

TCF-142 Series

RS-232/422/485 to Fiber Converter

Features

- Extends RS-232/422/485 transmission distance:
 - * Up to 20 km with Single mode—TCF-142-S
 - * Up to 2 km with Multi mode—TCF-142-M
- Converts RS-232/422/485 signal:
 - * To ST Single-mode fiber with TCF-142-S
 - * To ST Multi-mode fiber with TCF-142-M
- Plug & Play
- Compact size
- Decreases signal interference
- Protects against electronic degradation/chemical corrosion
- Supports baud rate up to 230.4 Kbps



Introduction

The TCF-142 Series 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 distance

up to 2 km (TCF-142-M multi-mode fiber) or up to 20 km (TCF-142-S single-mode fiber). Note that the RS-232 and RS-422/485 interfaces cannot be used on the same TCF-142 at the same time to convert to fiber.

Auto Baud Rate Detection

TCF-142 Series incorporates a method for automatically detecting the serial signal baud rate by hardware. This is an extremely convenient feature for the user. Even if a device's

baud rate is changed, the signal will still be transmitted through the RS-232 or RS-422/485 to fiber converter without any problem.

Isolation Protection

MOXA electrical Isolation technology uses two photo couplers to create a gap in each electrical signal. One photo coupler transforms the electrical signal into a light signal, which is transmitted across a small gap, and then the other photo coupler transforms the light back into an electrical signal

on the other side. In this way, the two electrical circuits are completely isolated from each other, limiting the damage that could otherwise be caused by power surges in the electrical signal.

Automatic Data Direction Control (ADDCTM)

ADDCTM is a MOXA leading technology that uses a clever hardware solution to take care of the RS-485 data direction control problem. The TCF-142 Series converter uses embedded ADDCTM

technology, a hardware data flow solution, to automatically sense and control data direction, making the hand shaking signal method unnecessary.

Ordering Information

TCF-142-S:

Single-mode RS-232/422/485 to Fiber Converter;
Manual included

TCF-142-M:

Multi-mode RS-232/422/485 to Fiber Converter;
Manual included

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

Built-in 120Ω Terminator	SW3
Enable	ON
Disable	OFF

Specifications

Serial Communications

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

Baud Rate: 300 bps to 230.4 Kbps

Surge Protection: 15 KV ESD

Fiber Communication

Connector Type: ST

Distance:

TCF-142-S: Single mode fiber for 20 km

TCF-142-M: Multi mode fiber for 2 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

Min. TX Output:

TCF-142-S: -9 dBm

TCF-142-M: -16 dBm

Max. TX Output:

TCF-142-S: -6 dBm

TCF-142-M: -7 dBm

Environmental

Operating Temperature: 0 to 60°C (32 to 142°F)

Dimensions



Storage Temperature: -20 to 85°C (-4 to 185°F)

Humidity: 5 to 95% RH

Power

Input Power Voltage: 12 to 48 VDC

Power Consumption:

TCF-142-S: 145 mA@12V

TCF-142-M: 70 mA@12V

Reverse Power Protection: 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

TÜV: EN60950

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, Level2