Serial to Single-mode Fiber Optic Converters

Models BB-FOSTCDRi-ST, BB-FOSTCDRi-SC

FEATURES

- Converts serial data signals to single-mode fiber, up to 15 km (9 mi) range
- 2000V 3-way optical isolation (input, output, power); EMI/RFI protection
- Data rates up to 115.2 kbps
- Wide operating temperature: -40 to +80 °C
- DIN mount, IP30 plastic case
- UL 508 rated
- 10–48 VDC external power source required (not included, sold separately)
- Modbus ASCII/RTU compatible

Advantech ILinx™ fiber converters are designed with the functionality required for heavier industrial environments. These isolated converters change RS-232, RS-422 or RS-485 to single-mode fiber optics. Fiber optic connectors are SC or ST.

BB-FOSTCDRi-Sx models extend serial data ranges up to 15 km (9 mi) and provide the most versatile connection possible between asynchronous full or half-duplex serial equipment. In addition to direct point-to-point connectivity, it is capable of operating in multi-drop mode. This allows one serial device to communicate with up to 31 others around a fiber optic ring. Since it supports mixed serial standards, it can replace other converters and isolators and add the EMI/RFI immunity inherent to fiber optic communications.

The Automatic Send Data Control circuit controls the RS-422/485 driver chip, eliminating the need for special software. Easy to install and configure, it has a 12-position DIP switch to set up RS-422/485 parameters and removable terminal blocks to connect serial signals and power. In RS-232 mode, it supports Transmit Data and Receive Data. Handshaking signals are not passed through.

An external 10-48 VDC power source is required (not included, sold separately).

ORDERING INFORMATION

MODEL NUMBER	SERIAL CONNECTOR	FIBER CONNECTOR	MODBUS
BB-FOSTCDRi-SC	Terminal Blocks, removable	Single-mode SC	✔
BB-FOSTCDRi-ST	Terminal Blocks, removable	Single-mode ST	✔

ACCESSORIES – sold separately

BB-MDR-20-24 - 24 Vdc @ 1.0 A DIN rail mount power supply, slim-line

BB-SMI18-12-V-ST – 12 Vdc @ 1.6A power supply, stripped/tinned, international blades

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

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

Fiber Optic Benefits

Fiber optic cable carries serial data up to 15 kilometers (9 mi), much farther and reliably than conventional copper lines.

Power surges, spikes and groupd loops are created by electrical equipment, by nearby lightning strikes, and from other sources. They are easily picked up by copper data lines and transmitted to connected devices, garbling data communications and damaging equipment.

However, fiber optic data transmission uses light in glass fiber cable as a communication medium. Being inherently non-electric, fiber optic cable will not pick up noise and provides the most reliable system possible – ideal for spanning areas with severe interference, such as near heavy electrical equipment, welding or radio transmissions. It does not transmit power spikes or surges and prevents ground loops by not providing a conductive path for the ground.

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SPECIFICATIONS

SERIAL TECHNOLOGY	
Data Rate	9.6 to 115.2 kbps
RS-232	
Connector	Removable terminal block (12 to 28 AWG)
Signals	TD, RD, GND
RS-422/485	
Connector	Removable terminal block (12 to 28 AWG)
RS-485, 2-wire	Data A(-), Data B(+), GND
RS-422/485, 4-wire	TDA(-), TDB(+), RDA(-), RDB(+), GND
ISOLATION	
Isolation	3-way, 2KV isolation
Surge Protection	600 W peak power dissipation
Clamping Time	< 1 pico-second
FIBER OPTIC TECHNOLOGY	
Connector	ST or SC
Type / Wavelength	Single-mode / 1310 nm
Output Power	(-) 15 to (-) 8 dBm
Receive Sensitivity	Less than or equal to (-) 32 dBm
Cable	9/125 micro-meter
Data Rate	9.6 to 115.2 kbps
Maximum Distance	15 km (9 mi)
POWER	
Power Source	External, required (not included, sold separately)
Input Voltage	10 to 48 VDC (Class 2)
Power Consumption	1.4 Watts
Connector	Removable terminal block (12 to 28 AWG)

INDUSTRIAL BUS	
Modbus	ASCII/RTU
MECHANICAL	
LED Indicators	FO Receive, FO Transmit, Power
Dimensions	12.8 x 9.7 x 2.8 cm (5.0 x 3.8 x 1.1 in)
Enclosure	IP30, Plastic, 35mm DIN mount
Weight	149.7 gm (0.3 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	671969 hours
MTBF Calculation Method	MIL 217F Parts Count Reliability Prediction
APPROVALS, DIRECTIVES, STANDARDS	
FCC Part 15, CISPR, CE UL 508, File Number: E222870	
CE - Directives	2014/30/EU - Electromagnetic Compatibility Directive 2011/65/EU amended by (EU) 2015/863 Reduction of Hazardous Substances Directive (RoHS) 2012/19/EU – Waste Electrical and Electronic Equipment (WEEE)
CE - Standards	**EMC:** EN 55032 - Class B Electromagnetic compatibility of multimedia equipment – Emission requirements EN 55024 - Information Technology Equipment – Immunity Characteristics – Limits and Methods of Measurement
Standards - other	EN 61000-6-3 & A1 Class B– Generic Emission Standard for Residential, Commercial and Light-industrial Environments EN 61000-6-1 – Generic Immunity Standards for Heavy Industrial Environments
BB-FOSTCDRI-ST only	**EMC:** EN 61000-6-2 - Generic Immunity Standard for (Heavy) Industrial Environments

MECHANICAL DIAGRAM – BB-FOSTCDRI-SC

2.8 cm
1.1 in

12.8 cm
5.0 in

9.7 cm
3.8 in
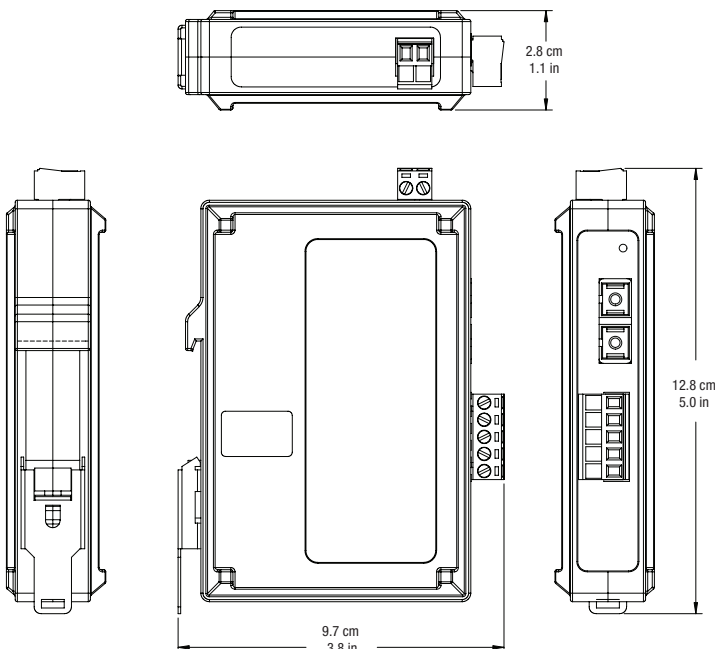
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