PHŒNIX CONTACT

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

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FO converter with integrated optical diagnostics, alarm contact, for RS-485 2-wire bus systems (SUCONET K, Modbus ...) up to 500 kbps, NRZ coding, terminal device with one FO interface (BFOC), 850 nm, for PCF/ fiberglass cable (multimode)

Why buy this product

☑ Can be combined with the PSI copper repeater in a modular way using DIN rail connectors

☑ Connections can be plugged in using a COMBICON screw terminal block

☑ Supply voltage and data signals routed through via DIN rail connectors

☑ Automatic data rate detection or fixed data rate setting via DIP switches

☑ High-quality electrical isolation between all interfaces (RS-485 // fiber optic ports // power supply // DIN rail connector)

☑ Redundant power supply possible by means of optional system power supply unit

☑ 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

☑ Floating switch contact for leading alarm generation in relation to critical fiber optic paths

☑ Suitable for data rates up to 500 kbps

Key Commercial Data

Packing unit	1 STK
GTIN	
GTIN	4017918974039
Weight per Piece (excluding packing)	254.300 g
Custom tariff number	85176200
Country of origin	Germany

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Technical data

Dimensions

Width	35 mm
Height	99 mm
Depth	105 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

General

Bit delay	$\leq$ 1 bit
Bit distortion, input	± 35 % (permitted)
Bit distortion, output	< 6.25 %
Electrical isolation	VCC // RS-485
Test voltage data interface/power supply	1.5 kV$_{rms}$ (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Net weight	254.3 g
Housing material	PA 6.6-FR
Color	green
MTBF	272 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
	44 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 nA nC IIC T4 Gc X (Please follow the special installation instructions in the documentation!)
	# II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U) (Please follow the special installation instructions in the documentation!)
	# II (2) D [Ex op is Db] IIIC (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, zone 2, Ex nC nL IIC T5 X
	Class I, Div. 2, Groups A, B, C, D

Power supply

Nominal supply voltage	24 V DC (With UL approval)
Supply voltage range	18 V DC ... 30 V DC
Max. current consumption	130 mA
Typical current consumption	120 mA (24 V DC)
Connection method	COMBICON plug-in screw terminal block

PHŒNIX CONTACT

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Technical data

Serial interface

Interface 1	RS-485 interface, 2-wire
Operating mode	Semi-duplex
Connection method	Pluggable screw connection
File format/coding	UART (11/10 bit switchable; NRZ), slip-tolerant
Data direction switching	Automatic control
Transmission medium	Copper
Transmission length	≤ 1200 m (depending on the data rate, with shielded, twisted data cable)
Termination resistor	390 Ω
	220 Ω
	390 Ω (Can be connected)
Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section flexible min.	0.2 mm²
Conductor cross section flexible max.	2.5 mm²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	14
Serial transmission speed	4.8/ 9.6/ 19.2/ 38.4/ 57.6/ 75/ 93.75/ 115.2/ 136/ 187.5/ 375/ 500 kbps

Optical interface FO

Transmit capacity, minimum	-4 dBm (200/230 µm)
	-17.6 dBm (50/125 µm)
	-14 dBm (62,5/125 µm)
Minimum receiver sensitivity	-32.5 dBm (50/125 µm)
	-32.5 dBm (62,5/125 µm)
	-32.1 dBm (200/230 µm)
Overrange receiver	-3 dBm (200/230 µm)
Wavelength	850 nm
Transmission length incl. 3 dB system reserve	2800 m (with F-K 200/230 8 dB/km with quick mounting connector)
	4200 m (with F-G 50/125 2.5 dB/km)
	3300 m (with F-G 62,5/125 3.0 dB/km)
Transmission medium	PCF fiber
	Multi-mode fiberglass
Transmission protocol	Protocol-transparent to the RS-485 interface
Connection method	B-FOC (ST®)

