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Serial Port Connection

Description

This little board will allow you to quickly hook up a AVR to a serial port for on screen display or diagnostics. I have tested this unit with a cable length of 50' with no problems.

Origin of Idea

The original idea for this came to me when I was designing a well freeze monitor. I knew that I was going to make quite a few of the monitors and I needed a way to verify that the board was built and functioning correctly. No problem, I'll just send start up and diagnostics to the serial port.

What are my options.. Hmm, I could use a soft UART to dump the messages, only if the AVR I was using had one! I could add a Max232 to every board, to expensive. I could put a header on the monitor board so I could plug it into a Max232 connected to a serial port. Yeah, sounds good. I can use this for many projects. So far so good!

Ooops, out of Max232's. Hey, theres a MC1489.. Didn't I read about using a 1489 in place of a Max232 somewhere? Time to search the web. OK, found the reference and I was right, I can use a MC1489.

In light of the Design Note contest and the fact that a MC1489 is not a true RS-232 Driver/Receiver I have designed two boards for your enjoyment. One uses a Max232 (Less expensive, a little more difficult to build.) and the other uses a Dallas DS275 (A little more expensive, easier to build.)

There are only four connections to make: Txd, Rxd, V_{CC}, and Ground. I can have it hooked to a breadboard and dumping information to my PC in less than a minute.

This project is simple enough to easily solder to a stripboard/breadboard, but if you want to make a PCB I have the schematics and board file in Eagle 4.08 format. You can request a copy by dropping an email to anoah@byersprecision.com with a subject of Eagle Serial Port.

Hope this saves you as much time as it has saved me!

