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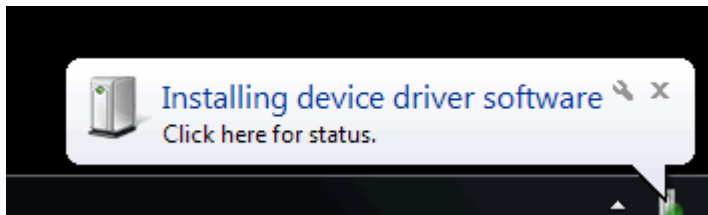
ee203 RTCM USB Quick-Start Guide

The ee203 USB interface consists of a flash drive and two virtual serial ports. The required drivers are built into Windows, but the serial ports require a *.inf file to tell Windows which driver to load.

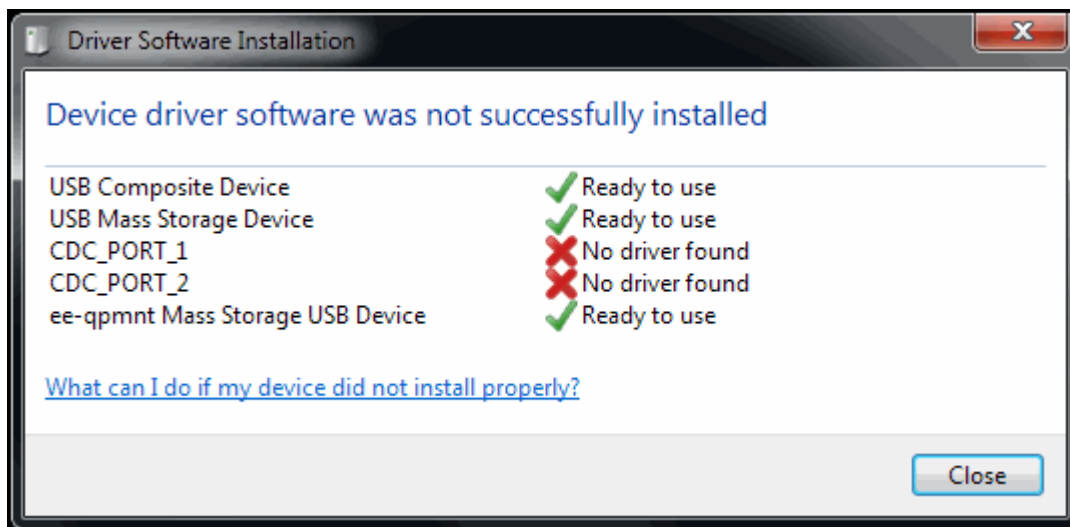
Windows 8 Users must follow these instructions:

<https://learn.sparkfun.com/tutorials/disabling-driver-signature-on-windows-8>

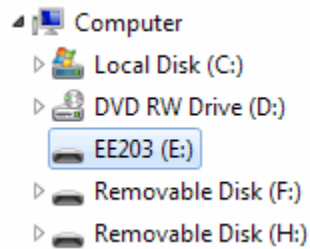
Connect the ee203 to a PC using the supplied cable. Windows will start the new hardware wizard and attempt to install a driver.



