



MOXA ICF-1150I RS485 TO FIBER CONVERTERS

Important Notices



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Important Safety Notes

The following formats are used for safety notes in these instructions.

 **WARNING** 

This type of note is used to indicate the presence of a hazard which will or may cause personal injury or death, or loss of service if safety instructions are not followed or if the hazard is not avoided.

 **CAUTION** 

This type of note is used to indicate the presence of a hazard which will or may cause damage to the equipment if safety instructions are not followed or if the hazard is not avoided.

NOTE

Indicates the message is important, but is not of a Warning or Caution category. These notes can be of great benefit to the user and should be read.

General

The MOXA RS485 to fiber converters (model ICF-1150 series) provide a means to increase the distances between the devices connected to the RS485 circuits used on Fike CyberCat® and Cheetah® Xi family of control panels. The MOXA modules provide point-to-point transmission of the circuit's high-speed RS485 signals over single-mode or multi-mode fiber-optic cable for the following panel circuits:

- Panel RS485 peripheral bus
- Panel RS485 panel network
- Voice sub-system RS485 audio bus

Regulatory Approvals

- UL Underwriters Laboratories
- CE Class B, (European Union)
- FCC Part 15 sub Class B
- LVD EN 60950-1
- EMI EN55032 1998, Class B
- EMS EN 6100-4-2 (ESD): Contact: 8 kV; Air: 15 kV EN 61000-4-3 (RS): 80 MHz to 1 GHz: 3 V/m EN 61000-4-4 (EFT: Power: 4 kV; Signal: 2 kV EN 61000-4-5 (Surge): Power: 4 kV; Signal: 1 kV EN 61000-4-6 (CS): 150 kHz to 80 MHz: 3 V/m EN 61000-4-8 (PFMF)

For exact certification listings, please reference the respective agency web site.

Ordering

P/N	Description
02-14784	RS485 to multi-mode fiber converter, ST connectors
02-14849	RS485 to multi-mode fiber converter, SC connectors
02-14850	RS485 to single-mode fiber converter, SC connectors
02-14851	RS485 to single-mode fiber converter, ST connectors
10-2936 ^{1,2}	Enclosure Kit, holds 2 MOXA converters
10-2937 ^{1,2}	Enclosure Kit, holds 4 MOXA converters
10-2938 ^{1,2}	Enclosure Kit, holds 6 MOXA converters

¹ Or equivalent UL enclosures)

² Refer to Fike document 06-809 for enclosure kit details.

Specifications

LED Indicators	
PWR (green)	Steady ON: Power is ON
Tx (green)	Sending data from the fiber port
Rx (yellow)	Receiving data from the fiber port
Serial Communication	
Signals for 2-wire RS485	GND (pin 1); Data- (pin 2), Data+ (pin 3)
RS-232	Not connected
Baudrate	50 bps to 921.6 Kbps
ESD Protection	15 kV ESD
Fiber Communication	
Connector Type	ST or SC
Distance	Single-mode fiber: 40 km (24.8 miles)
	Multi-mode fiber: 5 km (3.1 miles)
Support Cable	Single-mode fiber: 8.3/125, 8.7/125, 9/125, or 10/125 μM
	Multi-mode fiber: 50/125, 62.5/125, or 100/140 μM
Wavelength	Single-mode: 1310 nm
	Multi-mode: 850 nm
Tx Output	> -8dBm
Rx Sensitivity	-16 dB maximum
Point-to-Point Transmission	Half or Full duplex
Multi-drop Transmission	Half duplex, fiber ring
Environmental	
Operating Temp	0 to 49°C (32 to 120°F)
Relative Humidity	93%, non-condensing
Power	
Operating Voltage ¹	15 to 30 VDC, 100 mA (max.)
Reverse Power Protection	Protects against V+/V- reversal
Over Current Protection	Protects against two signal shorted together: 1.1 A
Physical Characteristics	
Dimensions (W x D x H)	30.3 x 70 x 115 mm (1.2 x 2.8 x 4.5 in.)
Material	Aluminum (1 mm)
Gross Weight	135 g / 0.3 lb.
IP Rating	IP30
Mounting	DIN-rail
Freefall	IEC 60068-2-32
MTBF	1,770,450 hours
Hazardous Certifications	
ATEX	10 ATEX 0917344X
IECEX	IECEX UL 13.0034X

¹ Supplied by control panel or a 24VDC regulated, power limited power supply listed for fire protective signaling.

Installation Steps

The fiber converter is supplied as a stand-alone module. Each fiber section requires a converter at each end of connection. The units should be installed in dry locations protected from extreme temperatures and humidity.

Fike offers three enclosures for mounting the fiber converters (See Ordering). The converter must be located within 20 feet (6.1 m) of the Fike panel or device the converter is to be connected to and the associated RS485 circuit wiring must be installed in conduit. Refer to Fike document 06-809 for enclosure installation instructions.

