

Quick Start Guide

SER-485-FXC

Triple Isolated RS-232 to Multi-Mode Fiber Converter



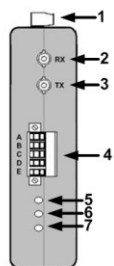
1. Check for Required Hardware

- SER-485-FXC Fiber Optic Converter
- This Quick Start Guide
- Additional Items Required but not included
 - o A 10 to 48 VDC Power Supply.
 - o Serial Cable
 - o Multi-Mode Fiber Optic Cable with ST Connectors (62.5 / 125 micro-meter).

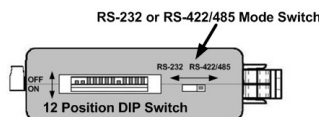
2. Information – UL Class 1 Div 2

1. Power, input /output (I/O) wiring must be in accordance with Class 1 Division 2 wiring methods [Article 501.10(B) of the National Electric code, NFPA70] and in accordance with the local authority having jurisdiction.
2. Maximum ambient air temperature 80° C.
3. **WARNING – EXPLOSION HAZARD:** SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS 1, DIVISION 2.
4. **WARNING – EXPLOSION HAZARD:** WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES
5. **WARNING – EXPLOSION HAZARD:** DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.
6. **WARNING – THIS APPARATUS IS SUITABLE FOR USE IN CLASS 1 DIVISION 2, GROUPS A, B, C, AND D, OR UNCLASSIFIED AREAS.**

3. Front Panel, Switches, Terminal Block



Front Panel Connectors and LED's	
1 Power TB	2 Position, Removable
2 Fiber RX Port	ST Connector
3 Fiber TX Port	ST Connector
4 Serial TB	5 Position, Removable
5 Receive LED	Red, ON when serial data rcvd
6 Transmit LED	Red, ON when serial data sent
7 Power LED	Red, ON when power applied



Terminal Block

Terminal	RS-485 2-Wire	RS-422/485 4-Wire	RS-232
A	GND	GND	GND
B	Data B (+)	RD B(+)	----
C	Data A (-)	RD A(-)	RS-232 Data Input
D	----	TD B(+)	----
E	----	TD A (-)	RS-232 Data Output

4. RS-422/485 Mode, Termination & Bias DIP Switch Settings

Mode	DIP Switch Position			
	1	2	3	4
RS-485, 2-Wire, Half-duplex	ON	ON	ON	ON
RS-485, 4-Wire, Full Duplex	ON	OFF	OFF	OFF
RS-422, Full Duplex	OFF	OFF	OFF	OFF

Termination	DIP Switch Position
	5
Use 120Ω Built in Termination	ON
Do not use the built in Termination	OFF

Transmit Bias	DIP Switch Position
	6
Use the Built in 1.2K Ω Bias	OFF
Do not use the built in bias	ON

Receive Bias	DIP Switch Position
	7
Use the Built in 1.2K Ω Bias	OFF
Do not use the built in bias	ON

5. RS-422/485 Time Out

Baud	Switch Selectable Timeouts				Timeout
	DIP Switch Position 8	9	10	11	
9.6 K	OFF	OFF	OFF	ON	1.30 ms
19.2 K	OFF	OFF	ON	OFF	0.56 ms
38.4 K	OFF	ON	OFF	OFF	0.27 ms
57.6 K	ON	OFF	OFF	OFF	0.22 ms
76.8 K	ON	OFF	ON	ON	0.14 ms
115.2 K	ON	ON	ON	OFF	0.10 ms

Baud	Through Hole Resistor Selectable Timeouts				R9 Value	Timeout
	DIP Switch Position 8	9	10	11		
1.2 K	ON	OFF	OFF	OFF	820KΩ	8.20 ms
2.4 K	ON	OFF	OFF	OFF	430KΩ	4.30 ms
4.8 K	ON	OFF	OFF	OFF	220KΩ	2.20 ms
153.6 K	ON	OFF	OFF	OFF	6.2KΩ	0.06 ms
230.4 K	ON	OFF	OFF	OFF	4.3KΩ	0.04 ms
460.8 K	ON	OFF	OFF	OFF	2.2KΩ	0.02 ms

Pre-defined timeouts are set using switches 8 through 11. Resistor selectable baud rates are set by inserting a through-hole resistor (R-9) on the circuit board.

Timeout selections are equal to one character time at the indicated baud rate. Setting the converter to 9600 will generally work at 9600 and higher baud rates. **In RS-422 mode, timeouts are not required.**

6. Power Connection

1. Power requirements are 10 to 48 VDC @ 0.2A Follow polarity shown on label.

7. Wiring Examples

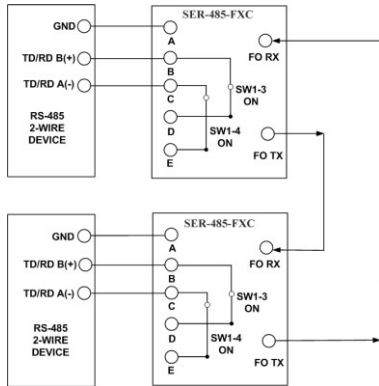
RS-485 2-Wire

Put the RS-232, RS-422/484 Switch to the RS-422/485 Position

DIP Switch Position					
1	2	3	4	5	6
ON	ON	ON	ON	A	B
7	8	9	10	11	12
B	C	C	C	C	D

- A – Termination Option, See Step 4
- B – Bias Option, See Step 4
- C – Timeout Option, See Step 5
- D – Fiber Option, See Step 8