Happy AVR'n,

Albert

Figures

Figure 1. Board layout for the Max232 Version

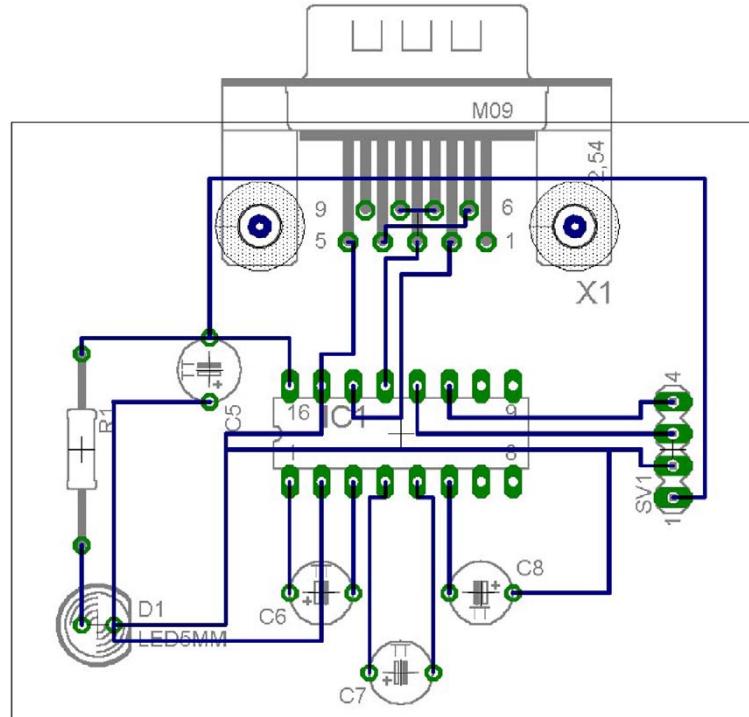


Figure 2. Schematic for the Max232 Version

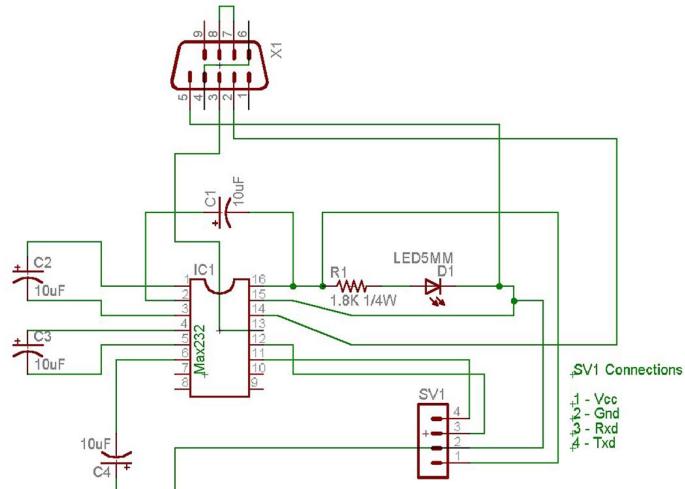


Figure 3. Board layout for the Dallas DS275 Version

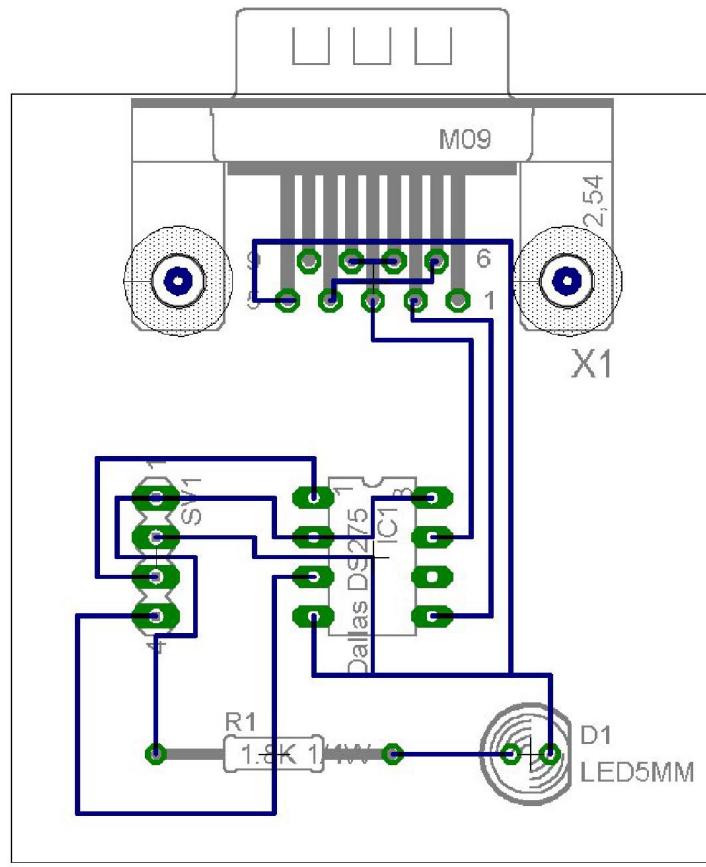
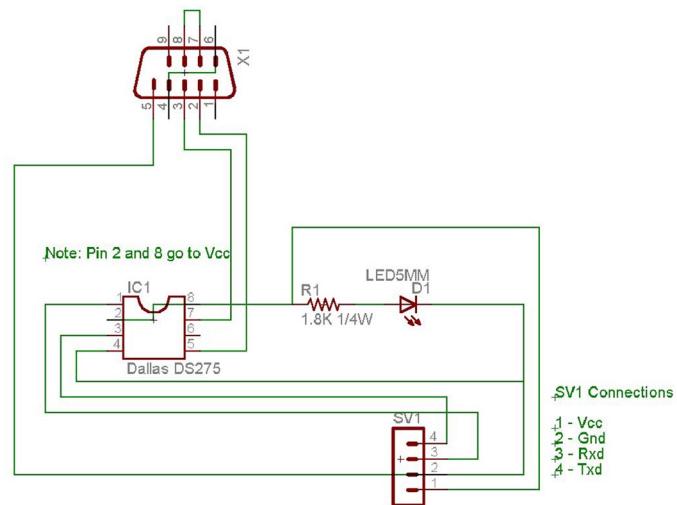


Figure 4. Schematic for the Dallas DS275 Version



Part List

Max232 Version

Table 1. Part List for Max232

IC1	Max232 Dual RS-232 Driver/Receiver
X1	9-Pin D-Sub Male PC Mount
SV1	Single Row, Straight Header
R1	1.8K 1/4Watt Resistor
D1	Green Diffused LED
Socket	16 Pin DIL IC Socket
C1	10uF 16V Radial Capacitor
C2	10uF 16V Radial Capacitor
C3	10uF 16V Radial Capacitor
C4	10uF 16V Radial Capacitor

Dallas DS275

Table 2. Parts List for Dallas DS275

IC1	Dallas DS275 RS-232 Driver/Receiver
X1	9-Pin D-Sub Male PC Mount
SV1	Single Row, Straight Header
R1	1.8K 1/4Watt Resistor
D1	Green Diffused LED
Socket	8 Pin DIL IC Socket