Kübler by TURCK
Absolute Encoders

Sendix Absolute with Fieldbus Interface

Singleturn, Multiturn - with solid or hollow shaft
Up to 17 Bit singleturn, 12 Bit multiturn

- Up-to-the-minute fieldbus profiles
- Rugged, proven Sendix design
- High speed
- Fast simple start-up thanks to
  - terminal bus cover
  - M12 connectors
  - diagnostic LEDs
  - bus programmable parameters
### Geared vs. Electronic

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Geared Multiturn NEW!</th>
<th>Existing Type Series Electronic Multiturn</th>
</tr>
</thead>
<tbody>
<tr>
<td>For Use Near Strong Magnetic Fields, e.g. for Geared Motors with Brake</td>
<td><strong>Very Good:</strong> Sendix absolute encoders are highly resistant to magnetic fields. They succeed against other geared solutions, which to some extent use magnetic sensor technology. No battery required!</td>
<td><strong>Limited:</strong> Consult factory.</td>
</tr>
<tr>
<td>Fast, High Precision Feedback</td>
<td><strong>Very Good:</strong> Extremely fast, with feedback cycle times &lt;20 µs, additional incremental RS422 (TTL compatible) or SIN/COS track with 2048 pulses as option.</td>
<td><strong>Good:</strong> With optional incremental RS422 tracks with 2048 pulses (TTL compatible).</td>
</tr>
<tr>
<td>Outdoor Applications, Wet Weather</td>
<td><strong>Very Good:</strong> Sendix absolute up to IP 67.</td>
<td><strong>Good:</strong> Up to IP 65.</td>
</tr>
<tr>
<td>Very High or Low Temperatures, e.g. Outdoor Applications</td>
<td><strong>Very Good:</strong> Sendix absolute for a wide temperature range of -40°C up to +90°C.</td>
<td><strong>Good:</strong> -20°C to +80°C.</td>
</tr>
<tr>
<td>Limited Space, Large Hollow Shaft</td>
<td><strong>Good:</strong> Sendix absolute is the first encoder on the market to offer a through hollow shaft up to 14 mm or blind hub shaft solutions up to 15 mm.</td>
<td><strong>Very Good:</strong> Integrated ASIC and Intelligent Sensing Technology permits hollow shafts up to 28 mm or the slimmest multiturn encoder on the market, with an installation depth from only 42 mm with through hollow shaft.</td>
</tr>
<tr>
<td>Programmability</td>
<td><strong>Limited:</strong> Single-turn, Resolution, Offset, Direction, configured by factory (configuration software in development).</td>
<td><strong>Very Good:</strong> Fully scaleable with additional features like 4 programmable outputs (with EzTurn).</td>
</tr>
<tr>
<td>Set Up</td>
<td><strong>Very Good:</strong> SET-Push button and Status-LED ease start-up, additional DIR-and SET-Inputs.</td>
<td><strong>Good:</strong> SET-and DIR-Inputs.</td>
</tr>
</tbody>
</table>
## Kübler by TURCK
### Absolute Encoders

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<th></th>
<th>T8.5853</th>
<th>T8.5873</th>
<th>T8.5858</th>
<th>T8.5878</th>
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<tr>
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✓ = available as standard product
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Kübler by TURCK
Absolute Encoders

**Absolute, Singleturn Shafted Type T8.5853**

- **SSI, BiSS**

**Flange**
1 = Clamping Flange Ø58 mm, IP 65
2 = Servo Flange Ø58 mm, IP 65
3 = Clamping Flange Ø58 mm, IP 67
4 = Servo Flange Ø58 mm, IP 67
5 = Square Flange 2.57/63.5 mm, IP 65
6 = Servo Flange 2.57/63.5 mm, IP65
7 = Square Flange 2.57/63.5 mm, IP 67
8 = Servo Flange 2.57/63.5 mm, IP67

**Shaft**
1 = Ø6 mm x 10 mm
2 = Ø10 mm x 20 mm
3 = Ø1/4" mm x 7/8"
4 = Ø3/8" x 7/8"

**Input / Output Circuit**
1 = 5 VDC / SSI or BiSS interface
2 = 10-30 VDC / SSI or BiSS interface
3 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos
4 = 10-30 VDC / SSI or BiSS interface, and 2048 ppr SinCost(M23)
5 = 5 VDC / SSI or BiSS interface, with supply voltage monitoring output
6 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos, with supply voltage monitoring output
7 = 5 VDC / SSI and BiSS and 2048 ppr-incremental track RS422 (TTL-comp.)
8 = 10-30 VDC / SSI or BiSS and 2048 ppr-incremental track RS422 (TTL-comp.)
9 = 5 VDC / SSI or BiSS and 2048 incremental track RS422 (TTL-comp.), with supply voltage monitoring output

1) Status LED internally monitors encoder parameters such as; sensor condition, temperature, under and over voltage.
2) Preset value, factory-programmable.
3) Set and Direction are physical inputs for setting: 0 position (or any factory predefined value); controls rotation of shaft (CW/CCW) for increasing counts. Status output is discrete output linked to the LED status indicator.
4) The Set button and Status LED are located on the rear of the encoder cover. Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

**Features / Benefits**
- Update rate of 100 KHz for real time transmission
- SSI clock rate to 2MHz
- BiSS clock rate to 10MHz
- Captive bearings
- Sinusoidal or square wave incremental signals (optional)
- Wide temperature range
**Industrial Automation**

**Sendix Absolute, Singleturn Shafted Type T8.5853 Specifications SSI, BiSS**

**Mechanical Characteristics:**

- **Max. Speed w/o Shaft Sealing (IP 65):** 12000 RPM (Peak), 10000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/o Shaft Sealing (IP 65):** 8000 RPM (Peak), 5000 RPM (Continuous) (up to Tmax)
- **Max. Speed w/Shaft Sealing (IP 67):** 11000 RPM (Peak), 9000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/Shaft Sealing (IP 67):** 8000 RPM (Peak), 5000 RPM (Continuous) (up to Tmax)

**Protection Rating:** IP 65 (IP 67 with Shaft Seal)

**Operating Temperature:** -40° to +90°C (-40° to +194°F)

**Shock Resistance:** Up to 250 g

**Vibration Resistance:** Up to 100 g, 55-2000 Hz

**Humidity:** 98% Relative, Non-Condensing

**Weight:** Appr. 0.77lbs

**Materials:** Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc; Cable: PVC

**Starting Torque w/o Shaft Sealing (IP 65):** <0.089 in lbf

**Starting Torque w/Shaft Sealing (IP 67):** <0.443 in lbf

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**General Electrical Characteristics:**

- **Interface:** BiSS, SSI / 5 VDC, BiSS, SSI / 10-30 VDC
- **Output Driver:** RS 485 (Transceiver Type)
- **Current Consumption (Typ./Max.):** 70 mA @ 5 VDC, 20 mA @ 24 VDC
- **Load / Channel (Max.):** ±20 mA
- **Signal Level High (Typ.):** 3.8 V
- **Signal Level Low (Typ.):** 1.3 V
- **Short-Circuit Proof:** Yes
- **Reverse Polarity Protection:** Yes

**Interface Characteristics SSI:**

- **Singleturn Resolution:** 10-14 Bits and 17 Bits
- **Code:** Binary or Gray
- **SSI Clock Rate:** ≤14 bits: 50 kHz - 2 MHz
- **Monoflop Time:** ≥15 μs
- **Time Jitter (Data Request to Position Latch):** <1μs up to 14 bits, ≤4 μs at 15-17 bits
- **Status and Parity Bit:** Optional on Request

**Note:** If clock starts cycling within monoflop time a second data transfer starts with the same data, double clocking is useful for data verification. If clock starts cycling after monoflop time the data transfer starts with updated values. Max. update rate is depending on clock speed, data length and monoflop-time.

1) Cable Versions: -30° to +75°C (-22° to 167°F).
2) Short-circuit to 0 V or to output, one channel at a time, supply voltage correctly applied.
3) Other options upon request.
Kübler by TURCK
Absolute Encoders

Interface Characteristics BiSS:

- **Singleturn Resolution**: 10-14 Bits and 17 Bits, Customer Programmable
- **Code**: Binary
- **Interfaces**: RS 485
- **Clock Rate**: Up to 10 MHz
- **Max. Update Rate**: <10 μs, Depending on Clock Speed and Data Length
- **Time Jitter (data request to position latch)**: ≤1 μs

Note: Bidirectional, programmable parameters are: resolution, code, direction, alarms and warnings.

Multicycle data output, e.g. for temperature.

CRC data verification.

SET (Zero or Defined Value) and DIRection (cw/ccw) Control Inputs:

- **Input Characteristic**: High Active
- **Receiver Type**: Comparator
- **Signal Level High**: Min. 60% of V+ (Supply Voltage), Max: V+
- **Signal Level Low**: Max. 25% of V+
- **Input Current**: ≤0.5 mA
- **Min. Pulse Duration (SET)**: 10 ms
- **Timeout After SET Input**: 14 ms
- **Reaction Time (DIR Input)**: 1 ms

Status Output:

- **Output Driver**: Open Collector, Internal Pull Up Resistor 22 kΩ
- **Permissible Load**: ≤20 mA
- **Signal Level High**: V+
- **Signal Level Low**: <1 V
- **Active At**: Low

Optical sensor path faulty (code error, LED error), low voltage and overtemperature.

1) Other options upon request.
Status LED (Red, Option):
LED on at . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

SET Control Button (Zero or Defined Value, Option):
Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

Option Incremental Output (A/B), 2048 ppr:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Sin/Cos</th>
<th>RS422 (TTL Compatible)</th>
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<td>-3dB Frequency</td>
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<tr>
<td>Signal Level</td>
<td>1 Vpp (±20%)</td>
<td>High: min 2.5 V</td>
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<td></td>
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<td>Low: max. 0.5 V</td>
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<tr>
<td>Short Circuit Proof</td>
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1) Short-circuit to 0 V or to output, one channel at a time, supply voltage correctly applied.
### Kübler by TURCK

**Absolute Encoders**

### Sendix Absolute, Singleturn Shafted Type T8.5853 Specifications  
**SSI, BiSS**

#### Pinouts (Notes 1), 2), 3)

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<th>Mating Cordset</th>
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<tr>
<td>M12 Pinout</td>
<td>E-RKS 8T-264-*</td>
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<tr>
<td>M23 Pinout (12-Pin)</td>
<td>E-CKS 12-6901-*/A</td>
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</table>

1) See cable section for additional options.
2) "S" denotes shield tied to coupling nut.
3) * = length in meters, available in 0.1 meter increments ≥0.2 meters.

#### Output Circuit 1 or 2 and (2 Control Inputs, 1 Status Output)  
(Connection 1,2,3 or 4)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Status</th>
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#### Output Circuit 5 and (2 Control Inputs, 1 Status Output, Voltage Monitor Outputs)  
(Connection 1,2,3 or 4)

<table>
<thead>
<tr>
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<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Status</th>
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<td>-</td>
<td>-</td>
<td>Shield</td>
</tr>
</tbody>
</table>

#### Output Circuit 3, 4, 7 or 8, and (2 Control Inputs or Incremental Track, Sine/Cosine)  
(Connection 1,2,3 or 4)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Sin A</th>
<th>Sin inv A-</th>
<th>Cos B</th>
<th>Cos inv B-</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>PH</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Shield</td>
</tr>
</tbody>
</table>

#### Output Circuit 6 or 9 and (Sine/Cosine, or Incremental Monitor, Voltage Outputs)  
(Connection 1,2,3 or 4)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>Sin A</th>
<th>Sin inv A-</th>
<th>Cos B</th>
<th>Cos inv B-</th>
<th>0 V Sens</th>
<th>V+ Sens</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>PH</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Shield</td>
</tr>
</tbody>
</table>

#### Output Circuit 1 or 2 and (2 Control Inputs)  
(Connecting 5 or 6)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>SET</th>
<th>DIR</th>
<th>Shield/PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>PH</td>
</tr>
</tbody>
</table>

---

**Output Circuit 1 or 2 and (2 Control Inputs)  
(Connecting 5 or 6)**

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>SET</th>
<th>DIR</th>
<th>Shield/PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>PH</td>
</tr>
</tbody>
</table>
Industrial Automation

Sendix Absolute, Singleturn Shafted Type T8.5853 Dimensions SSI, BiSS

T8.5853 Square Flanges 5 & 7
Cable Connection 1 & 2

T8.5853 Clamping Flanges 1 & 3
M23 Connection 3 & 4

T8.5853 Servo Flanges 2 & 4
M12 Connection 5 & 6

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TURCK Inc. 3000 Campus Drive Minneapolis, MN 55441 Application Support: 1-800-544-7769 Fax: (763) 553-0708 www.turck.com

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Kübler by TURCK
Absolute Encoders

Sendix Absolute, Singleturn Shafted Type T8.5858 CANopen

Flange
1 = Clamping Flange Ø58 mm, IP 65
2 = Servo Flange Ø58 mm, IP 65
3 = Clamping Flange Ø58 mm, IP 67
4 = Servo Flange Ø58 mm, IP 67
5 = Square Flange 2.5"/63.5 mm, IP 65
6 = Servo Flange 2.5"/63.5 mm, IP65
7 = Square Flange 2.5"/63.5 mm, IP 67
8 = Servo Flange 2.5"/63.5 mm, IP67

Shaft
1 = Ø6 mm x 10 mm
2 = Ø10 mm x 20 mm
3 = Ø1/4" mm x 7/8"
4 = Ø3/8" x 7/8"

Input / Output Circuit
2 = T0-30 VDC CANopen DS 301 V4.02

Options
2 = No option
3 = Set button

Fieldbus Profile
21 = CANopen Encoder-Profile
DS 406 V3.1

Connection Type
1 = Removable bus terminal cover,
with radial screwed cable passage
2 = Removable bus terminal cover
with 2 - M12 eurofast® connectors
A = Fixed connection without bus terminal
cover with radial cable (PVC 2 meter) 2)
E = Fixed connection without bus terminal
cover with 1 - M12 eurofast radial connector 2)
F = Fixed connection without bus terminal
cover with 2 - M12 eurofast radial connectors 2)
I = Fixed connection without bus terminal
cover with 1 - M23 multifast® radial connector 2)
J = Fixed connection without bus terminal
cover with 2 - M23 multifast radial connectors 2)

Features / Benefits
• Captive bearings
• Wide temperature range
• Many connector styles; M12, fixed cover, removable cover, etc
• Heavy duty diecast cover
• Compact size
• High speed integrated OptoASIC
• High IP rating

1) CANopen parameters can also be factory preset. Please consult factory.
2) Baud rate, address, and termination cannot be set through dip-switches and
must be configured via the bus program.
**Industrial Automation**

**Sendix Absolute, Singleturn Shafted Type T8.5858 Specifications**

**Mechanical:**

- **Max. Speed w/o Shaft Sealing (IP 65):** 9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/o Shaft Sealing (IP 65):** 7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)
- **Max. Speed w/Shaft Sealing (IP 67):** 8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/Shaft Sealing (IP 67):** 6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)
- **Protection Rating:** IP 65 (IP 67 with Shaft Seal)
- **Operating Temperature:** -40° to +80°C (-40° to 176°F)
- **Shock Resistance:** Up to 250 g
- **Vibration Resistance:** Up to 100 g, 55-2000 Hz
- **Humidity:** 98% Relative, Non-Condensing
- **Weight:** Appr. 1.67 lbs with Bus terminal; Appr. 1.10 lbs with Fixed Connection
- **Materials:** Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC
- **Starting Torque w/o Shaft sealing (IP 65):** 1.42 oz.in. (<0.01Nm)
- **Starting Torque w/Shaft sealing (IP 67):** 7.08 oz.in. (<0.05Nm)

1) Cable versions: -30° to +75°C (-22° to 167°F).

