# T4020/T5020 Tank Gauge Configuration
# A Step by Step Guide.

PD02/0004 - Revision: 01 - March 2017

The set-Up of T4020/T5020 Tank Gauge system using Interface lead and he software on a PC / Laptop.
Latest version of the software is ***V1.0.0.16***
Tank Gauge adjustments can be made with the T4020 Configuration software.
This needs to be loaded on to Service Laptops or an Office PC.

**1st Issue** that will nearly always catch you out. Are the gauges set in "Modbus" mode, or if they are in "Standard" mode. To talk to the gauge with the configurator software, the gauge needs to be in "Standard" mode. If it is not in "standard" mode, disconnect the power lead (24vdc supply), and hold down the front alarm test button (**PRESS/HOLD TEST BUTTON**) for 3 seconds and then reconnect the power, hold for another second. (Front display will change to from "Modbus" to 'Standard), if not, just remove power and reapply power. (Cycle power again when finished.)

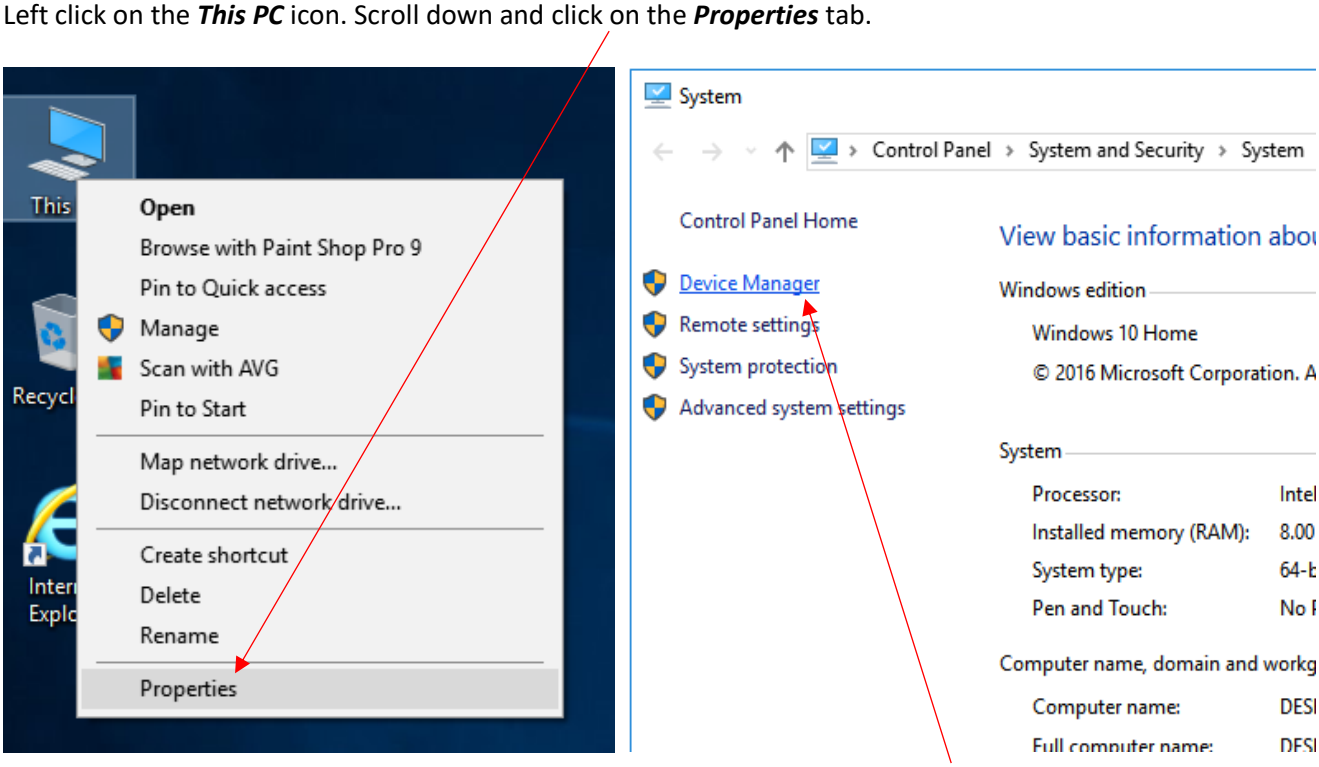
**2nd Issue**, the comms lead will not talk to the tank gauge. "USB Serial Com Port" not set to correct COM port address. See below on how to set up or document ***PD02/0003.***

This is the port you require to set the configurator, this is achieved by following the instructions for ***the Device Manager*** below.