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

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Technical data

Standards and Regulations

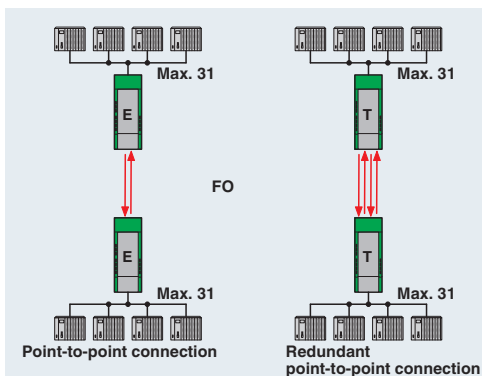|	
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Type of test	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6
Test result	5g, 10...150 Hz, 2.5 h, in XYZ direction
Type of test	Shock in acc. with EN 60068-2-27/IEC 60068-2-27
Test result	15g, 11 ms period, half-sine shock pulse
Noise emission	EN 55011
Noise immunity	EN 61000-6-2:2005
Free from substances that could impair the application of coating	according to P-VW 3.10.7 57 65 0 VW-AUDI-Seat central standard
Connection in acc. with standard	CUL
Standards/regulations	EN 61000-4-2
Contact discharge	± 6 kV
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	± 1 kV
Standards/regulations	EN 55011
	EN 61000-4-6
Shock	15g in all directions in acc. with IEC 60068-2-27
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Conformance	CE-compliant
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
	# II (2) G [Ex op is Gb] IIC (PTB 06 ATEX 2042 U)
	# II (2) D [Ex op is Db] IIIC (PTB 06 ATEX 2042 U)
UL, USA/Canada	Class I, Zone 2, AEx nc IIC T5
	Class I, zone 2, Ex nC nL IIC T5 X
	Class I, Div. 2, Groups A, B, C, D
Noxious gas test	ISA-S71.04-1985 G3 Harsh Group A

Environmental Product Compliance

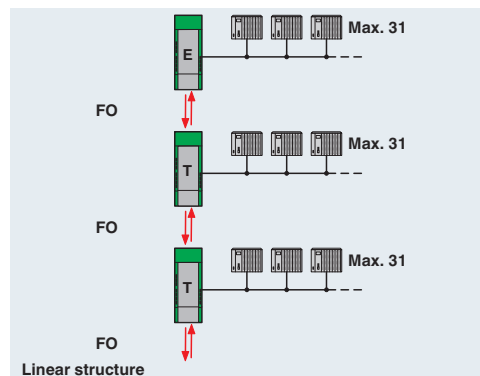|	
REACh SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339
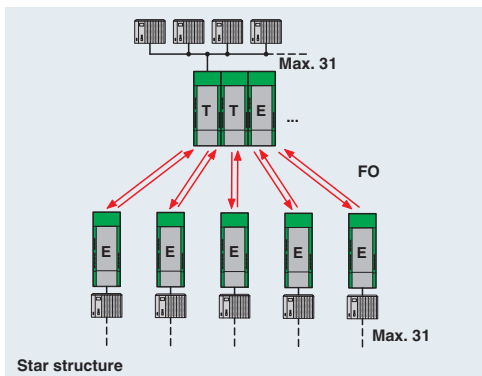
Application drawing

Redundant point-to-point connection
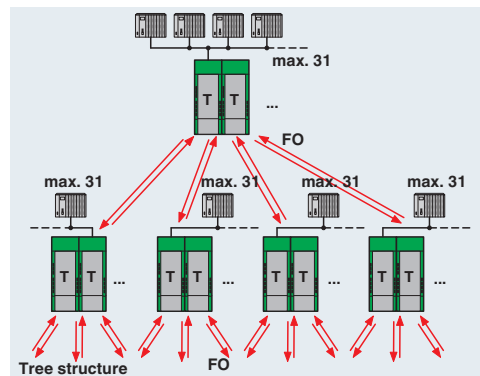
Application drawing