**General Electrical Characteristics:**

- **Supply Voltage:** 10-30 VDC
- **Current Consumption (w/o Output Load):** Max. 60 mA, 24 VDC
- **Reverse Polarity Protection at Power Supply:** Yes

Conforms to CE Requirements Acc. to EN 61000-6-1, EN61000-6-4 and EN 61000-6-3

**Interface Characteristics CANopen:**

- **Singleturn Resolution (Max., Scaleable):** 1-65536 (16 Bits), Default Scale Value is Set to 8192 (13 Bits)
- **Code:** Binary
- **Interface:** CAN High Speed According ISO 11898, Basic - and Full-CAN, CAN Specification 2.0 B

**General Information About CANopen:**

The CANopen encoders of the 5858 series support the latest CANopen communication profile according to DS 301 V4.02. In addition, device-specific profiles like the encoder profile DS 406 V3.1 are available. The following operating modes may be selected: Polled Mode, Cyclic Mode, Sync Mode and a High Resolution Sync Protocol. Additionally, scale factors, preset values, limit switch values and many other parameters can be programmed via the CANBus. When switching the device on, all parameters, which have been saved on an EEPROM to protect them against power failure, are reloaded. The following output values may be combined by PDO mapping: position, speed, acceleration, and status.
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Absolute Encoders

**CANopen Communication Profile DS 301 V4.02:**

Among others, the following functionality is integrated:
- Class 2 Functionality
- NMT slave
- Heartbeat protocol
- High resolution sync protocol identity object
- Error behavior object
- Variable PDO mapping self-start programmable (power on to operational), 3 sending PDO's
- 1 Receiving PDO for synchronous preset operation with minimal jitter
- Node address, baud rate and CANbus
- Programmable termination

**CANopen Encoder Profile DS 406 V3.1:**

The following parameters can be programmed:
- Event mode
- Units for speed selectable (steps/sec or RPM)
- Factor for speed calculation (e.g. measuring wheel periphery) Integration time for speed value of 1-32
- 2 work areas with 2 upper and lower limits and the corresponding output states
- Variable PDO mapping for position, speed, acceleration, work area, status
- Extended failure management for position sensing with integrated temperature control
- User interface with visual display of bus and failure status - 3 LED's
- Optional - 32 CAM's programmable
- Customer-specific memory - 16 Bytes

*Note:* All profiles stated here: Key-features.

The object 6003h "Preset" is assigned to an integrated key, accessible from the outside "Watchdog-controlled" device.

**SET Control Button (Zero or Defined Value, Option):**

Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

**Diagnostic LED (yellow):**

LED on at .... Optical sensor path faulty (code error, LED error), low voltage and overtemperature

**Protocol**

- Protocol ............... CANopen Profile DS 406 V3.1 with Manufacturer-Specific Add-Ons
- Baud Rate ............... 10-1000 kBit/s (Set by DIP Switches/Software Configurable)
- Node Address ........... 1-127 (Set by Rotary Switches/Software Configurable)
- Termination Switchable .... Set by DIP Switches, Software Configurable

Price conscience encoders are available with optional connectors or cable connections in place of the costlier removable terminal box versions. Additionally, these encoders do not have user accessible DIP switches and require the user to program the address and baud rate through the software.

The models with the terminal cover include an integrated T-shaped coupler with the bus and power connections utilizing simple M12 connectors. The device address is set with two rotary switches while a bank of DIP switches set the baud rate and also allows the connection of a termination resistor.

Finally, all versions include three LED's located on the rear of the housing to indicate the status of the CAN bus as well as the status of the internal diagnostics.
## Absolute, Singleturn Shafted Type T8.5858 Specifications

### CANopen

#### Pinouts

<table>
<thead>
<tr>
<th>Direction</th>
<th>OUT</th>
<th>IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>CAN Ground</td>
<td>CAN Low (-)</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>CG</td>
<td>CL</td>
</tr>
</tbody>
</table>

#### Standard Wiring / Pin Configuration

**Bus Terminal Cover with Terminal Box**

<table>
<thead>
<tr>
<th>Direction</th>
<th>OUT</th>
<th>IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>0 VOLT Power Supply</td>
<td>+VOLT Power Supply</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>0 V</td>
<td>+V</td>
</tr>
<tr>
<td>Cable Color:</td>
<td>BK</td>
<td>RD</td>
</tr>
</tbody>
</table>

**M23 Connector or M12 Connector**

<table>
<thead>
<tr>
<th>Direction</th>
<th>OUT</th>
<th>IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>0 VOLT Power Supply</td>
<td>+VOLT Power Supply</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>0 V</td>
<td>+V</td>
</tr>
<tr>
<td>M23 PIN Assignment:</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>M12 PIN Assignment:</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**Bus Terminal Cover with 2 - M12, 2 - M12, 2 - M23**

<table>
<thead>
<tr>
<th>Direction</th>
<th>OUT</th>
<th>IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>CAN Ground</td>
<td>CAN Low (-)</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>CG</td>
<td>CL</td>
</tr>
<tr>
<td>M23 PIN Assignment:</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>M12 PIN Assignment:</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

---

1) See cable section for additional options.
2) ‘S’ denotes shield tied to coupling nut.
3) * = length in meters, available in 0.1 meter increments ≥0.2 meters.
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Absolute Encoders

Absolute, Singleturn Shafted Type T8.5858 Dimensions

T8.5858 Servo Flanges 2 & 4
Cable Connection 1

T8.5858 Clamping Flanges 1 & 3
M12 Connection 2

T8.5858 Clamping Flanges 1 & 3
Cable Connection A

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Absolute, Singleturn Shafted Type T8.5858 Dimensions

T8.5858 Clamping Flanges 1 & 3
M12 Connection E

T8.5858 Clamping Flanges 1 & 3
M12 Connection F

T8.5858 Servo Flanges 2 & 4
M23 Connection I
Kübler by TURCK
Absolute Encoders

Sendix Absolute, Singleturn Shafted Type T8.5858 Dimensions CANopen

T8.5858 Square Flanges 5 & 7
M23 Connection J
Industrial Automation

**Sendix Absolute, Singleturn Shafted Type T8.5858**

**PROFIBUS®-DP**

**Flange**

1 = Clamping Flange Ø58 mm, IP 65  
2 = Servo Flange Ø58 mm, IP 65  
3 = Clamping Flange Ø58 mm, IP 67  
4 = Servo Flange Ø58 mm, IP 67  
5 = Square Flange 2.5"/63.5 mm, IP 65  
6 = Servo Flange 2.5"/63.5 mm, IP65  
7 = Square Flange 2.5"/63.5 mm, IP 67  
8 = Servo Flange 2.5"/63.5 mm, IP67

**Shaft**

1 = Ø6 mm x 10 mm  
2 = Ø10 mm x 20 mm  
3 = Ø1/4" mm x 7/8"  
4 = Ø3/8" x 7/8"

**Input / Output Circuit**

3 = 10-30 VDC PROFIBUS-DP V0 Encoder Profile V 1

**Options**

2 = No option  
3 = Set button

**Fieldbus Profile**

31 = PROFIBUS-DP-V0  
Encoder profile class 2

**Connection Type**

1 = Removable bus terminal cover,  
with radial screwed cable passage  
2 = Removable bus terminal cover  
with 3 - M12 eurofast® connectors

**Features / Benefits**

- Captive bearings  
- Wide temperature range  
- Removable terminal box with M12 connector and cable versions  
- Heavy duty diecast cover  
- Compact size  
- High speed to integrated OptoASIC  
- High IP rating
Kübler by TURCK
Absolute Encoders

Absolute, Singleturn Shafted Type T8.5858 Specifications

Mechanical:
- Max. Speed w/o Shaft Sealing (IP 65): 9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)
- Max. Speed w/o Shaft Sealing (IP 65): 7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)
- Max. Speed w/Shaft Sealing (IP 67): 8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)
- Max. Speed w/Shaft Sealing (IP 67): 6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)
- Protection Rating: IP 65 (IP 67 with Shaft Seal)
- Operating Temperature: -40°C to +80°C (-40°F to 176°F)
- Shock Resistance: Up to 250 g
- Vibration Resistance: Up to 100 g, 55-2000 Hz
- Humidity: 98% Relative, Non-Condensing
- Weight: Appr. 1.67 lbs with Bus terminal; Appr. 1.10 lbs with Fixed Connection
- Materials: Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC
- Starting Torque w/o Shaft sealing (IP 65): 1.42 oz.in.(<0.01Nm)
- Starting Torque w/Shaft sealing (IP 67): 7.08 oz.in.(<0.05Nm)

1) Cable versions: -30° to +75°C (-22° to 167°F).

General Electrical Characteristics:
- Supply Voltage: 10-30 VDC
- Current Consumption (w/o Output Load): Max. 90 mA, 24 VDC
- Reverse Polarity: Yes
- Protection at Power Supply: Conforms to CE Requirements Acc. to EN 61000-6-1, EN61000-6-4 and EN 61000-6-3

Interface Characteristics PROFIBUS-DP:
- Singleturn Resolution (Max., Scaleable): 1-65536 (16 Bits), Default Scale Value is Set to 8192 (13 Bits)
- Code: Binary
- Interface: Specifications According to PROFIBUS-DP 2.0 Standard RS-485 Driver Galvanically isolated
- Protocol: PROFIBUS Encoder Profile V1.1 Class 1 and Class 2 with Manufacturer-specific Enhancements

PROFIBUS Encoder-Profile V1.1:
The PROFIBUS-DP device profile describes the functionality of the communication and the user-specific component with in the PROFIBUS field bus system. For encoders, the encoder profile is definitive. Here the individual objects are defined independent of the manufacturer. Furthermore, the profiles offer space for additional manufacturer-specific functions; this means that PROFIBUS-compliant device systems can be used now with the guarantee that they are ready for the future too.
The Following Parameters Can Be Programmed:

- Direction of rotation
- Scaling - Number of steps per revolution
- Preset value
- Diagnostics mode

SET Control Button (Zero or Defined Value, Option):
Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

Diagnostic LED (yellow):
LED on at . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

Protocol

- Baud Rate . . . . . . . . . . . . 12 Mbits/s
- Node Address . . . . . . . . . . 1-127 (Set by Rotary Switches)
- Termination Switchable . . . . Set by DIP Switches, Software Configurable

The Following Functionality Is Integrated:

- Galvanic isolation of the bus stage with DC/DC converter
- Line driver acc. to RS 485 max. 12 MB
- Address programmable via DIP switches
- Diagnostics LED
- Full class 1 and class 2 functionality
### Standard Wiring / Pin Configuration

#### Terminal Assignment with Terminal Box

<table>
<thead>
<tr>
<th>Signal</th>
<th>BUS IN</th>
<th>BUS OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>A</td>
<td>0 V</td>
</tr>
<tr>
<td>0 V</td>
<td>+V</td>
<td>B</td>
</tr>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Terminal Assignment M12 - 3 Connector Version

<table>
<thead>
<tr>
<th>Signal</th>
<th>BUS-A</th>
<th>BUS-B</th>
<th>Shield</th>
<th>Male Pinout</th>
<th>Mating Cordsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus In</td>
<td>Pin:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Power Supply

<table>
<thead>
<tr>
<th>Signal</th>
<th>BUS-VDC</th>
<th>BUS-A</th>
<th>BUS_GND</th>
<th>BUS-B</th>
<th>Shield</th>
<th>Female Pinout</th>
<th>Mating Cordsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

1) For powering an external PROFIBUS-DP terminating resistor.
2) See cable section for additional options.
3) "S" denotes shield tied to coupling nut.
4) * = length in meters, available in 0.1 meters increments ≥0.2 meters.
### Absolute, Singleturn Hollow Shaft Type T8.5873

#### Flange
1. Flange with torque stop IP 65
2. Flange with torque stop IP 67
3. Flange with stator coupling pitch circle ∅ 65, IP 65
4. Flange with stator coupling pitch circle ∅ 65, IP 67
5. Flange with stator coupling pitch circle ∅ 63, IP 65
6. Flange with stator coupling pitch circle ∅ 63, IP 67

#### Hollow Shaft
3 = ∅10 mm
4 = ∅12 mm
5 = ∅14 mm
6 = ∅15 mm (blind hub shaft)
8 = ∅9.52 mm [3/8"]
9 = ∅12.7 mm [½”]

#### Input / Output Circuit
1 = 5 VDC / SSI or BiSS interface
2 = 10-30 VDC / SSI or BiSS interface
3 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos
4 = 10-30 VDC / SSI or BiSS interface, and 2048 ppr SinCos(M23)
5 = 5 VDC / SSI or BiSS interface, with supply voltage monitoring output
6 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos, with supply voltage monitoring output
7 = 5 VDC / SSI or BiSS and 2048 ppr-incremental track Rs422 (TTL-comp.)
8 = 10-30 VDC / SSI or BiSS and 2048 ppr-incremental track Rs422 (TTL-comp.)
9 = 5 VDC / SSI or BiSS and 2048 incremental track Rs422 (TTL-comp.), with supply voltage monitoring output

#### Options
1) No option
2) Status LED
3) Set button and status LED

#### Resolution
A = 10 bit
1 = 11 bit
2 = 12 bit
3 = 13 bit
4 = 14 bit
7 = 17 bit

#### Code
B = SSI, binary
C = BiSS, binary
G = SSI, Gray

#### Connection Type
2 = Radial cable (PVC, 1 meter)
4 = Radial 12-pin, M23 (multifast®)
6 = Radial M12, 8-pin (eurofast®)

---

1) Status LED internally monitors encoder parameters such as; sensor condition, temperature, under and over voltage.
2) Preset value, factory-programmable.
3) Set and Direction are physical inputs for setting: 0 position (or any factory predefined value); controls rotation of shaft (CW/CCW) for increasing counts. Status output is discrete output linked to the LED status indicator.
4) The Set button and Status LED are located on the rear of the encoder cover. Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

---

**Features / Benefits**

- Update rate of 100 KHz for real time transmission
- Sinusoidal or square wave incremental signals (optional)
- SSI clock rate to 2Mhz
- BiSS clock rate to 10Mhz
- Captive bearings
- Wide temperature range
### Mechanical:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Speed w/o Shaft Sealing (IP 65)</td>
<td>9000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Max. Speed w/ Shaft Sealing (IP 65)</td>
<td>6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)</td>
</tr>
<tr>
<td>Max. Speed w/ Shaft Sealing (IP 67)</td>
<td>8000 RPM (Peak), 4000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Protection Rating</td>
<td>IP 65 (IP 67 with Shaft Seal)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40° to +90°C (-40° to +194°F)</td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>Up to 250 g</td>
</tr>
<tr>
<td>Vibration Resistance</td>
<td>Up to 100 g, 55-2000 Hz</td>
</tr>
<tr>
<td>Humidity</td>
<td>98% Relative, Non-Condensing</td>
</tr>
<tr>
<td>Weight</td>
<td>Appr. 0.77lbs</td>
</tr>
<tr>
<td>Materials</td>
<td>Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC</td>
</tr>
<tr>
<td>Starting Torque w/o Shaft sealing (IP 65)</td>
<td>4.24 oz.in./(&lt;0.03Nm)</td>
</tr>
<tr>
<td>Starting Torque w/ Shaft sealing (IP 67)</td>
<td>7.08 oz.in./(&lt;0.05 Nm)</td>
</tr>
</tbody>
</table>

### General Electrical Characteristics:

<table>
<thead>
<tr>
<th>Interface</th>
<th>BiSS, SSI / 5 VDC</th>
<th>BiSS, SSI / 10-30 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Driver</td>
<td>RS 485 (Transceiver Type)</td>
<td>RS 485 (Transceiver Type)</td>
</tr>
<tr>
<td>Current Consumption (Typ./Max.)</td>
<td>70 mA @ SVDC</td>
<td>±20 mA @ 24 VDC</td>
</tr>
<tr>
<td>Load / Channel (Max.)</td>
<td>±20 mA</td>
<td>±20 mA</td>
</tr>
<tr>
<td>Signal Level High (Typ.)</td>
<td>3.8 V</td>
<td>3.8 V</td>
</tr>
<tr>
<td>Signal Level Low (Typ.)</td>
<td>1.3 V</td>
<td>1.3 V</td>
</tr>
<tr>
<td>Short-Circuit Proof</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Reverse Polarity Protection</td>
<td>No.</td>
<td>No.</td>
</tr>
</tbody>
</table>

### Interface Characteristics SSI:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singleturn Resolution</td>
<td>10-14 Bits and 17 Bits[^3]</td>
</tr>
<tr>
<td>Code</td>
<td>Binary or Gray</td>
</tr>
<tr>
<td>SSI Clock Rate</td>
<td>≤14 bits: 50 kHz - 2 MHz</td>
</tr>
<tr>
<td>Monoflop Time</td>
<td>≥15 μs[^3]</td>
</tr>
<tr>
<td>Time Jitter (Data Request to Position Latch)</td>
<td>&lt;1μs up to 14 bits</td>
</tr>
<tr>
<td></td>
<td>≤4 μs at 15-17 bits</td>
</tr>
<tr>
<td>Status and Parity Bit</td>
<td>Optional on Request</td>
</tr>
</tbody>
</table>

**Note:** If clock starts cycling within monoflop time a second data transfer starts with the same data, double clocking is useful for data verification. If clock starts cycling after monoflop time the data transfer starts with updated values. Max. update rate is depending on clock speed, data length and monoflop-time.

