Setting Up a Recording Session in the DataView® PowerPad® III Control Panel

By Mike Van Dunk

The DataView® PowerPad® III Control Panel is designed for working with AEMC® PowerPad® III Power Quality Analyzers, including the Models 8333, 8336, and 8435. An important feature of the Control Panel is its ability to set up, schedule, and run recording sessions on the instrument. The data recorded during these sessions can then be downloaded to the computer, viewed, and formatted into DataView® reports and/or Microsoft Excel-compatible spreadsheets.

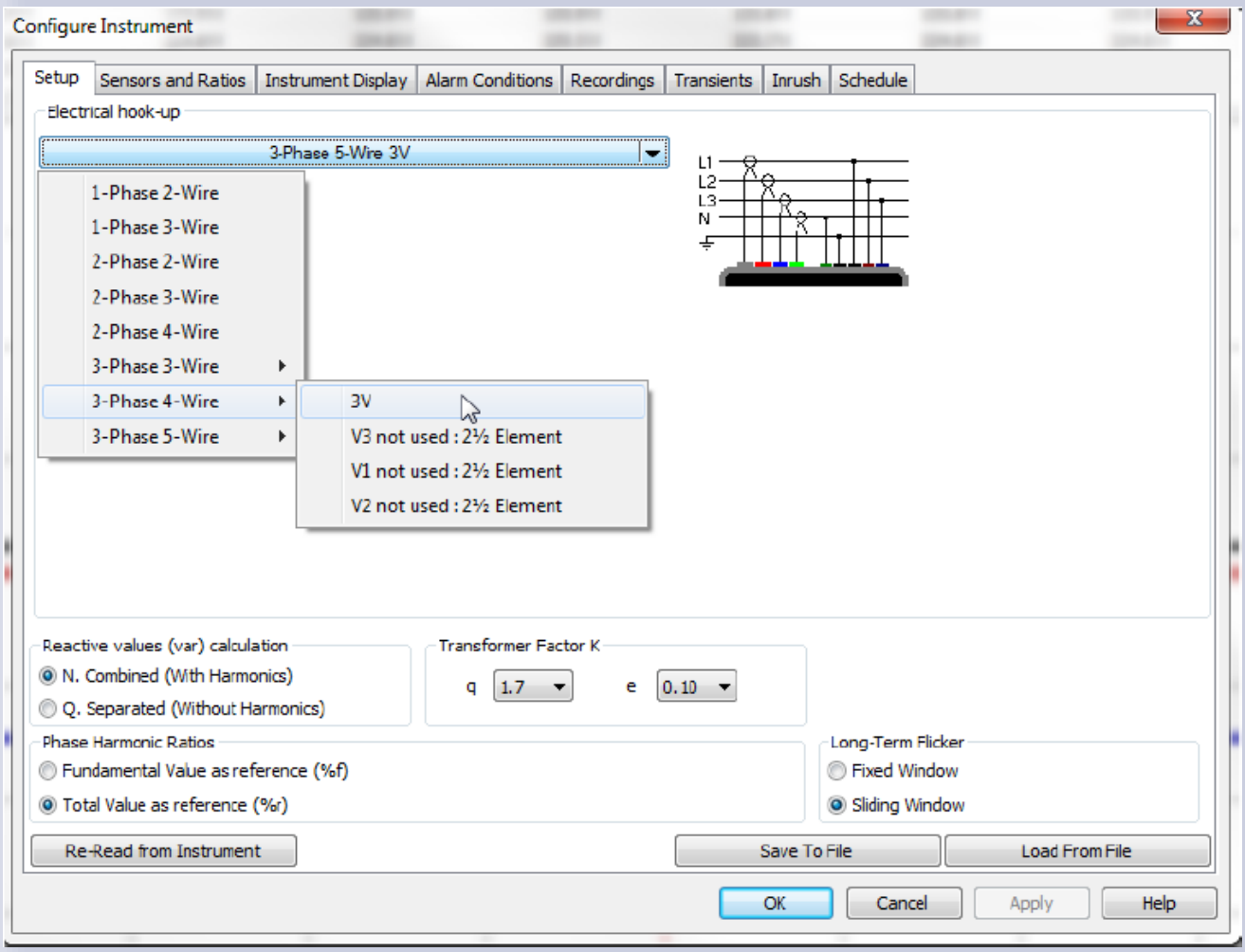
In this article, we explain how to set up and run an example recording session with the PowerPad® III Control Panel. Our demonstration instrument is the Model 8336. We assume that the Control Panel is installed and running on your computer, and is actively connected to the instrument.

