

ENVIROMUX-FSC

**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



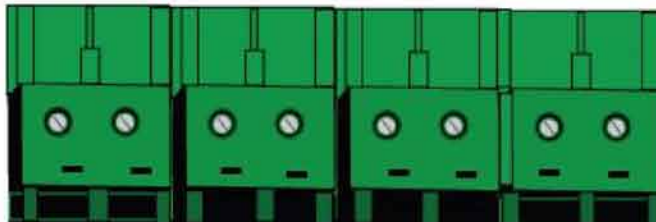
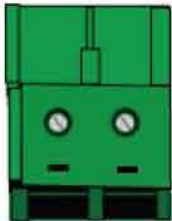
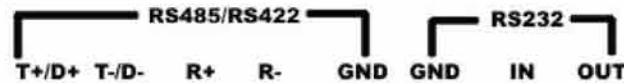
DESCRIPTION:

The ENVIROMUX-FSC is an industrial grade bi-directional externally powered 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 ENVIROMUX-FSC has a 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	
STANDARDS:	EIA/TIA RS-232C, RS-485 and RS-422 Standards
MODEL NUMBER:	ENVIROMUX-FSC
BAUD RATES:	From 300 Baud To 460,000 Baud
CONNECTOR TYPES:	DC Input: 2-way Terminal Block, Serial Side: 8 Position Terminal Block and Fiber Side: 2 X SC Connectors
DISTANCE:	RS-232 Side: 16 ft (5m), RS-485/RS-422 Side: 4000 ft (1.2km) and Multi-mode Side: 1.2 miles (2km)
ELECTRICAL	
POWER SOURCE:	9VDC to 36VDC
DC/AC POWER ADAPTER:	Included 9VDC,500mA /12VDC,1A / 5VDC,2A (100 - 240VAC 50/60hz)
POWER CONSUMPTION:	4 Watts
STATIC PROTECTION:	15KV Electric Static Discharge (ESD) Protection
SURGE PROTECTION:	600W/Sec Surge Protection
FIBER OPTIC	
FIBER OPTIC CABLING:	Compatible with Multi-mode: 50/125um and 62.5/125um Fiber Optic Cable
WAVELENGTH:	1310nm
MECHANICAL	
HOUSING:	Heavy Duty Steel Housing
DIN RAIL:	Optional DIN Rail Mounts
WEIGHT:	8.73oz (245.3 grams)
DIMENSIONS:	4.65" X 3.58" X 0.87" (118.0 mm X 91.0 mm X 22.0 mm)
ENVIRONMENTAL	
OPERATING TEMP:	-40° F to 185° F (-40°C to 85° C)
OPERATING HUMIDITY:	5% To 95% - No Condensation
QUALITY	
PRODUCT SAFETY:	CE, FCC and RoHS Conformance Certified
RELIABILITY:	Low Failure Rate - 99.9% Reliability Since Inception
WARRANTY:	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:

