

# Three Phase, *Class A* Power Quality Analyzer **PowerPad® IV**

## MODEL 8345

*Excel at Power Quality Analysis*

### Portable Easy-To-Use Shock-Resistant

- Voltage quality diagnostics
- Full compliance with IEC 61000-4-30 Class A standard
- Easy-to-use on-screen setup
- 5 V to 1000 V three-phase analyzer
- Works on all existing electrical networks (single phase, three phase wye, delta, ...)
- 7 inch color display touch screen
- TRMS voltage and current measurements
- Power W, VA and VAR (N, Q<sub>1</sub> and D) measurements
- PF, DPF, CF and THD measurements
- Webserver, Wi-Fi, Ethernet, and USB communication
- Auto recognition of current sensors and probes
- Includes FREE DataView® software for configuring, data retrieval, real-time display, analysis and report generation

**POWERPAD IV**  
*Class A*

*Our products are backed by over 130 years of experience in test and measurement equipment, and encompass the latest international standards for quality and safety.*



# POWER & ENERGY QUALITY ANALYZER Model 8345

## PowerPad® IV Model 8345 - Top Performance and Accuracy

Intended for inspection, maintenance and field service teams on industrial or commercial installations, the PowerPad® IV gives you a snapshot of the electrical network quality features. Class A instruments meet the most rigorous performance and measurement time accuracy requirements (better than +/- 0.3 sec/day) for parameters such as voltage, current, harmonics and power and other measurements as defined in the IEC61000-4-30 standard, and are capable of producing reliable and repeatable results when connected to the same signals.

*Comfortable to handle and equipped with an intuitive graphical user interface, this analyzer offers high measurement accuracy. It also features numerous calculated values and several processing functions.*



Large 7 inch color graphical backlit touch screen  
800 x 480 (WVGA)

Function buttons

Configuration button

Screenshot button

Multilingual Help

ON/OFF Button

Measurement terminal strip with isolated inputs  
(on top of instrument)

Theft-proofing  
(on side of instrument)

Navigation buttons

RJ45 Ethernet connector  
(on side of instrument)

USB type B PC connector  
(on side of instrument)

4-point connector for external power supply  
(on side of instrument)

Direct access mode buttons

SD card slot

USB port

### A Product that Protects and Works for the Environment!

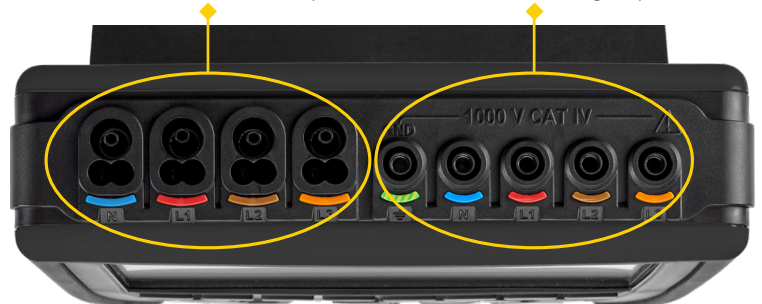
Our Class A Power Quality Analyzer Model 8345 has been awarded the **PEP ECO PASSPORT®** label for compliance with environmental criteria of **ECO-DESIGN**.



All the data recorded is saved on an accessible SD card. It can be transferred to a PC by means of the DataView® software or by uploading to a USB drive connected directly to the PowerPad® IV. The memory card can also be removed.

4 current input terminals

5 voltage input terminals



# APPLICATIONS



## Commercial and Industrial Sectors

Today, electrical distribution networks are judged according to their ability to power loads causing disturbances and loads sensitive to disturbances. The latter may take multiple forms.

Voltage quality analyzers can be used to detect and qualify each disturbance type: outage, voltage surges and sags, flicker, THD, voltage variations, transients, etc.

## Energy Efficiency

For energy diagnostics on a site, a logger must be set up to record the electrical power and energy consumed. Once all the measurements have been taken, billing data is compared with the actual measurements to determine whether corrective action needs to be taken. This action may take different forms: resizing of a transformer, implementation of filtering systems, replacement of faulty equipment, etc. This analysis helps you understand and act at the right place and time to provide the best solution.



## Electrical Maintenance

The increase of electronic power supplies in industrial processes has led to increases in harmonic disturbances on electrical networks which have a direct impact on the quality of the energy distributed. These disturbances may cause failures across all the electrical devices connected to the network.

Harmonic currents have negative effects on nearly all the components in the electrical system, creating new dielectric, thermal and/or mechanical stresses.



# POWER & ENERGY QUALITY ANALYZER Model 8345

## PowerPad® IV Model 8345

The PowerPad moves up a grade - Class A!

**POWERPAD IV**  
Class A

### SPECIFICATIONS

<b>MODEL</b>	<b>8345</b>	
<b>ELECTRICAL</b>		
<b>Measurement Frequency</b>	Measurement Range without Ratio (with unity ratio)	
	Min	Max
	42.50 Hz	69.00 Hz
<b>Inputs</b>	5 x voltage / 4 x current, isolated	
<b>Voltage</b>	(5 to 1,000) VAC and VDC	
<b>Harmonics Mode</b>	DC to 63 <sup>rd</sup> order	
<b>Interharmonics Mode</b>	0 to 62 <sup>nd</sup> order	
<b>Inrush &amp; Transient Capture (number)</b>	No maximum (limited by SD card)	
<b>Shockwaves (Fast transient)</b>	Up to 12 kV sampled every 500 ns	
<b>Flicker (Pst)</b>	< 0.1	
<b>Voltage Unbalance (u0,u2)</b>	(0.5 to 5) % (absolute); ± 0.15 % (absolute) > 900 parameters	
<b>Trend Recording</b>	3 d with a sampling period of 200 ms	
	15 d with a sampling period of 1 s	
	45 d with a sampling period of 3 s	
<b>Sampling Rate</b>	Voltage 400 kSps / Current 200 kSps / Surge 2 MSps	
<b>Alarm Mode (types / number)</b>	52 / 20,000 with Email notifications	
<b>Real-time / Power / Energy / Unbalance Modes</b>	Yes / Yes / Yes / Composite	
<b>Screenshots</b>	No maximum (limited by SD card)	
<b>Power Supply</b>	Power from phase from (100 to 1000) V AC/DC with external supply block (included)	
<b>Carrier Current Detection</b>	Yes	
<b>Battery Life</b>	Cartridge Li-ion – 5800 A-h battery pack (included) ≤ 6 h w/ display ON; ≤ 10 h w/ display OFF	
<b>MECHANICAL</b>		
<b>Data Storage</b>	16 GB SD-Card (included) for snapshot, transients, alarms and trend recording	
<b>Display</b>	7 in color LCD touch screen: 800 x 480 (WVGA)	
<b>Clock / GPS</b>	Yes, built-in	
<b>Operating Temperature</b>	(32 to 104) °F (0 to 40) °C	
<b>Communication</b>	USB, Ethernet, Wi-Fi, Web server, IRD server, USB stick port (Type A)	
<b>Dimensions</b>	(7.87 x 11.22 x 2.17) in (200 x 285 x 55) mm	
<b>Weight (meter only)</b>	4.19 lb (1.9 kg)	
<b>COMPLIANCE &amp; STANDARDS</b>		
<b>Safety</b>	IEC 61010 1000 V CAT IV	
<b>Environmental</b>	IEC 61557-12 & IEC 62586	
<b>Measurement Standard</b>	IEC 61000-4-30 (Ed 3) Class A (Full)	
<b>EN50160</b>	With PAT3 software	
<b>Monitoring Mode</b>		
<b>Warranty</b>	*3 y (registration must be done within 30 d of the date of purchase)	

