

# E-SER-2FOMMSC

**Industrial RS-232/RS-485/RS-422 To  
Fiber Optic Multi-mode Converter**  
Datasheet Revision 2.1

## GENERAL FEATURES:

- Plug-and-Play (hot-pluggable)
- Port powered - no external power needed
- Fiber optic range of up to 1.2 miles (2.0 km)
- RS-232 / RS-485 / RS-422 can be mixed or matched
- Data direction auto-turnaround - no flow control necessary
- Built-in surge and static protection
- RoHS, CE, and FCC certified



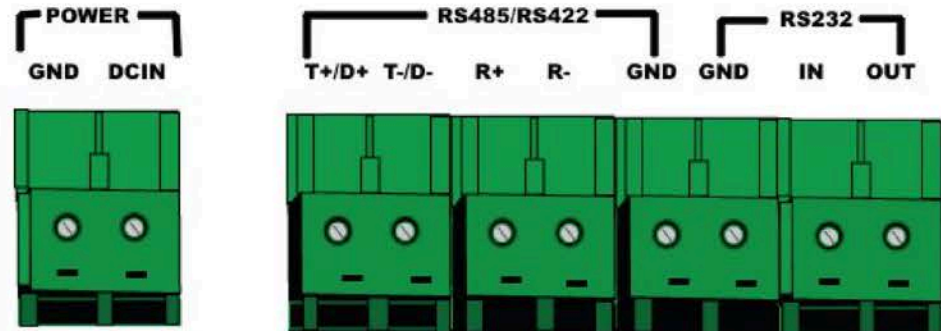
## DESCRIPTION:

The E-SER-2FOMMSC is an industrial grade bi-directional externally power multi-functional RS-232/RS-485/RS-422 to Multi-Mode Fiber Optic Converter which converts either full-duplex RS-232, half-duplex RS-485 or full-duplex RS-422 to a Multi-mode SC connector type fiber optic link. A data direction auto-turnaround feature automatically enables the serial transmit and receive data signals when data is present, avoiding the need for software drivers, and making the device fully plug-and-play. The E-SER-2FOMMSC has an 8 position terminal block for the serial port, and an SC type connector for the fiber optic link. The unit extends the maximum distance of any RS-232/RS-485/RS-422 signal up to 1.2 miles (2.0 km) using MM fiber optic cable. The unit is enclosed in a rugged steel housing. An external power supply is included.

## CERTIFICATIONS:



## CONNECTORS:



## SPECIFICATIONS:

COMMUNICATION	
<b>STANDARDS:</b>	EIA/TIA RS-232C, RS-485 and RS-422 Standards
<b>MODEL NUMBER:</b>	E-SER-2FOMMST
<b>BAUD RATES:</b>	From 300 Baud To 460,000 Baud
<b>CONNECTOR TYPES:</b>	DC Input: 2-way Terminal Block, Serial Side: 8 Position Terminal Block and Fiber Side: 2 X SC Connectors
<b>DISTANCE:</b>	RS-232 Side: 16 ft (5m), RS-485/RS-422 Side: 4000 ft (1.2km) and Multi-mode Side: 1.2 miles (2km)
ELECTRICAL	
<b>POWER SOURCE:</b>	9VDC to 36VDC
<b>DC/AC POWER ADAPTER:</b>	Included 2X 12VDC,500mA / 5VDC,2A (100 - 240VAC 50/60hz )
<b>POWER CONSUMPTION:</b>	4 Watts
<b>STATIC PROTECTION:</b>	15KV Electric Static Discharge (ESD) Protection
<b>SURGE PROTECTION:</b>	600W/Sec Surge Protection
FIBER OPTIC	
<b>FIBER OPTIC CABLING:</b>	Compatible with Multi-mode: 50/125um and 62.5/125um Fiber Optic Cable
<b>WAVELENGTH:</b>	1310nm
MECHANICAL	
<b>HOUSING:</b>	Heavy Duty Steel Housing
<b>DIN RAIL:</b>	Optional DIN Rail Mounts
<b>WEIGHT:</b>	8.73oz (245.3 grams)
<b>DIMENSIONS:</b>	4.65" X 3.58" X 0.87" (118.0 mm X 91.0 mm X 22.0 mm)
ENVIRONMENTAL	
<b>OPERATING TEMP:</b>	-40° F to 185° F (-40°C to 85° C)
<b>OPERATING HUMIDITY:</b>	5% To 95% - No Condensation
QUALITY	
<b>PRODUCT SAFETY:</b>	CE, FCC and RoHS Conformance Certified
<b>RELIABILITY:</b>	Low Failure Rate - 99.9% Reliability Since Inception
<b>WARRANTY:</b>	2 Year Replacement Warranty