[^3]: Other options upon request.
# Absolute, Singleturn Hollow Shaft Type T8.5873 Specifications

## Interface Characteristics BiSS:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singleturn Resolution</td>
<td>10-14 Bits and 17 Bits, Customer Programmable&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Code</td>
<td>Binary</td>
</tr>
<tr>
<td>Interfaces</td>
<td>RS 485</td>
</tr>
<tr>
<td>Clock Rate</td>
<td>Up to 10 MHz</td>
</tr>
<tr>
<td>Max. Update Rate</td>
<td>&lt;10 μs, Depending on Clock Speed and Data Length</td>
</tr>
<tr>
<td>Time Jitter (data request to position latch)</td>
<td>≤1 μs</td>
</tr>
</tbody>
</table>

Note: Bidirectional, programmable parameters are: resolution, code, direction, alarms and warnings. Multicyle data output, e.g. for temperature. CRC data verification.

## SET (Zero or Defined Value) and DIRection (cw/ccw) Control Inputs:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Characteristic</td>
<td>High Active</td>
</tr>
<tr>
<td>Receiver Type</td>
<td>Comparator</td>
</tr>
<tr>
<td>Signal Level High</td>
<td>Min. 60% of V+ (Supply Voltage), Max: V+</td>
</tr>
<tr>
<td>Signal Level Low</td>
<td>Max. 25% of V+</td>
</tr>
<tr>
<td>Input Current</td>
<td>≤0.5 mA</td>
</tr>
<tr>
<td>Min. Pulse Duration (SET)</td>
<td>10 ms</td>
</tr>
<tr>
<td>Timeout After SET Input</td>
<td>14 ms</td>
</tr>
<tr>
<td>Reaction Time (DIR Input)</td>
<td>1 ms</td>
</tr>
</tbody>
</table>

## Status Output:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Driver</td>
<td>Open Collector, Internal Pull Up Resistor 22 kΩhm</td>
</tr>
<tr>
<td>Permissible Load</td>
<td>≤20 mA</td>
</tr>
<tr>
<td>Signal Level High</td>
<td>V+</td>
</tr>
<tr>
<td>Signal Level Low</td>
<td>&lt;1 V</td>
</tr>
<tr>
<td>Active At.</td>
<td>Low</td>
</tr>
</tbody>
</table>

Optical sensor path faulty (code error, LED error), low voltage and overtemperature.

<sup>1</sup> Other options upon request.
**Sendix Absolute, Singleturn Hollow Shaft Type T8.5873 Specifications**

**Status LED (Red, Option):**
- LED on at
- Optical sensor path faulty (code error, LED error), low voltage and overtemperature

**SET Control Button (Zero or Defined Value, Option):**
- Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

**Output Sine, Cosine, 2048 ppr (Option):**

<table>
<thead>
<tr>
<th></th>
<th>Sin/Cos</th>
<th>RS422 (TTL Compatible)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3dB Frequency</td>
<td>400 kHz</td>
<td>400 kHz</td>
</tr>
<tr>
<td>Signal Level</td>
<td>1 Vpp (±20%)</td>
<td>High: min 2.5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low: max. 0.5 V</td>
</tr>
<tr>
<td>Short Circuit Proof 1)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

1) Short-circuit to 0 V or to output, one channel at a time, supply voltage correctly applied.
Kübler by TURCK
Absolute Encoders

**Sendix Absolute, Singleturn Hollow Shaft Type T8.5873 Specifications**

### Pinouts

<table>
<thead>
<tr>
<th>Male Encoder View</th>
<th>Mating Cordsets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M12 Pinout</strong></td>
<td>E-RKS 8T-264-*</td>
</tr>
<tr>
<td><strong>M23 Pinout (12-Pin)</strong></td>
<td>E-CKS 12-6901-*/A</td>
</tr>
</tbody>
</table>

**CCW**

<table>
<thead>
<tr>
<th>Output Circuit 1 or 2 and (2 Control Inputs, 1 Status Output) (Connection 1,2,3 or 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
</tr>
<tr>
<td>M23 Pin</td>
</tr>
<tr>
<td>Color</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Circuit 5 and (2 Control Inputs, 1 Status Output, Voltage Monitor Outputs) (Connection 1,2,3 or 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
</tr>
<tr>
<td>M23 Pin</td>
</tr>
<tr>
<td>Color</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Circuit 3, 4, 7 or 8, and (2 Control inputs, or Incremental Track, Sine/Cosine) (Connection 1,2,3 or 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
</tr>
<tr>
<td>M23 Pin</td>
</tr>
<tr>
<td>Color</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Circuit 6 or 9 and (Sine/Cosine, or Incremental Monitor, Voltage Outputs) (Connection 1,2,3 or 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
</tr>
<tr>
<td>M23 Pin</td>
</tr>
<tr>
<td>Color</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output Circuit 1 or 2 and (2 Control Inputs) (Connection 5 or 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
</tr>
<tr>
<td>M12 Pin</td>
</tr>
</tbody>
</table>

---

1) See cable section for additional options.
2) ‘S’ denotes shield tied to coupling nut.
3) * = length in meters, available in 0.1 meter increments ≥0.2 meters.
Kübler by TURCK
Absolute Encoders

**Absolute, Singleturn Hub Shaft Type T8.5878**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Flange** | 1 = Flange with torque stop IP 65  
2 = Flange with torque stop IP 67  
3 = Flange with stator coupling pitch circle Ø 65, IP 65  
4 = Flange with stator coupling pitch circle Ø 65, IP 67  
5 = Flange with stator coupling pitch circle Ø 63, IP 65  
7 = Flange with stator coupling pitch circle Ø 63, IP 67 |
| **Blind Hub Shaft** | 3 = Ø10 mm  
4 = Ø12 mm  
5 = Ø14 mm  
6 = Ø15 mm  
8 = Ø9.52 mm [3/8"]  
9 = Ø12.7 mm [½"] |
| **Input / Output Circuit** | 2 = 10-30 VDC CANopen DS 301 V4.02 |

**Options**

- 2 = No option
- 3 = Set button

**Fieldbus Profile**

1 = CANopen Encoder-Profile  
2 = CANlift DS 417 V1.01

**Connection Type**

1 = Removable bus terminal cover,  
with radial screwed cable passage  
2 = Removable bus terminal cover  
with 2 - M12 eurofast® connectors  
A = Fixed connection without bus terminal  
cover with radial cable (PVC 2 meter)  
E = Fixed connection without bus terminal  
cover with 1 - M12 eurofast radial connector  
F = Fixed connection without bus terminal  
cover with 2 - M12 eurofast radial connectors  
I = Fixed connection without bus terminal  
cover with 1 - M23 multifast® radial connector  
J = Fixed connection without bus terminal  
cover with 2 - M23 multifast radial connectors

**Features / Benefits**

- Captive bearings
- Wide temperature range
- Many connector styles; M12, fixed cover, removable cover, etc
- Heavy duty diecast cover
- Compact size
- High speed integrated OptoASIC
- High IP rating

---

1) CANopen parameters can also be factory preset. Please consult factory.
2) Baud rate, address, and termination can not be set through dip-switches and must be configured via the bus program.
Absolute, Singleturn Hub Shaft Type T8.5878 Specifications

Mechanical:

- Max. Speed w/o Shaft sealing (IP 65) . . . 9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)
- Max. Speed w/o Shaft sealing (IP 65) . . . 7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)
- Max. Speed w/Shaft sealing (IP 67) . . . . 8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)
- Max. Speed w/Shaft sealing (IP 67) . . . . 6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)
- Protection Rating . . . . . . . . . . . . . . . . . . IP 65 (IP 67 with Shaft Seal)
- Operating Temperature: -40° to +80°C (-40° to +176°F)
- Shock Resistance: Up to 250 g
- Vibration Resistance: Up to 100 g, 55-2000 Hz
- Humidity: 98% Relative, Non-Condensing
- Weight: Appr. 1.67 lbs with Bus Terminal Cover; Appr. 1.10 lbs with Fixed Connection
- Materials: Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC

- Starting Torque w/o Shaft sealing (IP 65) . . . 1.42 oz.in.(<0.01Nm)
- Starting Torque w/Shaft sealing (IP 67) . . . 7.08 oz.in.(<0.05Nm)

1) Cable versions: -30° to +75°C (-22° to 167°F).

General Electrical Characteristics:

- Supply Voltage: 10-30 VDC
- Current Consumption (w/o Output Load): Max. 60 mA, 24 VDC
- Reverse Polarity
- Protection at Power Supply (Ub): Yes
- Conforms to CE Requirements Acc. to EN 61000-6-1, EN61000-6-4 and EN 61000-6-3

Interface Characteristics CANopen:

- Singleturn Resolution (Max., Scaleable) . . . 1-65536 (16 Bits), Default Scale Value is Set to 8192 (13 Bits)
- Code: Binary
- Interface: CAN High-Speed According ISO 11898, Basic - and Full-CAN, CAN Specification 2.0 B

General Information About CANopen:

The CANopen encoders of the 5878 series support the latest CANopen communication profile according to DS 301 V4.02. In addition, device-specific profiles like the encoder profile DS 406 V3.1 are available. The following operating modes may be selected: Polled Mode, Cyclic Mode, Sync Mode and a High Resolution Sync Protocol. Additionally, scale factors, preset values, limit switch values and many other parameters can be programmed via the CANBus. When switching the device on, all parameters, which have been saved on an EEPROM to protect them against power failure, are reloaded. The following output values may be combined by PDO mapping: position, speed, acceleration, and status.
Kübler by TURCK
Absolute Encoders

Sendix
Absolute, Singleturn Hub Shaft Type T8.5878 Specifications

CANopen Communication Profile DS 301 V4.02:
Among others, the following functionality is integrated:
Class C2 Functionality
- NMT slave
- Heartbeat protocol
- High resolution sync protocol identity object
- Error behavior object
- Variable PDO mapping self-start programmable (power on to operational), 3 sending PDO’s
- 1 Receiving PDO for synchronous preset operation with minimal jitter
- Node address, baud rate and CANbus
- Programmable termination

SET Control Button (Zero or Defined Value, Option):
Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

Diagnostic LED (yellow):
- LED on at
- Optical sensor path faulty (code error, LED error), low voltage and overtemperature
- Protocol
- CANopen Profile DS 406 V3.1 with Manufacturer-Specific Add-Ons
- Baud Rate
- 10-1000 kbits/s (Set by DIP Switches/Software Configurable)
- Node Address
- 1-127 (Set by Rotary Switches/Software Configurable)
- Termination Switchable
- Set by DIP Switches, Software Configurable

Price conscience encoders are available with optional connectors or cable connections in place of the costlier removable terminal box versions. Additionally, these encoders do not have user accessible DIP switches and require the user to program the address and baud rate through the software.
The models with the terminal cover include an integrated T-shaped coupler with the bus and power connections utilizing simple M12 connectors. The device address is set with two rotary switches while a bank of DIP switches set the baud rate and also allows the connection of a termination resistor.
Finally, all versions include three LED’s located on the rear of the housing to indicate the status of the CAN bus as well as the status of the internal diagnostics.

CANopen Encoder Profile V3.1:
The following parameters can be programmed:
- Event mode
- Units for speed selectable (steps/sec or RPM)
- Factor for speed calculation (e.g. measuring wheel periphery) Integration time for speed value of 1-32
- 2 work areas with 2 upper and lower limits and the corresponding output states
- Variable PDO mapping for position, speed, acceleration, work area, status
- Extended failure management for position sensing with integrated temperature control
- User interface with visual display of bus and failure status - 3 LED’s
- Optional - 32 CAM’s programmable
- Customer-specific memory - 16 Bytes

Note: All profiles stated here: Key-features.
The object 6003h "Preset" is assigned to an integrated key, accessible from the outside 'Watchdog-controlled' device.
### ABSOLUTE, SINGLETURN HUB SHAFT TYPE T8.5878 SPECIFICATIONS

#### Cankopen

**Pinouts**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Encoder View</td>
<td>Female Encoder View</td>
<td>Male Encoder View</td>
</tr>
</tbody>
</table>

#### Standard Wiring / Pin Configuration

<table>
<thead>
<tr>
<th><strong>Bus Terminal Cover with Terminal Box</strong></th>
<th><strong>Connection 1</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direction</strong></td>
<td><strong>OUT</strong></td>
</tr>
<tr>
<td>Signal:</td>
<td>CAN_Ground</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>CG</td>
</tr>
</tbody>
</table>

#### Cable Connection | **Connection A** |

<table>
<thead>
<tr>
<th><strong>Direction</strong></th>
<th><strong>IN</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>0 V</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>0 V</td>
</tr>
<tr>
<td>Cable Color</td>
<td>BK</td>
</tr>
</tbody>
</table>

#### M23 Connector or M12 Connector | **Connection I** (Connection E) |

<table>
<thead>
<tr>
<th><strong>Direction</strong></th>
<th><strong>IN</strong></th>
<th><strong>Pinout</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>0 V</td>
<td>+V</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>0 V</td>
<td>+V</td>
</tr>
<tr>
<td>M23 PIN Assignment:</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>M23 PIN Assignment:</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Bus Terminal Cover with 2 - M12, 2 - M12, 2 - M23 | **Connection 2** (Connection F) (Connection J) |

<table>
<thead>
<tr>
<th><strong>Direction</strong></th>
<th><strong>OUT</strong></th>
<th><strong>Pinout</strong></th>
<th><strong>IN</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>CAN_Ground</td>
<td>CAN_Low (-)</td>
<td>CAN_High (+)</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>CG</td>
<td>CL</td>
<td>CH</td>
</tr>
<tr>
<td>M23 PIN Assignment:</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>M23 PIN Assignment:</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

---

1) See cable section for additional options.
2) ‘S’ denotes shield tied to coupling nut.
3) * = length in meters, available in 0.1 meter increments ≥0.2 meters.

