

FO Converter for RS-422/485 4-Wire/INTERBUS PSI-MOS-RS422/FO...

This data sheet applies to the following items:

PSI-MOS-RS422/FO 660 E Order No. 27 08 34 2
PSI-MOS-RS422/FO 660 T Order No. 27 08 38 4
PSI-MOS-RS422/FO 850 E Order No. 27 08 35 5
PSI-MOS-RS422/FO 850 T Order No. 27 08 39 7

1. Description

The PSI-MOS-RS422/FO ... devices convert RS-422/RS-485 4-wire and INTERBUS interfaces to fiber optics. A transparent protocol is used to convert all data rates up to a maximum of 2000 kbps. The integrated optical diagnostics enable fiber optic paths to be monitored continuously during installation and even during operation. The floating switch contact is activated when the signal level on the fiber optic paths reaches a critical level. This early alarm generation enables critical system states to be detected before they result in failure.

The main advantage of this system is the electrically isolated connection of devices, which prevents the negative effects of voltage equalization currents and electromagnetic interference on the data lines. This increases the overall availability of the system, and improves flexibility in terms of the design of the network topology in a linear or star structure.

The **PSI-MOS RS422/FO 660** ... devices are networked for distances of **up to 100 m (328.08 ft.) using polymer fiber cable** and for distances of **up to 800 m (2624.67 ft.) using HCS cable**. They are connected via F-SMA quick connectors, which can be assembled locally within a few minutes. The **PSI-MOS RS422/FO 850** ... devices are available for longer paths, and can be used for distances of **up to 2800 m (9186.35 ft.) using HCS fibers** and **B-FOC (ST®) quick connection technology** and **up to 4800 m (15748.03 ft.) using multi-mode glass fibers**.

The PSI-MOS system can be used with input voltages from 18 to 32 V DC and in a temperature range from -20°C to +60°C (-4°F to +140°F).



Should you have any technical questions, please contact us:

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2. Supported Network Structures

The PSI-MOS-RS422/FO ... system can be used to create network topologies that are ideally adapted to the relevant application. The structures are described briefly below:

2.1 Point-to-Point Connections/Redundant Point-to-Point Connections (Figure 02)

Two **PSI-MOS-RS422/FO ... E** fiber optic termination devices can be used to convert a copper data path to fiber optics. If necessary, the point-to-point connection can be designed redundantly to increase availability using **PSI-MOS-RS422W2/FO ... T** fiber optic **T-couplers**.

2.2 Linear Structures (Figure 03)

A fiber optic linear structure (Figure 03) can be used to network several RS-422/RS-485 4-wire devices to form a master/slave structure. In this case, it must be possible to address all termination devices via communication software. **PSI-MOS-RS422/FO ... E** termination devices are used at the beginning and end of the fiber optic line, while **PSI-MOS-RS422 FO ... T**-couplers with 2 fiber optic channels are used along the line.

The cascability of the fiber optic devices is limited by the data rate (see Table 01).

Data Rate (kbps)	Cascability (Number of Devices)
≤ 115.2	15
≤ 187.5	7
≤ 375	5
≤ 500	3
≤ 2000	2

Table 01

2.3 Star Structures/Redundant Star Structures (Figure 04)

Addressable RS-422/RS-485 4-wire termination devices can be networked as a master/slave network within a star structure. Depending on the number of fiber optic lines required, several T-couplers or termination devices are connected to an active star coupler (Figure 04a). Up to 10 PSI-MOS... devices can be connected per star coupler.

Cross wiring for the data and for the supply voltage is created automatically via the DIN rail bus connector (a special accessory, see Section 3. "Technical Data"). If increased availability is required, it is also possible to create redundant star distributors using **PSI-MOS-RS422/FO ... T**-coupler devices (Figure 04b).

2.4 Use in INTERBUS Networks (Figure 05)

The PSI-MOS-RS422/FO ... converters can also be used to create INTERBUS networks with fiber optic technology. For standard INTERBUS connections, the REMOTE IN and REMOTE OUT interfaces are converted to fiber optics using a **PSI-MOS-RS422/FO ... E** termination device. Even redundant fiber optic connections for INTERBUS can be implemented using **PSI-MOS-RS422/FO ... T**-couplers.

