Chemtrac Particle Counter Firmware Update Procedure
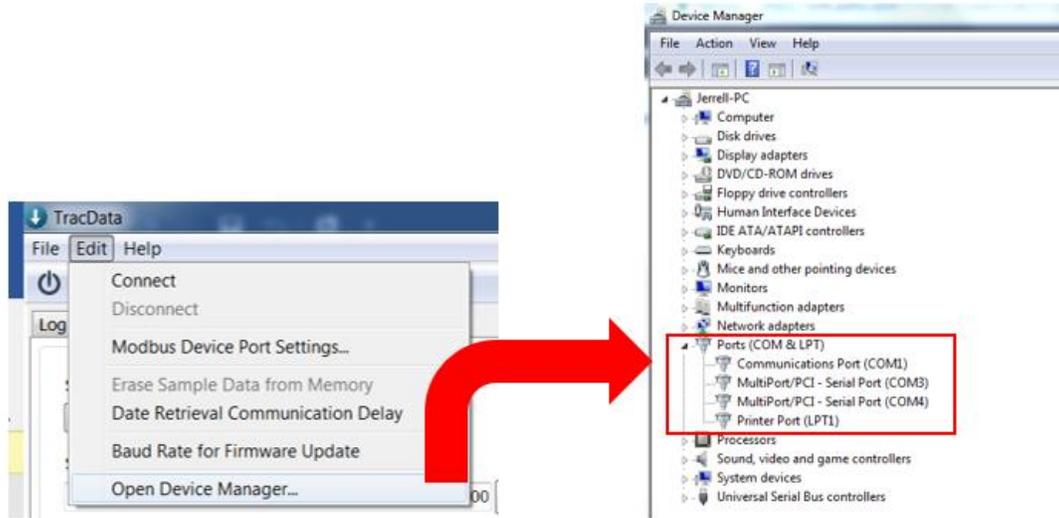
Materials

USB 2.0 Cable – A-Male to B-Male
TracData Software – Download from https://chemtrac.com/downloads/ (type "tracdata" in search field).
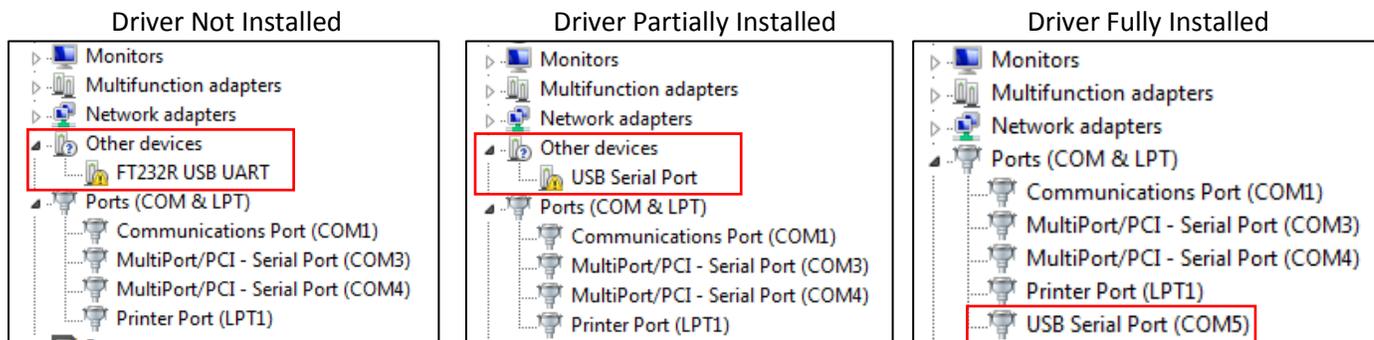
Connecting USB Cable & Verifying COM Port Creation

1. In the TracData software, click on Edit in the top tool bar, and the click on "Open Device Manager". Take note of any pre-existing COM ports under Ports (COM & LPT) as these should not be selected step 5 below. If Ports (COM & LPT) does not appear in the Device Manager, it means there are currently no active COM ports.

2. Open the door (lid) of the particle counter by loosening the 4 corner screws. Ensure the particle counter is turned on. Connect one end of the USB cable to the computer and the other end to the USB connector located on the mother board inside the particle counter (as seen in image to right).

3. If the appropriate USB Driver is already installed, then a new COM port will appear as shown in the below image labeled "Driver Fully Installed". If a new COM port appears, proceed onto Step 4. Otherwise, if the driver was not previously installed, then "FT232R USB UART" will appear under **Other Devices** on the Device Manager screen. If "FT232R USB UART" appears, then Windows should automatically install the USB Driver providing the computer is connected to the internet (Note: If the computer is not connected to the internet, or if the computer fails to locate the driver, then the driver will need to be manually installed. Instructions for manually installing the driver are provided at the end of this document). The automatic USB driver install usually takes a few minutes to complete. "USB Serial Port" may temporarily appear under **Other Devices** which indicates the driver install is proceeding but not finished. Once fully complete, the "FT232R USB UART" or "USB Serial Port" will disappear from **Other Devices** and a new COM port will appear under **Ports (COM & LPT).** Make note of this new COM port number (below example shows the new COM port is labeled "COM5").

