



Model: FOSTCDRI-SM  
**Industrial DIN Rail Mounted  
 Single-mode Fiber Optic to RS-232/422/485  
 Converter**



**Features**

- ✓ **High Speed Communications. Supports Serial Data Rates up to 115.2 kbps.**
- ✓ **Extends communications up to 9 miles (15 KM).**
- ✓ **Wide 10 – 48 VDC Input Power Range.**
- ✓ **IP 30 Rated Industrial DIN Mounted Enclosure.**
- ✓ **Wide Operating Temperature. -40 to 176 ° F (-40 to 85° C)**
- ✓ **3-Way, 2KV Optical Isolation.**
- ✓ **MODBUS ASCII or RTU Compatible.**
- ✓ **EMI / RFI Protection.**
- ✓ **Removable Terminal Blocks make serial and power connections easy.**

**Functional Description**

The FOSTCDRI-SM is our premium Serial to Single-mode Fiber Optic Converter. It provides the most versatile connection possible between any asynchronous full or half-duplex serial equipment using dual single-mode fiber optic cable. The converter can also be set up in a multi-drop mode to allow one serial device to communicate with multiple devices around a fiber ring. Supporting mixed standards, it allows you to replace other converters and isolators and add the EMI / RFI protection inherent to fiber optic communications. The converter supports both transmit and receive data, and provides full hardware control of the RS-422/485 driver with B&B's Automatic Send Data Control circuit. The Baud rate and mode are configured through a 12 position DIP Switch on the bottom of the unit. The serial data and power connect to removable terminal blocks. SC connectors are used for the fiber. An external 10 – 48 VDC power supply is required (not included).

**Ordering Information**

Model Number	Description
FOSTCDRI-SM	Premium serial to single-mode fiber optic converter
Accessory Items	
PS5R-A24	24 VDC DIN Rail Power Supply
7444	Replacement 2 position terminal block plug
7466	Replacement 5 position terminal block plug



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## Operation

- Set the switch on the front to “232” for RS-232 operation or “422/485” for RS-422/485 operation.
- In RS-232 mode, the converter supports TD, RD, and Ground. If your application requires RS-232 control signals, contact B&B’s Technical Support for alternate products.
- RS-422/485 Operation: Tables 1 and 2 contain DIP Switch settings. Bias (1.20 K $\Omega$ ) and termination (120  $\Omega$ ) are controlled by DIP Switch positions 5, 6, and 7. See Table 4.
- Fiber optic Multi-drop and Point-to-Point operation are controlled by DIP Switch position 12. Set the switch to “on” for Multi-drop and “off” for Point-to-Point.
- Supplemental information and wiring diagrams are available for download. Visit <http://www.bb-elec.com>.

**Table 1 – RS-485 Timeout Selection**

Baud Rate	POS 8	POS 9	POS 10	POS 11	Time (ms)
9600	OFF	OFF	OFF	ON	1.30
19.2 K	OFF	OFF	ON	OFF	0.56
38.4 K	OFF	ON	OFF	OFF	0.27
57.6 K	ON	OFF	OFF	OFF	0.22
76.8 K	ON	OFF	ON	ON	0.14
115.2 K	ON	ON	ON	OFF	0.10

**Table 3 – Maximum Converters in a Fiber Ring**

Baud Rate	RS-232	RS-422/485
19.2 kbps and below	32	32
38.4 kbps	16	24
57.6 kbps	8	16
115.2 kbps	2	8

**Table 5 – General Specifications**

Input Power	10 to 48 VDC
Isolation	2 KV RMS for 1 Min, 3-Way
Maximum Power Consumption	1.4 Watts
Serial and Power Connector	Removable Terminal Blocks
Data Rate	115.2 kbps
Operating Temperature	-40 to 176 °F (-40 to 80°C)
Operating Humidity	0 to 95% Non-condensing
LED Indicators	Data and Power
Dimensions	5.0x3.5x1.2 in (12.8x9x3.0 cm)
DIN Mount	35 mm
MTBF	88423 hours
Enclosure	IP 30 Plastic Case
Range	9 miles (15 km)
Industrial Bus Compatibility	MODBUS ASCII or RTU
Approvals	CE, UL Class 1 Div2 Pending

### CE DECLARATION OF CONFORMITY

**Manufacturer's Name:** B&B Electronics Manufacturing Company  
**Manufacturer's Address:** PO Box 1040, 707 Dayton Road, Ottawa, IL 61350, USA  
**Model Number:** FOSTCDRI-SM  
**Description:** Industrial Isolated RS-232/422/485 to Fiber Converter  
**Type:** Light Industrial ITE  
**Application of Council Directive:** 89/336/EEC  
**Standards:** EN 55022  
 EN 61000-6-1  
 EN 61000(-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11)



Michael J. Fahrion, Director of Engineering

**Table 2 – RS-422/485 Mode Selection**

	POS 1	POS 2	POS 3	POS 4
485 2-WIRE	ON	ON	ON	ON
485 4-Wire	ON	OFF	OFF	OFF
422	OFF	OFF	OFF	OFF

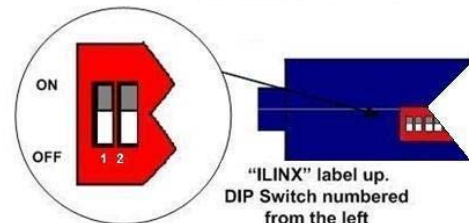
**Table 4 – DIP Switch Legend**

Switch	ON	OFF
POS 1	TX Send Data*	TX Enable
POS 2	RX Send Data*	RX Enable
POS 3	2-Wire*	4-Wire
POS 4	2-Wire*	4-Wire
POS 5	Termination In	Termination Out*
POS 6	TX Bias In*	TX Bias Out
POS 7	RX Bias In*	RX Bias Out
POS 8	57.6 kbps	*
POS 9	38.4 kbps	*
POS 10	19.2 kbps	*
POS 11	9.6 kbps*	
POS 12	Multi-drop	Point-to-Point*

\* Indicates factory default

**Table 6 – Fiber Optic (9/125  $\mu$ M SM)**

Wavelength	Output Power	Receive Sensitivity
1310 nm	-15 to -8 dBm	$\leq$ -32 dBm



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MANUFACTURING COMPANY

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