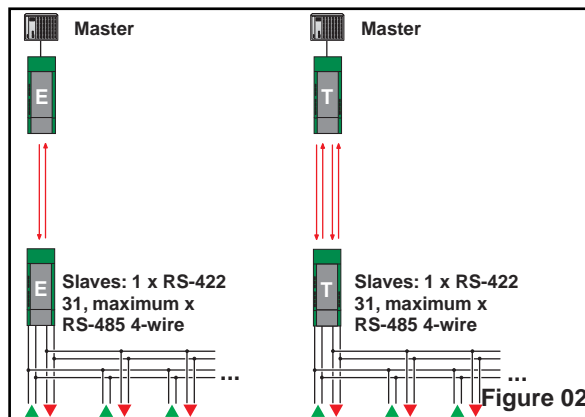


Figure 02

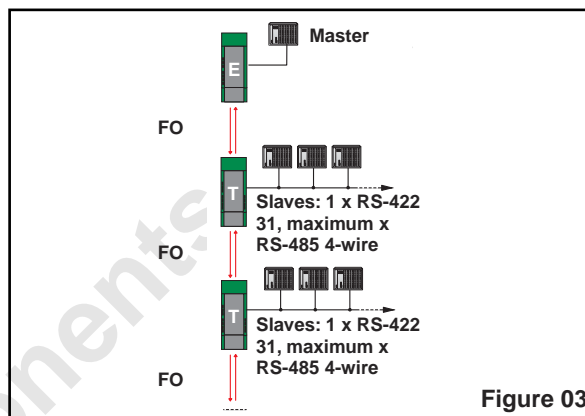


Figure 03

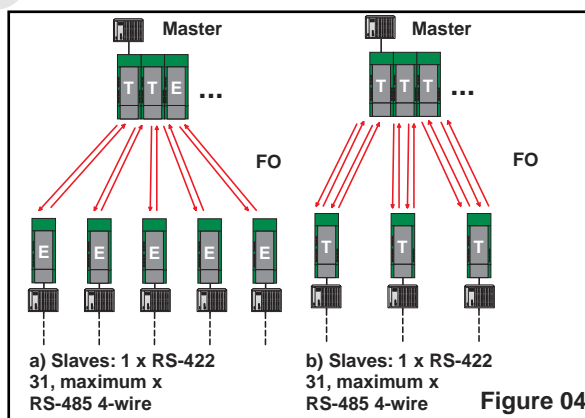


Figure 04

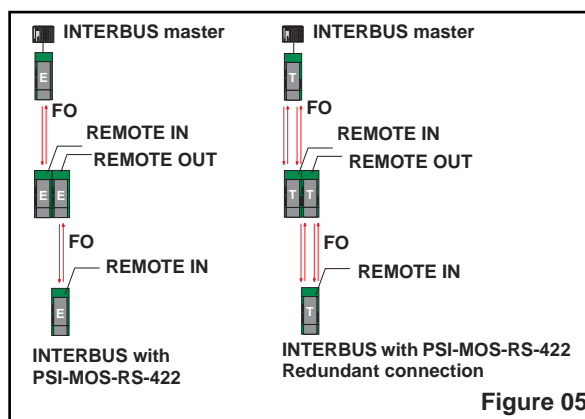
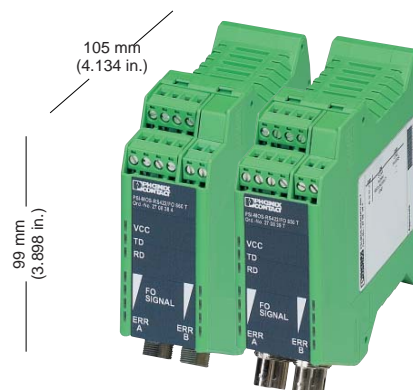


Figure 05

3. Technical Data

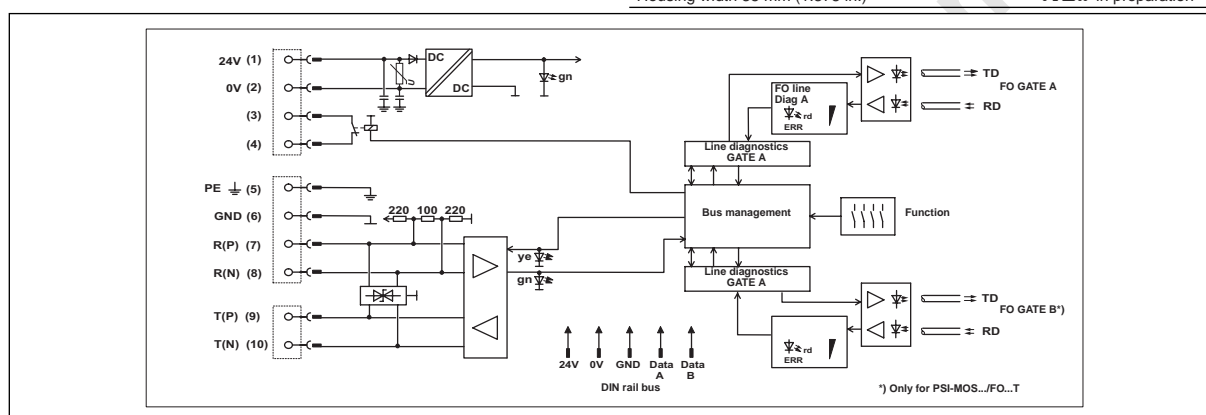


PSI-MOS-RS422/FO...

FO converter for RS-422/485 4-Wire/INTERBUS

Housing width 35 mm (1.378 in.)

us in preparation



Description	Connection Method	Type	Order No.	Pcs. Pkt.
T-coupler with integrated optical diagnostics for converting RS-422/RS-485 4-wire/INTERBUS to two fiber optic cables	660 nm F-SMA 850 nm B-FOC (ST®)	PSI-MOS-RS422/FO 660 T PSI-MOS-RS422/FO 850 T	27 08 38 4 27 08 39 7	1 1
Termination device with integrated optical diagnostics for converting RS-422/RS-485 4-wire/INTERBUS to one fiber optic cable	660 nm F-SMA 850 nm B-FOC (ST®)	PSI-MOS-RS422/FO 660 E PSI-MOS-RS422/FO 850 E	27 08 34 2 27 08 35 5	1 1
Installation Accessories				
System power supply for supplying a modular star coupler configuration				
End clamp				
DIN rail bus connectors (2 per device)				
Polymer fiber connectors (4 connectors in the set)				
Polishing set for polymer fiber connectors (required for polymer fiber connector assembly)				
Fiber optic polymer fiber cable for indoor installation				
F-SMA HCS fiber connectors (4 connectors in the set)				
B-FOC (ST®) HCS fiber connectors (4 connectors in the set)				
Tool set for HCS connectors (F-SMA) (required for HCS connector assembly)				
Tool set for HCS connectors (B-FOC (ST®)) (required for HCS connector assembly)				
Fiber optic HCS cable for indoor installation				
Fiber optic HCS cable for outdoor installation				
Fiber optic glass fiber cable for indoor installation				
Fiber optic glass fiber cable for outdoor installation				
Measuring device for fiber optic power measurement				
		MINI-SYS-PS100-240AC/24DC/1.5	28 66 98 3	1
		CLIPFIX 35	30 22 21 8	1
		ME 17,5 T BUS1,5/5-ST-3,81GN	27 09 56 1	10
		PSM-SET-FSMA/4-KT	27 99 72 0	1
		PSM-SET-FSMA-POLISH	27 99 34 8	1
		PSM-LWL-KDHEAVY	27 44 31 9	1
		PSM-SET-FSMA/4-HCS	27 99 48 7	1
		PSM-SET-B-FOC (ST®)/4-HCS	27 08 48 1	1
		PSM-HCS-KONFTOOL	27 99 52 6	1
		PSM-HCS-KONFTOOL/B-FOC (ST®)	27 08 46 5	1
		PSM-LWL-HCS-RUGGED-200/230	27 99 88 5	1
		PSM-LWL-HCSO-200/230	27 99 44 5	1
		PSM-LWL-GDM-RUGGED-50/125	27 99 32 2	1
		PSM-LWL-GDO-50/125	27 99 43 2	1
		PSM-FO-POWERMETER	27 99 53 9	1