Consult factory for NIST Calibration prices

Download the user manual for complete specifications



DataView®



### PRODUCT INCLUDES

**CAT. # 2136.35 - POWERPAD IV MODEL 8345 (NO PROBES)**

**CAT. # 2136.36 - POWERPAD® IV MODEL 8345**

**W/4 MA194-24-BK MINIFLEX® SENSORS**

**CAT. # 2136.37 - POWERPAD IV MODEL 8345 (WITH 4)**

**AMPFLEX® MA193-24-BK FLEXIBLE CURRENT SENSORS )**

Meter, extra-large tool bag, internal carrying pouch, hand strap, (4) MA194-24-BK sensors, USB cable, (5) 10 ft black voltage leads with alligator clips, (12) color-coded input ID markers, power adapter (PA32ER) with US power cord, (2) 6 ft stackable leads, (2) 10 ft black voltage leads with alligator clips for power adapter PA32ER, (1) power plug adaptor for PA32ER, SD card, 5.8 Ah Li-ion battery pack, quick start guide, and a USB stick with DataView® software and user manual.



### ACCESSORIES/REPLACEMENTS

**CAT. #2140.80**

MiniFlex® Sensor  
Model MA194-24-BK

**CAT. #2140.43**

Lead - Set of 5, 10 ft (3M) Black Leads  
w/5 Black Alligator Clips

**CAT. #2140.44**

Lead, (1) 10 ft (3M) Black Lead w/1  
Black Alligator Clip

**CAT. #5100.14**

Adapter - Replacement  
Power Plug Adapter for PA32ER

**CAT. #5100.15**

Adapter - Replacement 1000 V  
PA32ER Power Supply

**CAT. #5100.16**

Magnetic Hook for use with  
PowerPad® IV Model 8345

**CAT. #2140.81**

AC Current Probe Model MN94

**CAT. #2140.82**

AC/DC Current Probe Model E94



# FEATURES, FUNCTIONS & MEASUREMENTS

## GENERAL

- Easy-to-use, portable power quality analyzer
- Full compliance with IEC 61000-4-30 ed. 3.0 Class A functions
- Voltage quality diagnostics and communication options
- Records and stores hundreds of parameters in memory every 10/12 periods (200 ms)
- Measurements on all network types: three-phase, Aron connection, single phase, etc.
- Electrical network monitoring with setting of alarms
- Characterization with software for True RMS single-, two- and three-phase measurements at 512 samples/cycle, plus DC
- 7 inch color graphical, backlit TFT touch screen display
- Monitors user configured alarm parameters
- Fast transient events are captured and stored in memory
- True InRush capabilities to study loads during setup as well as ongoing

## MEASUREMENTS

- Measurements and recordings accessible on the device's front-panel
- Measures all DC components
- Harmonics (amplitude and phase shift) from DC to the 63rd order
- Inter-harmonic subgroups from 0 to the 62nd order
- 2 line carrier signal frequencies monitored
- Measurement of active power (P), non-active power (N), reactive power ( $Q_1$ ), apparent power (S) and distortion power (D) values *(total and per phase)*
- Measurement of energy values *(total and per phase)* with Energy valuation
- Internal GPS for precise UTC synchronization *(NTP possible too)*
- Real-time color waveforms *(5 voltage and 4 current)*
- Easy-to-use multilingual on-screen setup
- Automatic current probe/sensor recognition and scaling
- True RMS voltage and current measurement
- Shockwave measurement

## CALCULATIONS

- Calculation of K factor & FHL
- Calculation of distorting voltages and currents
- Calculation of Displacement Power Factor (DPF) and True Power Factor (PF)
- Calculation of Pst & Plt flicker and the sliding Pst
- Calculation of unbalance (current and voltage)
- Waveform Inrush with a duration of up to 10 minutes
- RMS and Peak Inrush for up to 30 minutes
- Capture of hundreds of 2.5  $\mu$ s transients
- Capture shockwaves up to 12 kV with a resolution of 500 ns
- Trend Recording
- Trend recording period from 200 ms to 2 hrs

## COMMUNICATION

- Built-in GPS
- USB 2.0 external flash drive supported (host devices)
- USB 2.0 connection with a PC
- Ethernet 100 Mbps communication
- Built-in Wi-Fi 802.11b/g communication
- Web server for a remote user interface with Android, Microsoft and iOS applications
- Backup and recording of screenshots (image and data)
- Recording and export to a PC
- Includes DataView® software for real-time data recovery and communication with a PC

## ERGONOMICS & EASE OF USE

- Wide 7-inch color LCD touch screen (WVGA)
- Real-time display of waveforms (4 voltage/4 current)
- DC current sensor power supply
- 5 x 50 Hz / 60 Hz AC/DC voltage inputs
- Intuitive, user-friendly and multilingual graphical interface
- Fully multi-task instrument with user profiles
- Automatic recognition of different current sensors
- Display of phasor diagrams
- Waveforms at 512 samples per cycle, with Min/Max 2.5  $\mu$ s
- Real-time waveforms displayed from 1 cycle to 10/12 cycles (50/60 Hz)

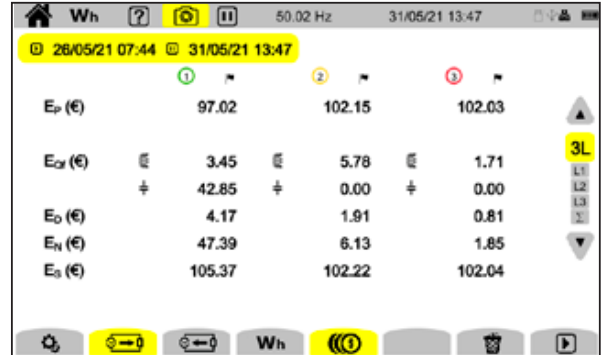
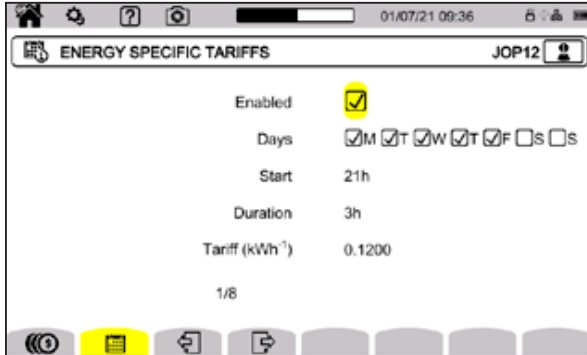


# STANDARD VERIFICATION CAMPAIGNS



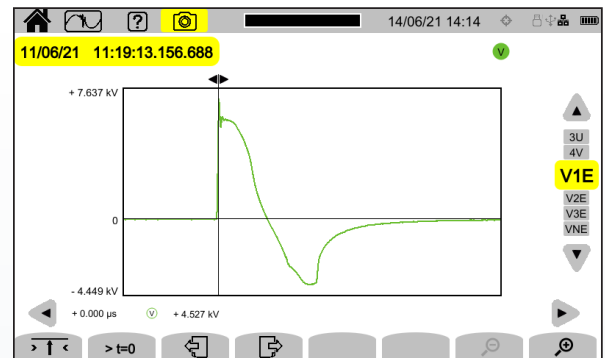
## ENERGY VALUATION

PowerPad IV Class A Model 8345 offers all the measurements required to successfully implement energy efficiency projects and monitor electricity distribution.