1. Locate the MOXA enclosure sub-panel and attach the converters to the provided DIN rail. It may be necessary to remove the sub-panel on the small enclosure to facilitate converter installation and field wiring.
2. Pull the field wiring (i.e., fiber, 24Vdc, and RS485) into the MOXA enclosure.
3. Attach the 24Vdc power wiring (power supply +/- to respective V+/- terminals on the fiber converter) from the Fike panel auxiliary power or from a battery backed 24Vdc regulated, power limited power supply listed for fire protective signaling use.

Refer to wiring diagrams on Page 4 for the remaining steps.

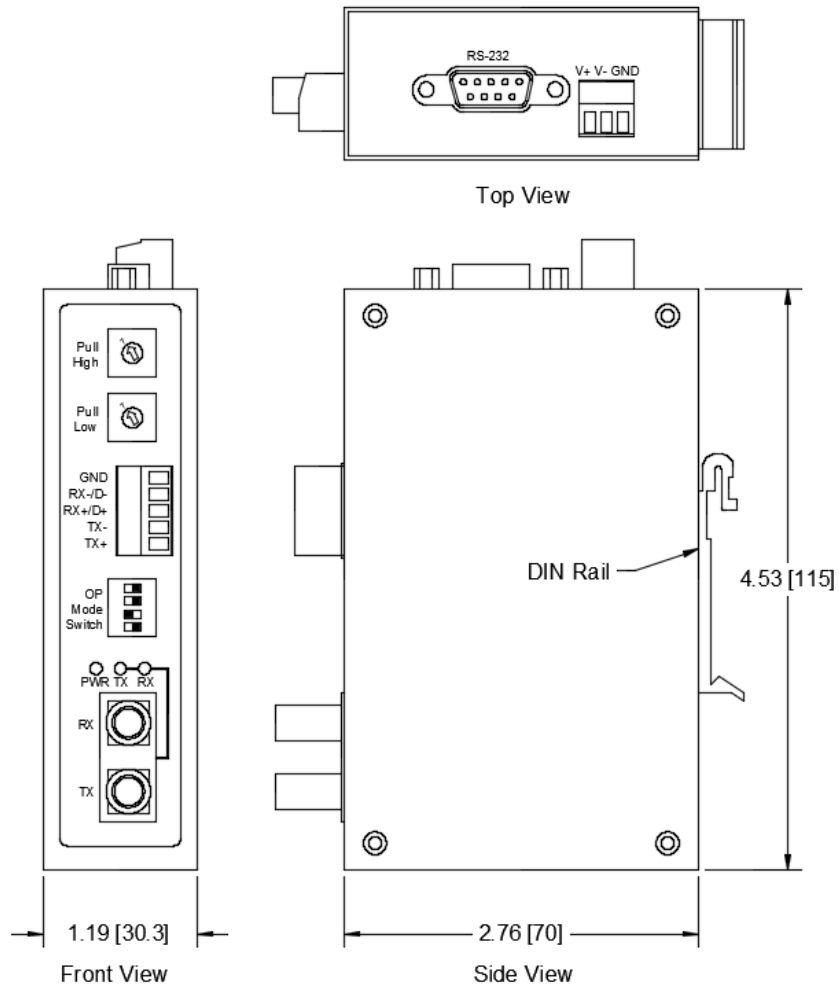
4. Connect wire from the Fike device RS485+ terminal to Fiber Converter RX+/D+.
5. Connect wire from the Fike device RS485- terminal to Fiber Converter RX-/D-.

NOTE

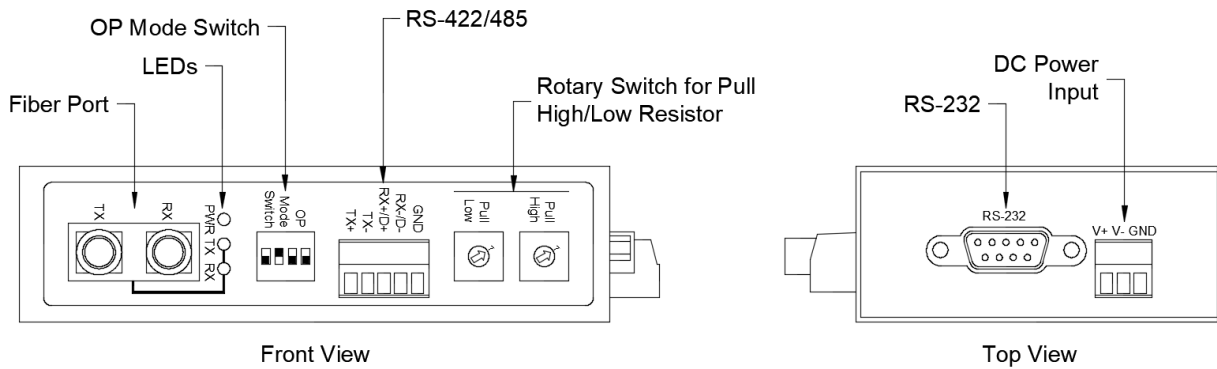
If the Fike device is an Audio Bus, pay particular attention to wire from B terminal (See wiring diagrams on page 4).

