for a clear line to start talking again.

Checksum

A numerical representation of all the bits that is prepared by the sender and included in the message. The receiver performs the same calculation and compares the results. If they are not equal the data is considered bad and not used.

Client/Server

Upload/download information, set point changes, alarm management, remote diagnostics and one-to-one communications.

Color Code

Wire or circuit identification by color, utilizing solid colors, tracers, braids, surface printing, etc.

Glossary of Terms

Complementary Output

Two outputs, one N.O. and one N.C., that can be used simultaneously. *The sum of both load currents cannot exceed the sensor's rated Continuous Load Current.*

Conductivity

The ability of a material to allow electrons to flow, measured by the current per unit of voltage applied. It is the reciprocal of resistivity.

Conductor

A wire (or combination of wires not insulated from one another) suitable for carrying electric current.

Conduit

A tube or trough in which insulated wires and cables are run.

Connector

A device used to provide rapid connect / disconnect service for electrical cable and wire terminations.

Contact Holder

Insulating device that holds the contacts in their proper position

Contact

The parts of a connector that actually carry the electrical current and that are touched together or separated to control the flow.

Continuous Load Current

The maximum current allowed to continuously flow through the sensor output in the ON state.

Cord

A small, flexible insulated cable.

Cordset

Portable cord fitted with a wiring device at one or both ends.

Correction Factors

Percentage of the rated operating distance (Sn) that represents the operating distance for targets constructed from materials other than mild steel (mild steel's correction factor is 1.0).

CPE (Chlorinated Polyethylene)

A flexible material with high tear strength and good resistance to most inorganic chemicals. It is inherently difficult to ignite. A Thermoset plastic.

Creepage

The conduction of electricity across the surface of a dielectric.

Crimp Termination

A connection in which a metal sleeve is secured to a conductor by mechanically crimping the sleeve with pliers, presses or automated crimping machines.

Current (I)

The rate of transfer of electricity. Practical unit is the ampere, which represents the transfer of one coulomb per second. In a simple circuit, current (I) produced by a cell or electromotive force (E) when there is an external resistance (R) and internal resistance (r) is: $I = E / R + r$

Current Carrying Capacity

The maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations.

Cut-Through Resistance

The ability of a material to withstand mechanical pressure, usually a sharp edge or small bending radius, without separation.

Dielectric Strength

The voltage that an insulator can withstand before breakdown occurs. Usually expressed as a voltage gradient (such as volts per mil).

Differential Travel (Hysteresis)

The difference between the operating point as the target approaches the sensor face, and the release point as the target moves away. Given as a percentage of the operating distance (Sn).

Direct Current (DC)

An electric current that flows in only one direction.

Discrete I/O

Signaling where the supply is typically switched to designate a change of state.

DNV

Det Norske Veritas. Management system certification body.

Drain Wire

In a cable, the bare wire laid over the component or components and used as a ground connection.

Dropline

A reduced branch (spur) from a trunk line.

Dynamic Output

A sensor output that stays energized for a set duration of time, independent of the time the target is present (one-shot).

Earth

British terminology for zero-reference ground.

EDS - Electronic Data Sheet

Electronically readable ASCII text files that contain both general and device-specific parameters for communication and network configuration (DeviceNet™).

EIA RS-485

A standard that defines the number of signal generators (the components that create the signal), the receiver and a combination of the called a transceiver. It also defines the electrical signal.

Embeddable (Shielded) Proximity Sensor

A sensor that can be flush-mounted in any material without that material influencing the sensing characteristics.

End of Message

Lets other occupants of the bus know the transmission is over and other messages can be sent.

EPDM

Ethylene-propylene-diene monomer rubber. A material with good electrical insulating properties. A Thermoset plastic.

eurofast®

M12x1 threads, single key, 2 - 6, 8, 10, 12-pin

Explicit Message

A command from another node.

Exposed Run/Direct Burial

Cable construction meeting the crush and impact requirements of metal clad cables without metal clad. For use as exposed wiring between cable tray and equipment.

extremelife™

Heavy duty cable for extreme temperature environments. These cables provide excellent resistance to extreme cold temperatures and oilfield drilling muds.

Extruded Cable

Cable with conductors that are uniformly insulated and formed by applying a homogeneous insulation material in a continuous extrusion process.

Fillers

Non-conducting components cabled with the insulated conductors or optical fibers to impart roundness, flexibility, tensile strength, or a combination of all three, to the cable.

firefast®

High temperature protective sleeving.

FKS - Frequency Shift Key

A common bit encoding method for modulated signals.

flexlife-10®

Unique cable designed for robotic and other continuous motion applications.

Free Zone

The space around a proximity sensor that must be kept free of any material capable of affecting the sensing characteristics.

Gateway

A node on two different buses that serves as a signal and data translator between the buses.

Ground Loop

A completed circuit between shielded pairs of a multiple pair created by random contact between shields. An undesirable circuit condition in which interference is created by ground currents when grounds are connected at more than one point.

Ground Potential

The potential of the earth. A circuit, terminal or chassis is said to be at ground potential when it is used as a reference point for other potentials in the system.

Ground

An electrical connection to the earth, generally through a ground rod. Also a common return to a point of zero potential, such as the metal chassis of equipment.

GSD - General Station Description

Electronically readable ASCII text files that contain both general and device-specific parameters for communication and network configuration (PROFIBUS).

HART

Two-way digital communication protocol for process measurement.

Hygroscopic

Capable of absorbing moisture from the air.

IEC

European Standardization agency; International Electrotechnical Commission.

IEEE

Institute of Electrical and Electronics Engineers

Inductive Magnet Operated Sensor (permaprox®)

A solid-state sensor consisting of a sensing element susceptible to magnetic field strengths of 20-350 Gauss, and switching circuitry similar to that of an inductive proximity sensor.

Inductive Proximity Sensor

A proximity sensor producing an electromagnetic field that senses only metal targets within its sensing zone.

Input

A signal (or power) which is applied to a piece of electrical apparatus or the terminals on the apparatus to which a signal or power is applied.

Inrush Current

The maximum short-term load current that the output of a sensor can tolerate.

Insulation

A material having good dielectric properties that is used to separate close electrical components, such as cable conductors and circuit components.

IP Rating

Ingress Protection rating per IEC 529.

Irradiation

In insulation, the exposure of the material to high-energy emissions for the purpose of favorably altering the molecular structure.

ITC

Instrument Tray Cable. NEC classification for cable resistant to the spread of fire and suitable for use in cable trays. 150 V rating.

Jacket

Pertaining to wire and cable, the outer protective covering, may also provide additional insulation.

LAS - Link Active Scheduler

Controls communication on the bus. Creates a token circulation list that defines access on the bus. Multiple devices may have LAS but only one can communicate at a time.

Lateral Approach

The approach of a target perpendicular to the sensor reference axis.

LED

Light Emitting Diode used to indicate device status.

Limited Peer-to-Peer

An exclusive one-to-one relationship between the input node and the output node. Also called exclusive peer-to-peer.

Line Voltage

The value of the potential existing on a supply or power line.

Load

A device that consumes power from a source and uses that power to perform a function.

lokfast™ Guard

Guards for minifast and eurofast connections in hazardous locations. The guard requires a tool to remove.

M Threading

ISO 68 Metric straight threading, designated as "Nominal Size" X "Pitch", in mm. (Ex. M5X0.5)

Manchester

A common bit encoding for digital signals.

MC

Metal Clad Cable. NEC classification for cable resistant to crush and impact based on an outer covering of metal.

Media Access

The "right-of-way" for talking on the bus.

Message Collision Avoidance

A process for eliminating communication collisions on a network. The two major ways to handle a potential collision are CD (Collision Detection) and BA (Bitwise Arbitration).

Messaging

Ways to communicate on the network. The three major types in the run mode are Solicited, Unsolicited and Explicit.

microfast®

½"-20UNF threads, dual key, 2 - 6-pin

microfast®

½"-20UNF threads, dual key, 2 - 6 pin

minifast®

7/8"-16UN threads, 2 - 6-pin

minifast B size

1"-16UN threads, 6 - 8 pin

minifast C size

1 1/8"-16UN threads, 9, 10, 12-pin

Glossary of Terms

Minimum Load Current

The minimum amount of current that is required by the sensor for reliable operation.

Moisture Resistance

The ability of a material to resist absorbing moisture from the air or from water when immersed.

Molded Plug

A connector molded onto either end of a cord or cable.

MOV

Acronym for Metal Oxide Varistor. A solid state device used to suppress voltage surges \ spikes

MSHA

Mine Safety and Health Administration

multibox[®]

Junction boxes, 4, 6, 8 and 16 port

multifast

M23x1 threads, 12, 16 and 19-pin or M27 threads, 26 and 28-pin

Mylar

DuPont trademark for polyester film.

NAMUR Sensor

A 2-wire variable-resistance DC sensor whose operating characteristics conform to DIN 19 234. Requires a remote amplifier for operation. Typically used for intrinsically safe applications.

NAMUR

The acronym for a European standards organization.

National Electrical Code (NEC)

A set of regulations governing construction and installation of electrical wiring and apparatus in the United States, established by the American National Board of Fire Underwriters.

NEMA Rating

An enclosure rating per NEMA Standard 250.

NEMA

National Electrical Manufacturers Association.

Neoprene

A synthetic rubber with good resistance to oil, chemical, and flame. Also called polychloroprene. A Thermoset plastic.

Node

An addressable device on the bus.

Noise

In a cable or circuit, any extraneous signal that tends to interfere with the signal normally present in or passing through the system.

No-Load Current

The current drawn by a DC proximity sensor from the power supply when the outputs are not connected to a load.

Nonembeddable (Nonshielded) Proximity Sensor

A sensor is nonembeddable when a specified free zone must be maintained around its sensing face in order not to influence the sensing characteristics.

Normally Closed (N.C.)

The output is OFF when the target is detected by the sensor.

Normally Open (N.O.)

The output is ON when the target is detected by the sensor.

NPN Output (Current Sinking)

A transistor output that switches the common or negative voltage to the load. Load is between sensor and positive supply voltage.

NPN Output

Transistor output that switches the common or negative voltage to the load (current sinking). Load connected between output and positive supply.

NPSM Threading

American National Standard Straight Pipe Thread for Free-Fitting Mechanical Parts.

NPT Threading

American National Standard Taper Pipe Thread.

NRZ - Non Return to Zero

An encoding method on differential signals such as RS-485 and CANbus.

Off-State (Leakage) Current

The current that flows through the load circuit when the sensor is in the OFF-state. Also known as leakage or residual current.

Ohm (Ω)

The electrical unit of resistance. The value of resistance through which a potential difference of one volt will maintain a current of one ampere.

Ohm's Law

$E = I \times R$. Voltage (E) is directly proportional to the product of current (I) and resistance (R) of circuit.

Operating Distance

A distance at which the target approaching the sensing face along the reference axis causes the output signal to change.

Output

The useful power or signal delivered by a circuit or device.

Overload Protection

The ability of a sensor to withstand load currents between continuous load rating and short-circuit condition with no damage.

PA (Polyamide, Nylon)

An abrasion-resistant thermoplastic with good chemical resistance, also known as polyamide.

Passive Hub

A multi-port tee.

pentafast[®]

M5 threads, 3 and 4-pin

PG Threading

Steel conduit threading per German standard DIN 40 430.

picofast[®]

Snap lock or M8x1 threads, 3, 4 and 6-pin

Plastic

High-polymeric substances, including both natural and synthetic products, but excluding the rubbers, that are capable of flowing under heat and pressure.

PLTC

Power Limited Tray Cable. NEC classification for cable resistant to the spread of fire and suitable for use in cable trays. 300 V rating.

Plug

A connector associated with being attached to a cable.

PNP Output (Current Sourcing)

Transistor output that switches the positive voltage to the load. Load is between sensor and common.

PNP Output

Transistor output that switches the positive voltage to the load (current sourcing). Load connected between output and common.

POM (Polyoxymethylene, Acetal, Delrin)

Polyoxymethylene - a crystalline thermoplastic polymer with a high melting point. It is suitable for mechanical parts or electrical insulators that require structural strength at above normal temperatures.

Potting

The sealing of a cable termination or other component with a liquid that thermosets into an elastomer.

Power Conditioner

Device used to condition the power to be used for a bus segment. Allows power and data to exist on the same wires.

Power Tap

A tee which provides power to the network.

powerfast®

1 3/8"-16 threads, 2, 3 and 4 pin or M23 threads, 6, 7 and 9 pins.

Programmable Output

Sensor output whose N.O. or N.C. function can be selected by means of a jumper or specific terminal connection.

Protocol

A small program that is embedded in sending and listening devices to organize the meaning of bits. DeviceNet, AS-interface, PROFIBUS, Ethernet, etc. are all examples of different protocols.

Publisher / Subscriber

Scheduled distribution of data to nodes on the subscriber list.

PUR (Polyurethane)

Broad class of polymers noted for good abrasion and solvent resistance.

PVC (Polyvinyl Chloride)

A general-purpose thermoplastic widely used for wire and cable insulation and jackets.

Radially Polarized Ring Magnet

A ring magnet whose poles are the inner and outer diameter rings.

Rated Operating Distance (Sn)

A conventional quantity used to designate the operating distance. It does not take into account either manufacturing tolerances or variations due to external conditions such as voltage and temperature.

Reference Axis

An axis perpendicular to the sensing face and passing through its center.

Repeatability

The difference between actual operating distances measured at a constant temperature and voltage over an 8-hour period. It is expressed as a percentage (%) of rated operating distance (Sn).

Repeater

Strengthens the bus signal by producing a fresh signal without distortions. It also links two portions of the same bus together. A repeater is used when the signal is weak or distorted.

Resistance (R)

A measure of the difficulty in moving electrical current through a medium when voltage is applied. It is measured in ohms.

Response frequency

The maximum rate that the output can change in response to the input and still maintain linearity.

Response Time

The time required for the device switching element to respond after the target enters or exits the sensing zone.

Retractable Cord

A cord having a specially treated jacket or insulation so that it will retract like a spring. Retractility may be added to all or part of a cord's length.

Reverse Polarity Protection

Internal components that keep the sensor from being damaged by incorrect polarity connection to the power supply.

Ring

A network topology where every node is also a repeater. Information comes into a node, information that pertains to that node is read, new information is added and the message is sent on to the next node.

Ripple

The alternating component remaining on a DC signal after rectifying, expressed in percentage of rated voltage.

RoHS

Restriction of Hazardous Substances

Router

A higher level bridge for connection of wide area networks.

RTD

Resistance Temperature Detector

Rubber

A general term used to describe wire insulation made of thermosetting elastomers, such as natural or synthetic rubbers, neoprene, Hypalon, CPE butyl rubber and others.

Scanner Module

Allen-Bradley's designation for the gateway that plugs into their PLC and interfaces the PLCs bus to the network.

