RS-485 FIBER-OPTIC LINK

101-0079

RS-485 to Multi-Mode Fiber-Optic converter
ST Fiber Connectors
DIN Rail Mount

Installation Operation & Specifications Manual

- *RS-485 Auto-direction control*
- *Supports BAUD rates up to 115,200*
- *Fiber optic range of up to 4 km (2.5 mi)*
- *820nm wavelength technology*
- *Point-to-Point transmission*
- *Plug-and-Play, no switches or jumpers*
- *9 to 30 Vdc supply voltage range*
- *Wide operating temperature range -30 to 60°C (-22 to 140°F)*

The 101-0079 Fiber-Optic Link is a simple to use, plug-and-play, RS-485 to multi-mode fiber optic converter. Using standard ST connectors the Fiber-Optic Link extends the maximum distance of an RS-485 signal up to 4 km (2.5 mi) in a point-to-point transmission using industry standard 50/125um or 62.5/125um multi-mode fiber optic cables.

Fiber optic communications offers immunity to EMI/RFI radio or electrical interference, transient surges, and ground loops. The Fiber-Optic Link is designed to easily interface to RS-485 half-duplex networks. Switching between transmit and receive is automatically controlled- no RTS (request-to-send) handshake line needed. The Fiber-Optic Link is equipped with an industry standard 35mm DIN rail mounting clip allowing the converter to be quickly installed in your equipment rack, along side other DIN mounted equipment.

⚠ The Fiber-Optic Link keeps the light in the fiber turned ON when no data is transmitted. The light in the fiber turns OFF/ON in step with the data.

For a USB Fiber-Optic Link order part number 101-0089.

Microflex

RS-485 Network Bus

The Fiber-Optic Link can be connected to an RS-485 network bus. An RS-485 bus consists of multiple RS-485 devices connected in parallel to a bus cable. To eliminate line reflections, each cable end is terminated with a termination resistor whose value matches the characteristic impedance of the cable. This method, known as parallel termination, allows for higher data rates over a longer cable length.

Connect terminal A to the RS-485 bus A or (-) wire and terminal B to the RS-485 bus B or (+) wire.

Connect terminal G to the RS-485 bus shield or ground wire.

⚠ IMPORTANT: Fiber-Optic Link does not provide isolation between the RS-485 port and power supply ground. The G terminal is internally connected to the power supply (-) terminal.

Fiber Optic Connection

The Fiber-Optic Link is equipped with ST style connectors capable of working with standard multi-mode fiber optic cables such as 50/125 and 62.5/125um. The maximum length of the fiber optic cables should not exceed 4 km (2.5 mi). The Fiber-Optic Link works as a pair, the first device's TX should be connected to RX on the second device. The second device's TX should connect to RX on the first device.