IF YOU HAVE ANY ISSUES WITH SETTING UP / ACCESSING THE DEVICE MANAGER PLEASE REFER TO DOCUMENT ***PD02/0003*** **– DEVICE MANAGER CONFIGURATION.**

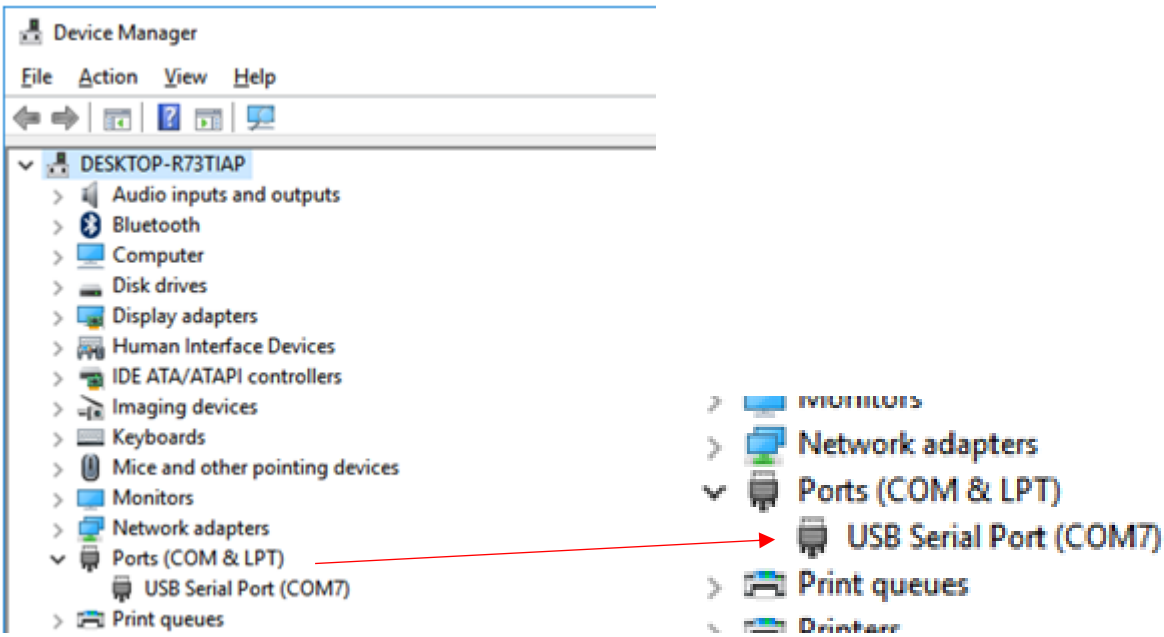
## Windows Setup (Windows 10) / Device Manager.

Left click on the ***This PC*** icon. Scroll down and click on the ***Properties*** tab.




This will open the Control Panel / System and Security / System page. Click on the ***Device Manager*** Icon.
This will bring up the device manager page.

