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FO converter with integrated optical diagnosis, for DeviceNet™, CAN, CANopen® to 800 kbps, basic module, interfaces: 1 x CAN, 1 x alarm, 1 x FO (FSMA), 660 nm, for polymer/HCS fiber cable

#### **Product Features**

- ☑ Data rates of up to 800 kbps, set via DIP switches
- ✓ Approved for use in zone 2
- Intrinsically safe fiber optic interface (Ex op is) for direct connection to devices in zone 1
- ☑ Integrated optical diagnostics for continuous monitoring of fiber optic paths
- High-quality electrical isolation between all interfaces (DeviceNet // fiber optic port // power supply // backplane)
- ☑ Integrated bus termination resistor can be connected internally

- Floating switch contact in the basic module for leading alarm generation in relation to critical fiber optic paths











### Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	173.3 GRM
Custom tariff number	85176200
Country of origin	Germany

#### Technical data

#### Note

Utilization restriction area
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#### **Dimensions**

Width	22.5 mm
Widti	22.3 11111



# Technical data

## Dimensions

Height	99 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C 60 °C
Ambient temperature (storage/transport)	-40 °C 85 °C
Permissible humidity (operation)	30 % 95 % (non-condensing)
Altitude	5000 m (For restrictions see manufacturer's declaration)
Degree of protection	IP20
Noise immunity	EN 61000-6-2:2005

### Serial interface

Interface 1	CAN interface, in accordance with ISO/IS 11898 for DeviceNet, CAN, CANopen
Connection method	Pluggable screw connection
File format/coding	Bit stuffing, NRZ
Transmission medium	Copper
Transmission length	≤ 5000 m (Dependent on the data rate and the protocol used)
Termination resistor	120 Ω (Can be connected)
Serial transmission speed	≤ 800 kbps

## Optical interface FO

Transmit capacity, minimum	-6.2 dBm (980/1000 μm)
	-16.9 dBm (200/230 μm)
Minimum receiver sensitivity	-30.2 dBm
Wavelength	660 nm
Transmission length incl. 3 dB system reserve	100 m (With F-P 980/1000 230 dB/km with quick mounting connector)
	800 m (With F-K 200/230 10 dB/km with quick mounting connector)
Transmission medium	Polymer fiber
	HCS fiber
Connection method	F-SMA

# Digital outputs

Output name	Relay output
Output description	Alarm output
Number of outputs	1
Maximum switching voltage	60 V DC
	42 V AC
Limiting continuous current	0.46 A



# Technical data

## Power supply

Supply voltage range	10 V DC 30 V DC (via pluggable COMBICON screw terminal block)
Max. current consumption	100 mA
Typical current consumption	100 mA (24 V DC)
Connection method	Pluggable COMBICON screw terminal block through basic module

### General

Bit distortion, input	± 35 % (permitted)
Bit distortion, output	< 6.25 %
Electrical isolation	VCC // CAN
Test voltage data interface/power supply	1.5 kV <sub>rms</sub> (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2004/108/EC
Noise emission	EN 55011
Housing material	PA 6.6-FR
Color	green
MTBF	409 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	82 Years (Telcordia standard, 40°C temperature, 34.25% operating cycle (5 days a week, 12 hours a day))
Conformance	CE-compliant
ATEX	# II 3 G Ex nAC IIC T4 X (Please follow the special installation instructions in the documentation!)
	# II (2) GD [Ex op is] IIC (PTB 06 ATEX 2042 U) (Please follow the special installation instructions in the documentation!)
UL, USA / Canada	Class I, Zone 2, AEx nc IIC T5
	Class I, Div. 2, Groups A, B, C, D

# Classifications

## eCl@ss

eCl@ss 4.0	27230207
eCl@ss 4.1	27230207
eCl@ss 5.0	27230207
eCl@ss 5.1	27230207
eCl@ss 6.0	27230207
eCl@ss 7.0	27230207
eCl@ss 8.0	27143136

