

TCC-80

Port-powered RS-232 to RS-422/485 converter



- > External power source supported but not required
- > Compact size
- > Converts RS-422, and both 2-wire and 4-wire RS-485
- > RS-485 automatic data direction control
- > Automatic baudrate detection
- > 15 KV serial ESD protection
- > Built-in 120-ohm termination resistors

The certification logos shown here apply to some or all of the products in this section. Please see the **Specifications** section or Moxa's website for details.



12

Media Converters > TCC-80

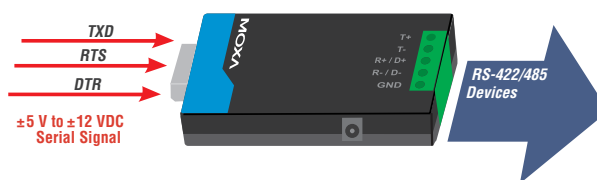
Introduction

The TCC-80 provides complete signal conversion between RS-232 and RS-422/485, without requiring an external power source. It supports both half duplex 2-wire RS-485 and full duplex 4-wire RS-422/485, either of which can be converted between RS-232's Tx/D and Rx/D lines. In addition, the TCC-80's 15 KV ESD protection guards against damage from electrostatic discharge.

Automatic data direction control is also provided for RS-485, in which the RS-485 driver is enabled automatically when the circuitry senses the Tx/D output from the RS-232 signal. This means that no programming effort is required to control the transmission direction of the RS-485 signal.

Port Power over RS-232

The RS-232 port of the TCC-80 is a DB9 female socket that can connect directly to the host PC, with power drawn from the Tx/D, RTS, or DTR line. Regardless of whether the signal is high or low, the TCC-80 can obtain enough power from the data/handshake line. However, external power can be used if the handshake line is not available, if the serial cable is too long, or if the RS-232 device is a low power device. For external power, a 5 to 12 VDC power supply can be connected using an adaptor or a USB power cord.

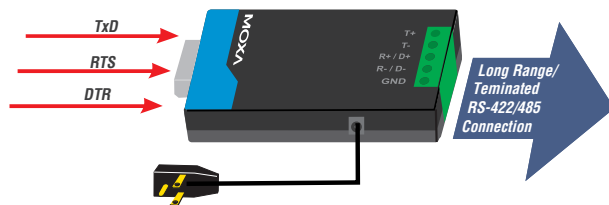


Optional External Power

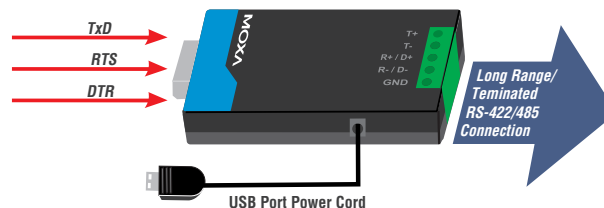
Termination is a critical requirement for port-powered devices such as the TCC-80. In most circumstances, termination resistors are used if the RS-422/485 cable is longer than 100 m. Regardless of how much the data signal is dissipated, the termination resistors absorb more

than 75 mW of power. In other words, if long distance RS-422/485 transmission or termination is required, then an external USB power cord or DC power supply should be used.

External Power Adaptor



USB Power



Port Power Dissipation

When installing a TCC-80 converter, it is important to pay attention to power consumption, RS-232 cable length, and RS-422/485 transmission distance. In general, the TCC-80 obtains 50 mW from the power source. Standard PC COM ports can provide 70 to 90 mW of power if the TxD, RTS, and DTR lines are connected. Moreover,

the RS-232 cable should be shorter than 15 m (@ 9600 bps) to ensure that less power is lost from the host/device to the TCC-80. The remainder of the supplied power is used for transmitting the RS-422/485 signal.

Specifications

RS-232 Side

Connector: DB9 female

Signals:

RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
(Loop-back wiring: RTS to CTS, DTR to DSR and DCD)

RS-422/485 Side

Connector: Terminal Block or DB9 male

Signals (interface selected by DIP switch):

RS-422: TxD+, TxD-, RxD+, RxD-, GND
RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND
RS-485-2w Signals: Data+, Data-, GND

RS-485 Data Direction Control: ADDC® (automatic data direction control)

Serial Transmission

Baudrate: 300 bps to 115.2 Kbps

ESD Protection: 15 KV

Pull High Resistance: 1k ohm

Pull Low Resistance: 150k ohm

Physical Characteristics

Case: ABS + PC

Weight: 50 ± 5 g

Dimensions: 42 x 80 x 22 mm (1.65 x 3.15 x 0.87 in)

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)

Operating Humidity: 5 to 95% RH

Storage Temperature: -20 to 75°C (-14 to 167°F)

Power Requirements

Source of Input Power: RS-232 port (TxD, RTS, DTR) or power input jack

Input Voltage: 5 to 12 VDC

Power Consumption: 10 mA @ 5 V (with termination disabled)