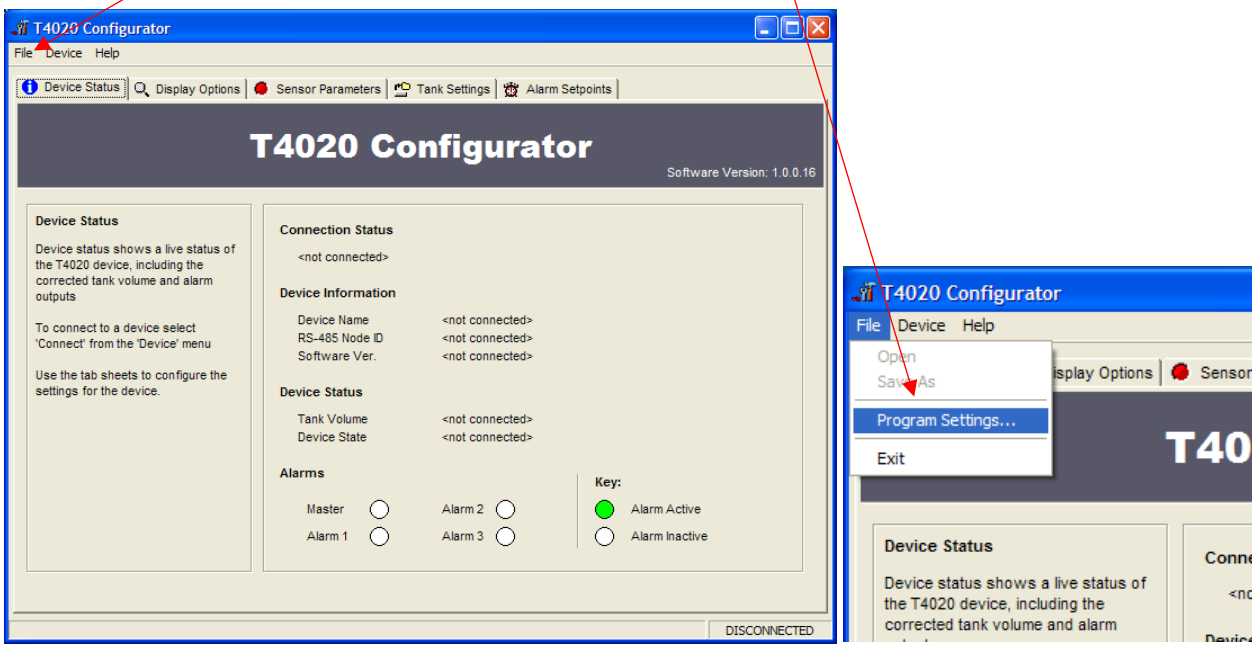
Scroll down and there will be a folder ***Ports (COM & LPT)***. It should show the USB Serial Port with the Com port it is attached to, in this case, (***COM7***), this will vary on whatever computer the programmer is attached. This is the figure that is entered in the T4020 Configuration Software. The communications lead RED LED should flash when you try to connect the USB programmer to show the address for the lead is correct.



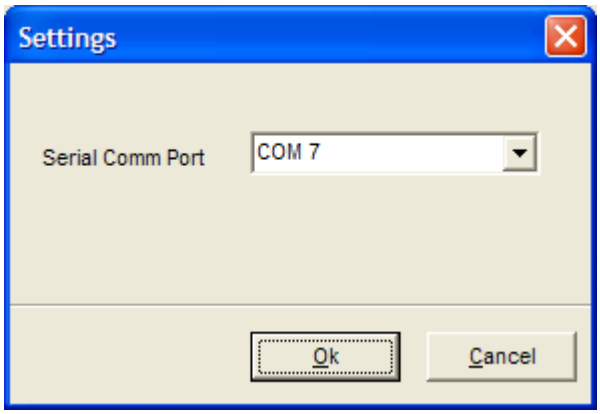

**Connect the Programmer to the T4020 / T5020 Unit as shown in Page 7.**

## T4020 Configurator (Configuration) Software.

Next step is to open the T4020 Configuration Software.
Click on the ***File*** tab. On the dropdown menu, click on the ***Program Settings*** tab.

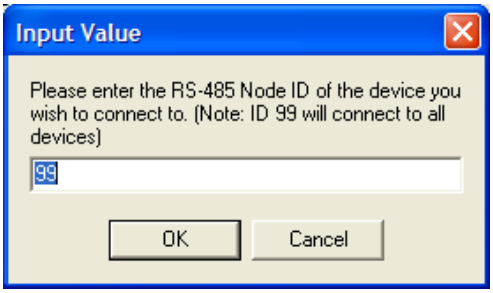


This will open the ***Settings*** screen (Shown Below). Select from the dropdown menu the Com Port number (as shown in the device manager) and click OK.



