

RS-232 to RS-485 Converter Manual

25 June, 2001

27 Wanganui Road Kirrawee NSW Australia 2232

Phone: (02) 9545 6181 Fax: +61 2 9545 6181 Mobile: 0419 267 889
Email: dpayne@ozemail.com.au WWW: <http://www.ozemail.com.au/~dpayne>
A division of D.H. Enterprises Pty Ltd A.C.N. 087 000 995

Overview

This device converts a serial RS-232 signal interface into an RS-485 full or half duplex interface. It was primarily designed to allow control of InStep modules by an RS-232 output controller, but it can be used anywhere this conversion is required. It is also suitable as a line extender where 2 units are used to extend the length capability of an RS-232 line. In its base form all of the signals are connected via the screw terminals. Options are available where the RS-485 signals are brought out to RJ-12 connectors for direct connection to InStep modules and DB-9 connectors for RS-232. A green LED on the front face indicates that the internal power supply is functioning. A further three LED's are visible through the lower vents they indicate the status of the following signals:

- Green = RS-485 Transmit
- Red = RS-232 Transmit
- Amber/Yellow = RTS

Wiring

Power

A power supply of between 12 and 25 volts DC is required to be connected to terminals 1 and 2.

RS-485 Connectors (Optional)

If the Grey RJ-12 connector is fitted this is configured to allow a straight through cable to the grey connector on the front of standard InStep modules.

If the Black RJ-12 connector is fitted this is configured the same as the grey connector on a standard InStep and so would require the use of a crossover type cable.

RS-232 Connector (Optional)

If the DB-9 option is fitted the female socket fitted is configured as DCE and so allows the use of a straight through cable to the serial port of a PC. Pin 6 is tied to pin4 and pin 7 and 8 are tied together.

Configuration

Configuration consists of selecting the appropriate jumpers for your interface type. Unless it is entirely necessary to have a 2-wire interface use a 4-wire setup as it is far simpler. (i.e. no transmitter control.)

Mounting

The module can be mounted on 35mm DIN rail. To facilitate airflow through the housing it must be mounted on a horizontal rail with terminals 1 to 4 uppermost and the rail clip at the bottom. If the module is disassembled to facilitate the changing of jumpers etc, it should be reassembled so that terminals 12 to 16 are at the rail clip end of the housing.

Tables**Jumper Descriptions**

Jumper	1 to 2 linked	2 to 3 linked
J1	RS-485 Receiver under RTS control	RS-485 Receiver permanently enabled. *
J2	RS-485 Transmitter under RTS control	RS-485 Transmitter permanently enabled. *
J3	RTS signal not inverted.	RTS signal inverted. *
J4	LED's on when signal inactive.	LED's on when signal active. *
Jumper	1 to 2 linked	J5/1 to J6/1 and J5/2 to J6/2
J5/J6	DB-9 is DCE configuration. (i.e. straight through cable to PC). *	DB-9 is DTE configuration. (i.e. "crossover" or "Null Modem" cable to PC).
Jumper	1 to 2 linked	1 to 2 open
J13	Connects RXA to TXA for 2-wire mode.	4-wire "Full Duplex mode. *
J14	Connects RXB to TXB for 2-wire mode.	4-wire "Full Duplex mode. *
J15	Connects termination resistor network. *	No termination resistor network.
J16	Connects termination resistor network. *	No termination resistor network.

Notes: J13 to J16 are the same configuration as found on a standard InStep module.

J5/6 not fitted unless DB-9 option fitted.

* = factory configuration.

J3 should be 2 to 3 when used with the StepTerm software from Industronics. When using this software it is then possible to Set J1 and J2 to 1 to 2 to talk to InSteps set in 2 wire mode.

Terminal Descriptions

Terminal Number	Terminal Name	Description
1	+24V In	Connect a 12 to 25 volt power supply to this terminal to provide the module with power.
2	0V In	0 volt reference terminal for the power supply and the output terminals.
3	+5V Out	+5 volt output @ 50mA. (Not normally used)
4	0V Out	0 volt output terminal or RS-485 ground.
5	RXA	RS-485 Receive input positive side. (Connect to pin 2 on an InStep module).
6	RXB	RS-485 Receive input negative side. (Connect to pin 3 on an InStep module).
7	TXA	RS-485 Transmit output positive side. (Connect to pin 4 on an InStep module).
8	TXB	RS-485 Transmit output negative side. (Connect to pin 5 on an InStep module).
9	N.C.	No Connection!
10	N.C.	No Connection!
11	N.C.	No Connection!
12	N.C.	No Connection!
13	TxD	DCE terminology, RS-232 data input. Connect to pin 3 of a PC's DB-9 serial port.
14	RxD	DCE terminology, RS-232 data output. Connect to pin 2 of a PC's DB-9 serial port.
15	RTS	Ready to send input (controls data direction in 2-wire half duplex mode). Connect to pin 7 of a PC's DB-9 serial port.
16	GND	Ground connection for serial data. Connect to pin 5 of a PC's DB-9 serial port.