FO Converter for RS-422/485 4-Wire/INTERBUS – PSI-MOS-RS422/FO...

Technical Data

Supply	24 V DC (18 V - 32 V DC)	
Nominal current consumption	130 mA, approximately	
RS-422 Interface	According to DIN 66 348-1	
Termination resistors	100 Ohm receiver, pull up/down 220 Ohm	
Transmission speed	0 to 2000 kbps (NRZ)	
Transmission channels (I/O)	2 (1/1), RD, TD, full duplex	
Transmission length	Up to 1000 m (3280.84 ft.) (depending on the data rate with shielded, twisted pair data cable)	
Connection	COMBICON	
Cascadability		
Devices in series:	2 devices at 2 Mbps 3 devices at 500 kbps 5 devices at 375 kbps 7 devices at 187.5 kbps 15 devices at 115.2 kbps 10 devices, maximum	
Devices in the star coupler configuration:		
Fiber Optic Interface		
Connection technology	F-SMA	B-FOC (ST®)
Wavelength	660 nm	850 nm
Transmission power (fiber type)	Minimum	- 4,6 dBm (980/1000 µm) - 16,6 dBm (200/230 µm)
Receiver sensitivity	Minimum	- 4,6 dBm (200/230 µm) - 17,6 dBm (50/125 µm) - 13,6 dBm (62,5/125 µm) - 33,2 dBm
Transmission length including 3 dB system reserve	Minimum	• 100 m (328.08 ft.) with F-K 980/1000 230 dB/km • 800 m (2624.67 ft.) with F-S 200/230 10 dB/km with quick mounting connectors • 2800 m (9186.35 ft.) with F-S 200/230 8 dB/km with quick mounting connectors • 4200 m (13779.53 ft.) with F-G 50/125 2.5 dB/km • 4800 m (15748.03 ft.) with F-G 62.5/125 3.0 dB/km
Transmission protocol	Transparent for RS-422 interface	

General Data

Electrical isolation	RS-422//supply
Test voltage	1.5 kVrms, 50 Hz, 1 minute
Alarm output	60 V DC/42 AC, maximum, 1 A, relay contact, opens on a supply voltage failure, when fiber optic power limit is reached, when fiber is broken
Status and diagnostic indicators	Supply (VCC), transmit/receive data RS-422, fiber optic bar graph (FO-SIGNAL), fiber optic error (FO ERR)
Housing material/color	PA V0, green
Connection data for screw terminal blocks	0.2 - 2.5 mm ² (25 - 14 AWG)
Operating temperature	-20°C to +60°C (-4°F to +140°F)
Storage temperature	-40°C to +85°C (-40°F to +185°F)
Dimensions (W x H x D)	35 mm x 99 mm x 103 mm (1.378 x 3.898 x 4.055 in.)
Degree of protection	IP20
Weight	200 g, approximately
Humidity	30% - 95%, no condensation

FO Converter for RS-422/485 4-Wire/INTERBUS – PSI-MOS-RS422/FO...

Other Tests

Ambient compatibility

Vibration resistance

Shock resistance

Free fall

Approvals

Air and creepage distances

Free from substances, which would hinder coating with paint or varnish (according to VW, Audi, and Seat specification)
5g according to IEC 60068-2-6, 2.5 h each in x, y, and z direction, criterion A
15g according to IEC 60068-2-27 with 11 ms pulse length, Criterion C (device is not damaged)
1 m (3.281 ft.) without packaging according to IEC 60 950
in preparation
VDE 0110-1
DIN EN 50 178
DIN EN 60 950; 2000



Conformance With EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC

EMC (Electromagnetic Compatibility)

Noise Immunity According to EN 61000-6-2

• Electrostatic discharge (ESD)

EN 61000-4-2

8 kV air discharge ²⁾
6 kV contact discharge ²⁾

• Electromagnetic HF field
Amplitude modulation
Pulse modulation

EN 61000-4-3

10 V/m ¹⁾
10 V/m ¹⁾

• Fast transients (burst)
Signal:
Supply:

EN 61000-4-4

2 kV/5 kHz ²⁾
2 kV/5 kHz ²⁾

• Surge current loads (surge)
Signal:
Supply:

EN 61000-4-5

1 kV/42 Ω ²⁾
0.5 kV/2 Ω ²⁾

• Conducted interference

EN 61000-4-6

10 V/m ¹⁾

Noise Emission According to EN 50081-2

EN 55011

Class A

EN 61000 corresponds to IEC 1000/
EN 55011 corresponds to CISPR11

¹⁾ Criterion A: Normal operating characteristics within the specified limits.