---

(Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com)
**Sendix** Absolute, Singleturn Hub Shaft Type T8.5878 Dimensions

**CANopen**

### T8.5878 Flanges 5 & 6
**Cable Connection A**

### T8.5878
**M12 Connection E**

### T8.5878 Flanges 1 & 2
**M12 Connection F**

---

SENDIX by TURCK

Industrial Automation
Kübler by TURCK
Absolute Encoders

Absolute, Singleturn Hub Shaft Type T8.5878 Dimensions CANopen

T8.5878
M23 Connection J

T8.5878
M23 Connection I
Absolute, Singleturn Hub Shaft Type T8.5878 PROFIBUS®-DP

### Features / Benefits

- Captive bearings
- Wide temperature range
- Removable terminal box with M12 connector and cable versions
- Heavy duty diecast cover
- Compact size
- High speed integrated OptoASIC
- High IP rating

### Options

- 2 = No option
- 3 = Set button

### Fieldbus Profile

- 31 = PROFIBUS-DP-V0 Encoder Profile Class 2

### Connection Type

- 1 = Removable bus terminal cover, with radial screwed cable passage
- 2 = Removable bus terminal cover with 3 - M12 **eurofast**® connectors
**Kübler by TURCK**
**Absolute Encoders**

---

**Absolute, Singleturn Hub Shaft Type T8.5878 Specifications**

**PROFIBUS®-DP**

**Mechanical:**
- **Max. Speed w/o Shaft sealing (IP 65)**: 9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/o Shaft sealing (IP 65)**: 7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)
- **Max. Speed w/Shaft sealing (IP 67)**: 8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/Shaft sealing (IP 67)**: 6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)
- **Protection Rating**: IP 65 (IP 67 with Shaft Seal)
- **Operating Temperature**: -40° to +80°C (-40° to +176°F)
- **Shock Resistance**: Up to 250 g
- **Vibration Resistance**: Up to 100 g, 55-2000 Hz
- **Humidity**: 98% Relative, Non-Condensing

**Protection at Power Supply (Ub)**: Yes

**Materials**:
- Shaft: Stainless Steel
- Flange: Aluminum
- Housing: Die-Cast Zinc
- Cable: PVC

**Starting Torque w/o Shaft sealing (IP 65)**: 1.42 oz.in.(<0.01Nm)
**Starting Torque w/Shaft sealing (IP 67)**: 7.08 oz.in.(<0.05Nm)

**General Electrical Characteristics:**
- **Supply Voltage**: 10-30 VDC
- **Current Consumption (w/o Output Load)**: Max. 90 mA, 24 VDC
- **Reverse Polarity**: No

**Interface Characteristics PROFIBUS-DP:**
- **Singleturn Resolution (Max., Scaleable)**: 1-65536 (16 Bits), Default Scale Value is Set to 8192 (13 Bits)
- **Code**: Binary
- **Interface**: Specifications According to PROFIBUS-DP 2.0 Standard RS-485 Driver Galvanically Isolated
- **Protocol**: PROFIBUS Encoder Profile V1.1 Class 1 and Class 2 with Manufacturer-specific Enhancements

**PROFIBUS Encoder-Profile V1.1:**

The PROFIBUS-DP device profile describes the functionality of the communication and the user-specific component within the PROFIBUS field bus system. For encoders, the encoder profile is definitive. Here the individual objects are defined independent of the manufacturer. Furthermore, the profiles offer space for additional manufacturer-specific functions; this means that PROFIBUS-compliant device systems can be used now with the guarantee that they are ready for the future too.
The Following Parameters Can Be Programmed:

- Direction of rotation
- Scaling - Number of steps per revolution
- Preset value
- Diagnostics mode

SET Control Button (Zero or Defined Value, Option):
Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

Diagnostic LED (yellow):
LED on at . . . . . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

Protocol
Baud Rate . . . . . . . . . . . . . . . . . 12 Mbits/s
Node Address . . . . . . . . . . . . . . 1-127 (Set by Rotary Switches)
Termination Switchable . . . . . . . . Set by DIP Switches, Software Configurable

The Following Functionality Is Integrated:
- Galvanic isolation of the bus stage with DC/DC converter
- Line driver acc. to RS 485 max. 12 MB
- Address programmable via DIP switches
- Diagnostics LED
- Full class 1 and class 2 functionality
Kübler by TURCK
Absolute Encoders

**Absolute, Singleturn Hub Shaft Type T8.5878 Specifications**

**PROFIBUS®-DP**

**Standard Wiring / Pin Configuration**

### Terminal Assignment with Terminal Box (Connection 1)

<table>
<thead>
<tr>
<th>Signal:</th>
<th>BUS IN</th>
<th>BUS OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>A</td>
<td>0 V</td>
</tr>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

### Terminal Assignment M12 - 3 Connector Version (Connection 2)

#### Bus In

- **Signal:** BUS-A, BUS-B, Shield
- **Pin:** 1, 2, 3, 4
- **Male Pinout:** 5

#### Power Supply

- **Signal:** +U, 0 V
- **Pin:** 1, 2, 3, 4
- **Male Pinout:**

#### Bus Out

- **Signal:** BUS-VDC, BUS-A, BUS_GND, BUS-B, Shield
- **Pin:** 1, 2, 3, 4, 5

---

1) For powering an external PROFIBUS-DP terminating resistor.
2) See cable section for additional options.
3) 'S' denotes shield tied to coupling nut.
4) * = length in meters, available in 0.1 meters increments ≥0.2 meters.

---

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
Industrial Automation

Absolute, Singleturn Hub Shaft Type T8.5878 Dimensions

PROFIBUS®-DP

T8.5878 Flanges 3 & 4
Cable Connection 1

T8.5878 Flanges 5 & 6
Cable Connection 1

T8.5878 Flanges 1 & 2
M12 Connection 2

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
Kübler by TURCK
Absolute Encoders

Absolute, Multiturn Shafted Type T8.5863  
SSI, BiSS

| Flange | 1 = Clamping Flange Ø58 mm, IP 65  
|        | 2 = Servo Flange Ø58 mm, IP 65  
|        | 3 = Clamping Flange Ø58 mm, IP 67  
|        | 4 = Servo Flange Ø58 mm, IP 67  
|        | 5 = Square Flange 2.5/63.5 mm, IP 65  
|        | 6 = Servo Flange 2.5/63.5 mm, IP65  
|        | 7 = Square Flange 2.5/63.5 mm, IP 67  
|        | 8 = Servo Flange 2.5/63.5 mm, IP67  

| Shaft  | 1 = Ø6 mm x 10 mm  
|        | 2 = Ø10 mm x 20 mm  
|        | 3 = Ø1/4" mm x 7/8"  
|        | 4 = Ø3/8" x 7/8"  

| Input / Output Circuit | 1 = 5 VDC / SSI or BiSS interface  
|                       | 2 = 10-30 VDC / SSI or BiSS interface  
|                       | 3 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos  
|                       | 4 = 10-30 VDC / SSI or BiSS interface, and 2048 ppr SinCos(M23)  
|                       | 5 = 5 VDC / SSI or BiSS interface, with supply voltage monitoring output  
|                       | 6 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos, with supply voltage monitoring output  
|                       | 7 = 5 VDC / SSI or BiSS and 2048 ppr-incremental track RS422 (TTL-comp.)  
|                       | 8 = 10-30 VDC / SSI or BiSS and 2048 ppr-incremental track RS422 (TTL-comp.)  
|                       | 9 = 5 VDC / SSI or BiSS and 2048 incremental track RS422 (TTL-comp.), with supply voltage monitoring output  

| Options | 1) Status LED internally monitors encoder parameters such as: sensor condition, temperature, under and over voltage.  
|         | 2) Preset value, factory-programmable.  
|         | 3) Set and Direction are physical inputs for setting: 0 position (or any factory predefined value); controls rotation of shaft (CW/CCW) for increasing counts. Status output is discrete output linked to the LED status indicator.  
|         | 4) The Set button and Status LED are located on the rear of the encoder cover. Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.  

| Input / Output | 2 = SET, DIR inputs and additional status output  

| Resolution | 1 = Axial cable, (PVC, 1 meter)  
|           | 2 = Radial cable (PVC, 1 meter)  
|           | 3 = Axial 12-pin, M23 (multifast*)  
|           | 4 = Radial 12-pin, M23 (multifast)  
|           | 5 = Axial M12, 8-pin (eurofast*)  
|           | 6 = Radial M12, 8-pin (eurofast)  

| Code | B = SSI, binary  
|     | C = BiSS, binary  
|     | G = SSI, gray  

| Connection Type | 1 = Axial cable, (PVC, 1 meter)  
|                 | 2 = Radial cable (PVC, 1 meter)  
|                 | 3 = Axial 12-pin, M23 (multifast*)  
|                 | 4 = Radial 12-pin, M23 (multifast)  
|                 | 5 = Axial M12, 8-pin (eurofast*)  
|                 | 6 = Radial M12, 8-pin (eurofast)  

Features / Benefits
- Update rate of 100 KHz for real time transmission  
- Sinusoidal or square wave incremental signals (optional)  
- SSI clock rate to 2Mhz  
- BiSS clock rate to 10Mhz  
- Captive bearings  
- Wide temperature range
### Mechanical:

- **Max. Speed w/o Shaft sealing (IP 65)**: 12000 RPM (Peak), 10000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/o Shaft sealing (IP 65)**: 8000 RPM (Peak), 5000 RPM (Continuous) (up to Tmax)
- **Max. Speed w/Shaft sealing (IP 67)**: 11000 RPM (Peak), 9000 RPM (Continuous) (up to 70°C)
- **Max. Speed w/Shaft sealing (IP 67)**: 8000 RPM (Peak), 5000 RPM (Continuous) (up to Tmax)

#### Protection Rating:
- **IP 65 (IP 67 with Shaft Seal)**

#### Operating Temperature:
- -40° to +90°C (-40° to +194°F)

#### Shock Resistance:
- Up to 250 g

#### Vibration Resistance:
- Up to 100 g, 55-2000 Hz

#### Humidity:
- 98% Relative, Non-Condensing

#### Weight:
- Appr. .99 lbs

#### Materials:
- Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC

#### Starting Torque:
- **w/o Shaft sealing (IP 65)**: 1.42 oz.in.(<0.01Nm)
- **w/Shaft sealing (IP 67)**: 7.08 oz.in.(<0.05Nm)

### General Electrical Characteristics:

#### Interface Characteristics:
- **SSI, BiSS / 5 VDC**: BiSS, SSI / 5 VDC
- **SSI, BiSS / 10-30 VDC**: BiSS, SSI / 10-30 VDC

#### Output Driver:
- RS 485 (Transceiver Type)
- RS 485 (Transceiver Type)

#### Current Consumption (Typ./Max.):
- 70 mA @ VDC
- 20 mA @ 24 VDC

#### Load / Channel (Max.):
- ±20 mA
- ±20 mA

#### Signal Level High (Typ.):
- 3.8 V
- 3.8 V

#### Signal Level Low (Typ.):
- 1.3 V
- 1.3 V

#### Short-Circuit Proof:
- Yes
- Yes

#### Reverse Polarity Protection:
- No
- Yes

### Interface Characteristics SSI:

- **Singleturn Resolution**: 10-14 Bits and 17 Bits
- **Code**: Binary or Gray
- **SSI Clock Rate**: ≤14 bits: 50 kHz - 2 MHz
- **Monoflop Time**: ≥15 μs
- **Time Jitter (Data Request to Position Latch)**: <1μs up to 14 bits
- **Status and Parity Bit**: Optional on Request

**Note:** If clock starts cycling within monoflop time a second data transfer starts with the same data, double clocking is useful for data verification. If clock starts cycling after monoflop time the data transfer starts with updated values. Max. update rate is depending on clock speed, data length and monoflop-time.

---

1) Cable Versions: -30° to +75°C (-22° to 167°F).

2) Short circuit to 0 V or to output, one channel at a time, supply voltage correctly applied.

3) Other options upon request.
Kübler by TURCK
Absolute Encoders

**Sendix** Absolute, Multiturn Shafted Type T8.5863 Specifications  SSI, BiSS

**Interface Characteristics BiSS:**
- **Singleturn Resolution**: 10-14 Bits and 17 Bits, Customer Programmable\(^1\)
- **Code**: Binary
- **Interfaces**: RS 485
- **Clock Rate**: Up to 10 MHz
- **Max. Update Rate**: <10 μs, Depending on Clock Speed and Data Length
- **Time Jitter (data request to position latch)**: ≤1 μs

**Note:** Bidirectional, programmable parameters are: resolution, code, direction, alarms and warnings.
- Multicycle data output, e.g. for temperature.
- CRC data verification.

**SET (Zero or Defined Value) and DIRection (cw/ccw) Control Inputs:**
- **Input Characteristic**: High Active
- **Receiver Type**: Comparator
- **Signal Level High**: Min. 60% of V+ (Supply Voltage), Max: V+
- **Signal Level Low**: Max. 25% of V+
- **Input Current**: ≤0.5 mA
- **Min. Pulse Duration (SET)**: 10 ms
- **Timeout After SET Input**: 14 ms
- **Reaction Time (DIR Input)**: 1 ms

**Status Output:**
- **Output Driver**: Open Collector, Internal Pull Up Resistor 22 kΩ
- **Permissible Load**: ≤20 mA
- **Signal Level High**: V+
- **Signal Level Low**: <1 V
- **Active At**: Low

Optical sensor path faulty (code error, LED error), low voltage and overtemperature.

\(^1\) Other options upon request.
### Status LED (Red, Option):

LED on at . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

### SET Control Button (Zero or Defined Value, Option):

Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

### Output Sine, Cosine, 2048 ppr (Option):

<table>
<thead>
<tr>
<th></th>
<th>Sin/Cos</th>
<th>RS422 (TTL Compatible)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3dB Frequency</td>
<td>400 kHz</td>
<td>400 kHz</td>
</tr>
<tr>
<td>Signal Level</td>
<td>1 Vpp (± 20%)</td>
<td>High: min 2.5 V Low: max. 0.5 V</td>
</tr>
<tr>
<td>Short Circuit Proof</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

1) Short-circuit to 0 V or to output, one channel at a time, supply voltage correctly applied.
### Pinouts

#### Male Encoder View Mating Cordsets

<table>
<thead>
<tr>
<th>Male Encoder View</th>
<th>Mating Cordsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Pinout</td>
<td>E-RKS 8T-264-*</td>
</tr>
<tr>
<td>M23 Pinout (12-Pin)</td>
<td>E-CKS 12-6901-*A</td>
</tr>
</tbody>
</table>

CCW

### Standard Wiring / Pin Configuration

#### Output Circuit 1 or 2 and (2 Control Inputs, 1 Status Output) (Connection 1, 2, 3 or 4)

<table>
<thead>
<tr>
<th>Output Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Status</th>
<th>NC</th>
<th>NC</th>
<th>NC</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td></td>
<td></td>
<td>PH</td>
</tr>
</tbody>
</table>

#### Output Circuit 5 and (2 Control Inputs, 1 Status Output, Voltage Monitor Outputs) (Connection 1, 2, 3 or 4)

<table>
<thead>
<tr>
<th>Output Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Status</th>
<th>NC</th>
<th>0 V Sens</th>
<th>+Ub Sens</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td>-</td>
<td>GY/PK</td>
<td>RD/BU</td>
</tr>
</tbody>
</table>

#### Output Circuit 3, 4, 7 or 8, and (2 Control Inputs, or Incremental Track, Sine/Cosine) (Connection 1, 2, 3 or 4)

<table>
<thead>
<tr>
<th>Output Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Sin A</th>
<th>Sin inv A-</th>
<th>Cos B</th>
<th>Cos inv B-</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td>VT</td>
<td>GY/PK</td>
<td>RD/BU</td>
</tr>
</tbody>
</table>