## SHOCKWAVES

Shockwaves, usually caused by lightning, are spectacular instantaneous electrical voltage surges. They also propagate in the digital network. Model 8345 can withstand shockwaves up to 12 kV which are sampled every 500 ns.



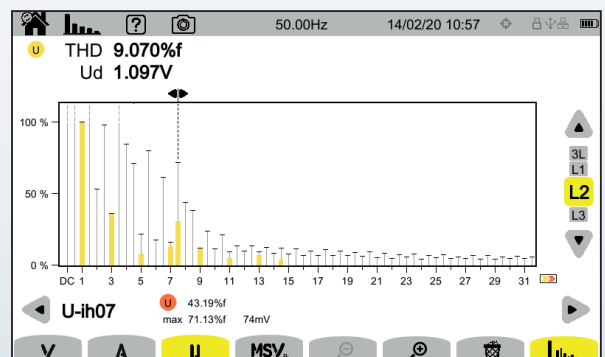
## LINE CARRIER SIGNAL MEASUREMENT

In the harmonic analysis function, there is also a mode for monitoring carrier currents. After defining their frequency in the instrument, the command signals will then be measured.



## INTERHARMONICS *(harmonic mode)*

Model 8345 can be used to measure and display the interharmonics, as requested in IEC 61000-4-7, for very precise analysis of all the disturbances on an electrical network.



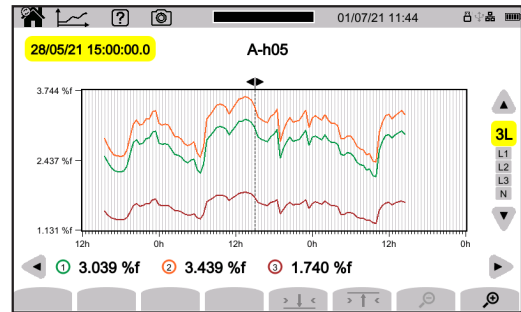
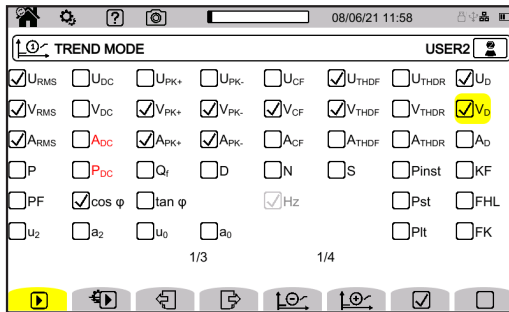


# MONITORING MADE EASY

## TREND



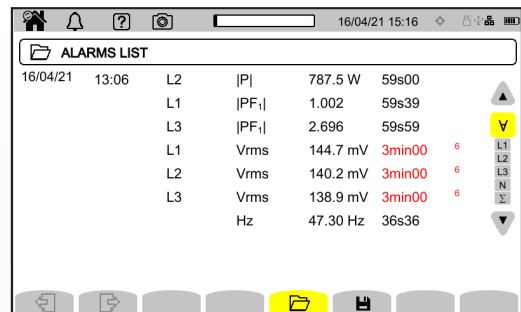
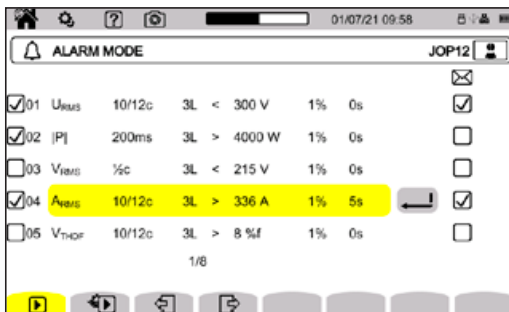
The trend graph shows the variations of the parameters measured over time as fast as 200 ms.



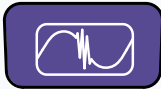
## ALARMS



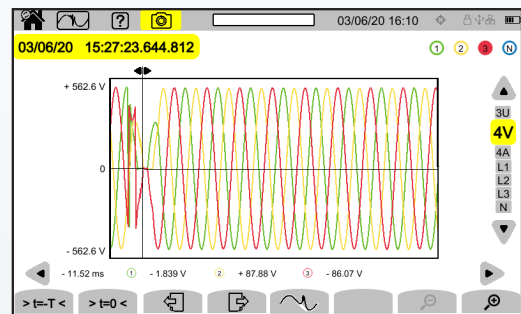
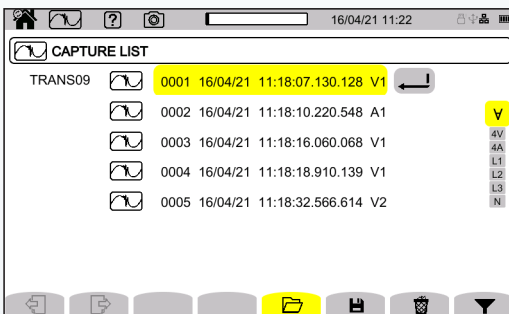
Alarms set points can be programmed to be monitored, which are then recorded and time-stamped with the duration and extreme values. Users can be informed directly by email when an alarm is triggered.



## TRANSIENTS



Transients correspond to peaks in the voltage or current waveform. Shockwaves are extremely fast transients with even greater possible amplitude.

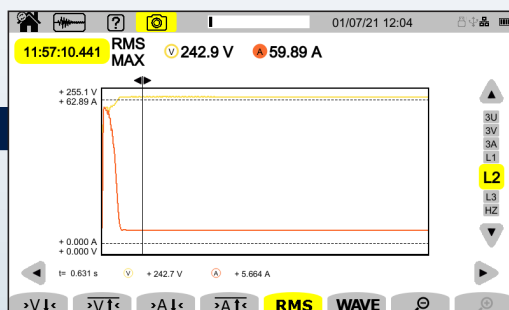


## TRUE INRUSH®

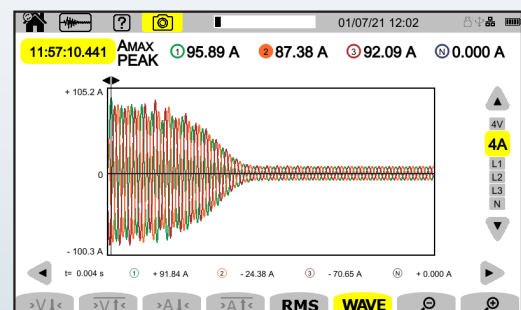


For tests when starting up loads, model 8345 can record 1/2-period values covering more than 30 minutes and the waveforms of the signal can be captured.

