Industrial Serial to Fiber Optic Converters

Models BB-FOSTCDRI, BB-FOSTCDRI-INV

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FEATURES

- Converts serial data signals to multi-mode ST fiber
- · 2000V 3-way optical isolation (input/output/power); EMI/RFI protection
- Data rate: up to 115.2 kbps
- Wide operating temperature: -40 to +80 °C
- DIN mount, IP20 plastic case
- UL Class 1 / Division 2
- Modbus ASCII/RTU compatible
- 10–48 VDC power source required (not included, sold separately)
- Inverted fiber state option (Model# BB-FOSTCDRI-INV)

Model BB-FOSTCDRI is a premium industrial serial to multi-mode fiber optic converter. Its rugged design is UL Approved and certified for Class 1/Division 2 industrial environments. It extends data communications up to 4 km (2.5 mi). It provides three-way optical isolation on the input, output and power lines.

In addition to direct point-to-point connectivity, it is capable of operating in a multi-drop mode. This allows one serial device to communicate with up to 31 other devices around a fiber ring. Since it supports mixed standards, you can replace other converters and isolators and add the EMI / RFI protection inherent to fiber optic communications.

In RS-232 mode, the converter supports Transmit and Receive data. Handshaking signals are not passed through. An Automatic Send Data Control circuit controls the RS-422/485 driver chip, eliminating the requirement for external software.

Easy to install and configure, it has a 12-position DIP switch on the bottom to configure RS-422/485 parameters. Serial data and power cables connect to removable terminal blocks. ST connectors are used for the fiber.

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

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

ORDERING INFORMATION

MODEL NUMBER	SERIAL CONNECTOR	FIBER CONNECTOR	ISOLATION
BB-FOSTCDRI	Terminal Block	Multi-mode ST	2000 V
BB-FOSTCDRI-INV *	Terminal Block	Multi-mode ST	2000 V
* Inverted fiber state – fiber is Off in the idle state.			

ACCESSORIES - sold separately

BB-MDR-40-24 - 24 VDC, 1A, slim-line DIN rail power supply

 $\mbox{BB-DFMM-STST-1M}$ - Multi-mode fiber optic cable with ST/ST connectors (62.5/125 micro-meter), 1 meter

BB-TBKT1 - Replacement Terminal Block - 2-position, 5.08mm, 8A, 30

BB-TBKT2 - Replacement Terminal Block - 5-position, 5.08mm, 8A, 30

What is the difference between Model BB-FOSTCDRI and Model BB-FOSTCDRI-INV?

Model BB-FOSTCDRI 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).

Model BB-FOSTCDRI-INV is the opposite. The fiber is Off in the idle state.

All product specifications are subject to change without notice. BB-FOSTCDRI, BB-FOSTCDRI-INV_1019ds



orders@advantech-bb.com Headquarters: 707 Dayton Rd, PO Box 1040 Ottawa, IL 61350 USA (815)433-5100 or (800)346-3119/Toll Free Fax (815)433-5104 eSales@advantech-bb.com European Office: Westlink Commercial Pk, Oranmore Co. Galway Ireland +353 91 792444 Fax +353 91 792445

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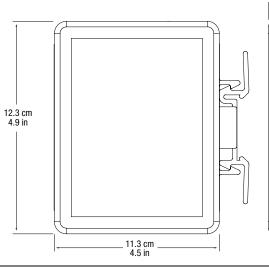
Models BB-FOSTCDRI, BB-FOSTCDRI-INV

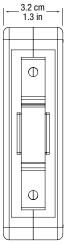
SPECIFICATIONS

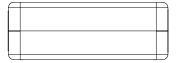
SERIAL TECHNOLOGY			
Data Rate	9.6 to 115.2 kbps		
RS-232			
Connector	Removable terminal block, 5-position		
Signals	TD, RD, GND		
RS-422/485			
Connector	5-position, removable terminal block		
RS-485, 2-wire	Data A(-), Data B(+), GND		
RS-422/485, 4-wire	TDA(-), TDB(+), RDA(-), RDB(+), GND		
Bias	Built-in, switchable, 1.2KΩ		
Termination	Built-in, switchable, 120Ω		
ISOLATION			
Rating	2kV RMS, 1 minute		
Surge Protection	600 W peak power dissipation		
Clamping Time	< 1 pico-second		
Lines Protected	3 (input, output, power)		
Method	Optical		
FIBER OPTIC TECHNOLOGY			
Type / Wavelength	Multi-mode / 820 nm		
Output Power	-16dBm minimum, -12dBm typical, -9dBm maximum		
Receive Sensitivity	-24dBm minimum, -25.4dBm maximum		
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, BB-FOSTCDRI	Transmitter light ON		
Idle State, BB-FOSTCDRI-INV	Transmitter light OFF		
INDUSTRIAL BUS			
Modbus	ASCII/RTU		
POWER			
Source	External, required (not included, sold separately)		
Input Voltage	10 to 48 VDC (56 VDC maximum)		
Consumption	0.5 W (typical), 1.3W (with termination)		
Connector	2-position, removable terminal block, 24 to 14 AWG		

TERMINAL BLOCKS		
Wire Size Accepted	28 to 12 AWG	
Pitch	5.08 mm	
Insulation Resistance	≥ 500 MΩ @ 500 VDC	
Maximum Torque	5 kg / cm	
LED INDICATORS		
Power	Red LED	
FO Receive	Red LED	
FO Transmit	Red LED	
MECHANICAL		
Dimensions	12.3 x 11.3 x 3.2 cm (4.9 x 4.5 x 1.3 in)	
Enclosure	IP 20 plastic, 35 mm DIN mount	
Weight	199.6 gm (0.44 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 FAIL	LURE (MTBF)	
MTBF	138904 hours	
MTBF Calculation Method	MIL 217F Parts Count Reliability Prediction	
APPROVALS, DIRECTIVE	ES, STANDARDS	
FCC Part 15, CE		
UL Class1/Division2, Grou		
Directives	2014/30/EU - Electromagnetic Compatibility Directive 2011/65/EU – Reduction of Hazardous Substances Directive (RoHS2) 2012/19/EU – Waste Electrical and Electronic Equipment (WEEE)	
Standards	ÈN 55032 Class B – Electromagnetic compatibility of multimedia equipment – Emission requirements EN 55024 – Information technology equipment – Immunity characteristics – Limits and methods of measurement EN 61000-6-3 A1 – Generic emission standard for residential, commercial and light-industrial environments (Class B) EN 61000-6-1 – Generic immunity standards for residential, commercial and light-industrial environments	

MECHANICAL DIAGRAM









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