

**Introduction**

The TTL-RS232 converter allows any TTL serial device such as the DevBoard-M32 and other microcontrollers to communicate with a PC. A converter is needed because PCs and microcontrollers do not speak the same language. Microcontrollers talk using TTL voltage levels; 0v and 5v. PCs use RS232 voltage levels; 12v and -12v. The TTL-RS232 converter changes the 0v-5v signals to RS232 signals that the PC can understand.



Converter and Cable

**Specifications**

- Power: +5v Supplied by TTL Device
- Serial Speeds: 300-115k baud
- TTL Connector: Standard RJ-45 Connector
- RS232 Connector: Standard DB-9 Connector
- Hardware Flow Control: None

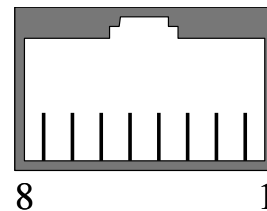
The TTL side uses a standard RJ-45 connector. The cable supplied is a 24 AWG 4 conductor cable – Power, Ground, Serial Transmit (TX) and Serial Receive (RX). You can easily make a custom cable by using a standard Cat5 cable and using 2 pairs - Blue/White-Blue and Green/White-Green - as shown in the pinout table below.

The supplied cable is designed to connect to .025” x .1” square pin headers commonly found on microcontroller boards.

- Connect the red wire to +5v and the black wire to ground.
- Connect the brown wire to the serial transmit pin and the orange wire to the serial receive pin. If the connections are side-by-side, remove the wires from the 2-pin plastic housings.

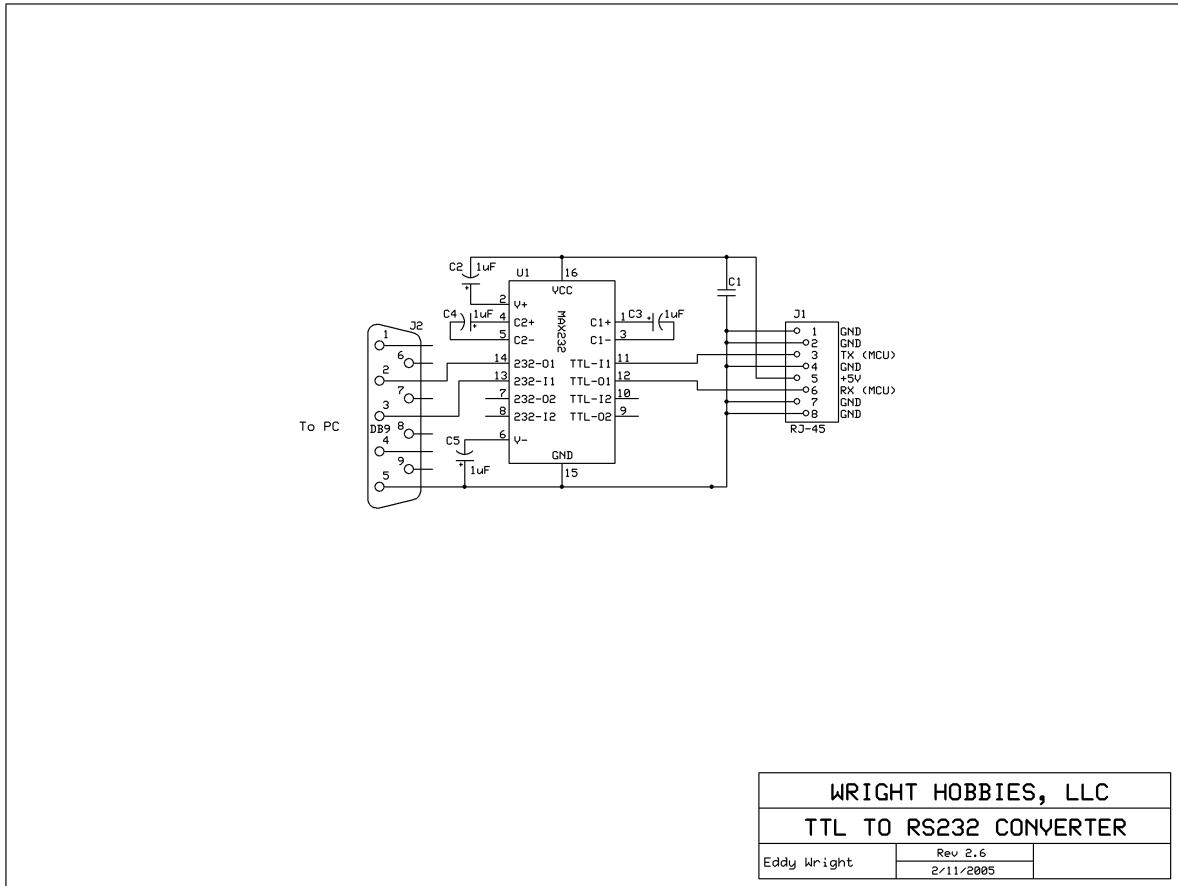
**Pinouts for TTL Connector**

Pin	Function	Wire Color	CAT5 Wire
1	GND	N/A	White/Orange
2	GND	N/A	Orange
3	TX	Brown	White/Green
4	GND	Black	Blue
5	+5V	Red	White/Blue
6	RX	Orange	Green
7	GND	N/A	White/Brown
8	GND	N/A	Brown



TTL RJ-45 Connector on the Converter

**Schematic**



**Troubleshooting**

<b>I'm trying to use the RS-232 serial module, but I don't see any text or the text is scrambled.</b>	
Verify the power connection to the RS-232 module	The TTL serial device powers the RS-232 converter. Ensure the power connector portion of cable is plugged in to a +5V/Ground power source.
Reverse the RX/TX connector	The RX/TX cable connector may be reversed. Try swapping the RX and TX connections on the TTL serial device.
Verify the Com Port settings match the compiler settings	If you are using a microcontroller like the DevBoard-M32, make sure that the communication settings in the compiler match the settings in the terminal program.

**For more information, please visit our website**  
<http://www.wrighthobbies.net>