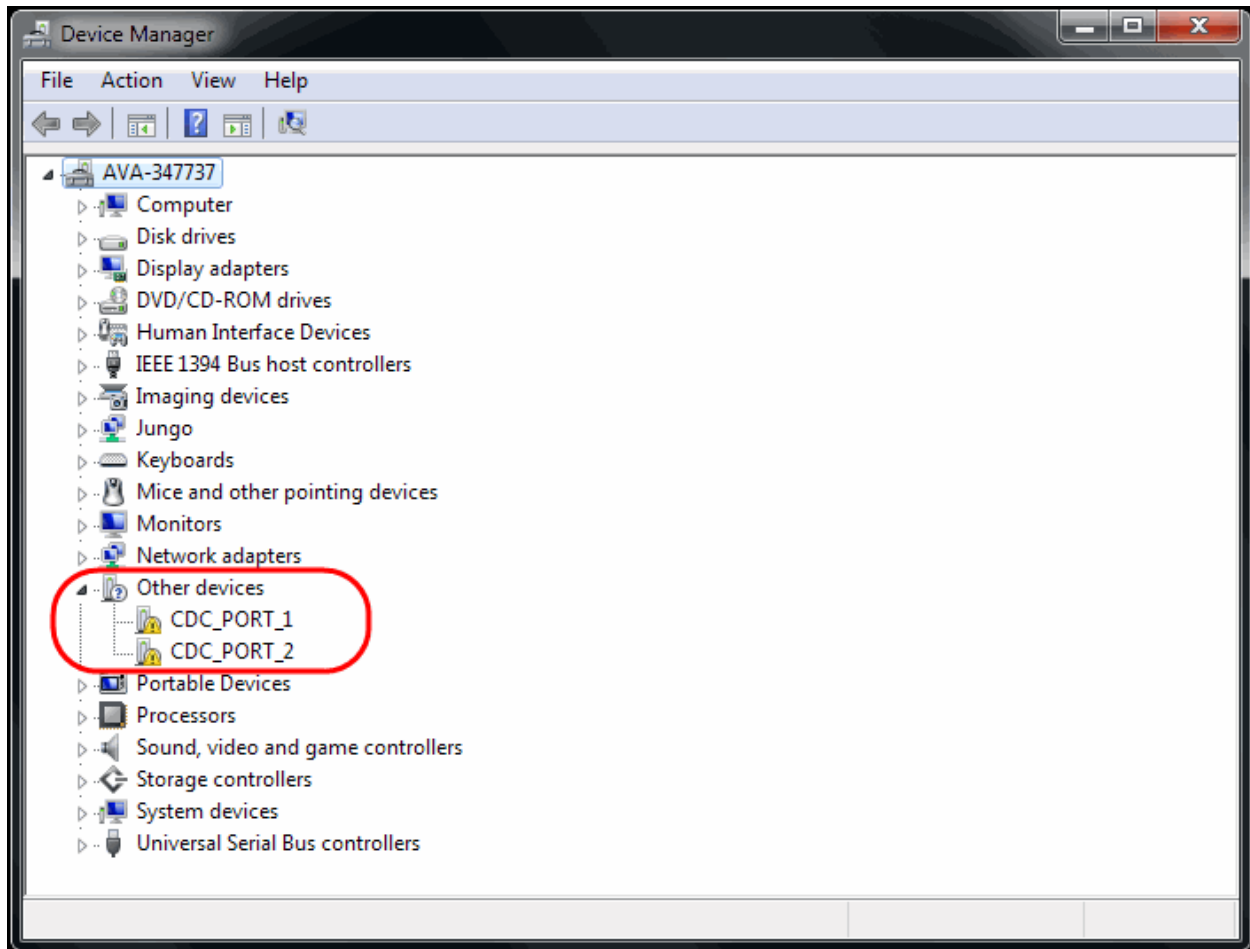
You may click on the wizard to stop Windows from searching for the driver by clicking “Skip obtaining driver from Windows Update”, or just let it search and fail.



