

Four-Channel Optically Isolated RS-232 to TTL Converter Model 232OTTL



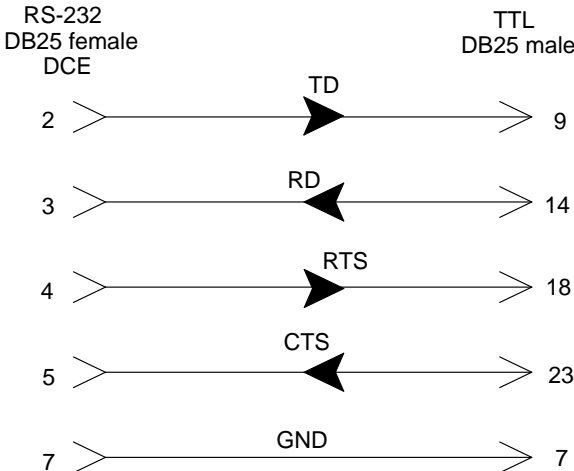
Description

The 232OTTL is an RS-232 to TTL converter with 1500V isolation. Channels TD and RTS convert RS-232 to 0-5V TTL signals and channels RD and CTS convert 0-5V TTL signals to RS-232. The RS-232 side has a DB25 female connector pinned out to plug directly into the COM port of a computer or any other DTE device. The TTL side has a DB25 male connector.

Signal Lines

The 232OTTL supports 4 signal lines and ground as shown in Figure 1. Two of these four lines, TD and RTS, convert RS-232 inputs to TTL outputs. The other two lines, RD and CTS, convert TTL inputs to RS-232 outputs. These lines communicate at baud rates up to 38.4 kbps.

Figure 1: Signal Lines



It is important that only TTL logic (0 to +5V) is used for the TTL side of the converter. The maximum sinking current for one TTL output is 8 mA. The maximum source current for one TTL is 0.8 mA. Signal levels are inverted by the converter in its standard configuration as shown in Table 1. See the section titled "Options Requiring Modification" if non-inverted outputs are desired.

Table 1: Standard Inverted Outputs

| TTL Input | RS-232 Output | TTL Output | RS-232 Input |
|--------------|--------------------------|--------------|--------------------------|
| high (>2.0V) | -5V maximum, -9V typical | high (>2.0V) | -5V maximum, -9V typical |
| low (<0.8V) | +5V minimum, +9V typical | low (<0.8V) | +5V minimum, +9V typical |

Power

The RS-232 side of the 232OTTL derives its power from the outputs of the host RS-232 port. TD, RTS, and DTR lines may be used to port power the RS-232 side. A minimum of two of these lines in either high or low states is required for proper operation. If your port meets the low voltage requirements of RS-562, you will need to externally power the RS-232 side of the 232OTTL. An RS-562 port, typically found on handheld computers, will only produce about 3.7 volts, which is not adequate to power the isolator. To externally power the RS-232 side, connect the positive lead of the +12VDC power supply to pin 25 and the GND lead to pin 12 of the DB25 female connector.

The TTL side of the 232OTTL requires a power supply to operate. +12VDC may be connected to the power jack on the side of the unit, or on pins 25 (+12VDC) and 12(GND) of the DB25 male connector. See the section titled "Options Requiring Modification" if it is necessary to power the TTL side from a +5V supply.

Options Requiring Modification

The 232OTTL may be modified to non-inverted signals as shown in Table 2 by placing a jumper wire across JP1:A labeled "NI".



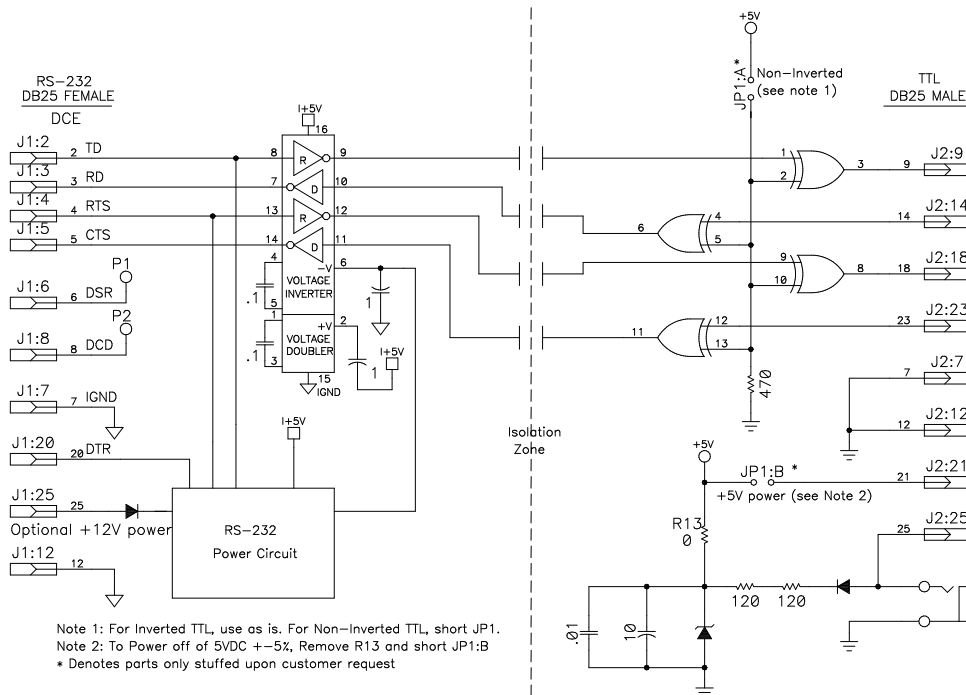
Table 2: Modified to Non-Inverted Outputs

| TTL Input | RS-232 Output |
|--------------|--------------------------|
| high (>2.0V) | +5V minimum, +9V typical |
| low (<0.8V) | -5V maximum, -9V typical |

| TTL Output | RS-232 Input |
|--------------|--------------------------|
| high (>2.0V) | +5V minimum, +9V typical |
| low (<0.8V) | -5V maximum, -9V typical |

The 232OTT may also be modified to accept a +5V supply on the TTL side. Remove the 0 ohm surface mount resistor labeled R13 and place a jumper wire across JP1:B labeled +5V. A +4.75 to +5.25V at a maximum of 25mA is necessary to power the TTL side of the converter when this modification is made.

For assistance with these modifications, or to have the 232OTT modified before shipment, call B&B Electronics.



Specifications

- Signals: 4 channels, TD, RD, RTS, CTS
 RS-232 side pinned out as DCE
 TTL/CMOS compatible voltage levels (low < 0.8V, high > 2.0V)
 Inverted outputs (non-inverted available with modification)
 38.4 kbps maximum
- Power
 RS-232 Side: Port-powered by TD, DTR, and RTS (requires two lines in any state)
 Or +12 to 16 VDC at 30 mA maximum on pins 25 and 12
- TTL Side: +12 to 16 VDC at 25 mA maximum on power jack or pins 25 and 12
 (+5 VDC available with modification)
- Dimensions: 3.1 x 2.1 x 0.8 in (7.8 x 5.4 x 2.1 cm)
- Environment: 0 to 70°C