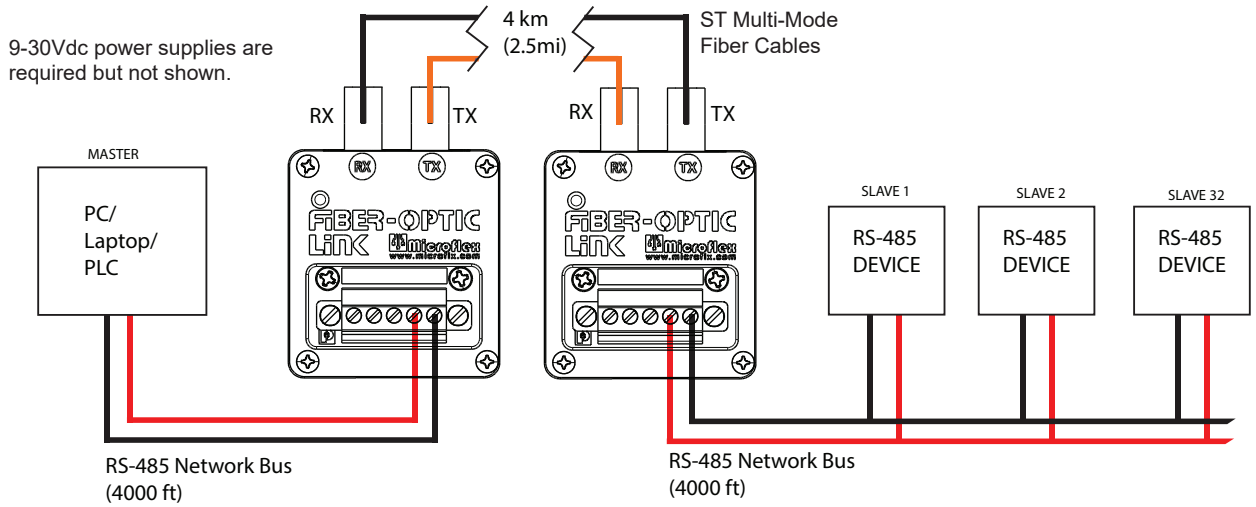
DIN Rail Mounting

The converter is designed to mount on standard 35mm EN 50022 rails. It can be snap mounted and removed from the mounting rail without tools for quick installation and servicing.

Power Supply

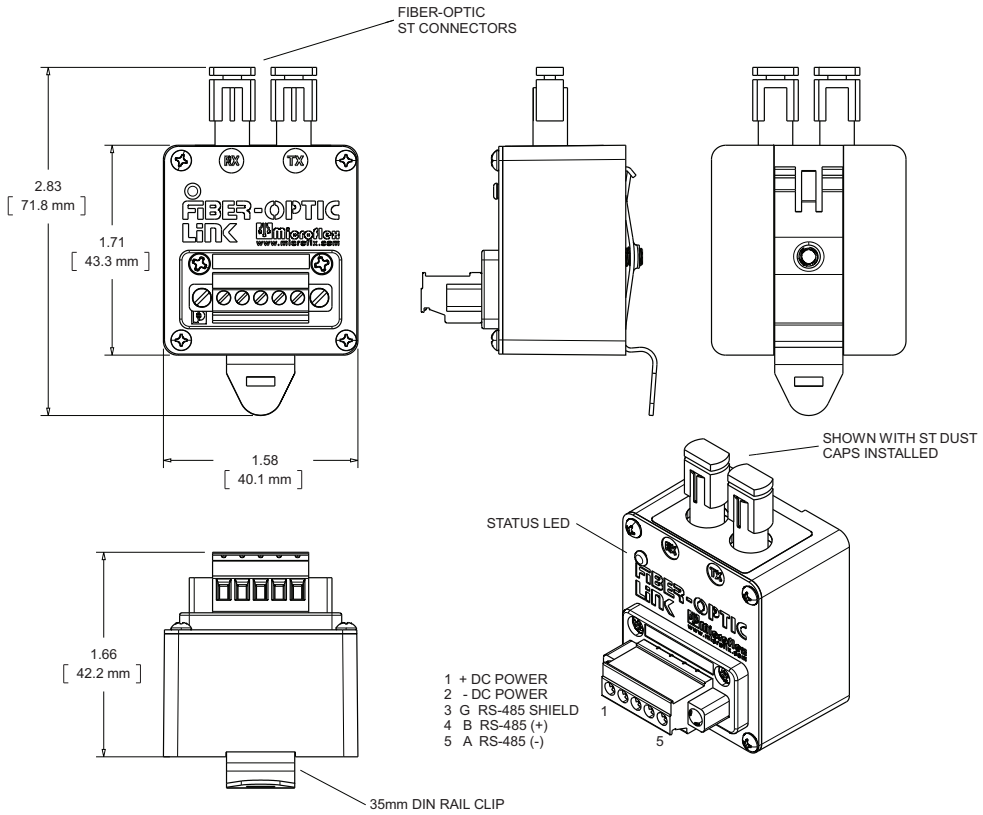
The Fiber-Optic Link is powered through an external power supply. You should use a DC power supply in the 9 to 30VDC range connected to the positive side on Pin 1, and the negative side to Pin 2. Maximum supply current ranges from 32mA at 30 volts to 132.5mA at 9 volts.