²⁾ Criterion B: Temporary adverse effects on the operating characteristics, which the device corrects automatically.

Class A: Industrial application, without special installation measures.

Dimensional diagram

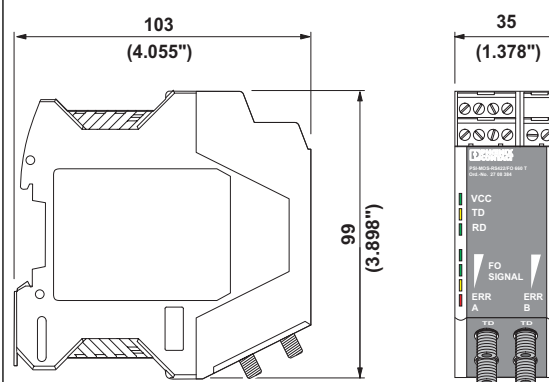


Figure 08

4. Function Elements/Diagnostics

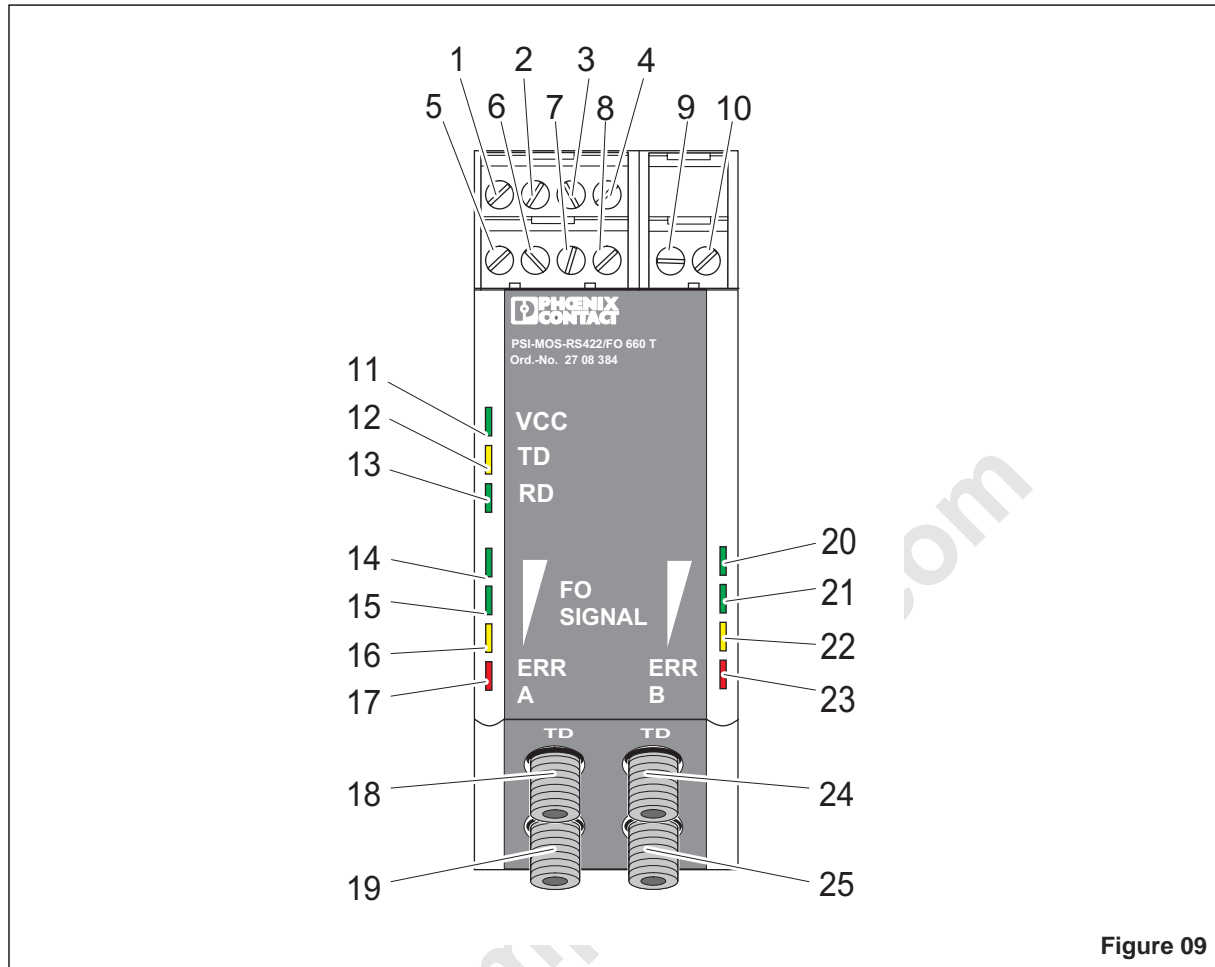


Figure 09

COMBICON

1. 24 V DC
2. 0 V
3. Alarm contact (X1) connection 1
4. Alarm contact (X2) connection 2
5. $\frac{1}{2}$
6. GND
7. Receive +: R (P)
8. Receive -: R (N)
9. Transmit +: T (P)
10. Transmit -: T (N)

LEDs

11. Supply voltage (V_{CC})
12. Transmit data dyn. CU port (TD)
13. Receive data dyn. CU port (RD)

Fiber Optic Port A/Diagnostics and Connections

14. Green -> Receiving power very good
15. Green -> Receiving power good
16. Yellow -> System reserve reached, receiving power critical
17. Red -> Receiving power insufficient/broken fiber
18. Fiber optic transmitter port A
19. Fiber optic receiver port A

Fiber Optic Port B/Diagnostics and Connections (Only for PSI-MOS RS422/FO ... -T)

20. Green -> Receiving power very good
21. Green -> Receiving power good
22. Yellow -> System reserve reached, receiving power critical
23. Red -> Receiving power insufficient/broken fiber
24. Fiber optic transmitter port B
25. Fiber optic receiver port B

5. Module Configuration

To configure the modules, release the housing cover using a screwdriver (Figure 10). Then carefully pull the printed circuit board out of the housing as far as possible. DIP switches 1 - 4 are now freely accessible.



