

EZ232 Trouble Shooting



Trouble Shooting the EZ232 Driver board

The Kronos Robotics microcontrollers were designed with simplicity and cost in mind. However even the simplest problem can be frustrating and very mind boggling.

The key to trouble shooting a problem is to isolate where it is. In this application note we will test the EZ232 board and the cable connected to the PC.

Comport selection

Open the Com Port selection form from the settings menu.



Figure 1

Depending on whether you are using the Athena compiler or Dios compiler the forms will look the same as shown in Figure 1..

You need to select an available com port and connect that com port to a cable and then to the EZ232 board.

Com Port Observations

You cannot share com ports with the Kronos Robotics compiler software. This means if some other software is using a particular com port the compiler software will not work.

Close the other application before starting the software.

Window's will also let you use a comport for synchronization with Pocket PC's or other hand held computers. If you must use that com port you must shut down these services if you are using the same com port.

You can not program the Athena or Dios chips with background process like printing running. You can not run the compiler software on a Web or FTP server.

Why?

When the compiler software sends a byte of data to the Athena or Dios chip the chip has 1 second to respond. If there is no response the software assumes an error. When the chip sends a response it expects data within 50ms. If the chip does not receive the data in this time period it will go into error mode.

In some cases the software can recover but if too many errors are detected the program sequence will fail.

When processes like background printing occur they can cause small pauses in other programs. Since the timing on the Athena and Dios is so critical this is not acceptable.

An Example

I have a test machine that has an external USB CD Rom. When I run a popular music program it causes the machine to lock up for about a second every 15 seconds or so. This has something to do with the music software checking the external CD Rom drive. This will cause the compiler software upload to fail. In my case its easy to fix. Don't run the music Software while I'm programming the Athena or Dios.

Testing the RS232 Driver

In order to program the Athena or Dios you need to use an RS232 Driver. These are small inexpensive chips that convert the RS232 levels to TTL levels needed by the Athena or Dios. You can build your own RS232 Driver or use one

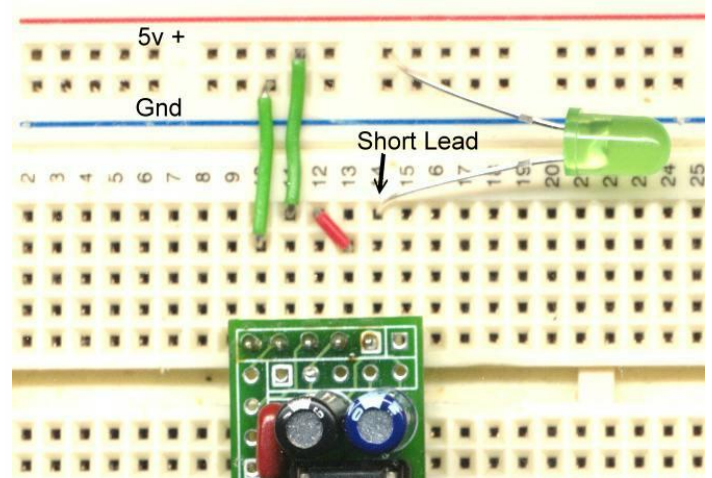


Figure 2

Trouble Shoot the EZ232

of ours.

Lets look at testing the EZ232 driver. There are two tests that need to be performed. A reset test and a loop back test.

Step 1: Connect the EZ232 as shown in Figure 2. Pin 1 (left most pin in picture) is connected to Gnd. Pin 2 is connected to 5v.

Step 2: Place a jumper between pins 3 and 4.

Step 3: Connect a LED (short lead to pin 5) (long lead to 5v)

Step 4: Hit the Loop Test button.

Result: The software should pop up a window indicating that the test passed. If it does not proceed to the cable test. If it passes the test proceed to step 5.

Step 5: Hit the LED Test button.

Result: The LED should blink then go back out. If this test passed and step 4 passes as well, your EZ RS232 driver is functioning properly.

If it does not blink these are some possible causes.

- Cable does not supply DTR or bad cable.
- Blown RS232 Chip or bad connection on PCB.
- PC com port does not support DTR.
- Cable is a cross-over cable and must be replaced.

Cable Test on the EZRS232

To test the cable (TX and RX) you must tie pins 2 and 3 on the cable together.

Step 1: Remove the power and RS232 driver chip from the board.

Step 2: Connect a jumper between pins 7 and 13 on the socket as shown in Figure 3.

Step 3: Connect the cable to the PC and EZ232 driver.

Step 4: Hit the Loop Test Button.

Result: The software will indicate pass or fail.

If the test passes your cable has checked out the Tx, RX,

and Gnd Leads.

If the test fails, the problem can be ether with the cable or PC. If you know the cable is good then the problem could be with the com port on your PC.

Follow UP

If the EZ232 tests pass you have pretty much verified you EZ232 board and the driver chip. You have also verified the cable. This does not eliminate the PC however some of the problems mentioned earlyer may prevent you from successfully programming the Athena or Dios Chips.

It is important that these tests be preformed before moving to any other trouble shooting procedures.

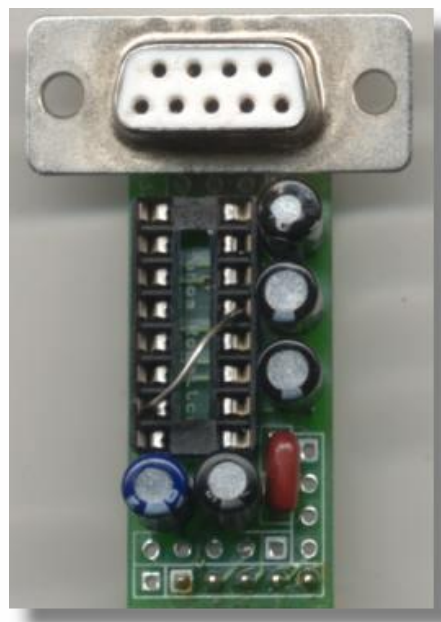


Figure 3