

TCF-142 Series

RS-232/422/485 to Fiber Optic Media Converters



Features

- > “Ring” and “Point to Point” transmission
- > Extends RS-232/422/485 transmission distance:
 - Up to 40 km with single mode—TCF-142-S (V3.1)
 - Up to 5 km with multi mode—TCF-142-M (V3.1)
- > Converts RS-232/422/485 signals:
 - To ST single-mode fiber with TCF-142-S
 - To ST multi-mode fiber with TCF-142-M
- > Compact size
- > Decreases signal interference
- > Protects against electronic degradation/chemical corrosion
- > Baudrates up to 921.6 Kbps
- > Extended operating temperature from -40 to 75°C



Introduction

The TCF-142 media converter is equipped with a multiple interface circuit that can handle RS-232 or RS-422/485 serial interfaces and multi-mode or single-mode fiber. TCF-142 converters are used to extend serial transmission up to 5 km (TCF-142-M multi-mode fiber)

or up to 40 km (TCF-142-S single-mode fiber). A single TCF-142 can be used to convert RS-232 or RS-422/485 signals, but not both at the same time.

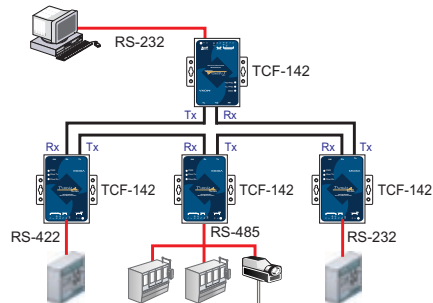
Automatic Baudrate Detection

The TCF-142 can automatically detect the serial baudrate. This is an extremely convenient feature. Even if a device's baudrate is changed,

the signal will still be transmitted through the media converter without any problem.

Ring Operation

You can use the TCF-142 to connect one serial device to multiple devices in a fiber ring. Once the ring has been set up, simply use the DIP switch to configure the TCF-142 to “ring mode”. The Tx port of one TCF-142 connects to a neighboring converter's Rx port to form the ring. When one node transmits a signal, the signal travels around the ring until it returns back to the transmitting unit, which then blocks the signal. With the TCF-142, you can set up fiber rings that are up to 100 km in total length.



Ordering Information

- TCF-142-M:** RS-232/422/485 to multi-mode fiber optic media converter, fiber ring
 - TCF-142-S:** RS-232/422/485 to single-mode fiber optic media converter, fiber ring
 - TCF-142-M-T:** RS-232/422/485 to multi-mode fiber optic media converter, fiber ring, -40 to 75°C
 - TCF-142-S-T:** RS-232/422/485 to single-mode fiber optic media converter, fiber ring, -40 to 75°C
- *Models with SC/FC connectors or higher power budgets are available by request.

Optional Accessories

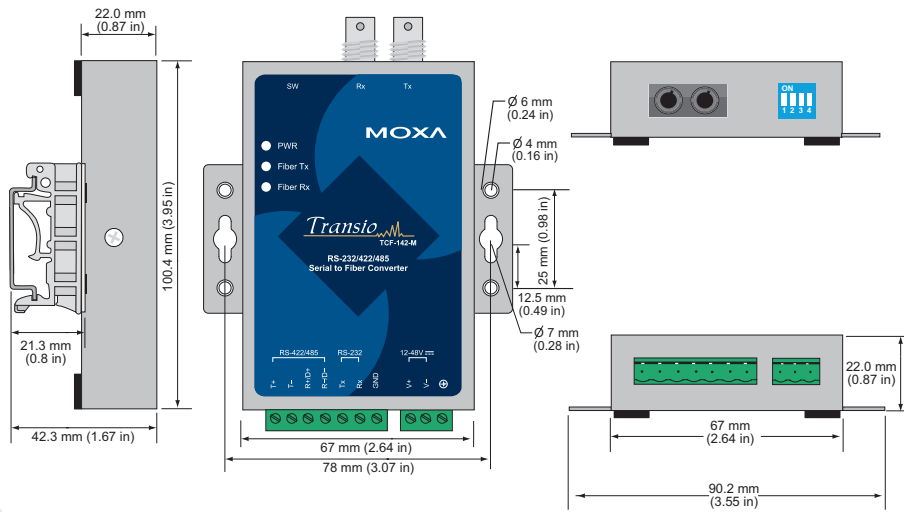
DK35A: DIN-rail mounting kit (35 mm)

Automatic Data Direction Control (ADDC™)

ADDC™ is a patented hardware data flow solution developed by MOXA technology to handle RS-485 data direction control. The TCF-142

automatically senses and controls data direction by using embedded ADDC, making it unnecessary to use the hand shaking signal method.

Dimensions (unit = mm)



DIP Switch Setting

Serial Connection	SW1	SW2
RS-232	ON	OFF
RS-422	OFF	OFF
4-wire RS-485	OFF	OFF
2-wire RS-485	OFF	ON

Built-in 120 Terminator	SW3
Enable	ON
Disable	OFF

Fiber Mode	SW4
Ring mode	ON
Point to Point mode	OFF

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Media Converters

Specifications

Serial Communication

RS-232 Signals: Tx, Rx, GND

RS-422 Signals: TxD+, TxD-, RxD+, RxD-, GND

4-wire RS-485 Signals: TxD+, TxD-, RxD+, RxD-, GND

2-wire RS-485 Signals: Data+, Data-, GND

Baudrate: 300 bps to 921.6 Kbps

Surge Protection: 15 KV ESD

Power EFT/Surge Protection: 2KV

Fiber Communication

Connector Type: ST

Distance:

TCF-142-S: Single mode for 40 km

TCF-142-M: Multi mode for 5 km

Support Cable:

TCF-142-S: 8.3/125, 8.7/125, 9/125 or 10/125 μm

TCF-142-M: 50/125, 62.5/125, or 100/140 μm

Wavelength:

TCF-142-S: 1310 nm

TCF-142-M: 820 nm

TX Output:

TCF-142-S: > -5 dBm

TCF-142-M: > -5 dBm

Rx Sensitivity:

TCF-142-S: -25 dBm

TCF-142-M: -20 dBm

Point-to-Point Transmission: Half or full-duplex

Ring Transmission: Half duplex

Environment

Operating Temperature:

0 to 60°C (32 to 140°F)

-40 to 75°C (-40 to 167°F), for -T models

Storage Temperature: -40 to 85°C (-40 to 185°F)

Humidity: 5 to 95% RH

Power

Input Power Voltage: 12 to 48 VDC

Power Consumption:

TCF-142-S: 150 mA @ 12V

TCF-142-M: 150 mA @ 12V

Protects against V+ and V- reverse protection

Over Current Protection:

Protects against 2 signals shorted together: 1.1A

Mechanical

Dimensions (W x D x H):

67 x 100 x 22 mm

90 x 100 x 22 mm (including ears)

Material: Aluminum (1 mm)

Regulatory Approvals

UL/CUL: UL60950-1

TÜV: EN60950-1

FCC: Part 15 sub Class B

EMI: EN55022 1998, Class B

EMS:

EN61000-4-2 (ESD), Criteria A, Level 2

EN61000-4-3 (RS), Criteria A, Level 2

EN61000-4-4 (EFT), Criteria A, Level 2

EN61000-4-5 (Surge), Criteria A, Level 3

EN61000-4-6 (CS), Criteria A, Level 2

EN61000-4-11(DIPS), Criteria A, Level 2

Warranty: 5 years