# ICF-1150 Series

## Industrial RS-232/422/485 to fiber converters



#### **Features and Benefits**

- 3-way communication: RS-232, RS-422/485, and fiber
- · Rotary switch to change the pull high/low resistor value
- Extends RS-232/422/485 transmission up to 40 km with single-mode or 5 km with multi-mode
- -40 to 85°C wide-temperature range models available
- . C1D2, ATEX, and IECEx certified for harsh industrial environments

#### **Certifications**







## Introduction

The ICF-1150 serial-to-fiber converters transfer RS-232/RS-422/RS-485 signals to optical fiber ports to enhance transmission distance. When an ICF-1150 device receives data from any serial port, it sends the data through the optical fiber ports. These products not only support single-mode and multi-mode fiber for different transmission distances, models with isolation protection are also available to enhance noise immunity. The ICF-1150 products feature Three-Way Communication and a Rotary Switch for setting the pull high/low resistor for onsite installation.

#### **Three-Way Communication**

The ICF-1150 Series supports 2 serial ports, with a DB9 connector for RS-232 communication and a removable terminal block for RS-422 or RS-485 communication. The 3 ports (2 serial ports and one fiber port) are completely independent. When an ICF-1150 converter receives data from any one port, it will send the data through the other 2 ports. For example, once the ICF-1150 converter receives a command from the remote master through the fiber port, it will convert the signal and send the command through the RS-232 and RS-422/485 ports at the same time. If the user is monitoring a system running on an RS-485 network, there is no need to use an additional RS-232 to RS-485 converter to connect the laptop computer's serial port to the RS-485 bus.

### Rotary Switch for Setting the Pull High/Low Resistor

The RS-485 interface supports multidrop or daisy-chain connections, which system engineers will use to connect serial devices such as meters, RTUs, and readers, together on the same bus. Since the number of serial devices on the same bus will cause the impedance of the data line to increase, the ICF-1150 allows users to tune the pull high/low resistor. Just rotate the switch to the appropriate value without removing the ICF-1150 from the DIN rail.

### **Specifications**

#### Serial Interface

No. of Ports	2
Serial Standards	RS-232, RS-422, RS-485
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)
Flow Control	ADDC® (automatic data direction control) for RS-485
Connector	DB9 male for RS-232 interface 5-pin terminal block for RS-422/485 interface Fiber ports for RS-232/422/485 interface
Isolation	2 kV (I models)



Optical Fiber	Low	-Speed Fiber Module	Multi-Mode	Single-Mode
			50/125 μm, 800 MHz	
	Fiber Cable Requirements		62.5/125 μm, 500 MHz	- G.652
	Typical Distance		5 km	40 km
		Typical (nm)	850	1310
	Wavelength	TX Range (nm)	840 to 860	1290 to 1330
		RX Range (nm)	800 to 900	1100 to 1650
		TX Range (dBm)	0 to -8	0 to -8
	Optical	RX Range (dBm)	0 to -25	0 to -25
	Power	Link Budget (dB)	15	20
		Dispersion Penalty (dB)	1	1
		using a power meter to mea nd send data (00,, 0h) to th		
Pull High/Low Resistor for RS-485		, 10 kilo-ohm, 4.7 kilo-ohm, 3 ) ohm, 485 ohm	3.3 kilo-ohm, 1 kilo-ohm, 90	9 ohm, 822 ohm,
RS-485 Data Direction Control	ADDC® (auto	omatic data direction control)		
Terminator for RS-485	N/A, 120 ohm	ns, 120 kilo-ohms		
Serial Signals				
RS-232	TxD, RxD, GND			
RS-422	Tx+, Tx-, Rx+, Rx-, GND			
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND			
RS-485-2w	Data+, Data-,	, GND		
Power Parameters				
Input Current		ies: 264 mA @ 12 to 48 VDC ries: 300 mA @ 12 to 48 VDC		
Input Voltage	12 to 48 VDC			
No. of Power Inputs	1			
Overload Current Protection	Supported			
Power Connector	Terminal bloc	ck		
Power Consumption	ICF-1150 Series: 264 mA @ 12 to 48 VDC ICF-1150I Series: 300 mA @ 12 to 48 VDC			
Physical Characteristics				
Housing	Metal			
IP Rating	IP30			
Dimensions	30.3 x 70 x 115 mm (1.19 x 2.76 x 4.53 in)			
Weight	330 g (0.73 lb	)		
Installation	DIN-rail mour	nting		



Environmental Limits	
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 85°C (-40 to 185°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Standards and Certifications	
EMC	EN 55032/24
ЕМІ	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV IEC 61000-4-5 Surge: Power: 4 kV; Signal: 1 kV IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMF
Environmental Testing	IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-3
Safety	EN 60950-1, IEC 60950-1
Vibration	IEC 60068-2-6
Hazardous Locations	Standard models: UL/cUL Class I Division 2 Groups A/B/C/D -IEX models: UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2, IECEx
мтвғ	
Time	792,085 hrs
Standards	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty
Deckers Contents	