Step 1: General Setup

1. Open the Configure Instrument dialog box by doing one of the following:
   - Click ***INSTRUMENT*** in the menu bar and select ***CONFIGURE***.
   - Click the Configure  icon in the toolbar.
   - Click the Configure  button at the top of the data frame.

2. In the ***SETUP*** tab, select the electrical hook-up type. This needs to match the physical hook-up between the instrument and the system under test.

3. If you want reactive values to be calculated with harmonics, click the radio button ***N. COMBINED (WITH HARMONICS)*** in the ***REACTIVE VALUES (VAR) CALCULATION*** field.



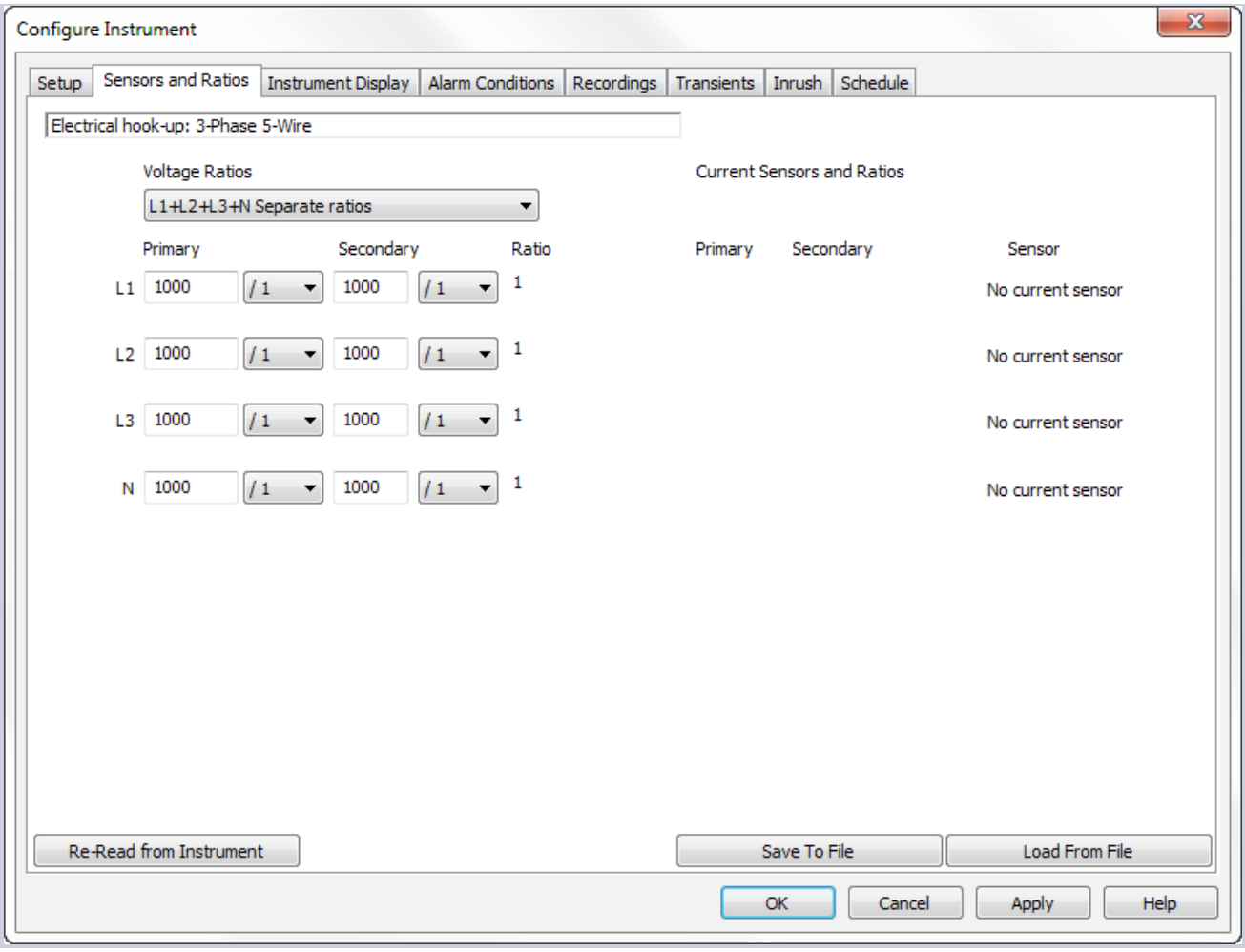
4. In the ***PHASE HARMONIC RATIOS*** field, select ***TOTAL VALUE AS REFERENCE (%)*** to calculate, display, and report harmonics as a ratio of the total value.

