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

MODEL 8345

Excel at Power Quality Analysis

POWERP D IV Class

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, Q1 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

Our products are backed by over 125 years of experience in test and measurement equipment, and encompass the latest international standards for quality and safety.

Technical Hotline: (800) 343-1391 www.aemc.com



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.



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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!



SPECIFICATIONS

MODEL	8345							
ELECTRICAL	00-0							
Inputs	5 voltage / 4 current isolated							
Voltage	5 voltage / 4 current, isolated 5 V to 1,000 Vac and Voc DC to 63rd order; < 3% Udin							
Harmonics Mode								
Interharmonics Mode	0 to 62nd order; < 0.5% Udin							
Inrush & Transient	, ,							
Capture	No maximum (limited by SD card)							
Shockwaves (Fast transient)	Up to 12 kV sampled every 500 ns							
Flicker (Pst)	< 0.1							
Voltage Unbalance (u0,u2)	0.5 to 5 % (absolute); ±0.15 % (absolute)							
Trend Recording	> 900 parameters 3 days with a sampling period of 200 ms 15 days with a sampling period of 1 s 45 days with a sampling period of 3 s							
Sampling Rate	Voltage 400 kSps / Current 200 kSps / Surge 2 MSps							
Alarm Mode	52 / 20,000							
Types / Number	with Email notifications							
Real-time / Power / Energy Modes	Yes / Yes / Yes							
Unbalance Mode	Composite							
Screenshots	No maximum (limited by SD card)							
Power Supply	Power from phase from 100 to 1000 V AC/DC with external supply block (included)							
Carrier Current Detection	Yes							
Battery	5.8 Ah Li-ion battery pack (included) / ≤ 6 hrs w/ display on; ≤ 10 hrs w/ display off							
MECHANICAL								
Data Storage	16 GB SD-Card (included) for snapshot, transients, alarms and trend recording							
Display	7 in color LCD touch screen: 800 x 480 (WVGA)							
Clock / GPS	Yes, built-in							
Operating Temperature	32 °F to 104 °F [+0 °C; +40 °C]							
Communication	USB, Ethernet, Wi-Fi, Web server, IRD server, USB port (type A)							
Dimensions	7.87 x 11.22 x 2.17 in (200 x 285 x 55 mm)							
Weight (meter only)	4.19 lbs (1.9 kg)							
COMPLIANCE & STANDARD								
Safety / IP	IEC 61010 1000 V CAT IV / IP54							
Environmental	IEC 61557-12 & IEC 62586							
Measurement Standard	IEC 61000-4-30 (Ed 3) Class A (Full)							
EN50160 Monitoring Mode	With DataView® software							
Warranty	*3 years (registration must be done within 30 days of the date of purchase)							

Download the user manual for complete specifications







PRODUCT INCLUDES CAT. # 2136.36 - POWERPAD® IV MODEL 8345

W/4 MA194-24-BK MINIFLEX® 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



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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 (Q₁), 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 µs 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 μs
- 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.

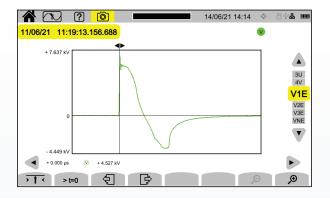
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E ₀ (€)		4.17		1.91		0.81	Σ
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E ₃ (€)		105.37		102.22		102.04	· · ·
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SHOCKWAVES

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.



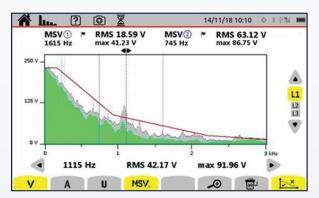
MSV_{3*} LINE CARRIER SIGNAL MEASUREMENT

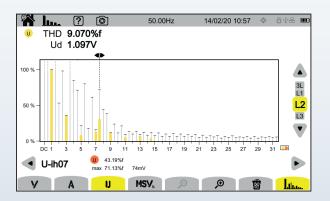
In the harmonic analysis function, there is also a mode for monitoring carrier currents. After defining their frequency in the instrument, the command signals will then be measured.



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.





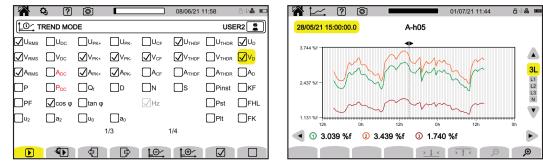


MONITORING MADE EASY

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.