Driver Not Installed	Driver Partially Installed	Driver Fully Installed

4. Shut down the TracData software and then re-launch the TracData software in order to allow TracData to recognize this new COM port. The software must be rebooted before it will recognize the new COM port.

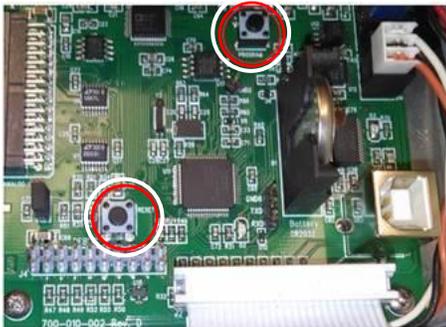**Continue on to next page…….**

TracData Configuration

5. Select the "Firmware Update" tab in TracData. Then select the newly created COM Port (noted in step 3 in previous section) from the "Select Serial Port" drop down box.

6. Click the Browse button to select the firmware upgrade file (e.g. PC_2278.hex) provided to you by Chemtrac.

Program

7. On the processor board inside of the unit, locate the **PROGRAM** and **RESET** buttons which are circled in the below picture (**PROGRAM** is the button in the upper right of the below image). Also locate the green LED to the right of the Reset button. During normal operation this LED will transition between blinking and being constantly on during Sampling mode. To place the particle counter into the programming mode, first press and hold down the **PROGRAM** button and then press and release the **RESET** button. Only release the **PROGRAM** button after the **Reset** button is released. Verify the green LED to the right of the **RESET** button is off and no longer blinking. If the green LED is on or blinking, then repeat this step.

8. Press the **START** button in the TracData software to begin the programming. On the front of the PC3400 the TX and RX LED's should begin to rapidly flash. A command screen, like the one shown below, will also appear on the computer. Within less than 15 seconds the message "Erase complete (USED)" should appear. This message along with the blinking TX and RX LED's verifies the unit is programming. During programming do not close the TracData software or the command screen, do not disconnect the USB cable, and do not shut off power to the particle counter. The programming typically finishes in around 3 to 5 minutes but can take a few minutes longer in some cases. Be patient! Programming is complete when the message 'Hex file programming complete' is displayed in the command window (as seen in below picture on right hand side).

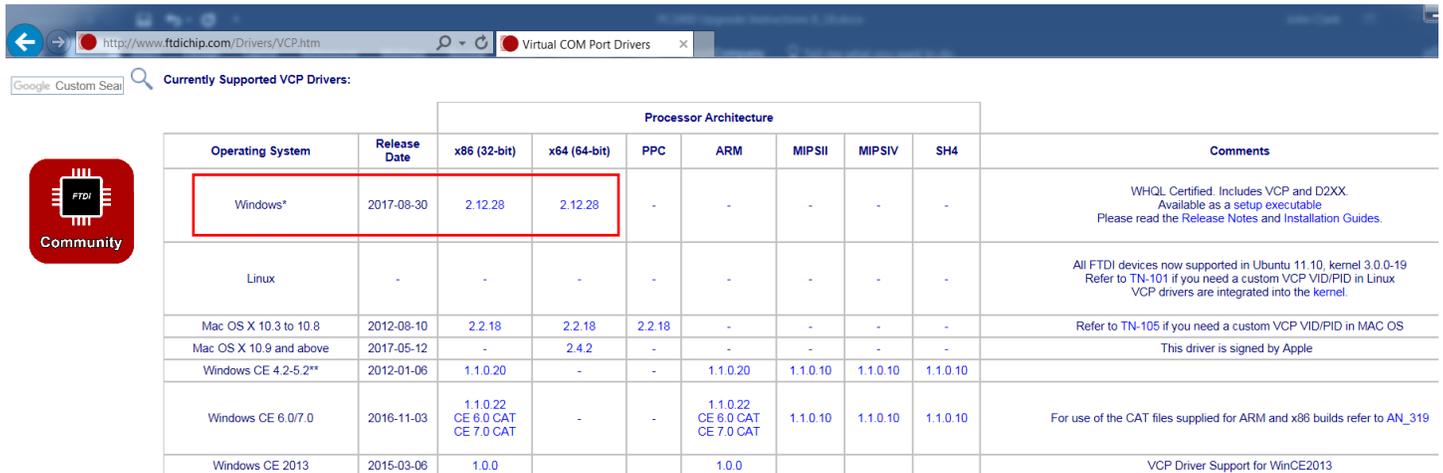Programming Started   Programming Finished

Verification

9. Once the firmware update is complete, cycle power on the Particle Counter to complete the update.
10. Verify that the new version is installed by repeatedly pressing the down arrow on the particle counter display until the STATUS screen is shown on the Particle Counter display. The firmware version is shown in the upper right corner of the STATUS screen and version number displayed should match the numbers seen in the name of the Hex file used for programming.