5. In the ***TRANSFORMER FACTOR K*** field, enter the appropriate values in the "***Q***" and "***E***" fields to define the variables for calculating the transformer Factor K. (In the preceding illustration, q = 1.7 and e = 0.10.)

6. Select ***FIXED WINDOW*** or ***SLIDING WINDOW*** in the ***LONG-TERM FLICKER*** field to specify which type of window of time is used for measuring long-term flicker.

Step 2: Selecting Voltage Ratios

1. Open the ***SENSORS AND RATIOS*** tab.
2. Click the ***VOLTAGE RATIO*** field. In our example, we will select ***L1+L2+L3+N SEPARATE RATIOS*** from the drop-down menu. The Primary and Secondary fields then appear for ***L1***, ***L2***, ***L3***, and ***N***.
3. Set the ***PRIMARY*** ratios for all lines and neutral.



4. Set the ***SECONDARY*** ratios.

Unless you have current probes attached to the instrument, the ***CURRENT SENSORS AND RATIOS*** fields are inactive (as they are in our demonstration) so we can skip these. We will also leave the ***INSTRUMENT DISPLAY*** tab settings unchanged, and proceed with setting alarms.

Step 3: Defining Alarms

The ***ALARM CONDITIONS*** tab lists all the parameters (measured and calculated) for which alarms can be set. Since we are using the Model 8336 in our example, we are able to configure up to 40 alarms. For each alarm you can set the following (note that not all these fields apply to each type of alarm):

- ***DATA TO CAPTURE*** is a drop-down list of all the choices of quantities (including None) for which an alarm can be set. After you select a quantity, a check box appears to the left of the measurement's name. Check or uncheck this box to enable or disable this alarm. This allows you to define an alarm but choose to include or exclude it depending on the recording.

- ***PHASES*** specifies the phase to be monitored. Options are 3L, N, and 4L. Note that this field does not appear for some quantity types.