## **ETIM**

ETIM 2.0	EC001423



## Classifications

#### **ETIM**

ETIM 3.0	EC001423
ETIM 4.0	EC001423
ETIM 5.0	EC001423

#### **UNSPSC**

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43201553

# Approvals

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Approvals

UL Recognized / cUL Recognized / cULus Recognized

Ex Approvals

ATEX / UL Listed

Approvals submitted

### Approval details

UL Recognized **5** 

cUL Recognized

cULus Recognized • Sus



#### Accessories

Accessories

Adapter

Fiber optic coupling - PSM-SET-FSMA-LINK/2 - 2799416



Coupling; set consisting of 2 couplings for connecting F-SMA plugs

### Assembly tool

Assembly tool - PSM-POF-KONFTOOL - 2744131



Polymer fiber DIY case, consisting of: Stripping knife, stripping pliers, polishing wheels for F-SMA and SCRJ quick mounting connectors, polishing pad and emery paper

#### Assembly tool - PSM-HCS-KONFTOOL - 2799526



HCS assembly kit for F-SMA quick mounting connectors, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS fibers, and documentation

#### Assembly tool - PSM-SET-FSMA-POLISH - 2799348



Polymer fiber polishing set, for F-SMA quick mounting connectors

Connector set



#### Accessories

FO connectors - PSM-SET-FSMA/4-KT - 2799720



F-SMA plug set for polymer fiber, for self assembly consisting of 4 quick mounting connectors with bend protection sleeve

FO connectors - PSM-SET-FSMA/4-HCS - 2799487



F-SMA plug set for HCS fiber, for self assembly consisting of 4 quick mounting connectors with bend protection sleeve

#### Data cable by the meter

FO cable - PSM-LWL-KDHEAVY-980/1000 - 2744319



Polymer fiber cable, duplex  $980/1000 \, \mu m$ , medium-weight version for permanent indoor installation, by the meter, without connector

FO cable - PSM-LWL-RUGGED-980/1000 - 2744322



Polymer fiber cable, duplex,  $980 \ \mu m/1000 \ \mu m$ , heavy version for permanent indoor installation, sold by the meter without connectors

FO cable - PSM-LWL-RUGGED-FLEX-980/1000 - 2744335



Polymer fiber cable, duplex  $980/1000 \ \mu m$ , heavy-weight, highly flexible version for flexible conduit applications, by the meter, without connector



#### Accessories

FO cable - PSM-LWL-HCS-RUGGED-200/230 - 2799885



HCS cable, duplex 200/230  $\mu m$ , by the meter, without connector, for indoor installation

FO cable - PSM-LWL-HCSO-200/230 - 2799445



HCS cable, duplex 200/230  $\mu m$ , by the meter, without connector, for outdoor installation

Bus system cable - SAC-5P-920/... - 1511504



Cable ring for CANopen<sup>®</sup> and DeviceNet<sup>™</sup> cable, 5-pos., in cable lengths from 0.5 m to 400 m

#### Data plug

D-SUB bus connector - SUBCON-PLUS-CAN - 2744694



D-SUB connector, 9-pos. female connector, two cable entries < 35° to one terminal block row, bus system: CAN, CANopen®, SafetyBUS p up to 1 Mbps, termination resistor can be switched on via slide switch, pin assignment: 2, 3, 7; screw connection terminal blocks

D-SUB bus connector - SUBCON-PLUS-CAN/PG - 2708119



D-SUB connector, 9-pos. socket, cable entry < 35°, bus system: CAN, CANopen<sup>®</sup>, SafetyBUS p up to 1 Mbps, with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 2, 3, 6, 7, 9; screw terminal blocks



#### Accessories

D-SUB bus connector - SUBCON-PLUS-CAN/AX - 2306566



D-SUB connector, 9-pos. female connector, axial version with two cable entries, bus system: CAN, CANopen, SafetyBUS p; pin assignment: 2, 3, 7; screw connection terminal blocks

