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# **Standard Serial to Fiber Optic Converters**

Models FOSTCDR, FOSTCDR-INV





#### **PRODUCT FEATURES**

- Data rates up to 115.2 kbps
- 4 km (2.5 mi) range
- 10 to 30 VDC input voltage
- Wide operating temperature
- 2000V, 2-way isolation
- Modbus ASCII/RTU compatible
- EMI/RFI protection
- TD, RD and Power LED's

The FOSTCDRx line of fiber optic converters are suitable for standard industrial installations. These converters extend data communications up to 4 km (2.5 mi) and provide two-way optical isolation on the input and output lines.

Model FOSTCDR industrial serial to multimode fiber optic converter, provides the most versatile connection possible between any asynchronous full or half-duplex serial equipment. In addition to direct point-to-point connectivity, it is capable operating in a multi-drop mode. This allows one serial device to communicate with up to 31 other devices around a fiber optic ring. Since the FOSTCDR supports mixed serial standards, you can replace other converters and isolators and add the EMI/RFI immunity inherent to fiber optic communications.

An Automatic Send Data Control circuit controls the RS-422/485 driver chip, eliminating the requirement for special software. Easy to install and configure, it has an 8-position DIP switch to set up the RS-422/485 parameters and terminal blocks to connect serial signals and power. In RS-232 mode, it supports Transmit and Receive data. Handshaking signals are not passed through.

Model FOSTCDR-INV features an "inverted fiber state" and is suitable for applications requiring the fiber optic light to be Off in the idle state.

#### **ORDERING INFORMATION**

MODEL NUMBER	SERIAL CONNECTOR	FIBER CONNECTOR	ISOLATION	INVERTED FIBER STATE*
FOSTCDR	Terminal Block	Multi-mode ST	2,000 V	-
FOSTCDR-INV	Terminal Block	Multi-mode ST	2,000 V	✓

<sup>\*</sup> Fiber is Off in the idle state.

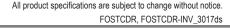
#### **ACCESSORIES**

MDR-40-24 - DIN Rail Mount Power Supply 24VDC, 1.7 A output power DFMM-STST-1M - Multimode fiber patch cable ST-ST connectors

## What is the difference between Model FOSTCDR and Model FOSTCDR-INV?

The FOSTCDR keeps the light in the fiber turned On when no data is transmitted and the input signal is in the MARK state (idle). If light is lost or too low, the electrical signals go to the SPACE state. The input signal turns the light Off/On in step with the data. This model has an indicator for Transmit and Receive, if no light is received, the RD LED will come on, the RD output will be positive relative to GND (normally negative), and in RS-422 or RS-485 mode, no light will set the TD(A)- line high relative to TD(B)+. The usual voltage with light in the fiber and no signal sets the B line high relative to A (about 4.4 Volts DC no termination).

The FOSTCDR-INV is the opposite. The fiber is Off in the idle state.





### **Standard Serial to Fiber Optic Converters**

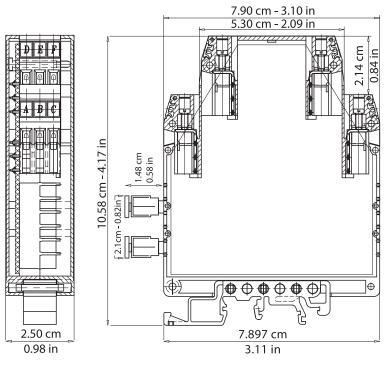
Models FOSTCDR, FOSTCDR-INV



SPECIFICATIONS				
SERIAL TECHNOLOGY				
Data Rate	RS-232: 115.2 Kbps maximum RS-422/485: 460.8 Kbps maximum			
RS-232				
Connector	Terminal block (24 to 14 AWG)			
RS-232	TD, RD, GND			
RS-422/485				
Connector	Terminal block (24 to 14 AWG)			
RS-485, 2-wire	Data A(-), Data B(+), GND			
RS-422/485, 4-wire	TDA(-), TDB(+), RDA(-), RDB(+), GND			
ISOLATION				
Rating	2KV RMS, 1 minute			
Lines Protected	2-way (input, output lines)			
Method	Optical			
FIBER OPTIC TECHNOLOGY				
Type / Wavelength	Multi-mode / 820 nm			
Output Power	(-) 17 to (-) 10 dBm			
Receive Sensitivity	(-) 25.4 dBm to (-) 24 dBm			
Cable	62.5/125 micro-meter			
Connector	ST			
Data Rate	9.6 to 115.2 kbps			
Maximum Distance	4 km (2.5 mi)			
Idle State	Transmitter light ON			
POWER				
Source	External			
Input Voltage	10 to 30 VDC			
Consumption	1.7 Watts			
Connector	Terminal block (24 to 14 AWG)			

INDUSTRIAL BUS				
Modbus	ASCII/RTU			
MECHANICAL				
LED Indicators	Serial TD, RD, Power			
Dimensions	10.6 x 7.9 x 2.5 cm (4.3 x 2.3 x 0.95 in)			
Enclosure	35mm DIN mount, plastic			
Weight	182 g (0.4 lbs)			
ENVIRONMENTAL				
Operating Temperature	-40 to +80 °C (-40 to +176 °F)			
Storage Temperature	-40 to +85 °C (-40 to +185 °F)			
Operating Humidity	0 to 95% non-condensing			
APPROVALS / CERTIFICATIONS - FOSTCDR				
cULus Recognized, File Number: E222870				
FCC Part 15, CISPR, EN 55022 + AC:2011 Class A Emissions				
CE				
EN 61000-6-1 Generic Standards for Residential, Commercial and Light-Industrial Environments				
EN 61000-4-2 Electro-Static Discharge (ESD) EN 61000-4-3 +A1 +A2 +IS1 Radiated Field Immunity (RFI) EN 61000-4-4 Electrical Fast Transients-Burst Immunity (EFT) EN 61000-4-6 Conducted Immunity				
APPROVALS / CERTIFICATIONS - FOSTCDR-INV				
UL 508, File Number: E222870				
FCC Part 15, CISPR, EN 55022 + AC:2011 Class A Emissions				
CE				
MTBF				
FOSTCDR	2187303 hours			
FOSTCDR-INV	2187303 hours			
Calculation Method	MIL 217F Parts Count Reliability Prediction			

### **MECHANICAL DIAGRAM - Model FOSTCDR**



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