



## SFB-EIP-8M12-IOP

- Safety fieldbox for Ethernet/IP with CIP-Safety
- For connection of up to 8 safety switching devices
- Integrated dual-port switch
- Protection class IP66, IP67

## Data

### Ordering data

Product type description	SFB-EIP-8M12-IOP
Article number (order number)	103015480
EAN (European Article Number)	4030661628691
eCl@ss number, version 12.0	27-24-26-04
eCl@ss number, version 11.0	27-24-26-04
eCl@ss number, version 9.0	27-24-26-04
ETIM number, version 7.0	EC001599
ETIM number, version 6.0	EC001599

### Approvals - Standards

Certificates	TÜV cULus
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### General data

Standards	EN IEC 61131-1 EN IEC 61131-2 EN ISO 13849-1 EN IEC 60947-5-3 EN IEC 61508
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Housing material	Thermoplastic, Polyamide PA 6 GF
Material of the identification label	Plastic, Polyamide PA
Material of viewing window	Polyamide PACM 12
Material of electronic encapsulation	Polyurethane 2K PU
Gross weight	649 g

## General data - Features

Integral system diagnostics, general	Yes
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## Safety classification

Standards	EN ISO 13849-1 EN IEC 61508
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## Safety classification - Safety inputs 2-channels

Performance Level, up to	e
Category	4
Diagnostic Coverage (DC) Level	99 %
PFH value	$1.10 \times 10^{-9} /h$
$PFD_{avg}$	$9.60 \times 10^{-5}$
Safety Integrity Level (SIL), suitable for applications in	3
Mission time	20 Year(s)
Response time of local safety input ⇒ Fieldbus, maximum	20 ms
Notice	The SFB fulfils the requirements as PDDB (proximity switch with defined behaviour under fault conditions) according to EN 60947-5-3 in combination with magnetic sensors (2 NC contacts) up to PL e / SIL 3.

## Safety classification - Safety inputs 1-channel

Performance Level, up to	d
Category	2

Diagnostic Coverage (DC) Level	90 %
PFH value	$2.30 \times 10^{-7}$ /h
$PFD_{avg}$	$2.00 \times 10^{-2}$
Safety Integrity Level (SIL), suitable for applications in	1
Mission time	20 Year(s)
Response time of local safety input > Fieldbus, maximum	20 ms
Test interval for error detection	10 s

### Safety classification - Safety outputs 1-channel

Performance Level, up to	d
Category	3
Diagnostic Coverage (DC) Level	90 %
PFH value	$1.00 \times 10^{-7}$ /h
$PFD_{avg}$	$8.80 \times 10^{-3}$
Safety Integrity Level (SIL), suitable for applications in	2
Mission time	20 Year(s)
Reaction time Fieldbus > local safety output	50 ms

### Safety classification - Safety outputs 2-channels

Performance Level, up to	e
Category	4
Diagnostic Coverage (DC) Level	99 %
PFH value	$1.20 \times 10^{-9}$ /h
$PFD_{avg}$	$1.10 \times 10^{-4}$
Safety Integrity Level (SIL), suitable for applications in	3
Mission time	20 Year(s)
Reaction time Fieldbus > local safety output	50 ms

## Mechanical data

Mounting	Screws
Type of the fixing screws	2x M6
Tightening torque of the fixing screws, maximum	3 Nm
Type of the fixing screws, viewing window	2x TX10 (Torx)
Tightening torque of the fastening screws for the viewing window, maximum	0.6 Nm

## Mechanical data - Connection technique

Termination	M12 Connector socket/connector
Terminal connector, Input/Output	X0 - X7: M12, 8-pole, A-coded
Terminal Connector, Power I/O	M12 POWER, 4-pole, T-coded
Terminal Connector, Field bus	M12, 4-pole, D-coded
Tightening torque of electrical connection, minimum	0.8 Nm
Tightening torque of electrical connection, maximum	1.5 Nm

## Mechanical data - Dimensions

Length	222.8 mm
Width	63 mm
Height	36.1 mm

## Ambient conditions

Degree of protection	IP67 IP66
Ambient temperature	-25 ... +55 °C
Storage and transport temperature, minimum	-25 °C

Storage and transport temperature, maximum	+70 °C
Relative humidity, minimum	10 %
Relative humidity, maximum	95 %
Note (Relative humidity)	non-condensing
Resistance to vibrations	10 ... 150 Hz, amplitude 0.35 mm / 5 g
Resistance to shock	30 g / 11 ms
Protection class	III
Permissible installation altitude above sea level, maximum	2,000 m

### Ambient conditions - Insulation values

Rated insulation voltage $U_i$	32 VDC
Rated impulse withstand voltage $U_{imp}$	0.8 kV
Overvoltage category	III
Degree of pollution	3

### Electrical data

Current consumption	200 mA
Rated operating voltage	24 VDC
Operating current	10,000 mA
Note (Electrical data, Fuse rating)	External fuse protection required $\leq 10A$ slow blow when used to UL 61010.
Time to readiness, maximum	12,000 ms
Device Watchdog Time	12 ms
Reaction Time Safety Input, maximum	20 ms
Reaction Time Safety Output, maximum	50 ms