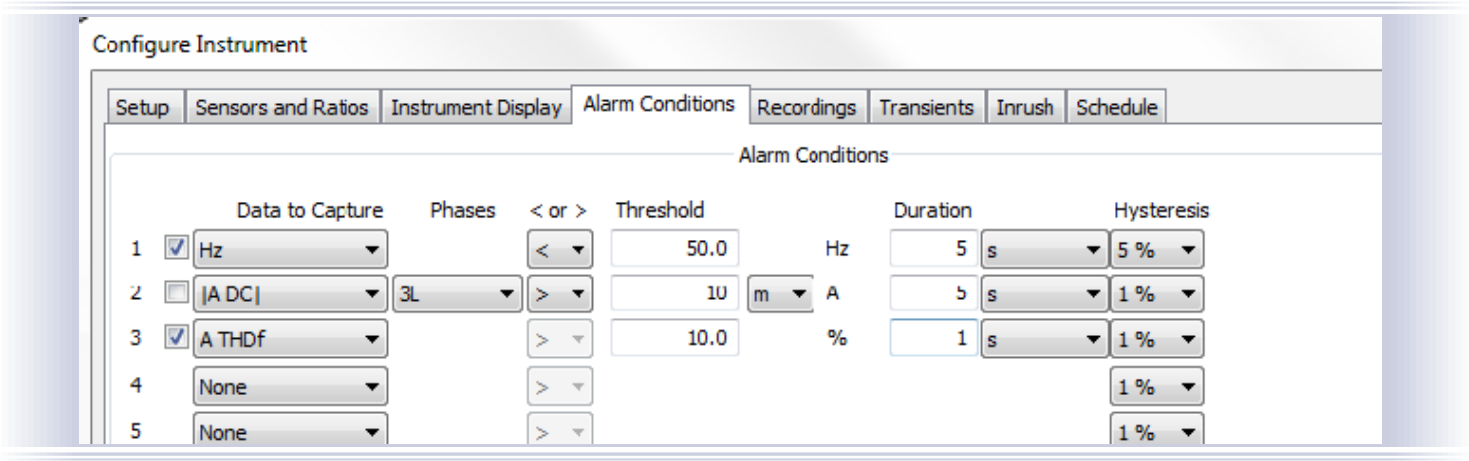
- ***< OR >*** specifies whether the alarm activates when a quantity exceeds a defined threshold, or activates when it falls below that threshold. This field is inactive for some quantities.

- ***THRESHOLD*** defines the limit that activates the alarm. Depending on the quantity being configured, the threshold may be expressed as a percentage, or in terms of units. In the latter case, some quantities offer a choice of units, which you can select from a drop-down list.

- ***DURATION*** sets the time period the condition must persist before it is recorded as an alarm. This can be expressed in either seconds or minutes, as selected from the accompanying drop-down list.

- ***HYSTERESIS*** selects the hysteresis percentage for the quantity. Options are 1%, 2%, 5% and 10%.

For instance, suppose we complete this tab as follows:



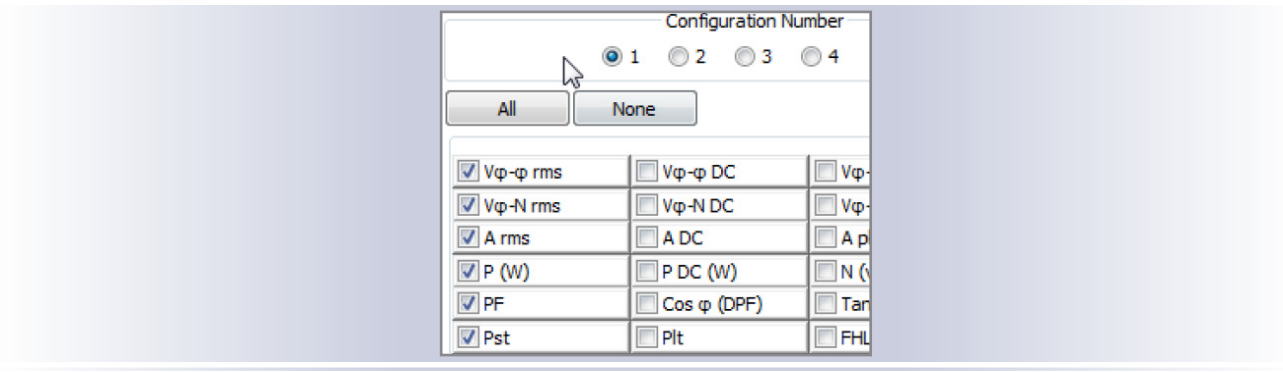
In the preceding example, we have set the first alarm for frequency (Hz). The checkmark to the left indicates this alarm is enabled. The setting in the ***< OR >*** field indicates the alarm will activate if the measured frequency falls below the threshold, which we have set to 50Hz. We have set ***DURATION*** to 5s; this specifies that the alarm will be included in the recording if it lasts 5 seconds or longer. Finally, we allow 5% of the measurement for hysteresis.