Sensing Face

The surface of the proximity sensor through which the electromagnetic (or electrostatic) field emerges.

Serial Data Communication

"ON-OFF" or "HIGH-LOW" electrical signals.

Serial Data Transfer

Information transmitted one piece at a time in a specific order.

Serve

A filament or group of filaments such as fibers or wires, wound around a central core.

Shield

In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields.

Shielded twisted pair

Two conductors twisted together with a metallic covering.

Short-Circuit Protection

The ability of a sensor to withstand a shorted condition (no current-limiting load connected) without damage.

Signal

Any visible or audible indication that can convey information. Also, the information conveyed through a communication system.

Simple Device

Anything that does not have LAS capabilities.

SJOOW

Junior hard service, rubber insulated, portable cord with oil resistant rubber outer jacket. Stranded copper conductors with separator and individual oil and water resistant rubber insulation. Two or more color coded conductors cabled with filler, wrapped with separator and rubber jacketed overall. 300 V.

Glossary of Terms

Slew Rate

The rate of change of the output voltage with respect to a step change in input. A change in output of 0 to 10 volts at a slew rate of 1.25 V/ms would take 8 ms to slew to the new value.

Solicited Message

A response to another node or a response when it is the node's predetermined time to speak.

Solid Conductor

A conductor consisting of a single wire.

Solid State

Pertains to circuits and components using semiconductors without moving parts. Example: transistors, diodes, SCR, etc.

SOOW

Heavy duty, rubber-insulated portable cord with oil resistant rubber outer jacket. Stranded copper conductors with separator and individual oil and rubber insulation. Two or more color-coded conductors cabled with filler, wrapped with separator and rubber jacketed overall. 600 V.

Spanner

TURCK's designation for a double-sided slave node. Unit has bi-directional data from one control area segment to another in a free form format.

Star

Bus lines radiate from a single point.

Start of Message

A certain number of high bits that start a message. These consecutive bits allow the listener time to prepare to receive the data.

Static Output

A sensor output that stays energized as long as the target is present.

STOW

Heavy duty, PVC insulated, portable cord with oil resistant PVC outer jacket. Stranded copper conductors, PVC insulation. Two or more color coded conductors cabled with filler, wrapped with separator and PVC jacketed overall. Approved for outdoor use. 600 V.

Stranded Conductor

A conductor composed of groups of wires twisted together.

Switching Frequency

The maximum number of times per second that the sensor can change state (ON and OFF) under ideal conditions, usually expressed in Hertz (Hz).

System Tee

A field wireable tee.

Tee

Creates a branch or drop from a bus.

Temperature Rating

The maximum temperature at which a material may be used in continuous operation without loss of its basic properties.

Terminating Resistor

A resistor that is put at the beginning and end of the main bus line to stabilize and minimize reflections.

Thermoplastic

A material that will soften, flow or distort appreciably when subjected to heat and pressure.

Thermoset

A material that hardens or sets when heat is applied, and which, once set, cannot be re-softened by heating. The application of heat is called "curing".

Time-Delay Before Availability

The length of time after power is applied to the sensor before it is ready to operate correctly, expressed in milliseconds (ms).

Topology

A bus term that describes how the data lines connect the nodes together.

TPE

Thermo Plastic Elastomer. Broad class of polymers noted for flexibility and weld slag resistance.

TPR

Thermo Plastic Rubber. Another name for TPE.

Trunk line

The main bus line.

Twisted Pairs

A cable composed of two small, insulated conductors twisted together without a common covering.

Unlimited Peer-to-Peer

Output node gets information from several input nodes.

Unsolicited Message

A response to a change-of-state at the node.

Uprox Sensor®

An inductive proximity sensor that detects all metals at the same range. Uprox sensors are inherently weld-field immune, operate over a wider temperature range and have a higher switching frequency than standard inductive sensors.

V*fast®

DIN 43650, type A, B, I and C

VDE

German approval agency.

versafast™

M16 threads, 5, 6, 7, 8, 12, 14 and 19 pin

Versafast™

M16 threads, 5, 6, 7, 8, 12, 14 and 19 pin

Volt (V)

A unit of electrical pressure. One volt is the electrical pressure that will cause one ampere of current to flow through one ohm of resistance.

Voltage Rating

The highest voltage that may be continuously applied to a wire in conformance with standards or specifications.

Voltage

The term most often used in place of electromotive force, potential difference, or voltage drop. Designates the electric pressure existing between two points that is capable of producing a current when a closed circuit is connected between these points.

VW-1

A flammability rating established by Underwriters Laboratories for wires and cables that pass a specially designed vertical flame test, formerly designated FR-1.

Weld-Field Immunity (WFI)

The ability of a sensor not to false-trigger in the presence of strong magnetic fields typically produced by resistance welders.

Wicking

The longitudinal flow of a liquid in a wire or cable due to capillary action.

Wire-Break Protection

Results in the output being OFF on a DC sensor if either supply wire is broken.

Word

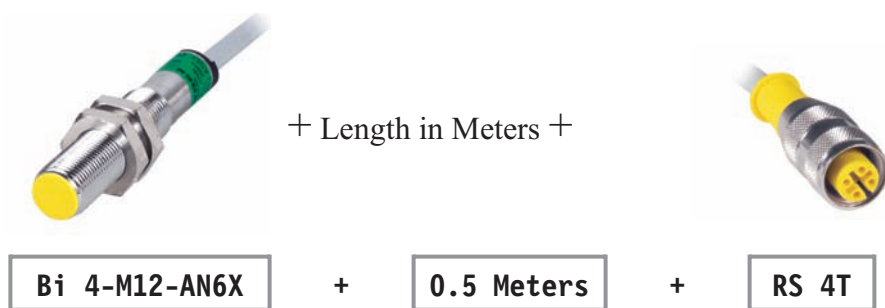
2 bytes.

Innovative Sensor and Connector Solutions

TURCK is the market leader for providing innovative sensor and connectivity solutions for industrial automation. Combining **TURCK's** high quality, high performance sensors with our ability to quickly mold multiple styles of cordsets, gives our customers an infinite selection of uniquely connectorized sensing solutions.

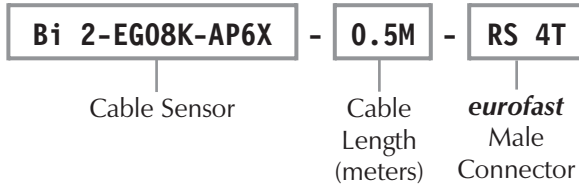
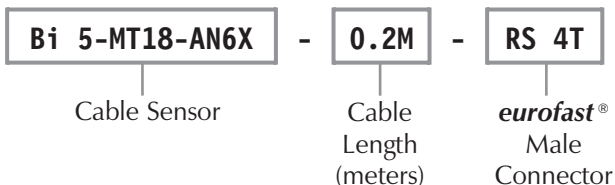
All **TURCK** sensors with potted-in cable are available with customized cable length and connector options. The broadest selection of connector options provides custom sensing solutions for the most diverse industrial applications. Because it is **TURCK**, you can expect the same fast, flexible support. Even with custom configurations, YOUR sensor can often be made within several days. Best of all, minimum quantity for YOUR sensor: ONE!

Part numbers are developed through your **TURCK** representative or application support.
 In general, the formula below illustrates how to configure a custom, connectorized **TURCK** sensor.



New Part Number = Bi 4-M12-AN6X-0.5-RS 4T

Sensors with Connector Examples:



Innovative Sensor and Connector Solutions

Sensors with Connector Examples:



Bi 2-Q8SE-AN6X - **0.3M** - **PSG 3**
 Cable Sensor - Cable Length (meters) - *picofast*[®] Male Connector



Bi 8-M18-AN6X - **0.1M** - **RSM 40**
 Cable Sensor - Cable Length (meters) - *minifast*[®] Male Connector



Bi10U-EM30-AP6X - **0.2M** - **RS 4T**
 Cable Sensor - Cable Length (meters) - *eurofast* Male Connector



Bi 2-Q10S-AN6X - **0.4M** - **PSG 3**
 Cable Sensor - Cable Length (meters) - *picofast* Male Connector



Bi 5-GT18-ADZ30X2 - **0.2M** - **SB 3T**
 Cable Sensor - Cable Length (meters) - *microfast*[®] Male Connector

Reference

TURCK

Network Media Products

Proximity Sensors



weldguard®

- Resists high heat, weld slag build-up and abrasion
- Up to 500 times more durable than other sensors
- Embeddable or non-embeddable
- Available in weld-field immune **Uprox®** and standard ferrite core versions
- **armorguard™** protection for sensors in impact-prone locations

Inductive Sensors

- **amphibian™** washdown versions
- High and low temperature
- Harsh duty (IP 67, 68, 69K)
- Die protection
- Ring and slot versions



Uprox+

- Detect all metal types extended sensing ranges
- Inherently weld-field immune
- Up to 350% more range than conventional sensors
- Wide -30°C (-22°F) to +85°C (+185°F) temperature range



picoprox®

- Tiny 3, 4, 5, 6.5 and 8 mm diameter stainless steel housings
- Extended sensing range up to 4 mm

Capacitive Sensors

- Non-contact sensing of metallic and non-metallic materials
- Ideal for level detection
- Available in DC, AC and IS models
- Solid-state output, high switching frequency, no moving parts



Q-pak®

- Compact size fits in confined areas where other sensors can't
- Superior 3 mm (0.01") to 50 mm (0.20") range
- Models from 5 mm to 80 mm size with embeddable versions.



Intrinsically Safe Systems



excom® Remote I/O for Hazardous Areas

- Eliminate need for conventional IS barriers
- Modular backplane bus with integrated voltage supply for 18, 9 or 5 modules
- Modules can be exchanged "hot swapped" during operation

multimodul® IS Barriers

- Complete line features isolated design with no need for dedicated ground
- Hazardous circuits are galvanically isolated from non-hazardous circuits
- DIN-rail or Eurocard styles
- FM, CSA and CENELEC certified



NAMUR Sensors and Junctions

- Class I, Class II, Class III, Division 1 and Division 2 FM approved
- Full line of inductive, capacitive and magnet operated inductive sensors
- Numerous sizes and styles are available
- Eliminates multiple cable runs for wiring IS applications



ZENER Barriers

- FM, CSA, BASEEFA/ CENELEC certified
- Shunt-diode intrinsic safety barriers feature narrow 7 mm width
- Meet worldwide standards for use in classified atmospheres



Measurement, Monitoring and Position Sensing



Kübler by TURCK Encoders

- Incremental and absolute, shaft and hollow-shaft models
- Single and multi-turn absolute models in shaft and hollow-shaft styles
- Temperature and aging compensation



Linear Analog Sensors

- Voltage and or current output proportional to target distance from sensor
- Available in limit switch, barrel or **Q-pak**® rectangular styles
- Remote amplifiers available with adjustable switching points



Rotational Controls

- Speed meters & monitors (overspeed/underspeed detector)
- Analog output and direction discriminators
- DIN 19 234 and intrinsically-safe NAMUR sensor input

Valve Position Sensors

- Dual inductive solid state sensors
- Monitor valve position on rotary actuators



Relays

- Unique design provides higher reliability and longer relay life
- Integral mounting bracket and pin numbering on the socket for faster wiring

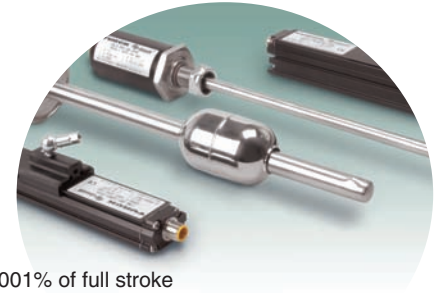


Pressure Sensors

- Bar or PSI measuring units and peak pressure memory function
- 13 pressure ranges from Vacuum to 600 bar
- Standard hysteresis mode for over/under pressure

EZ-Track™ Linear Displacement Transducers

- Magnetorestrictive non-contact sensing
- Absolute position sensing
- +/-0.01% accuracy and repeatability of up to +/-0.001% of full stroke



Cylinder Position Sensors

- **permaprox**®
- provides a precise sensing point anywhere along the stroke
- Ultra-miniature 5 mm BIM-INT fits into grooves of new-style cylinders
- Intrinsically safe models

Flow Monitors

- Insertion and in-line styles, self-contained or remote amplifier
- Omnidirectional stainless steel, plastic or Teflon® housings



Ultrasonic Sensors

- Epoxy-potted units with adjustable sensing ranges
- Accurate over long sensing ranges for all types of objects
- Digital and analog outputs are available with sensing ranges of 762 mm to 4572 mm (3" to 18")
- High noise immunity



RFID, Network Devices and Interfaces



BL ident Radio Frequency Identification Systems (RFID)

- Simple and reliable connection to ensure fault-free data communication
- Easily integrated into existing systems
- High temperature TAGs 210°C (410°F)

Network Devices and Interfaces



- Intelligent bus stations with built-in bus electronics interface with existing devices and provide diagnostics, short-circuit protection and automatic baud rate detection

Connectivity Solutions

3 to 5-pin Standard Cordsets

- Industry standard cordsets and connectors
- *euofast*[®], *picofast*[®], *minifast*[®], *microfast*[®], *multifast*[®], *pentafast*[™] and *V*fast*[®]



Custom Solutions

- Jacket options for any environment
- Diameters from 4.4 mm to 13.2 mm
- From 16 to 26 AWG, 2 to 19 conductors, braided or foil shields

OEM Connectors

- Components for buses, networks, panels, circuit boards, enclosures and machines in *euofast*, *picofast*, *minifast*, *microfast*, *multifast*, *pentafast*, and *V*fast* style connectors
- Front mount, rear mount, feed-through with solder cups, leads, or PCB pins in straight or right angle styles



Rugged Junction Boxes

- *multibox*[®] junction boxes and splitters enable wiring consolidation from sensors and other devices
- Die-cast aluminum or industrial hardened plastic housings
- Choice of cable or a quick-disconnect *multifast*[®] homerun cable

flexlife-20[®] Continuously Flexible Cable

- Performance to 20 million continuous flexing cycles
- Ideal for power and signals to factory automation equipment
- Available with molded cordsets using industry standard connections
- UL recognized and CSA approved, with operating temperatures up to 105°C (221°F) and cold flexibility to -40°C (40°F)



multifast[®] 5-28 Conductor Solutions



- Solid metal connector shell and fully molded connectors
- Receptacles in standard or long thread lengths
- NAMUR cordsets and extensions in blue PVC and PLTC rated

reelfast[®] Bulk Cable

- Spooled cable in 30 m, 100 m or 200 m lengths in self-feeding packages
- 170+ different PUR, PVC and rubber cables to choose from PLTC, high-flex and more
- 2-day drop-ship delivery available



TURCK Process Wiring Solutions

TURCK has an extensive line of industrial wiring solutions that are optimized for process applications. The receptacles, drop cords, junction boxes, home-run cables and accessories comprise a process wiring system designed for the demanding conditions of process applications.