Typical Application



Typical application includes two 101-0079 RS-485 to Fiber Optic converters. For a USB to Fiber Optic Link order part number 101-0089.

Specifications



Enclosure

Polycarbonate plastic with Stainless Steel Cover
Weight ..... 5 ounces
Mounting ..... 35mm DIN Rail Clip

Terminal Block

Connector ..... 5-Pin 3.81 mm Pluggable Terminal Block
Wire Gauge Range ..... 28 AWG - 16 AWG
+ Power Supply (+) ..... Pin 1
- Power Supply (-) ..... Pin 2
G RS-485 Ground *Internally connected to Supply (-)* ..... Pin 3
B RS-485 (+) ..... Pin 4
A RS-485 (-) ..... Pin 5

Environmental

Operating Temperature ..... -30ºC to 60ºC (-22ºF to 140ºF)
Storage Temperature ..... -40ºC to 85ºC (-40ºF to 185ºF)
Humidity ..... 0 to 95% (non-condensing)

Power Supply

9 to 30VDC External Power Supply
Maximum supply current ranges
32mA 30VDC
132mA 9VDC
Power Consumption
1 Watts 24VDC

RS-485

Baud Rates ..... 1200 to 115,200
Parity ..... None, Odd, Even
Driver Output Voltage ..... 2V Min Unloaded, 1.5V Min R_L = 54Ω
Δ Input Threshold Receive Voltage ..... +/- 0.2V
Receiver Input Hysteresis ..... 35 mV Typ
Receiver Input Current ..... +/- 1mA Max
Surge Protection ..... 600W Silicone Avalanche Diodes

- Does not include RS-485 termination resistor
- Auto transmit control
- Power Up/Down glitch-free permits live insertion or removal
- Common mode range permits +/-7V ground difference

Fiber Optic

Type/Wavelength Multi-Mode/820nm
Output Power ..... (-) 17 to (-) 13 Typical (-) 15dBm
Receive Sensitivity ..... (-) 25.4 to (-) 24dBm
Cable ..... MM Fiber Optic cable: 50/125 and 62.5/125um
Maximum Distance ..... 4 km (2.5 mi)
Idle State ..... Transmitter light ON

Status LED

Green ..... Transmitting RS-485 data
Red ..... Receiving RS-485 data

At power on the Fiber-Optic Link will have the LED turn RED when the Fiber Optic RX (Receive/In) is not connected. Once connected to another Fiber-Optic Link or another fiber optic converter with the light ON at idle the RED status LED will turn OFF.

Safety Considerations

Conformity in accordance with Part 2, and Part 15, Subparts A and B of the Federal Communications Rules and Regulations, and ICES-003 of the Industry Canada standards.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by Microflex could void the user's authority to operate this equipment.

Emissions EN55022: 1998

Electrostatic Discharge EN61000-4-2: 1995, A1: 1998, A2: 2001

Radiated Immunity EN 61000-4-3: 2002

Safety Compliance EN 60950-1: 2002

This device is not intended for connection to the phone line through the appropriate converters and shall not be connected to telecommunication lines because it has no protection against over-voltages which may exist in these lines.

The user shall ensure the protection of the operator from access to areas with hazardous voltages or hazardous energy in their equipment.

The user shall ensure that the connection port of the field device and the modem is separated at least by basic insulation from any primary circuit existing in the field device.

Limited Warranty

Microflex, LLC warrants this unit against defects in materials and workmanship for a period of one year from the date of shipment. Microflex, LLC will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

A Return Materials Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before equipment will be accepted for warranty work.

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