



RS232 to TTL Cables

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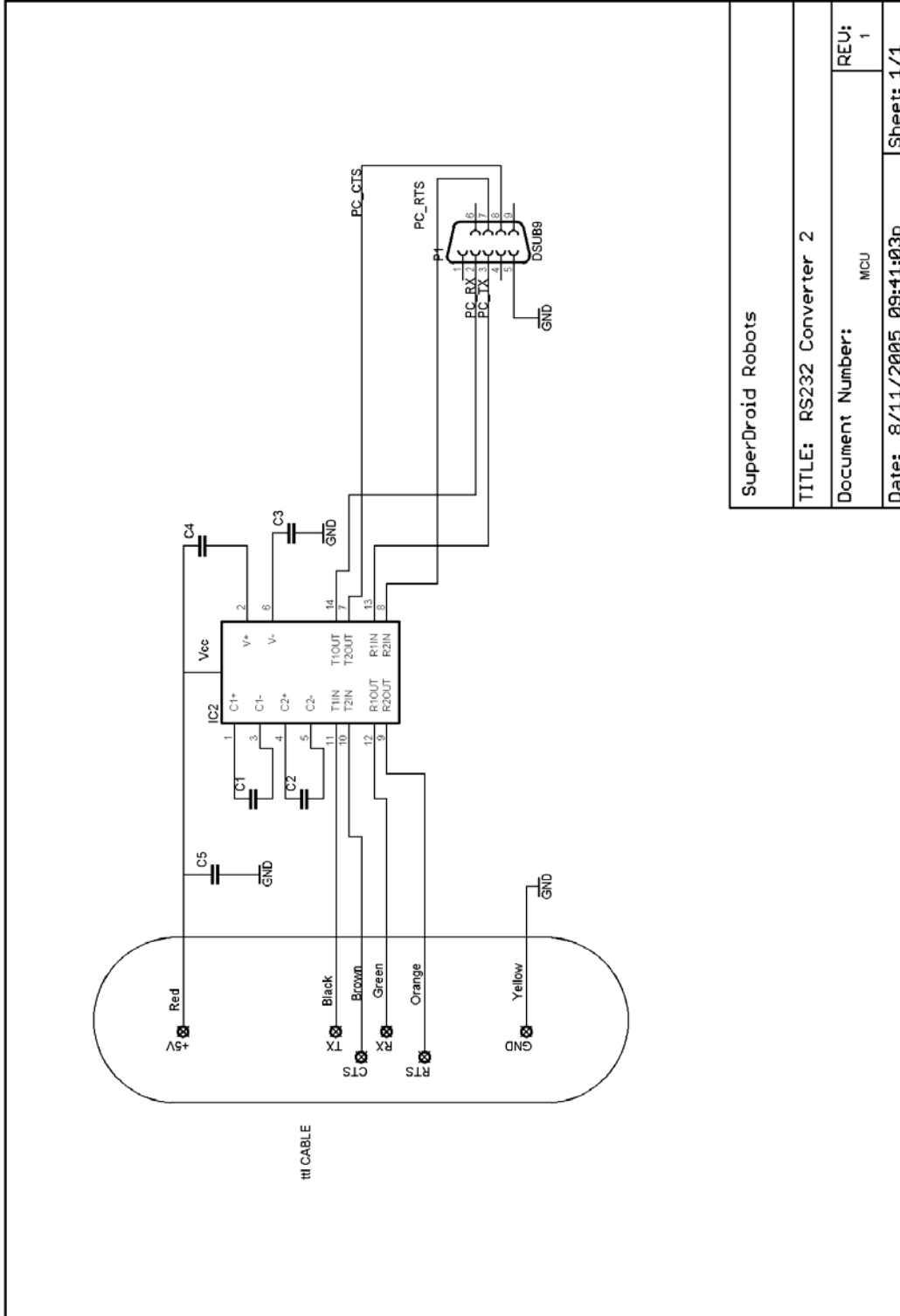
TTL Connector Pin-out and Color Scheme

- The standard TTL to RS232 cable is wired with a Female DB9. On the Female DB9 connector, pin 2 is PC receive data, pin 3 is PC transmit data and pin 5 is ground. See schematic in following pages.
 - We now offer Male DB9 RS232 cables too, On the Female DB9 connector, pin 3 is PC receive data, pin 2 is PC transmit data and pin 5 is ground. See schematic in following pages.
 - The data signal is pumped up from the TTL level to RS232 levels. It will not hold a value high; it must be serial data from 1200 baud to 115k baud.
 - The data is inverted when going through the level change. This is the nature of all level changing devices and is easily remedied by ensuring baud settings on either the TTL or PC side are set to inverted. Most applications already take this into account, since most data gets inverted by level changers.
 - **The power must be supplied to the cable from the TTL side.** 4.5-5.5 Volts for MCU-016-xxx and 3-5.5Volts for MCU-026-xxx and MCU-030-xxx.
 - The **black** wire is TTL output (Tx) to the PC (Rx). The **green** wire is TTL input (Rx) from the PC (Tx). The **red** wire is +5 or +3 VDC and the **white/yellow** wire is Ground. For Type 3 cables, the **Blue/Orange** wire is RTS and the **brown** wire is CTS. Refer to the schematic on the next page for further instruction.
- A. For Type 1 cables connect the Molex connector of the serial interface cable to the board header as shown below in the figure.