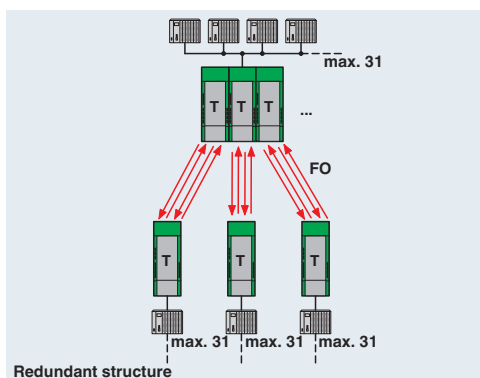Line structure

Application drawing
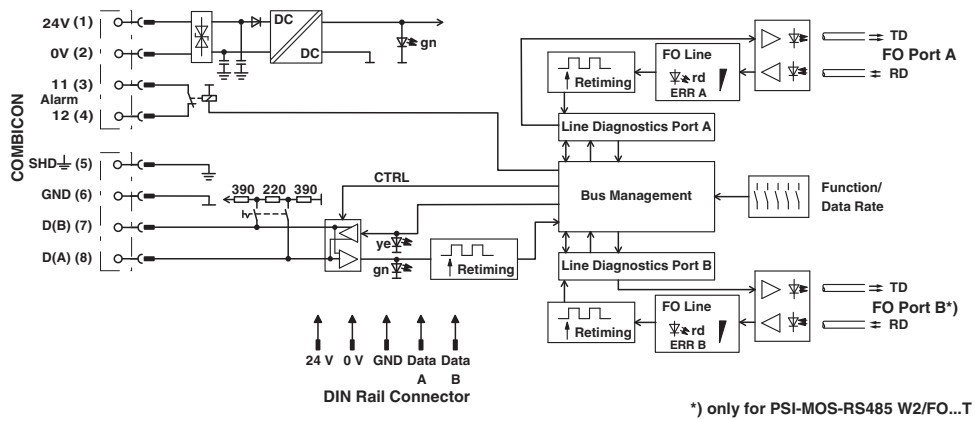

Star structure

Application drawing

Tree structure

Application drawing

Redundant structure

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FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Block diagram

*) only with PSI-MOS.../FO...T

Approvals

Approvals

Approvals

UL Recognized / cUL Recognized / EAC / EAC / KC / DNV GL / cULus Recognized

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Ex Approvals

UL Listed / cUL Listed / ATEX / ATEX / cULus Listed

Approval details

UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705

cUL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 238705

EAC		EAC-Zulassung

EAC		RU *- DE.A*30.B.01735

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Approvals

KC	![KC]	http://eng.kcc.go.kr/user/ehpMain.do	KCC-REI-PCK-FOCVT270

DNV GL	http://exchange.dnv.com/tari/	TAA00001KR

cULus Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm

Accessories

Accessories

Adapter

Fiber optic coupling - PSM-SET-BFOC-LINK/2 - 2799429

Coupling; set consisting of 2 couplings for connecting B-FOC plugs

Connection distributor - PSM PTK - 2760623

Passive RS-485 T-distributor, fitted with one 9-pin D-SUB pin strip and two 9-pin D-SUB socket strips

Connection distributor - PSM PTK-4 - 2799364

Passive RS-485 T-distributor, fitted with one 9-pin D-SUB pin strip and five 9-pin D-SUB socket strips

Assembly tool

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

Assembly tool - PSM-HCS-KONFTOOL/B-FOC - 2708465

HCS assembly kit for B-FOC(ST) quick mounting connectors, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS and HCS GI fibers, four B-FOC(ST) connectors for standard HCS fiber, and documentation

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Connector set

FO connectors - PSM-SET-B-FOC/4-HCS - 2708481

B-FOC (ST) connector set for PCF fiber, for self assembly consisting of 4 quick mounting connectors with bend protection sleeve

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Data cable by the meter

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

PCF cable, duplex 200 μm/230 μm, by the meter without male connector, for installation in stationary systems and machines

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

PCF cable, duplex 200/230 μm, by the meter, without connector, for outdoor installation

