**How to set & use HARDWARE TRIGGER – with PSI Utility Software**

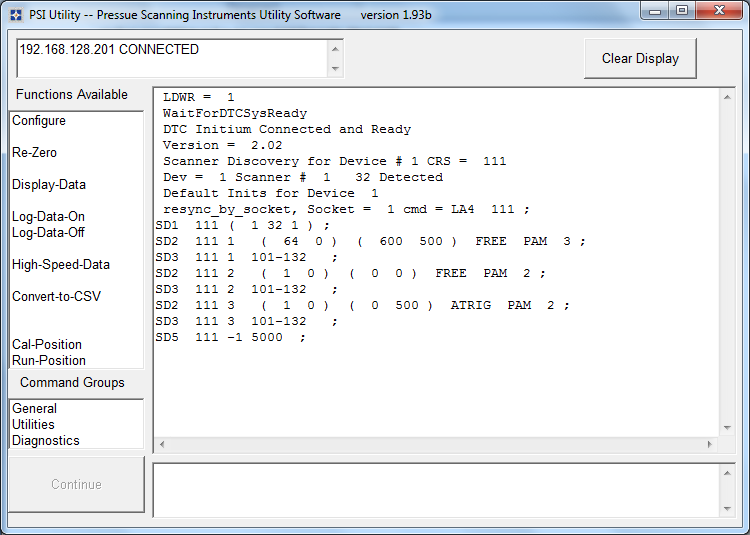
**Introduction**

Most users prefer to use SOFTWARE TRIGGER when using the 8400 / Initium / Optimus Data Systems, and so our DEFAULT is to use SOFTWARE TRIGGER.

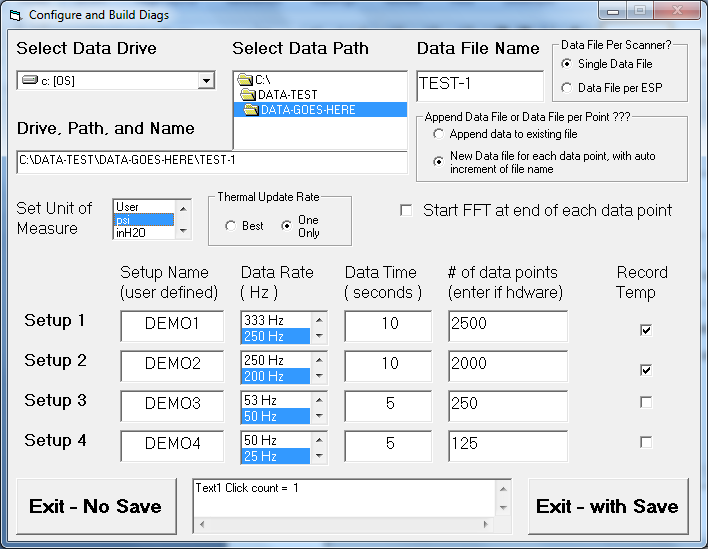
In some cases, the customer has a REAL NEED to use HARDWARE TRIGGER, and this is EASY to do, just not default. It can be set up with only 3 mouse clicks.

**HOW TO SET HARDWARE TRIGGER**

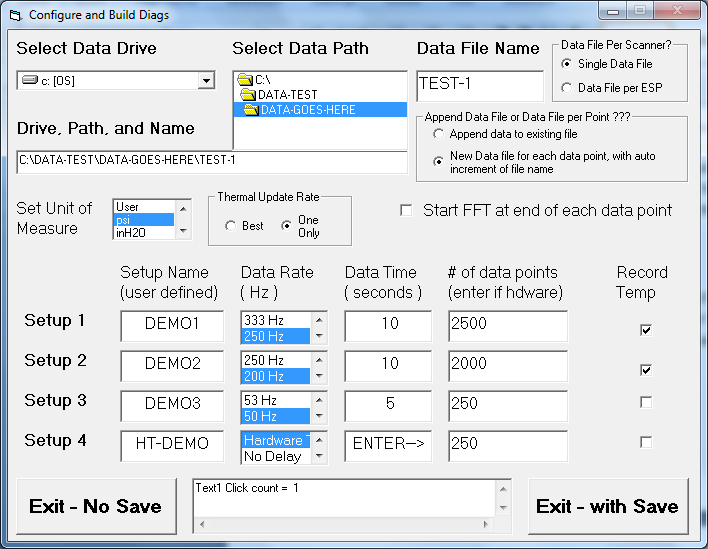
1. Your startup screen should look like this.