We suggest you spend a few minutes navigating through and experimenting with these parameters. When finished, open the Recordings tab and proceed as instructed on the next page.

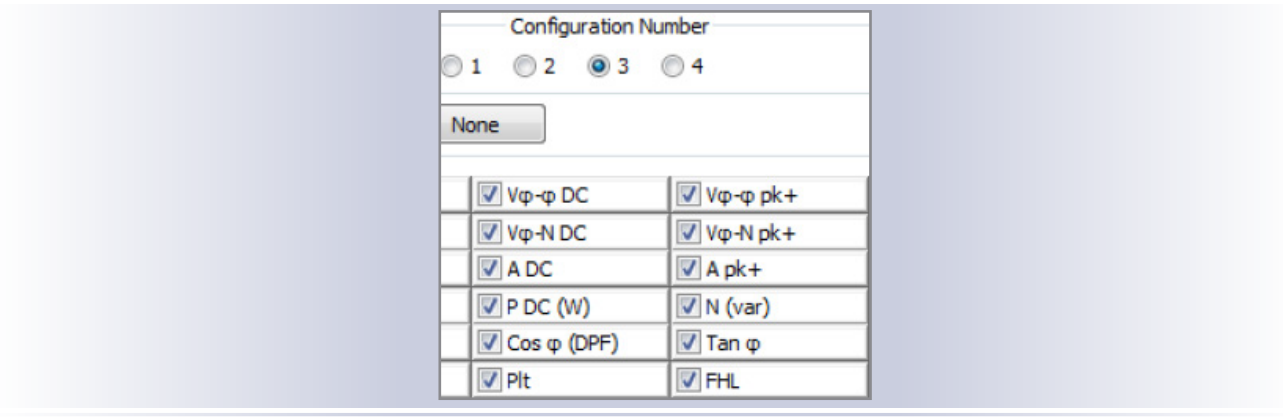
Step 4: Selecting Data to Record

The ***RECORDINGS*** tab of the Configure Instrument dialog box defines what data should be captured during instrument recording sessions. You can create up to four different recording configurations that you can re-use for future recordings. To configure a recording:

1. In the ***CONFIGURATION NUMBER*** field, select the radio button labeled 1. This will save our configuration settings as “Configuration 1.”
2. Click ***NONE*** to deselect all check boxes.
3. For demonstration purposes, select all the variables listed in the first column on the left.



4. We will now create a second (blank) configuration. Start by selecting the button labeled 2 in the Configuration Number field. Then click None to de-select all variables.
5. Similarly, click 3 in the Configuration Number field and select all variables listed in the second and third columns from the left.



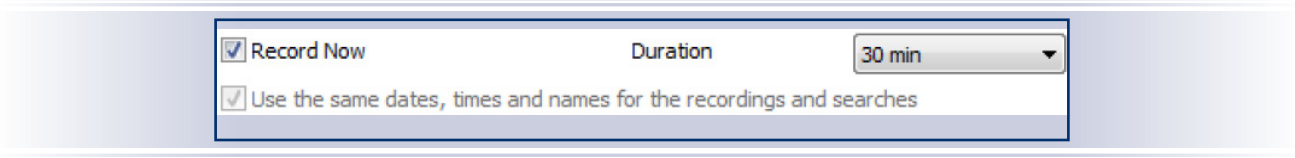
6. Finally, click 4 in the Configuration Number field and click the ***ALL*** button to select all variables.
7. If you click 1 again in the Configuration Number field, you will see that only the parameters in the far left column are checked. Selecting 2 shows no variables selected, 3 shows the second and third column parameters checked, and 4 has all selected.