## LED INDICATIONS:

PWR	Power Indicator	ON: Power On - OFF: Power OFF
RX	Data Receive Indicator	ON: When Power is Connected, OFF: When Fiber is Connected, FLASHING: When Data is Received
TX	Data Transmit Indicator	FLASHING: When Data is Transmitted

## FLEXIBLE SERIAL CONVERSION:

This serial converter is versatile. Not only can you extend RS-232C, RS-485 or RS-422 data but convert from one serial protocol to another. For instance on one end of the fiber optic you can connect RS-232C and the other RS-485 or RS-485 to RS-422 or any other combination.

## APPLICATIONS:

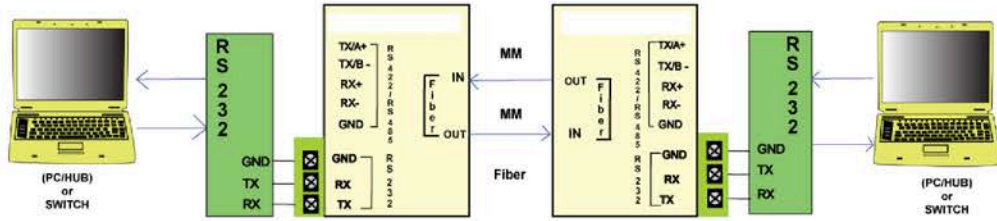


FIGURE 1: EXTENDING RS-232 DATA DISTANCE

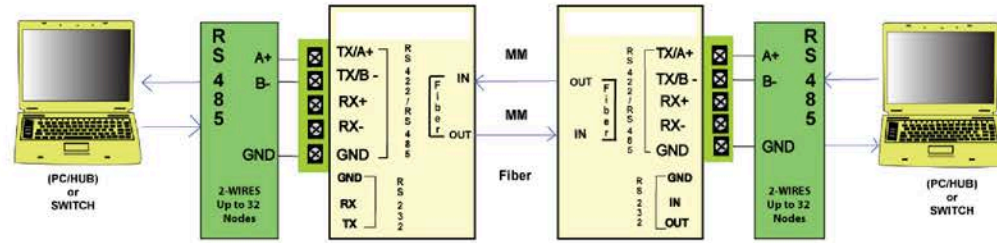


FIGURE 2: EXTENDING RS-485 DATA DISTANCE

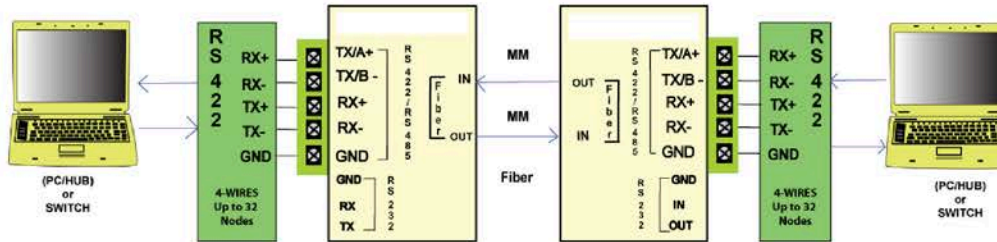
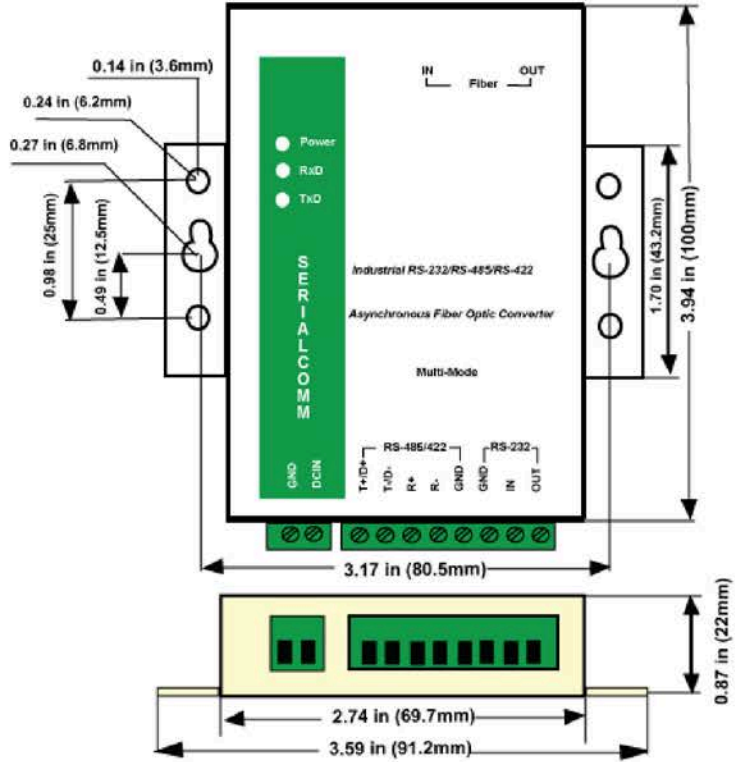


FIGURE 3: EXTENDING RS-422 DATA DISTANCE

## DIMENSIONS:



## TROUBLESHOOTING INSTRUCTIONS:

Using one E-SER-2FOMMSC unit:

1. Perform a loop back test on one unit:
  - a) Plug the power connector to the converter. Both the PWR light and RX light should be on.
  - b) Connect the fiber optic in to fiber optic out. Only the PWR light should be lit.
  - c) Connect the RS-232, RS-485 or RS-422 port to a PC.
  - d) Running a hyper terminal program on the PC, send ASCII characters to the E-SER-2FOMMSC converter from one PC port, and check that the characters are received at the same PC port. This tests that the transmit and receive functions of the E-SER-2FOMMSC are working properly.
  - e) When data is transmitting to the converter the TX light should blink and when the converter is receiving data the RX light should blink.

