

# Delta Automation

## RS232 – RS485 2.5KV Surge Protected & Opto-Isolated Protocol Converter Rev D.

This unit provides surge protection and opto-isolation and increases the maximum transmission distance for serial communications equipment. A typical installation is shown in figure 1

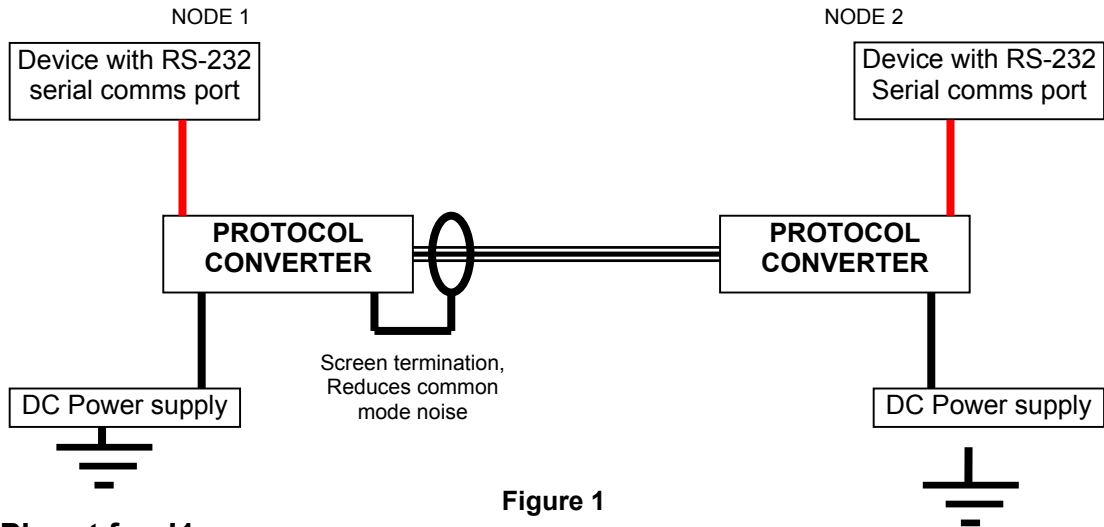


Figure 1

### Pinout for J1

Pin	Function
J1-1	<b>Protective</b> Earth <sup>1</sup>
J1-2	ORANGE Power LED Anode (+ve). Permanently illuminated when power is supplied to the board.
J1-3	RED Transmit LED Anode (+ve). Only illuminates when the unit sends a "SPACE" on J1-6, quiescent state is off.
J1-4	GREEN Receive LED Anode (+ve). Only illuminates when the unit receives a "SPACE" on J1-7.
J1-5	Common LED Cathode (-ve) return. Is also common with RS-232 GND and Supply GND.
J1-6	RS-232 Transmit Output
J1-7	RS-232 Receive Input
J1-8	RS-232 Common. Is also common with LED GND and Supply GND.
J1-9	Power Supply (VCC) 9~35VDC.
J1-10	Power Supply Ground <sup>2</sup>

The RS-232 I/O in this unit has integral ESD protection.  
All the LED outputs have current limit resistors on PCB.

<sup>1</sup> The EARTH pin, J1-1, is used to earth the Chassis and also the Surge Protection. If the surge protection is to work correctly then a good earth termination is required.

<sup>2</sup> The power supply Ground J1-10 must be earthed.

Note that in an RS-485 network the Shield should only be terminated at one node, usually this is the master node.

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### Pinout for J2

Pin	Function
J2-1	RS-485 pin A (+ve)
J2-2	Bus Termination Resistor <sup>3</sup>
J2-3	RS-485 pin B (-ve) / Resistor

The RS-485 I/O is protected with TVS Diode suppression of both common mode noise with respect to RS-485 GND and differential noise. Clamping occurs at 6.8 Volts common mode and fractionally higher for differential mode transients. Revision D. Units also feature MOV and Gas Arrestors, which, in the event of a Surge will shunt transients to the Earth connection.

**\*\*\* CAUTION \*\*\***

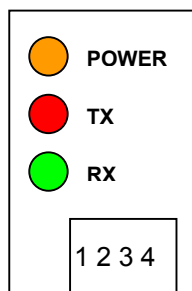
The cable for J2 should be routed so that it is physically separate from the Cable/s on J1. This is to ensure effective electrical ISOLATION of the RS-232 and RS-485 signals.

## RS232 – RS485 Remote Display Unit. Rev. A

This unit provides remote visual feedback of two-way data transmission, and can be mounted up to 5 meters away from the protocol converter unit.

Pin	Function
J1-1	ORANGE Power LED Anode (+ve). Permanently illuminated when power is supplied to the board.
J1-2	RED Transmit LED Anode (+ve). Only illuminates when the unit sends a "SPACE" on J1-6, quiescent state is off.
J1-3	GREEN Receive LED Anode (+ve). Only illuminates when the unit receives a "SPACE" on J1-7.
J1-4	Common LED Cathode (-ve) return. Is also common with RS-232 GND and Supply GND.

Pin 1 is the first pin on the left with the connector at the bottom of the board.



<sup>3</sup> Connect a resistor across J2-2 and J2-3 that matches the characteristic impedance of the Transmission cable. Usually a good value is 120Ω. This is also a good way of verifying that the protocol converter is plugged in to the cable on the other end of the line. If the transmission line has overshoot then a small capacitance value may also be required.

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Sample Wiring. Power Supply not shown connects to Pin 9 & 10. Pin 10 must be earthed. Red wires must be routed separately from other wires. Pin 1 is connected to a good earth on a short cable run. Chassis is also earthed.