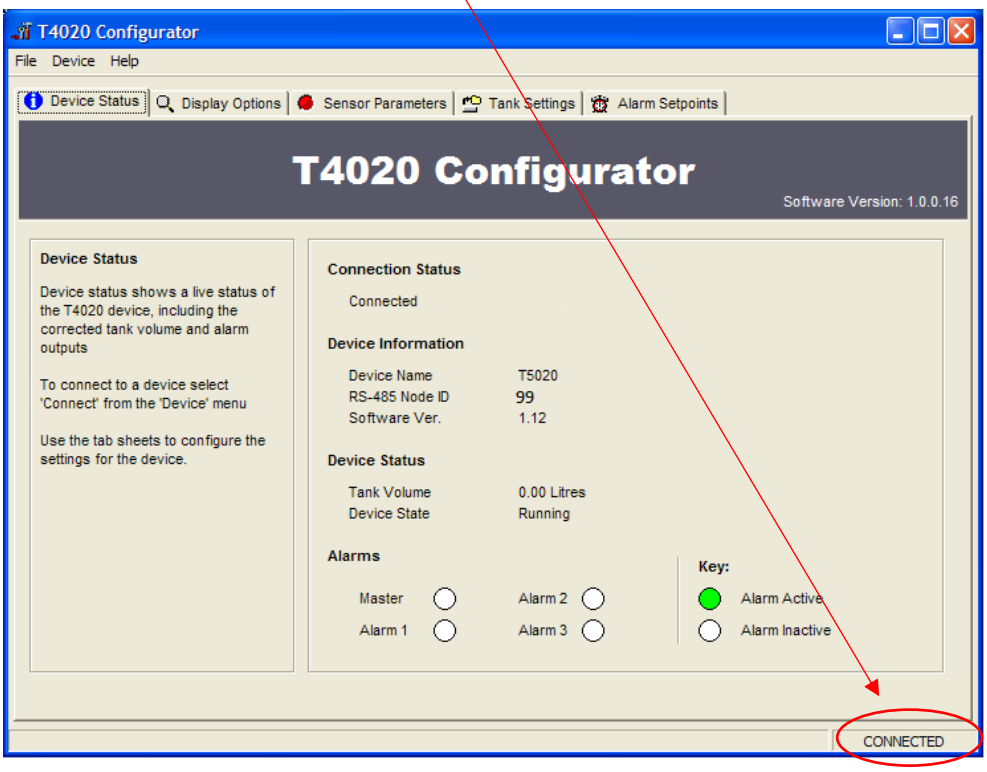


Next step, click the ***Device*** tab at the top of the screen and click ***Connect***.
A pop up screen, ***Input Value*** will show, click on ***OK***.
Node ID 99 is a global address which will work if only have one gauge connected.

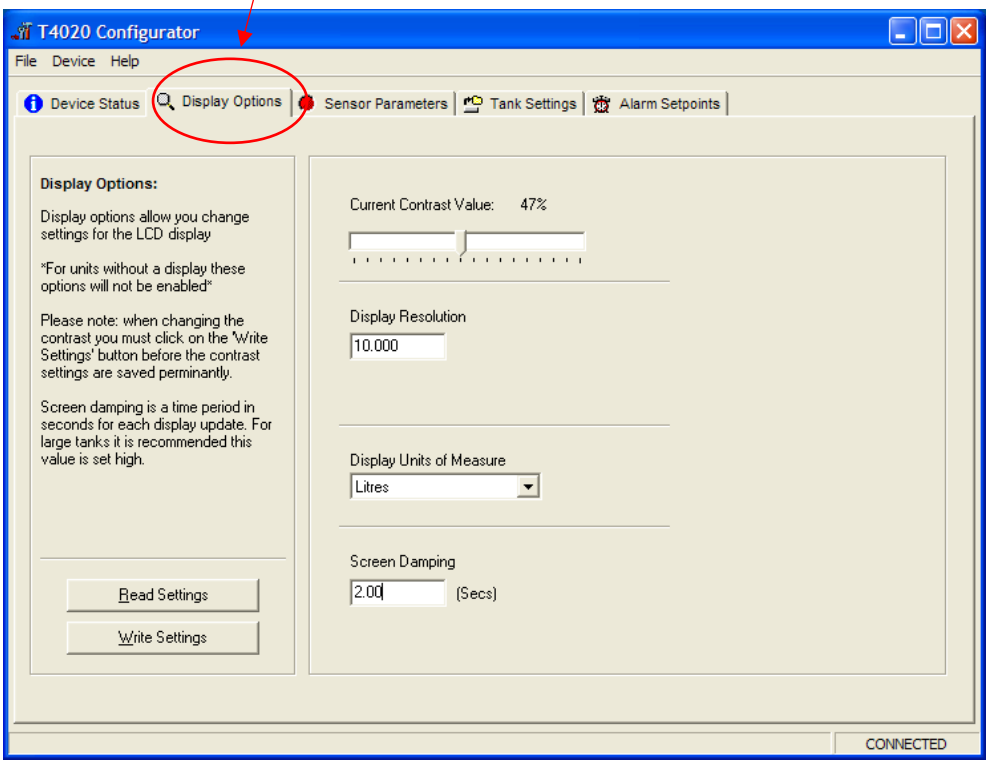




Click on ***Yes*** on the ***Information*** screen.
Now the software will connect and "talk" to the unit, as shown in the bottom left of the configuration screen.
When the unit has connected, it will show **CONNNECTED** in the bottom right of the Configuration Screen.



