

EN 50160 Power Quality Monitoring with the DataView® PowerPad® III Control Panel

As mentioned in the Summer 2014 issue of this Technical Bulletin (see http://www.aemc.com/techbulletins/pdfs/Q214_Issue2.pdf) the standard EN 50160 has been developed to promote a common understanding and definition of core quality characteristics among electricity distributors. This standard is used most often in Europe, and to a lesser extent in other parts of the world.

AEMC's DataView® software now supports EN 50160 monitoring through the updated PowerPad® III Control Panel. This program, which is provided free in North America, enables you to use your AEMC® PowerPad® III instrument to check your electrical distribution system for compliance with EN 50160 specifications. Supported instruments include the Model 8435, Model 8333, and Model 8336.



PowerPad® III Model 8333



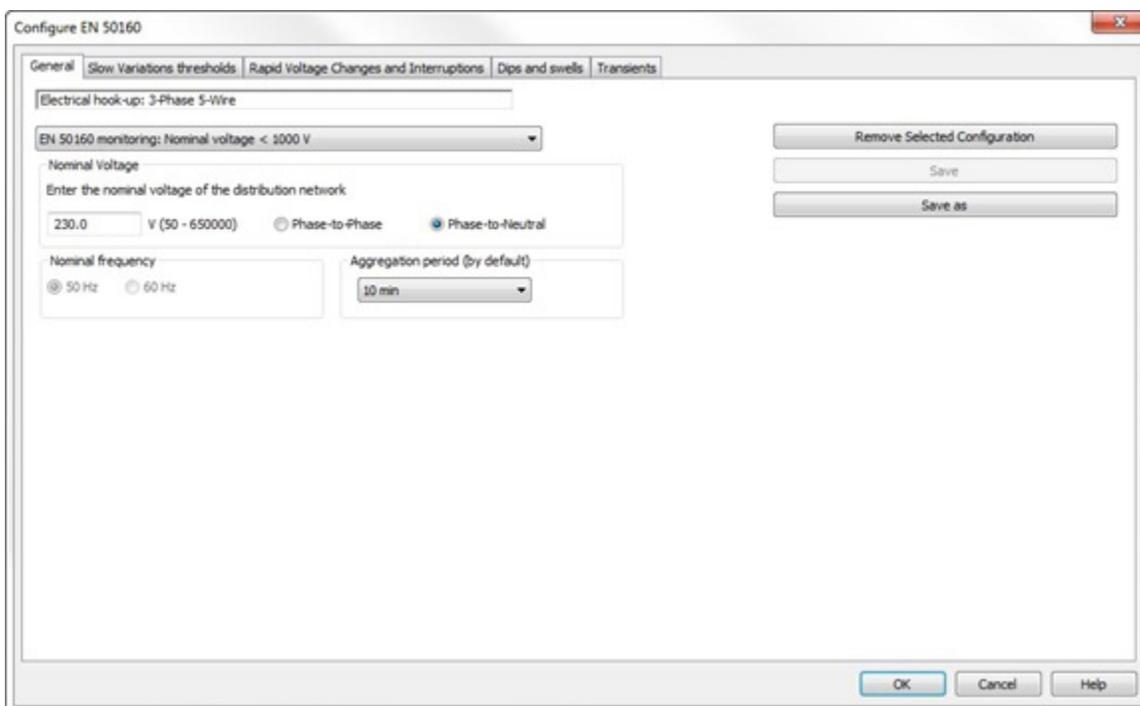
PowerPad® III Model 8435



PowerPad® III Model 8336

To use this feature, ensure that the latest version of DataView® with the PowerPad® III Control Panel has been installed on your computer and that your PowerPad® III instrument is powered on and connected to your computer. The online help that comes with DataView® explains how to do this. Start up the PowerPad® III Control Panel by clicking its icon on your desktop. Ensure that your instrument is connected by looking for the green checkmark next to its name in the navigation frame. If a red x appears instead, connect to the instrument now by clicking Instrument in the menu bar and selecting the option "connect or reconnect an instrument."

With the instrument connected, select Instrument and then click "Configure EN 50160." After a few moments the Configure EN 50160 dialog box appears. Note that you can also display this dialog by clicking the Configure EN 50160 icon  in the toolbar.



The Configure EN 50160 dialog box consists of five tabs:

- General displays the distribution system type and other variables associated with the system under measurement. Users can also name and schedule an EN 50160 monitoring session.
- Slow Variations sets parameters for identifying how much a measurement varies from its acceptable value defined by EN 50160.
- Rapid Voltage Changes and Interruptions configures the monitoring session for detecting rapid voltage changes and interruptions in the system under measurement.
- Dips and swells defines settings for monitoring dips and swells, also known as overvoltage events.
- Transients sets conditions for capturing transients in the system.

Complete the fields on these tabs to configure the EN 50160 monitoring session, as explained in the DataView® online Help.

To see the results of a completed monitoring session, download the session from the instrument by selecting Download Recorded Data from the Instrument menu. Or you can open a previously downloaded session by selecting File from the menu bar and clicking Open. Find and select the monitoring session via the Open dialog box. The results of the session now appear under My Campaigns in the Navigation frame.

Parameter	Phase	Nominal	Threshold Low %	Threshold Low	Threshold High %	Thresh
Hz		60.0 Hz	-6.0%	56.4 Hz	+4.0%	62.4 H
Hz		60.0 Hz	-1.0%	59.4 Hz	+1.0%	60.6 H
Vp-N rms	L1	230.0 V	-15.0%	195.5 V	+10.0%	253 V
Vp-N rms	L1	230.0 V	-15.0%	195.5 V	+15.0%	264.5 V
Vp-N rms	L2	230.0 V	-15.0%	195.5 V	+15.0%	264.5 V
Vp-N rms	L2	230.0 V	-15.0%	195.5 V	+10.0%	253 V
Vp-N rms	L3	230.0 V	-15.0%	195.5 V	+15.0%	264.5 V
Vp-N rms	L3	230.0 V	-15.0%	195.5 V	+10.0%	253 V
Vp-φ rms	L1	398.4 V	-15.0%	338.6 V	+10.0%	438.2 V
Vp-φ rms	L1	398.4 V	-15.0%	338.6 V	+15.0%	458.1 V
Vp-φ rms	L2	398.4 V	-15.0%	338.6 V	+15.0%	458.1 V
Vp-φ rms	L2	398.4 V	-15.0%	338.6 V	+10.0%	438.2 V
Vp-φ rms	L3	398.4 V	-15.0%	338.6 V	+10.0%	438.2 V
Vp-φ rms	L3	398.4 V	-15.0%	338.6 V	+15.0%	458.1 V
PIt	L1					1
PIt	L2					1
PIt	L3					1
Vp-N Hf10	L1					0.5 %
Vp-N Hf10	L2					0.5 %
Vp-N Hf10	L3					0.5 %
Vp-N Hf11	L1					3.5 %
Vp-N Hf11	L2					3.5 %
Vp-N Hf11	L3					3.5 %
Vp-N Hf12	L1					0.5 %

These results indicate whether or not the monitored system passed EN 50160 specifications for exceedance, rapid voltage changes, long and short interruptions of the supply voltage, supply voltage dip, and supply voltage swells.

This concludes our brief introduction to EN 50160 monitoring. For more information, consult our [YouTube channel](#) for instructional videos on EN 50160 monitoring and other topics in electronics, including how to use the many instruments offered by AEMC®.