

# ICF-1150 系列

## 工業 RS-232/422/485 轉光纖轉換器



### 特色與優點

- 3 向通訊：RS-232、RS-422/485 和光纖
- 旋轉式開關可用於調整 pull 高 / 低阻值
- 可延伸 RS-232/422/485：單模最遠達 40 公里、多模最遠達 5 公里
- 提供 -40 至 85°C 寬溫度範圍型號
- 嚴苛工業環境的 C1D2、ATEX 和 IECEx 認證

### 認證



### 簡介

ICF-1150 串列轉光纖轉換器將 RS-232/RS-422/RS-485 訊號傳輸到光纖連接埠，藉以延伸傳輸距離。ICF-1150 裝置從任何串列連接埠接收資料時，會透過光纖連接埠傳送資料。這些產品不僅支援不同傳輸距離的單模和多模光纖，也提供具備隔離保護的型號，藉以提高抗擾性。ICF-1150 產品提供三向通訊以及對於現場安裝設定上拉/下拉電阻的旋轉開關。

### 三向通訊

ICF-1150 系列支援 2 個串列連接埠，具備用於 RS-232 通訊的 DB9 連接器和用於 RS-422 或 RS-485 通訊的卸除式接線端子模組。3 個連接埠（2 個串列連接埠和 1 個光纖連接埠）完全獨立。ICF-1150 轉換器從任何連接埠接收資料時，會透過另外 2 個連接埠傳送資料。例如，ICF-1150 轉換器透過光纖連接埠接收到來自遠端主機的指令後，就會轉換訊號並同時透過 RS-232 和 RS-422/485 連接埠傳送指令。如果使用者正在監控在 RS-485 網路上運作的系統，則不需要使用額外的 RS-232 至 RS-485 轉換器將膝上型電腦的串列連接埠連接到 RS-485 匯流排。

### 可設定 pull 高/低電阻值的旋轉式開關

RS-485 介面支援 multi-drop 或 daisy-chain 的連接方式，系統工程師通常以此方式將量測儀器、RTU 及記錄儀器等序列設備連接於同一匯流排中。然而，同一匯流排中的序列設備的增加將會使得資料傳輸線的阻抗提高，ICF-1150 便可讓使用者自行調整 pull 高/低阻值。只要旋轉 ICF-1150 內建的開關，使用者可自行設定最適當的值，不再需要為了調整電阻值而將轉換器從 DIN-rail 取下。

### 規格

#### 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
	Fiber Cable Requirements		50/125 $\mu$ m, 800 MHz	G.652
			62.5/125 $\mu$ m, 500 MHz	
	Typical Distance		5 km	40 km
	Wavelength	Typical (nm)	850	1310
		TX Range (nm)	840 to 860	1290 to 1330
		RX Range (nm)	800 to 900	1100 to 1650
	Optical Power	TX Range (dBm)	0 to -8	0 to -8
		RX Range (dBm)	0 to -25	0 to -25
		Link Budget (dB)	15	20
Dispersion Penalty (dB)		1	1	
Note: When using a power meter to measure the fiber TX power, set the baudrate to 9,600 bps and send data (00, ..., 0h) to the serial converter's serial port.				
Pull High/Low Resistor for RS-485	150 kilo-ohm, 10 kilo-ohm, 4.7 kilo-ohm, 3.3 kilo-ohm, 1 kilo-ohm, 909 ohm, 822 ohm, 770 ohm, 500 ohm, 485 ohm			
RS-485 Data Direction Control	ADDC® (automatic data direction control)			
Terminator for RS-485	N/A, 120 ohms, 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	ICF-1150 Series: 264 mA @ 12 to 48 VDC ICF-1150I Series: 300 mA @ 12 to 48 VDC
Input Voltage	12 to 48 VDC
No. of Power Inputs	1
Overload Current Protection	Supported
Power Connector	Terminal block
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 mounting