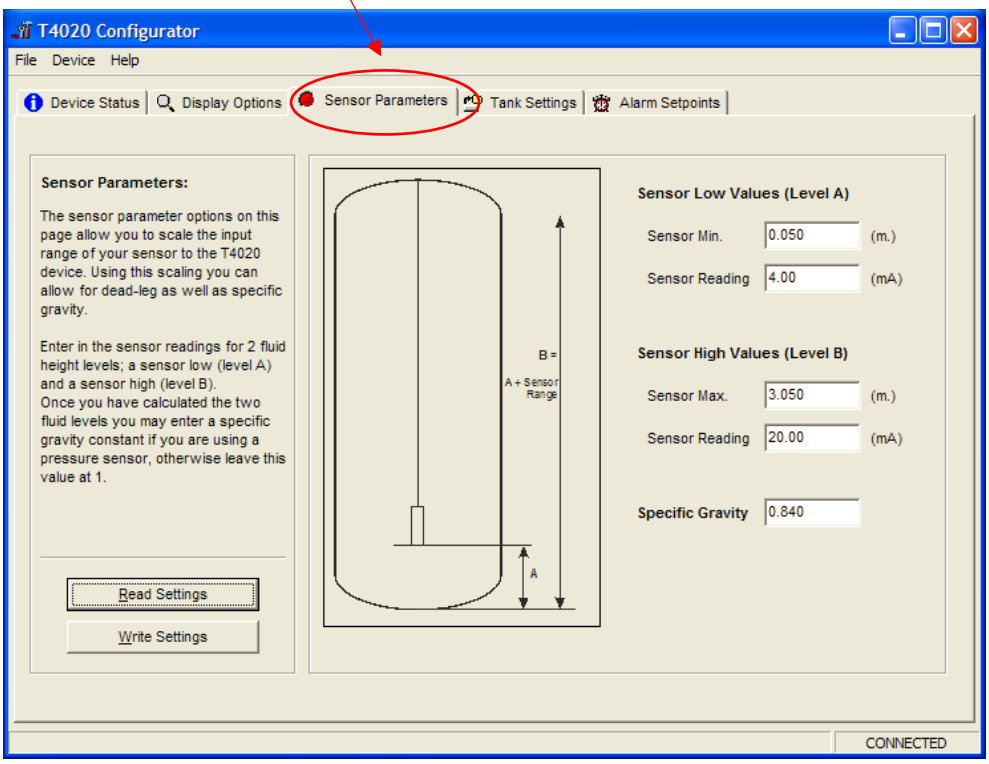
Click on the ***Display Options*** tab.




***Current Contrast Value***, default is 47%. Set as required.
***Number of Significant figures*** is 5. On the T5020, there is the option to choose ***Resolution of Display***, e.g. 50 Litres or 10 Litres etc. Set as required. ***10.00*** for instance.
***Display Units of Measure***, set to ***Litres*** unless otherwise requested.
***Screen Damping***, makes the screen more stable, suggest *2* Seconds.

When this screen is complete, Click ***Write Settings***.