- Quick-disconnect design eliminates mis-wiring and speeds installation.
- Instrument receptacles, drop cords, junction boxes and home-run cordsets reduce multiple cable runs.
- Shielded-twisted pair construction serves analog and HART applications.
- Cables with premium PVC insulation provide superior chemical resistance and flexibility.
- Choice of stainless steel or nickel-plated brass hardware.
- Rated and approved for installation in process applications.
- Many products are FM approved for installations in hazardous locations.
- Cables are UL recognized and CSA certified.



TURCK

Network Media Products

Code Requirements for Flexible Process Wiring Products: Ordinary (Nonhazardous) Locations

Figure 1



Type ITC cable, or Instrumentation Tray Cable, provides a cost effective alternative for installing low power instrumentation and control circuits. NEC Article 727 permits the use of ITC-rated cables “in industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons service the installation”. It may also be used in “instrumentation and control circuits operating at 150 volts or less and 5 amps or less.” Permitted uses include installation in cable trays or raceways (Figure 1), or as open wiring in specified circumstances.

One of the permitted uses as open wiring is illustrated in Figure 2. NEC Article 727.4(5) allows ITC cable to be installed without a metallic sheath or armor between cable tray and equipment in lengths not to exceed 15 m (50 ft), where the cable is supported and protected against physical damage using mechanical protection, such as struts, angles, or channels.”

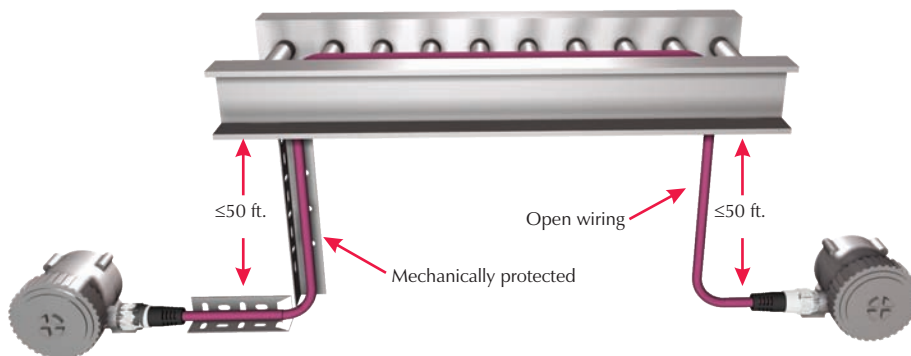
Another permitted use, described in NEC 727.4(6), allows the installation of ITC cable that complies with the crush and impact of Type MC cable between cable tray and equipment in lengths not to exceed 15m (50 ft.) without additional protection. Cable meeting this requirement is identified as "Open Wiring".

This concept enables convenient wiring methods, given that drops from a cable tray may be made without additional auxiliary trays or raceways.

Additionally, ITC cable uses 300 volt insulation, resulting in smaller diameter, more flexible cable, with no requirement for special (e.g. Class II) power supplies. When the ITC cable concept is combined with the **TURCK** process wiring system, the result is an extremely flexible and cost-effective system for process wiring.

The basic building blocks of the system are device receptacles, junction boxes, and molded cordsets.

Figure 2



Receptacles with 1/2-14 NPT and 3/4-14 NPT threads, as well as M20x1.5, easily extend the benefits of quick-disconnect wiring to most process instruments.

Junction boxes significantly consolidate field wiring. They are available with 4 or 8-ports, with home-run quick-disconnect or integral home-run cable, in metal or nylon.



The **TURCK** process wiring system provides an integrated, code-compliant wiring method that adds the benefits of quick-disconnects to the ITC cable installation concepts.

Molded quick-disconnect cordsets, using ITC cables, provide the ratings and performance characteristics required for process applications.

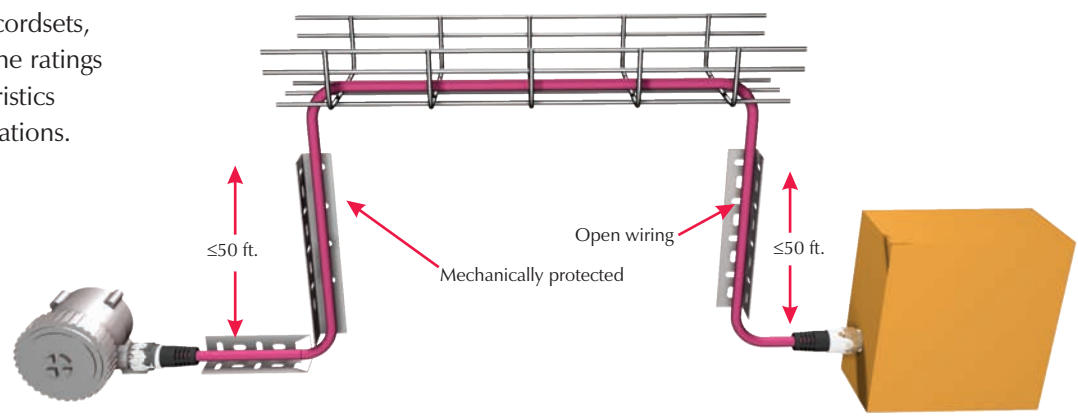
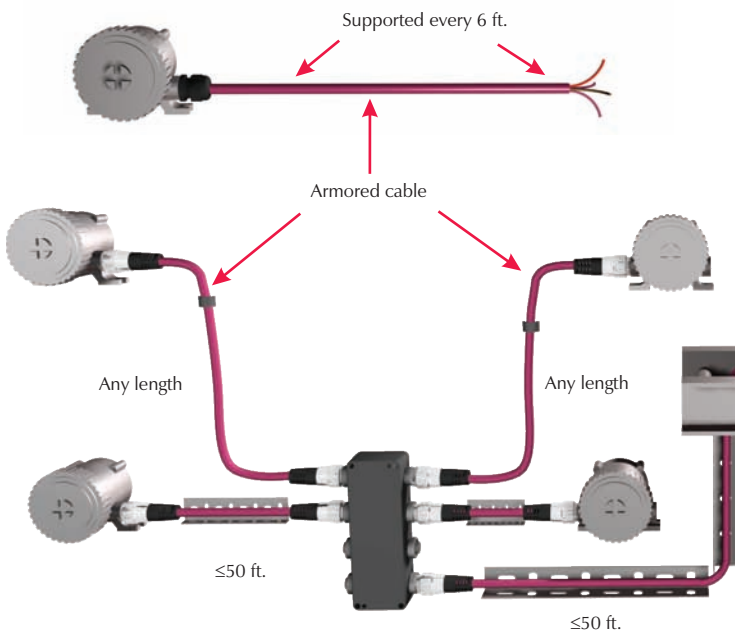


Figure 3



Another permitted use of ITC cable that increases flexibility is illustrated in Figure 3. NEC Article 727.4 (4) allows ITC cable to be used “as open wiring where enclosed in a smooth metallic sheath, continuous corrugated metallic sheath, or interlocking tape armor applied over the nonmetallic sheath in accordance with 727.6. The cable shall be supported and secured at intervals not exceeding 1.8 m (6 ft).”



When using armored cable, there is no requirement for further mechanical protection or a length limitation. When using ITC cable that complies with the requirements of NEC 727.4(6) no further protection is required

Reference

TURCK

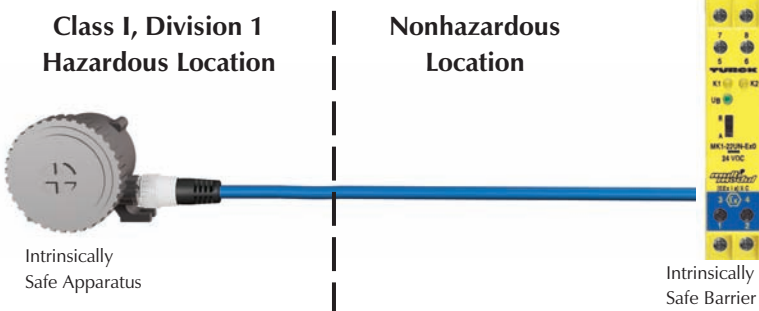
Network Media Products



Hazardous Locations

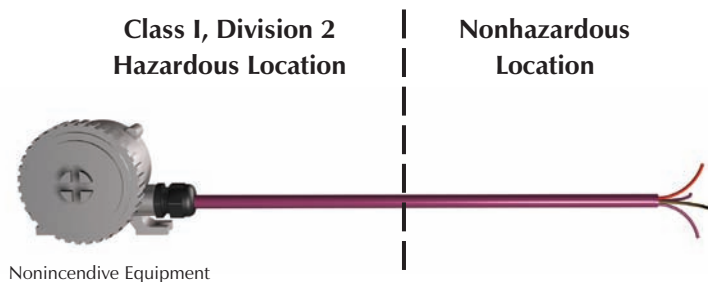
Even more value can be derived from the **TURCK** process wiring system in hazardous locations. The system is now FM approved for use in Class I, Divisions 1 and 2 when installed per **TURCK** drawing QCF-00147. Contact **TURCK** for a copy of the approval or visit www.TURCK.com/fmcd. The following are the highlights of the approval.

Intrinsically Safe Circuits



Intrinsically safe circuits may be wired using any of the wiring methods suitable for unclassified locations. The use of connectors is allowed as intrinsically safe circuits are safe against faults, including opening, shorting or grounding. The requirements for mechanical protection and length limitations are equivalent nonhazardous to locations.

Nonincendive Equipment



ITC cable is a recognized Division 2 wiring method. NEC in Article 501.4 (B)(1)(5) states "Type ITC cable as permitted in 727.4. This is further reinforced by Article 727.4 (3), which states that ITC cable is permitted "in hazardous locations as permitted in 501.4,...".

The requirements for mechanical protection and length limitations are for equivalent to nonhazardous locations.

Connectors that do not require a tool to disengage are considered to be “normally arcing” and are not allowed to be used in Division 2 for incandive equipment without additional protection.

lokfast guards enable the use of quick-disconnect technology in Class I, Division 2 hazardous locations. **lokfast** guards render a QD connection not “normally arcing” by:

- Making disconnection impossible by eliminating access to coupling nut.
- Warning the user to disconnect power before removing.
- Requiring the use of a tool for removal.



lokfast guards are available for 7/8-16UN **minifast**® and M12 **eufofast**® molded and field-wireable connectors.

Optional **multifast** home-run connectors with set screw locks similarly render a connection not

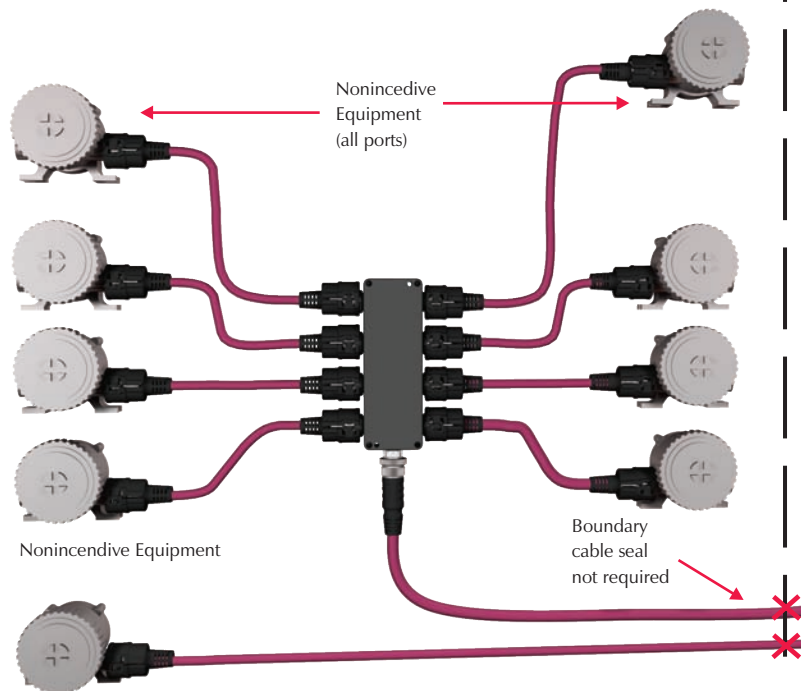
lokfast guards (or integrally locked **multifast** connectors) on all quick disconnects in Division 2.

The molded construction of the home-run connector and the gas/vapor tight continuous sheath of the cable meet the requirements of NEC Article 501-15(E)(2) for cable seals in Division 2.

Requirements for mechanical protection and length limitations are equivalent to nonhazardous locations.

Class I, Division 2 Hazardous Location

Nonhazardous Location



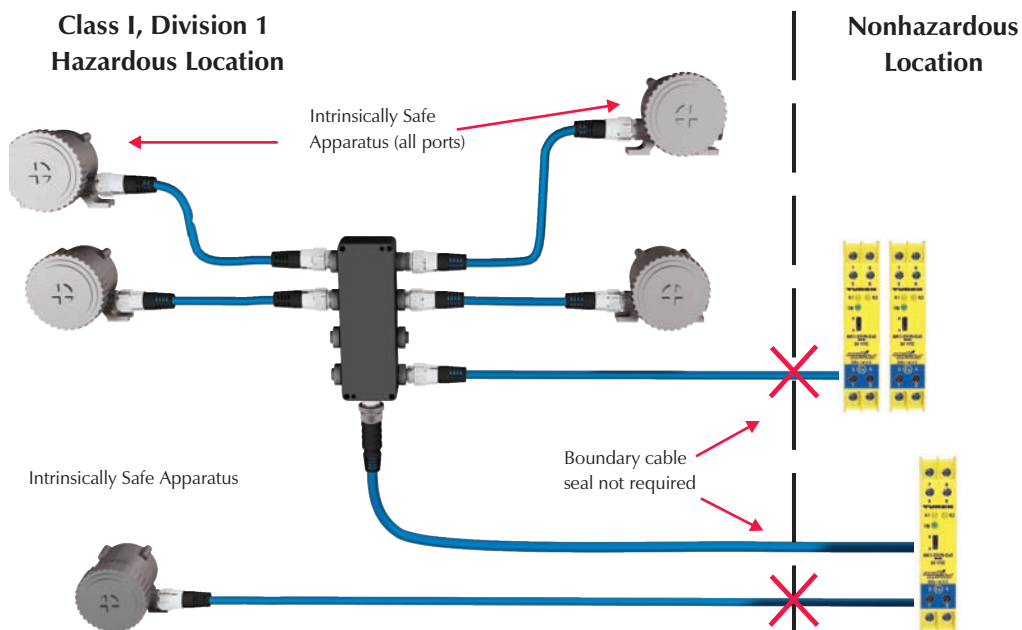
Reference

Intrinsic Safety Summary

Intrinsically safe circuits do not require guards on quick disconnects.