30 min



10 min



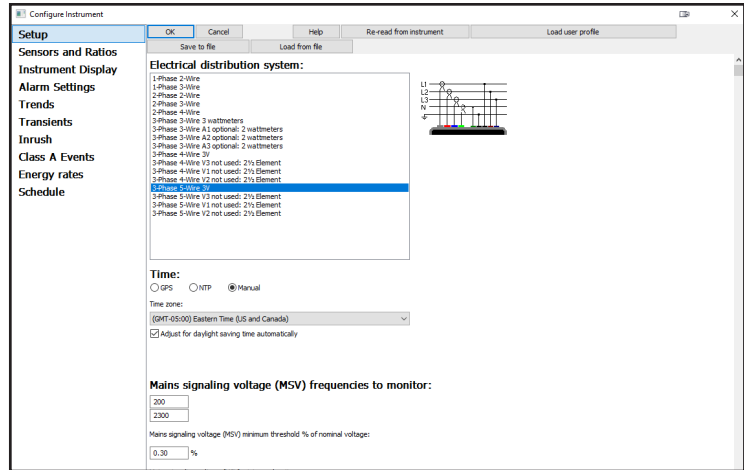


# A VERSATILE COMMUNICATING INSTRUMENT

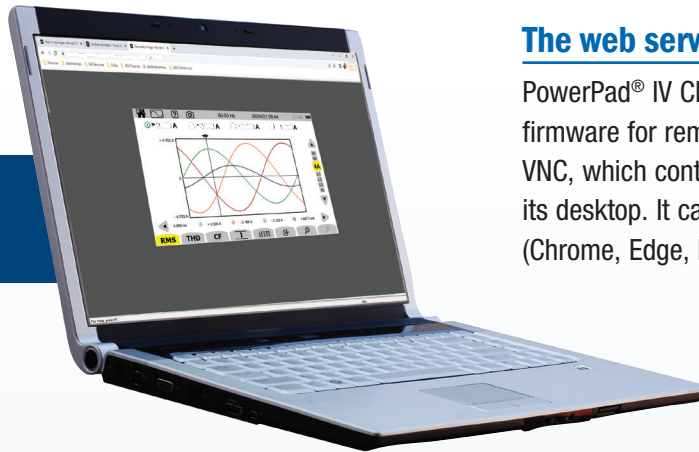
## SOFTWARE

The DataView® Control Panel software processes the measurements made with the PowerPad® IV Class A Model 8345 including:

- Configuration of the instrument: *setup, recording, alarms*
- Real-time display
- Processing of all the recorded data
- Transfer of screenshots and transients
- Data export into spreadsheet (Excel, .CSV)
- Data export in graphic form in Windows™.



Use any iOS or Android PC, tablet or smartphone.



## The web server

PowerPad® IV Class A Model 8345 is equipped with firmware for remote access. It can be controlled via VNC, which controls a remote machine while displaying its desktop. It can be activated from any browser (Chrome, Edge, Firefox, etc.).

## Communication

In addition to using media such as SD cards and USB drivers, it is possible to download the measurements and communicate with the instrument remotely via USB, remote links, Wi-Fi (direct or via server) or the RJ45 (Ethernet connector).

*(Refer to the User Manual for PC computer USB hardware requirements).*



## IRD server

Our IT networks are protected against external attack. Thanks to the provision of access to our IRD server, a single authorized IP output address allows you to transmit your measurements all over the world.

*We recommend utilizing the IRD Server for configuring test measurements, and directly connecting to a PC for generating reports involving large packets of data.*

## SCPI commands

With an integrated interfacing software layer, it is possible to control the 8345 instrument via its own software application. SCPI commands are available for all the instrument's functions.

## Data files in JSON format

Saved in JSON format, all the recordings are accessible and can be processed with a third-party and/or proprietary application.



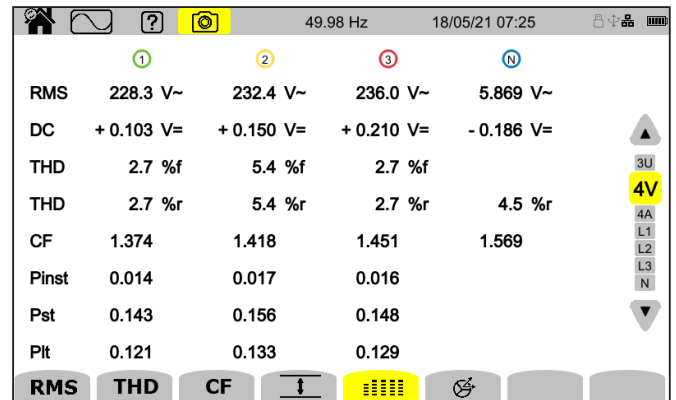
# MEETING STANDARDS

## IEC 61000-4-30

The International Electrotechnical Commission (IEC) IEC 61000-4-30 Edition 3.1 standard. This standard defines:

- the methods for measuring the quality parameters for the supply of power to electrical power networks
- and how to interpret the results

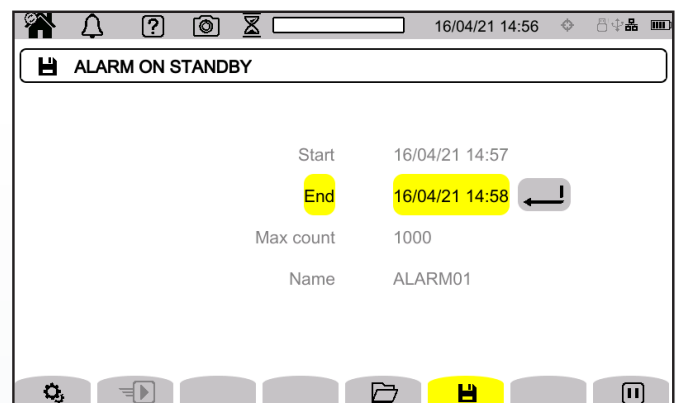
The measurement parameters are described for each applicable parameter in terms which provide reliable, repeatable results, however the method is implemented.



## EN 50160

### Homogeneous tolerances

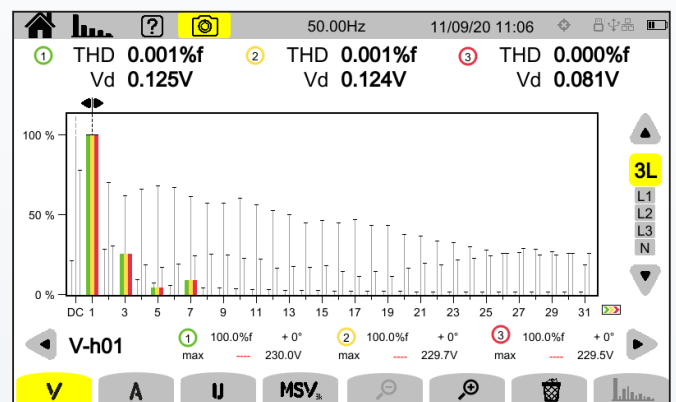
The EN 50160 standard characterizes the quality of the voltage supplied. It presents the different types of disturbances which may affect the voltage on a network. It lists the parameters to be monitored and defines how long the parameters should be monitored for. With the DataView® software, the Monitoring mode can be used to set up a simplified configuration of all the limits to be monitored and the parameters to be recorded.



## IEC 61000-4-7

### Harmonics and interharmonics

The IEC 61000-4-7 standard defines the measurement methods for voltage quality analyzers so that they remain compliant with the emission levels stipulated in certain standards (e.g. the harmonic current limits specified by IEC 61000-3-2) and for the measurement of harmonic currents and voltages on the power networks themselves.

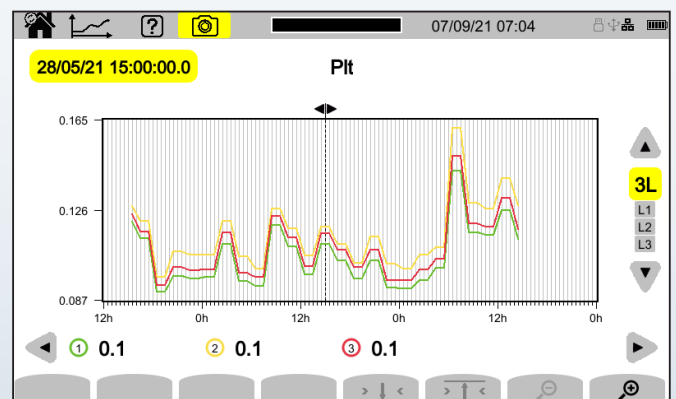


## IEC 61000-4-15

### Short or long-term flicker

This is caused by the power supply voltage modulation. When it affects lighting, it gives an impression of unstable vision due to a light stimulus whose luminance or spectral distribution fluctuates over time. There are 2 parameters calculated from the power supply voltage.