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FO cable - PSM-LWL-GDM-RUGGED- 50/125 - 2799322

Fiber glass cable, duplex 50 μm/125 μm, by the meter, without male connector, for installation in stationary systems and machines

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FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

FO cable - PSM-LWL-GDO- 50/125 - 2799432

Fiberglass cable, duplex 50/125 µm, by the meter, without connector, for outdoor installation

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Bus system cable - PSM-CABLE-PROFIB/FC - 2744652

By the meter, Bus system cable, PROFIBUS (12 Mbps), shielded, PVC FR VI/PVC, Violet, 2-wire (1X2XAWG22/1), color single wire: Red, green, cable length: Free entry (1.0 ... 1000.0 m)

Data cable preassembled

FO patch cable - FL MM PATCH 1,0 LC-ST - 2989174

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

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FO patch cable - FL MM PATCH 2,0 LC-ST - 2989271

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

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FO patch cable - FL MM PATCH 5,0 LC-ST - 2901801

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: LC/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

FO patch cable - FL MM PATCH 1,0 SC-ST - 2901809

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: SC duplex/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

FO patch cable - FL MM PATCH 5,0 SC-ST - 2901811

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: SC duplex/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FL MM PATCH 1,0 ST-ST - 2901815

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

FO patch cable - FL MM PATCH 2,0 ST-ST - 2901816

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

FO patch cable - FL MM PATCH 5,0 ST-ST - 2901817

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/B-FOC(ST®), degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

FO patch cable - FL MM PATCH 1,0 ST-SCRJ - 2901820

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 1 m

FO patch cable - FL MM PATCH 2,0 ST-SCRJ - 2901821

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 2 m

FO patch cable - FL MM PATCH 5,0 ST-SCRJ - 2901822

Assembled FO cable, break out cable, multimode fiberglass 50/125 µm (OM2), connector: B-FOC(ST®)/SC-RJ, degree of protection: IP20, for installation in cable ducts or control cabinets, length: 5 m

FO patch cable - FOC-HCS-RUGGED-1014/IP20/... - 2901555

Robust PCF installation cable for assembly (IP20 heads only) for installation in stationary systems and machines, aramid strain relief elements, with individual elements made from FRNC material, halogen-free, ozone and UV resistant, with a polyurethane (PUR) outer sheath

FO patch cable - FOC-HCS-RUGGED-1014/... - 1402191

rugged PCF installation cable for inner areas with highly tear-proof aramid strain-relief elements. Individual elements made from highly flexible FRNC material. The cable is halogen-free, ozone and UV resistant and has a rugged polyurethane (PUR) outer sheath.

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

FO patch cable - FOC-HCSO-1015/IP20/... - 2901557

Highly rugged PCF round cable (IP20 heads only) for assembly and for outdoor installation with integrated moisture barrier as well as rodent-proof scrim. Individual elements made from highly flexible FRNC material. The wire is ozone and UV resistant with a very rugged polyethylene outer sheath.

FO patch cable - FOC-GDM-RUGGED-1016/IP20/... - 2901558

Robust GOF installation cable for assembly (IP20 heads only) for installation in stationary systems and machines, aramid strain-relief elements, with individual elements made from FRNC material, halogen-free, ozone and UV resistant, with a polyurethane (PUR) outer sheath

FO patch cable - FOC-GDM-RUGGED-1016/... - 1402193

rugged GOF installation cable for inner areas with highly tear-proof aramid strain-relief elements. Individual elements consist of highly flexible FRNC material. The cable is halogen-free, ozone and UV resistant and has a rugged polyurethane (PUR) outer sheath.

FO patch cable - FOC-GDO-1017/IP20/... - 2901559

Highly rugged GOF round cable (IP20 heads only) for assembly and for outdoor installation with integrated moisture barrier as well as rodent-proof scrim. Individual elements made from highly flexible FRNC material. The wire is ozone and UV resistant with a very rugged polyethylene outer sheath.

