

# TCF-90 系列

## 連接埠供電的 RS-232 至光纖轉換器



### 特色與優點

- 使用外部電源或序列供電
- 延伸 RS-232 傳輸，可使用單模最遠達 40 公里(TCF-90-S) 或使用多模最遠達 5 公里(TCF-90-M)
- 減少訊號干擾
- 保護免於電子干擾與化學侵蝕
- 精巧尺寸

### 認證



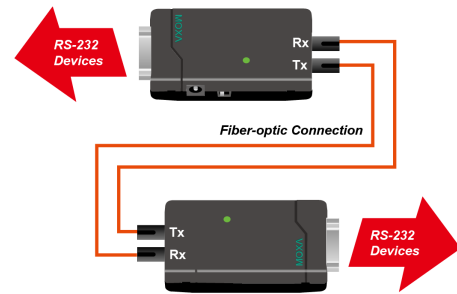
### 簡介

TCF-90 是一款小型媒體轉換器，可透過光纖傳輸 RS-232 訊號。電源來自序列埠或外部電源。TCF-90 可使用多模光纖將 RS-232 傳輸最遠達至 5 公里，使用單模光纖傳輸最遠達至 40 公里。一對 TCF-90 轉換器可用於以全雙工傳輸模式透過光纖連接兩個 RS-232 裝置。光纖將資料訊號與接地電位、接地迴路和電磁 EMI/RFI 雜訊的危險增加進行隔離，並透過消除 RF 輻射和電磁輻射敏感性的有害影響，強化資料安全性。

### 自供電 RS-232 轉光纖

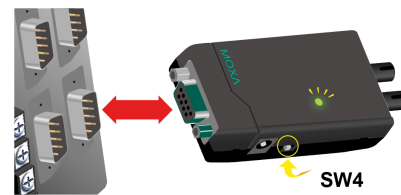
將 RS-232 裝置連接到 TCF-90 非常簡單。ST 型光纖連接器專為在建築物之間或內部傳輸資料的資料通訊應用而設計。TCF-90 可用於工業應用和需要安全資料傳輸的應用。

TCF-90 上的 RS-232 連接埠使用 DB9 母接頭直接連接到主機 PC，電源供應器來自 TxD、RTS 和 DTR 線路。雖然 TCF-90 可從 3 條資料/信號交換線路獲得足夠功率，無論訊號是高還是低，我們強烈建議還是將 RTS 或 DTR 訊號設定為開啟 (ON)。



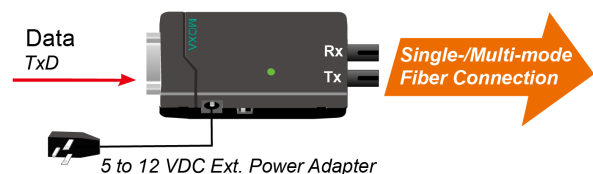
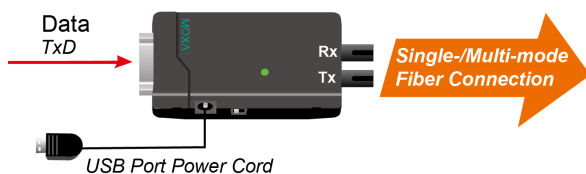
### LED 埠電源指示燈

欲測試序列裝置是否透過序列連接為 TCF-90 提供足夠電源，使用萬用電表可簡單進行，但 TCF-90 即可為您完成測試。將 TCF-90 連接到裝置的 RS-232 連接埠，並將 SW4 開關設定為測試模式。若連接埠電源 LED 指示燈亮起，則 TCF-90 已接收足夠電源。若 LED 燈示沒亮，則需要將外部電源連接到 TCF-90。



### 可選外部電源

在多數情況下，TCF-90 應可在不使用外部電源的情況下運作。然而，在信號交換線路不適用、RTS/DTR 訊號均設為關閉 (OFF) 或連接裝置的序列介面晶片提供的功率低於所需功率的情況下，可使用外部 USB 電源線或直流電源。



## 規格

### Serial Interface

No. of Ports	2																																						
Serial Standards	RS-232																																						
Flow Control	ADDC (automatic data direction control) for RS-485																																						
Connector	DB9 female																																						
Optical Fiber	<table><thead><tr><th colspan="2">Low-Speed Fiber Module</th><th>Multi-Mode</th><th>Single-Mode</th></tr></thead><tbody><tr><td colspan="2" rowspan="2">Fiber Cable Requirements</td><td>50/125 <math>\mu</math>m, 800 MHz</td><td rowspan="2">G.652</td></tr><tr><td>62.5/125 <math>\mu</math>m, 500 MHz</td></tr><tr><td colspan="2">Typical Distance</td><td>5 km</td><td>40 km</td></tr><tr><td rowspan="3">Wavelength</td><td>Typical (nm)</td><td>850</td><td>1310</td></tr><tr><td>TX Range (nm)</td><td>840 to 860</td><td>1290 to 1330</td></tr><tr><td>RX Range (nm)</td><td>800 to 900</td><td>1100 to 1650</td></tr><tr><td rowspan="4">Optical Power</td><td>TX Range (dBm)</td><td>0 to -5</td><td>0 to -5</td></tr><tr><td>RX Range (dBm)</td><td>0 to -20</td><td>0 to -25</td></tr><tr><td>Link Budget (dB)</td><td>15</td><td>20</td></tr><tr><td>Dispersion Penalty (dB)</td><td>1</td><td>1</td></tr></tbody></table> <p>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.</p>			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 -5	0 to -5	RX Range (dBm)	0 to -20	0 to -25	Link Budget (dB)	15	20	Dispersion Penalty (dB)	1	1
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 -5	0 to -5																																				
	RX Range (dBm)	0 to -20	0 to -25																																				
	Link Budget (dB)	15	20																																				
	Dispersion Penalty (dB)	1	1																																				
Baudrate	300 bps to 115.2 kbps																																						