RS-485 2-Wire Continued

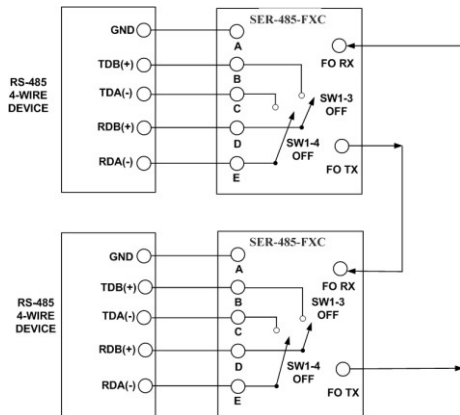


RS-422/485 4-Wire

Put the RS-232, RS-422/485 Switch to the RS-422/485 Position

DIP Switch Position					
1	2	3	4	5	6
A	OFF	OFF	OFF	B	C
7	8	9	10	11	12
C	D	D	D	D	E

- A – RS-422 or RS-485, See Step 4
- B – Termination Option, See Step 4
- C – Bias Option, See Step 4
- D – Timeout Option, See Step 5
- E – Fiber Option, See Step 8



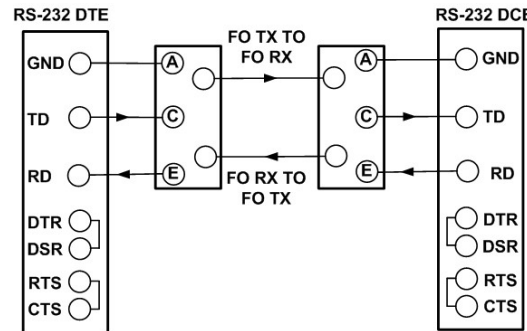
RS-232

Put the RS-232, RS-422/484 Switch to the RS-232 Position

DIP Switch Position					
1	2	3	4	5	6
A	A	A	A	A	A
7	8	9	10	11	12
A	A	A	A	A	B

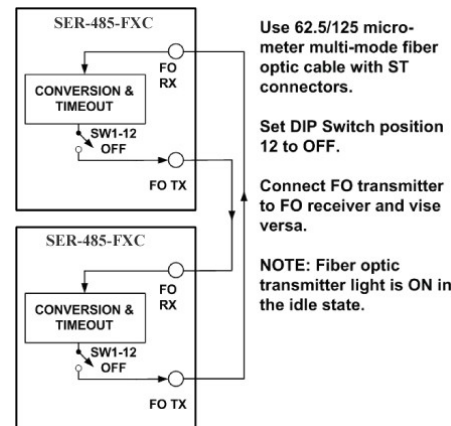
A – Positions 1 through 11 are not used in RS-232 Mode.

B – Fiber Option, see step 8.



8. Fiber Optic

Point-to-Point



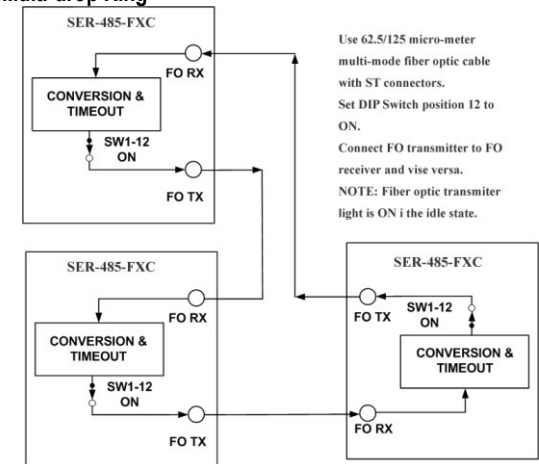
Use 62.5/125 micro-meter multi-mode fiber optic cable with ST connectors.

Set DIP Switch position 12 to OFF.

Connect FO transmitter to FO receiver and vice versa.

NOTE: Fiber optic transmitter light is ON in the idle state.

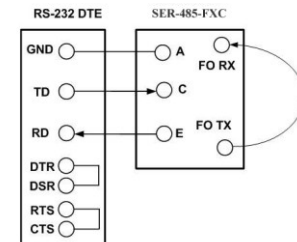
Multi-drop Ring



Use 62.5/125 micro-meter multi-mode fiber optic cable with ST connectors. Set DIP Switch position 12 to ON. Connect FO transmitter to FO receiver and vice versa. NOTE: Fiber optic transmitter light is ON in the idle state.

Maximum Converters in a Multi-drop Ring		
Baud Rate	RS-232	RS-422/485
≤19.2 kbps	32	32
37.4 kbps	16	24
115.2 kbps	2	8

9. RS-232 Loopback Test



1. Configure the converter for RS-232.
2. Set DIP Switch position 12 to OFF.
3. Cross connect the fiber optic transmitter to the fiber optic receiver.
4. Connect a PC to the serial port.
5. Using hyper terminal or similar program, connect to the appropriate COM port. Ensure hyper terminal local echo is off.
6. Transmit data. If the same character string is returned, the test is good.