### Electrical data - Communication protocols

Fieldbus Protokoll	EtherNet/IP / CIP Safety
Fieldbus specification	V1.27

Specification safety fieldbus	V2.22
Fieldbus properties	Device Level Ring (DLR)
Transfer rate	100 Mbit/s Full Duplex
Adressing	Dynamic Host Configuration Protocol (DHCP) / BootP
Integrated switch	Dual Port, 100 Mbit/s
Fieldbus services	LLDP
Service interface	WEB-Interface HTTP

### Electrical data - Device Ports

Bezeichnung, Geräteanschlüsse	X0 ... X7
Cable length, device port	30 m

### Electrical data - Power supply external devices

Designation, Power supply	A1 and A2
Rated operating voltage	24 VDC
Rated operating current	800 mA
Internal electrical fuse	1.5 A (Integrated automatic resettable fuse)

### Electrical data - Safety digital inputs

Designation, Safety inputs	X1 and X2
Switching thresholds	-3 V ... 5 V (Low) 13 V ... 30 V (High)
Current consumption at 24 V	6 mA
Permissible residual drive current	1 mA
Test pulse duration, minimum	0.01 ms
Test pulse duration, maximum	1 ms
Test pulse interval, minimum	20 ms
Test pulse interval, maximum	120,000 ms
Classification ZVEI CB24I, Sink	C1
Classification ZVEI CB24I, Source	C1 C2 C3

## Electrical data - Safety digital outputs

Designation, Safety outputs	DO
Design of control elements	short-circuit proof, p-type
Voltage drop $U_d$ , maximum	2 V
Leakage current $I_r$ , maximum	0.5 mA
Voltage, Utilisation category DC-12	24 VDC
Current, Utilisation category DC-12	0.8 A
Voltage, Utilisation category DC-13	24 VDC
Current, Utilisation category DC-13	0.8 A
Note, Utilisation category DC-13	Inductive load, maximum 400 mH
Switching frequency, maximum	1 Hz
Test pulse duration, maximum	1 ms
Test pulse interval, minimum	15 ms
Test pulse interval, maximum	500 ms
Classification ZVEI CB24I, Source	C1
Classification ZVEI CB24I, Sink	C1

## Electrical data - Diagnostic inputs / FB-Interface

Designation, Diagnostic inputs / FB-Interface	DI
Switching thresholds	-3 V ... 5 V (Low) 15 V ... 30 V (High)
Current consumption at 24V	12 mA
Input debounce filter	10 ms
Data transfer rate FB-Interface	19,2 kBaud

## Electrical data - Test pulse output

Designation, Test pulse outputs	Y1 and Y2
Design of control elements	short-circuit proof, p-type
Voltage drop $U_d$ , maximum	1 V
Current leakage $I_r$ , maximum	0.5 mA

Voltage, Utilisation category DC-12	24 VDC
Y1 rated current at 24 V	15 mA
Y2 rated current at 24 V	10 mA
Y2 rated current at 0 V	30 mA
Test pulse interval, typical	500 ms
Test pulse duration, maximum	1 ms
Classification ZVEI CB24I, Sink	C1
Classification ZVEI CB24I, Source	C1

### **LED status display - LED 01**

LED status	Error LED device port
LED position	E: 0 ... 7
LED colour	green/red

### **LED status display - LED 02**

LED status	Input LED device port
LED position	I: 0 ... 7
LED colour	Yellow

### **LED status display - LED 03**

LED status	LED Link Ethernet port
LED position	L: P1 + P2
LED colour	Green

### **LED status display - LED 04**

LED status	LED Activity Ethernet port
LED position	A: P1 + P2
LED colour	Yellow

### **LED status display - LED 05**



LED status	Module status LED
LED position	"MS": Module
LED colour	green/red

### LED status display - LED 06

LED status	Network Status LED
LED position	"NS": Module
LED colour	green/red

### LED status display - LED 07

LED status	Fieldbox error LED
LED position	"Err": Module
LED colour	green/red

### LED status display - LED 08

LED status	Power-LED fieldbox
LED position	"Pwr": Module
LED colour	Green

### Other data

Note (applications)	Safe field box with decentralised I/Os
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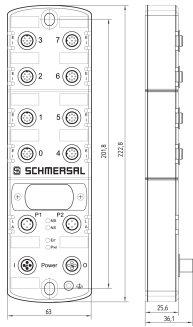
## Pictures

### Product picture (catalogue individual photo)



ID: ksfb-eip-f01  
| 788.1 kB | .jpg | 352.778 x 846.667 mm - 1000 x 2400 px - 72 dpi  
| 84.0 kB | .png | 74.083 x 177.447 mm - 210 x 503 px - 72 dpi  
| 35.3 kB | .jpg | 51.506 x 123.472 mm - 146 x 350 px - 72 dpi

## Dimensional drawing basic component



ID: ksfb-g02

| 321.6 kB | .jpg | 352.778 x 610.658 mm - 1000 x 1731 px - 72 dpi

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The details and data referred to have been carefully checked. Images may diverge from original. Further technical data can be found in the manual. Technical amendments and errors possible.

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