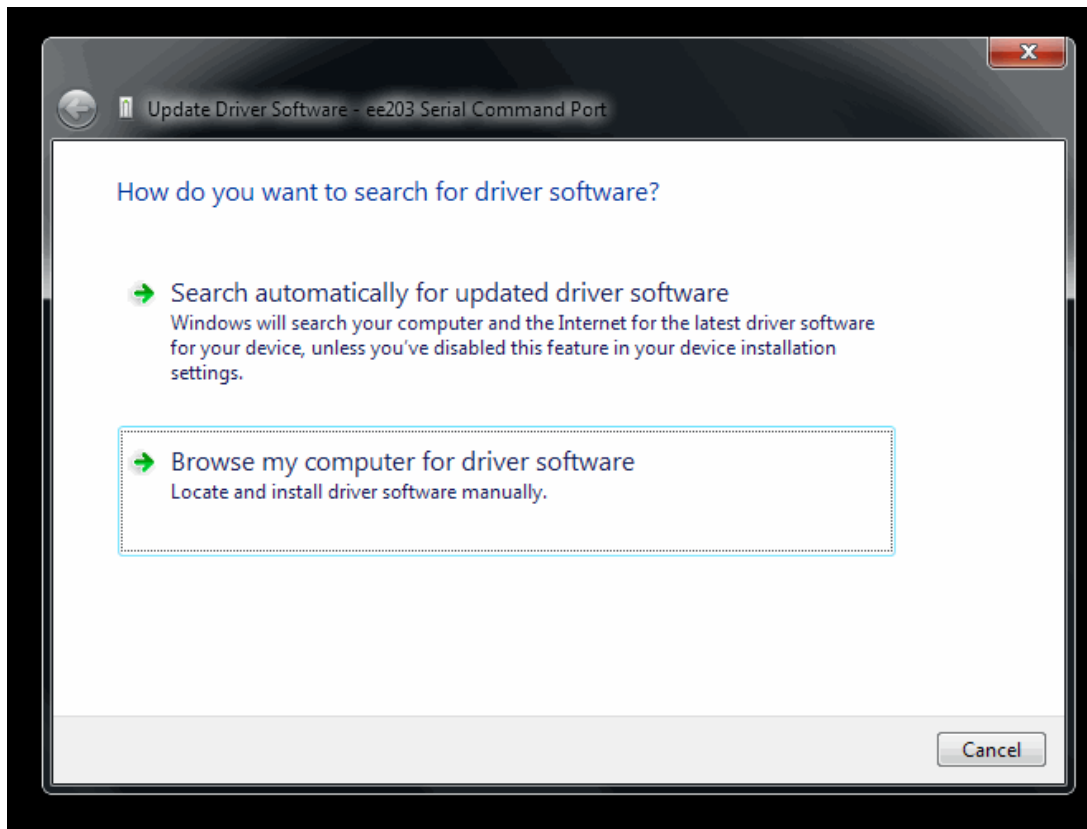
There should now be a drive mounted on the your computer named EE203. Double click on the drive and there will be one file EE203SER.INF. This is the file that tells Windows which virtual serial driver to load.



Open the Control Panel -> Device Manager. There will be two unknown devices, CDC_PORT_1 and CDC_PORT_2.



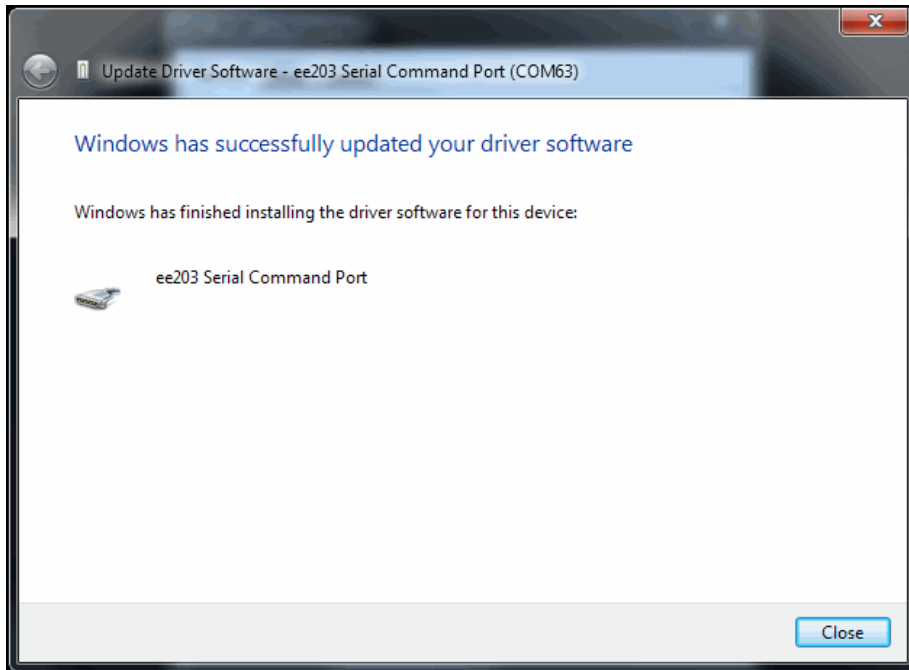
Double click on one of the unknown devices to open the properties window. Click on the Driver tab. Click Update Driver. Click on Browse my computer for driver software.