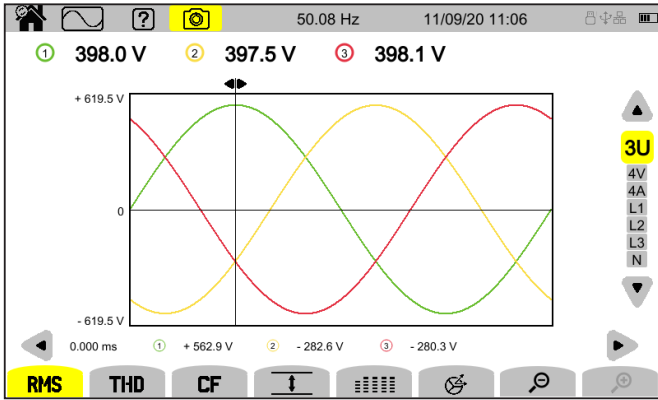
- *Pst* which is a short-term assessment based on a 10-minute observation period
- *Plt* which is a long-term assessment, usually over a period of 2 hours



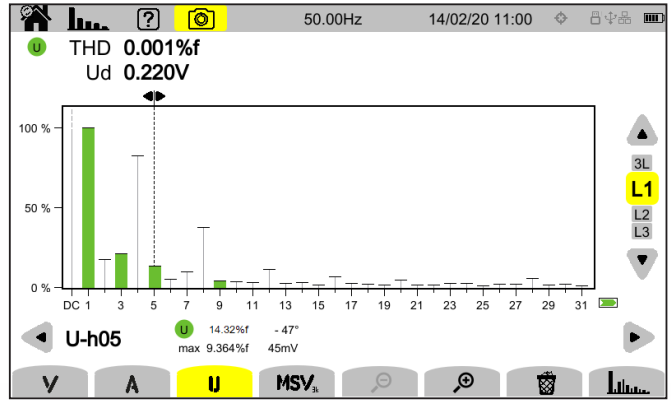
# MODEL 8345: DIAGNOSTIC TOOL

## Viewing the signal and its components

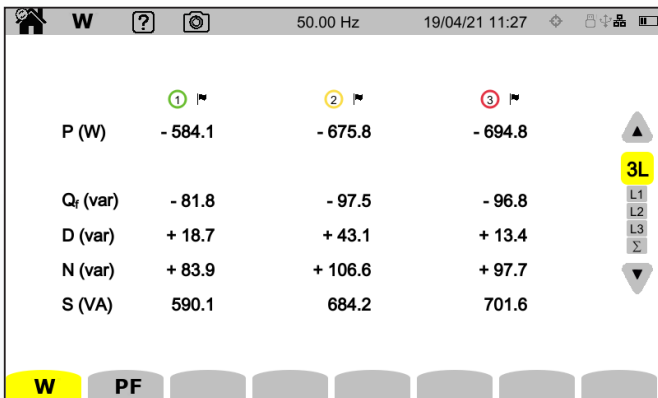
Model 8345 is an easy-to-use analytical tool. After connection, the 8345 immediately and totally automatically displays the voltages up to 1,000 V AC and DC and the currents, thanks to a function which automatically recognizes the sensor connected. A large number of sensors are compatible with the PowerPad.



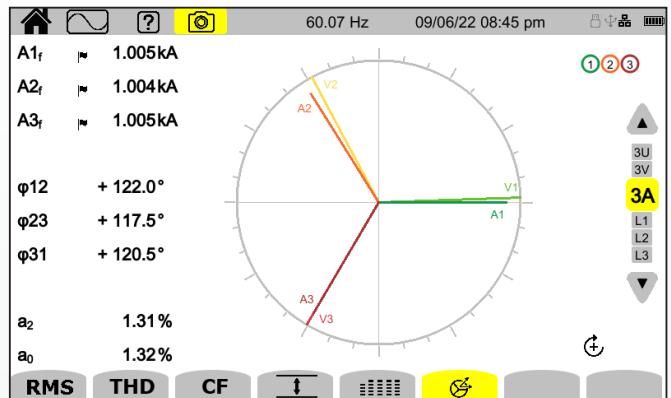
The Waveform mode automatically provides an oscillogram showing the voltage and/or current waveforms.



It is very simple to measure harmonics and interharmonics with Model 8345, which is very easy to use as an analytical tool.



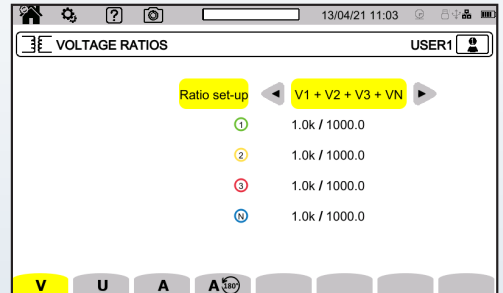
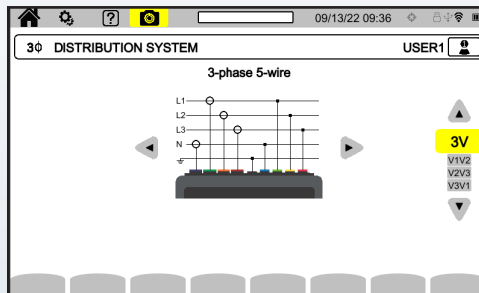
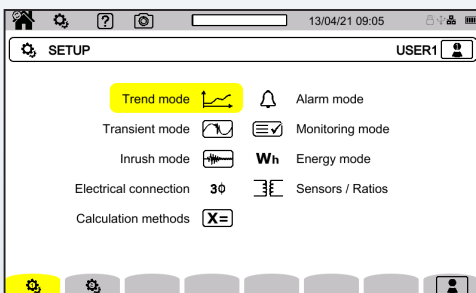
Model 8345 can be used to monitor all the power values (P, Q, D, etc.) in real time over periods of varying durations. Measurement and analysis of all the power values enables you to perform a full power survey in compliance with the standards.



The phase relation between the voltages and currents is displayed with a phasor diagram. The vectorial representation allows you to confirm the instrument is properly connected to the electrical network.

## Simplified configuration

We've simplified the configuration set up for ease of use.





# MODEL 8345: PROBES & SENSORS

We offer a complete family of current measurement probes to meet most AC (or DC) measurement applications up to 10,000 Arms.