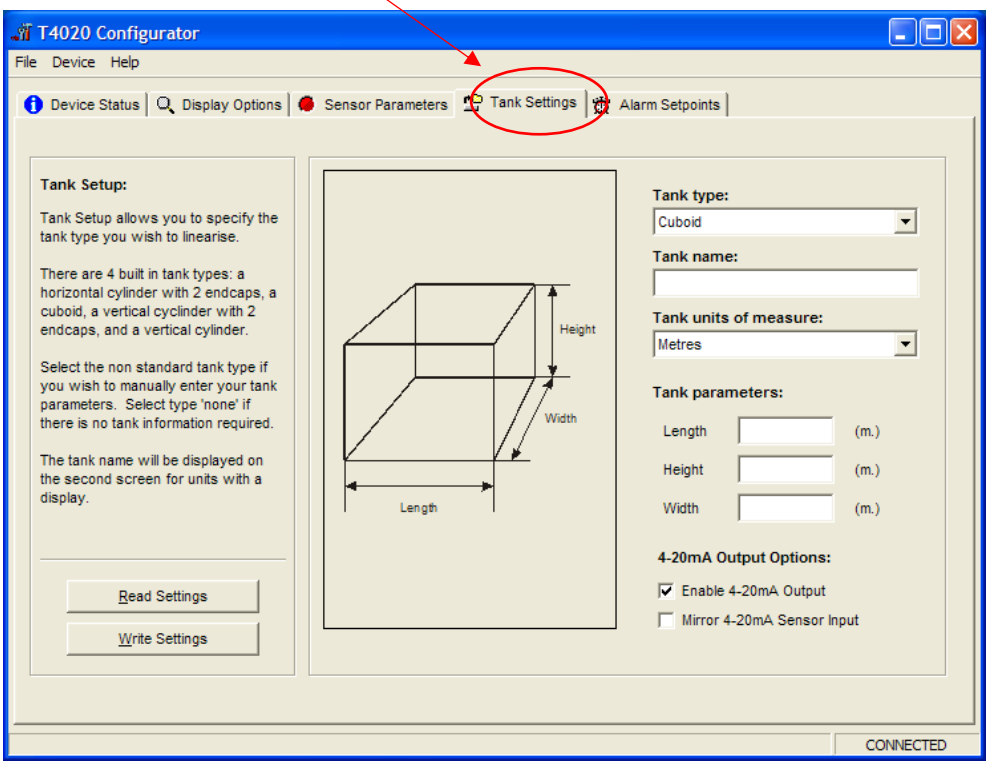
Click on the ***Sensor Parameters*** tab. **Note: Set to Suit the Sensor, NOT TE TANK**.



Sensor Min, set to ***50mm*** (0.05m) as standard.
Sensor (Min) Reading set to *4.00mA*
This would mean for example a 2m Sensor, would be set as a Sensor Min 0.05m to a Sensor Max 2.05m.
and a 3m Sensor would be Sensor Min 0.05m and Sensor Max 3.05m etc.
Sensor Max, set to Sensor 0.05m plus the Sensor length as shown in example above.
Sensor (Max) Reading set to 20.00mA
Enter the ***Specific Gravity*** of contents. Enter the value of what is required from the list below.
Gasoil = 0.84 / Diesel (Derv) = 0.835 / Kerosene = 0.80 / Petrol = 0.745 / AdBlue = 1.09
Rapeseed Oil = 0.92 / Lube Oil = 0.89 and Antifreeze = 1.11

When this screen is complete, Click ***Write Settings***.

Click on the ***Tank Settings*** tab.