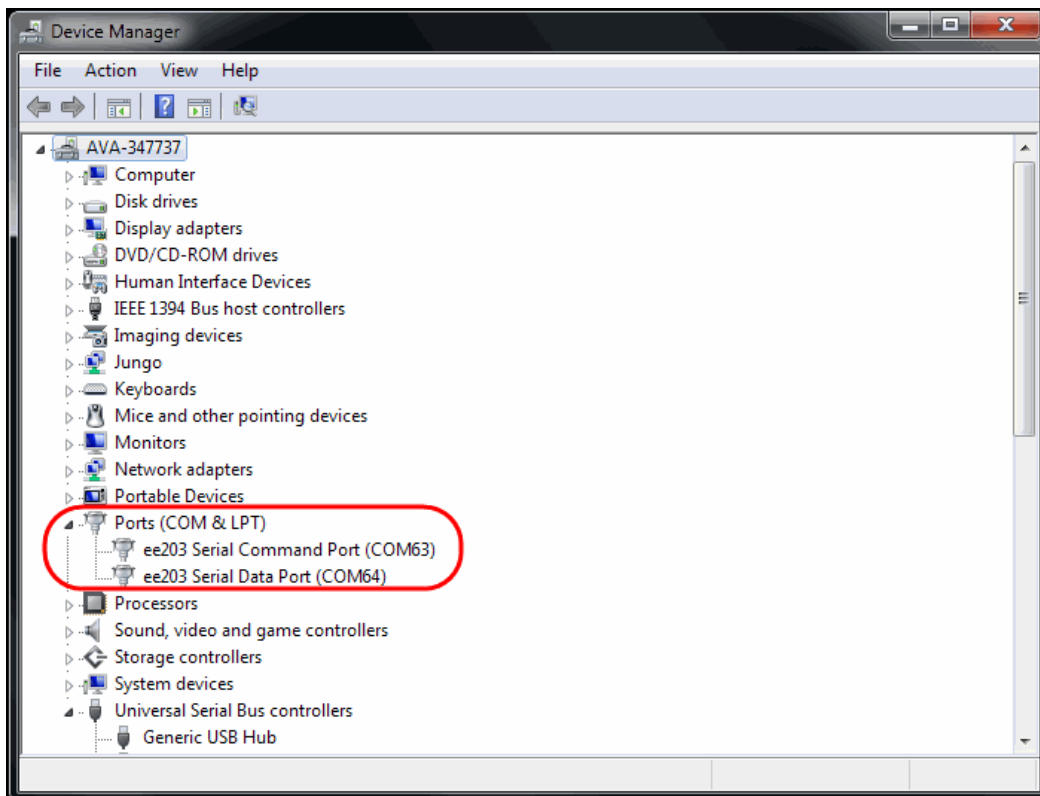
Browse the to root directory and select the EE203 drive. Click next. Windows will give you an unverified publisher warning. Click Install this driver software anyway.



Windows will install the default USB serial driver and present a success dialog.



Click okay and return to the device manager. Repeat the process to load the driver for the other serial port. You should now have two new COM ports in the device manager. Make note of the COM port numbers.