D-SUB bus connector - SUBCON-PLUS-CAN/90/PG/M12 - 2902322



D-SUB plug, 9-pos., socket, with PG-D-SUB pin, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 90°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

D-SUB bus connector - SUBCON-PLUS-CAN/90/M12 - 2902323



D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 90°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

D-SUB bus connector - SUBCON-PLUS-CAN/35/PG/M12 - 2902324



D-SUB plug, 9-pos., socket, with PG-D-SUB pin, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 35°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

D-SUB bus connector - SUBCON-PLUS-CAN/35/M12 - 2902325



D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 35°. Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.



#### Accessories

D-SUB bus connector - SUBCON-PLUS-CAN/AX/M12 - 2902326



D-SUB plug, 9-pos., socket, assignment: 2, 3, 5, 6, 7, 9; two M12 cable glands (A-coded) under 180° (axial). Bus system: CAN, CANopen®. Termination resistor via separate M12 terminator.

#### D-SUB bus connector - SUBCON-PLUS-CAN - 2744694



D-SUB connector, 9-pos. female connector, two cable entries < 35° to one terminal block row, bus system: CAN, CANopen®, SafetyBUS p up to 1 Mbps, termination resistor can be switched on via slide switch, pin assignment: 2, 3, 7; screw connection terminal blocks

#### D-SUB bus connector - SUBCON-PLUS-CAN/PG - 2708119



D-SUB connector, 9-pos. socket, cable entry < 35°, bus system: CAN, CANopen<sup>®</sup>, SafetyBUS p up to 1 Mbps, with PG D-SUB socket for connecting a programming device, termination resistor can be switched on via slide switch, pin assignment: 2, 3, 6, 7, 9; screw terminal blocks

#### D-SUB bus connector - SUBCON-PLUS-CAN/AX - 2306566



D-SUB connector, 9-pos. female connector, axial version with two cable entries, bus system: CAN, CANopen, SafetyBUS p; pin assignment: 2, 3, 7; screw connection terminal blocks

#### Measuring tools

Measuring instrument - PSM-FO-POWERMETER - 2799539



Fiber optic measuring case, consisting of an optical power meter, F-SMA, B-FOC adapters, reference fibers and operating instructions



### Accessories

Screwdriver tools

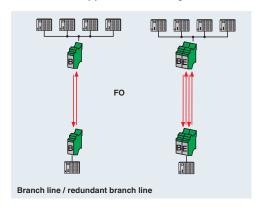
Screwdriver - SZS 0,4X2,5 VDE - 1205037



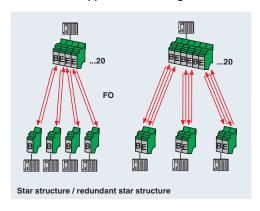
Screwdriver, slot-headed, VDE insulated, size: 0.4 x 2.5 x 80 mm, 2-component grip, with non-slip grip

# **Drawings**

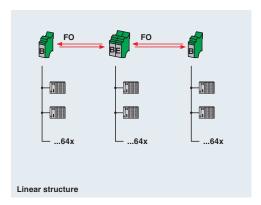
#### Application drawing



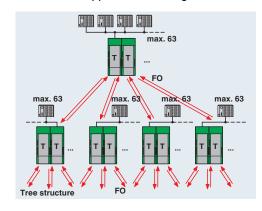
### Application drawing



### Application drawing



### Application drawing



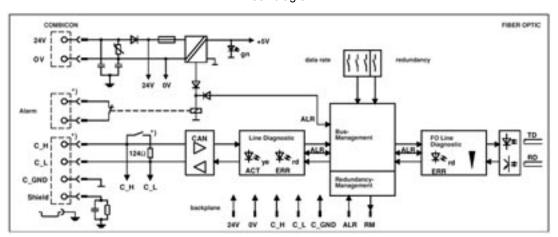


### Catalog photo



Figure may contain other products.

Block diagram



\*) Only in the basic module

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