Heavy Industrial RS-232/422/485 to Fiber Optic Converters

FOSTCDRI-PH-MC, FOSTCDRI-PH-MT, FOSTCDRI-PH-SC

PRODUCT FEATURES

- IEEE-61850-3, IEEE-1613
- NEMA TS2 (FOSTCDRI-PH-MT)
- Multi or Single Mode, ST or SC Versions
- -40 to 85°C Operating Temperature
- Rugged, IP30 Metal Panel Mount Case
- 50G Shock, 4G Vibration
- 2kV Triple Isolation

The FOSTCDRI-PH-xx series are premium heavy industrial serial to fiber optic converters. Designed for rugged industrial environments, they have been put through most exacting compliance testing in the industry. Meeting IEC 61850-3 and IEEE 1613 requirements, they are suitable for installation in electrical substations. These specifications are more stringent than NEMA TS1/TS2 requirements for transportation applications. Powerful isolation protects equipment and data from damaging ground loops and surges. Additional isolation on the power supply circuits adds a third degree of protection.

Packaged in a rugged IP30 metal case, these units convert serial signals to multi-mode or single-mode fiber optic. Bit-wise enabled circuitry automatically detects the data rate without setting a DIP switch.

In addition to direct point-to-point connectivity, operation in multi-drop mode is possible enableing serial devices to communicate with up to 31 others in a fiber ring. Supporting mixed standards, you can replace other converters and add EMI/RFI protection inherent to fiber optic communications.

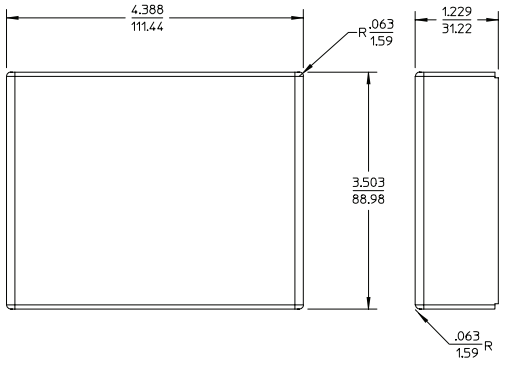
ORDERING INFORMATION

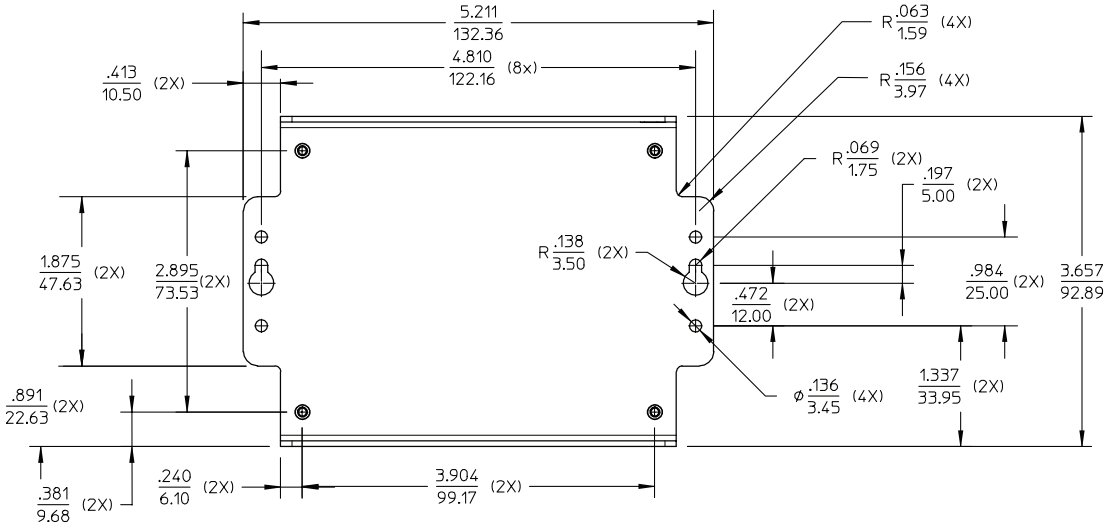
MODEL NUMBER	DESCRIPTION
FOSTCDRI-PH-MC	Serial to Multi-mode SC Converter
FOSTCDRI-PH-MT	Serial to Multi-mode ST Converter
FOSTCDRI-PH-SC	Serial to Single-mode SC Converter

