B&B ELECTRONICS

PRODUCT INFORMATION

FOSTCDRI-Sx Quick Start Guide

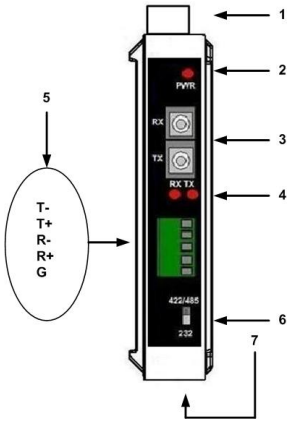
Package Contents

- FOSTCDRI-Sx Industrial Serial To Single-mode Fiber Optic Converter
- Datasheet (One per shipment)
- Power Terminal Block (installed)
- Serial Terminal Block (installed)
- Fiber Optic Dust Cover (installed)

If any item is missing or damaged, contact B&B Electronics for a replacement

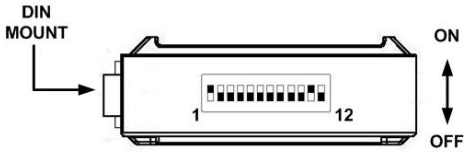
Front Panel

Note: The label for the serial connection terminal block is not visible with the TB installed. This detail is provided for reference.



1	Power TB	2 Position, Removable
2	PWR LED	ON When Power Applied
3	Fiber Port	Single-mode, SC or ST Connectors
4	Fiber RX LED	Flashes when data received
4	Fiber TX LED	Flashes when data transmitted
5	Serial Port TB	5 Position, Removable
6	Serial Switch	Selects RS-232 or RS-422/485 Mode
7	DIP Switch	12 Position

DIP Switch (SW1)



Pos	ON	OFF
1	RS-485	RS-422
2	HALF-DUPLEX	FULL-DUPLEX
3	2-WIRE	4-WIRE
4	2-WIRE	4-WIRE
5	TERMINATION IN	TERMINATION OUT
6	TX BIAS OUT	TX BIAS IN
7	RX BIAS OUT	RX BIAS IN
8	57.6 KBPS	
9	38.4 KBPS	
10	19.2 KBPS	
11	9.6 KBPS	
12	MULTI-DROP	POINT-TO-POINT

Terminal Block

Terminal	RS-232
T-	Output
T+	Not Used
R-	Input
R+	Not Used
G	Ground

Terminal	RS 4852-Wire	RS-422/4854-Wire
T-	Data A(-)	TD A(-)
T+	Data B(+)	TD B(+)
R-	Not Used	RD A(-)
R+	Not Used	RD B(+)
G	Ground	Ground

Wiring Terminal Information

1. Copper Wire Only
2. One Conductor Per Terminal
3. Wire Range 28 to 16 AWG
4. Tightening Torque, 1.7 lb-in.
5. Temperature Rating of Field Wiring - 105°C (221° F) minimum sized for 60° C (140°F) ampacity.

RS-422/485 Baud Rate / Timeout

Baud	SW1 8	SW1 9	SW1 10	SW1 11	Timeout (ms)
9600	OFF	OFF	OFF	ON	1.30
19.2K	OFF	OFF	ON	OFF	0.56
38.4K	OFF	ON	OFF	OFF	0.27
57.6K	ON	OFF	OFF	OFF	0.22
76.8K	ON	OFF	ON	ON	0.14
115.2K	ON	OFF	ON	OFF	0.10

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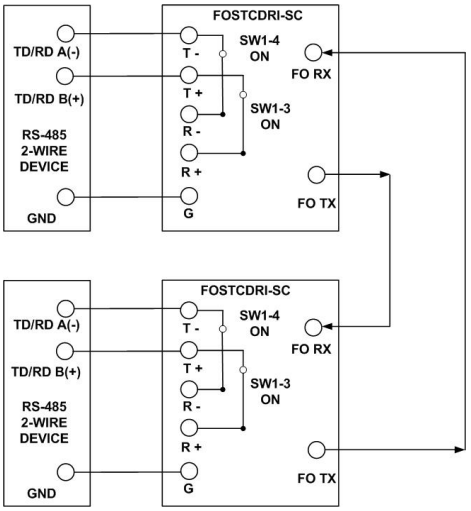
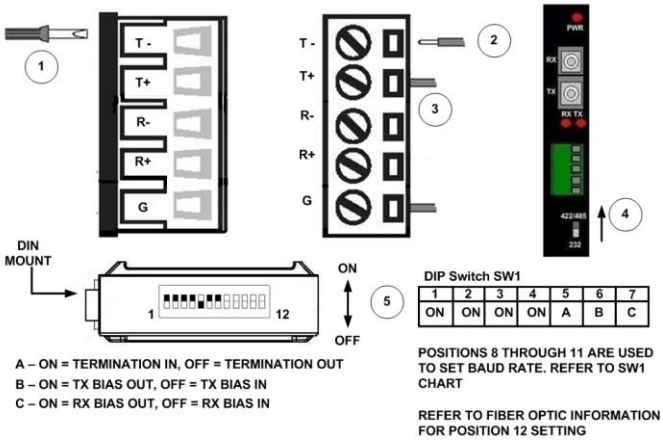
RS-485 2-Wire