#### Output Circuit 6 or 9 and (Sine/Cosine, or Incremental Monitor, Voltage Outputs) (Connection 1, 2, 3 or 4)

<table>
<thead>
<tr>
<th>Output Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>Sin A</th>
<th>Sin inv A-</th>
<th>Cos B</th>
<th>Cos inv B-</th>
<th>0 V Sens</th>
<th>V+ Sens</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td>VT</td>
<td>GY/PK</td>
<td>RD/BU</td>
</tr>
</tbody>
</table>

#### Output Circuit 1 or 2 and (2 Control Inputs) (Connection 5 or 6)

<table>
<thead>
<tr>
<th>Output Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>SET</th>
<th>DIR</th>
<th>Shield/PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8 PH</td>
</tr>
</tbody>
</table>
Absolute, Multiturn Shafted Type T8.5863 Dimensions

**T8.5863 Square Flanges 5 & 7**
Cable Connection 1 & 2

![Diagram of T8.5863 Square Flanges 5 & 7](image1)

**T8.5863 Flanges 1 & 3**
M23 Connection 3 & 4

![Diagram of T8.5863 Flanges 1 & 3](image2)

**T8.5863 Servo Flanges 2 & 4**
M12 Connection 5 & 6

![Diagram of T8.5863 Servo Flanges 2 & 4](image3)
Kübler by TURCK
Absolute Encoders

**Sendix** Absolute, Multiturn Shafted Type T8.5868  CANopen/CANlift

---

**Flange**

1 = Clamping Flange Ø58 mm, IP 65  
2 = Servo Flange Ø58 mm, IP 65  
3 = Clamping Flange Ø58 mm, IP 67  
4 = Servo Flange Ø58 mm, IP 67  
5 = Square Flange 2.5”/63.5 mm, IP 65  
6 = Servo Flange 2.5”/63.5 mm, IP65  
7 = Square Flange 2.5”/63.5 mm, IP 67  
8 = Servo Flange 2.5”/63.5 mm, IP67

**Shaft**

1 = Ø6 mm x 10 mm  
2 = Ø10 mm x 20 mm  
3 = Ø1/4” mm x 7/8”  
4 = Ø3/8” x 7/8”

**Input / Output Circuit**

2 = 10-30 VDC CANopen DS 301 V4.02

**Options**

2 = No option  
3 = Set button

**Fieldbus Profile**

21 = CANopen Encoder-Profile  
22 = CANlift DS 417 V1.01

**Connection Type**

1 = Removable bus terminal cover,  
with radial screwed cable passage  
2 = Removable bus terminal cover  
with 2 - M12 eurofast® connectors  
A = Fixed connection without bus terminal cover with radial cable (PVC-2 meter)  
E = Fixed connection without bus terminal cover with 1 - M12 eurofast radial connector  
F = Fixed connection without bus terminal cover with 2 - M12 eurofast radial connectors  
I = Fixed connection without bus terminal cover with 1 - M23 multifast® radial connector  
J = Fixed connection without bus terminal cover with 2 - M23 multifast radial connectors  
K = Fixed connection without bus terminal cover with 1 - D-Sub 9-pin connector

---

1) CANopen parameters can also be factory preset. Please consult factory.

2) Baud rate, address, and termination cannot be set through dip-switches and must be configured via the bus program.

---

**Features / Benefits**

- Captive bearings  
- Wide temperature range  
- Many connector styles; M12, fixed cover, removable cover, etc  
- Heavy duty diecast cover  
- Compact size  
- High speed integrated OptoASIC  
- High IP rating
Absolute, Multiturn Shafted Type T8.5868 Specifications

Mechanical:
- Max. Speed w/o Shaft sealing (IP 65) . . . 9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)
- Max. Speed w/o Shaft sealing (IP 65) . . . 7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)
- Max. Speed w/Shaft sealing (IP 67) . . . . 8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)
- Max. Speed w/Shaft sealing (IP 67) . . . . 6000 RPM (Peak), 3000 RPM (Continuous)
- Protection Rating . . . . . . . . . . . . . IP 65 (IP 67 with Shaft Seal)
- Operating Temperature 1) . . . . . . -40° to +80°C (-40° to +176°F)
- Shock Resistance . . . . . . . . . . . . . Up to 250 g
- Vibration Resistance . . . . . . . . . . . Up to 100 g, 55-2000 Hz
- Humidity . . . . . . . . . . . . . . . . . . . . 98% Relative, Non-Condensing
- Weight . . . . . . . . . . . . . . . . . . . . . Appr.1.26 lbs with Bus Terminal Cover; Appr. 1.45 lbs with Fixed Connection
- Materials . . . . . . . . . . . . . . . . . . . . Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC
- Starting Torque w/o Shaft sealing (IP 65) . . . 1.42 oz.in.(<0.01Nm)
- Starting Torque w/Shaft sealing (IP 67) . . . 4.24 oz.in.(<0.03Nm)

1) Cable versions: -30° to +75°C (-22° to 167°F).

General Electrical Characteristics:
- Supply Voltage . . . . . . . . . . . . . . 10-30 VDC
- Current Consumption (w/o Output Load) . Max. 65mA, 24 VDC
- Reverse Polarity
- Protection at Power Supply . . . . . Yes
- Conforms to CE Requirements Acc. to EN 61000-6-1, EN61000-6-4 and EN 61000-6-3

Interface Characteristics CANopen/CANlift:
- Singleturn Resolution (Max., Scaleable) . . 1-65536 (16 Bits), Default Scale value is Set to 8192 (13 Bits)
- Number of Revolutions . . . . . . . . . . 4096 (12 Bits), (Scaleable 1-4096)
- Code . . . . . . . . . . . . . . . . . . . . . Binary
- Interface . . . . . . . . . . . . . . . . . . CAN High-Speed According ISO 11898, Basic - and Full-CAN, CAN Specification 2.0 B
- Protocol . . . . . . . . . . . . . . . . . . CANopen profile DS 406 V3.1 with Manufacturer-Specific Add-On's

General Information About CANopen:
The CANopen encoders of the 5868 series support the latest CANopen communication profile according to DS 301 V4.02. In addition, device-specific profiles like the encoder profile DS 406 V3.1 and the profile DS 417 V1.1 (for lift applications) are available. The following operating modes may be selected: Polled Mode, Cyclic Mode, Sync Mode and a High Resolution Sync Protocol. Additionally, scale factors, preset values, limit switch values and many other parameters can be programmed via the CANBus. When switching the device on, all parameters, which have been saved on an EEPROM to protect them against power failure, are reloaded. The following output values may be combined by PDO mapping: position, speed, acceleration, and status.
Kübler by TURCK
Absolute Encoders

Absolute, Multiturn Shafted Type T8.5868 Specifications

**CANopen Communication Profile V4.02:**
Among others, the following functionality is integrated:
- Class C2 Functionality
  - NMT slave
  - Heartbeat protocol
  - High resolution sync protocol identity object
  - Error behavior object
  - Variable PDO mapping self-start programmable (power on to operational), 3 sending PDO's
  - 1 Receiving PDO for synchronous preset operation with minimal jitter
  - Knot address, baud rate and CANbus
  - Programmable termination

**CANopen Lift Profile DS 417 V1.1:**
The following parameters can be programmed:
- Car position unit
- 2 virtual devices
- 1 virtual device delivers the position in absolute measuring steps (steps)
- 1 virtual device delivers the position in absolute travel information in mm
- Lift number programmable
- Independent setting of the knot address in relation with the CAN identifier
- Factor for speed calculation (e.g. measuring wheel periphery)
- Integration time for speed value of 1-32
- 2 work areas with 2 upper and lower limits and the corresponding output states
- Variable PDO mapping for position, speed, acceleration, work area, status
- Extended failure management for position sensing with integrated temperature control
- User interface with visual display of bus and failure status - 3 LED’s

**Note:** All profiles stated here: Key-features.
The object 6003h ‘Preset’ is assigned to an integrated key, accessible from the outside ‘Watchdog-controlled’ device.

**SET Control Button (Zero or Defined Value, Option):**
Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

**Diagnostic LED (Yellow):**
- LED on at . . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature
  or CANlift profile DS 417 V1.1

**Protocol:**
- **Baud Rate** . . . . . . . . . . . . 10-1000 kbits/s (Set by DIP Switches/Software Configurable)
- **Node Address** . . . . . . . . . . 1-127 (Set by Rotary Switches/Software Configurable)
- **Termination Switchable** . . . . . Set by DIP Switches, Software Configurable

Price conscience encoders are available with optional connectors or cable connections in place of the costlier removable terminal box versions. Additionally, these encoders do not have user accessible DIP switches and require the user to program the address and baud rate through the software.
The models with the terminal cover include an integrated T-shaped coupler with the bus and power connections utilizing simple M12 connectors. The device address is set with two rotary switches while a bank of DIP switches set the baud rate and also allows the connection of a termination resistor.
Finally, all versions include three LED’s located on the rear of the housing to indicate the status of the CAN bus as well as the status of the internal diagnostics.
## Sendix Absolute, Multiturn Shafted Type T8.5868 Specifications

### Pinouts

<table>
<thead>
<tr>
<th>A</th>
<th>Male Encoder View</th>
<th>B</th>
<th>Female Encoder View</th>
<th>C</th>
<th>Male Encoder View</th>
</tr>
</thead>
</table>

**Bus In and Out M23**

**Mating Cordset**

Consult Factory

RSC 572-*M

RKC 572-*M

### Standard Wiring / Pin Configuration

#### Bus Terminal Cover with Terminal Box

**Direction OUT**

**Signal:**
- CAN Ground
- CAN_Low (-)
- CAN_High (+)
- 0 VOLT Power Supply
- +VOLT Power Supply

**Abbreviation:**
- CG
- CL
- CH

**IN**

**Signal:**
- CAN Ground
- 0 VOLT Power Supply
- +VOLT Power Supply

**Abbreviation:**
- 0 V
- +V
- CL
- CH

### Cable Connection

**Direction IN**

**Signal:**
- 0 VOLT Power Supply
- +VOLT Power Supply
- CAN_Low (-)
- CAN_High (+)
- CAN Ground

**Abbreviation:**
- 0 V
- +V
- CL
- CH
- CG

**Cable Color:**
- BK
- RD
- BL
- WH
- GY

### M23 Connector, M12 Connector or D-Sub 9

**Direction IN**

**Signal:**
- 0 VOLT Power Supply
- +VOLT Power Supply
- CAN_Low (-)
- CAN_High (+)
- CAN Ground

**Abbreviation:**
- 0 V
- +V
- CL
- CH
- CG

**M23 PIN Assignment:**
- 10
- 12
- 2
- 7
- 3

**M12 PIN Assignment:**
- 3
- 2
- 5
- 4
- 1

**D-Sub 9**
- 6
- 9
- 2
- 7
- 3

### Bus Terminal Cover with 2 - M12, 2 - M23

**Direction OUT**

**Signal:**
- CAN Ground
- CAN_Low (-)
- CAN_High (+)
- 0 VOLT Power Supply
- +VOLT Power Supply

**Abbreviation:**
- CG
- CL
- CH
- 0 V
- +V

**IN**

**Signal:**
- 0 VOLT Power Supply
- +VOLT Power Supply
- CAN_Low (-)
- CAN_High (+)
- CAN Ground

**Abbreviation:**
- 0 V
- +V
- CL
- CH
- CG

**M23 PIN Assignment:**
- 3
- 2
- 7
- 10
- 12

**M12 PIN Assignment:**
- 1
- 5
- 4
- 3
- 2

### Notes

1. See cable section for additional options.
2. ‘S’ denotes shield tied to coupling nut.
3. * = length in meters, available in 0.1 meter increments ≥0.2 meters.
Kübler by TURCK
Absolute Encoders

**Sendix**

**Absolute, Multiturn Shafted Type T8.5868 Dimensions**

### T8.5868 Square Flanges 5 & 7
**Cable Connection 1**

![Diagram of T8.5868 Square Flanges 5 & 7 Cable Connection 1](image)

### T8.5868 Clamping Flanges 1 & 3
**M12 Connection 2**

![Diagram of T8.5868 Clamping Flanges 1 & 3 M12 Connection 2](image)

### T8.5868 Clamping Flanges 1 & 3
**Cable Connection A**

![Diagram of T8.5868 Clamping Flanges 1 & 3 Cable Connection A](image)
Absolute, Multiturn Shafted Type T8.5868 Dimensions

**T8.5868 Clamping Flanges 1 & 3**
M12 Connection E

- Ø1.417 [36.0]
- 2.302 [58.5] REF
- M3x0.5, 6mm 3x

**T8.5868 Servo Flanges 2 & 4**
M12 Connection F

- Ø1.653 [42.0]
- 2.302 [58.5] REF
- M4x0.7, 6mm 3x

**T8.5868 Servo Flanges 2 & 4**
M23 Connection I

- Ø1.653 [42.0]
- 2.303 [59.5] REF
- M4x0.7, 6mm 3x
Kübler by TURCK
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Absolute, Multiturn Shafted Type T8.5868 Dimensions CANopen/CANlift

T8.5868 Square Flanges 5 & 7
M23 Connection J

T8.5868 Servo Flanges 2 & 4
D-Sub Connection K
**Industrial Automation**

**Absolute, Multiturn Shafted Type T8.5868**

PROFIBUS®-DP

---

**Flange**

1 = Clamping Flange Ø58 mm, IP 65  
2 = Servo Flange Ø58 mm, IP 65  
3 = Clamping Flange Ø58 mm, IP 67  
4 = Servo Flange Ø58 mm, IP 67  
5 = Square Flange 2.5\"/63.5 mm, IP 65  
6 = Servo Flange 2.5\"/63.5 mm, IP65  
7 = Square Flange 2.5\"/63.5 mm, IP 67  
8 = Servo Flange 2.5\"/63.5 mm, IP67

**Shaft**

1 = Ø6 mm x 10 mm  
2 = Ø10 mm x 20 mm  
3 = Ø1/4\" mm x 7/8\"  
4 = Ø3/8\" x 7/8\"

**Input / Output Circuit**

3 = 10-30 PROFIBUS-DP V0 Encoder Profile V 1.1

**Options**

2 = No option  
3 = Set button

**Fieldbus Profile**

31 = PROFIBUS-DP V0  
Encoder Profile Class 2

**Connection Type**

1 = Removable bus terminal cover,  
with radial screwed cable passage  
2 = Removable bus terminal cover  
with 3 - M12 eurofast® connectors

---

**Features / Benefits**

- Captive bearings  
- Wide temperature range  
- Removable terminal box with M12 connector and cable versions  
- Heavy duty diecast cover  
- Compact size  
- High speed integrated OptoASIC  
- High IP rating

---

TURCK Inc. 3000 Campus Drive Minneapolis, MN 55441 Application Support: 1-800-544-7769 Fax: (763) 553-0708 www.turck.com

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Kübler by TURCK
Absolute Encoders

**Sendix Absolute, Multiturn Shafted Type T8.5868 Specifications**

<table>
<thead>
<tr>
<th>Mechanical:</th>
<th>PROFIBUS®-DP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Speed w/o Shaft sealing (IP 65)</td>
<td>9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Max. Speed w/o Shaft sealing (IP 65)</td>
<td>7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)</td>
</tr>
<tr>
<td>Max. Speed w/Shaft sealing (IP 67)</td>
<td>8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Max. Speed w/Shaft sealing (IP 67)</td>
<td>6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)</td>
</tr>
<tr>
<td>Protection Rating</td>
<td>IP 65 (IP 67 with Shaft Seal)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40° to +80°C (-40° to +176°F)</td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>Up to 250 g</td>
</tr>
<tr>
<td>Vibration Resistance</td>
<td>Up to 100 g, 55-2000 Hz</td>
</tr>
<tr>
<td>Humidity</td>
<td>98% Relative, Non-Condensing</td>
</tr>
<tr>
<td>Weight</td>
<td>. Appr.1.26 lbs with Bus Terminal Cover; Appr. 1.45 lbs with Fixed Connection</td>
</tr>
<tr>
<td>Materials</td>
<td>Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC</td>
</tr>
<tr>
<td>Starting Torque w/o Shaft sealing (IP 65)</td>
<td>1.42 oz.in.(&lt;0.01Nm)</td>
</tr>
<tr>
<td>Starting Torque w/Shaft sealing (IP 67)</td>
<td>4.24 oz.in.(&lt;0.03Nm)</td>
</tr>
</tbody>
</table>

1) Cable versions: -30° to +75°C (-22° to 167°F).

