

# 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 (ADDC™)

ADDC™ 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

ADDC™ 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;  
DIN-Rail Mounting Kit and manual included

### TCF-142-M:

Multi-mode RS-232/422/485 to Fiber Converter;  
DIN-Rail Mounting Kit and manual included

## Dimensions



## 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

#### 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  $\mu\text{m}$

TCF-142-M: 50/125, 62.5/125, or 100/140  $\mu\text{m}$

#### 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

### Environment

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

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

**Humidity:** 5 to 95% RH

### Power

**Input Power Voltage:** 12 to 48 VDC

**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