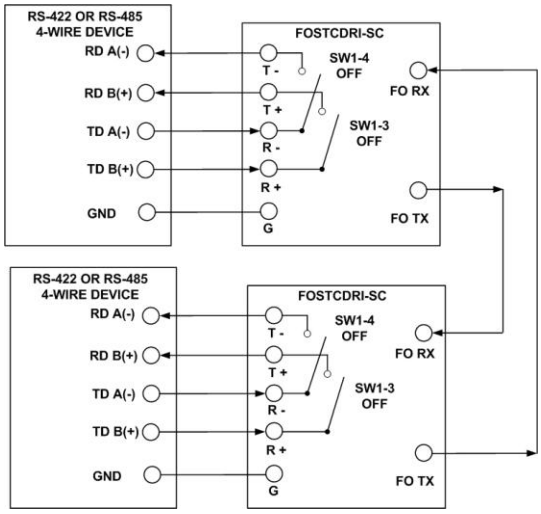


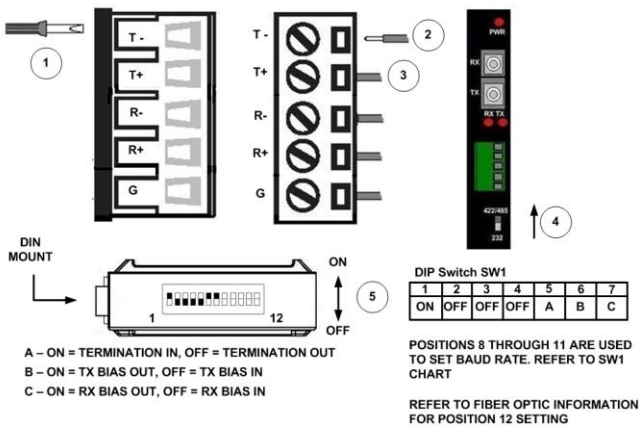
1. Loosen the screws to open the Serial TB Lead Clamps for the T-, T+, and G terminals.
2. Insert the RS-485 2-Wire Signals Leads. The TB will accept 12 to 28 AWG wire.
3. Tighten the screws to close the Serial TB Lead Clamps. Ensure the clamps hold the leads securely. However, do not over tighten.
4. Position the 422/485/232 Switch to the 422/485 position.
5. Configure the DIP Switch on the bottom of the converter for RS-485 2-Wire operation.

Installation Notes:

- **In 2-Wire mode, T(-) and T(+) terminals are tied to the R(-) and R(+) terminals with DIP Switch SW1-3 and SW1-4.**
- **If Termination is required, a 120Ω resister can be placed across the R(-) and R(+) terminals by setting SW1-5 to ON.**
- **This converter has 1.2 KΩ pull-up/down bias resistors built in. To use this bias, set SW1-6 and SW1-7 to ON.**
- **B&B Electronics' RS-485 Application Note contains more information about termination and biasing. This reference is available on our web site.**
- **For a replacement TB, order part number 7466.**

RS-422 / RS-485 4-Wire





1. Loosen the screws to open the Serial TB Lead Clamps for the T-, T+, R-, R+, and G terminals.
2. Insert the RS-422/485 4-Wire Signal Leads. The TB will accept 12 to 28 AWG wire.
3. Tighten the screws to close the Serial TB Lead Clamps. Ensure the clamps hold the leads securely. However, do not over tighten.
4. Position the 422/485/232 Switch to the 422/485 position.
5. Configure the DIP Switch on the bottom of the converter for RS-422/485 4-Wire operation.