	Probe/Sensor Type	TRMS Current	Max Conductor Size	Accuracy on IRMS	Accuracy on $\Phi$	Safety
	<b>SR193-BK (1000 A)</b> Catalog #2140.33 AC Current Probe with 10 ft lead	(1 - 3) A (3 - 10) A (10 - 100) A (100 - 1200) A	2.05 in (52 mm)	$\pm 0.8\%$ $\pm 0.8\%$ $\pm 0.8\%$	- $\pm 1^\circ$ $\pm 0.5^\circ$ $\pm 0.3^\circ$	EN 61010-2-032, Pollution Degree 2, 600 V CAT IV, 1000 V CAT III
	<b>MR193-BK (1000 Aac / 1400 Adc)</b> Catalog #2140.28 AC Current Probe with 10 ft lead	(1 - 10) A (10 - 100) A (100 - 800) A (800 - 1200) A (1200 - 1400) A	1.6 in (41 mm)	$\pm (1.5\% + 1 A)$ $\pm 3\%$ $\pm 5\%$	- $\pm 2^\circ$ $\pm 1.5^\circ$	EN 61010-2-032, Pollution Degree 2, 300 V CAT IV, 600 V CAT III
	<b>MN94</b> Catalog #2140.81 AC Current Probe	(0.05 to 200) A	0.25 in (16 mm)	$\pm 0.2\%$	$\pm 0.1^\circ$	EN 61010-2-032, Pollution Degree 2, 300 V CAT IV, 600 V CAT III
	<b>MN93-BK (200 A)</b> Catalog #2140.32 AC Current Probe with 10 ft lead	(0.5 - 2) A (2 - 10) A (10 - 100) A (100 - 240) A	0.78 in (20 mm)	$\pm (3\% + 1 A)$ $\pm (2.5\% + 1 A)$ $\pm (1\% + 1 A)$	- $\pm 6^\circ$ $\pm 3^\circ$ $\pm 2^\circ$	EN 61010-2-032, Pollution Degree 2, 300 V CAT IV, 600 V CAT III
	<b>MN193-BK (100 A)</b> Catalog #2140.36 AC Current Probe with 10 ft lead	(100 - 300) mA 300 mA - 1 A (1 - 120) A	0.78 in (20 mm)	$\pm (0.7\% + 2 \text{ mA})$ $\pm 0.7\%$ $\pm (1\% + 0.1 \text{ mA})$	- $\pm 1.5^\circ$ $\pm 0.7^\circ$	EN 61010-2-032, Pollution Degree 2, 300 V CAT IV, 600 V CAT III
<b>MN193-BK (5 A)</b> Catalog #2140.36 AC Current Probe with 10 ft lead	(5 - 50) mA (50 - 500) mA 500 mA - 6 A	$\pm 1\%$ $\pm 0.7\%$ $\pm 1^\circ$				
	<b>AmpFlex® 193-24-BK (6500 A)</b> Catalog #2140.34 Flexible Current Probe with 24 in sensors & 10 ft lead	(10 - 100) A (100 - 6500) A	7.64 in (190 mm)	$\pm 3\%$ $\pm 2\%$	$\pm 1^\circ$ $\pm 0.5^\circ$	EN 61010-2-032, Pollution Degree 2, 600 V CAT IV, 1000 V CAT III
	<b>AmpFlex® 193-36-BK (6500 A)</b> Catalog #2140.35 Flexible Current Probe with 36 in sensors & 10 ft lead	(10 - 100) A (100 - 6500) A	11.46 in (290 mm)	$\pm 3\%$ $\pm 2\%$	$\pm 1^\circ$ $\pm 0.5^\circ$	EN 61010-2-032, Pollution Degree 2, 600 V CAT IV, 1000 V CAT III
	<b>MiniFlex® MA193-10-BK (1000 Aac)</b> Catalog #2140.48 MiniFlex® Sensor with 10 in sensor & 5 ft lead	(10 - 100) A (100 - 1000) A	2.75 in (70 mm)	$\pm 3\%$ $\pm 2\%$	$\pm 1^\circ$ $\pm 0.5^\circ$	EN 61010-2-032, Pollution Degree 2, 600 V CAT IV, 1000 V CAT III
	<b>MiniFlex® MA193-14-BK (1000 Aac)</b> Catalog #2140.50 MiniFlex® Sensor with 14 in sensor & 5 ft lead	(10 - 100) A (100 - 1000) A	3.94 in (100 mm)	$\pm 3\%$ $\pm 2\%$	$\pm 1^\circ$ $\pm 0.5^\circ$	EN 61010-2-032, Pollution Degree 2, 600 V CAT IV, 1000 V CAT III
	<b>MiniFlex® MA194-24-BK (1000 Aac)</b> Catalog #2140.80 MiniFlex® Sensor with 24 in sensor & 10 ft lead	(10 - 100) A (100 - 1000) A	7.64 in (190 mm)	$\pm 3\%$ $\pm 2\%$	$\pm 1^\circ$ $\pm 0.5^\circ$	EN 61010-2-032, Pollution Degree 2, 600 V CAT IV, 1000 V CAT III
	<b>E94</b> Catalog #2140.82 AC Current Probe	10 A: (0.1 - 10) A 100 A: (0.5 to 100) A	.464 in (11.8 mm)	$\pm 3\%$ $\pm 4\%$	$\pm 1^\circ$ $\pm 0.5^\circ$	EN 61010-2-032, Pollution Degree 2, 300 V CAT IV, 600 V CAT III

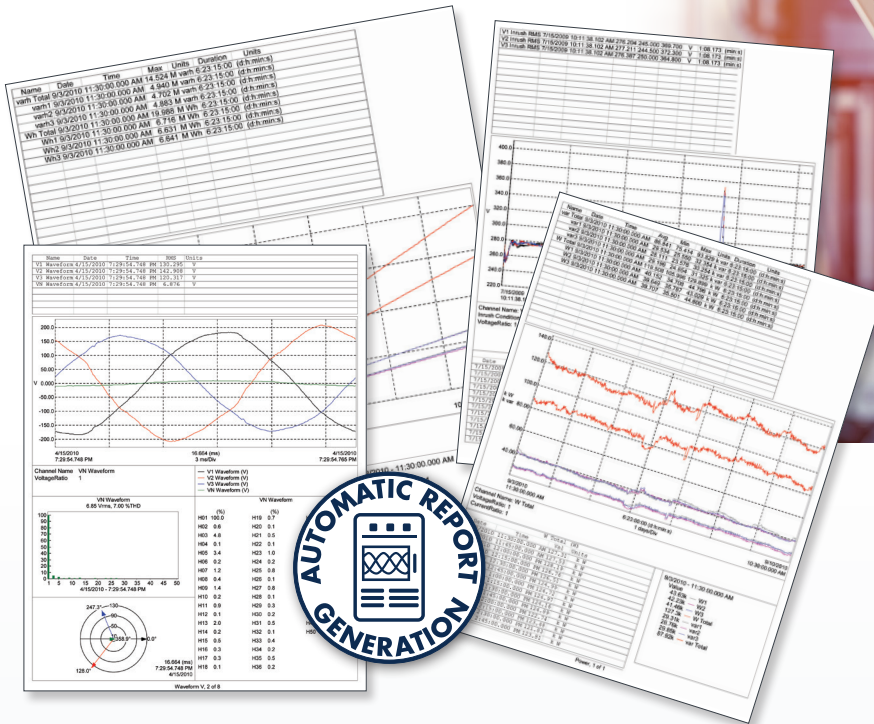


All probes and sensors. For system accuracy calculations, add the probe accuracy to the meter accuracy.

\* Requires BNC adapter Catalog #2140.40

# SOFTWARE & REPORTS

## DataView® Data Analysis and Reporting Software



Reports can be displayed on a PC and printed. Each report includes all test results in a tabular and graphic format, as well as operator and test site information. Comments typed by the operator will also be included.