Using two E-SER-2FOMMSC units:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on two units:
  - a) Plug the power connector to both converters. Both the PWR light and RX light should be on both units.
  - b) Connect the fiber optic in of one converter and fiber optic out to the other converter.
  - c) Connect the fiber optic out of one converter and fiber optic in to the other converter.
  - d) Only the PWR light should be lit on both converters.
  - e) Connect the RS-232 connections to two RS-232 ports or connect the RS-485 connections to two RS-485 ports or connect the RS-422 connections to two RS-422 ports.
  - f) Running hyper terminal programs on both PCs, send ASCII characters to the SER-FIBER-MM converter from one PC port, and check that the characters are received at the 2<sup>nd</sup> PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both E-SER-2FOMMSC are working properly.
  - g) When data is transmitting to the converter the TX light should blink and when the converter is receiving data the RX light should blink.

### Sensors Compatible with E-SER-2FOMMSC

MODEL
E-ST5
E-STHSB
E-STHS-LCDW
E-STHSM-E7
E-STSM-E7
E-ST5-PRC
E-STSP-x
E-STSP-SL7
E-ST5-O
E-DI16DO16
E-DI16DOR16
E-DUST

MODEL
E-S60VDC
E-ACDCLM
E-DCLM-6
E-AV-LC-7
E-ACLM-P18
E-ACLM-P12
E-ACLM-P8
E-ACLM-V
E-ACLM-3P480

MODEL	ADAPTER REQUIRED
E-CO2	E-S5VDC
E-AVK	E-S5VDC
E-STHS-WLM	E-S420MA-24V
E-ULT	E-S420MA-24V
E-BPT	E-S420MA-24V

The required AC adapters are included with the E-SER-2FOMMSC

## WIRING DIAGRAM FOR INSTALLATION OF E-SER-2FOMMSC