Static discharge can damage electronic devices.

Remove electrostatic discharge from your body before opening and configuring the device. To do this, touch a grounded surface, e.g., the metal housing of the control cabinet.

Configure the DIP switches according to the planned network topology. An overview of the various configuration options is provided in the table below.

Comment:

By default, PSI-MOS-RS422/FO...E termination devices are set to "Point-to-Point, IB Line" mode and PSI-MOS-RS422/FO...T fiber optic T-couplers are set to "Linear" mode.

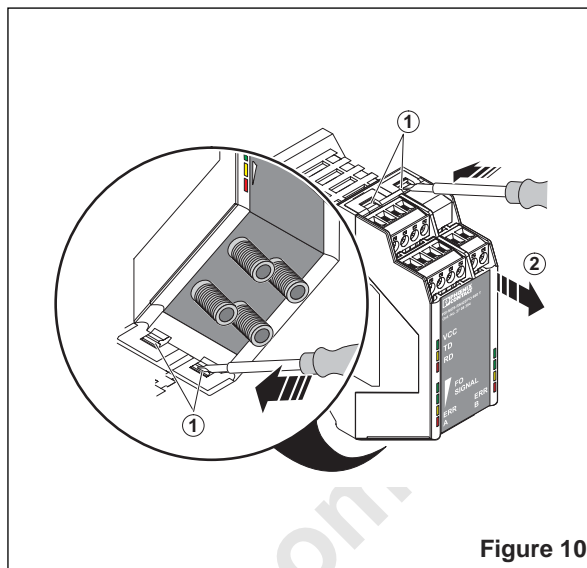


Figure 10

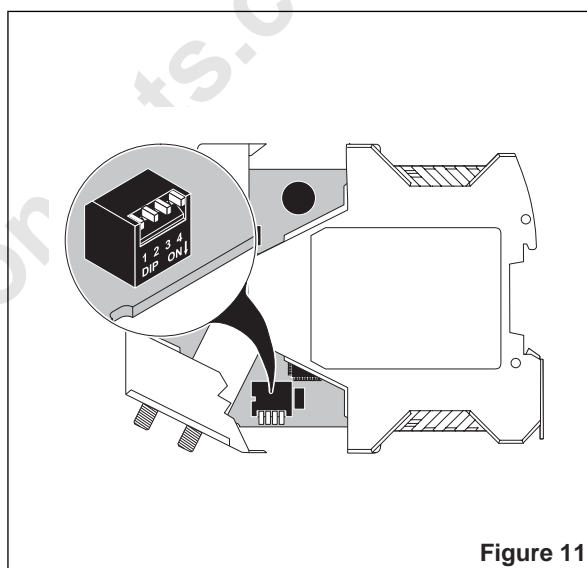


Figure 11

Switch	Position	Function	Designation	Remark	Default	P2P, IB Line	P2P, Redundant	Linear	Star	Star, Redundant	IB, Linear, Redundant
1	OFF	Backplane inactive	LINE		X	X	X	X			X
	ON	Backplane active	STAR						X	X	
2	OFF	Optical rest position "Light on"	INVERS		X	X	X	X	X	X	X
	ON	Optical rest position "Light off"	NORM	No fiber optic diagnostics							
3 ¹⁾	OFF	T-coupler: No redundancy operation	–	T-coupler only	X	X		X	X		
	ON	T-coupler: Redundancy operation	REDUNDANCY				X			X	X
4 ¹⁾	OFF	T-coupler: Port B switched on	NEXT	T-coupler only	X		X	X	X	X	X
	ON	T-coupler: Port B switched off	END			X ²⁾			X ²⁾		

Table 02: Configuration

¹⁾No function for PSI-MOS-RS422/FO...E termination devices

²⁾ If gate B is not required

5.1 Use in INTERBUS Systems

5.1.1 INTERBUS Line:

1. When two termination devices are used in the default setting, no other settings are required.
2. When T-couplers are used, fiber optic port B must be deactivated. Set DIP 4 to END (= "ON").

5.1.2 Redundant INTERBUS Line:



Redundant INTERBUS connections can only be established with the PSI-MOS-RS422/FO ... T T-couplers

1. Open the housing.
2. Set DIP 3 to REDUNDANCY (= "ON") to activate redundancy mode.
3. Make sure that DIP switches 1, 2, and 4 are set to "OFF".

5.2 Use in RS-422/RS-485 4-Wire Applications

5.2.1 Operation in a Point-to-Point Connection (P2P):

1. When two termination devices are used in the default setting, no other settings are required.
2. When T-couplers are used, fiber optic port B must be deactivated. Set DIP 4 to END (= "ON").

5.2.2 Operation in a Linear Structure



Operation in a linear, star or redundant star structure requires addressable RS-422/RS-485 4 wire devices and a suitable communication protocol. Observe the maximum number of cascable devices as described in the technical data (page 2).