## 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
EMI	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

## MTBF

Time	792,085 hrs
Standards	Telcordia (Bellcore), GB

## Warranty

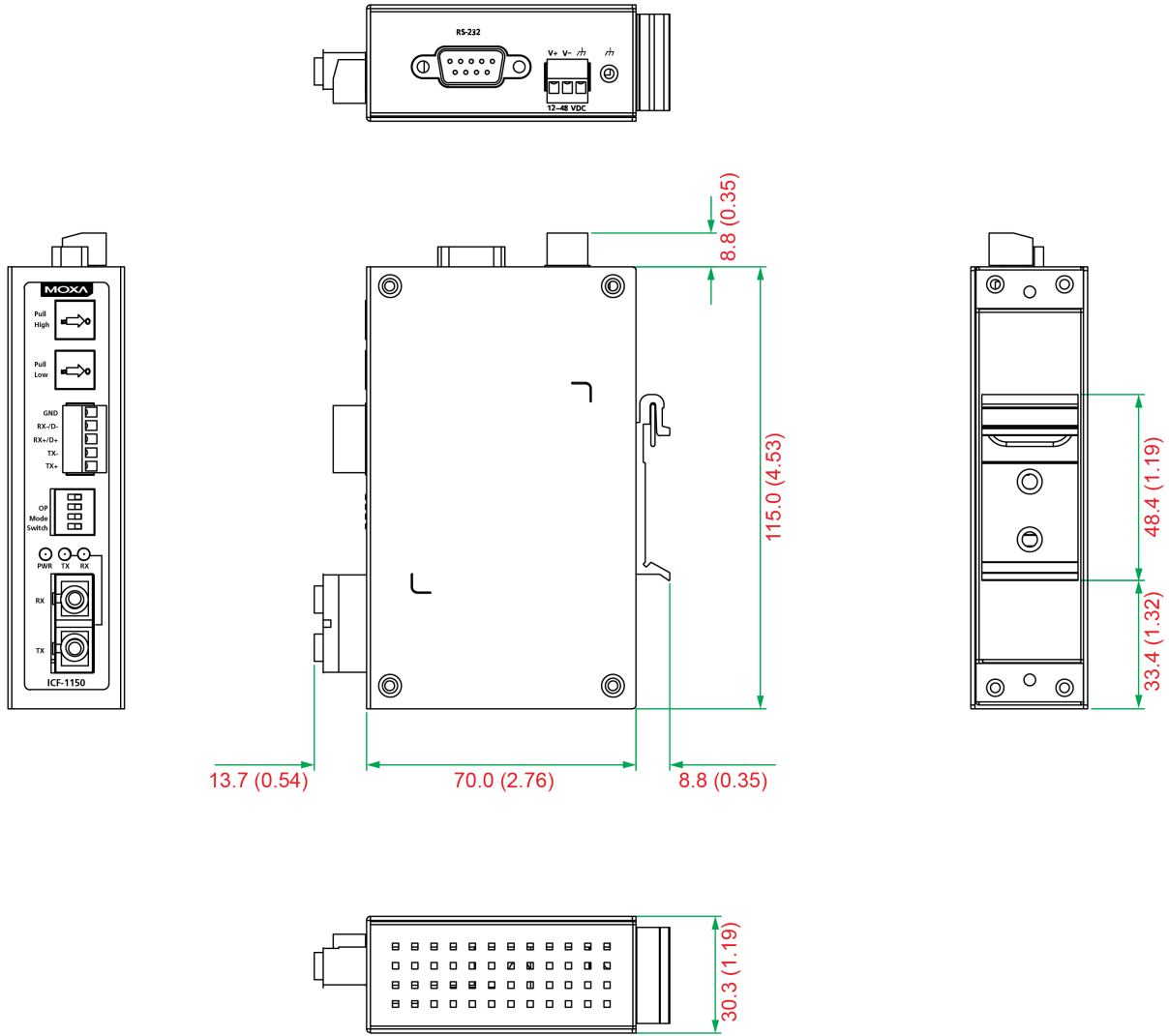
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/tw/warranty">www.moxa.com/tw/warranty</a>

## Package Contents

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

# 尺寸

Unit: mm (inch)



# 訂購資訊

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	P
ICF-1150-M-SC-IEX	-	0 to 60°C	Multi-mode SC	P
ICF-1150-S-ST-IEX	-	0 to 60°C	Single-mode ST	P
ICF-1150-S-SC-IEX	-	0 to 60°C	Single-mode SC	P
ICF-1150-M-ST-T-IEX	-	-40 to 85°C	Multi-mode ST	P
ICF-1150-M-SC-T-IEX	-	-40 to 85°C	Multi-mode SC	P
ICF-1150-S-ST-T-IEX	-	-40 to 85°C	Single-mode ST	P
ICF-1150-S-SC-T-IEX	-	-40 to 85°C	Single-mode SC	P
ICF-1150I-M-ST-IEX	2 kV	0 to 60°C	Multi-mode ST	P
ICF-1150I-M-SC-IEX	2 kV	0 to 60°C	Multi-mode SC	P
ICF-1150I-S-ST-IEX	2 kV	0 to 60°C	Single-mode ST	P
ICF-1150I-S-SC-IEX	2 kV	0 to 60°C	Single-mode SC	P
ICF-1150I-M-ST-T-IEX	2 kV	-40 to 85°C	Multi-mode ST	P
ICF-1150I-M-SC-T-IEX	2 kV	-40 to 85°C	Multi-mode SC	P
ICF-1150I-S-ST-T-IEX	2 kV	-40 to 85°C	Single-mode ST	P
ICF-1150I-S-SC-T-IEX	2 kV	-40 to 85°C	Single-mode SC	P

## 配件 (選購)

### 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
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