

# TCF-142

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RS-232/422/485 to fiber converters

**MOXA**<sup>®</sup>



- Ring and point-to-point transmission
- Extends RS-232/422/485 transmission up to 40 km with single-mode (TCF-142-S) or 5 km with multi-mode (TCF-142-M)
- Decreases signal interference
- Protects against electrical interference and chemical corrosion
- Supports baudrates up to 921.6 kbps
- Wide-temperature models available for -40 to 75°C environments

## Full product description

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The TCF-142 media converters are 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 with multi-mode fiber) or up to 40 km (TCF-142-S with single-mode fiber). The TCF-142 converters can be configured to convert either RS-232 signals, or RS-422/485 signals, but not both at the same time.

### Automatic Baudrate Detection

The TCF-142 converters can automatically detect the serial baudrate, which 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 data loss.

### Ring Operation

The TCF-142 converters can be used to connect serial devices to a fiber ring. To form the ring, connect the Tx port of one TCF-142 to the Rx port of a neighboring converter. Once the ring is set up, simply use the DIP switches to configure the TCF-142 converters for ring mode. 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 have a total circumference of up to 100 km.

### Automatic Data Direction Control (ADDC®)

ADDC® is a patented hardware data flow solution developed by Moxa to handle RS-485 data direction control. ADDC® senses and controls RS-485 data direction automatically, making it unnecessary to use the handshaking signal.

## Technical Specification

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- Serial Interface

No. of Ports	2
Serial Standards	RS-232, RS-422, RS-485
Baudrate	50 bps to 921.6 kbps (supports non-standard baudrates)
Flow Control	ADDC® (automatic data direction control) for RS-485
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 kilo-ohms
RS-485 Data Direction Control	ADDC® (automatic data direction control)
Terminator for RS-485	N/A, 120 ohms, 120 kilo-ohms
Connector	7-pin terminal block
Latency	300 ns

- Serial Signals

RS-232	TxD, RxD, GND
RS-422	Tx+, Tx-, Rx+, Rx-, GND
RS-485-4w	Tx+, Tx-, Rx+, Rx-, GND
RS-485-2w	Data+, Data-, GND

- Power Parameters

No. of Power Inputs	1
Input Current	70 to 140 mA @ 12 to 48 VDC
Input Voltage	12 to 48 VDC
Overload Current Protection	Supported
Power Connector	Terminal block
Power Consumption	70 to 140 mA @ 12 to 48 VDC

- Physical Characteristics

IP Rating	IP30
Housing	Metal
Dimensions (with ears)	90 x 100 x 22 mm (3.54 x 3.94 x 0.87 in)
Dimensions (without ears)	67 x 100 x 22 mm (2.64 x 3.94 x 0.87 in)
Weight	320 g (0.71 lb)

Installation	Wall mounting
<ul style="list-style-type: none"> <li>Environmental Limits</li> </ul>	
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
<ul style="list-style-type: none"> <li>Standards and Certifications</li> </ul>	
EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
EMS	IEC 61000-4-4 EFT: Power: 1 kV IEC 61000-4-5 Surge: Power: 1 kV IEC 61000-4-6 CS: 3 V IEC 61000-4-8 PFMF IEC 60068-2-1
Environmental Testing	IEC 60068-2-2 IEC 60068-2-3
Safety	EN 60950-1, IEC 60950-1
Vibration	IEC 60068-2-6
<ul style="list-style-type: none"> <li>MTBF</li> </ul>	
Time	780,480 hrs
Standards	Telcordia (Bellcore), GB

## Models

Symbol	Description
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TCF-142-M-SC	RS-232/422/485 to Fiber Optic Converter. SC Multi-mode.
TCF-142-M-ST	RS-232/422/485 to Fiber Optic Converter. ST Multi-mode.
TCF-142-M-SC-T	RS-232/422/485 to Fiber Optic Converter. SC Multi-mode, -40 to 75°C
TCF-142-M-ST-T	RS-232/422/485 to Fiber Optic Converter. ST Multi-mode, -40 to 75°C
TCF-142-S-SC	RS-232/422/485 to Fiber Optic Converter. SC Single-mode.
TCF-142-S-ST	RS-232/422/485 to Fiber Optic Converter. ST Single-mode.
TCF-142-S-SC-T	RS-232/422/485 to Fiber Optic Converter. SC Single-mode, -40 to 75°C
TCF-142-S-ST-T	RS-232/422/485 to Fiber Optic Converter. ST Single-mode, -40 to 75°C

## Accessories

Symbol	Description
DK35A	DIN Rail Mounting Kit 35mm, for DE-311/211, NPort 5200/5400, NPort W2250/2150
MDR-20-12	DIN rail power supply 20W 12V 1.67A