First and Last Device in the Line:

1. When two termination devices are used in the default setting, no other settings are required.
2. When T-couplers are used, fiber optic port B must be deactivated. Set DIP 4 to END (= "ON").

Devices Along the Line:

1. Fiber optic PSI-MOS-RS422/FO ... T T-couplers must be used along the line.
2. If the default settings are used, no other settings are required.

5.2.3 Operation in a Star Structure:

Devices in the Star Coupler Configuration:

1. For each device in the star coupler configuration, set DIP 1 to STAR (= "ON").
2. If the star coupler configuration includes PSI-MOS-RS422/FO ... T fiber optic T-couplers, where only fiber optic port A is to be used, deactivate fiber optic port B. Set DIP 4 to END (= "ON").

Devices at the End of a Star Line:

1. When PSI-MOS-RS422/FO ... E termination devices are used in the default setting, no other settings are required.
2. When T-couplers are used, fiber optic port B must be deactivated. Set DIP 4 to END (= "ON").

5.2.4 Redundant Structures



Redundant structures can only be created using PSI-MOS-RS422/FO ... T fiber optic T-couplers.

Operation in a Redundant Point-to-Point Connection:

1. Set DIP 3 to REDUNDANCY (= "ON").
2. Set DIP 4 to NEXT (= "OFF").

Operation in a Redundant Star Structure:

1. For each device in the redundant star structure, set DIP 1 to STAR (= "ON").
2. In each device, set DIP 3 to REDUNDANCY (= "ON").
3. Set DIP 4 to NEXT (= "OFF").

5.2.5 Special Application: Direct Connection to Fiber Optic Interfaces From Other Manufacturers

1. Check the optical rest position used by the third-party interface (Logic 1 = "Light off" or Logic 1 = "Light on").
2. If necessary, adapt the optical rest position of the PSI-MOS device (default setting: Rest position = Logic 1 = "Light on"). Set DIP 2 to "NORM" (DIP 2 = "ON") to change to "Logic 1 = Light off".



In the "NORM" operating state (= Rest position "LIGHT OFF"), fiber optic diagnostics are not available.



When connecting third-party devices, observe the receiver sensitivity and the peak input power of the fiber optic interfaces.

6. Connection Notes



Only mount and remove modules when the power supply is disconnected. When connecting the supply voltage for operation in a PSI-MOS-... configuration, please refer to the notes.

Attention

Disregarding this warning may result in damage to equipment and/or serious personal injury. Only qualified personnel may start up and operate these devices. According to the safety instructions in this text, qualified personnel are persons who are authorized to start up, to ground, and to mark devices, systems, and equipment according to the standards of safety technology. In addition, these persons must be familiar with all warning instructions and maintenance measures in this text. PSI-MOS-... modules are designed exclusively for SELV operation according to IEC 60950/EN 60950/VDE 0805.

Install PSI-MOS- ... modules on a 35 mm (1.378 in.) DIN rail according to DIN EN 50 022.

To avoid contact resistance only use clean, corrosion-free DIN rails. End clamps should be mounted on both sides of the module to stop the modules from slipping on the DIN rail.

6.1. Mounting/Removal



Connect the DIN rail to protective earth ground using a grounding terminal block. The modules are grounded when they are snapped onto the DIN rail. This ensures that the shield is effective. Connect protective earth ground with low impedance.

Mounting as an Individual Device (STAND-ALONE)

1. Place the module onto the DIN rail from above. The upper holding keyway must be hooked onto the top edge of the DIN rail.
2. Push the module from the front towards the mounting surface.
3. Once the module has been snapped on properly, check that it is fixed securely on the DIN rail.

6.2 Mounting in a Configuration (Modular Star Coupler)

1. Connect together the required number of DIN rail bus connectors for the connection station. **Two** ME 17,5 TBUS 1,5/5-ST-3,81 connectors, Order No. 27 09 56 1, are required for **each device** (Figure 12).
2. Push the combined connectors onto the DIN rail.

Star coupler mounting

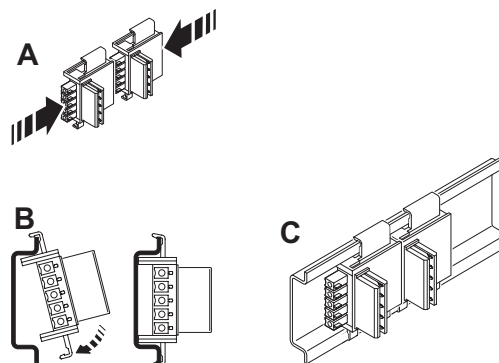


Figure 12

Control cabinet mounting

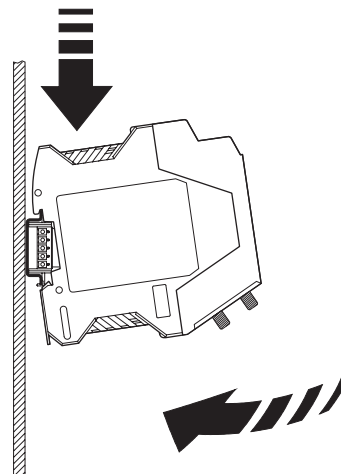


Figure 13

3. Place the module onto the DIN rail from above. The upper holding keyway must be hooked onto the top edge of the DIN rail (Figure 13). Ensure that it is aligned correctly with the DIN rail bus connectors.
4. Once the module has been snapped on properly, check that it is fixed securely on the DIN rail.

6.3. Removal:

1. Pull the locking latch down using a screwdriver, needle-nose pliers or similar.
2. Pull the bottom edge of the module away from the mounting surface.
3. Pull the module diagonally upwards away from the DIN rail.
4. To remove a complete star distributor, also remove the DIN rail bus connectors from the DIN rail.