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1	7	ALARM	MODE						J	0P12 😩			ARMS LIS	_				
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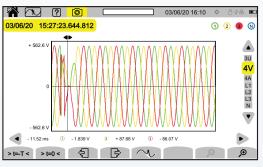


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TRANSIENTS

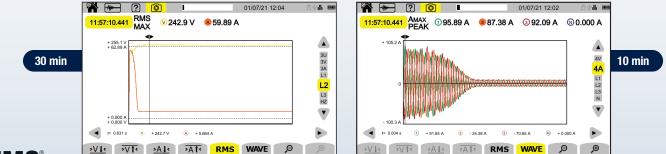
Transients correspond to peaks in the voltage or current waveform. Shockwaves are extremely fast transients with even greater possible amplitude.





TRUE INRUSH®

For tests when starting up loads, model 8345 can record ½-period values covering more than 30 minutes and the waveforms of the signal can be captured.





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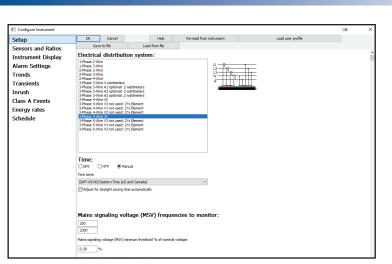
 L1 L2 L3 N Σ ▼

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™.



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.).

Use any iOS or Android PC, tablet or smartphone.

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.

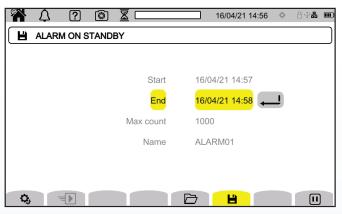
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	1	2	3	N	
RMS	228.3 V~	232.4 V~	236.0 V~	5.869 V~	
DC	+ 0.103 V=	+ 0.150 V=	+ 0.210 V=	- 0.186 V=	
THD	2.7 %f	5.4 %f	2.7 %f		3U
THD	2.7 %r	5.4 %r	2.7 %r	4.5 %r	4V 4A
CF	1.374	1.418	1.451	1.569	
Pinst	0.014	0.017	0.016		L1 L2 L3 N
Pst	0.143	0.156	0.148		
Plt	0.121	0.133	0.129		Ť
RMS	THD	CF T		64	

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

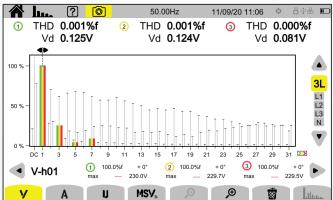
Short or long-term flicker

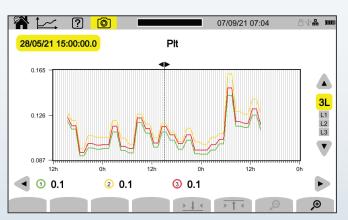
This is caused by the power supply voltage modulation. When it affects lighting, it gives an impression of unstable vision due to a light stimulus whose luminance or spectral distribution fluctuates over time.

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



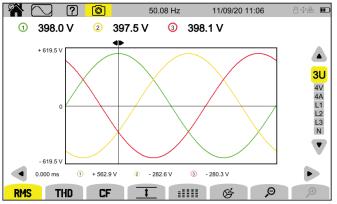




MODEL 8345: DIAGNOSTIC TOOL

Viewing the signal and its components

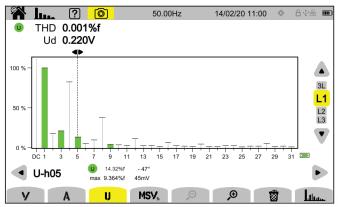
Model 8345 is an easy-to-use analytical tool. After connection, the 8345 immediately and totally automatically displays the voltages up to 1,000 V AC and DC and the currents, thanks to a function which automatically recognizes the sensor connected. A large number of sensors are compatible with the PowerPad.



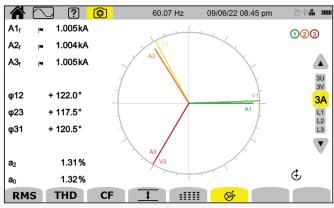
The Waveform mode automatically provides an oscillogram showing the voltage and/or current waveforms.

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		1	2	3 ◄	
P (V	∨)	- 584.1	- 675.8	- 694.8	
					<mark>3L</mark>
Q _f (var)	- 81.8	- 97.5	- 96.8	L1 L2 L3 Σ
D (v	/ar)	+ 18.7	+ 43.1	+ 13.4	L3 S
N (v	/ar)	+ 83.9	+ 106.6	+ 97.7	
s (\	/A)	590.1	684.2	701.6	
W	DE				
W	PF				

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.



