SerialComm®
Data Conversion Experts

232-FIBER-SM-4
Industrial RS-232 To Fiber Optic Single Mode 40KM Converter

SERIALCOMM.COM

Datasheet Revision 1.4

GENERAL FEATURES:

- Point to Point Fiber 40KM SM Configuration
- Plug-and-Play (hot-pluggable)
- Externally Powered
- Fiber optic range of up to 24.8 miles (40 KM)
- Available with ST or SC type connectors
- Data direction auto-turnaround - no flow control necessary
- Built-in surge and static protection
- 5-year replacement manufacturer's warranty
- CE, FCC, RoHS and REACH certified

DESCRIPTION:

The SerialComm 232-FIBER-SM-4 is an industrial grade bi-directional externally powered full-duplex RS-232 to Single Mode Fiber Optic Converter which converts a standard full-duplex RS-232 transceiver to a Single Mode SC or ST connector type fiber optic link. A data direction auto-turnaround feature automatically enables the RS-232 transmit and receive data signals when data is present, avoiding the need for software drivers, and making the device fully plug-and-play. The 232-FIBER-SM-4 has a DB9 connector for the RS-232 serial port, and either an ST type or SC type connector for the fiber optic link. The unit extends the maximum distance of any RS-232 signal up 24.8 miles (40 KM) using SM fiber optic cable. The unit is enclosed in a rugged steel housing. An external power supply is included.

CERTIFICATIONS:

APPLICATIONS:

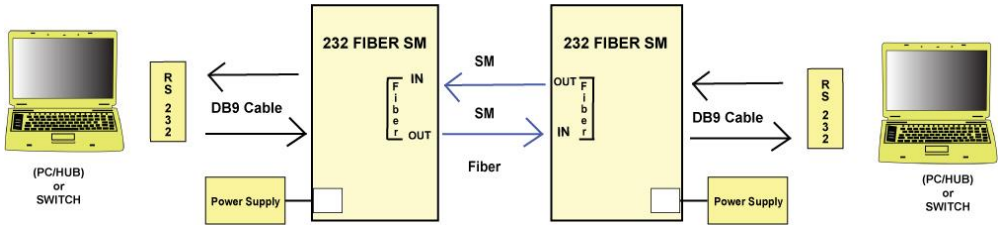


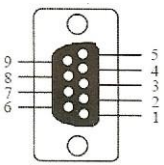
FIGURE 2: EXTENDING RS-232 DATA DISTANCE

PINOUT CONFIGURATION:

RS-232 SIDE – DB9 FEMALE

SIG.	DCD	DTR	DSR	RTS	CTS	TX	RX	GND
PIN #	1	4	6	7	8	2	3	5
FUNC.	TIED			TIED		TX	RX	GND

FEM DB9



SPECIFICATIONS:

COMMUNICATION	
STANDARDS:	EIA/TIA RS-232C Standard
MODEL NUMBERS:	232-FIBER-SM-4-ST - ST Connector Version 232-FIBER-SM-4-SC - SC Connector Version
BAUD RATES:	From 300 baud to 128,000 baud
CONNECTOR TYPES:	DC Input: 2-way Terminal Block, RS-232 Side: DB9 Female and Fiber Side: either 2 X ST Connectors or 2 X SC Connectors
DISTANCE:	RS-232 Side: 16 ft (5m) and Single Mode Side: 24.8 miles (40KM)
ELECTRICAL	
POWER SOURCE:	5VDC
DC/AC POWER ADAPTER:	5VDC/(100 - 240VAC 50/60hz US Type A Plug) 1000 mA
POWER CONSUMPTION:	Less than 200mA
STATIC PROTECTION:	15KV Electric Static Discharge (ESD) Protection
SURGE PROTECTION:	600W Surge Protection
FIBER OPTIC	
FIBER OPTIC OPERATION:	Point to Point Fiber 40KM Single Mode Configuration
FIBER OPTIC CABLING:	8.3/125µm, 8.7/125µm, 9/125µm & 10/125µm SM Fiber
WAVELENGTH:	1310 nm
OUTPUT LEVEL (MIN):	-8 dBm
OUTPUT LEVEL (MAX):	-3 dBm
FIBER SENSITIVITY LEVEL:	-36 dBm
MECHANICAL	
HOUSING:	Heavy Duty Steel Housing
DIN RAIL:	Optional DIN Rail Mounts
WEIGHT:	**With ST Connector**: 8.87oz (251.4 grams) **With SC Connector**: 8.73oz (245.3 grams)
DIMENSIONS:	**With ST Connector:** 4.29" X 3.75" X 1.05" (109.0 mm X 95.0 mm X 26.6 mm) **With SC Connector**: 3.98" X 3.75" X 1.05" (101.0 mm X 95.0 mm X 26.6 mm)
ENVIRONMENTAL	
OPERATING TEMP:	-40° F to 185° F (-40°C to 85° C)
STORAGE TEMP:	-40° F to 185° F (-40°C to 85° C)
OPERATING HUMIDITY:	5% To 95% - No Condensation
QUALITY	
PRODUCT SAFETY:	CE, FCC, RoHS and REACH Third-party Certified
QUALITY MANAGEMENT:	Manufactured and Distributed to ISO 9001:2015 QMS
MEAN TIME BEFORE FAILURE:	701,029 Hours
RELIABILITY:	Low Failure Rate – 99+% Reliability Since Inception
WARRANTY:	5 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

TROUBLESHOOTING INSTRUCTIONS:

Using one 232-FIBER-SM-4 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 port to a PC.
    d) Running a hyper terminal program on the PC, send ASCII characters to the 232-FIBER-SM-4 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 232-FIBER-SM-4 unit is 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 232-FIBER-SM-4 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.
    f) Running hyper terminal programs on both PCs, send ASCII characters to the 232-FIBER-SM-4 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 232-FIBER-SM-4 units 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.