PSI-MOS-RS232/FO 850 E Serial to Fiber Converter

Connect RS232 devices to fiber optic cable

- Extend serial data up to 2.6 miles
- Immune to EMI, RFI and transient surges
- Point-to-point or star configuration
- ST type fiber connectors
- Configurable DB9 Male DTE / DCE RS232 Connector

The PSI-MOS-RS232/FO 850 E Serial to Fiber Converter transparently connects RS232 devices to fiber optic cable. By transmitting RS232 data over optical fiber, these serial media converters provide an economical path to extend the reach of serial devices.

Long Distance Serial Data Transmission over Fiber

RS232 Serial transmission is limited to 20 Kbps over a distance of only 15 meters (50 feet). Using the FO 850 E Serial to Fiber Converter you can extend your serial data transmission up to 4.2km (2.6 miles). The result is that any two pieces of asynchronous serial equipment, located miles apart, can communicate at half or full duplex over fiber optic cable at rates up to 115.2 kbps.

EMI, RFI and Transient Surge Immunity

Another advantage of the FO 850 E fiber optic transmission system is the electrically isolated connection of devices. Electromagnetic interference (EMI) is a common phenomenon in typical environments like industrial plants, warehouses and factory floors. This interference can cause corruption of data over RS232 or copper-based Ethernet links. Data transmitted over fiber optic cable however is completely immune to this type of noise, thus preventing the negative effects of voltage equalization currents and electromagnetic interference on the data cables. A Serial to Fiber Media Converter therefore enables you to inter-connect your serial devices over fiber ensuring optimal data transmission, increased availability of the system, and improved network design flexibility for point-to-point connections and star structures.

Flexible Fiber Optic Connections

The FO 850 E operates at 850 nm wavelength, using a separate LED emitter and photo-detector on ST type connectors. Almost any multimode glass fiber size can be used including 50/125 m, 62.5/125 m, and 200/230 m.

Power Budget Considerations

Calculating the power budget is critically important with planning the fiber optic link. The optical power budget is the amount of light required to transmit data successfully over distance through a fiber-optic connection. The amount of light energy available within the setup will dictate the length of the fiber optic cable run between serial media converters within the network. Optical power budgets are critical to help businesses avoid signal distortion. **To learn how to calculate optical power budget read our technical note**. Transmit and receive dBm can be found in the Hardware specifications.

Transmit each serial signal out over 10 fiber optic lines

Up to ten (10) Serial to Fiber Converters can be grouped together using the TBUS DIN Rail bus system for voltage and data. This allows the serial converter to operate as a star coupler, taking the serial data iput signal and distributing it to all Fiber optic output ports.

High Quality Features and Support

The FO 850 E are also equipped with comprehensive diagnostic functions to increase system availability, simplify start-up and permanently monitor the optical transmission quality. This allows for more efficient troubleshooting and less on-site maintenance. These cost and time saving features, along with free worldwide technical support, make the FO 850 E RS232 serial to fiber converter the smart choice for IT professionals.

- Connections can be plugged in using a COMBICON screw terminal block
- Supply voltage and data signals routed through via DIN rail connectors
- High-quality electrical isolation between all interfaces (RS-232, 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
- Automatic data rate detection for all data rates up to 115.2 kbps

Specifications

1 Year Return to Factory Warranty	**Reach, RoHS and WEEE Compliant**	**HTSUS Number:** 8517.62.0020	**UNSPSC Code:** 43201500	**ECCN:** 5A991

Ambient conditions	
Ambient temperature (operation)	-20°C ... 60°C

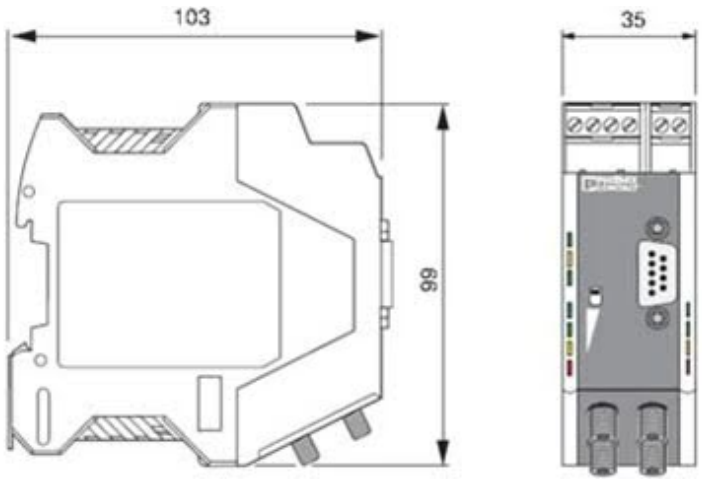
Ambient temperature (storage/transport)	-40°C ... 85°C
Permissible humidity (operation)	30 % ... 95 % (non-condensing)
Altitude	5000 m (For restrictions see manufacturer's declaration)
Degree of protection	IP20
Noise immunity	EN 61000-6-2:2005
Standards and Regulations	
Electromagnetic compatibility	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
Shock	15g in all directions in acc. with IEC 60068-2-27
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 • EN 61000-4-3 • EN 61000-4-4 • EN 61000-4-5 • EN 61000-4-6
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
Optical interface FO	
Number of FO ports	1
Transmit capacity, minimum	• -4.6 dBm (200/230 µm) • -17.6 dBm (50/125 µm) • -13.6 dBm (62,5/125 µm)
Minimum receiver sensitivity	-33.2 dBm
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) • 4800 m (with F-G 62,5/125 3.0 dB/km)
Transmission medium	• PCF fiber • Multi-mode fiberglass
Transmission protocol	Transparent to protocol for RS-232 interface
Connection method	B-FOC (duplex ST®)
General	
Transmission channels	2 (1/1), RxD, TxD, full duplex
Bit distortion, input	± 35 % (permitted)
Bit distortion, output	< 6.25 %

