

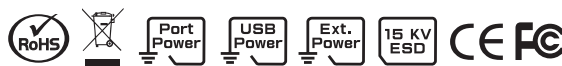
TCF-90 Series

Port Powered RS-232 to Fiber Optic Media Converters



Features

- > External power source supported but not required
- > Extends RS-232 transmission distance:
 - Up to 40 km with single-mode: TCF-90-S
 - Up to 5 km with multi-mode: TCF-90-M
- > Reduces signal interference
- > Protects against electronic degradation and corrosion
- > 15 KV ESD surge protection for serial signals
- > Baudrates up to 115.2 Kbps
- > Compact size



Introduction

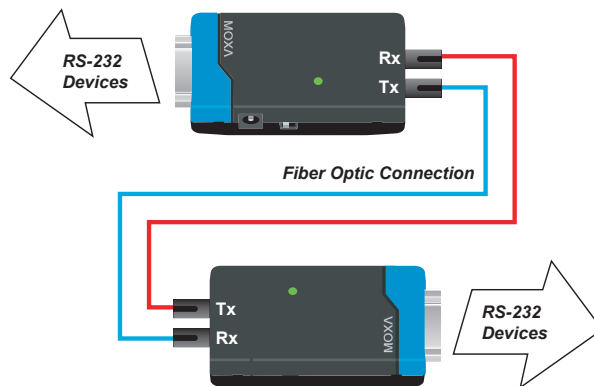
The TCF-90 is a compact media converter that allows RS-232 signals to be transmitted over fiber optic media, without requiring an external power source. This extends the range of RS-232 transmission from 15 meters to 5 km with multi-mode fiber, or to 40 km with single-mode fiber. The TCF-90 is designed to obtain power through the serial port, from the attached device. Two RS-

232 devices can be connected with fiber optic media in full duplex transmission mode, using a pair of TCF-90 converters. Moreover, using fiber optic media isolates the devices from dangerous increases in ground potential, ground loops, and electrical EMI/RFI noise. This greatly reduces RF radiation and susceptibility to electromagnetic radiation, and enhances data security.

Self-powered RS-232 to Optical Fiber

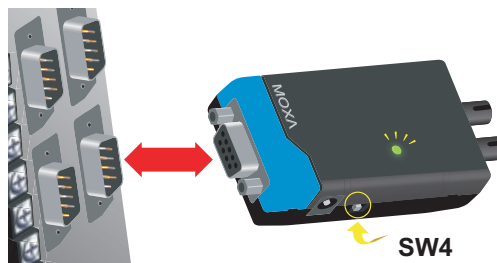
Connecting RS-232 devices to the TCF-90 is easy. The ST-type optical fiber connector is designed especially for data communication applications that transmit data between or within buildings. The TCF-90 can be used for industrial applications and for applications that require secure data transfer.

The RS-232 port of the TCF-90 is a female DB9 socket to connect directly that can the host PC, with power drawn from the Tx, D, and DTR lines. Although the TCF-90 can obtain enough power from the three data/handshake lines whether the signal is high or low, we strongly recommend setting either the RTS or DTR signal to ON.



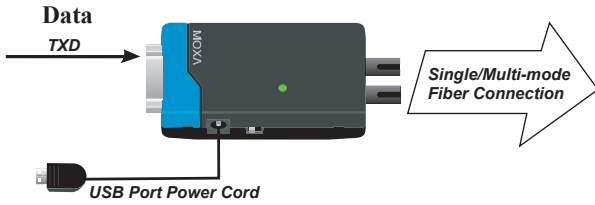
Patented LED Port Power Indicator

To verify that the serial device will provide enough power to the media converter, it's easy enough to test the device with a multimeter. However, it's even easier to let the TCF-90 test the device for you. Simply connect the TCF-90 to the device's RS-232 port and set the SW4 switch to Test mode. If the patented port power LED indicator lights up, the TCF-90 is receiving enough power. If the LED does NOT light up, you will need to attach an external power source to the TCF-90.