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



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.

♣ ? ● ■ ♣ SETUP USER1 2	☆ ? O 09/13/22 09:36 ♦ ⊕ ■ 3¢ DISTRIBUTION SYSTEM USER1 2 1 2	₩ 0 13/04/21 11:03 ○ 3/4# m0 ③ VOLTAGE RATIOS USER1 2
Trend mode 	3-phase 5-wire	Ratio set-up ✓ V1 + V2 + V3 + VN ► ① 1.0k / 1000.0 ○ 1.0k / 1000.0 ② 1.0k / 1000.0 ○ 1.0k / 1000.0 ③ 1.0k / 1000.0 ○ 1.0k / 1000.0
<u>¢</u> ¢		V U A A



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.

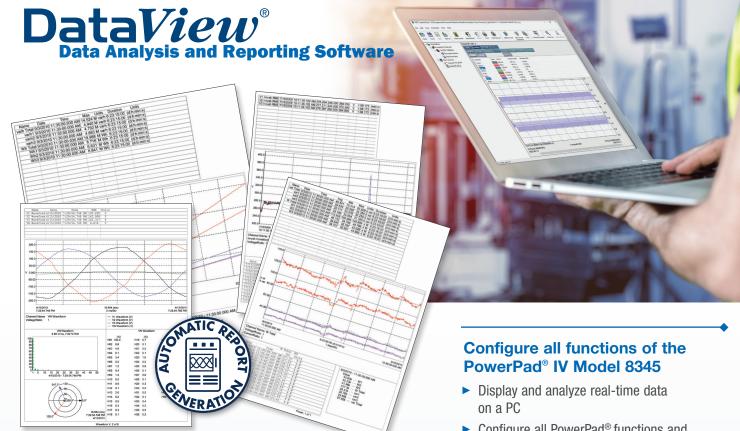
	Probe/Sensor Type	TRMS Current	Max Conductor Size	Accuracy on IRMS	Accuracy on Φ	Safety
	SR193-BK (1000 A)	1 A - 3 A		±0.8 %	-	EN 61010-2-032,
	Catalog #2140.33	3 A - 10 A	2.05 in		±1°	Pollution Degree 2,
	AC Current Probe with 10 ft lead	10 A - 100 A	(52 mm)	±0.8 %	±0.5 °	600 V CAT IV, 1000 V CAT III
		100 A - 1200 A		±0.8 %	±0.3 °	
	MR193-BK	1 A - 10 A 10 A - 100 A	-	±(1.5 % + 1 A)	 ±2 °	EN 61010-2-032,
	(1000 AAc / 1400 Abc) Catalog #2140.28	100 A - 100 A	1.6 in	±3 %	±2	Pollution Degree 2,
	AC Current Probe	800 A - 1200 A	(41 mm)	±3 %	±1.5 °	300 V CAT IV,
	with 10 ft lead	1200 A - 1400 A	-	±5%	1.5	600 V CAT III
	MN93-BK (200 A)	0.5 A - 2 A			_	EN 61010-2-032,
	Catalog #2140.32	2 A - 10 A	0.78 in	±(3 % + 1 A)	±6°	Pollution Degree 2,
	AC Current Probe	10 A - 100 A	(20 mm)	±(2.5 % + 1 A)	±3 °	300 V CAT IV,
	with 10 ft lead	100 A - 240 A		±(1 % + 1 A)	±2°	600 V CAT III
	MN193-BK (100 A)	100 mA - 300 mA			_	
	Catalog #2140.36	300 mA - 1 A	-	±(0.7 % + 2 mA)	±1.5 °	
	AC Current Probe with 10 ft lead	1 A - 120 A	0.78 in	±0.7 %	±0.7 °	EN 61010-2-032, Pollution Degree 2,
	MN193-BK (5 A)	5 mA - 50 mA	(20 mm)	±(1 % + 0.1 mA)	±1.7 °	300 V CAT IV,
	Catalog #2140.36	50 mA - 500 mA		±1 %		600 V CAT III
	AC Current Probe		-	±0.7 %	±1 °	
	with 10 ft lead AmpFlex® 193-24-BK	500 mA - 6 A		±0.7 %		
	(6500 A) Catalog #2140.34	10 A - 100 A	7.64 in	±3 %	±1 °	EN 61010-2-032, Pollution Degree 2,
0	Flexible Current Probe with 24 in sensors & 10 ft lead	100 A - 6500 A	(190 mm)	±2 %	±0.5 °	600 V CAT IV, 1000 V CAT III
	AmpFlex® 193-36-BK (6500 A) Catalog #2140.35	10 A - 100 A	11.46 in	±3 %	±1°	EN 61010-2-032, Pollution Degree 2,
0	Flexible Current Probe with 36 in sensors & 10 ft lead	100 A - 6500 A	(290 mm)	±2 %	±0.5 °	600 V CAT IV, 1000 V CAT III
	MiniFlex® MA193-10-BK (1000 Aac)	10 A - 100 A	2.75 in	±3 %	±1 °	EN 61010-2-032, Pollution Degree 2,
0	Catalog #2140.48 MiniFlex® Sensor with 10 in sensor & 5 ft lead	100 A - 1000 A	(70 mm)	±2 %	±0.5 °	600 V CAT IV, 1000 V CAT III
	MiniFlex® MA193-14-BK (1000 Aac)	10 A - 100 A	3.94 in	±3 %	±1°	EN 61010-2-032, Pollution Degree 2,
0	Catalog #2140.50 MiniFlex® Sensor with 14 in sensor & 5 ft lead	100 A - 1000 A	(100 mm)	±2 %	±0.5 °	600 V CAŤ IV, 1000 V CAT III
	with 36 in sensors & 10 ft lead MiniFlex® MA193-10-BK (1000 Aac) Catalog #2140.48 MiniFlex® Sensor with 10 in sensor & 5 ft lead MiniFlex® MA193-14-BK (1000 Aac) Catalog #2140.50 MiniFlex® Sensor with 14 in sensor & 5 ft lead MiniFlex® MA194-24-BK (1000 Aac) Catalog #2140.80	10 A - 100 A	7.64 in	±3 %	±1 °	EN 61010-2-032, Pollution Degree 2,
	Catalog #2140.80 MiniFlex [®] Sensor with 24 in sensor & 10 ft lead	100 A - 1000 A	(190 mm)	±2 %	±0.5 °	600 V CAT IV, 1000 V CAT III