ACCESSORIES

MDR-40-24 - DIN Rail Mount Power Supply 24VDC, 1.7 A output power

DRAD35 - DIN Rail Mounting Kit 35mm





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SPECIFICATIONS

SERIAL TECHNOLOGY	
RS-232	TD, RD, GND
RS-422	TDA(-), TDB(+), RDA(-), RDB(+)
RS-485 4-Wire	TDA(-), TDB(+), RDA(-), RDB(+)
RS-485 2-Wire	Data A(-), Data B(+)
Serial Connector	5-position, removable terminal block
Data Rate	9.6 to 115.2 Kbps
Isolation	2 KV RMS, 1 minute
Surge Protection	600 W peak power dissipation Clamping time < 1 pico-second
Industrial Bus	Modbus ASCII / RTU
Bias	Built-in, switchable 1.2KΩ XMT/RCV
Termination	Built-in, switchable 120Ω
FIBER OPTIC TECHNOLOGY	
Type / Wavelength	Multi-mode or Single-mode 1310 nM
Output Power (MM)	-19 (min), -14 (max) dBm
Output Power (SM)	-15 (min), -8 (max) dBm
RCV Sensitivity	≤ -32 dBm
Cable	62.5 / 125 µM (MM), 9 / 125µM (SM)
Data Rate	9.6 to 115.2 kbps
Distance	Multi-mode: 2 kM (1.25 mi) Single-mode: 15 kM (9.3 mi)
Fiber Light	Modulated
POWER	
Source	External
Power Connector	2-position, removable terminal block
Input Voltage	10 to 48 VDC (56 VDC maximum)
Power Consumption	0.9 W typical (2.6W with termination)

TERMINAL BLOCKS	
Wire Size Accepted	28 to 12 AWG, copper wire only
Pitch	5.08 mm
Insulation Resistance	≥500 MΩ @ 500 VDC
Maximum Torque	5 Kg / cm
INDICATORS	
Power	Red LED
TD / RD (Each Port)	Green LED
MECHANICAL	
Dimensions	13.24 x 9.29 x 3.0 cm (5.2 x 3.7 x 1.3 in)
Enclosure	IP30 metal, panel mount
Weight	0.46 lbs (208.65 grams)
MTBF	127,103 hours
MTBF Calc. Method	Parts Count Reliability Prediction
ENVIRONMENTAL	
Operating Temperature	-40 to 85°C (-40 to 176°F)
Storage Temperature	-40 to 85°C (-40 to 176°F)
Operating Humidity	0 to 95% Non-condensing
REGULATORY	
Approvals	FCC, CE, IEC 61850-3, IEEE 1613 UL C1 D2, File: E245458, • NEMA TS2 (FOSTCDRI-PH-MT)

IEC 61850-3 ELECTRO MAGNETIC INTERFERENCE SPECIFICATIONS				
Test	**Description**		**Test Level**	**Level**
61000-4-2	ESD	Enclosure Contact Enclosure Air	8 kV 15 kV	4 4
61000-4-3	Radiated RFI	Enclosure Ports	10 V/m	3
61000-4-4	Burst (Fast Transient)	Signal Ports DC Power Ports	4 kV @ 2.5 Khz 4 kV	- 4
61000-4-5	Surge	Signal Ports DC Power Ports	2 kV line to earth, 1 kV line to line 2 kV line to earth, 1 kV line to line	4 3
61000-4-6	Induced (Conductive) RFI	Signal Ports DC Power Ports	10 V RMS 10 V RMS	3 3
61000-4-12	Damped Oscillatory	Signal Ports DC Power Ports	2.5 kV common, 1 kV diff mode @ 1MHz 2.5 kV common, 1 kV diff mode @ 1MHz	3 3
61000-4-16	Mains Frequency Voltage	Signal Ports DC Power Ports	30 V Continuous, 300 V for 1 s 30 V Continuous, 300 V for 1 s	4 4
61000-4-17	Ripple on DC Power Supply	DC Power Ports	10%	3
IEEE 1613 C37.90 ELECTROMAGNETIC INTERFERENCE SPECIFICATIONS				
C37.90.3	ESD	Enclosure Contact Enclosure Air	8 kV 15 kV	-
C37.90.2	Radiated RFI	Enclosure Ports	10 v/m	-
C37.90.1	Fast Transient	Signal Ports DC Power Ports	4 kV @ 2.5 kHz 4 kV	-
ENVIRONMENTAL SPECIFICATIONS				
60068-2-1	Cold Temperature	Test Ad	(-)40 C, 16 Hours	-
60068-2-2	Dry Heat	Test Bd	(+)85 C, 16 Hours	-
60068-2-30	Humidity (damp heat cycle)	Test Dd	90% (non-condensing) (+)55C, 6 Cycles	-
IEC 600068-2-6	Vibration	Test Fc	4g	Class 2
IEC 600068-2-27	Shock	Test Ea	50g	Class 2
IEC 60068-2-32	Drop	-	6 faces, 3 edges, 1 corner, total 10 drops at 1 m	-