6. Connect matching fiber cable type and connector to the fiber converter Rx and Tx terminals. Connect RX to Tx; TX to RX.
7. Similarly, on the other end bring the fiber cable back down to RS485 connecting to the Fike device A terminal.
8. Set the DIP switches on the converter as follows:

Pull High	Dial position 7 = 770 ohms
Pull Low	Dial position 7 = 770 ohms
OP MODE	1=OFF
	2=ON (2-wire RS485)
	3=OFF (Point to Point mode)
	4=OFF (120Ω terminator disable)
9. If sub-panel was required to be removed, re-install it back into the MOXA enclosure.



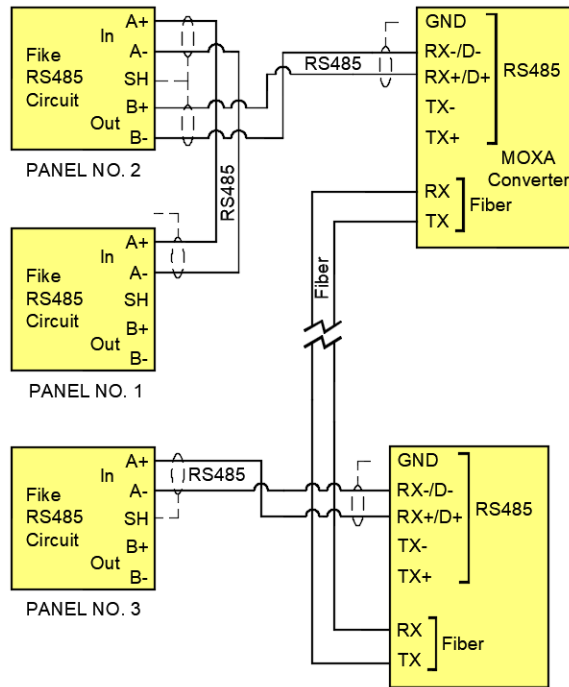
Converter Dimensions (in/mm)



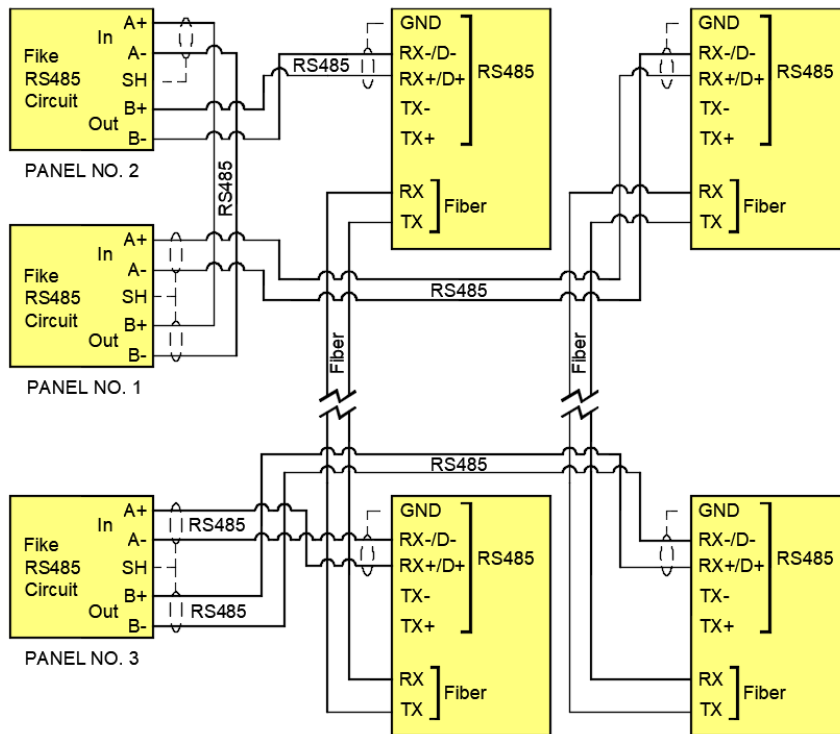
Converter Connections

CONVERTER'S 5-PIN RS-422/485 DATA CONNECTOR

1. GND (shield)
2. RX-/D- *USE for RS485- connection*
3. RX+/D+ *USE for RS485+connection*
4. TX- *Not Connected*
5. TX+ *Not Connected*



Converter Wiring (Class B)



Converter Wiring (Class A)



MOXA (Single Mode or Multimode) cannot be used to provide the Class A redundant path between the First and Last Control Panel on the RS485 panel network.