You can now configure a terminal emulator to communicate with the two COM ports. Since these are USB virtual serial ports, the serial communication configuration (baud rate, etc.) is ignored.

Each ee203 has a unique serial number. If you connect the USB cable to a different port on the PC, it will re-use the same COM port numbers. You may also have more than one ee203 connected to a single PC.

EE203 SERIAL DATA PORT

Sampled data is constantly streamed to the data window. The output format is comma separated values suitable for importing into Excel. The data format is fixed and consists of Time Stamp, Vscope, Vsupply, Current, Power, Cum Cur, Cum Pwr.

Time Stamp is when the data was sampled, with a 1 ms resolution. (MIN:SEC:MS)

Vscope is the output voltage at the SCOPE terminal. (VOLTS)

Vsupply is the input voltage at the SUPPLY terminal. (VOLTS)

Current is the instantaneous current passing between the SUPPLY and the DUT terminal. (AMPS)

Power is the instantaneous power computed by multiplying Vscope x Vsupply. (WATTS)

Cum Cur is the integral of the current since sampling began or was reset. (AMP-SEC)

Cum Pwr is the integral of the power since sampling began or was reset. (WATT-SEC)

All values are displayed in engineering notation.

```
Time Stamp, Vscope, Vsupply, Current, Power, Cum Cur, Cum Pwr
010:03.000, 12.0e-03, 13.0e-03, 971e-03, 12.6e-03, 586e+00, 7.59e+00
010:04.000, 12.0e-03, 13.0e-03, 971e-03, 12.6e-03, 586e+00, 7.60e+00
```

EE203 SERIAL COMMAND PORT

Open a terminal to the ee203 Serial Command Port The command port is an interactive console. Console commands are one letter followed by zero or more optional parameters. Commands are not case-sensitive. Enter H to get a help menu.

```
CMD>h
COMMAND (CMD>) MONITOR COMMANDS:

[H]elp                This help message
[C]alibrate           Perform a system-level calibration
[I]nterval < 1 | 10 | 100 | 1000 > ms  Configure reporting interval
[L]abel < [A..z] Report Header Text >  Print custom label over report header
[M]onitor Change     Change from command to debug monitor
[P]ause              Stop reporting (integration continues)
[R]esume             Resume reporting
[S]cale <Linear FS 10^-[val]>          Toggle SCOPE between linear and log output
[Z]ero              Reset cum values and time stamp to zero
```

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MONITOR COMMANDS

[C]alibrate

The unit may be calibrated at any time to improve accuracy, although it is not required for normal operation. For example, if changing the SUPPLY voltage from 3.3V to 5V, a calibration can be performed to ensure maximal accuracy.

[I]nterval < 1 | 10 | 100 | 1000 > ms

Stream a line of data to the data window at the specified interval of milliseconds. Data will continue to be sampled and integrated at 1 ms intervals regardless of the reporting interval.

[L]abel

A short label can be printed over the column headers when data is streaming. This is useful to keep reports separated when making several different measurements.

[M]onitor Change

Change to the debug monitor. The debug monitor is undocumented, but you can't really break anything. Have fun!

[P]ause

Stop streaming to the data window. The current and power will continue to be integrated when streaming is paused.

[R]esume

Start streaming to the data window again.

[S]cale <Linear FS 10^{-[val]}>

Set the SCOPE output to a logarithmic or linear scale. If no parameter is supplied, the SCOPE output voltage will be $V = -\log_{10}(\text{current})$, e.g. the output voltage will be 3V for a 1 mA input current. If a parameter of $0 \leq \text{val} \leq 6$ is supplied, the SCOPE output voltage will be linear with input current. A SCOPE output voltage of 1 V represents $10^{-\text{val}}$ A of input current, e.g S 3 will result in the SCOPE output being 1V for a 1 mA input current.

[Z]ero

Reset the time stamp and all integration values to zero.