7. Cabling Notes

7.1 Connecting the Supply Voltage

The module is operated using a +24 V DC SELV.

Operation as an Individual Device:

Connect the supply voltage via terminal blocks 1 (24 V) and 2 (0 V) in the module.

Operation in a Star Coupler Configuration

When the devices are operated in a star coupler configuration, the supply voltage must only be supplied to the first device. The remaining devices are supplied via the DIN rail bus. A redundant supply concept can be created by connecting a second power supply unit to another module in the configuration.

Using the MINI-SYS-PS ... System Power Supply

Alternatively, a star coupler configuration can be supplied using the MINI-SYS-PS 100-240AC/24DC/1.5 system power supply (Order No. 28 66 98 3). This is connected via two ME 17,5 TBUS 1,5/5-ST-3,81 DIN rail bus connectors, Order No. 27 09 56 1.

Usually the system power supply is mounted as the first device in a configuration. A second power supply unit can be used to create a redundant supply concept.

7.2 Connecting the Data Cables



The maximum length of the RS-422/RS-485 cables depends on the transmission speed. The values listed in Table 03 must not be exceeded.

Data Rate [kbps]	Distance [m]
≤ 187.5	1000 m (3280.84 ft.)
≤ 500	400 m (1312.34 ft.)
≤ 1500	200 m (656.17 ft.)
≤ 2000	100 m (328.08 ft.)

Table 03: Transmission speed

7.2.1 Use in INTERBUS Systems

Connect the INTERBUS connection to COMBICON terminal blocks 6 - 10. Observe the different pin assignment when connecting to REMOTE IN and REMOTE OUT.

Single supply/redundant supply

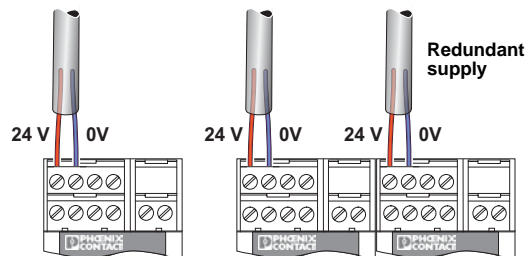


Figure 14

Connection to REMOTE OUT

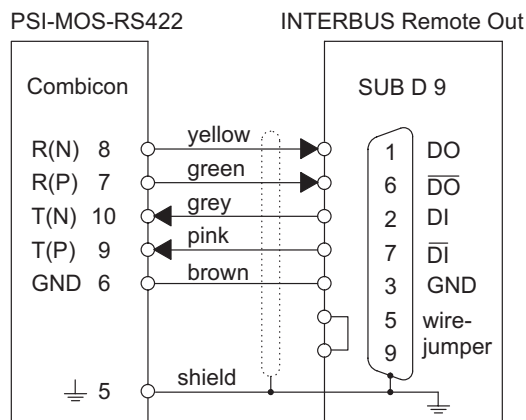


Figure 15

Connection to REMOTE IN

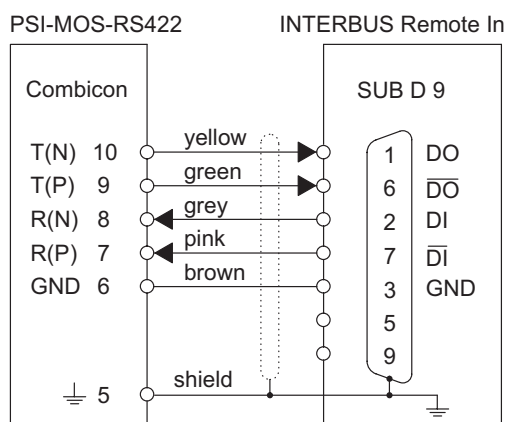


Figure 16

7.2.2 Use in RS-422/RS-485 4-Wire Applications

Connect the data cable to COMBICON terminal blocks 6 - 10. Observe the crossing between the transmit and receive cables.

1. When RS-422 termination devices are used, only one device may be connected to the electric interface for each PSI-MOS device.
2. In RS-485 master/slave networks, either 1 master device or up to 31 slave devices may be connected to each PSI-MOS module. Master and slave devices must not be mixed in the same electrical segment.
3. In star coupler stations, always connect the master device to the data interface of the first PSI-MOS module. The other PSI-MOS modules in the configuration cannot be used.

7.3 Connecting the Cable Shield:

1. Connect the cable shield to terminal block 5.
2. For optimum shield connection, please use the shield connector provided.

Connection to RS422/RS485 4-Wire

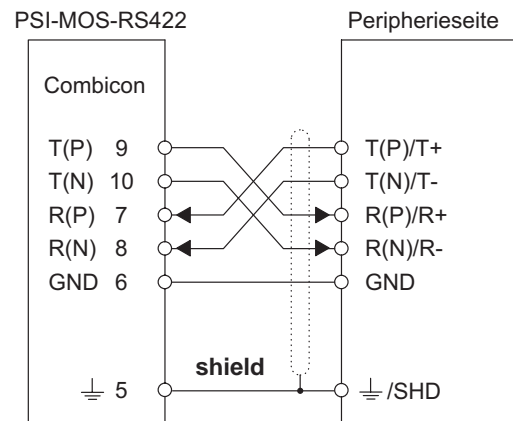


Figure 17

Shield connection

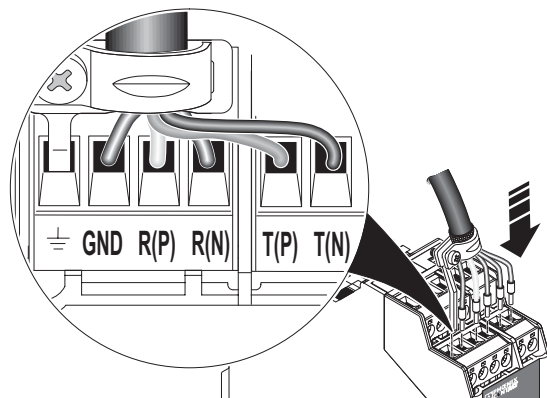


Figure 18

7.4 Wiring the Switch Contact

PSI-MOS-RS422 ... converters are equipped with a floating switch contact for error diagnostics (connection terminal blocks 3 and 4). This contact opens on the relevant module if:

- The supply voltage fails
- An interrupt is detected on the fiber optic path
- The system reserve for the fiber optic path is not reached

The switch contact is a N/C contact and can be connected to a local digital input, e.g., on a PLC, to enable error detection.

When a device configuration is used (modular star coupler), the contacts can be connected individually to separate input points (Figure 19) or a group message can be generated by looping through the individual contacts (Figure 20).



The maximum capacity of the relay contact is 60 V DC/42 V AC, 1 A.

Individual message

24 V DC

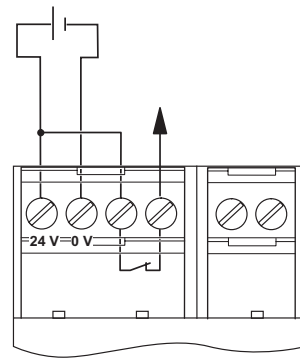


Figure 19

Group message

24 V DC

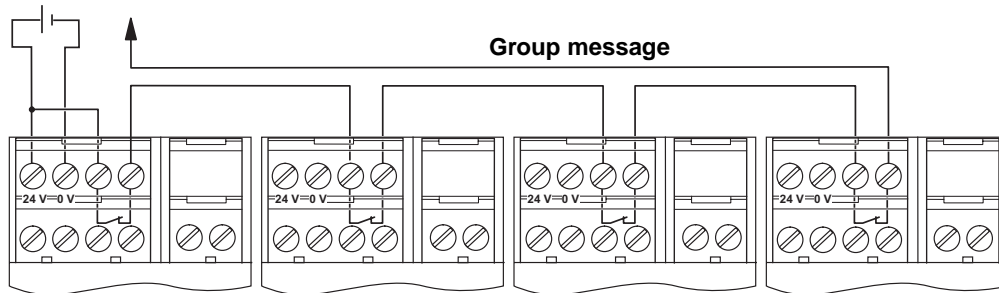


Figure 20

7.5 Connecting the Fiber Optic Cables



Protective caps should only be removed just before the connectors are connected. These protect the transmit and receive elements. The same applies to the protective caps for the connectors.



When fiber optic linear structures are created using T-couplers (see 5.3), fiber optic port A must always be connected in the direction of the master station

7.6 F-SMA Connection (PSI-MOS-RS422/FO 660 ...)

The PSI-MOS-RS422/FO 660 ... devices use F-SMA connectors for the fiber optic connection.

F-SMA is a standardized fiber optic connection. We recommend the use of user-friendly F-SMA connectors using the quick connection method. The connectors are screwed onto the device by manually tightening the screw collar.

7.7 B-FOC (ST®) Connection (PSI-MOS-RS422/FO 850 ...)



During operation, do not look directly into transmit diodes and do not look into the glass fibers using visual aids. The infrared light is not visible.

PSI-MOS-RS422/FO 850 ... devices use standardized B-FOC (ST®) connectors.

Connect the fiber optic cable to the B-FOC (ST®) connector for the transmit and receive channel and push the connector clamp mechanism downwards. Secure the connection with a quarter turn to the right (Figure 21).

Due to the integrated optical diagnostics, there is no need to measure the path.



Note the fiber optic cable signal direction when coupling two PSI-MOS modules: Module 1 fiber connection "TD" (transmitter) to module 2 fiber connection "RD" (receiver) (Figure 22).



Due to the different operating wavelengths, device types PSI-MOS.../FO 60... and PSI-MOS.../FO 850... should not be connected together directly via fiber optic cables.

Fiber optic connection

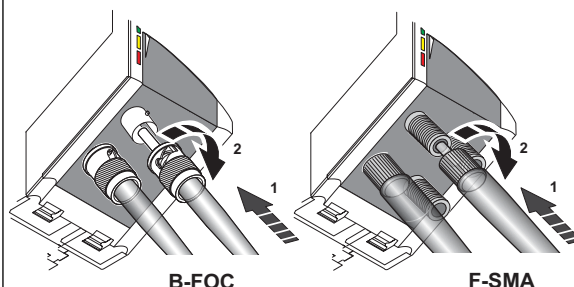


Figure 21

Crossed lines

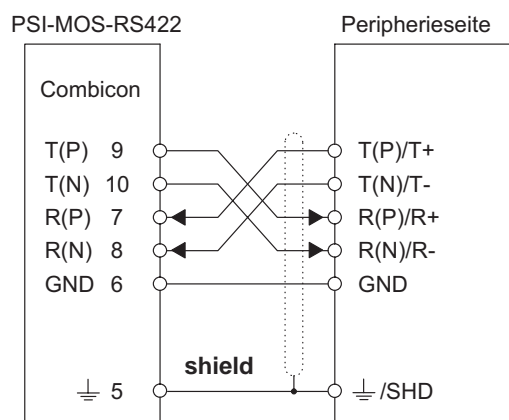


Figure 22