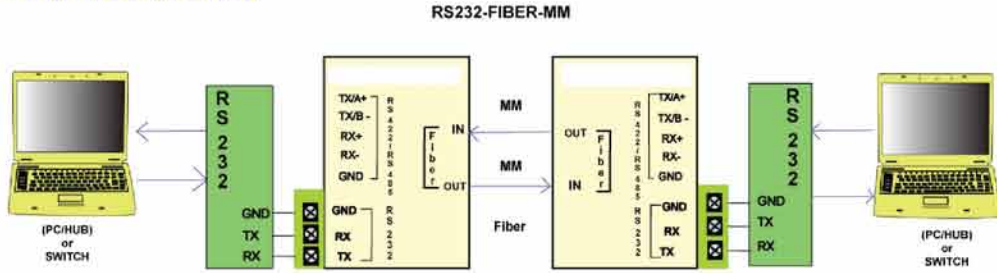


FIGURE 1: EXTENDING RS-232 DATA DISTANCE

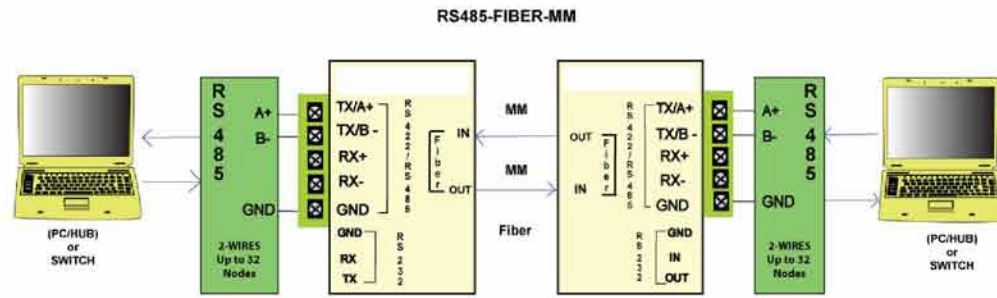


FIGURE 2: EXTENDING RS-485 DATA DISTANCE

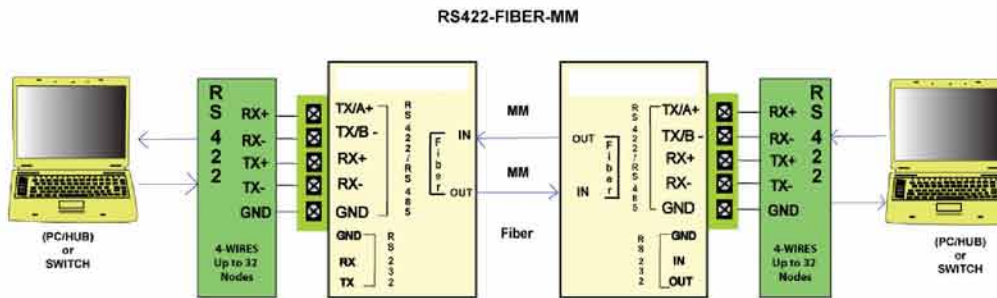
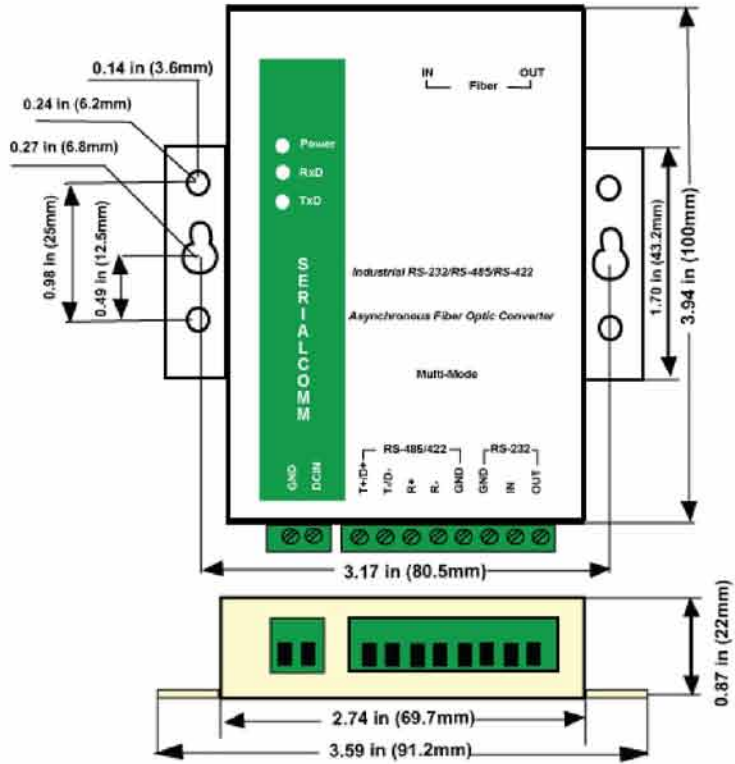


FIGURE 3: EXTENDING RS-422 DATA DISTANCE

DIMENSIONS:



TROUBLESHOOTING INSTRUCTIONS:

Using one ENVIROMUX-FSC 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 ENVIROMUX-FSC 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 ENVIROMUX-FSC 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 ENVIROMUX-FSC 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 ENVIROMUX-FSC converter from one PC port, and check that the characters are received at the 2nd PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both ENVIROMUX-FSC 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 ENVIROMUX-FSC

MODEL	MODEL	ADAPTER REQUIRED
ENVIROMUX-ST5	ENVIROMUX-CO2	ENVIROMUX-S5VDC
ENVIROMUX-STHS	ENVIROMUX-AV-LC	ENVIROMUX-S5VDC
ENVIROMUX-STHS-99	ENVIROMUX-EWDS	ENVIROMUX-S5VDC-5V
ENVIROMUX-SHS	ENVIROMUX-STHS-PLT	ENVIROMUX-S420MA-24V
ENVIROMUX-STHS-080IND	ENVIROMUX-STHS-PLT-120	ENVIROMUX-S420MA-24V
ENVIROMUX-STHS-N4085IND-x	ENVIROMUX-STHS-PLT-140	ENVIROMUX-S420MA-24V
ENVIROMUX-ST5-PRC	ENVIROMUX-STHS-PLT-180	ENVIROMUX-S420MA-24V
ENVIROMUX-STHS-PRC	ENVIROMUX-STHS-WLM	ENVIROMUX-S420MA-24V
ENVIROMUX-STHS-PRCIND-x	ENVIROMUX-STHS-DCT	ENVIROMUX-S420MA-24V
ENVIROMUX-STSP-x	ENVIROMUX-ULT	ENVIROMUX-S420MA-24V
ENVIROMUX-ST5-O	ENVIROMUX-BPT	ENVIROMUX-S420MA-24V
ENVIROMUX-LIS	ENVIROMUX-PT1M-208-0800	ENVIROMUX-S420MA-24V
ENVIROMUX-DI16DO16	ENVIROMUX-PT3M-208-0800	ENVIROMUX-S420MA-24V
ENVIROMUX-DI16DOR16	ENVIROMUX-PT3L-208-1600	ENVIROMUX-S420MA-24V
ENVIROMUX-STHSD	ENVIROMUX-PT3S-480-0100	ENVIROMUX-S420MA-24V
ENVIROMUX-S60VDC	ENVIROMUX-PT3S-480-0300	ENVIROMUX-S420MA-24V
ENVIROMUX-ACLM-P12	ENVIROMUX-PT3-600	ENVIROMUX-S420MA-24V
ENVIROMUX-ACLM-P8		
ENVIROMUX-ACLM-V		
ENVIROMUX-AV		
ENVIROMUX-DUST		

WIRING DIAGRAM FOR INSTALLATION OF ENVIROMUX-FSC