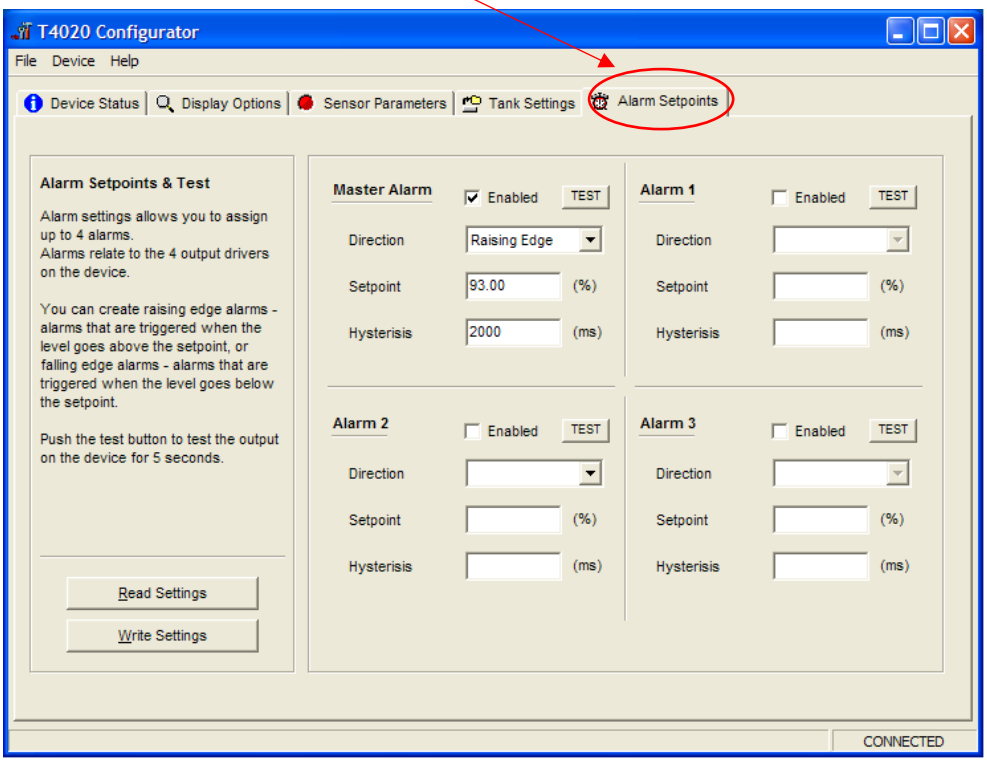

The next step is to set the tank shape up. Enter the tank type from the scroll down menu, a name for the tank and the measurements.
Note that the tank can be taller than the sensor range due to specific gravity.

For example, the tank as being 2.2m tall. If we say this is Diesel (DERV), then 2.2 x 0.835 = 1.837 affective range on the sensor. This means we can use a 2.0m sensor in a 2.2m tank.
(A 3m sensor will work fine as well).
Ensure that the Enable 4-20mA Output is ticked.

Please make sure the Mirror Output box is NOT 'Checked' (ticked). If it is we need to discuss.
The Mirror input may be used when a second Gauge is set exactly the same as the first. Alternatively, the second Gauge can be set to have the Sensor Parameters the height of the primary tank and this will work over the full 4-20 milliamp range of the first gauge output. No sensor offset required.

When this screen is complete, Click ***Write Settings***

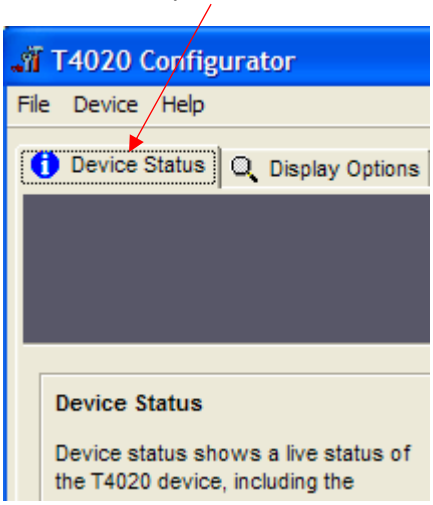
Click on the ***Alarm Setpoints*** tab.



