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Model 245

Opto Isolated Superverter

Reference Manual

0315-0188 Rev. E

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1.0 General Description

The Model 245 Opto Isolated Superverter provides for a complete full-duplex conversion from RS-232 to RS-422 or RS-485, while electrically isolating the different interfaces. Isolation is an important consideration if the systems to be connected use different power sources, have noisy signals, or must operate at different ground potentials.

2.0 Specifications

Interfaces:

RS-232

Conforms to CCITT V.24 and RS-232. Pins 2 and 3 Transmit and Receive Data (switch selectable); Pin 4 (RTS) tied to Pin 5 (CTS); Pins 6 (DSR), 8 (DCD) and 20 (DTR) are connected together; Pin 7 RS-232 Signal Ground.

RS-422/RS-485

Pins 2 and 14 Transmit Data; Pins 3 and 16 Receive Data; Pin 7 RS-422 Signal Ground.

Connectors:

RS-232 = DB-25M,
RS-422/485 = DB-25F

Isolation: 1000 V

Data Rate: 0 to 128 KBPS

Indicators: Four LED's

RS-232 TD and RD
RS-422/485 TD and RD

Power: Four Options

245 = 110 VAC, 60 Hz
245-220 = 220 VAC, 50Hz
245-48 = -48V DC
245-24 = -24V DC

Switches:

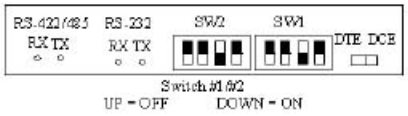
DTE/DCE, SW1 and SW2, four-position Dip switches.

Environment: 0 to 50 C, 0% to 95% RH.

3.0 Installation

The Model 245 is designed to interface RS-232 equipment with either RS-422 or RS-485 devices. When configured for RS-485, the Model 245 can be set to sense when data is being transmitted by the RS-232 side to enable the RS-485 transmitter. Alternatively, either RTS or DTR can be used to control the transmitter.

The user also has the ability to enable a 220-Ohm terminator when the Model 245 is configured for RS-485 two-wire. To configure the unit to a particular mode select the option from the chart that follows.



Mode	SW1 A (1)	SW1 B (2)	SW1 C (3)	SW1 D (4)	SW2 A (1)	SW2 B (2)	SW2 C (3)
1) **RS-422**	OFF	OFF	OFF	OFF	OFF	OFF	ON
2) **RS-485**	OFF	ON	OFF	ON	OFF	OFF	ON
Four-wire transmitter enabled by RTS							
3) **RS-485**	ON	OFF	OFF	ON	OFF	OFF	ON
Four-wire transmitter enabled by DTR							
4) **RS-485**	OFF	OFF	ON	OFF	OFF	OFF	ON
Four-wire transmitter enable by TD							
5) **RS-485**	OFF	ON	OFF	ON	X	ON	OFF
Two-wire transmitter enabled by RTS							
6) **RS-485**	ON	OFF	OFF	ON	X	ON	OFF
Two-wire transmitter enabled DTR							
7) **RS-485**	OFF	OFF	ON	OFF	X	ON	OFF
Two-wire transmitter enabled by TD							

X = User option

SW2A = 220-Ohm Terminator. Use only if required in RS-485 two-wire.

SW2D is not used.

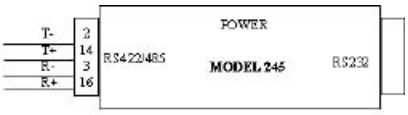
OFF = Switch up **ON** = Switch down

In addition to the two four-position Dip switches, the user must also determine if the Model 245 will behave as a DTE or DCE device. When connecting the Model 245 to a DTE device (e.g., a PC) configure the unit for DCE. When connecting to a DCE device (e.g., a modem) the Model 245 is configured for DTE.

4.0 Operation

4.1 RS-422

When the Model 245 is configured as an RS-232 to RS-422 interface, the unit performs full-duplex conversion of TD and RD signals. On the RS-422 side Pins 2 and 14 are Transmit Data while 3 and 16 are Receive Data. When the RS-232 data is negative (mark state) the RS-422 Transmit Data (Pin 2) will be low-logic "zero," while Pin 14 will be a high or logic "one" (when referenced to Signal Ground, Pin 7).

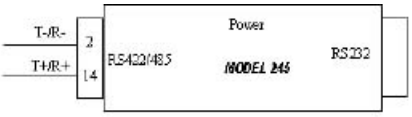


RS-422 and RS-485 four-wire

4.2 RS-485

In four-wire mode the Model 245 Receiver is always ON and the Transmitter can be controlled in one of two ways. Firstly, the transmitter can be enabled when the RTS or DTR are enabled or go high (depending on the mode selected). Secondly, the user may turn the Transmitter ON when data is applied to the Model 245 from an RS-232 device.

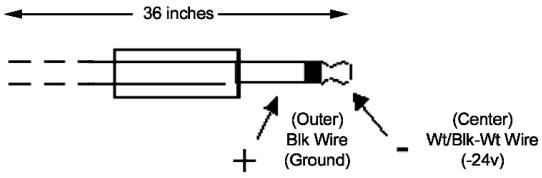
The RS-485 two-wire mode uses one twisted pair to transmit and receive data. The Model 245 is normally in receive mode or waiting for data from RS-485 equipment. When a device initiates transmission it uses RTS, DTR or data from the RS-232 to enable its transmitter, depending on the mode set for the Model 245. The Model 245 uses Pins 2 and 14 for its connections to an RS-485 device.



RS-485 two-wire

5.0 Power

The Model 245 can be ordered with three different power configurations: 110 VAC, 220 VAC, -24 VDC. See the following diagram for the DC power connector.



6.0 Help

If you require assistance, please visit our Technical Support Center.

Warranty

TELEBYTE warrants the equipment to be free from defects in material and workmanship, under normal and proper use and in its unmodified condition, for 12 months, starting on the date it is delivered for use. TELEBYTE's sole obligation under this warranty shall be to furnish parts and labor for the repair or replacement of products found by TELEBYTE to be defective in material or workmanship during the warranty period. Warranty repairs will be performed at the point of manufacture. Equipment approved for return for warranty service shall be returned F.O.B. TELEBYTE factory and will be redelivered by TELEBYTE freight prepaid, except for non-continental U.S.A. locations. Non-continental deliveries will be sent COD freight plus import/export charges.

The above warranty is in lieu of all other warranties, expressed or implied, statutory or otherwise, including any implied warranty of merchantability or fitness for a particular purpose. TELEBYTE shall not be liable for any damages sustained by reseller or any other party arising from or relating to any equipment failure, including, but not limited to consequential damages nor shall TELEBYTE have any liability for delays in replacement or repair of equipment.

Out of warranty equipment may be returned to the Hauppauge, NY customer service facility prepaid as described above. Return shipping charges will be billed to the customer. The repaired unit will have a 90-day warranty. In those cases where "NO TROUBLE" is found, a reduced charge will be billed to cover handling, testing and packaging.

Whether in or out of warranty, a Return Material Authorization (RMA) number is necessary and can be obtained by visiting our Technical Support Center. Reference the RMA number on the outside container.

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