Instructions for Manually Installing USB Driver

If the USB driver failed to automatically install, then the driver can be manually installed following the below instructions.
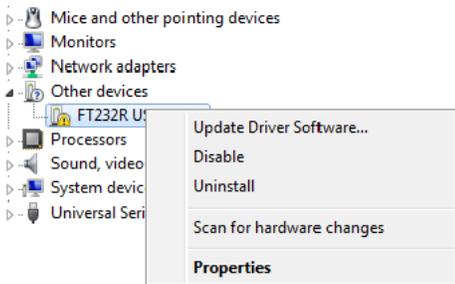
1. Download the latest FTDI Driver from http://www.ftdichip.com/Drivers/VCP.htm . Be sure to download the appropriate version for your Windows operating system. The latest version as of August 2018 is 2.12.28.
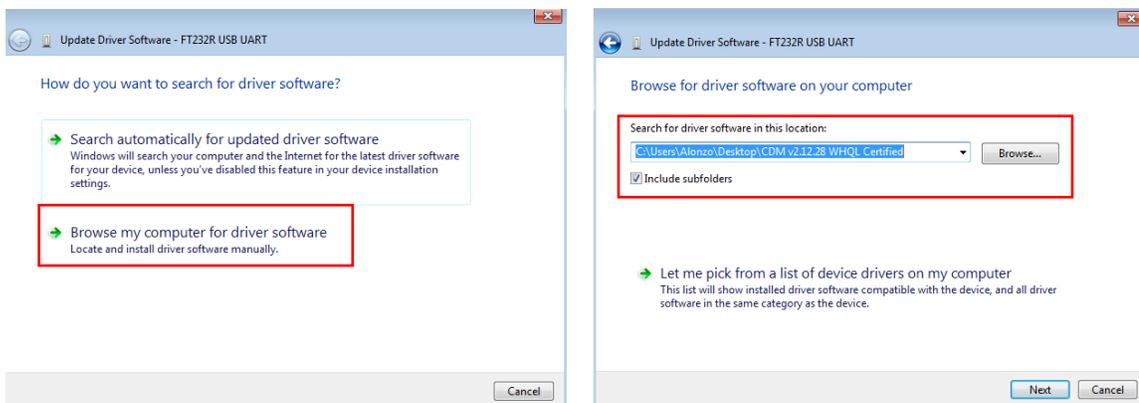

2. Once the driver is downloaded, it will be necessary to extract the zip file. Note where the file is being extracted to (e.g. Desktop).
3. Perform steps 1 and 2 under **Connecting USB Cable & Verifying COM Port Creation** in the above procedure.
4. Verify the computer has failed to automatically install the USB driver as detailed in step 3 of above procedure before proceeding.
5. On the Device Manager screen, locate the device called "FT232R USB UART" under **Other Devices**. Right click on "FT232R USB UART" and then click on "Update Drive Software".
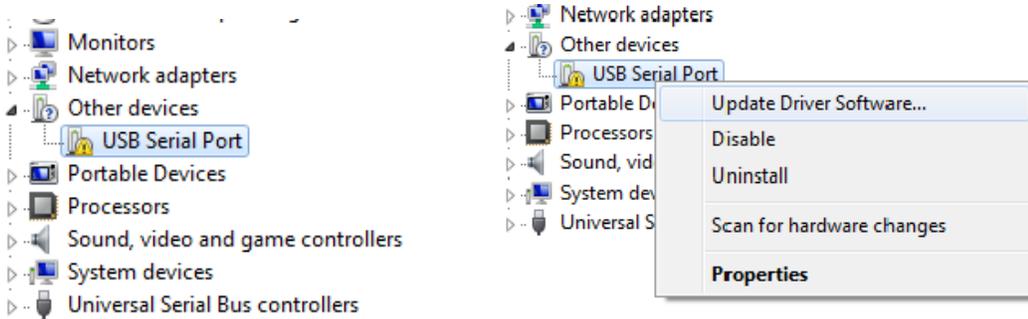

6. Select "Browse my computer for driver software" and then click on the Browse button and go to the location where the FTDI driver .zip file was extracted. Select the folder containing the driver files and then click on Next.

7. This will begin the initial stage of the driver install. Once the initial stage is complete, the "FT232R USB UART" will be replaced by "USB Serial Port" under **Other Devices** on the Device Manager screen as shown below.

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8. To complete the final stage of the USB Driver install, right click on "USB Serial Port" and select Update Driver Software and repeat step 6 above.

9. After the 2nd driver update is performed, the "USB Serial Port" device under **Other Devices** will disappear and a new COM port should appear under **Ports (COM & LPT)** on the Device Manager screen (as seen in below example). Once the new COM port appears, continue on with the step 4 of the above programming procedure.