

CAT-285 Superverter

RS-422/RS485 to RS-232 Interface Converter



INSTRUCTION SHEET

M3811-1006

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1.0 SPECIFICATIONS

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

RS-485: Conforms to RS-485 specifications

RS-422: Conforms to RS-422 specifications

Connectors - RS-232: DB25 male

RS-485/RS422: 5 position terminal block

Indicators - TD and RD

Switches - DTE/DCE switch selectable for reversing TD & RD. 5 position dip switch: set RS-485 2 or 4 wire, RS-422 termination.

Date Rate - 0 to 64 KBPS

MTBF - 596,000 hours

Power - 115VAC @ 60 Hz
(220 VAC @ 50 Hz optional).

Size 2" W x 3.5" L x 0.875" H
(50.8 mm x 88.9 mm x 22.2 mm)

Environment - 0° to 50°C, 5% to 95% relative humidity.

2.0 INSTALLATION

The Model CAT-285 is designed to interface RS-232 with either RS-422 4 wire, RS-485 4 wire or RS-485 2 wire. In addition the RS-45 mode can be set to have its transmitter enabled by RTS or can be set to sense when data is being transmitted by the RS-232 device. The user also has the ability to enable a 220 Ohm terminator when the CAT-285 is configured in the 2 wire mode. To set the dip switches select the option from the chart below.

	TD Cntrl	RTS Cntrl	220W Term	Two-Wire Mode	Four-Wire Mode
Mode	SW1	SW2	SW3	SW4	SW5
1. RS-422	OFF	OFF	OFF	OFF	ON
2. RS-485 4 Wire Transmitter enabled by RTS	OFF	ON	OFF	OFF	ON
3. RS-485 4 Wire Transmitter enabled by TD	ON	OFF	OFF	OFF	ON
4. RS-485 2 Wire Transmitter enabled by RTS	OFF	ON	X	ON	OFF
5. RS-485 2 Wire Transmitter enabled by TD	ON	OFF	X	ON	OFF
ON = Closed			OFF = Open		

X = Enable (ON)/Disable(OFF) 220 Ohm Terminator

NOTE: The 220 terminator should only be selected for use in the RS-485 2 wire options.

In addition to the 5-position dip switch the user must also determine if the Model CAT-285 will look like a DCE or a DTE device. When configured as a DCE the model CAT-285 will connect to a DTE device such as a PC or terminal. When set as a DTE the model CAT-285 will connect to a DCE device such as a modem.

3.0 OPERATION

RS-422 - When the CAT-285 is configured as an RS-232 to RS-422 converter it will perform full duplex conversion of the TD and RD signals. The RS-422 equipment is connected to the Model CAT-285 through the 5 position terminal block marked G, R-, R+, T-, and T+. The R+ and R- are the receiver input into the model CAT-285 and T+ and T- are the transmitters. When connecting the CAT-285 to other RS-422 equipment, the T+ and T- should be one twisted pair while R+ and R- should be another. The G connection is connected to Pin 1, Frame Ground, on the RS-232 side.

RS-485 - In the 4 wire mode the Model CAT-285 has its receiver always ON and the transmitter can be controlled in one of two ways. The first is the transmitter can be enabled when the RTS or (CTS) is enables or goes high. The second method is to turn the transmitter ON when data is applied to the CAT-285 from the RS-232 device. Connection to the CAT-285 is made to the terminal block with T+ and T- being the transmit pair and R+ and R- the receive pair. When operating in the 4 wire mode T+ and T- should be one twisted pair and R+ and R- another twisted pair.

The RS-285 2 wire mode uses 1 twisted pair to transmit and receive. The CAT-285 will normally be in the receive mode or waiting for data from the RS-485 equipment. When the CAT-285 wants to transmit it uses RST or waits for data from the RS-232 to enable its transmitters, depending on the mode it is set for. The CAT-285 uses T+ and T- for its connections to the 2-wire RS-485 device.

4.0 TROUBLESHOOTING

RS-422 - To test the CAT-285 in the RS-422 mode connect T+ to R+ and T- to R-. Connect the CAT-285 to a CRT terminal set to DCE and hold down a key on the keyboard. If the converter is operating properly the TD and RD LED's will flicker and the data should appear on the CRT screen.

RS-485 - A self-test on the CAT-285 can only be performed when the unit is configured as a 4 wire device. The transmit option should be set according to your requirements. Connect T+ to R+ and T- to R- and connect the unit, in DCE mode, to a CRT Terminal. Hold down a key on the terminal and if the unit is functioning the TD & RD LED will flicker and the data entered on the keyboard will appear on the screen.

5.0 RS-232 PIN ASSIGNMENTS

PIN	EIA	CCITT	NAME	
2	BA	103	Transmit Data	*
3	BB	104	Receive Data	*
4	CA	105	Request to Send	**
5	CB	106	Clear to Send	**
6	CC	107	Data Set Ready	***
7	AB	102	Signal Ground	Gnd
8	CF	109	Data Carrier Detect	***
20	CD	108.2	Data Terminal Ready	***

* These signals can be reversed using the selector switch.

** , *** Connected together.

RS-422/RS-485

G Ground
R- Receive -
R+ Receive +
T- Transmit -
T+ Transmit +

When the RS-232 input signal is - (neg) or marking the T+ lead will be high and the T- will be low. To cause the RS-232 output signal to be - (neg) or marking the R+ should be brought high and the R- should be low.

Note: When disconnected a high is a voltage between +3 and +5VDC and a low is between 0 and .8 VDC

6.0 POWER

The Model CAT-285 is powered by a small, wall mounted transformer that supplies 9 VAC @ 500 mA.



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