Step 5: Scheduling the Recording

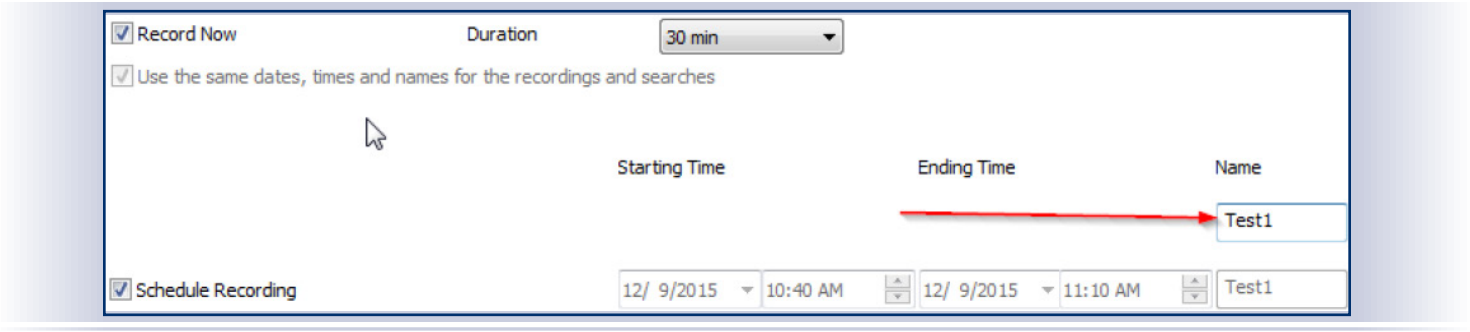
Now that we have defined what data to include in the recording, we can perform the final step of deciding when (and for how long) the recording session will run. To do this, open the ***SCHEDULE*** tab of the Configure Instrument dialog box, and proceed as follows:

1. Check the ***INSTRUMENT CLOCK*** setting to view the current time and date settings on the instrument. If this needs to be changed, click the ***SET*** button to display the ***DATE/TIME*** dialog box. To ensure the computer and instrument have the same time, click ***SYNCHRONIZE WITH PC CLOCK***.

2. You can start a recording immediately, or schedule one for a future time and date. In this demonstration, we want to start immediately, so click ***RECORD NOW***. This displays the ***DURATION*** field to define how long the recording the recording will run. In this example we select 30 minutes.