Surge Protection: Embedded 15 KV ESD Surge Protection

Regulatory Approvals

CE: Class B

FCC: Class B

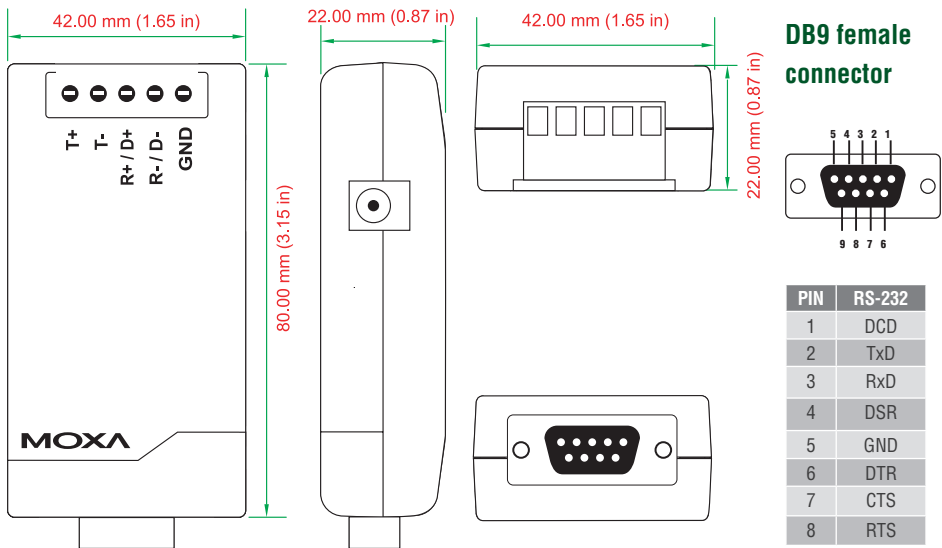
Warranty

Warranty Period: 5 years

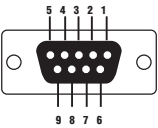
Details: See www.moxa.com/warranty

Dimensions

TCC-80



DB9 female connector



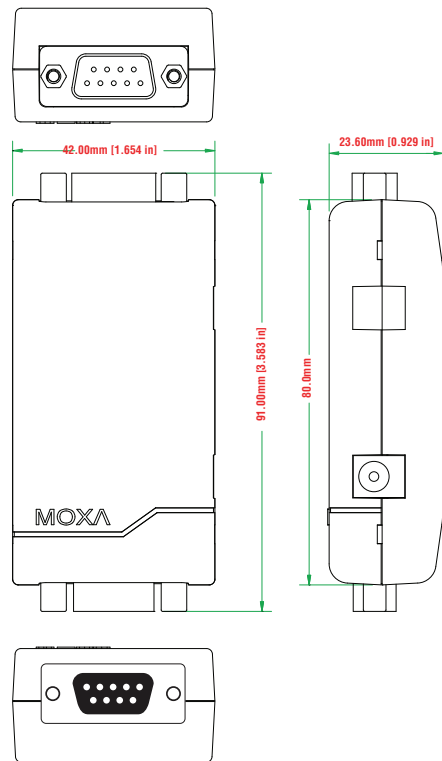
PIN	RS-232
1	DCD
2	TxD
3	RxD
4	DSR
5	GND
6	DTR
7	CTS
8	RTS

DIP Switch Settings

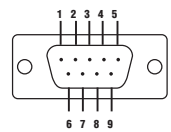


DIP Switch Settings			
RS-422 with Terminator	SW1	SW2	SW3
	OFF	OFF	ON
RS-422	SW1	SW2	SW3
	OFF	OFF	OFF
4-wire RS-485 with Terminator	SW1	SW2	SW3
	ON	OFF	ON
4-wire RS-485	SW1	SW2	SW3
	ON	OFF	OFF
2-wire RS-485 with Terminator	SW1	SW2	SW3
	ON	ON	ON
2-wire RS-485	SW1	SW2	SW3
	ON	ON	OFF

TCC-80-DB9



DB9 male RS-422/485 port



PIN	RS-422/RS-485-4w	RS-485-2w
1	TxD-(A)	-
2	TxD+(B)	-
3	RxD+(B)	Data+(B)
4	RxD-(A)	Data-(B)
5	GND	GND
6	-	-
7	-	-
8	-	-

Ordering Information

Available Models

TCC-80: Port-powered RS-232 to RS-422/485 converter with 15 KV serial ESD protection and terminal block on the RS-422/485 side

TCC-80-DB9: Port-powered RS-232 to RS-422/485 converter with 15 KV serial ESD protection and DB9 male connector on the RS-422/485 side

Optional Accessories (can be purchased separately)

Power Adaptor

CBL-F9M9-20: DB9 male to DB9 female RS-232 cable (20 cm)

Package Checklist

- TCC-80 media converter
- USB power cord (50 cm)
- Quick Installation Guide (printed)
- Warranty Card