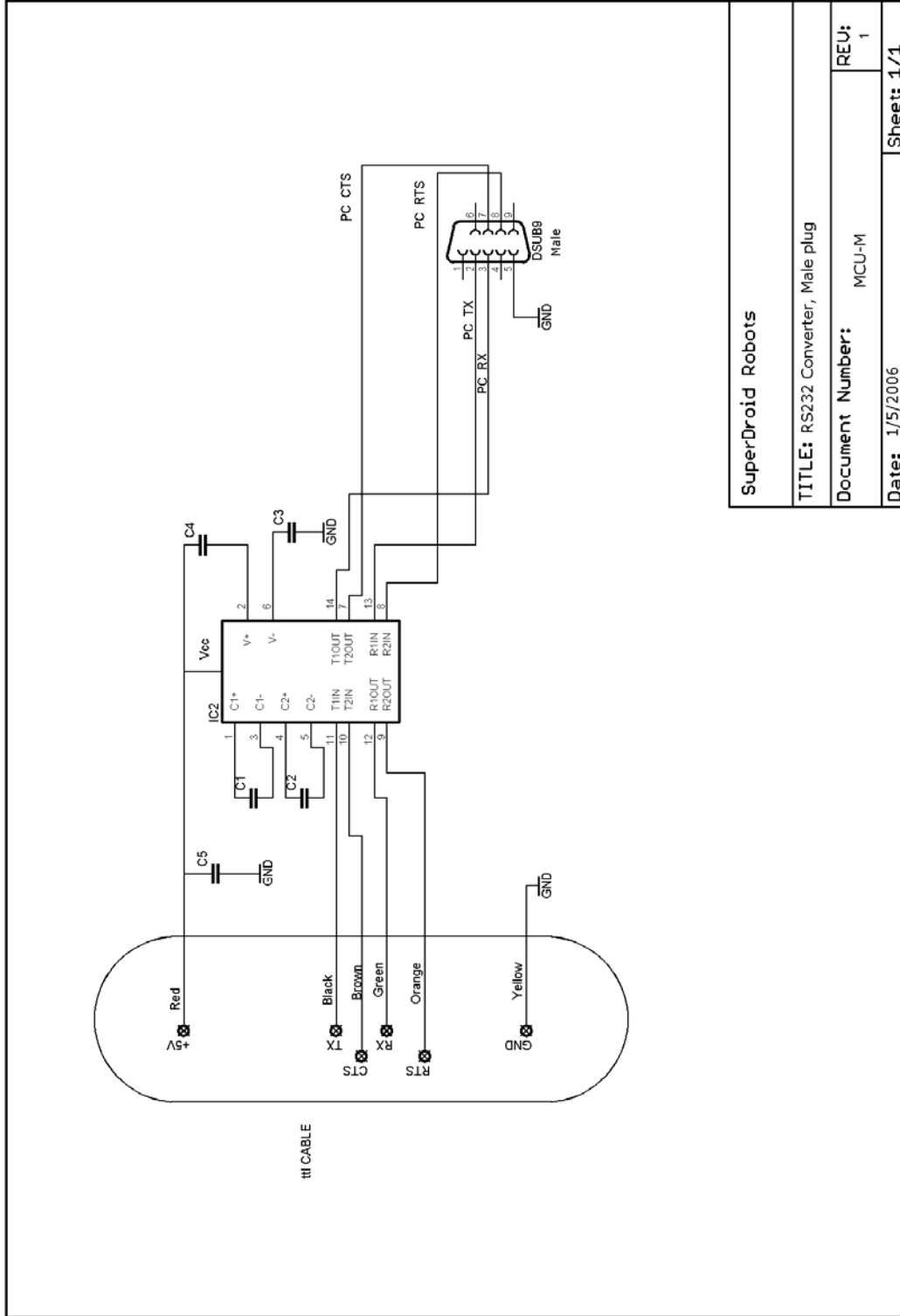
- B. For Type 2 cables connect the red-white plug to +5 or +3 volts and white/yellow to the ground connector. Connect the black-green connector to I/O lines your TTL Tx and Rx.
- C. For Type 3 cables connect the Molex connector of the serial interface cable to the board header installed above (type 1 connector). Connect the orange-brown connector to I/O lines for CTS and RTS.
- D. For all female cables, plug the DB9 connector directly into the PC or into a RS232 cable from the PC.
- E. For all male cables, plug the DB9 into your female DB9 RS232 device.

Schematic for Standard Female RS232 to TTL Cable



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Schematic for Male RS232 to TTL Cable



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OOPic Serial Port Connector Installation

- Step 1.** Locate the 4 holes on the prototype board labeled 22, 23, +5, and G nearest the OOPic chip.
- Step 2.** Locate the 4 pin header supplied with the serial interface cable kit
- Step 3.** Insert the header into the 4 holes labeled 22, 23, +5, and G with the header key facing away from the OOPic chip.
- Step 4.** Solder the header into place from the back of the OOPic board.
- Step 5.** Using a multi-meter check for continuity between pin 1 of the header and pin 37 of the I/O Connector. Check for continuity between pin 2 of the header and pin 39 of the I/O Connector.