Installation Notes:

- **If Termination is required, a 120Ω resister can be placed across the R(-) and R(+) terminals by setting SW1-5 to ON.**
- **This converter has 1.2 KΩ pull-up/down bias resistors built in. To use this bias, set SW1-6 and SW1-7 to ON.**
- **B&B Electronics' RS-485 Application Note contains more information about termination and biasing. This reference is available on our web site.**
- **For a replacement TB, order part number 7466.**

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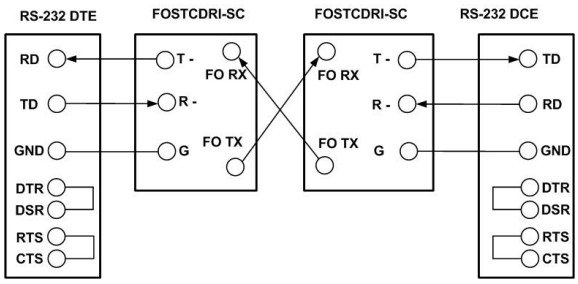
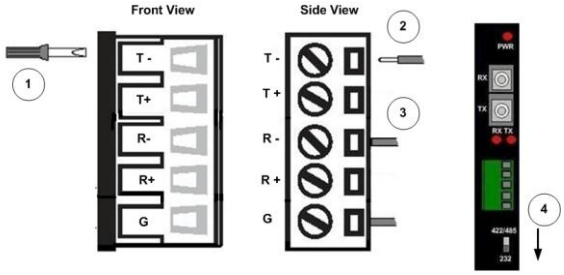
RS-232 Configuration





1. Loosen the screws to open the Serial TB Lead Clamps for the T-, R-, and G terminals.
2. Insert the RS-232 Signal Leads into the TB.
3. Tighten the screws to close the Serial TB Lead Clamps. Ensure the clamps hold the leads securely. However, do not over tighten.
4. Position the 422/485/232 Switch to the 232 position.

Installation Notes:

- **Set DIP Switch SW1 Positions 1 through 11 (on the bottom of the converter) to OFF. Set SW1 position 12 to OFF for point-to-point fiber mode.**
- **The wiring example shows a DTE device on one end and a DCE device on the other.**
- **Handshaking signals are not passed through.**
- **The loopback jumpers shown in the wiring diagram may or may not be required. Refer to the operating manual for your RS-232 device for more information.**

Need More Information?

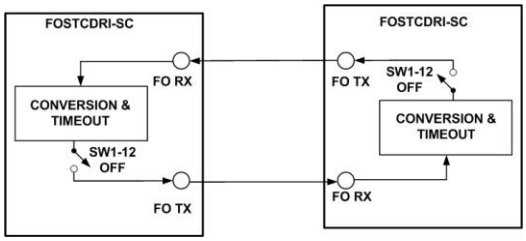
For more information about serial communications, visit B&B Electronics' web site:

www.bb-elec.com

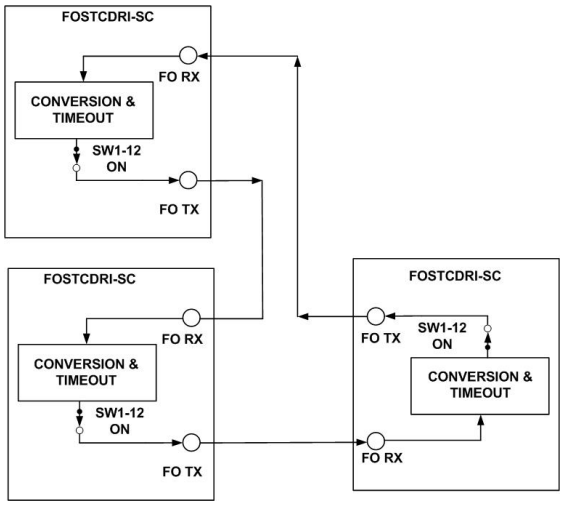
B&B Electronics maintains an extensive technical library available for download free of charge.
The following titles are of particular interest to users of this product.