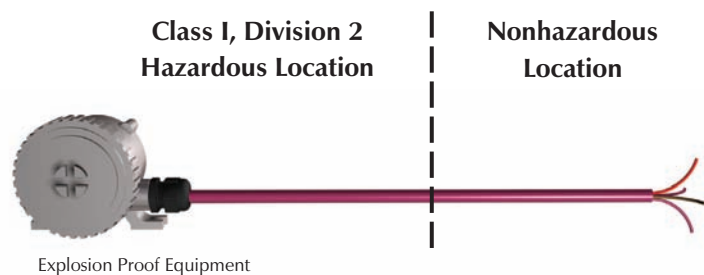
Junction boxes have FM-approved spacings and Entity Parameters for Intrinsically safe circuits.

Boundary seals are not required as the molded construction of the home-run connector and the gas/vapor tight continuous sheath of the cable meet the requirements of NEC Article 501-15(C) for cable seals in Class I, Divisions 1 and 2.



Requirements for mechanical protection and length limitations are equivalent to nonhazardous locations.

Explosion Proof Equipment



ITC cable, as a recognized Division 2 wiring method, may be used to connect explosion proof equipment installed in Division 2 when used with an explosion proof feed-thru receptacle. The extremely robust receptacle maintains the equipment's explosion containment protection scheme. The external wiring, however, is in Division 2, and can therefore be installed using Division 2 wiring methods.

Index

ADAPTER CABLE - PICONET	D35	ASI-COG-SS BW1822	"M25	ASI-EIPG-SS-C1D2 BW1834	H13
AI40EX	E11	ASI-COG-SS BW1823	"M25	ASI-EIPG-SS-C1D2 BW1835	M17
AI41EX	E11	ASI-CPL BW1187	M103	ASI-EIPG-SS-C1D2 BW1835	H13
AIH40EX	E11	ASI-CPL BW1280	M103	ASI-EIPG-SS-C1D2 BW1836	M17
AIH41EX	E11	ASI-CT BW1203	M108	ASI-EIPG-SS-C1D2 BW1836	H13
A040EX	E13	ASI-CT-AB BW1563	M108	ASI-ENG-SS BW1650	M15
A0H40EX	E13	ASI-CT-SS BW1602	M108	ASI-ENG-SS BW1650	H11
ASI-AI/DO-2RTD/2R BW1552	M55	ASI-DNG-SS BW1818	M13	ASI-ENG-SS BW1651	M15
ASI-AI-02-M12 BW1894	M65	ASI-DNG-SS BW1818	F123	ASI-ENG-SS BW1651	H11
ASI-AI-02-M12-V3 BW1893	M65	ASI-DNG-SS BW1819	M13	ASI-ENG-SS BW1652	M15
ASI-AI-02RTD-M12-V3 BW1895	M65	ASI-DNG-SS BW1819	F123	ASI-ENG-SS BW1652	H11
ASI-AI-1C BW1711	M71	ASI-DNG-SS BW1820	M13	ASI-ENG-SS-C1D2 BW1659	M15
ASI-AI-1C BW1723	M71	ASI-DNG-SS BW1820	F123	ASI-ENG-SS-C1D2 BW1659	H11
ASI-AI-1SCALE BW1465	M63	ASI-DNG-SS-C1D2 BW1824	M13	ASI-ENG-SS-C1D2 BW1660	M15
ASI-AI-2 BW1232	M51	ASI-DNG-SS-C1D2 BW1824	F123	ASI-ENG-SS-C1D2 BW1660	H11
ASI-AI-2 BW1233	M51	ASI-DNG-SS-C1D2 BW1825	M13	ASI-ENG-SS-C1D2 BW1661	M15
ASI-AI-2 BW1345	M49	ASI-DNG-SS-C1D2 BW1825	F123	ASI-ENG-SS-C1D2 BW1661	H11
ASI-AI-2 BW1447	M49	ASI-DNG-SS-C1D2 BW1826	M13	ASI-EVAL-KIT BW1565	M108
ASI-AI-2A BW1726	M49	ASI-DNG-SS-C1D2 BW1826	F123	ASI-IOM-0006-PCB BW1627	M84
ASI-AI-2C BW1574	M71	ASI-DPG BW1253	"M31	ASI-IOM-0202-PCB BW1421	M84
ASI-AI-4 BW1364	M53	ASI-DPG BW1253	"K73	ASI-IOM-0202-PCB BW1443	M84
ASI-AI-4 BW1365	M53	ASI-DPG BW1371	"M31	ASI-IOM-0202-PCB BW1444	M84
ASI-AI-4C BW1710	M71	ASI-DPG BW1371	"K73	ASI-IOM-0202R-PCB BW1101	"M89
ASI-AI-4-M12 BW1359	M67	ASI-DPG-SS BW1567	M21	ASI-IOM-0403-PCB BW1386	M84
ASI-AI-4-M12 BW1360	M67	ASI-DPG-SS BW1567	K69	ASI-IOM-0403-PCB BW1387	M84
ASI-AI-4-M12 BW1742	M67	ASI-DPG-SS BW1568	M21	ASI-IOM-0404A-PCB-BW1388	M86
ASI-AI-4PT100 BW1254	M55	ASI-DPG-SS BW1568	K69	ASI-IOM-0404A-PCB-BW1389	M86
ASI-AI-4PT100 BW1368	M53	ASI-DPG-SS BW1569	M21	ASI-IOM-0404A-PCB-L-BW1628	M86
ASI-AI-4PT100-M12 BW1363	M67	ASI-DPG-SS BW1569	K69	ASI-IOM-0404-PCB BW1218	M84
ASI-ANALYSER BW1415	M107	ASI-DPG-SS-B BW1746	M23	ASI-IOM-0404-PCB BW1219	M84
ASI-AO-2 BW1234	M59	ASI-DPG-SS-B BW1746	K71	ASI-IOM-0404-PCB-L BW1470	M84
ASI-AO-2 BW1235	M59	ASI-DPG-SS-C1D2 BW1653	M21	ASI-IOM-0800-PCB BW1351	M84
ASI-AO-2 BW1412	M57	ASI-DPG-SS-C1D2 BW1653	K69	ASI-IOM-0800-PCB BW1352	M84
ASI-AO-2A BW1727	M57	ASI-DPG-SS-C1D2 BW1654	M21	ASI-IOM-0808-PCB -BW1898	M87
ASI-AO-4 BW1366	M61	ASI-DPG-SS-C1D2 BW1654	K69	ASI-IOM-0808-PCB-V3-BW1899	M87
ASI-AO-4 BW1367	M61	ASI-DPG-SS-C1D2 BW1655	M21	ASI-IOM-1616-PCB-BW1900	M87
ASI-AO-4-M12 BW1361	M69	ASI-DPG-SS-C1D2 BW1655	K69	ASI-IOM-1616-PCB-V3-BW1901	M87
ASI-AO-4-M12 BW1362	M69	ASI-DPG-SS-SE BW1773	M21	ASI-IOM-E0202A-PCB-ES BW1751	M101
ASI-AO-4-M12 BW1722	M69	ASI-DPG-SS-SE BW1773	K69	ASI-IOM-E0202A-PCB-ES BW1801	M101
ASI-AO-4-M12 BW1736	M69	ASI-DPG-SS-SE BW1774	M21	ASI-IOM-E0202A-PCB-ES BW1896	M101
ASI-BM BW1180	M109	ASI-DPG-SS-SE BW1774	K69	ASI-MBG-SS BW1641	M27
ASI-BM BW1181	M109	ASI-EIPG-SS BW1828	M17	ASI-MBG-SS BW1642	M27
ASI-BM BW1182	M110	ASI-EIPG-SS BW1828	H13	ASI-MBG-SS BW1643	M27
ASI-BM BW1183	M110	ASI-EIPG-SS BW1829	M17	ASI-MBG-SS-C1D2 BW1656	M27
ASI-BM BW1438	M109	ASI-EIPG-SS BW1829	H13	ASI-MBG-SS-C1D2 BW1657	M27
ASI-CCG BW1435	M31	ASI-EIPG-SS BW1833	M17	ASI-MBG-SS-C1D2 BW1658	M27
ASI-CODEBLK BW1527	M73	ASI-EIPG-SS BW1833	H13	ASI-MBPG BW 1583	M30
ASI-COG-SS BW1821	"M25	ASI-EIPG-SS-C1D2 BW1834	M17	ASI-MBPG BW1583	M29

TURCK

Network Products

Index

ASI-MM232-SS BW1944	M33	B 8241-0/PG9	L60	BL20-2AI-U(-10/0...+10VDC)	C33
ASI-MM232-SS BW1955	M33	B 8251-0/PG9/DNET	G76	BL20-2AO-I(0/4...20MA)	C39
ASI-MM232-SS-CTL BW1986	M33	B3.0/2-PKZO	C57	BL20-2AO-U(-10/0...+10VDC)	C39
ASI-MMISA BW1228	M35	B3.0/4-PKZO	C57	BL20-2DI-120/230VAC-P	C25
ASI-MMPC104 BW1229	M35	B3.0/5-PKZO	C57	BL20-2DI-24VDC-N	C13
ASI-MMPCB BW1554	M81	B6S-SBCSBC	C61	BL20-2DI-24VDC-P	C13
ASI-MM-PCB BW1588	M81	B6T-SBCSBC	C61	BL20-2DO-120/230VAC-0.5A	C27
ASI-MM-PCB BW1670	M81	BCA 25-E123	N30	BL20-2DO-24VDC-0.5A-N	C19
ASI-MMPCI BW1195	M35	BCA 25-E223	N30	BL20-2DO-24VDC-0.5A-P	C19
ASI-MMPCI-V3 BW1911	M35	BCA 25-M123	N29	BL20-2DO-24VDC-2A-P	C19
ASI-MMPCI-V3 BW1922	M35	BCA 25-M223	N29	BL20-2DO-R-CO	C23
ASI-MON BW1770	M108	BCA 25SC-E123	N30	BL20-2DO-R-NC	C23
ASI-OEM-PWR BW1485	M91	BCA 25SC-E223	N30	BL20-2DO-R-NO	C23
ASI-PCB-CARRIER BW1484	M91	BCA 44-E123	J31	BL20-32DI-24VDC-P	C29
ASI-PD BW1646	M107	BCA 44-E223	J31	BL20-32DO-24VDC-0.5A-P	C31
ASI-PE BW1197	M97	BCA 48-E123	L46	BL20-4AI-U/I	C35
ASI-PE BW1477	M97	BCA 48-E223	L46	BL20-4DI-24VDC-N	C13
ASI-PE-2 BW1943	M98	BCA 48-M123	L45	BL20-4DI-24VDC-P	C13
ASI-PE-2.8A-C1D2 BW1713	M97	BCA 48-M223	L45	BL20-4DI-NAMUR	C17
ASI-PE-4A-C1D2 BW1714	M97	BCA 49-E123	R52	BL20-4DO-24VDC-0.5A-P	C19
ASI-PM 41	N34	BCA 49-E223	R52	BL20-B3S-SBB	C60
ASI-PM-1 BW1238	N34	BCA 49-M123	R51	BL20-B3S-SBC	C60
ASI-PM-1 BW1239	N34	BCA 49-M223	R51	BL20-B3T-SBB	C60
ASI-PNG-SS BW1912	M19	BCA 49SC-M123	R51	BL20-B3T-SBC	C60
ASI-PNG-SS BW1912	H15	BCA 49SC-M223	R51	BL20-B4S-SBBC	C60
ASI-PS BW1649	M93	BCA 57-E123	G54	BL20-B4T-SBBC	C60
ASI-PS-24/30VDC-2A BW1760	M94	BCA 57-E223	G54	BL20-B6S-SBBSBB	C60
ASI-PS-8A BW1997	M93	BCA 57-M123	G53	BL20-B6T-SBBSBB	C60
ASI-SCAN-AB BW1416	M11	BCA 57-M223	G53	BL20-BR-24VDC-D	C47
ASI-SCAN-AB/ACT BW1610	M11	BCA 84-E124	J13	BL20-E-16DI-24VDC-P	C15
ASI-SCAN-AB/ACT BW1611	M11	BCA 84-E224	J13	BL20-E-16DO-24VDC-0.5A-P	C21
ASI-SCAN-AB-BW1488	M11	BCS-ASI-CSG22	M47	BL20-E-1SWIRE	C53
ASI-SIM-SW BW1902	M108	BIC 84-E424	J14	BL20-E-8DI-24VDC-P	C15
ASI-SM-1 BW1764	M99	BK 4140-0/9	L59	BL20-E-8DO-24VDC-0.5A-P	C21
ASI-SM-2 BW1765	M99	BK25/3-PKZO	C57	BL20-GWBR-CANOPEN	P11
ASI-TERM BW1644	M108	BK52C 57x-*M	G9	BL20-GWBR-CANOPEN	C11
ASI-TUNER BW1648	M79	BL20-16DI-24VDC-P	C29	BL20-GWBR-DNET	C7
ASI-TUNER-C1D2 BW1715	M79	BL20-16DO-24VDC-0.5A-P	C31	BL20-GWBR-DNET	F119
ASI-TUNER-DIAG BW1843	M79	BL20-1AI-I(0/4...20MA)	C33	BL20-GWBR-PBDP	K77
B 4148-0/13.5	L59	BL20-1AI-U(-10/0...+10VDC)	C33	BL20-GW-DPV1	C8
B 4151-0/13.5/DNET	G75	BL20-1AO-I(0/4...20MA)	C39	BL20-GW-EN	C9
B 4151-0/9/DNET	G75	BL20-1CNT-24VDC	C43	BL20-GW-EN-IP	C10
B 8141-0/PG9	N44	BL20-1RS232	C41	BL20-LABEL/BLOCK	C64
B 8141-0/PG9	R67	BL20-1RS485/422	C41	BL20-LABEL/SCHEIBE	C64
B 8141-0/PG9	L60	BL20-1SSI	C41	BL20-P3S-SBB	C62
B 8151-0/PG9/DNET	G76	BL20-2AI-I(0/4...20MA)	C33	BL20-P3S-SBB-B	C62
B 8241-0/PG9	N44	BL20-2AI-PT/NI-2/3	C37	BL20-P3T-SBB	C62
B 8241-0/PG9	R67	BL20-2AI-THERMO-PI	C37	BL20-P3T-SBB-B	C62

