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

Models BB-FOSTCDR, BB-FOSTCDR-INV





#### **FEATURES**

- Converts serial data signals to multi-mode fiber
- 2000V, 2-way isolation; EMI/RFI protection
- Data rate: up to 115.2 kbps
- Wide operating temperature: -40 to +80 °C
- DIN rail mount
- Modbus ASCII/RTU compatible
- 10-30 VDC power source required (not included, sold separately)
- Model FOSTCDR-INV: inverted fiber state fiber Off in idle state

The BB-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 BB-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 BB-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.

A 10-30 VDC external power source is required (power supply is not included, sold separately).

Model BB-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 *
BB-FOSTCDR	Terminal Block	Multi-mode ST	2,000 V	-
BB-FOSTCDR-INV	Terminal Block	Multi-mode ST	2,000 V	✓

<sup>\*</sup> Inverted fiber state - fiber is Off in the idle state

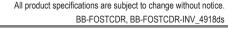
### **ACCESSORIES - sold separately**

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

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

The BB-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 BB-FOSTCDR-INV is the opposite. The fiber is  $\mbox{Off}$  in the idle state.





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### **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			
	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, required (power supply not included, sold separately)		
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 gm (0.4 lb)			
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			
MEANTIME BEFORE FAILURE (MTBF)				
MTBF	2187303 hours			
Calculation Method	MIL 217F Parts Count Reliability Prediction			
BB-FOSTCDR – APPR	OVALS, DIRECTIVES, STANDARDS			
cULus Recognized, File Number: E222870, UL508				
FCC Part 15, CISPR, EN 55022 +AC Class A Emissions				
CE				
EN 61000-6-1 – Generic Standards for Residential, Commercial and Light-Industrial				
Environments				
BB-FOSTCDR-INV – APPROVALS, DIRECTIVES, STANDARDS				
FCC Part 15, CISPR, EN 55022 +AC Class A Emissions				
CE	2014/30/EU – Electromagnetic Compatibility Directive			
D'ant' an	2011/65/EU – Reduction of Hazardous Substances Directive			
Directives	(RoHS)			
	2012/19/EU – Waste Electrical and Electronic Equipment (WEEE)			
	EN 55032 Class B – Electromagnetic compatibility of multimedia equipment – Emission requirements			
Standards	EN 55024 – Information technology equipment – Immunity			
Standards	requirements			
	EN 61000-6-1 – Generic immunity standards for residential, commercial and light-industrial environments			
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### **MECHANICAL DIAGRAM - Model BB-FOSTCDR**