**General Electrical Characteristics:**

| Supply Voltage | . 10-30 VDC |
| Current Consumption (w/o Output Load) | . Max. 90 mA, 24 VDC |
| Reverse Polarity | |
| Protection at Power Supply | . Yes |

Conforms to CE Requirements Acc. to EN 61000-6-1, EN61000-6-4 and EN 61000-6-3

**Interface Characteristics PROFIBUS-DP:**

| Singleturn Resolution (Max., Scaleable) | 1-65536 (16 Bits), Default Scale value is Set to 8192 (13 Bits) |
| Total Resolution | 28 Bit (scaleable 1-2^28 steps) |
| Number of Revolutions | 4096 (12 Bits), (Scaleable 1-4096) |
| Code | Binary |
| Interface | Specifications According to PROFIBUS-DP 2.0 Standard RS-485 Driver Galvanically Isolated |
| Protocol | PROFIBUS Encoder Profile V1.1 Class 1 and Class 2 with Manufacturer-specific Enhancements |

**PROFIBUS Encoder Profile V1.1**

The PROFIBUS-DP device profile describes the functionality of the communication and the user-specific component within the PROFIBUS field bus system. For encoders, the encoder profile is definitive. Here the individual objects are defined independent of the manufacturer. Furthermore, the profiles offer space for additional manufacturer-specific functions; this means that PROFIBUS-compliant device systems can be used now with the guarantee that they are ready for the future too.
The Following Parameters Can Be Programmed:

- Direction of rotation
- Scaling
- Number of steps per revolution
- Number of revolutions
- Total revolution over Singleturn/Multiturn
- Preset value
- Diagnostics mode

SET Control Button (Zero or Defined Value, Option):
Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

Diagnostic LED (yellow):

LED on at . . . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

Protocol

- Baud Rate . . . . . . . . . . . . . . 12 Mbits/s
- Node Address . . . . . . . . . . . . 1-127 (Set by Rotary Switches)
- Termination Switchable . . . . . . . Set by DIP switches, Software Configurable

The Following Functionality Is Integrated:

- Galvanic isolation of the bus stage with DC/DC converter
- Line driver acc. to RS 485 max. 12 MB
- Address programmable via DIP switches
- Diagnostics LED
- Full class 1 and class 2 functionality
### Standard Wiring / Pin Configuration

#### Terminal Assignment with Terminal Box (Connection 1)

<table>
<thead>
<tr>
<th>Signal:</th>
<th>BUS IN</th>
<th>BUS OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>BUS IN</td>
<td>BUS OUT</td>
</tr>
<tr>
<td>BUS IN</td>
<td>BUS A</td>
<td>0 V</td>
</tr>
<tr>
<td>BUS A</td>
<td>0 V</td>
<td>0 V</td>
</tr>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Terminal Assignment M12 - 3 Connector Version (Connection 2)

<table>
<thead>
<tr>
<th>Signal:</th>
<th>BUS IN</th>
<th>BUS OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS IN</td>
<td>BUS A</td>
<td>BUS_B</td>
</tr>
<tr>
<td>BUS A</td>
<td>BUS B</td>
<td>Shield</td>
</tr>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Power Supply

<table>
<thead>
<tr>
<th>Signal:</th>
<th>Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS IN</td>
<td>BUS_A</td>
</tr>
<tr>
<td>BUS A</td>
<td>BUS_B</td>
</tr>
</tbody>
</table>

#### Bus Out

<table>
<thead>
<tr>
<th>Signal:</th>
<th>BUS OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS OUT</td>
<td>BUS A</td>
</tr>
<tr>
<td>BUS A</td>
<td>BUS_GND</td>
</tr>
<tr>
<td>BUS_B</td>
<td>Shield</td>
</tr>
<tr>
<td>Female Pinout</td>
<td>Mating Cordsets 2), 3), 4)</td>
</tr>
</tbody>
</table>

---

1) For powering an external PROFIBUS-DP terminating resistor.
2) See cable section for additional options.
3) "S" denotes shield tied to coupling nut.
4) * = length in meters, available in 0.1 meters increments ≥0.2 meters.
Industrial Automation

Absolute, Multiturn Shafted Type T8.5868 Dimensions

PROFIBUS®-DP

T8.5868 Square Flanges 5 & 7
Cable Connection 1

T8.5868 Servo Flanges 2 & 4
Cable Connection 1

T8.5868 Clamping Flanges 1 & 3
M12 Connection 2

5868 PROFIBUS®-DP

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**Kübler by TURCK**

**Absolute Encoders**

**Absolute, Multiturn Hollow Shaft Type T8.5883**

**SSI, BiSS**

<table>
<thead>
<tr>
<th>Mechanical Drive</th>
<th>Safety-Lock™</th>
<th>High Rotational Speed</th>
<th>Temperature</th>
<th>High IP</th>
<th>High Shaft Load Capacity</th>
<th>Shock/Vibration Resistance</th>
<th>Magnetic Field Proof</th>
<th>Short-Circuit Proof</th>
<th>Reverse Polarity Protection</th>
<th>SIN/COS</th>
</tr>
</thead>
</table>

**Flange**

1 = Flange with torque stop IP 65  
2 = Flange with torque stop IP 67  
3 = Flange with stator coupling pitch circle Ø 65, IP 65  
4 = Flange with stator coupling pitch circle Ø 65, IP 67  
5 = Flange with stator coupling pitch circle Ø 63, IP 65  
6 = Flange with stator coupling pitch circle Ø 63, IP 67

**Hollow Shaft**

3 = Ø10 mm  
4 = Ø12 mm  
5 = Ø14 mm  
6 = Ø15 mm (blind hub shaft)  
8 = Ø19.52 mm [3/8"]  
9 = Ø12.7 mm [1/2”]

**Input / Output Circuit**

1 = 5 VDC / SSI or BiSS interface  
2 = 10-30 VDC / SSI or BiSS interface  
3 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos  
4 = 10-30 VDC / SSI or BiSS interface, and 2048 ppr SinCos(M23)  
5 = 5 VDC / SSI or BiSS interface, with supply voltage monitoring output  
6 = 5 VDC / SSI or BiSS interface, and 2048 ppr SinCos, with supply voltage monitoring output  
7 = 5 VDC / SSI or BiSS and 2048 ppr-incremental track RS422 (TTL-comp.)  
8 = 10-30 VDC / SSI or BiSS and 2048 ppr-incremental track RS422 (TTL-comp.)  
9 = 5 VDC / SSI or BiSS and 2048 incremental track RS422 (TTL-comp.), with supply voltage monitoring output

1) Status LED internally monitors encoder parameters such as; sensor condition, temperature, under and over voltage.  
2) Preset value, factory-programmable.  
3) Set and Direction are physical inputs for setting; 0 position or any factory predefined value); controls rotation of shaft (CW/CCW) for increasing counts. Status output is discrete output linked to the LED status indicator.  
4) The Set button and Status LED are located on the rear of the encoder cover. Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

**Features / Benefits**

- Update rate of 100 KHz for real time transmission  
- Sinusoidal or square wave incremental signals (optional)  
- SSI clock rate to 2Mhz  
- BiSS clock rate to 10Mhz  
- Captive bearings  
- Wide temperature range

---

**T8. 5883. XXXX. XXXX.**

**Options**

1 = No option  
2 = Status LED  
3 = Set button and status LED

**Input / Output**

2 = SET, DIR Inputs and additional status output

**Resolution**

A = 10 bit +12 bit  
1 = 11 bit +12 bit  
2 = 12 bit +12 bit  
3 = 13 bit +12 bit  
4 = 14 bit +12 bit  
7 = 17 bit +12 bit

**Code**

B = SSI, binary  
C = BiSS, binary  
G = SSI, gray

**Connection Type**

2 = Radial cable (PVC, 1 meter)  
4 = Radial 12-pin, M23 (multilast™)  
6 = Radial M12, 8-pin (eurofast™)

---
**Industrial Automation**

**Sendix Absolute, Multiturn Hollow Shaft Type T8.5883 Specifications**

### Mechanical:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Speed w/o Shaft sealing (IP 65)</td>
<td>9000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Max. Speed w/o Shaft sealing (IP 65)</td>
<td>6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)</td>
</tr>
<tr>
<td>Max. Speed w/Shaft sealing (IP 67)</td>
<td>8000 RPM (Peak), 4000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Max. Speed w/Shaft sealing (IP 67)</td>
<td>4000 RPM (Peak), 2000 RPM (Continuous) (up to Tmax)</td>
</tr>
<tr>
<td>Protection Rating</td>
<td>IP 65 (IP 67 with Shaft Seal)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40° to +90°C (-40° to +194°F)</td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>Up to 250 g</td>
</tr>
<tr>
<td>Vibration Resistance</td>
<td>Up to 100 g, 55-2000 Hz</td>
</tr>
<tr>
<td>Humidity</td>
<td>98% Relative, Non-Condensing</td>
</tr>
<tr>
<td>Weight</td>
<td>Appr. 0.99 lbs</td>
</tr>
<tr>
<td>Materials</td>
<td>Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC</td>
</tr>
<tr>
<td>Starting Torque w/o Shaft sealing (IP 65)</td>
<td>4.24 oz.in. (&lt;0.03Nm)</td>
</tr>
<tr>
<td>Starting Torque w/Shaft sealing (IP 67)</td>
<td>7.08 oz.in. (&lt;0.05Nm)</td>
</tr>
</tbody>
</table>

### General Electrical Characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface</td>
<td>BiSS, SSI / 5 VDC</td>
</tr>
<tr>
<td>Output Driver</td>
<td>RS 485 (Transceiver Type)</td>
</tr>
<tr>
<td>Current Consumption (Typ./Max.)</td>
<td>70 mA @ 5VDC</td>
</tr>
<tr>
<td>Load / Channel (Max.)</td>
<td>±20 mA</td>
</tr>
<tr>
<td>Signal Level High (Typ.)</td>
<td>3.8 V</td>
</tr>
<tr>
<td>Signal Level Low (Typ.)</td>
<td>1.3 V</td>
</tr>
<tr>
<td>Short-Circuit Proof</td>
<td>Yes</td>
</tr>
<tr>
<td>Reverse Polarity Protection</td>
<td>No</td>
</tr>
</tbody>
</table>

### Interface Characteristics SSI:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singleturn Resolution</td>
<td>10-14 Bits and 17 Bits&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Code</td>
<td>Binary or Gray</td>
</tr>
<tr>
<td>SSI Clock Rate</td>
<td>≤14 bits: 50 kHz - 2 MHz</td>
</tr>
<tr>
<td>Monoflop Time</td>
<td>≥15 μs&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Time Jitter (Data Request to Position Latch)</td>
<td>&lt;1μs up to 14 bits</td>
</tr>
<tr>
<td>Status and Parity Bit</td>
<td>Optional on Request</td>
</tr>
</tbody>
</table>

**Note:** If clock starts cycling within monoflop time a second data transfer starts with the same data, double clocking is useful for data verification. If clock starts cycling after monoflop time the data transfer starts with updated values. Max. update rate is depending on clock speed, data length and monoflop-time.

<sup>1</sup> Cable Versions: -30° to +75°C (-22° to 167°F).

<sup>2</sup> Short circuit to 0V or to output, one channel at a time, supply voltage correctly applied.

<sup>3</sup> Other options upon request.
Kübler by TURCK
Absolute Encoders

Absolute, Multiturn Hollow Shaft Type T8.5883 Specifications  SSI, BiSS

Interface Characteristics BiSS:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singleturn Resolution</td>
<td>10-14 Bits and 17 Bits, Customer Programmable&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Code</td>
<td>Binary</td>
</tr>
<tr>
<td>Interfaces</td>
<td>RS 485</td>
</tr>
<tr>
<td>Clock Rate</td>
<td>Up to 10 MHz</td>
</tr>
<tr>
<td>Max. Update Rate</td>
<td>&lt;10 μs, Depending on Clock Speed and Data Length</td>
</tr>
<tr>
<td>Time Jitter (data request to position latch)</td>
<td>≤1 μs</td>
</tr>
</tbody>
</table>

Note:
Bidirectional, programmable parameters are: resolution, code, direction, alarms and warnings.
Multicycle data output, e.g. for temperature.
CRC data verification.

SET (Zero or Defined Value) and DIRection (cw/ccw) Control Inputs:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Characteristic</td>
<td>High Active</td>
</tr>
<tr>
<td>Receiver Type</td>
<td>Comparator</td>
</tr>
<tr>
<td>Signal Level High</td>
<td>Min. 60% of V&lt;+&gt; (Supply Voltage), Max: V&lt;+&gt;</td>
</tr>
<tr>
<td>Signal Level Low</td>
<td>Max. 25% of V&lt;+&gt;</td>
</tr>
<tr>
<td>Input Current</td>
<td>≤0.5 mA</td>
</tr>
<tr>
<td>Min. Pulse Duration (SET)</td>
<td>10 ms</td>
</tr>
<tr>
<td>Timeout After SET Input</td>
<td>14 ms</td>
</tr>
<tr>
<td>Reaction Time (DIR Input)</td>
<td>1 ms</td>
</tr>
</tbody>
</table>

Status Output:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output Driver</td>
<td>Open Collector, Internal Pull Up Resistor 22 kOhm</td>
</tr>
<tr>
<td>Permissible Load</td>
<td>≤20 mA</td>
</tr>
<tr>
<td>Signal Level High</td>
<td>V&lt;+&gt;</td>
</tr>
<tr>
<td>Signal Level Low</td>
<td>&lt;1 V</td>
</tr>
<tr>
<td>Active At</td>
<td>Low</td>
</tr>
</tbody>
</table>

Optical sensor path faulty (code error, LED error), low voltage and overtemperature.