Index

BL20-P4S-SBBC	C62	BL67-8D0-0.5A-P	B25	BS 8141-0/PG9	N44
BL20-P4S-SBBC-B	C62	BL67-8XSG-PD	B33	BS 8141-0/PG9	R67
BL20-P4T-SBBC	C62	BL67-B-1M12	B52	BS 8141-0/PG9	L60
BL20-P4T-SBBC-B	C62	BL67-B-1M12-8	B52	BS 8151-0/PG9/DNET	G76
BL20-PF-120/230VAC-D	C45	BL67-B-1M23	B53	BS 8241-0/PG9	N44
BL20-PF-24VDC-D	C45	BL67-B-1M23-19	B53	BS 8241-0/PG9	R67
BL20-PG-EN	C9	BL67-B-1RSM	B53	BS 8241-0/PG9	L60
BL20-PG-EN-IP	C10	BL67-B-1RSM-4	B53	BS 8251-0/PG9/DNET	G76
BL20-S3S-SBB	C58	BL67-B-2M12	B51	BSV 4149-0/16	R66
BL20-S3S-SBC	C58	BL67-B-2M12-P	B51	BSV 4149-0/9	R66
BL20-S3T-SBB	C58	BL67-B-4M12	B51	BV 4149-0/16	R66
BL20-S3T-SBC	C58	BL67-B-4M12-P	B51	BV 4149-0/9	R66
BL20-S4S-SBBC	C59	BL67-B-4M8	B52	CBC5 57x-*M	G9
BL20-S4S-SBBS	C58	BL67-B-8M8	B52	CMBSD 8141-0/PG9	J36
BL20-S4S-SBBS-CJ	C58	BL67-GW-CO	P9	CMBSD 8241-0/PG9	J36
BL20-S4S-SBCS	C59	BL67-GW-CO	B14	Connector, RJ45S IDC	J35
BL20-S4T-SBBC	C59	BL67-GW-CO-T	B15	CORD-DSUB BW1058	M107
BL20-S4T-SBBS	C58	BL67-GW-DN	B9	CORD-DSUB BW1097	M106
BL20-S4T-SBBS-CJ	C58	BL67-GW-DN	F117	CORD-DSUB BW1226	M107
BL20-S4T-SBCS	C59	BL67-GW-DP	K75	D9S 45x-*M	L8
BL20-S6S-SBBSBB	C59	BL67-GW-DPV1	B13	D9S/T 45x-*M	L7
BL20-S6S-SBCSBC	C59	BL67-GW-EN	B10	D9SM/T 45x-*M	L7
BL20-S6T-SBBSBB	C59	BL67-GW-EN	H5	D9T-RS485	E22
BL20-S6T-SBCSBC	C59	BL67-GW-EN-IP	B11	D9T-RS485IS	E22
BL20-SWIRE-DIL	C56	BL67-GW-EN-IP	H6	D9T-RS485PG	E22
BL20-SWIRE-PF	C57	BL67-GW-EN-PN	B12	DF20EX	E15
BL67-16D0-0.1A-P	B27	BL67-GW-EN-PN	H7	DI40EX	E5
BL67-1CVI	B37	BL67-PF-24VDC	B49	DILM*	C51
BL67-1RS232	B39	BL67-PG-DP	B13	DM80EX	E9
BL67-1RS485/422	B39	BL67-PG-EN	B10	DO40EX	E7
BL67-1SSI	B39	BL67-PG-EN	H5	FAS4-CSG43	M39
BL67-2AI-I	B43	BL67-PG-EN-IP	B11	FAS4-CSG43-A	M41
BL67-2AI-PT...	B45	BL67-PG-EN-IP	H6	FAS4-CSG44	M39
BL67-2AI-TC	B45	BM1	E21	FAS4-CSG44-A	M41
BL67-2AI-V	B43	BMSWS 8151-8.5	L15	FAS4-S0003G-A	M45
BL67-2A0-I...	B47	BMSWS 8251-8.5	L15	FAS4-S0202G-A	M43
BL67-2A0-V	B47	BMWS 8151-8.5	L15	FAS4-S0400	M37
BL67-4AI-V/I	B43	BMWS 8251-8.5	L15	FDN20-16S	F79
BL67-4DI4D0-PD	B35	BPA-44-E113	J32	FDN20-16SN-16XSG	F81
BL67-4DI-N	B17	BPA-45-E113	L20	FDN20-16XSG	F79
BL67-4DI-P	B17	BPA-57-E113	G55	FDN20-32SN	F81
BL67-4DI-PD	B29	BPA-57-M113	G55	FDN20-4DR	F83
BL67-4D0-0.5A-P	B21	BPA-84-E113	J32	FDN20-4S-4XSG	F75
BL67-4D0-2A-N	B23	BRPC-49-M213	R53	FDN20-4S-4XSG-0189	F77
BL67-4D0-2A-P	B23	BS 4148-0/13.5	L59	FDN20-4S-4XSG-DIN	F75
BL67-8DI-N	B19	BS 4148-0/9	L59	FDN20-4S-4XSG-E	F75
BL67-8DI-P	B19	BS 4151-0/13.5/DNET	G75	FDN20-S0404G-0220	F77
BL67-8DI-PD	B31	BS 4151-0/9/DNET	G75	FDN-DN1	F69

TURCK

Network Products

Index

FDNL-CPG88-T	F17	FDNQ-S0002G-T	F41	FKSDDE 44x-*M	J21
FDNL-CSG88-T	F19	FDNQ-S0200-T	F39	FKSDWE D9S FKSDWE 45x-*M-*M	L8
FDNL-CSG88-T-V	F19	FDNQ-S0201G-T	F43	FKSDWE D9S/T 45x-*M	L7
FDNL-L0800-C	F13	FDNQ-S0400-C	F39	FKSDWE D9SM/T 45x-*M	L7
FDNL-L0800-T	F13	FDNQ-S0400-T	F39	FKSDWE SD9S FKSDWE 45x-*M-*M	L8
FDNL-L0800-T-V	F13	FDNQ-S0404G-MM	F45	FKV 43	S14
FDNL-L1600-C	F13	FDNQ-S0404G-T	F43	FKV 48-*M	L54
FDNL-L1600-T	F13	FDNQ-S0800-T	F39	FKV 48-*M/14.5	L54
FDNL-N0800-T	F15	FDNQ-XSG08-T	F43	FKV 48-*M/14.75	L54
FDNL-N1600-T	F15	FDP20-16S	K35	FKV 48-*M/M20	L54
FDNL-S0800-T	F15	FDP20-16XSG	K35	FKV 48-*M/NPT	L54
FDNL-S1204H-0142	F23	FK 25-*M	N38	FKV 49-*M	R61
FDNL-S1204H-0153	F23	FK 25-*M/14.5	N38	FKV 49-*M/14.5	R61
FDNL-S1600-E	F15	FK 25-*M/14.75	N38	FKV 49-*M/14.75	R61
FDNL-S1600-T	F15	FK 25-*M/M20	N38	FKV 49-*M/M20	R61
FDNL-S1600-T-V	F15	FK 25-*M/NPT	N38	FKV 49-*M/NPT	R61
FDNL-SN0808N-C	F21	FK 45 PCB	L17	FKV FSV 48/M12	L30
FDN-MSTR-1220	F65	FK 57 PCB	G67	FKV FSV 49/M12	R23
FDN-PCB-22	F111	FK 57 PCB KIT	G67	FKV-CC	T5
FDN-PCB-22-1003-BKT	F113	FK 57-*M	G65	FKW 45 PCB KIT	L17
FDN-PCB-22-OEM	F111	FK 57-*M/14.5	G65	FKW FSW 45/M12	L13
FDNP-CPG88-TT	F27	FK 57-*M/14.75	G65	FLDP-IM 16-0001	K11
FDNP-CSG88-TT	F33	FK 57-*M/M20	G65	FLDP-IM 32-0001	K13
FDNP-ES44-TC	F61	FK 57-*M/NPT	G65	FLDP-IM 8-0001	K11
FDNP-ES88-TC	F61	FK 57-IDC	G14	FLDP-IOM 1616-0001	K25
FDNP-ES88-TT	F61	FK 57-IDC ET	G14	FLDP-IOM 2012-0001	K27
FDNP-L0404G-TT	F25	FK 84 PCB	J15	FLDP-IOM 248-0001	K25
FDNP-L0808G-TT	F25	FK 84 PCB KIT	J15	FLDP-IOM 84-0001	K21
FDNP-L0808H-TT	F25	FK-CC	T5	FLDP-IOM 88-0001	K21
FDNP-N1600-TT-0197	F31	FKFD 25x-*M	N6	FLDP-IOM 88-0002	K21
FDNP-PO808H-TT	F25	FKFD 39x-*M	S3	FLDP-IOM 88-0002-ST	K23
FDNP-P1204G-TT move	F35	FKFD 57 PCB	G68	FLDP-IOM 88-0004	K21
FDNP-S0008G-TT	F29	FKFD 57x-*M	G8	FLDP-IOM124-0001	K29
FDNP-S0008G-TT-V	F29	FKFD 84 PCB	J16	FLDP-IOM124-0002	K29
FDNP-S0008H-TT	F29	FKFD 84x-*M	J5	FLDP-OM 16-0001	K17
FDNP-S0016N-TT-0200	F29	FKFD BK52C 57x-*M	G10	FLDP-OM 8-0001	K17
FDNP-S0404G-TT	F33	FKFD CBC5 57x-*M	G10	FLDP-OM 8-0002	K17
FDNP-S0808G-ST	F37	FKFDD 44x-*M	J20	FS 25-*M	N37
FDNP-S0808G-TT	F33	FKFDL 57	G68	FS 25-*M/14.5	N37
FDNP-S1204H-TT-0149	F33	FKFDL 84	J16	FS 25-*M/14.75	N37
FDNP-XSG16-ST	F37	FKFDLW 45	L16	FS 25-*M/M20	N37
FDNP-XSG16-TT	F33	FKFDV 48x-*M	L26	FS 25-*M/NPT	N37
FDNQ-4AI-I-T	F47	FKFDV 49x-*M	R18	FS 57 PCB	G67
FDNQ-4AI-V/I-T	F49	FKFDW 45 PCB	L16	FS 57 PCB KIT	G67
FDNQ-CSG44-E	F43	FKK-CC	T5	FS 57-*M	G64
FDNQ-CSG44-T	F43	FKM FS 57/M12	G23	FS 57-*M/14.5	G64
FDNQ-ES11-T	F63	FKSDD RJ45SF 44	J34	FS 57-*M/14.75	G64
FDNQ-ES22-T	F63	FKSDE 84x-*M	J6	FS 57-*M/M20	G64

Index

FS 57-*M/NPT	G64	FXDP-IM 16-0001	K15	JBBS-49-E813	R41
FS 84 PCB	J15	FXDP-IM 8-0001	K15	JBBS-49-E814	R41
FS 84 PCB KIT	J15	FXDP-IOM 88-0001	K31	JBBS-49-E823	R45
FS-CC	T5	FXDP-OM 16-0001	K19	JBBS-49-E824	R45
FSFD 25x-*M	N6	FXDP-OM 8-0001	K19	JBBS-49-M413	R29
FSFD 39x-*M	S3	FXDP-XSG 16-0001	K31	JBBS-49-M414	R29
FSFD 57 PCB	G68	GDP1.5	E4	JBBS-49-M423	R33
FSFD 57x-*M	G8	IC-232-485 BW1094	M105	JBBS-49-M424	R33
FSFD 84 PCB	J16	IPSKP4-0.12-SSP4/S90/S2154	D35	JBBS-49-M613	R29
FSFD 84x-*M	J5	JBBS-25-E413	N15	JBBS-49-M613/EX	R35
FSFD BK52C 57x-*M	G10	JBBS-25-E613	N15	JBBS-49-M614	R29
FSFD CBC5 57x-*M	G10	JBBS-25-E623	N17	JBBS-49-M623	R33
FSFDD 44x-*M	J20	JBBS-25-E812	N9	JBBS-49-M624	R33
FSFDL 57	G68	JBBS-25-E813	N15	JBBS-49-M813	R29
FSFDL 84	J16	JBBS-25-M414	N11	JBBS-49-M814	R29
FSFDLW 45	L16	JBBS-25-M613	N11	JBBS-49-M823	R33
FSFDV 48x-*M	L26	JBBS-25-M614	N11	JBBS-49-M824	R33
FSFDV 49x-*M	R18	JBBS-25-M814	N11	JBBS-49SC-E413	R43
FSFDW 45 PCB	L16	JBBS-25SC-E413	N19	JBBS-49SC-E613	R43
FSK-CC	T5	JBBS-25SC-E613	N19	JBBS-49SC-E813	R43
FSSDE 84x-*M	J6	JBBS-25SC-M413	N13	JBBS-49SC-M413	R31
FSSDED 44x-*M	J21	JBBS-25SC-M613	N13	JBBS-49SC-M413/EX	R37
FSSDWE D9S FKSDWE 45x-*M-*M	L8	JBBS-48-E413	L35	JBBS-49SC-M613	R31
FSSDWE D9S FSSDWE 45x-*M-*M	L8	JBBS-48-E414	L39	JBBS-49SC-M613/EX	R37
FSSDWE D9S/T 45x-*M	L7	JBBS-48-E613	L35	JBBS-49SC-M813	R31
FSSDWE D9SM/T 45x-*M	L7	JBBS-48-E614	L39	JBBS-49SC-T415B/EX	R39
FSSDWE SD9S FKSDWE 45x-*M-*M	L8	JBBS-48-E813	L35	JBBS-49SC-T615B/EX	R39
FSSDWE SD9S FSSDWE 45x-*M-*M	L8	JBBS-48-E814	L39	JBBS-53-E401	S35
FSSDWE SD9S/T 45x-*M-*M	L8	JBBS-48-M413	L31	JBBS-53-E601	S35
FSV 43	S14	JBBS-48-M423	L33	JBBS-53-E801	S35
FSV 48-*M	L53	JBBS-48-M613	L31	JBBS-57-DGM	G43
FSV 48-*M/14.5	L53	JBBS-48-M623	L33	JBBS-57-E1001	G41
FSV 48-*M/14.75	L53	JBBS-48-M813	L31	JBBS-57-E401	G37
FSV 48-*M/M20	L53	JBBS-48SC-E413	L35	JBBS-57-E403	G37
FSV 48-*M/NPT	L53	JBBS-48SC-E613	L35	JBBS-57-E411	G37
FSV 49-*M	R60	JBBS-48SC-E613/EX	L37	JBBS-57-E421	G37
FSV 49-*M/14.5	R60	JBBS-48SC-E813	L35	JBBS-57-E601	G37
FSV 49-*M/14.75	R60	JBBS-48SC-M413	L31	JBBS-57-E621	G37
FSV 49-*M/M20	R60	JBBS-48SC-M613	L31	JBBS-57-E801	G39
FSV 49-*M/NPT	R60	JBBS-48SC-M813	L31	JBBS-57-E803	G39
FSV-CC	T5	JBBS-49-E413	R41	JBBS-57-E811	G27
FSW 45 PCB	L17	JBBS-49-E414	R41	JBBS-57-E812	G27
FSW 45 PCB KIT	L17	JBBS-49-E423	R45	JBBS-57-E821	G39
FW5/101-150	C64	JBBS-49-E424	R45	JBBS-57-FS/VM-P424M	G29
FW5/1-50	C64	JBBS-49-E613/3GD	R41	JBBS-57-FS/VM-P424Z	G29
FW5/151-200	C64	JBBS-49-E614	R41	JBBS-57-FS/VM-P824M	G31
FW5/51-100	C64	JBBS-49-E623	R45	JBBS-57-FS/VM-P824Z	G31
FXDP-CSG 88-0001	K31	JBBS-49-E624	R45	JBBS-57-FS-E424	G29