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

* Requires BNC adapter Catalog #2140.40

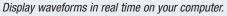


SOFTWARE & REPORTS



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.





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.

- 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



DATAVIEW® MONITORING

Data View Data Analysis and Reporting Software

The DataView[®] 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.

Configure Instrument		×
Monitoring Slow Variations Thresholds Rapid Voltage Changes and Int	erruptions Dips and swells Transients	
Electrical distribution system: 3-Phase 5-Wire		
Set EN 50160 defaults		
Nominal voltage	THD calculation:	
Enter the nominal voltage of the distribution network:	MAX harmonic used for THD calculation:	Load
Phase-to-neutral 115 V (50 - 650000)	25	Save as
Nominal frequency	Aggregation period (by default)	
○ 50 Hz	10 min \checkmark	
Mains signaling voltage (MSV) frequencies to monitor:		
200		
3000		
Mains signaling voltage (MSV) minimum threshold % of nominal voltage:		
0.30 %		
Mains signaling voltage (MSV) minimum duration:		
120 s		
Enter name of recording. Name is up to 8 chars and contains "A-Z", "0-9", "8".		
EN50160		
Schedule a test		
Starting time Ending time		
2022-09-06 V 21:10 2022-09-13	✓ 21:10	

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

Confi	gure Instrument																×
Monit	toring Slow Variati	ons Th	resholds	Rapid Voltage Cha	ange	s and Inter	ruptions D	ips and swe	lls	Transients							
Ele	ctrical distribution s	ystem:	3-Phase	5-Wire												% of	
	Quantity		armonic order	Aggregation perio	bd	Select %	Nominal value			Low (<) limit			Hig	h (>) limit	a	ggregation periods	
1	Hz	~		10 s	\sim	√%	60 Hz	-1	%	59.4	Hz	1	%	60.6	Hz	99.5 %	
2	Hz	~		10 s	\sim	√%	60 Hz	-6	%	56.4	Hz	4	%	62.4	Hz	100 %	
3	Vonns	~		10 min (default)	\sim	√%	230 V	-10	%	207	$\sim v$	10	%	253	$\sim v$	95 %	
4	Vonns	~		10 min (default)	~	√%	230 V	-15	%	195.5	$\sim v$	10	%	253	$\sim \mathbf{v}$	100 %	
5	Plt	~		2 h										1		95 %	
6	VUNB (U2)	~		10 min (default)	~									2	%	95 %	
7	VφNтнpnf	~		10 min (default)	~									8	%f	95 %	
8	VφN-h f	~	2	10 min (default)	~									2	%f	95 %	
9	VφN-h f	~	3	10 min (default)	\sim									5	%f	95 %	
10	VφN-h f	~	4	10 min (default)	~									1	%f	95 %	