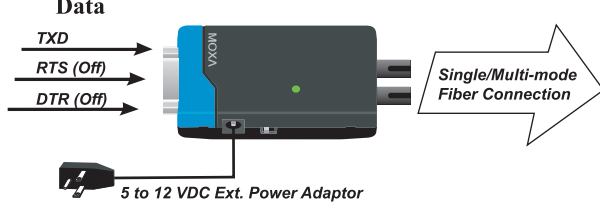


Optional External Power Source

In most circumstances, the TCF-90 should be able to operate without using an external power source. However, an external USB power cord or DC power supply can be used in situations where the



handshake lines are not available, both the RTS/DTR signals are set to OFF, or the attached device's serial interface chip provides less power than required.



Ordering Information

TCF-90-M: Port powered RS-232 to multi-mode ST fiber optic converter, up to 5 km

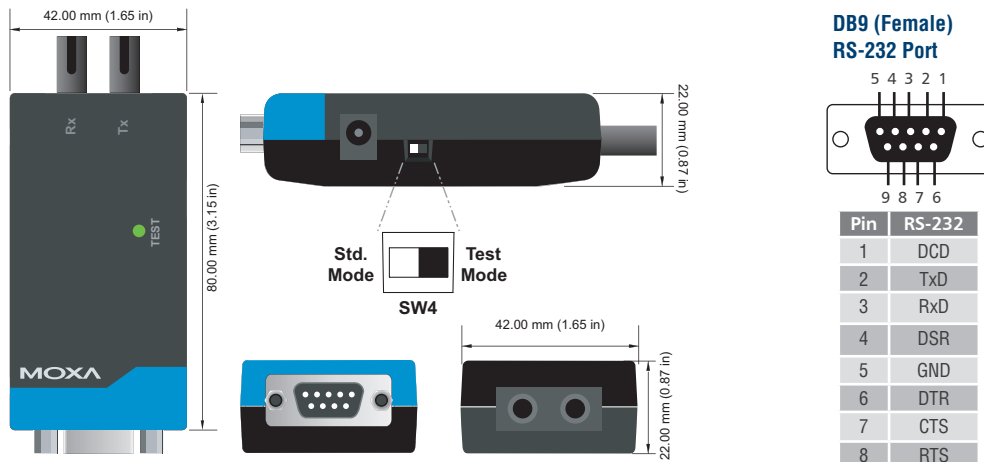
TCF-90-S: Port powered RS-232 to single-mode ST fiber optic converter, up to 40 km

* Models with SC/FC connectors or a 60 km range are available by request.

Optional Accessories

- **Power Adapter:**
- **CBL-USBAP-50:** USB power cord (50 cm)
- **CBL-F9M9-20:** DB9 (male) to DB9 (female) RS-232 cable (20 cm)

Dimensions (unit = mm)



Specifications

Serial Communication

RS-232 Signals: Tx, Rx, and GND

Loop back: RTS to CTS, DTR to DSR and DCD

Baudrate: 300 bps to 115.2 Kbps

Surge Protection: 15 KV ESD

Fiber Communication

Connector Type: ST

Distance: TCF-90-S: Single-mode up to 40 km

TCF-90-M: Multi-mode up to 5 km

Support Cable: TCF-90-S: 8.3/125, 8.7/125, 9/125 or 10/125 μm

TCF-90-M: 50/125, 62.5/125, or 100/140 μm

Wavelength: TCF-90-S: 1310 nm, TCF-90-M: 850 nm

TX Output: > -5 dBm

Rx Sensitivity: TCF-90-S: -24 dBm, TCF-90-M: -20 dBm

Environment

Operating Temperature: 0 to 60°C (32 to 140°F)

Storage Temperature: -20 to 75°C (-4 to 167°F)

Humidity: 5 to 95% RH

Power

Input Power Source:

RS-232 port (TxD, RTS, DTR); power input jack

Input Power Voltage: 5 to 12 VDC

Power Consumption: 20 mA @ 5 VDC (termination disabled)

Mechanical

Dimensions (W x D x H): 42 x 80 x 22 mm

Case: ABS + PC

Weight: 50 \pm 5 g

Regulatory Approvals: CE Class B, FCC Class B

Warranty: 5 years