

# Standard Serial to Fiber Optic Converters

Models BB-FOSTCDR, BB-FOSTCDR-INV

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## 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 BB-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   | ✓                      |

\* Inverted fiber state – fiber is Off in the idle state.

## ACCESSORIES - sold separately

**BB-MDR-10-24** - Power Supply, AC-DC, 10W, 24VDC, 0.42A, DIN Rail Mount

**BB-SMI6-12-V-ST** - Power Supply, 6W, 12VDC, 500mA, DIN Rail Mount

## 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 Off in the idle state.

All product specifications are subject to change without notice.  
BB-FOSTCDR, BB-FOSTCDR-INV\_3020ds

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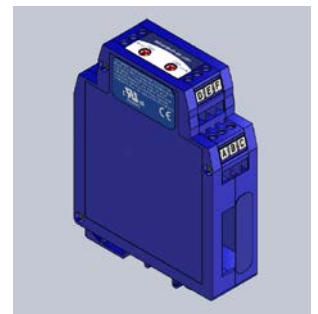
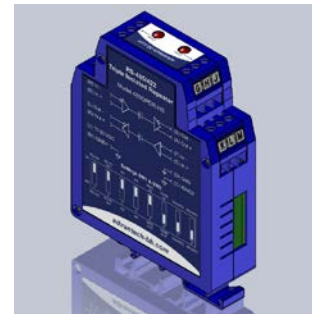
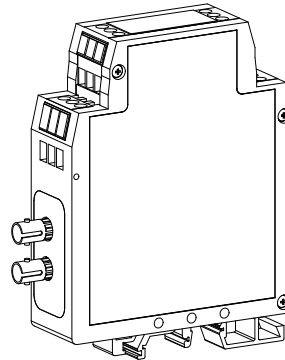
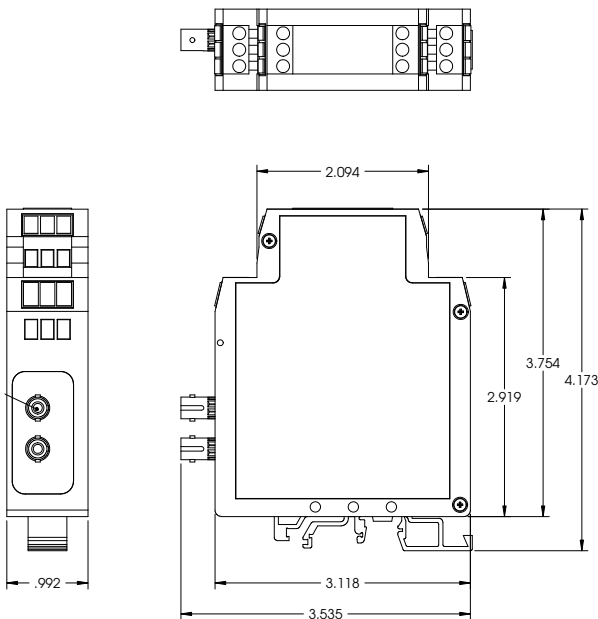


## SPECIFICATIONS

| SERIAL TECHNOLOGY      |   |
|------------------------|---|
| Data Rate              | RS-232: 115.2 Kbps maximum<br>RS-422/485: 460.8 Kbps maximum    |
| <b>RS-232</b>          |   |
| Connector              | Terminal block (24 to 14 AWG)                                   |
| RS-232                 | TD, RD, GND   |
| <b>RS-422/485</b>      |   |
| 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, 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 BETWEEN FAILURE (MTBF)                                 |  |
| MTBF  | 2187303 hours  |
| Calculation Method  | MIL 217F Parts Count Reliability Prediction  |
| BB-FOSTCDR (only)   |  |
| cULus Recognized, File Number: E222870, UL508                   |  |
| APPROVALS / DIRECTIVES / STANDARDS: BB-FOSTCDR & BB-FOSTCDR-INV |  |
| FCC Part 15, CISPR, KCC   |  |
| CE - Directives   | 2014/30/EU – Electromagnetic Compatibility Directive<br>2011/65/EU – amended by (EU) 2015/863 Reduction of Hazardous Substances Directive (RoHS)<br>2012/19/EU – Waste Electrical and Electronic Equipment (WEEE)  |
| CE - Standards  | EN 55032 Class B – Electromagnetic compatibility of multimedia equipment – Emission requirements<br>EN 55024 – Information technology equipment – Immunity requirements<br>EN 61000-6-1 – Generic immunity standards for residential, commercial and light-industrial environments |

## MECHANICAL DIAGRAM - Model BB-FOSTCDR



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