### Configure all functions of the PowerPad® IV Model 8345

- ▶ Display and analyze real-time data on a PC
- ▶ Configure all PowerPad® functions and parameters from your PC
- ▶ Record trend data directly to the PC
- ▶ Customize views, templates and reports to meet specific needs
- ▶ Create and store a complete library of configurations that can be uploaded to the PowerPad® as needed
- ▶ Zoom in and out and pan through sections of the graph to analyze the data
- ▶ Display waveforms, trend graphs, harmonic spectrums, text summaries, transients, event logs and stored alarms
- ▶ Print reports using standard or user designed custom templates
- ▶ Selectively review individual channels, phases on total network recordings
- ▶ Keep track of accumulated energy over time and time of use
- ▶ Create user-specific cover sheets for reports identifying specific data that includes operator, tests site and narrative associated with the data

*Display waveforms in real time on your computer.*

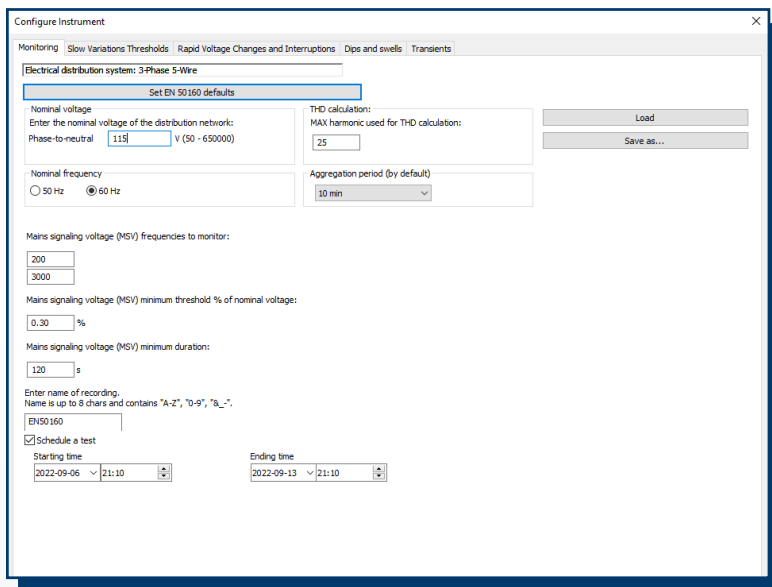
DataView® software provides a convenient way to configure and control power analysis tests from a computer. Through the use of clear and easy-to-use tabbed dialog boxes, all PowerPad® IV Model 8345 functions can be configured and tests can be initiated. Results can be displayed in real-time and stored on a PC. Reports may be printed along with the operator's comments and analysis.



## DataView<sup>®</sup> Data Analysis and Reporting Software

### The DataView<sup>®</sup> Control Panel

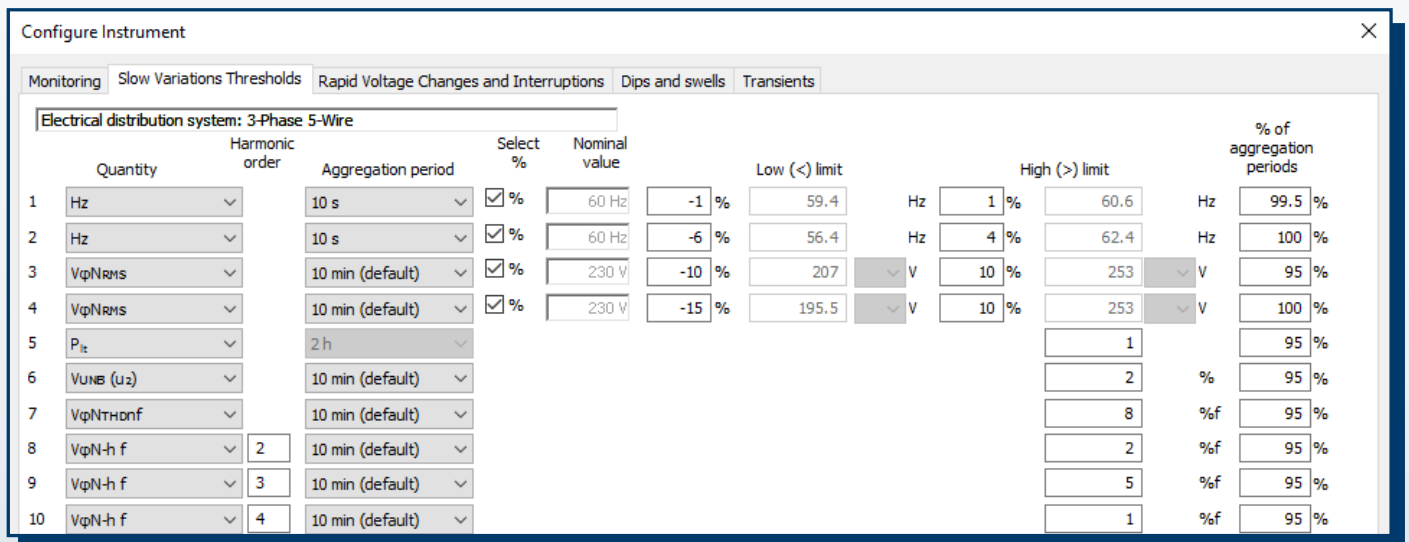
The monitoring feature allows the user to set up a recording with selected parameters for which specific user-defined pass/fail criteria can be applied. The objective is to set up a measurement chart of relevant parameters and monitor them to establish whether an electrical network of source and loads is within control limits. Monitoring can also be set up without any thresholds for pass/fail criteria. The software structure of set up is flexible and allows the user full customization. The progress of the measurement set up can be viewed in real-time as the measurement is progressing. A customized report can automatically be generated at the end of the monitoring session.



Monitoring tab allows complete control of Monitoring conditions.

### The Control Panel Makes it Easy to:

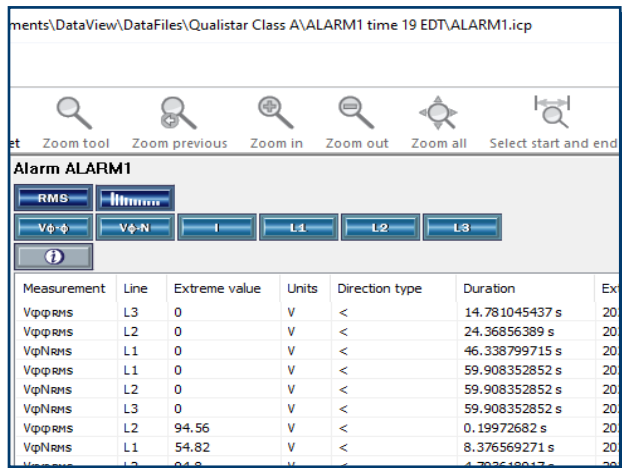
- ▶ Name the Monitoring
- ▶ Select Aggregation period from 0.2 s to 2 hrs
- ▶ Schedule Monitoring by selecting Start and Stop Date/Time
- ▶ Load Parameters from a file
- ▶ Save all the Parameters to re-load later
- ▶ Edit Power Ratios
- ▶ Add to the Parameter list
- ▶ Edit conditions for any Parameter
- ▶ Delete a given Parameter from the list
- ▶ Monitor an active recording session or a saved session
- ▶ Reverse current probes that were incorrectly installed



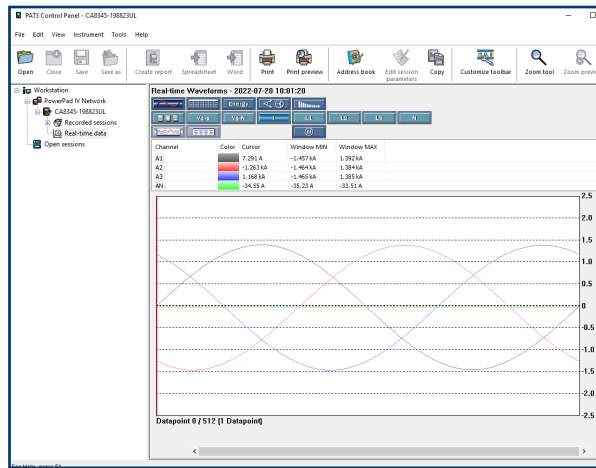
Configuration: Clear and easy setup of all functions from one tabbed dialog box. Select Parameters and Monitoring conditions.