RS-422/485 Application Note
RS-232 Connections That Work - DTE/DCE
An Overview of Fiber Optic Technology

Fiber Optic



Fiber Optic Point-to-Point



Fiber Optic Multi-drop Ring

1. Ensure your fiber optic cable is terminated with an SC type connector. 9/125 micro-meter single-mode cable is recommended.
2. Connect the converter's transmitter to the distant end receiver and vice-versa.
3. DIP Switch SW1-12 is used to select point-to-point or multi-drop mode. For point-to-point, set the switch to OFF for both converters. For multi-drop, set the switch to ON for each converter in the ring. With SW1-12 in the ON position, receive data will be looped back to the fiber optic transmitter. Data will repeat around the ring until it finally reaches its source. When the data is received by the originator, timeout circuitry will prevent it from being re-transmitted.

Maximum Converters in a Fiber Ring		
Baud Rate	RS-232	RS-422/485
19.2 kbps and lower	32	32
37.4 kbps	16	24
115.2 kbps	2	8

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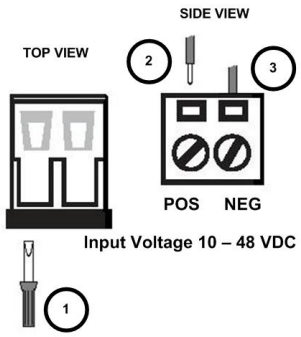
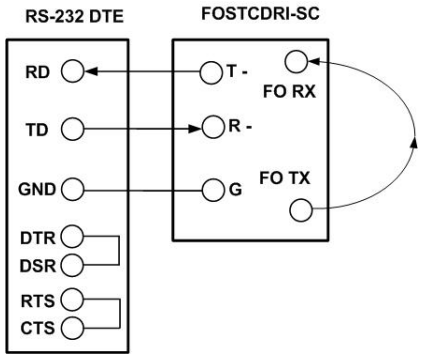
Attach Power Leads External Supply Required



1. Power requirement: 10 to 48 VDC, 1.4 W, Class 2.
2. Loosen the screws to open the terminal block lead clamps.
3. Insert the power lead. TB will accept 12-28 AWG wire.
4. Tighten the screw to close the terminal block lead clamp. Ensure the clamp holds the lead securely. However, do not over tighten.

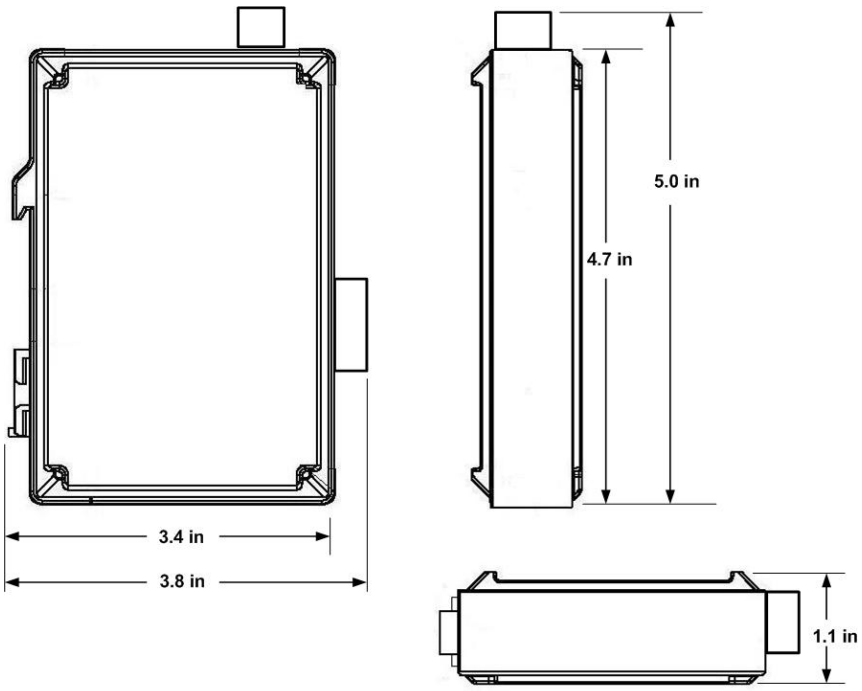
NOTE: For replacement Terminal Block order Part # 7444.

RS-232 Loopback Test



1. Configure the converter for RS-232.
2. Set DIP Switch SW1 Position 12 to OFF.
3. Cross-connect the fiber optic transmitter to the fiber optic receiver using a single-mode patch cord.
4. Connect a PC to the serial port.
5. Using Hyper Terminal or similar program, connect to the appropriate COM port. Set the baud rate to match the converter. Ensure Hyper Terminal local echo is OFF.
6. Transmit data. If the same character string is returned, the test is good.

Mechanical Diagram



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