### Serial Signals

RS-232	TxD, RxD, GND <sup>1</sup>
--------	----------------------------

### Power Parameters

Input Current	5 to 12 VDC, 20 mA (max.)
Input Voltage	5 to 12 VDC
No. of Power Inputs	1
Overload Current Protection	Supported
Source of Input Power	Power input jack

### Physical Characteristics

Housing	Plastic
IP Rating	IP30
Dimensions	42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in)
Weight	150 g (0.33 lb)
Installation	Desktop

1. DTR、DSR、DCD、CTS 和 RTS 針腳內部短接。

## Environmental Limits

Operating Temperature	0 to 60°C (32 to 140°F)
Storage Temperature (package included)	-20 to 75°C (-4 to 167°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

## Standards and Certifications

EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 2 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF
Environmental Testing	IEC 60068-2-1 IEC 60068-2-14 IEC 60068-2-2 IEC 60068-2-3
Safety	UL 60950-1
Vibration	IEC 60068-2-6

## MTBF

Time	2,272,562 hrs
Standards	Telcordia (Bellcore), GB

## Warranty

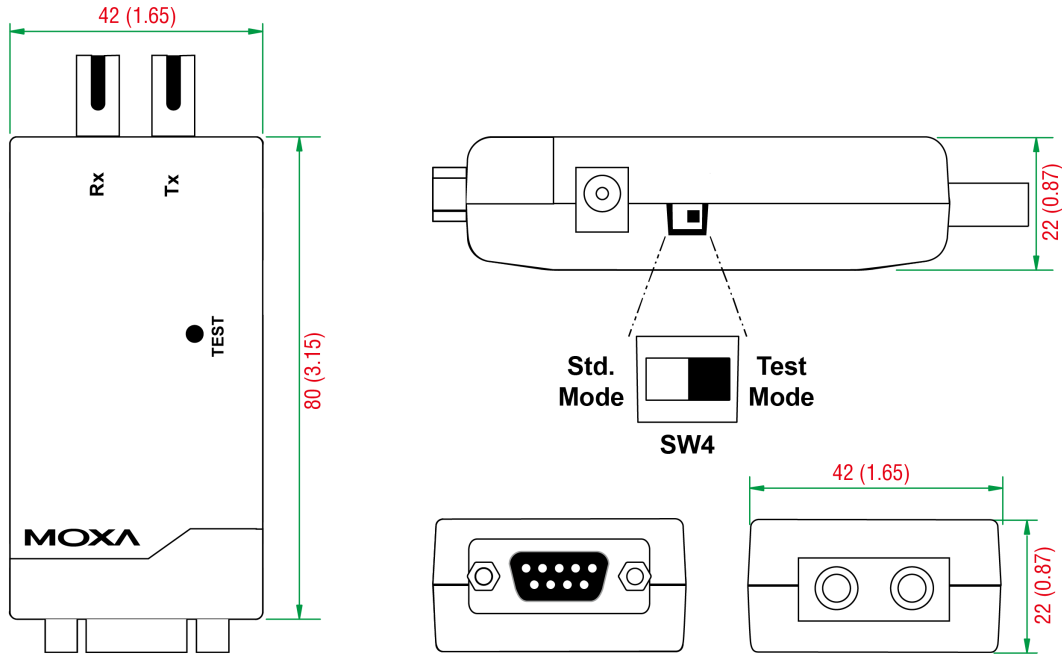
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/tw/warranty">www.moxa.com/tw/warranty</a>

## Package Contents

Device	1 x TCF-90 Series converter
Cable	1 x USB power cord, 50 cm
Documentation	1 x quick installation guide 1 x warranty card

## 尺寸

單位：公釐（英吋）



## 訂購資訊

Model Name	Fiber Module Type
TCF-90-M-ST	Multi-mode ST
TCF-90-S-ST	Single-mode ST

## 配件（選購）

### Cables

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

### Power Adapters

PWR-12050-EU-S2	Unlocking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC, EU plug, 0 to 40°C operating temperature
PWR-12050-CN-S2	Unlocking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC, CN plug, 0 to 40°C operating temperature
PWR-12050-UK-S2	Unlocking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC, UK plug, 0 to 40°C operating temperature
PWR-12050-AU-S2	Unlocking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC, AU plug, 0 to 40°C operating temperature
PWR-12050-USJP-S2	Unlocking barrel plug, 12 VDC, 0.5 A, 100 to 240 VAC, US/JP plug, 0 to 40°C operating temperature

© Moxa Inc. 版權所有.2023 年 1 月 04 日更新。

未經 Moxa Inc. 明確書面許可，不得以任何方式複製或使用本文件及其任何部分。產品規格如有變更，恕不另行通知。請至本公司官網了解最新的產品資訊。