# CONFIGURATION & ANALYSIS SCREENS

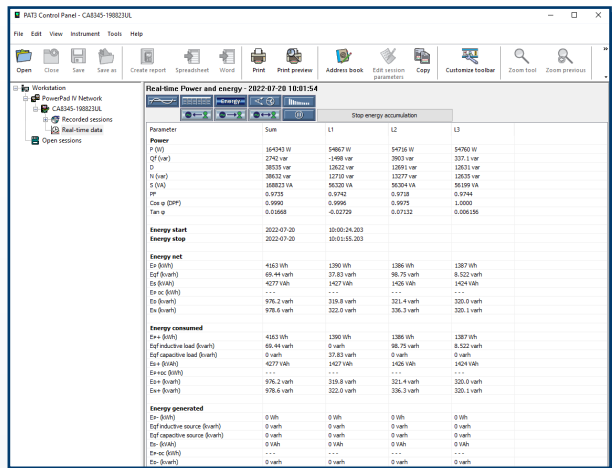
## DataView® Data Analysis and Reporting Software



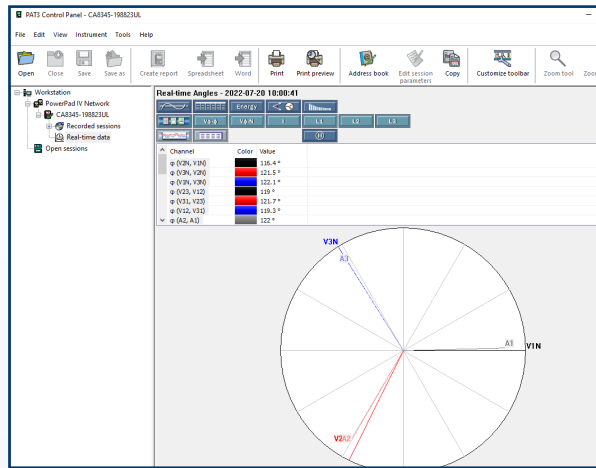
Configure and display alarm parameters, thresholds and tests results.



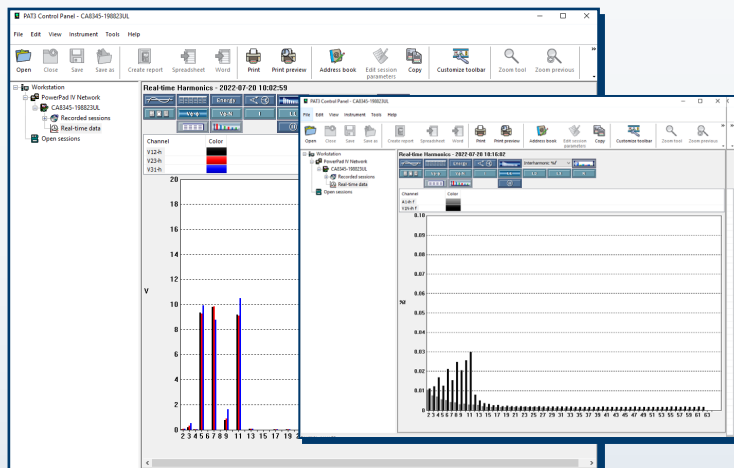
Display real-time waveforms by phase, parameter or total.



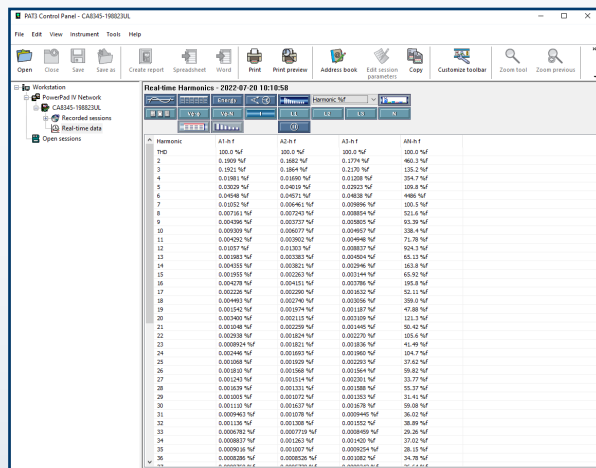
Display power and energy parameters – both instantaneous and total.



Display real-time phasor diagrams. Includes unbalance for both voltage and current.



Display all harmonics from 1<sup>st</sup> to 63<sup>rd</sup> or interharmonics from 1<sup>st</sup> to 62<sup>nd</sup> in bar graph form for voltage, current and power.



Display harmonics in a text table from harmonic 0 (DC) through the 63<sup>rd</sup>.



# CONFIGURATION & ANALYSIS SCREENS

## DataView® Data Analysis and Reporting Software

The 'Configure Instrument' dialog box shows various detection thresholds. Under 'Threshold of A voltage difference', 'L1' is set to 9999 V. Under 'Threshold of A current difference', 'L1' is set to 5 A. Under 'Type of detection', 'Nominal and surge' is selected. Under 'Threshold of voltage peak', 'L1' is set to 75 V. A waveform graph shows a transient event.

Configure transient voltage and current detection.

The PAT3 Control Panel displays a transient waveform for 'Transient ZEN50160'. The y-axis is labeled 'V' and ranges from -100 to 100. The x-axis shows time from 02:30:17.8272061 to 02:30:17.827904701. A red vertical line marks the event at 02:30:17.8272061 (0.000002 s).

Display transient waveforms.

The 'Class A Events' list shows a table of detected events. The table has columns for Start time, End time, Duration, Event type, and Peak value. The first few rows show events like 'Peak based 1 light' and 'RVC (peak voltage change)'.

Display Class A list.

The 'Configure Instrument' dialog box shows settings for 'Class A Events'. 'Nominal phase-to-neutral voltage' is set to 120. 'Nominal phase-to-phase voltage' is set to 208. 'Dips: Threshold % of nominal' is set to 32.0. 'Swells: Threshold % of nominal' is set to 110.0. 'Interrupts: Threshold % of nominal' is set to 5.0.

Configure Class A events.

The 'Configure Instrument' dialog box shows 'Trends' configuration. 'Aggregation period' is set to 0.2 s. 'Configuration number' is 1. Under 'Data to record', 'Inrush', 'Class A Events', 'Energy rates', and 'Schedule' are checked. Under 'Harmonic values to record', 'L1', 'L2', and 'L3' are checked. Under 'Interharmonic values to record', 'L1', 'L2', and 'L3' are checked.

Configure trends.

The PAT3 Control Panel displays an 'InRush IR\_10S\_C' peak. The y-axis is labeled 'V' and ranges from 0 to 200. The x-axis shows time from 02:45:36.2 to 02:45:38. A red vertical line marks the peak at 02:45:36.2. The peak value is 998.9 A.

Display InRush peak.

Trend Results.



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