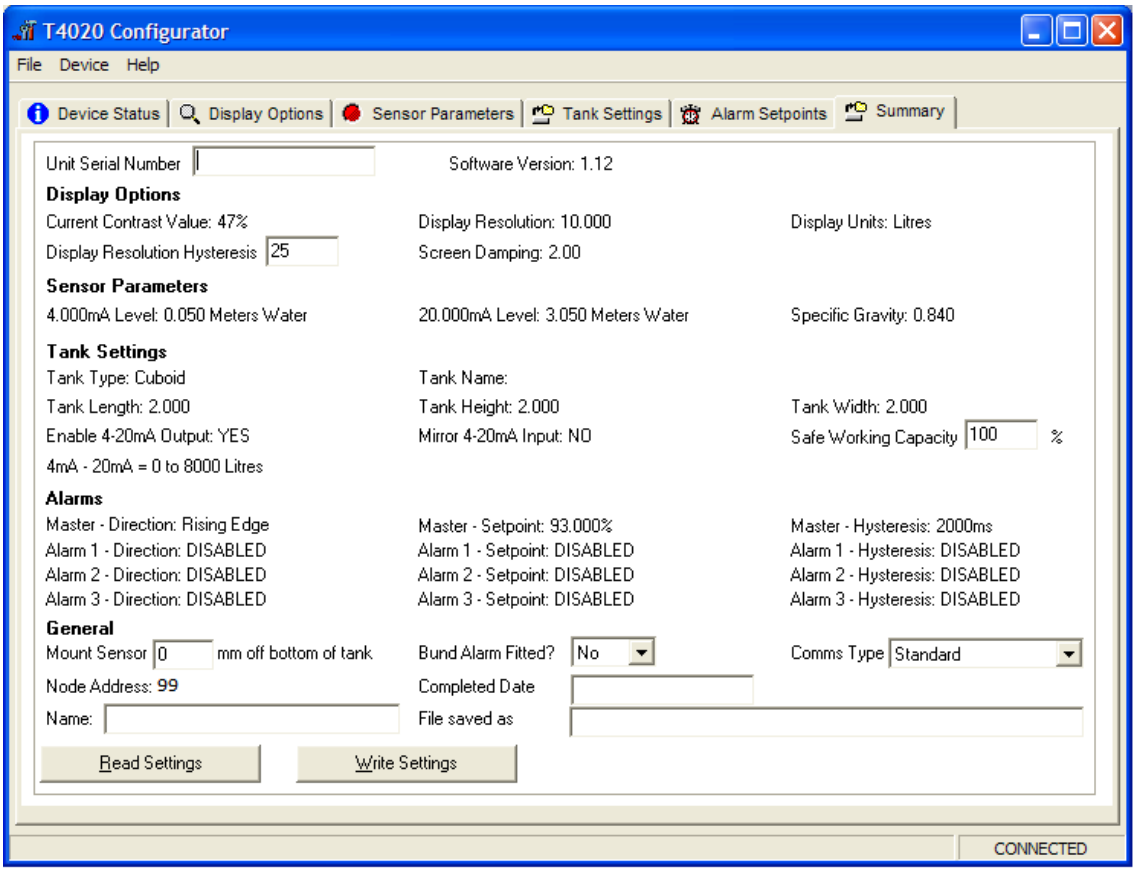

Set the Alarm settings as required (High is normally 95% Rising).
Set the "Direction" to "Rising" or "Falling". This will result in energising the Relays (R5 Option Board) if fitted in that 'form'.
Rising at 95% on the M alarm will output 24vdc when the level increases to 95%.

When this screen is complete, Click ***Write Settings***.

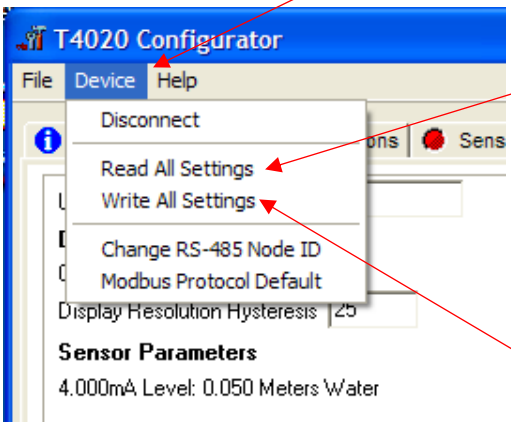
Next step is to Access the T5020 additional settings and Summary Screen, press the ***Ctrl***, and letter ***H*** keys simultaneously, and click on ***Device Status*** Tab.




This will bring up the summary screen of what has been programmed into the unit as shown below




The Summary page. Click on the ***Device*** tab at the top of the screen and click ***Read All settings***. This will display all the settings that has been programmed. Next stage is to enter the final information on this screen.




***Unit Serial Number***: This is the serial number on the label of the front of the unit.
***Safe Working Capacity:*** If the unit is a T5020, the Safe Working Capacity can be set to say 97%. In this case the Alarms are based on the Safe Working Capacity value, so 10,000 litre tank has SWC of 9,700 litres. An Alarm set at 95% will be 95% of 9,700 litres, not of 10,000.
***Mount Sensor***: 50 mm off the bottom of the tank.
***Bund Alarm***: If fitted, click **YES**, if not, Click **NO**.
***Comms Type***: Generally, set to **Standard**.
**Name**, Who, setup the unit, ***Date*** when setup and a ***File Saved as*** Name. XXXXXXXX.tls
Click the ***File*** tab at the top of the screen and then "***Save As***". When this screen is complete, click the ***Device*** tab at the top of the screen again and then ***Write All Settings***.
***ONLY READ AND WRITE SETTING FROM THE DEVICE TAB AT THE TOP OF THE PAGE.***
If you have selected 'Non-Standard' as the tank type and put in a strapping table, you may have to "Write All Settings" Twice. Click on ***Disconnect***. Remove the programming lead. This completes the calibration.
Result, you should have a fully calibrated working Gauge, with 4-20 mA proportional to Litres, and either a ***Standard*** or ***Modbus*** RS485 output.