TURCK

Network Products

Index

JBBS-57-FS-P424M	G29	JTBS-49-M433	R47	PKWM RST 57x-*M	G17
JBBS-57-FS-P424Z	G29	JTBS-49-M633	R47	PKWM WKT 57x-*M	G17
JBBS-57-FS-P824M	G31	JTBS-49SC-E433	R49	PKWM WST 57x-*M	G17
JBBS-57-FS-P824Z	G31	JTBS-49SC-E633	R49	PKZMO-*	C51
JBBS-57-M401	G33	JTBS-49SC-M433	R47	PKZMO-X*M*2	C55
JBBS-57-M413	G33	JTBS-49SC-M633	R47	PKZMO-XDM12	C51
JBBS-57-M601	G33	KS 5/10	T8	PKZMO-XDM32	C51
JBBS-57-M613	G33	LN 1/2-14/10	T9	PS-30VDC-3PH BW1676	M96
JBBS-57-M623	G35	LN 1/4-18/10	T9	PS-30VDC-4A-C1D2 BW1597	M95
JBBS-57-M801	G33	LN-PG 13.5	T9	PS-30VDC-8A BW1593	M95
JBBS-57-M813	G33	LN-PG 9	T9	PS-30VDC-8A-C1D2 BW1598	M95
JBBS-57-SM01	G45	MODEX-FILTER	E22	PS416-ZBX-405	C64
JRBS-40-4/EX	R25	MS-CO BW1453	M106	PSD24EX	E21
JRBS-40-6/EX	R25	MS-DN BW1420	M106	PSG 57x-*M	G18
JRBS-40-8/EX	R25	MS-DN BW1625	M106	PSG PSG 57x-*M	G18
JRBS-40SC-4/EX	R25	MS-DP BW1131	M105	PSG RKT 57x-*M	G18
JRBS-40SC-6/EX	R25	MS-DP BW1257	M105	PSG RST 57x-*M	G18
JRBS-40SC-8/EX	R25	MS-DP BW1258	M105	PSG WKT 57x-*M	G18
JRBS-49SC-8	R27	MT18-R024	E19	PSG WST 57x-*M	G18
JRBS-57-4	G25	MT9/FM	E19	PSG-CC (8/BAG)	T7
JRBS-57-6	G25	NHI-E-10L-PL20	C56	PSGM 57-TR	G22
JRBS-57-8	G25	OC11EX/2G	E23	PSGM 57x-*M	G17
JTBS 57-E434	G49	OC11EX/3G	E23	PSGM PSGM 57x-*M	G17
JTBS 57-E634	G49	ODNA-4S-4XSG-E	F115	PSGM PSWM 57x-*M	G17
JTBS 57-M434	G47	PDP-Connector/SD9S	L10	PSGM RKT 57x-*M	G17
JTBS 57-M634	G47	PDP-TRA	L12	PSGM RST 57x-*M	G17
JTBS 57VM-E434	G49	PKGM 57-TR	G22	PSGM WKT 57x-*M	G17
JTBS 57VM-E634	G49	PKGM 57x-*M	G17	PSGM WST 57x-*M	G17
JTBS 57VM-M434	G47	PKGM PKGM 57x-*M	G17	PSGM-CC (8/BAG)	T7
JTBS 57VM-M634	G47	PKGM PKWM 57x-*M	G17	PSU67-11-2420/M	T1
JTBS-25-E433	N25	PKGM PSGM 57x-*M	G17	PSU67-11-2440/M	T1
JTBS-25-E633	N25	PKGM PSWM 57x-*M	G17	PSWM 57x-*M	G17
JTBS-25-M433	N21	PKGM RKT 57x-*M	G17	PSWM PSWM 57x-*M	G17
JTBS-25-M633	N21	PKGM RST 57x-*M	G17	PSWM RKT 57x-*M	G17
JTBS-25SC-E433	N27	PKGM WKT 57x-*M	G17	PSWM RST 57x-*M	G17
JTBS-25SC-E633	N27	PKGM WST 57x-*M	G17	PSWM WKT 57x-*M	G17
JTBS-25SC-M433	N23	PKGZ 57x-*M	G18	PSWM WST 57x-*M	G17
JTBS-25SC-M633	N23	PKGZ PKGZ 57x-*M	G18	RB21603-*M	N34
JTBS-48-E433	L43	PKGZ PSG 57x-*M	G18	RB21605-*M	N34
JTBS-48-E633	L43	PKGZ RKT 57x-*M	G18	RB50100-*M	S39
JTBS-48-M433	L41	PKGZ RST 57x-*M	G18	RB50538-*M	S51
JTBS-48-M633	L41	PKGZ WKT 57x-*M	G18	RB50549-*M	S47
JTBS-48SC-E433	L43	PKGZ WST 57x-*M	G18	RB50591-*M	S29
JTBS-48SC-E633	L43	PKWM 57x-*M	G17	RB50603-*M	G4
JTBS-48SC-M433	L41	PKWM PKWM 57x-*M	G17	RB50604-*M	S29
JTBS-48SC-M633	L41	PKWM PSGM 57x-*M	G17	RB50628-*M	S29
JTBS-49-E433	R49	PKWM PSWM 57x-*M	G17	RB50629-*M	G4
JTBS-49-E633	R49	PKWM RKT 57x-*M	G17	RB50633-*M	G6

Index

RB50651-*M G4	RB51127-*M S7	RKC 2RSC 25 N31
RB50652-*M G6	RB51153-*M S18	RKC 39x-*M S3
RB50672-*M L4	RB51157-*M S2	RKC 57x-*M G8
RB50683-*M L4	RB51178-*M N4	RKC 84x-*M J5
RB50692-*M L4	RB51179-*M N4	RKC BK52C 57x-*M G10
RB50693-*M R15	RB51199-*M S2	RKC CBC5 57x-*M G10
RB50694-*M S24	RB51210-*M J19	RKC FKFD 25x-*M N6
RB50708-*M L4	RB51211-*M J19	RKC FKFD 39x-*M S3
RB50721-*M G5	RB51212-*M J19	RKC FKFD 57x-*M G8
RB50764-*M G4	RB51213-*M J19	RKC FKFD 84x-*M J5
RB50782-*M N34	RB51225-*M L4	RKC FSFD 25x-*M N6
RB50783-*M R15	RB51231-*M G6	RKC FSFD 39x-*M S3
RB50784-*M R15	RB51235-*M G5	RKC FSFD 57x-*M G8
RB50785-*M R16	RB51240-*M N34	RKC FSFD 84x-*M J5
RB50785-*M L24	RB51241-*M N34	RKC RJ45 84x-*M J5
RB50786-*M R15	RB51242-*M N34	RKC RKC 25x-*M N6
RB50786-*M L24	RB51259-*M L4	RKC RKC 39x-*M S3
RB50787-*M G13	RB51296-*M G4	RKC RKC 57x-*M G8
RB50789-*M S42	RB51300-*M R16	RKC RKC 84x-*M J5
RB50791-*M N4	RB51305-*M J4	RKC RKF 25x-*M N6
RB50793-*M G6	RB51306-*M J19	RKC RKF 57x-*M G8
RB50803-*M R15	RB82700-*M S39	RKC RSFP 25x-*M N6
RB50852-*M N4	RB82701-*M S39	RKC RSFP 57x-*M G8
RB50856-*M J4	RB82702-*M S39	RKC WKC 25x-*M N6
RB50859-*M G5	RBS50929-*M L24	RKC WKC 39x-*M S3
RB50860-*M L24	REP-ASI BW1273 M77	RKC WKC 57x-*M G8
RB50874-*M R15	REP-ASI BW1855 M75	RK-CC T5
RB50875-*M L4	REP-ASI-C1D2 BW1712 M77	RKCD 44x-*M J20
RB50876-*M G5	REP-DN F67	RKCD FKFD 44x-*M J20
RB50877-*M G5	REP-DP-0002 K37	RKCD FSFD 44x-*M J20
RB50881-*M L4	RJ11S RJ11S 4412-*M J37	RKCD RJ45 44x-*M J20
RB50884-*M J4	RJ45 44x-*M J20	RKCD RKCD 44x-*M J20
RB50891-*M R16	RJ45 84x-*M J5	RKCV 48x-*M L26
RB50893-*M J4	RJ45 FKFD 84x-*M J5	RKCV 49x-*M R18
RB50894-*M J4	RJ45 FKFD 44x-*M J20	RKCV FKFDV 48x-*M L26
RB50896-*M F53	RJ45 FSFD 84x-*M J5	RKCV FKFDV 49x-*M R18
RB50897-*M F53	RJ45 FSFD 44x-*M J20	RKCV FSFDV 48x-*M L26
RB50925-*M F53	RJ45 RJ45 44x-*M J20	RKCV FSFDV 49x-*M R18
RB50929-*M L24	RJ45 RJ45 84x-*M J5	RKCV RKC 48x-*M L26
RB50962-*M N4	RJ45S 44x-*M J21	RKCV RKC 49x-*M R18
RB50966-*M N4	RJ45S 84x-*M J6	RKCV RKF 48x-*M L26
RB50994-*M G4	RJ45S FKSDE 84x-*M J6	RKCV RKF 49x-*M R18
RB51038-*M G6	RJ45S FKSD 44x-*M J21	RKCV RSFPV 48x-*M L26
RB51045-*M G16	RJ45S FSSDE 84x-*M J6	RKCV RSFPV 49x-*M R18
RB51057-*M L4	RJ45S FSSDED 44x-*M J21	RKCV WKC 48x-*M L26
RB51100-*M J4	RJ45S RJ45S 44x-*M J21	RKCV WKC 49x-*M R18
RB51106-*M G6	RJ45S RJ45S 84x-*M J6	RKE 57-TR2 G21
RB51126-*M S7	RKC 25x-*M N6	RKF 25-*M N36

TURCK

Network Products

Index

RKF 25-*M/14.5	N36	RKM FSFD 25x-*M	N6	RKV 48x-*M	L25
RKF 25-*M/14.75	N36	RKM FSFD 57x-*M	G8	RKV 49x-*M	R17
RKF 25-*M/M20	N36	RKM RKC 25x-*M	N6	RKV FKFDV 48x-*M	L26
RKF 25-*M/NPT	N36	RKM RKC 57x-*M	G8	RKV FKFDV 49x-*M	R18
RKF 40-IDC	G14	RKM RKFP 25x-*M	N6	RKV FSFDV 48x-*M	L26
RKF 40-IDC ET	G14	RKM RKFP 57x-*M	G8	RKV FSFDV 49x-*M	R18
RKF 57	G66	RKM RKM 25	N32	RKV RKC 48x-*M	L26
RKF 57 PCB	G66	RKM RKM 25x-*M	N5	RKV RKC 49x-*M	R18
RKF 57-*M	G63	RKM RKM 46-*M	S52	RKV RKFPV 48x-*M	L26
RKF 57-*M/14.5	G63	RKM RKM 50-*M	S48	RKV RKFPV 49x-*M	R18
RKF 57-*M/14.75	G63	RKM RKM 57	G60	RKV RKC 48	L48
RKF 57-*M/M20	G63	RKM RKM 57x-*M	G7	RKV RKC 48x-*M	L25
RKF 57-*M/NPT	G63	RKM RSC 25x-*M	N5	RKV RKC 49	R56
RKF 57-IDC	G14	RKM RSC 57x-*M	G7	RKV RKC 49x-*M	R17
RKF 57-IDC ET	G14	RKM RSFP 25x-*M	N6	RKV RSCV 48x-*M	L25
RKF 63	S15	RKM RSFP 57x-*M	G8	RKV RSCV 49x-*M	R17
RKF-CC	T4	RKM WKC 25x-*M	N6	RKV RSFPV 48x-*M	L26
RKF-MC	T4	RKM WKC 57x-*M	G8	RKV RSFPV 49x-*M	R18
RKFP 25x-*M	N6	RKM WKM 25x-*M	N5	RKV WKC 48x-*M	L26
RKFP 57x-*M	G8	RKM WKM 46-*M	S52	RKV WKC 49x-*M	R18
RKFP BK52C 57x-*M	G10	RKM WKM 50-*M	S48	RKV WKV 48x-*M	L25
RKFP CBC5 57x-*M	G10	RKM WKM 57x-*M	G7	RKV WKV 49x-*M	R17
RKFPV 48x-*M	L26	RKM WSC 25x-*M	N6	RKV WSCV 48x-*M	L26
RKFPV 49x-*M	R18	RKM WSC 57x-*M	G8	RKV WSCV 49x-*M	R18
RKFV 43	S13	RK-MC	T6	RKV-CC	T5
RKFV 48-*M	L52	RKM-CC	T4	RKV-MC	T6
RKFV 48-*M/14.5	L52	RKMV-CC	T4	RSC 25x-*M	N5
RKFV 48-*M/14.75	L52	RKS 84x-*M	J6	RSC 2RKC 57	G59
RKFV 48-*M/M20	L52	RKS FKSDE 84-*M	J6	RSC 2RKC 57/KS	G59
RKFV 48-*M/NPT	L52	RKS RJ45S 84x-*M	J6	RSC 39x-*M	S3
RKFV 49-*M	R59	RKS RKS 84x-*M	J6	RSC 57x-*M	G7
RKFV 49-*M/14.5	R59	RKSD 44x-*M	J21	RSC 84x-*M	J5
RKFV 49-*M/14.75	R59	RKSD FKSD 44x-*M	J21	RSC 8VBRK RKC 5724-DCL	G80
RKFV 49-*M/M20	R59	RKSD FSSD 44x-*M	J21	RSC BK52C 57x-*M	G9
RKFV 49-*M/NPT	R59	RKSD RJ45S 44x-*M	J21	RSC CBC5 57x-*M	G9
RKFV-CC	T4	RKSD RKSD 44x-*M	J21	RSC FKFD 25x-*M	N6
RKFV-MC	T4	RKSS FSSDE 84x-*M	J6	RSC FKFD 39x-*M	S3
RKGV-49x-*M	R21	RKSW	L12	RSC FKFD 57x-*M	G8
RKK-CC	T6	RKSW 2RSSW 45	L14	RSC FKFD 84x-*M	J5
RKM 25x-*M	N5	RKSW 2RSSW 45-0001	L14	RSC FSFD 25x-*M	N6
RKM 46-*M	S52	RKSW 45x-*M	L5	RSC FSFD 39x-*M	S3
RKM 50-*M	S48	RKSW D9S RKSW 45x-*M-*M	L8	RSC FSFD 57x-*M	G8
RKM 57-TR2	G21	RKSW D9S/T 45x-*M	L7	RSC FSFD 84x-*M	J5
RKM 57x-*M	G7	RKSW D9SM/T 45x-*M	L7	RSC RJ45 84x-*M	J5
RKM BK52C 57x-*M	G9	RKSW RKS 45x-*M	L5	RSC RKC 25x-*M	N6
RKM CBC5 57x-*M	G9	RKSW SD9S RKSW 45x-*M-*M	L8	RSC RKC 39x-*M	S3
RKM FKFD 25x-*M	N6	RKSW WKS 45x-*M	L5	RSC RKC 57x-*M	G8
RKM FKFD 57x-*M	G8	RKT 57x-*	G17	RSC RKC 84x-*M	J5