Electrical isolation	VCC // V.24 (RS-232)
Test voltage data interface/power supply	1.5 kVrms (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011
Net weight	221.1 g
Housing material	PA 6.6-FR
Color	green
MTBF	• 320 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day)) • 48 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 3 G Ex nA nC IIC T4 Gc X (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
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
Power supply	
Nominal supply voltage	24 V DC (With UL approval)
Supply voltage range	18 V DC ... 30 V DC
Max. current consumption	120 mA
Typical current consumption	120 mA (24 V DC)
Connection method	COMBICON plug-in screw terminal block
Serial interface	
Interface 1	V.24 (RS-232) interface in acc. with ITU-T V.28, EIA/TIA-232, DIN 66259-1
Connection method	D-SUB 9 plug
Transmission medium	Copper
Transmission length	≤ 15 m
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	115.2 kbps (NRZ)

Dimensions	
Width	35 mm
Height	99 mm
Depth	105 mm



Environmental Product Compliance	
China RoHS	Environmentally Friendly Use Period = 50

Approvals	
	• cUL Listed • cULus Listed • UL Listed • ATEX • EAC • DNV • cUL Recognized • cULus Recognized • UL Recognized

Commercial data	
Packing unit	1
Weight per piece	222.7 g
Country of origin	Germany

Classifications	
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	19179290
eCl@ss 9.0	19179290
ETIM 2.0	EC001423
ETIM 3.0	EC001423
ETIM 4.0	EC001423
ETIM 5.0	EC000310
ETIM 6.0	EC000310
UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	43222604

Product List

PSI-MOS-RS232/FO 850 E - RS232 to fiber converter. DB9M serial to duplex fiber multimode 850nm (ST) [4.2km, 2.6 miles] - power supply optional

Power Cord & Part Number(s)

None

7083718

PSI-MOS-RS232/FO 850 E - RS232 to fiber converter. DB9M serial to duplex fiber multimode 850nm (ST) [4.2km, 2.6 miles] – 24VDC USA wall power adapter included

Power Cord & Part Number(s)

USA

7083714

PSI-MOS-RS232/FO 850 E - RS232 to fiber converter. DB9M serial to duplex fiber multimode 850nm (ST) [4.2km, 2.6 miles] – 24VDC UK wall power adapter included

Power Cord & Part Number(s)

UK

7083711

PSI-MOS-RS232/FO 850 E - RS232 to fiber converter. DB9M serial to duplex fiber multimode 850nm (ST) [4.2km, 2.6 miles] – 24VDC EU wall power adapter included

ower Cord & Part Number(s)

EU

7083712

Related Accessories

Power Supplies

AC US WALL MOUNT ADAPT TL 24VDC , 18W wall power adapter, with tinned leads - 0 to

2300234

AC UK WALL MOUNT ADAPT TL 24VDC , 18W wall power adapter with tinned leads - 0 to

2300235

AC EU WALL MOUNT ADAPT TL 24VDC, 18W wall power adapter with tinned leads - 0 to

2300236

UNO-PS/1AC/24DC/60W DIN-Rail Power Supply: 24 VDC, 60 Watt with universal

29029928

UNO-PS/1AC/24DC/150W Power Supply - DIN-Rail 24 VDC , 150 Watt power supply

29043768

Accessories

Transmit power voltage and data across the bus. Gold-plated contacts with 5 parallel positions. UL 8A / cUL 6A, 150 V. Width 17.5cm. Carton of 10. For use with PSI-MOS Serial to Fiber Converters and PSI-MODEM-SHDSL/SERIAL Copper Extenders.

27095618

Transmit power voltage across the bus. Gold-plated contacts with 2 parallel positions. UL 8A / cUL 6A, 150 V. Width 17.5cm. Carton of 10. For use with PSI-MOS Serial to Fiber Converters and PSI-MODEM-SHDSL/SERIAL Copper Extenders.

28900148