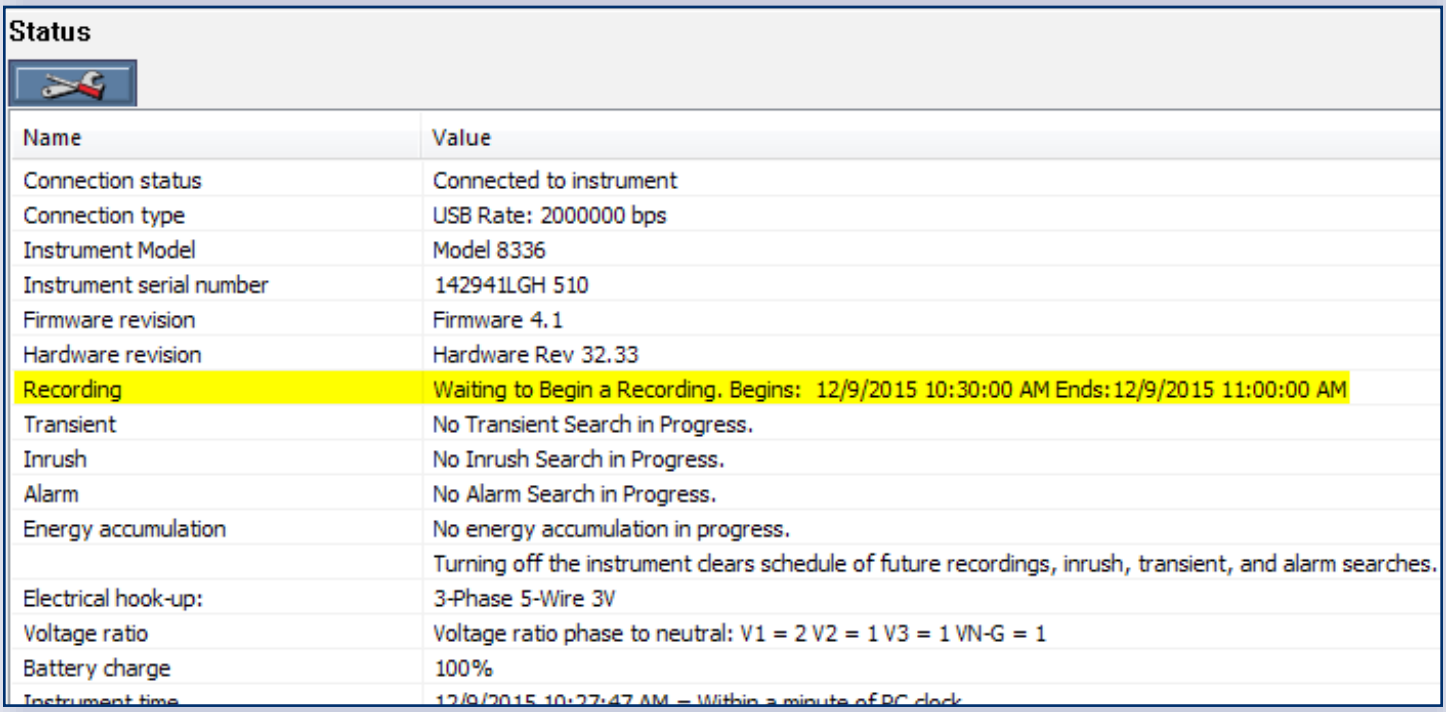


3. You can name a recording by filling out the ***NAME*** field on the right side of the tab. In this example we will give our recording the name Test1.



4. Click ***OK*** to save your configuration settings.

5. Highlight the connected instrument in the navigation frame. This displays the instrument's status information in the data frame. This should indicate that the new recording is underway or about to begin.



Status

Name	Value
Connection status	Connected to instrument
Connection type	USB Rate: 2000000 bps
Instrument Model	Model 8336
Instrument serial number	142941LGH 510
Firmware revision	Firmware 4.1
Hardware revision	Hardware Rev 32.33
Recording	Waiting to Begin a Recording. Begins: 12/9/2015 10:30:00 AM Ends:12/9/2015 11:00:00 AM
Transient	No Transient Search in Progress.
Inrush	No Inrush Search in Progress.
Alarm	No Alarm Search in Progress.
Energy accumulation	No energy accumulation in progress.
	Turning off the instrument clears schedule of future recordings, inrush, transient, and alarm searches.
Electrical hook-up:	3-Phase 5-Wire 3V
Voltage ratio	Voltage ratio phase to neutral: V1 = 2 V2 = 1 V3 = 1 VN-G = 1
Battery charge	100%
Instrument time	12/9/2015 10:27:47 AM – Within a minute of PC clock

Note that you can cancel a scheduled or in-progress recording session by opening the Configure Instrument dialog box, opening the Schedule tab, and clicking ***END TRENDS RECORDING***. A prompt appears asking you to confirm the cancellation, click ***YES*** to confirm.

The start and end times requested for the recording might be adjusted by the PowerPad® III to be in even multiples of the averaging period. For instance, if an integration period of 10 minutes was requested and the start time was 9:03, the recording might not actually begin until 9:10.

For more information about the PowerPad® III product family, consult the AEMC®Web Site.

About the Author:

Mike Van Dunk is Quality Assurance Analyst for AEMC® Instruments, Dover, NH.