<sup>1</sup> Other options upon request.
Status LED (Red, Option):
LED on at . . . . . . . . . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

SET Control Button (Zero or Defined Value, Option):
Same functionality as SET control input, protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

Output Sine, Cosine, 2048 ppr (Option):

<table>
<thead>
<tr>
<th></th>
<th>Sin/Cos</th>
<th>RS422 (TTL Compatible)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3dB Frequency</td>
<td>400 kHz</td>
<td>400 kHz</td>
</tr>
<tr>
<td>Signal Level</td>
<td>1 Vpp (± 20%)</td>
<td>High: min 2.5 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low: max. 0.5 V</td>
</tr>
<tr>
<td>Short-Circuit Proof</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

1) Short-circuit to 0V or to output, one channel at a time, supply voltage correctly applied.
Kübler by TURCK
Absolute Encoders

Sendix® Absolute, Multiturn Hollow Shaft Type T8.5883 Specifications SSI, BiSS

## Pinouts

<table>
<thead>
<tr>
<th>Male Encoder View</th>
<th>Mating Cordsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Pinout</td>
<td>E-RKS 8T-264-*</td>
</tr>
<tr>
<td>CCW</td>
<td>E-CKS 12-6901-*A</td>
</tr>
</tbody>
</table>

### Standard Wiring / Pin Configuration

#### Output Circuit 1 or 2 and (2 Control Inputs, 1 Status Output)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Status</th>
<th>NC</th>
<th>NC</th>
<th>NC</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>PH</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Output Circuit 5 and (2 Control Inputs, 1 Status Output, Voltage Monitor Outputs)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Status</th>
<th>NC</th>
<th>0 V Sens</th>
<th>+U1 Sens</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>PH</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td></td>
<td>-</td>
<td>GY/PK</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RD/BU</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Shield</td>
<td></td>
</tr>
</tbody>
</table>

#### Output Circuit 3, 4, 7 or 8, and (2 Control Inputs, or Incremental Track, Sine/Cosine)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>-Data</th>
<th>ST</th>
<th>DIR</th>
<th>Sin A</th>
<th>Sin inv A-</th>
<th>Cos B</th>
<th>Cos inv B-</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>PH</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td>VT</td>
<td>GY/PK</td>
<td>RD/BU</td>
<td></td>
</tr>
</tbody>
</table>

#### Output Circuit 6 or 9 and (Sine/Cosine, or Incremental Monitor, Voltage Outputs)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>Sin A</th>
<th>Sin inv A-</th>
<th>Cos B</th>
<th>Cos inv B-</th>
<th>0 V Sens</th>
<th>V+ Sens</th>
<th>PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M23 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Color</td>
<td>WH</td>
<td>BN</td>
<td>GN</td>
<td>YE</td>
<td>GY</td>
<td>PK</td>
<td>BU</td>
<td>RD</td>
<td>BK</td>
<td>VT</td>
<td>GY/PK</td>
<td>RD/BU</td>
</tr>
</tbody>
</table>

#### Output Circuit 1 or 2 and (2 Control Inputs)

<table>
<thead>
<tr>
<th>Output</th>
<th>Common</th>
<th>+V</th>
<th>+Clock</th>
<th>-Clock</th>
<th>+Data</th>
<th>SET</th>
<th>DIR</th>
<th>Shield/PE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Pin</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>PH</td>
</tr>
</tbody>
</table>

---

1) See cable section for additional options.
2) "S" denotes shield tied to coupling nut.
3) * = length in meters, available in 0.1 meter increments ≥0.2 meters.

---

Male Encoder View Mating Cordsets

- E-RKS 8T-264-*
- E-CKS 12-6901-*A

---

Kübler by TURCK
Absolute Encoders

Sendix Absolute, Multiturn Hub Shaft Type T8.5888 CANopen/CANlift

Mechanical Drive
Safety-Lock™
High Rotational Speed
Temperature
-40°C to 85°C
IP
High IP
High Shaft Load Capacity
Shock/Vibration Resistance
Magnetic Field Proof

Flange
1 = Flange with torque stop IP 65
2 = Flange with torque stop IP 67
3 = Flange with stator coupling pitch circle Ø 65, IP 65
4 = Flange with stator coupling pitch circle Ø 65, IP 67
5 = Flange with stator coupling pitch circle Ø 63, IP 65
6 = Flange with stator coupling pitch circle Ø 63, IP 67

Blind Hub Shaft
3 = Ø10 mm
4 = Ø12 mm
5 = Ø14 mm
6 = Ø15 mm
8 = Ø9.52 mm [3/8”]
9 = Ø12.7 mm [½”]

Input / Output Circuit
2 = 10-30 VDC CANopen DS 301 V4.02

Options
2 = No option
3 = Set button

Fieldbus Profile (1)
21 = CANopen Encoder-Profile DS 406 V3.1
22 = CANlift DS 417 V1.01

Connection Type
1 = Removable bus terminal cover, with radial screwed cable passage
2 = Removable bus terminal cover with 2 - M12 eurofast® connectors
A = Fixed connection without bus terminal cover with radial cable (PVC 2 meter) (2)
E = Fixed connection without bus terminal cover with 1 - M12 eurofast radial connector (2)
F = Fixed connection without bus terminal cover with 2 - M12 eurofast radial connectors (2)
I = Fixed connection without bus terminal cover with 1 - M23 multifast® radial connector (2)
J = Fixed connection without bus terminal cover with 2 - M23 multifast radial connectors (2)
K = Fixed connection without bus terminal cover with 1 - D-Sub 9-pin connector (2)

1) CANopen parameters can also be factory preset. Please consult factory.
2) Baud rate, address, and termination can not be set through dip-switches and must be configured via the bus program.

Features / Benefits
• Captive bearings
• Wide temperature range
• Many connector styles; M12, fixed cover, removable cover, etc
• Heavy duty diecast cover
• Compact size
• High speed integrated OptoASIC
• High IP rating

65 TURCK Inc. 3000 Campus Drive Minneapolis, MN 55441 Application Support: 1-800-544-7769 Fax: (763) 553-0708 www.turck.com

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
**Mechanical:**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Speed w/o Shaft sealing (IP 65)</td>
<td>9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Max. Speed w/o Shaft sealing (IP 65)</td>
<td>7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)</td>
</tr>
<tr>
<td>Max. Speed w/Shaft sealing (IP 67)</td>
<td>8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)</td>
</tr>
<tr>
<td>Max. Speed w/Shaft sealing (IP 67)</td>
<td>6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)</td>
</tr>
<tr>
<td>Protection Rating</td>
<td>IP 65 (IP 67 with Shaft Seal)</td>
</tr>
<tr>
<td>Operating Temperature 1)</td>
<td>-40° to +80°C (-40° to +176°F)</td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>Up to 250g</td>
</tr>
<tr>
<td>Vibration Resistance</td>
<td>Up to 100g, 55-2000 Hz</td>
</tr>
<tr>
<td>Humidity</td>
<td>98% Relative, Non-Condensing</td>
</tr>
<tr>
<td>Weight</td>
<td>Appr. 1.26 lbs with Bus Terminal Cover; Appr. 1.45 lbs with Fixed Connection</td>
</tr>
<tr>
<td>Materials</td>
<td>Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC</td>
</tr>
<tr>
<td>Starting Torque w/o Shaft sealing (IP 65)</td>
<td>1.42 oz.in.(&lt;0.01Nm)</td>
</tr>
<tr>
<td>Starting Torque w/Shaft sealing (IP 67)</td>
<td>4.24 oz.in.(&lt;0.03Nm)</td>
</tr>
</tbody>
</table>

1) Cable versions: -30° to +75°C (-22° to 167°F).

**General Electrical Characteristics:**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>10-30 VDC</td>
</tr>
<tr>
<td>Current Consumption (w/o Output Load)</td>
<td>Max. 65mA, 24 VDC</td>
</tr>
<tr>
<td>Reverse Polarity</td>
<td></td>
</tr>
<tr>
<td>Protection at Power Supply</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Conforms to CE Requirements Acc. to EN 61000-6-1, EN61000-6-4 and EN 61000-6-3

**Interface Characteristics CANopen/CANlift:**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singleturn Resolution (Max., Scaleable)</td>
<td>1-65536 (16 Bits), Default Scale Value is Set to 8192 (13 Bits)</td>
</tr>
<tr>
<td>Number of Revolutions</td>
<td>4096 (12 Bits), (Scaleable 1-4096)</td>
</tr>
<tr>
<td>Code</td>
<td>Binary</td>
</tr>
<tr>
<td>Interface</td>
<td>CAN High-Speed According ISO 11898, Basic - and Full-CAN, CAN Specification 2.0 B</td>
</tr>
<tr>
<td>Protocol</td>
<td>CANopen profile DS 406 V3.1 with Manufacturer-Specific Add-On's</td>
</tr>
</tbody>
</table>

**General Information About CANopen:**

The CANopen encoders of the 5888 series support the latest CANopen communication profile according to DS 301 V4.02. In addition, device-specific profiles like the encoder profile DS 406 V3.1 and the profile DS 417 V1.1 (for lift applications) are available. The following operating modes may be selected: Polled Mode, Cyclic Mode, Sync Mode and a High Resolution Sync Protocol. Additionally, scale factors, preset values, limit switch values and many other parameters can be programmed via the CANBus. When switching the device on, all parameters, which have been saved on an EEPROM to protect them against power failure, are reloaded. The following output values may be combined by PDO mapping: position, speed, acceleration, and status.
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Absolute Encoders

**Sendix**

**Absolute, Multiturn Hub Shaft Type T8.5888 Specifications**

**CANopen/CANlift**

**CANopen Communication Profile V4.02:**

Among others, the following functionality is integrated:

- Class C2 Functionality
  - NMT slave
  - Heartbeat protocol
  - High resolution sync protocol identity object
  - Error behavior object
  - Variable PDO mapping self-start programmable (power on to operational), 3 sending PDO's
  - 1 Receiving PDO for synchronous preset operation with minimal jitter
  - Knot address, baud rate and CANbus
  - Programmable termination

**CANopen Lift Profile DS 417 V1.1:**

The following parameters can be programmed:

- Car position unit
- 2 virtual devices
- 1 virtual device delivers the position in absolute measuring steps (steps)
- 1 virtual device delivers the position in absolute travel information in mm
- Lift number programmable
- Independent setting of the knot address in relation with the CAN identifier
- Factor for speed calculation (e.g. measuring wheel periphery)
- Integration time for speed value of 1-32
- 2 work areas with 2 upper and lower limits and the corresponding output states
- Variable PDO mapping for position, speed, acceleration, work area, status
- Extended failure management for position sensing with integrated temperature control
- User interface with visual display of bus and failure status - 3 LED's

**Note:**

All profiles stated here: Key-features.

The object 6003h "Preset" is assigned to an integrated key, accessible from the outside 'Watchdog-controlled' device.

**SET Control Button (Zero or Defined Value, Option):**

Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

**Diagnostic LED (Yellow):**

LED on at . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

or CANlift profile DS 417 V1.1

**Protocol:**

- **Baud Rate** . . . . . . . . . . . . 10-1000 kbits/s (Set by DIP Switches/Software Configurable)
- **Node Address** . . . . . . . . . . . 1-127 (Set by Rotary Switches/Software Configurable)
- **Termination Switchable** . . . . Set by DIP Switches, Software Configurable

Price conscience encoders are available with optional connectors or cable connections in place of the costlier removable terminal box versions. Additionally, these encoders do not have user accessible DIP switches and require the user to program the address and baud rate through the software.

The models with the terminal cover include an integrated T-shaped coupler with the bus and power connections utilizing simple M12 connectors. The device address is set with two rotary switches while a bank of DIP switches set the baud rate and also allows the connection of a termination resistor.

Finally, all versions include three LED's located on the rear of the housing to indicate the status of the CAN bus as well as the status of the internal diagnostics.
## Absolute, Multiturn Hub Shaft Type T8.5888 Specifications CANopen/CANlift

### Pinouts

<table>
<thead>
<tr>
<th>A</th>
<th>Male Encoder View</th>
<th>B</th>
<th>Female Encoder View</th>
<th>C</th>
<th>Male Encoder View</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCW</td>
<td>Bus In and Out M23</td>
<td>OUT</td>
<td>Bus Out M12 Pinout</td>
<td>IN</td>
<td>Bus In M12 Pinout</td>
</tr>
<tr>
<td>Mating Cordset</td>
<td>Power Supply</td>
<td>0 V</td>
<td>Power Supply</td>
<td>CAN</td>
<td>CAN Ground</td>
</tr>
<tr>
<td>Consult Factory</td>
<td>CAN_Low (-)</td>
<td>+V</td>
<td>CAN_High (+)</td>
<td>CAN_Low (+)</td>
<td>CAN_High (+)</td>
</tr>
<tr>
<td>Abbreviation: CG</td>
<td>CL</td>
<td>CH</td>
<td>0 V</td>
<td>+V</td>
<td>0 V</td>
</tr>
</tbody>
</table>

### Standard Wiring / Pin Configuration

**Bus Terminal Cover with Terminal Box**

#### (Connection 1)

<table>
<thead>
<tr>
<th>Direction</th>
<th>OUT</th>
<th>IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>CAN</td>
<td>CAN_Low</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>CG</td>
<td>CL</td>
</tr>
</tbody>
</table>

**Cable Connection**

#### (Connection A)

<table>
<thead>
<tr>
<th>Direction</th>
<th>IN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>0 V</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>0 V</td>
</tr>
<tr>
<td>Cable Color</td>
<td>BK</td>
</tr>
</tbody>
</table>

**M23 Connector, M12 Connector or D-Sub 9**

#### (Connection I) (Connection E) (Connection K)

<table>
<thead>
<tr>
<th>Direction</th>
<th>IN</th>
<th>Pinout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>0 V</td>
<td>+V</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>0 V</td>
<td>+V</td>
</tr>
<tr>
<td>M23 PIN Assignment: 10</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>M12 PIN Assignment:</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>D-Sub 9</td>
<td>6</td>
<td>9</td>
</tr>
</tbody>
</table>

**Bus Terminal Cover with 2 - M12, 2 - M23**

#### (Connection 2) (Connection F) (Connection J)

<table>
<thead>
<tr>
<th>Direction</th>
<th>OUT</th>
<th>PIN</th>
<th>IN</th>
<th>PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal:</td>
<td>CAN</td>
<td>CAN_Low</td>
<td>CAN_High</td>
<td>0 VOLT Power Supply</td>
</tr>
<tr>
<td>Abbreviation:</td>
<td>CG</td>
<td>CL</td>
<td>CH</td>
<td>0 V</td>
</tr>
<tr>
<td>M23 PIN Assignment:</td>
<td>3</td>
<td>2</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>M12 PIN Assignment:</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

---

1) See cable section for additional options.
2) ‘S’ denotes shield tied to coupling nut.
3) * = length in meters, available in 0.1 meter increments ≥0.2 meters.
Kübler by TURCK
Absolute Encoders

Sendix Absolute, Multiturn Hub Shaft Type T8.5888 Dimensions CANopen/CANlift

T8.5888 Flanges 5 & 6
Cable Connection 1

T8.5888 Flanges 1 & 2
M12 Connection 2

T8.5888 Flanges 3 & 4
M12 Connection 2
Absolute, Multiturn Hub Shaft Type T8.5888 Dimensions

T8.5888 Flanges 3 & 4
Cable Connection A

T8.5888 Flanges 5 & 6
M12 Connection E

T8.5888 Flanges 1 & 2
M12 Connection F

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Kübler by TURCK
Absolute Encoders

Sendix Absolute, Multiturn Hub Shaft Type T8.5888 Dimensions

T8.5888 Flanges 1 & 2
M23 Connection I

T8.5888 Flanges 3 & 4
M23 Connection J

T8.5888 Flanges 1 & 2
D-Sub Connection K
Absolute, Multiturn Hub Shaft Type T8.5888

**Features / Benefits**

- Captive bearings
- Wide temperature range
- Removable terminal box with M12 connector and cable versions
- Heavy duty diecast cover
- Compact size
- High speed integrated OptoASIC
- High IP rating

**Mechanical Drive**

1 = Flange with torque stop IP 65
2 = Flange with torque stop IP 67
3 = Flange with stator coupling pitch circle Ø 65, IP 65
4 = Flange with stator coupling pitch circle Ø 65, IP 67
5 = Flange with stator coupling pitch circle Ø 63, IP 65
6 = Flange with stator coupling pitch circle Ø 63, IP 67

**Blind Hub Shaft**

3 = Ø 10 mm
4 = Ø 12 mm
5 = Ø 14 mm
6 = Ø 15 mm
8 = Ø 9.52 mm [3/8”]
9 = Ø 12.7 mm [1/2”]

**Input / Output Circuit**

3 = 10-30 VDC PROFIBUS-DP V0 Encoder Profile V1.1

**Options**

2 = No option
3 = Set button

**Fieldbus Profile**

31 = PROFIBUS-DP-V0
Encoder profile class 2

**Connection Type**

1 = Removable bus terminal cover, with radial screwed cable passage
2 = Removable bus terminal cover with 3 - M12 eurofast® connectors

