TCC-80

Serial Port Powered RS-232 to RS-422/485 Converter

Features

- Self-powered or selectable external power source
- Compact size
- Selectable 2/4-wire RS-485 and RS-422 conversion
- RS-485 automatic data direction control
- Auto baudrate sensing
- Surge protection, 15 KV ESD
- Built-in 120 Ω termination resistors

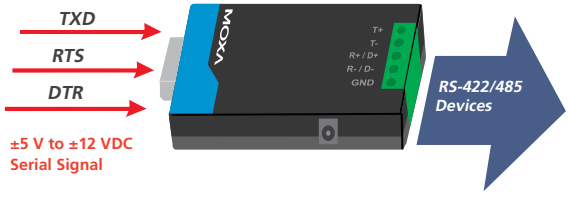
RoHS, Port Power, USB Power, Ext. Power, 15 KV ESD, CE, FC

Introduction

TCC-80, which is powered via the RS-232 ports, provides complete signal conversion between RS-232 and RS-422/485. TCC-80 converts back and forth between RS-232's TxD and RxD lines and either half duplex 2-wire RS-485 or the balanced signal of full duplex 4-wire RS-422/485. In addition, TCC-80's outputs have comprehensive protection against current overload with built-in 15 KV ESD surge protection. TCC-80 is also designed to provide RS-485 auto data direction control in which the RS-485 driver is enabled automatically when the circuitry senses the TxD output from the RS-232 signal. This means that no programming effort is required to control the transmission direction of the RS-485 signal.

Serial RS-232 Port Power

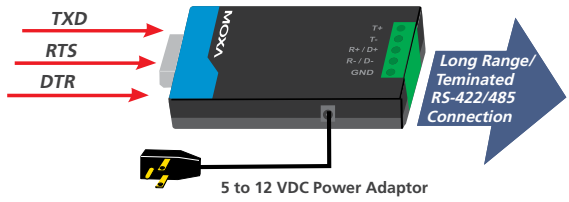
The RS-232 port of TCC-80 is designed with a female DB9 socket to connect directly to the host PC, with power drawn from the TxD, RTS, and DTR lines. Regardless of whether the signal is high or low, TCC-80 is still able to obtain enough power from the combined force of these three data/handshake lines. For those applications that do not use the handshake lines, a DC jack is provided for connecting a 5 to 12 VDC power supply via a USB power cord or external power adaptor.



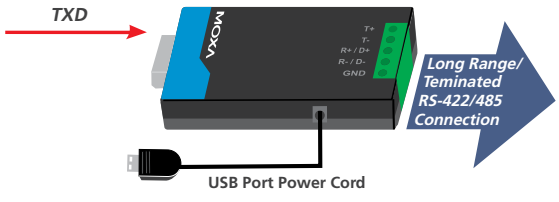
Optional External Power

Termination is thought to be a critical requirement for port-power devices such as TCC-80. In most circumstances, termination resistors are used when the RS-422/485 cable length is longer than 100 m. Regardless of how much the data signal is dissipated, the termination resistors absorb more than 75 mW of power from the power source when TCC-80 is unable to use the limited serial power. In other words, if long distance RS-422/485 transmission or termination is required, and no handshake lines are available, then an external USB power cord or DC power supply should be used.

Ext. Power Adaptor



USB Power



Port Power Dissipation

When installing an RS-232 port-powered TCC-80 converter, it is important to pay attention to the power consumption, RS-232 cable length, and the RS-422/485 transmission distance. In general, TCC-80 itself derives 50 mW from the power source; a standard COM port on a host PC can provide 70 to 90 mW of power if the TxD, RTS, and DTR lines are connected. Moreover, the RS-232 cable length should be shorter than 15 m (@ 9600 bps) to ensure that less power is lost from the host/device to the TCC-80. In the end, the rest of the supplied power is used for transmitting the RS-422/485 signal.

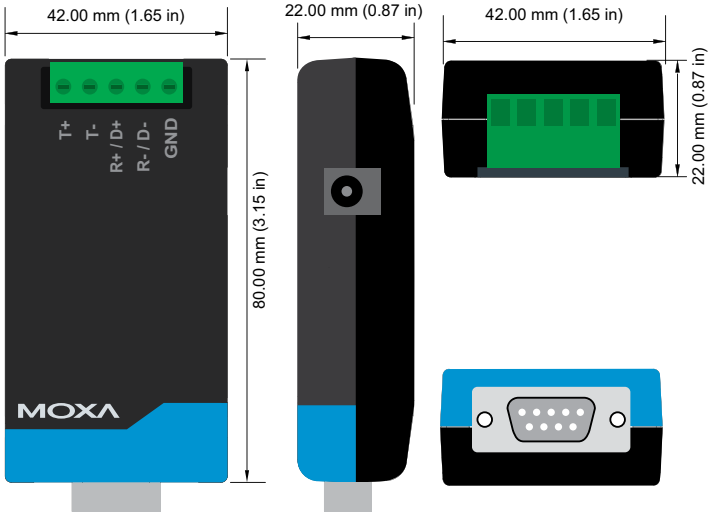
Ordering Information

TCC-80: Serial Port Powered RS-232 to RS-485 Converter w/ 15 KV ESD Surge Protection

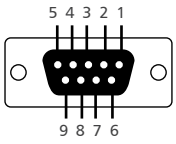
Optional Accessories

- **Power Adapter:** See page 5-6 for more detailed information
- **CBL-USBAP-50:** USB Power Cord (50 cm)

Dimensions



Female DB9 RS-232 port



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

Specifications

Communications

Baudrate: 50 bps to 115.2 Kbps
RS-232 Side:
Connector: Female DB9
Signals: TxD, RxD, and GND
Loop back: RTS to CTS, DTR to DSR and DCD
RS-422/485 Side:
Connector: Terminal Block
Signals: TxD+, TxD-, RxD+ (Data+), RxD- (Data-), GND
Mode: 4-wire RS-422, 4-wire RS-485,
2-wire RS-485 (set by DIP switch)
RS-485 Data Direction Control: Auto
Surge Protection: 15 KV ESD

Environmental

Operating Temperature: 0 to 60°C (32 to 140°F)
Storage Temperature: -20 to 75°C (-4 to 167°F)
Humidity: 5 to 95% RH

Power

Input Power Source:
Serial RS-232 Port: TxD, RTS, DTR; Ext Power Input (jack)
Input Power Voltage: 5 to 12 VDC
Power Consumption: 10 mA @ 5 VDC (termination disabled)

Mechanical

Dimensions (W x D x H): 42 x 80 x 22 mm
Case: ABS + PC
Weight: 50 ± 5 g

Regulatory Approvals

CE Class B, FCC Class B

Warranty:

2 years