



Logging THD Measurements Using PS3000



The THD of voltages and currents can be easily included in (or removed from) your logs. All versions of PS3000 are capable of measuring and recording THD values in data logs. The requirements and methods to do so vary, depending on the firmware and options installed.

Determining if the unit has the required options installed.

To include THD measurements in a log, the Harmonics Option [order HAO], the Logging Option [order LOG], and the PC Control/Analysis Option [order PCCA] must be installed in your PowerSight unit. To check for these options, follow this procedure:

1. Press the **Admin** key of your PowerSight unit (it's at the lower left).
2. If the display is "Identify Unit?" press the **Yes** key. If not, press the **No** key repeatedly until it "Identify Unit?" is displayed and then press the **Yes** key.
3. Part of the display will be "FW:" followed by a number (such as "FW:2.96"). That number is the firmware version that is loaded in the unit. Write the firmware version number down for use in the next sections.
4. Press the **Yes** key. The display will be "Identify Options?" Press the **Yes** key again.
5. The display will be something like "Options: HLS4M67". The "H" indicates that the Harmonics Analysis Option is installed. The "L" indicates that the Data Logging Option is installed. The "S" indicates that the PC Control/Analysis option is installed. The first three characters must be "HLS" for THD measurements to be included in logs. If they aren't, contact us to have the options installed.

Procedure for units with firmware of 2.88 or higher

The previous section explained how to determine what the firmware version of the unit is. If it is 2.90 or higher, follow the procedure of this section. If it is lower than this, follow the procedure of the next section.

Please Note: There are trade-offs in recording THD into a log. PowerSight units with firmware version 2.9 and higher take 4 seconds for each thorough measurement of THD. During this time, all other measurements are suspended. The measurements are done once each logging period and then are added to the log. If all seven THDs (3 voltages and 4 currents) are included in the log, it could take 28 seconds to do all the calculations. For this reason, care should be taken when deciding whether to add THD measurements to the log. If a new maximum or minimum voltage or current occurred during the THD calculation time, it would be missed. Also, if a short logging period is desired, such as 1 second, the effective time between records could be $7 \times 4 + 1 = 29$ seconds, which might be unacceptable. For these reasons, THD variables are not part of the default log measurements. The remainder of this section tells how to add them to the log.



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The procedure to add THD measurements to (or to remove THD measurements from) logs is as follows:

1. Turn your PowerSight unit on and connect it to your computer, using the serial communications cable.
2. Run your PSM (PowerSight Manager) software. The PSM software must be version 2.10 or higher.
3. The main menu of PSM must indicate that PowerSight is successfully connected. The Connection information box must have a green bar at the top and display "Unit Connected", "Serial Comm: enabled", "Data logging: enabled", and "Harmonics: enabled".
4. Click on the word "DataLogging" at the top of the main menu screen. Then click on "Advanced Data Logging Setup". The Advanced Data Logging Setup screen will now appear.
5. If the PowerSight unit was successfully connected, the existing log setup will be shown. Click on the "Detail" button at the bottom.
6. The "Log Details" screen will be displayed. Each measurement type that can be included in the log has a box for it. If the box is checked, then the measurement type is included in the log (for instance, if the upper left box is checked, then phase A average voltage will be included in each record of the log).
7. There is a row for selecting the three THD voltages and a row for selecting the four THD currents. Click on the boxes to select or de-select each of the THD measurements. As you do so, notice that the log capacity information at the upper left is affected since you are affecting the log capacity by changing the measurements. When you are done, click on "OK".
8. Now click on "Save to PowerSight" to load this new setup into PowerSight. You may also want to click on "Save to File" in order to save the setup for future use.

Once you have successfully loaded the setup into PowerSight, it will remain there until you change it in the future. Turning the unit off will not affect it.

Procedure for units with firmware of 2.87 or lower

The first section explained how to determine what the firmware version of the unit is. If it is 2.87 or lower, follow the procedure of this section. If it is higher than this, follow the procedure of the previous section.



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The default logging condition is for THD to not be calculated and logged. Although THD values still appear in the logs, the values are zero since they have not been calculated. To enable the calculating of THD, the autoTHD feature must be enabled. Once it is enabled, THD will be calculated once each logging period and the values for THD will be recorded in the log.

The procedure to enable (or disable) the autoTHD feature is as follows:

1. Turn on your PowerSight unit.
2. Press the **Admin** key. Press the **No** key repeatedly until it displays something like “Enable autoTHD?”.
3. Press the **Yes** key and it will either say “autoTHD enabled” or “autoTHD disabled”. If you reject what it says, press **No** and it will change. When you are ready to accept what it says, press **Yes**.

The autoTHD feature will remain the way you have set it until you change it in the future. Turning the unit off will not affect it.

PowerSight® Energy Analyzers are designed and manufactured in the USA by Summit Technology, Inc.

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