**Temperature / High IP**

40 °C / 40 °F

**High Load Capacity**

IP 65

**Magnetic Field Proof**

Reverse Polarity protection

**Captive bearings**

**Wide temperature range**

**Removable terminal box with M12 connector and cable versions**

**Heavy duty diecast cover**
Kübler by TURCK
Absolute Encoders

**Absolute, Multiturn Hub Shaft Type T8.5888 Specifications**

**PROFIBUS®-DP**

**Mechanical:**

- Max. Speed w/o Shaft sealing (IP 65) . . . . . . . . . . 9000 RPM (Peak), 7000 RPM (Continuous) (up to 70°C)
- Max. Speed w/o Shaft sealing (IP 65) . . . . . . . . . . 7000 RPM (Peak), 4000 RPM (Continuous) (up to Tmax)
- Max. Speed w/Shaft sealing (IP 67) . . . . . . . . . . . 8000 RPM (Peak), 6000 RPM (Continuous) (up to 70°C)
- Max. Speed w/Shaft sealing (IP 67) . . . . . . . . . . . 6000 RPM (Peak), 3000 RPM (Continuous) (up to Tmax)

**Protection Rating . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . IP 65 (IP 67 with Shaft Seal)**

**Operating Temperature**

- -40° to +80°C (-40° to +176°F)

**Shock Resistance** . . . . . . . . . . . . . . . . . . . . . . . . Up to 250g

**Vibration Resistance** . . . . . . . . . . . . . . . . . . . . . . . . . . . Up to 100g, 55-2000 Hz

**Humidity** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 98% Relative, Non-Condensing

**Weight** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Appr. 1.26 lbs with Bus Terminal Cover; Appr. 1.45 lbs with Fixed Connection

**Materials** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Shaft: Stainless Steel; Flange: Aluminum, Housing: Die-Cast Zinc, Cable: PVC

**Starting Torque w/o Shaft sealing (IP 65)** . . . . . . . 1.42 oz.in.(<0.01Nm)

**Starting Torque w/Shaft sealing (IP 67)** . . . . . . . . 4.24 oz.in.(<0.03Nm)

1 Cable versions: -30° to +75°C (-22° to 167°F).

**General Electrical Characteristics:**

- **Supply Voltage** . . . . . . . . . . . . . . . . . . . . . . . . . . . 10-30 VDC
- **Current Consumption (w/o Output Load)** . . . . . . . . Max. 65mA, 24 VDC
- **Reverse Polarity Protection at Power Supply** . . . . . . . Yes

Conforms to CE Requirements Acc. to EN 61000-6-1, EN61000-6-4 and EN 61000-6-3

**Interface Characteristics PROFIBUS-DP:**

- **Singleturn Resolution (Max., Scaleable)** . . . . . . . 1-65536 (16 Bits), Default Scale Value is Set to 8192 (13 Bits)
- **Number of Revolutions** . . . . . . . . . . . . . . . . . . . . . . . 4096 (12 Bits), (Scaleable 1-4096)
- **Code** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Binary
- **Interface** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Specifications According to PROFIBUS-DP 2.0 Standard RS-485 Driver Galvanically Isolated
- **Protocol** . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . PROFIBUS Encoder Profile V1.1 Class 1 and Class 2 with Manufacturer-specific Enhancements

**PROFIBUS Encoder-Profile V11**

The PROFIBUS-DP device profile describes the functionality of the communication and the user-specific component within the PROFIBUS field bus system. For encoders, the encoder profile is definitive. Here the individual objects are defined independent of the manufacturer. Furthermore, the profiles offer space for additional manufacturer-specific functions; this means that PROFIBUS-compliant device systems can be used now with the guarantee that they are ready for the future too.
Industrial Automation

Sendix Absolute, Multiturn Hub Shaft Type T8.5888 Specifications

PROFIBUS ®-DP

The Following Parameters Can Be Programmed:

- Direction of rotation
- Scaling
- Number of steps per revolution
- Number of revolutions
- Total revolution over Singleturn/Multiturn
- Preset value
- Diagnostics mode

SET Control Button (Zero or Defined Value, Option):

Protected against accidental activation, can only be pushed in with the tip of a ballpoint pen or similar.

Diagnostic LED (yellow):

LED on at . . . . . . . . . . . . . . . . . . Optical sensor path faulty (code error, LED error), low voltage and overtemperature

Protocol

Baud Rate . . . . . . . . . . . . . . . . . . 12 Mbits/s
Node Address . . . . . . . . . . . . . . . 1-127 (Set by Rotary Switches)
Termination Switchable . . . . . . . . . Set by DIP switches, Software Configurable

The Following Functionality Is Integrated:

- Galvanic isolation of the bus stage with DC/DC converter
- Line driver acc. to RS 485 max. 12 MB
- Address programmable via DIP switches
- Diagnostics LED
- Full class 1 and class 2 functionality
Kübler by TURCK
Absolute Encoders

Absolute, Multiturn Hub Shaft Type T8.5888 Specifications
PROFIBUS®-DP

Standard Wiring / Pin Configuration

Terminal Assignment with Terminal Box

<table>
<thead>
<tr>
<th>Signal:</th>
<th>BUS IN</th>
<th>BUS OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BUS-A</td>
<td>0 V</td>
</tr>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

|         | BUS-B  | 0 V     |
| Pin:    | 3      | 4       |

|         | 5      | 6       |
|         | B      | A       |

Terminal Assignment M12 - 3 Connector Version

Bus In

<table>
<thead>
<tr>
<th>Signal:</th>
<th>BUS-A</th>
<th>BUS-B</th>
<th>Shield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Male Pinout</th>
<th>Mating Cordsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>RKSM-45S-*M</td>
</tr>
</tbody>
</table>

Power Supply

<table>
<thead>
<tr>
<th>Signal:</th>
<th>BUS-VDC</th>
<th>BUS-A</th>
<th>BUS_GND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin:</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Female Pinout</th>
<th>Mating Cordsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>RSSW-45S-*M</td>
</tr>
</tbody>
</table>

1) For powering an external PROFIBUS-DP terminating resistor.
2) See cable section for additional options.
3) "S" denotes shield tied to coupling nut.
4) * = length in meters, available in 0.1 meters increments ≥0.2 meters.
Industrial Automation

Absolute, Multiturn Hub Shaft Type T8.5888 Dimensions

PROFIBUS®-DP

T8.5888 Flanges 5 & 6
Cable Connection 1

T8.5888 Flanges 1 & 2
M12 Connection 2

T8.5888 Flanges 3 & 4
M12 Connection 2
Kübler by TURCK
Industrial Connectivity Products

12-Pin M23 *multifast*® Absolute Encoder Cordsets - SSI/BiSS, Analog, Sine Wave

- Female Coupling Nut, Female Contact
- Shielded High Grade Oil and UV Resistant PVC
- Shield Not Tied to Coupling Nuts

<table>
<thead>
<tr>
<th>Housing Style</th>
<th>Part Number</th>
<th>Specifications</th>
<th>Application</th>
<th>Pinouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Image]</td>
<td>E-CK 12-6901-*/A</td>
<td>12x26 Grey PVC 7.3 mm O.D. 26 AWG Braided Shield 80°C</td>
<td>12-pin Absolute</td>
<td>CW*</td>
</tr>
</tbody>
</table>

* Reversed.
1) Add ‘S’ to the part number to connect shield to the coupling nut. Ex. E-CKS 12-6901-*/A.
2) E-CK 12-pin encoder cables incorporate reversed direction pinouts from the standard *multifast* 12-pin connectors.

12-Pin M23 *multifast*® Field Wireable Encoder Connectors, Shielded, Solder Cup

- 12-pin
- Female Coupling Nut, Female Contact Holders

<table>
<thead>
<tr>
<th>Housing Style</th>
<th>Part Number</th>
<th>Specifications</th>
<th>Application</th>
<th>Pinouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Image]</td>
<td>E-CKS 12-0</td>
<td>Solder Cup up to 18 AWG</td>
<td>Metal, fully shielded Mates with 12-pin encoders</td>
<td>CW*</td>
</tr>
</tbody>
</table>

* Reversed.
1) E-CK 12-pin encoder cables incorporate reversed direction pinouts from the standard *multifast* 12-pin connectors.
### eurofast® Encoder Cordsets Selection Matrix PROFIBUS®-DP

<table>
<thead>
<tr>
<th>eurofast</th>
<th>Pin (Male)</th>
<th>Socket (Female)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RSSW</td>
<td>WSSW</td>
</tr>
<tr>
<td>2</td>
<td>RSSW</td>
<td>WSSW</td>
</tr>
<tr>
<td>3</td>
<td>RSSW</td>
<td>WSSW</td>
</tr>
<tr>
<td>4</td>
<td>RSSW</td>
<td>WSSW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin (Male)</th>
<th>WSSW 455-*M</th>
<th>RSSW 455-*M</th>
<th>RKSW 455-*M</th>
<th>WKSW 455-*M</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RSAW</td>
<td>RSAW</td>
<td>RSAW</td>
<td>RSAW</td>
</tr>
<tr>
<td>3</td>
<td>RSAW</td>
<td>RSAW</td>
<td>RSAW</td>
<td>RSAW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Socket (Female)</th>
<th>RKSW 455-*M</th>
<th>WKSW 455-*M</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>RKSW</td>
<td>WKSW</td>
</tr>
<tr>
<td>4</td>
<td>WKSW</td>
<td>WKSW</td>
</tr>
</tbody>
</table>

* Indicates length in meters.

Refer to the Cordsets 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.

Additional cable types available in the Fieldbus and Network I/O Catalog.

### Pinouts

<table>
<thead>
<tr>
<th>eurofast</th>
<th>455 Series Pinout</th>
<th>eurofast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1. NC</td>
<td>4. Bare (Shield Drain Wire)</td>
</tr>
<tr>
<td></td>
<td>2. Green (TxD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. NC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Red (RxD)</td>
<td></td>
</tr>
</tbody>
</table>

**Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com**
Kübler by TURCK
Industrial Connectivity Products

4-Wire M12 eurofast® Cordsets, Standard Plug Body

- Straight Female Connector
- NEMA 1, 3, 4, 6P and IEC IP 68 Protection
- 250 VAC/300 VDC, 4 A

<table>
<thead>
<tr>
<th>Housing Style</th>
<th>Part Number</th>
<th>Cable</th>
<th>Features</th>
<th>Pinouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>RK 4.41T-*</td>
<td>AWM PVC NAMUR Blue 4x22 AWG 105°C 5.2 mm OD Cable #RF50598-*M’</td>
<td>flexlife</td>
<td>1. BN 2. WH 3. BU 4. BK</td>
<td></td>
</tr>
<tr>
<td>RK 4.41T-*/S529</td>
<td>AWM PUR/Heavy Braid Double Jacket Yellow 4x20 AWG 105°C 5.6 mm OD Cable #RF50526-*M’</td>
<td>Cut/Abrasion Immune Braided Mechanical Shield</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.43T-*</td>
<td>AWM PVC Yellow 4x22 AWG 105°C 5.2 mm OD Cable #RF50530-*M’</td>
<td>flexlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.43T-*/S90</td>
<td>AWM PUR Yellow 4x22 AWG 105°C 5.2 mm OD Cable #RF50613-*M’</td>
<td>Cut/Abrasion Immune</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.4T-*</td>
<td>AWM PVC Grey 4x22 AWG 105°C 5.2 mm OD Cable #RF50516-*M’</td>
<td>flexlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.4T-*/S90</td>
<td>AWM PUR Grey 4x22 AWG 105°C, 5.2 mm OD Cable #RF50532-*M’</td>
<td>Cut/Abrasion Immune</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.4T-*/S101</td>
<td>AWM TPE Grey 4x22 AWG 105°C, 5.7 mm OD Cable #RF50941-*M’</td>
<td>flexLife-10, High Flex Over 10 Million Cycles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.4T-*/S824</td>
<td>PLTC PVC Grey 4x22 AWG 105°C, 5.2 mm OD Cable #RF50698-*M’</td>
<td>Tray Rated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.4T-*/S618</td>
<td>AWM PVC Grey 4x22 AWG, Foil/Drain 105°C, 5.2 mm OD Cable #RF50577-*M’</td>
<td>RF/EMI Shielding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RK 4.4T-*/S618/S824</td>
<td>PLTC PVC Grey 4x22 AWG, Foil/Drain 105°C, 5.2 mm OD Cable #RF50773-*M’</td>
<td>RF/EMI Shielding Tray Rated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Length in meters. Standard cable lengths are 2, 4, 6, 8 and 10 meters. Consult factory for other lengths.
** Standard coupling nut material is nickel plated brass “RK ..”; “RKK ..” indicates nylon and “RKV ..” indicates 316 stainless steel.
† For reelfast® cable information see Connectivity Catalog.
# 8-Wire M12 eurofast® Encoder Field Wireable Connectors, Shielded, Screw Terminals

- Screw Terminals
- No Soldering Required
- IEC IP 67 Protection

<table>
<thead>
<tr>
<th>Housing Style</th>
<th>Part Number</th>
<th>Specifications</th>
<th>Application</th>
<th>Pinouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>CMB 8181-0</td>
<td>Nickel Plated Brass PG9 cable gland accepts 6-8 mm cable diameter Screw terminal accepts up to 18 AWG conductors 85°C 60 VAC/75 VDC, 4 A</td>
<td>Metal, Fully Shielded Mates with standard key 8-pin cordsets and receptacles</td>
<td>![Female Pinout Diagram]</td>
</tr>
<tr>
<td>Male</td>
<td>CMBS 8181-0</td>
<td>Metal, Fully Shielded Mates with standard key 8-pin cordsets and receptacles</td>
<td><strong>CW</strong></td>
<td>![Male Pinout Diagram]</td>
</tr>
</tbody>
</table>
Kübler by TURCK
Industrial Connectivity Products

8-Pin M12 eurofast®, Encoder Cordsets

- For use with Kübler by TURCK’s SSI Encoders
- Straight and Right Angle Female Connectors
- NEMA 1, 3, 4, 6P, and IEC IP 68
- 60 VAC/75 VDC, 2 A

<table>
<thead>
<tr>
<th>Housing Style</th>
<th>Part Number</th>
<th>Cable</th>
<th>Features</th>
<th>Pinouts</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-RKC ..</td>
<td>E-RKC 8T-264-*</td>
<td>AWM PVC Black 8x24 AWG, 4 STP 105°C 7.3 mm OD RF51264-*M+</td>
<td>SSI, Differential Mode Applications, RFI/EMI Protection</td>
<td>1. WH 2. BN 3. GN 4. YE 5. GY 6. PK 7. BU 8. RD</td>
</tr>
<tr>
<td>E-WKC ..</td>
<td>E-WKC 8T-264-*</td>
<td>AWM PVC Black 8x24 AWG, 4 STP 105°C 7.3 mm OD RF51264-*M+</td>
<td>SSI, Differential Mode Applications, RFI/EMI Protection</td>
<td>1. WH 2. BN 3. GN 4. YE 5. GY 6. PK 7. BU 8. RD</td>
</tr>
</tbody>
</table>

* Length in meters. Standard cable lengths are 2, 5, 10 and 15 meters. Consult factory for other lengths.
** Standard coupling nut material is nickel plated brass “E-RKC../E-WKC../E-RKCV../E-WKCV../” indicates 316 stainless steel.
+ For reelfast® cable information see Connectivity Catalog.
STP = Shielded twisted pair.
1) Change RKC/WKC to RKS/WKS to tie the shield to the coupling nut.
TURCK Inc. sells its products through Authorized Distributors. These distributors provide our customers with technical support, service and local stock. TURCK distributors are located nationwide - including all major metropolitan marketing areas.

For Application Assistance or for the location of your nearest TURCK distributor, call:

1-800-544-7769

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Contact Marketing Communications TURCK USA - media@turck.com