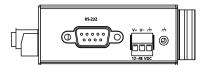
# Package Contents

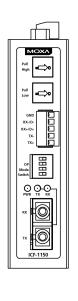
Device	1 x ICF-1150 Series converter
Documentation	1 x quick installation guide 1 x warranty card

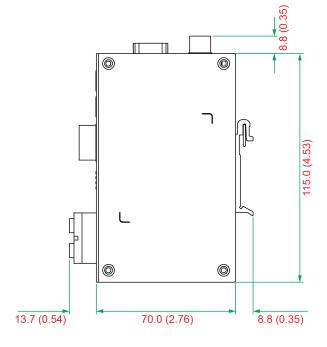


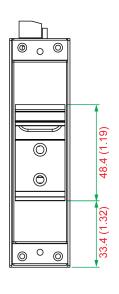
# **Dimensions**

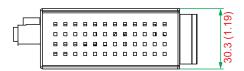
Unit: mm (inch)











# **Ordering Information**

Model Name	Isolation	Operating Temp.	Fiber Module Type	IECEx Supported
ICF-1150-M-ST	-	0 to 60°C	Multi-mode ST	-
ICF-1150-M-SC	-	0 to 60°C	Multi-mode SC	-
ICF-1150-S-ST	-	0 to 60°C	Single-mode ST	-
ICF-1150-S-SC	-	0 to 60°C	Single-mode SC	-
ICF-1150-M-ST-T	-	-40 to 85°C	Multi-mode ST	-
ICF-1150-M-SC-T	-	-40 to 85°C	Multi-mode SC	-
ICF-1150-S-ST-T	-	-40 to 85°C	Single-mode ST	-
ICF-1150-S-SC-T	-	-40 to 85°C	Single-mode SC	-
ICF-1150I-M-ST	2 kV	0 to 60°C	Multi-mode ST	-
ICF-1150I-M-SC	2 kV	0 to 60°C	Multi-mode SC	-
ICF-1150I-S-ST	2 kV	0 to 60°C	Single-mode ST	-
ICF-1150I-S-SC	2 kV	0 to 60°C	Single-mode SC	-
ICF-1150I-M-ST-T	2 kV	-40 to 85°C	Multi-mode ST	-

Model Name	Isolation	Operating Temp.	Fiber Module Type	IECEx Supported
ICF-1150I-M-SC-T	2 kV	-40 to 85°C	Multi-mode SC	-
ICF-1150I-S-ST-T	2 kV	-40 to 85°C	Single-mode ST	-
ICF-1150I-S-SC-T	2 kV	-40 to 85°C	Single-mode SC	-
ICF-1150-M-ST-IEX	-	0 to 60°C	Multi-mode ST	✓
ICF-1150-M-SC-IEX	-	0 to 60°C	Multi-mode SC	✓
ICF-1150-S-ST-IEX	-	0 to 60°C	Single-mode ST	✓
ICF-1150-S-SC-IEX	-	0 to 60°C	Single-mode SC	✓
ICF-1150-M-ST-T-IEX	-	-40 to 85°C	Multi-mode ST	✓
ICF-1150-M-SC-T-IEX	-	-40 to 85°C	Multi-mode SC	✓
ICF-1150-S-ST-T-IEX	-	-40 to 85°C	Single-mode ST	✓
ICF-1150-S-SC-T-IEX	-	-40 to 85°C	Single-mode SC	✓
ICF-1150I-M-ST-IEX	2 kV	0 to 60°C	Multi-mode ST	✓
ICF-1150I-M-SC-IEX	2 kV	0 to 60°C	Multi-mode SC	✓
ICF-1150I-S-ST-IEX	2 kV	0 to 60°C	Single-mode ST	✓
ICF-1150I-S-SC-IEX	2 kV	0 to 60°C	Single-mode SC	✓
ICF-1150I-M-ST-T-IEX	2 kV	-40 to 85°C	Multi-mode ST	✓
ICF-1150I-M-SC-T-IEX	2 kV	-40 to 85°C	Multi-mode SC	✓
ICF-1150I-S-ST-T-IEX	2 kV	-40 to 85°C	Single-mode ST	✓
ICF-1150I-S-SC-T-IEX	2 kV	-40 to 85°C	Single-mode SC	✓

# **Accessories (sold separately)**

### Cables

CBL-F9M9-150	DB9 female to DB9 male serial cable, 1.5 m
CBL-F9M9-20	DB9 female to DB9 male serial cable, 20 cm
Power Supplies	

DR-4524	45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 50°
	C operating temperature

© Moxa Inc. All rights reserved. Updated Apr 14, 2020.

This document and any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of Moxa Inc. Product specifications subject to change without notice. Visit our website for the most up-to-date product information.