Index

RSC RKFP 25x-*M	N6	RSF 25-*M/14.75	N35	RSM 49-FK 4.4	R68
RSC RKFP 57x-*M	G8	RSF 25-*M/M20	N35	RSM 50-*M	S48
RSC RSC 25x-*M	N5	RSF 25-*M/NPT	N35	RSM 53-TR2	S37
RSC RSC 39x-*M	S3	RSF 48-*M/NPT	L51	RSM 57-FK 4.5	G61
RSC RSC 57x-*M	G7	RSF 57	G66	RSM 57-TR2	G21
RSC RSC 84x-*M	J5	RSF 57 PCB	G66	RSM 57-TR2/VM	G21
RSC RSFP 25x-*M	N6	RSF 57-*M	G62	RSM 57x-*M	G7
RSC RSFP 57x-*M	G8	RSF 57-*M/14.5	G62	RSM BK52C 57x-*M	G9
RSC WKC 25x-*M	N6	RSF 57-*M/14.75	G62	RSM CBC5 57x-*M	G9
RSC WKC 39x-*M	S3	RSF 57-*M/M20	G62	RSM FKFD 25x-*M	N6
RSC WKC 57x-*M	G8	RSF 57-*M/NPT	G62	RSM FKFD 57x-*M	G8
RSC WSC 25x-*M	N6	RSF 63	S15	RSM FKM RKM 57	G58
RSC WSC 39x-*M	S3	RSF RKF 57/22	F58	RSM FSFD 25x-*M	N6
RSC WSC 57x-*M	G8	RSF RKF 57/22	G23	RSM FSFD 57x-*M	G8
RS-CC	T5	RSF-CC	T4	RSM RKC 25x-*M	N6
RSCD 44x-*M	J20	RSF-MC	T4	RSM RKC 57x-*M	G8
RSCD FKFD 44x-*M	J20	RSFP 25x-*M	N6	RSM RKC 57x-*M RKM 57	G58
RSCD FSFD 44x-*M	J20	RSFP 57x-*M	G8	RSM RKFP 25x-*M	N6
RSCD RJ45 44x-*M	J20	RSFP BK52C 57x-*M	G10	RSM RKFP 57x-*M	G8
RSCD RKCD 44x-*M	J20	RSFP CBC5 57x-*M	G10	RSM RKM 25x-*M	N5
RSCD RSCD 44x-*M	J20	RSFPV 48x-*M	L26	RSM RKM 46-*M	S52
RSCS 2RKCS 48	L47	RSFPV 49x-*M	R18	RSM RKM 50-*M	S48
RSCV 2RKCV 25	N31	RSFV 43	S13	RSM RKM 57 WSM 40 PST	G57
RSCV 2RKCV 49	R55	RSFV 48-*M	L51	RSM RKM 57x-*M	G7
RSCV 48x-*M	L25	RSFV 48-*M/14.5	L51	RSM RSC 25x-*M	N5
RSCV 49x-*M	R17	RSFV 48-*M/14.75	L51	RSM RSC 57x-*M	G7
RSCV FKFDV 48x-*M	L26	RSFV 48-*M/M20	L51	RSM RSFP 25x-*M	N6
RSCV FKFDV 49x-*M	R18	RSFV 49-*M	R58	RSM RSFP 57x-*M	G8
RSCV FSFDV 48x-*M	L26	RSFV 49-*M/14.5	R58	RSM RSM 25	N32
RSCV FSFDV 49x-*M	R18	RSFV 49-*M/14.75	R58	RSM RSM 25x-*M	N5
RSCV RKC 48x-*M	L26	RSFV 49-*M/M20	R58	RSM RSM 46-*M	S52
RSCV RKC 49x-*M	R18	RSFV 49-*M/NPT	R58	RSM RSM 50-*M	S48
RSCV RKFPV 48x-*M	L26	RSFV RKFV 48/22	L30	RSM RSM 57	G60
RSCV RKFPV 49x-*M	R18	RSFV RKFV 49/22	R23	RSM RSM 57x-*M	G7
RSCV RSCV 48x-*M	L25	RSFV-CC	T4	RSM WKC 25x-*M	N6
RSCV RSCV 49x-*M	R17	RSFV-MC	T4	RSM WKC 57x-*M	G8
RSCV RSFPV 48x-*M	L26	RSGV-49x-*M	R21	RSM WKM 25x-*M	N5
RSCV RSFPV 49x-*M	R18	RSK-CC	T6	RSM WKM 46-*M	S52
RSCV WKC 48x-*M	L26	RSM 25-FK 4.5	N45	RSM WKM 50-*M	S48
RSCV WKC 49x-*M	R18	RSM 25x-*M	N5	RSM WKM 57x-*M	G7
RSCV WSCV 48x-*M	L26	RSM 2RKM 40	S54	RSM WSC 25x-*M	N6
RSCV WSCV 49x-*M	R18	RSM 2RKM 50	S50	RSM WSC 57x-*M	G8
RSE 53-TR2	S37	RSM 2RKM 57	G56	RSM WSM 25x-*M	N5
RSE 57-TR2	G21	RSM 2RKM 57 DGT	G57	RSM WSM 46-*M	S52
RSEV 48-TR	L29	RSM 2RKM 57-KF	G56	RSM WSM 50-*M	S48
RSEV 49-TR	R22	RSM 2RKM 57-KM	G56	RSM WSM 57x-*M	G7
RSF 25-*M	N35	RSM 46-*M	S52	RS-MC	T6
RSF 25-*M/14.5	N35	RSM 48-FK 4.4	L61	RSM-CC	T4

TURCK

Network Products

Index

RSMV-CC	T4	RSV RKV 48x-*M	L25	SDNB-04A-0009	F101
RSS 84x-*M	J6	RSV RKV 49 SS	R57	SDNB-0800D-0008	F89
RSS FKSDE 84x-*M	J6	RSV RKV 49x-*M	R17	SDNB-0808D-0001	F91
RSS FSSDE 84x-*M	J6	RSV RSCV 48x-*M	L25	SDNB-10S-0001	F105
RSS RJ45S 84x-*M	J6	RSV RSCV 49x-*M	R17	SDNB-10S-0002	F107
RSS RKS 84x-*M	J6	RSV RSFPV 48x-*M	L26	SDNB-10S-0004	F107
RSS RSS 84x-*M	J6	RSV RSFPV 49x-*M	R18	SDNB-10S-0005	F109
RSSD 44x-*M	J21	RSV RSV 48	L48	SDNB-40A-0004	F99
RSSD FKSDED 44x-*M	J21	RSV RSV 48x-*M	L25	SDNB-40A-0005	F97
RSSD FSSDED 44x-*M	J21	RSV RSV 49	R56	SDNB-40A-0007	F97
RSSD RJ45S 44x-*M	J21	RSV RSV 49x-*M	R17	SDNB-40A-0009	F99
RSSD RKSD 44x-*M	J21	RSV WKCV 48x-*M	L26	SDNL-0404D-0003	D5
RSSD RSSD 44x-*M	J21	RSV WKCV 49x-*M	R18	SDNL-0404D-0003	F125
RSSW 456SP-1M	L9	RSV WKV 48x-*M	L25	SDPB-0008D-0002	K47
RSSW 456SP-2M	L9	RSV WKV 49x-*M	R17	SDPB-0008D-0006	K47
RSSW 456SP-5M	L9	RSV WSCV 48x-*M	L26	SDPB-0202D-0003	K57
RSSW 45-TR	L12	RSV WSCV 49x-*M	R18	SDPB-0404D-0001	K49
RSSW 45x-*M	L5	RSV WSV 48x-*M	L25	SDPB-0404D-0005	K49
RSSW D9S RKSX 45x-*M-*M	L8	RSV WSV 49x-*M	R17	SDPB-04A-0007	K55
RSSW D9S RSSW 45x-*M-*M	L8	RSV-CC	T5	SDPB-04A-0009	K55
RSSW D9S/T 45x-*M	L7	RSV-MC	T6	SDPB-0800D-0008	K43
RSSW D9SM/T 45x-*M	L7	SC12-EX	E23	SDPB-0808D-0001	K45
RSSW RKSX 45x-*M	L5	SCH-1-WINBLOC	C64	SDPB-10S-0001	K59
RSSW RSSW 45x-*M	L5	SCOB-0008D-0002	P23	SDPB-10S-0002	K61
RSSW SD9S RKSX 45x-*M-*M	L8	SCOB-0008D-0006	P23	SDPB-10S-0004	K61
RSSW SD9S RSSW 45x-*M-*M	L8	SCOB-0404D-0001	P25	SDPB-10S-0005	K63
RSSW WKSX 45x-*M	L5	SCOB-0404D-0005	P25	SDPB-40A-0004	K53
RSSW WSSW 45x-*M	L5	SCOB-04A-0007	P31	SDPB-40A-0005	K51
RST 57x-*	G17	SCOB-04A-0009	P31	SDPB-40A-0007	K51
RSV 2RKV 25	N31	SCOB-0800D-0008	P19	SDPB-40A-0009	K53
RSV 2RKV 48	L47	SCOB-0808D-0001	P21	SDPL-0404D-0003	D7
RSV 2RKV 49	R55	SCOB-10S-0001	P33	SDPL-0404D-0003	K65
RSV 48-TR	L29	SCOB-10S-0002	P35	SDPL-0404D-0004	D7
RSV 48x-*M	L25	SCOB-10S-0004	P35	SDPL-0404D-0004	K65
RSV 49-TR	R22	SCOB-10S-0005	P37	SDPL-0404D-1003	D7
RSV 49x-*M	R17	SCOB-40A-0004	P29	SDPL-0404D-1003	K65
RSV FKFDV 48x-*M	L26	SCOB-40A-0005	P27	SDPL-0404D-1004	D7
RSV FKFDV 49x-*M	R18	SCOB-40A-0007	P27	SDPL-0404D-1004	K65
RSV FKV RKV 25	N31	SCOB-40A-0009	P29	SE-44M-E924	J29
RSV FKV RKV 48	L47	SCOL-0404D-0003	P13	SE-44X4-E524	J25
RSV FKV RKV 49	R55	SCOL-0404D-0003	D11	SE-44X4-E924	J25
RSV FSFDV 48x-*M	L26	SD9S 45x-*M	L8	SE-44X-E524	J25
RSV FSFDV 49x-*M	R18	SDNB-0008D-0002	F93	SE-44X-E924	J25
RSV RKCX 48x-*M	L26	SDNB-0008D-0006	F93	SE-84ST-E524/C1165	J27
RSV RKCX 49x-*M	R18	SDNB-0202D-0003	F103	SE-84ST-E924/C1165	J27
RSV RKFPV 48x-*M	L26	SDNB-0404D-0001	F95	SE-84ST-E924/C1190	J27
RSV RKFPV 49x-*M	R18	SDNB-0404D-0005	F95	SE-84X4-E524	J11
RSV RKV 48 SS	L49	SDNB-04A-0007	F101	SE-84X4-E924	J11

Index

SE-84X-E524	J11	WKC CBC5 57x-*M	G10	WKM WKM 50-*M	S48
SE-84X-E924	J11	WKC FKFD 25x-*M	N6	WKM WKM 57x-*M	G7
SFOB-0001	D35	WKC FKFD 39x-*M	S3	WKM WSC 25x-*M	N6
SFOL-CLIP	D35	WKC FKFD 57x-*M	G8	WKM WSC 57x-*M	G8
SIPL-0404D-0003	D9	WKC FSFD 25x-*M	N6	WKSW 45x-*M	L5
SIPL-0404D-0004	D9	WKC FSFD 39x-*M	S3	WKSW D9S WKSW 45x-*M-*M	L8
SNNE-0008D-0002	D15	WKC FSFD 57x-*M	G8	WKSW D9S/T 45x-*M	L7
SNNE-0008D-0006	D15	WKC RKFP 25x-*M	N6	WKSW D9SM/T 45x-*M	L7
SNNE-0202D-0003	D27	WKC RKFP 57x-*M	G8	WKSW SD9S WKSW 45x-*M-*M	L8
SNNE-0404D-0001	D17	WKC RSFP 25x-*M	N6	WKSX WKSX 45x-*M	L5
SNNE-0404D-0005	D17	WKC RSFP 57x-*M	G8	WKT 57x-*	G17
SNNE-04A-0007	D25	WKC WKC 25x-*M	N6	WKV 48x-*M	L25
SNNE-04A-0009	D25	WKC WKC 39x-*M	S3	WKV 49x-*M	R17
SNNE-0800D-0008	D13	WKC WKC 57x-*M	G8	WKV FKFDV 48x-*M	L26
SNNE-0808D-0003	D19	WKCVC 48x-*M	L26	WKV FKFDV 49x-*M	R18
SNNE-10S-0001	D29	WKCVC 49x-*M	R18	WKV FSFDV 48x-*M	L26
SNNE-10S-0002	D31	WKCVC FKFDV 48x-*M	L26	WKV FSFDV 49-*M	R18
SNNE-10S-0004	D31	WKCVC FKFDV 49x-*M	R18	WKV RKCV 48x-*M	L26
SNNE-10S-0005	D33	WKCVC FSFDV 48x-*M	L26	WKV RKCV 49x-*M	R18
SNNE-40A-0004	D23	WKCVC FSFDV 49x-*M	R18	WKV RKFPV 48x-*M	L26
SNNE-40A-0005	D21	WKCVC RKFPV 48x-*M	L26	WKV RKFPV 49x-*M	R18
SNNE-40A-0007	D21	WKCVC RKFPV 49x-*M	R18	WKV RSCV 48x-*M	L25
SNNE-40A-0009	D23	WKCVC RSFPV 48x-*M	L26	WKV RSCV 49x-*M	R17
SPTC1	G77	WKCVC RSFPV 49x-*M	R18	WKV RSFPV 48x-*M	L26
SPTC2	G77	WKCVC WKCVC 48x-*M	L26	WKV RSFPV 49x-*M	R18
SPTT1	G77	WKCVC WKCVC 49x-*M	R18	WKV WKCVC 48x-*M	L26
SPTT1-A25	N33	WKM 25x-*M	N5	WKV WKCVC 49x-*M	R18
SPTT1-A48	L50	WKM 46-*M	S52	WKV WKM 48x-*M	L25
SPTT1-A49	R24	WKM 50-*M	S48	WKV WKM 49x-*M	R17
SPTTM13-A25	N33	WKM 57x-*M	G7	WKV WSCV 48x-*M	L26
SPTTM13-A48	L50	WKM BK52C 57x-*M	G9	WKV WSCV 49x-*M	R18
SPTTM13-A49	R24	WKM CBC5 57x-*M	G9	WSC 25x-*M	N6
TI40EX	E17	WKM FKFD 25x-*M	N6	WSC 2VBWK WKC 5724-DCL	G79
VB2 FSM E8/RKC RKC E40-*M-*M	F60	WKM FKFD 57x-*M	G8	WSC 39x-*M	S3
VB2/FSW/FKW/FSW 45	L14	WKM FSFD 25x-*M	N6	WSC 57x-*M	G8
VB2-FKM/FKM/FSM 57	G51	WKM FSFD 57x-*M	G8	WSC BK52C 57x-*M	G10
VB2-FKM/RKC RSC 57x-*M/*M	G51	WKM RKC 25x-*M	N6	WSC CBC5 57x-*M	G10
VB2-RKC 57x-*M-FKM FSM	G51	WKM RKC 57x-*M	G8	WSC FKFD 25x-*M	N6
VZ 1	T8	WKM RKFP 25x-*M	N6	WSC FKFD 39x-*M	S3
VZ3 (8/BAG)	T6	WKM RKFP 57x-*M	G8	WSC FKFD 57x-*M	G8
VZ3-RED (8/BAG)	T6	WKM RSC 25x-*M	N5	WSC FSFD 25x-*M	N6
WFS 57 PCB	G68	WKM RSC 57x-*M	G7	WSC FSFD 39x-*M	S3
WFS 84 PCB	J16	WKM RSFP 25x-*M	N6	WSC FSFD 57x-*M	G8
WFSW 45 PCB	L16	WKM RSFP 57x-*M	G8	WSC RKC 25x-*M	N6
WKC 25x-*M	N6	WKM WKC 25x-*M	N6	WSC RKC 39x-*M	S3
WKC 39x-*M	S3	WKM WKC 57x-*M	G8	WSC RKC 57x-*M	G8
WKC 57x-*M	G8	WKM WKM 25x-*M	N5	WSC RKFP 25x-*M	N6
WKC BK52C 57x-*M	G10	WKM WKM 46-*M	S52	WSC RKFP 57x-*M	G8