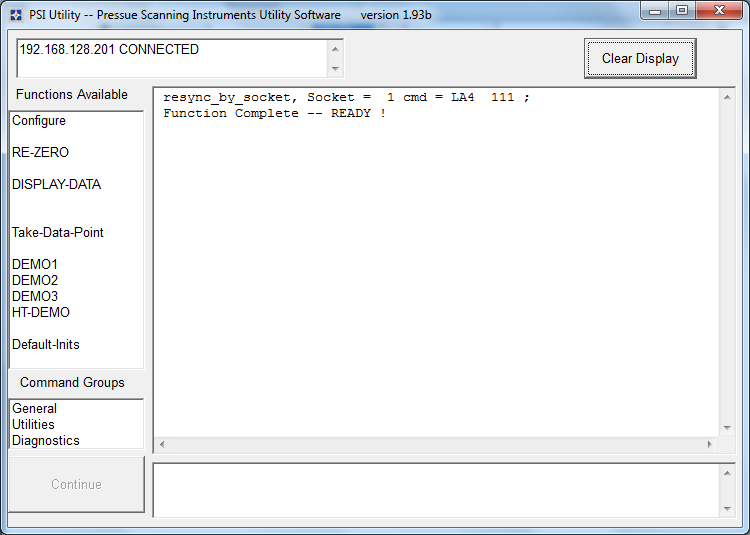
1. CLICK ON CONFIGURE – and the screen below should appear



1. Choose one of the SETUP NAME boxes – and change the name. FOR EXAMPLE – I will change DEMO4 to HT-Demo. I could change **ANY** of them , or I could change **ALL OF THEM**, if I wanted or needed to do so. I chose to change only DEMO4, just to show how it is done.
   1. YOU GET TO CHOOSE THE NAME(s) – it does not have to be “HT-Demo”
   2. You get to choose the name for EVERY SETUP – default is: Demo1, Demo2, etc.
   3. You can have some setups set for SOFTWARE TRIGGER
   4. And you can have other setups set for HARDWARE TRIGGER
   5. ANY MIX of Hardware Trigger and Software Trigger is allowed
2. Next – Click on the DATA RATE BOX. This is the box JUST TO THE RIGHT of the SETUP NAME Box. After you click in the DATA RATE BOX, scroll to the VERY TOP ENTRY – which is HARDWARE TRIGGER – and click on it. Your SCREEN should now look like the picture below.



1. Since we are using HARDWARE TRIGGER – the DATA TIME is not a valid entry. YOU MUST CHOOSE the number of data points that you wish. The default is 250 data points – but you can change this to any number from 1 to 6000000 (six million).
2. Now, decide if you want to RECORD TEMPERATURE DATA – Yes or No, and if yes, CHECK the box.
3. Click EXIT – WITH SAVE – and you are ready.
4. You should now see the screen below:



1. TO take data with HARDWARE TRIGGER, you would then click
   1. HT-DEMO -- the SETUP NAME ( that you choose )
   2. Clicking on the SETUP NAME must be done at least ONE TIME, but need not be done again.
   3. The LAST USED SETUP NAME will remain in effect until a new SETUP NAME is clicked.
   4. Click Take-Data-Point
   5. And the system will take a data point for every hardware data pulse supplied
2. NOTE: Data is only acquired when a HARDWARE PULSE is supplied.
   1. One pulse = one data point
   2. Until the number of data points specified is received
   3. And then – data acquisition will stop automatically
   4. Data will automatically be LOGGED TO DISK
   5. Data will automatically be CONVERTED TO CSV FILE FORMAT
3. The Hardware Trigger Signal should be:
   1. 0 volts ( base ) to 5 volts ( peak )
   2. Square Wave
   3. 50 per-cent DUTY CYCLE ( half of the time the trigger is LOW – at zero volts, half of the time the trigger is HIGH – at 5 volts )
   4. And the FREQUENCY is determined by the USER – 0 to 1000 Hz

HARDWARE TRIGGER – EASY to use – but not the default.

END