Data plug

D-SUB bus connector - SUBCON-PLUS M1 - 2761826

D-SUB connector, 9-pos., male connector, two cable entries < 35°, bus system: Modbus, Modbus Plus, BITBUS, ARCNET, MULT/MININET (B&R), SYSTEM 2003 (B&R), P-NET, pin assignment: 1, 2, 3, 5, 6, 8 to two screw connection terminal blocks

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

D-SUB bus connector - SUBCON-PLUS F1 - 2744267

D-SUB connector, 9-pos. female connector, two cable entries < 35°, bus system: Modbus, Modbus Plus, BITBUS, ARCNET, MULT/MININET (B&R), SYSTEM 2003 (B&R), P-NET, pin assignment: 1, 2, 3, 5, 6, 8; screw connection terminal blocks

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D-SUB bus connector - SUBCON-PLUS M2 - 2761839

D-SUB connector, 9-pos., male connector, two cable entries < 35°, bus system: CAN, SUCONET K1, K2 (MOELLER), S-BUS (Saia), J-BUS (Merlin Gerin), pin assignment: 2, 3, 4, 5, 7, 9 to two screw connection terminal blocks

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D-SUB bus connector - SUBCON-PLUS F2 - 2799490

D-SUB connector, 9-pos. female connector, two cable entries < 35°, bus system: CAN, SUCONET K1, K2 (MOELLER), S-BUS (Saia), J-BUS (Merlin Gerin), pin assignment: 2, 3, 4, 5, 7, 9 to two screw connection terminal blocks

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D-SUB bus connector - SUBCON-PLUS F5 - 2744102

D-SUB connector, 9-pos. female connector, two cable entries < 35°, bus system: Modbus, CEGELEC, pin assignment: 1, 1, 2, 3, 6, 7; screw connection terminal blocks

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D-SUB bus connector - SUBCON-PLUS 9/M - 2744018

D-SUB connector, 9-pos., male connector, two cable entries < 35°, universal type for all systems, pin assignment: 1, 2, 3, 4, 5, 6, 7, 8, 9 to one screw connection terminal block

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FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

D-SUB bus connector - SUBCON-PLUS 9/F - 2744241

D-SUB connector, 9-pos. female connector, two cable entries < 35°, universal type for all systems, pin assignment: 1, 2, 3, 4, 5, 6, 7, 8, 9 to one screw connection terminal block

DIN rail connector

Electronic housing - ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - 2709561

DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

Interface converter

Repeater - PSI-REP-RS485W2 - 2313096

Modular repeater for electrical isolation and range increase in RS-485 2-wire bus systems up to 500 kbps, 4-way isolation, rail-mountable, supply 24 V DC

Repeater - PSM-ME-RS485/RS485-P - 2744429

Repeater, for potential separation and range increase in RS-485 2-wire bus systems, 3-way isolation, rail-mountable

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

Media converter

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

FO converters - PSI-MOS-RS485W2/FO 850 T - 2708326

FO converter with integrated optical diagnostics, alarm contact, for RS-485 2-wire bus systems (SUCONET K, Modbus ...) up to 500 kbps, NRZ coding, T-coupler with two FO interfaces (BFOC), 850 nm, for PCF/fiberglass cable (multimode)

Power supply

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983

Primary-switched MINI POWER supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

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

Stripping tool

Stripping tool - PSM-STRIP-FC/PROFIB - 2744623

Quick stripping tool for PROFIBUS cable, type Fast Connect

Terminal resistor

Termination resistor - PSI-TERMINATOR-PB-TBUS - 2702636

Active termination resistor for PROFIBUS and RS-485 bus systems, redundant power supply, routing of the supply voltage via DIN rail connector, electrical isolation, switchable termination, integrated programming interface

FO converters - PSI-MOS-RS485W2/FO 850 E - 2708339

Accessories

DIN rail bus connectors - ME 17,5 TBUS 1,5/PP000-3,81 BK - 2890014

DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 2-pos.