TURCK

Network Products

Index

WSC RSFP 25x-*M	N6	WSM RSC 25x-*M	N5	WSV RSFPV 49x-*M	R18
WSC RSFP 57x-*M	G8	WSM RSC 57x-*M	G7	WSV WKCV 48x-*M	L26
WSC WKC 25x-*M	N6	WSM RSFP 25x-*M	N6	WSV WKCV 49x-*M	R18
WSC WKC 39x-*M	S3	WSM RSFP 57x-*M	G8	WSV WKV 48x-*M	L25
WSC WKC 57x-*M	G8	WSM WKC 25x-*M	N6	WSV WKV 49x-*M	R17
WSC WSC 25x-*M	N6	WSM WKC 57x-*M	G8	WSV WSCV 48x-*M	L26
WSC WSC 39x-*M	S3	WSM WKM 25x-*M	N5	WSV WSCV 49x-*M	R18
WSC WSC 57x-*M	G8	WSM WKM 46-*M	S52	WSV WSV 48x-*M	L25
WSCV 48x-*M	L26	WSM WKM 50-*M	S48	WSV WSV 49x-*M	R17
WSCV 49x-*M	R18	WSM WKM 57x-*M	G7	XN-ABPL	C64
WSCV FKFDV 48x-*M	L26	WSM WSC 25x-*M	N6	XN-ANBZ-BL	C63
WSCV FKFDV 49x-*M	R18	WSM WSC 57x-*M	G8	XN-ANBZ-BR	C63
WSCV FSFDV 48x-*M	L26	WSM WSM 25x-*M	N5	XN-ANBZ-GN	C63
WSCV FSFDV 49x-*M	R18	WSM WSM 46-*M	S52	XN-ANBZ-RT	C63
WSCV RKC 48x-*M	L26	WSM WSM 50-*M	S48	XN-ANBZ-SW	C63
WSCV RKC 49x-*M	R18	WSM WSM 57x-*M	G7	XN-ANBZ-WS	C63
WSCV RKFPV 48x-*M	L26	WSSW 45x-*M	L5	XN-KLBU/S (10/PKG)	C64
WSCV RKFPV 49x-*M	R18	WSSW D9S WKS45x-*M-*M	L8	XN-KLBU/T (10/PKG)	C64
WSCV RSFPV 48x-*M	L26	WSSW D9S WSSW 45x-*M-*M	L8	XN-KO/10	C63
WSCV RSFPV 49x-*M	R18	WSSW D9S/T 45x-*M	L7	XN-KO/11	C63
WSCV WKCV 48x-*M	L26	WSSW D9SM/T 45x-*M	L7	XN-KO/12	C63
WSCV WKCV 49x-*M	R18	WSSW RKS 45x-*M	L5	XN-KO/13	C63
WSCV WSCV 48x-*M	L26	WSSW SD9S WKS 45x-*M-*M	L8	XN-KO/14	C63
WSCV WSCV 49x-*M	R18	WSSW SD9S WSSW 45x-*M-*M	L8	XN-KO/16	C63
WSM 25x-*M	N5	WSSW WKS 45x-*M	L5	XN-KO/17	C63
WSM 46-*M	S52	WSSW WSW 45x-*M	L5	XN-KO/2	C63
WSM 50-*M	S48	WST 57x-*	G17	XN-KO/6	C63
WSM 57x-*M	G7	WSV 48x-*M	L25	XN-KO/8	C63
WSM BK52C 57x-*M	G9	WSV 49x-*M	R17	XN-KO/9	C63
WSM CBC5 57x-*M	G9	WSV FKFDV 48x-*M	L26	XN-PS2-CABLE	B54
WSM FKFD 25x-*M	N6	WSV FKFDV 49x-*M	R18	XN-QV/1	C63
WSM FKFD 57x-*M	G8	WSV FSFDV 48x-*M	L26	XN-QV/2	C63
WSM FSFD 25x-*M	N6	WSV FSFDV 49x-*M	R18	XN-QV/3	C63
WSM FSFD 57x-*M	G8	WSV RKC 48x-*M	L26	XN-QV/4	C63
WSM RKC 25x-*M	N6	WSV RKC 49x-*M	R18	XN-QV/5	C63
WSM RKC 57x-*M	G8	WSV RKFPV 48x-*M	L26	XN-QV/6	C63
WSM RKFP 25x-*M	N6	WSV RKFPV 49x-*M	R18	XN-QV/7	C63
WSM RKFP 57x-*M	G8	WSV RKV 48	L48	XN-QV/8	C63
WSM RKM 25	N32	WSV RKV 48x-*M	L25	XN-WEW-35/2-SW	C64
WSM RKM 25x-*M	N5	WSV RKV 49	R56	ZBW5-2	C64
WSM RKM 46-*M	S52	WSV RKV 49x-*M	R17		
WSM RKM 50-*M	S48	WSV RSCV 48x-*M	L25		
WSM RKM 57	G60	WSV RSCV 49x-*M	R17		
WSM RKM 57x-*M	G7	WSV RSFPV 48x-*M	L26		

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Specifications in this manual are subject to change without notice. **TURCK** also reserves the right to make modifications and makes no guarantee of the accuracy of the information contained herein. Literature and Media questions or concerns?

Contact Marketing Services **TURCK** USA - media@turck.com

Warranty Terms and Conditions

RISK OF LOSS

Delivery of the equipment to a common carrier shall constitute delivery to the Purchaser and the risk of loss shall transfer at that time to Purchaser. Should delivery be delayed due to an act or omission on the part of the Purchaser, risk of loss shall transfer to the Purchaser upon notification by **TURCK Inc.** that the order is complete and ready for shipment.

WARRANTIES

TURCK INC. (hereinafter “**TURCK**”) offers five (5) **WARRANTIES** to cover all products sold. They are as follows:

- 1) The **12-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME, 5-YEAR, 24-MONTH** or **18-MONTH** warranty. No registration is required.
- 2) The **18-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME** or **5-YEAR WARRANTY**. No registration is required.
- 3) The **24-MONTH WARRANTY** is available for the products listed - generally those not covered by **LIFETIME, 5-YEAR** or **18-MONTH**. No registration is required.
- 4) The **5-YEAR WARRANTY** is available generally for the products listed. No registration is required.
- 5) A **LIFETIME WARRANTY** is available for the products listed. It becomes effective when the accompanying **TURCK LIFETIME WARRANTY REGISTRATION** is completed and returned to **TURCK**.

GENERAL TERMS AND CONDITIONS FOR ALL WARRANTIES

- **12-MONTH STANDARD WARRANTY**
- **18-MONTH STANDARD WARRANTY**
- **24-MONTH STANDARD WARRANTY**
- **5-YEAR WARRANTY**
- **LIFETIME WARRANTY**

TURCK warrants the Products covered by the respective **WARRANTY AGREEMENTS** to be free from defects in material and workmanship under normal and proper usage for the respective time periods listed above from the date of shipment from **TURCK**. In addition, certain specific terms apply to the various **WARRANTIES**.

THESE EXPRESS WARRANTIES ARE IN LIEU OF AND EXCLUDE ALL OTHER REPRESENTATIONS MADE - BOTH EXPRESSED AND IMPLIED. THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE FOR PRODUCTS COVERED BY THESE TERMS AND CONDITIONS.

TURCK warrants that the goods sold are as described, but no promise, description, affirmation of fact, sample model or representation, oral or written shall be part of an order, unless set forth in these terms and conditions, or are in writing and signed by an authorized representative of **TURCK**. These **WARRANTIES** do not apply to any Product which has been subject to misuse, negligence, or accident - or to any Product which has been modified or repaired, improperly installed, altered, or disassembled -except according to **TURCK's** written instructions.

These **WARRANTIES** are subject to the following conditions:

- 1) These **WARRANTIES** are limited to the electronic and mechanical performance only, as expressly detailed in the Product specifications and **NOT** to cosmetic performance.
- 2) These **WARRANTIES** shall not apply to any cables attached to, or integrated with the Product. However, the **18-MONTH WARRANTY** shall apply to cables sold separately by **TURCK**.
- 3) These **WARRANTIES** shall not apply to any Products which are stored, or utilized, in harsh environmental or electrical conditions outside **TURCK's** written specifications.
- 4) The **WARRANTIES** are applicable only to Products shipped from **TURCK** subsequent to January 1, 1988.

ADDITIONAL SPECIFIC TERMS FOR -

(12-MONTH STANDARD WARRANTY) for Linear Displacement Transducers and RFID products.

(18-MONTH STANDARD WARRANTY) FOR ULTRASONIC SENSORS, CABLES AND ALL NON-SENSING PRODUCTS SOLD BY TURCK INC. INCLUDING MULTI-SAFE, MULTI-MODUL, MULTI-CART AND RELATED AMPLIFIER PRODUCTS, RELAYS AND TIMERS.

(24-MONTH STANDARD WARRANTY) FOR ENCODERS.

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Network Media Products

Warranty Terms and Conditions

5-YEAR WARRANTY FOR INDUCTIVE AND CAPACITIVE PROXIMITY SENSORS: The periods covered for the above WARRANTIES and Products shall be 12 MONTHS, 18-MONTHS, 24-MONTHS and 5-YEARS, respectively, from the date of shipment from TURCK.

ADDITIONAL SPECIFIC TERMS FOR - (continued)

LIFETIME WARRANTY (OPTIONAL - REGISTRATION REQUIRED) FOR INDUCTIVE, INDUCTIVE MAGNET OPERATED AND CAPACITIVE PROXIMITY SENSORS SOLD TO THE ORIGINAL PURCHASER FOR THE LIFETIME OF THE ORIGINAL APPLICATION.

The following terms apply to the LIFETIME WARRANTY in addition to the General Terms:

- 1) This WARRANTY shall be effective only when the LIFETIME WARRANTY REGISTRATION has been completed, signed by the End User and an authorized **TURCK** Representative or Distributor and has been received by **TURCK** no later than six (6) months after installation in the End User's Plant, or two (2) years from the date product was shipped from **TURCK**, whichever is sooner.
- 2) This warranty is available only to **TURCK's** authorized Representatives, Distributors and to the Original User. (The term "Original User" means that person, firm, or corporation which first uses the Product on a continuous basis in connection with the operation of a production line, piece of machinery, equipment, or similar device.) In the event the ownership of the product is transferred to a person, firm or corporation other than the Original User, this WARRANTY shall terminate.
- 3) This WARRANTY is applicable only to the Original Application. In the event the machinery, equipment, or production line to which the Product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.
- 4) This WARRANTY shall be valid only if the Product was purchased by the Original User from **TURCK**, or from an authorized **TURCK** Distributor, or was an integral part of a piece of machinery and equipment obtained by the Original user from an Original Equipment Manufacturer, which itself, was purchased directly from **TURCK** or from an authorized Distributor.

PURCHASER'S REMEDIES

This Remedy shall apply to all WARRANTIES. If a **TURCK** Distributor desires to make a WARRANTY Claim, the Distributor shall, if requested by **TURCK**, ship the Product to **TURCK's** factory in Minneapolis, Minnesota, postage or freight prepaid. If the User desires to make a WARRANTY Claim, they shall notify the authorized **TURCK** Distributor from whom it was purchased or, if such Distributor is unknown, shall notify **TURCK**. **TURCK** shall, at its option, take any of the following two courses of action for any products which **TURCK** determines are defective in materials or workmanship.

- 1) Repair or replace the Product and ship the Product to the Original Purchaser or to the authorized **TURCK** Distributor, postage or freight prepaid; or
- 2) Repay to the Original Purchaser that price paid by the Original Purchaser; provided that if the claim is made under the LIFETIME WARRANTY, and such Product is not then being manufactured by **TURCK**, then the amount to be repaid by **TURCK** to the Original Purchaser shall be reduced according to the following schedule:

<u>Number of Years Since Date of Purchase by Original Purchaser</u>	<u>Percent of Original Purchase Price To Be Paid by TURCK</u>
10	50%
15	25%
20	10%
More than 20	5%

PURCHASER'S REMEDIES SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL PURCHASER'S SITE. TURCK SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION.

CONSIDER SAFETY AND PROTECTION PRECAUTIONS

TURCK takes great care to design and build reliable and dependable products, however, some products can fail eventually. You must take precautions to design your equipment to prevent property damage and personal injury in the unlikely event of failure. As a matter of policy, **TURCK** does NOT recommend the installation of electronic controls as the sole device FOR THE PROTECTION OF PERSONNEL in connection with power driven presses, brakes, shears and similar equipment and, therefore, the customer should build in redundancy or dual control using approved safety devices for these applications.