TCF-142 Series

RS-232/422/485 to fiber converters



Features and Benefits

- · 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

Certifications







Introduction

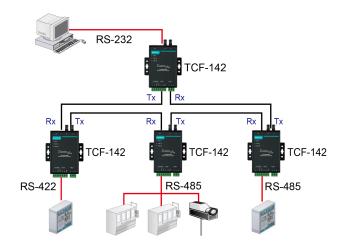
The TCF-142 media converters are equipped with a multiple interface circuit that can handle RS-232 or RS-422/485 serial interfaces and multimode or single-mode fiber. TCF-142 converters are used to extend serial transmission up to 5 km (TCF-142-M with multi-mode fiber) or up to 40 km (TCF-142-S with 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

Automatic Data Direction Control (ADDC) is a 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.

Specifications

Serial Interface

No. of Ports	2
Serial Standards	RS-232 RS-422 RS-485



Baudrate	50 bps to 921.6 kg	kbps (supports non-stand	lard baudrates)	
Flow Control	ADDC (automatic	ADDC (automatic data direction control) for RS-485		
Optical Fiber	Low-Sp	Low-Speed Fiber Module		Single-Mode
		Fiber Cable Requirements		G.652
	Fiber Ca			
	Ту	pical Distance	5 km	40 km
		Typical (nm)	850	1310
	Wavelength	TX Range (nm)	840 to 860	1290 to 1330
		RX Range (nm)	800 to 900	1100 to 1650
		TX Range (dBm)	0 to -5	0 to -5
	Optical Power	RX Range (dBm)	0 to -20	0 to -25
		Link Budget (dB)	15	20
		Dispersion Penalty (dB)	1	1
			sure the fiber TX power, se ne serial converter's serial p	
Pull High/Low Resistor for RS-485	1 kilo-ohm, 150 l	1 kilo-ohm, 150 kilo-ohms		
RS-485 Data Direction Control	ADDC (automatic	ADDC (automatic data direction control)		
Terminator for RS-485	N/A, 120 ohms, 1	N/A, 120 ohms, 120 kilo-ohms		
Connector	7-pin terminal bl	7-pin terminal block		
Latency	300 ns	300 ns		
Serial Signals				
RS-232	TxD, RxD, GND	TxD, RxD, GND		
RS-422	Tx+, Tx-, Rx+, R	Tx+, Tx-, Rx+, Rx-, GND		
RS-485-4w	Tx+, Tx-, Rx+, R	Tx+, Tx-, Rx+, Rx-, GND		
RS-485-2w	Data+, Data-, GN	Data+, Data-, GND		
Power Parameters				
No. of Power Inputs	1	1		
Input Current	70 to 140 mA @ 1	70 to 140 mA @ 12 to 48 VDC		
Input Voltage	12 to 48 VDC			
Overload Current Protection	Supported			
Power Connector	Terminal block	Terminal block		
Power Consumption	70 to 140 mA @ 1	70 to 140 mA @ 12 to 48 VDC		
Reverse Polarity Protection	Supported	Supported		
Physical Characteristics				
IP Rating	IP30	IP30		
Housing	Metal	Metal		



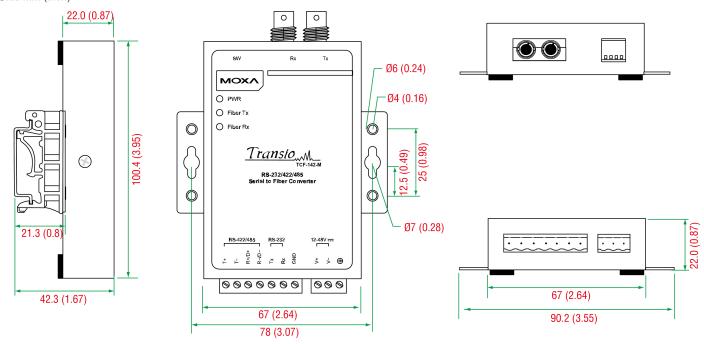
Dimensions (with ears)	90 x 100 x 22 mm (3.54 x 3.94 x 0.87 in)
Dimensions (without ears)	67 x 100 x 22 mm (2.64 x 3.94 x 0.87 in)
Weight	320 g (0.71 lb)
Installation	Wall mounting
Environmental Limits	
Operating Temperature	Standard Models: 0 to 60°C (32 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Standards and Certifications	
EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m 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
Environmental Testing	IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-3
Safety	UL 60950-1
Vibration	IEC 60068-2-6
MTBF	
Time	780,480 hrs
Standards	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty
Package Contents	
Device	1 x TCF-142 Series converter
Installation Kit	1 x rubber stand
Documentation	1 x quick installation guide 1 x warranty card



Dimensions

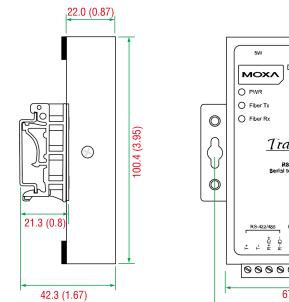
TCF-142-M/S-ST

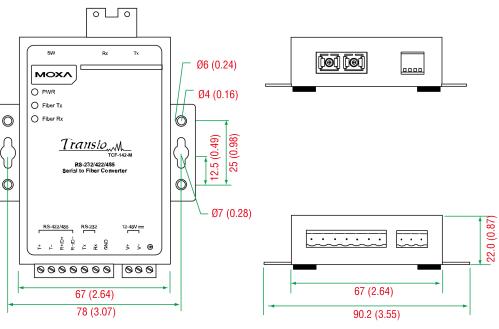
Unit: mm (inch)



TCF-142-M/S-SC







Ordering Information

Model Name	Operating Temp.	Fiber Module Type
TCF-142-M-ST	0 to 60°C	Multi-mode ST
TCF-142-M-SC	0 to 60°C	Multi-mode SC
TCF-142-S-ST	0 to 60°C	Single-mode ST
TCF-142-S-SC	0 to 60°C	Single-mode SC



Model Name	Operating Temp.	Fiber Module Type
TCF-142-M-ST-T	-40 to 75°C	Multi-mode ST
TCF-142-M-SC-T	-40 to 75°C	Multi-mode SC
TCF-142-S-ST-T	-40 to 75°C	Single-mode ST
TCF-142-S-SC-T	-40 to 75°C	Single-mode SC

Accessories (sold separately)

DIN-Rail Mounting Kits

DK35A	DIN-rail mounting kit, 35 mm
Power Adapters	
PWR-12125-USJP-S1	Non-locking barrel plug, 12 VDC, 1.25 A, 100 to 240 VAC, United States/Japan (US/JP) plug, 0 to 40° C operating temperature
PWR-12150-AU-S2	Non-locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, Australia (AU) plug, 0 to 40°C operating temperature
PWR-12150-EU-S2	Non-locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, Continental Europe (EU) Plug, 0 to 40°C operating temperature
PWR-12150-UK-S2	Non-locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, United Kingdom (UK) plug, 0 to 40° C operating temperature
PWR-12150-CN-S1	Non-locking barrel plug, 12 VDC, 1.5 A, 100 to 240 VAC, China (CN) plug, 0 to 40°C
Power Cords	
CBL-PJTB-10	Non-locking barrel plug to bare-wire cable

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