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

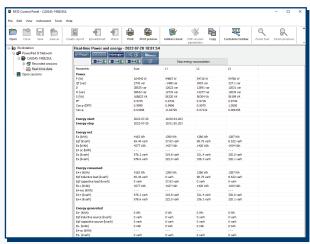


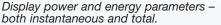
CONFIGURATION & ANALYSIS SCREENS

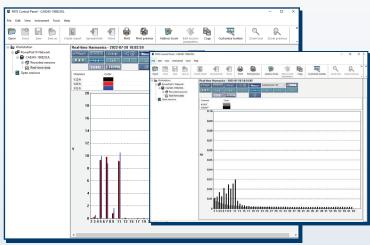
DataView[®] Data Analysis and Reporting Software

nents\DataViev	w∖DataF	iles\Qualist	ar Class A	ALARM1 tir	ne 19 EDT		RM1.icp	
Q		R	Ð	Q	-	2	Q	
Zoom tool	Zoor	m previous	Zoom in	Zoom ou	it Zoor	n all	Select start an	id ei
Alarm ALAR	м1							
RMS	h.							
RMS	limm							
-vo-o	V\$-N				2	L3		
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Measurement	Line	Extreme v	alue Unit	ts Directio	n type	Du	ration	
Vororms	L3	0	v	<		14	.781045437 s	
Vффrмs	L2	0	V	<		24	.36856389 s	
VonNms	L1	0	V	<		46	.338799715 s	
Vффrms	L1	0	V	<		59	.908352852 s	
Vonnes	L2	0	V	<		59	.908352852 s	
VonNms	L3	0	V	<		59	.908352852 s	
Vффrмs	L2	94.56	V	<		0.	19972682 s	
Vonnes	L1	54.82	V	<		8.3	376569271 s	
Margare and a	1.2	04.0	M				702610017	

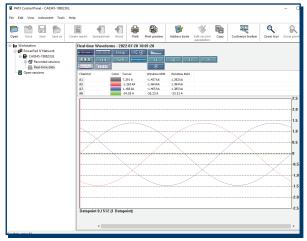
Configure and display alarm parameters, thresholds and tests results.



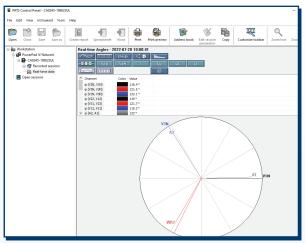




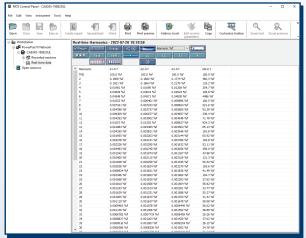
Display all harmonics from 1st to 63rd or interharmonics from 1st to 62nd in bar graph form for voltage, current and power.



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



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

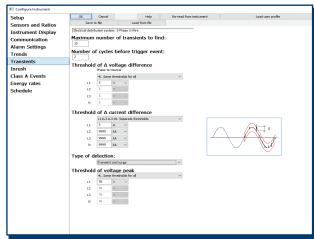


Display harmonics in a text table from harmonic 0 (DC) through the $63^{\rm rd}$.



CONFIGURATION & ANALYSIS SCREENS

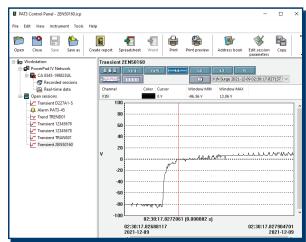
DataView[®] Data Analysis and Reporting Software



Configure transient voltage and current detection.

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en Clase Save Save as Cres	ate report Spre	adsheet Word Print	Print preview	Address book Edit session parameters	Copy Custo	enize toolbar Zoom tool Z	toom previous Zo	iomin Zoomio	ut Zoom al
Workstation	Trend EN50	160							
PowerPad IV Network	100		8						
🗄 🏪 CA 8345-198823UL									
Recorded sessions	0								
(2) Real-time data	Start date	Start time	End date	End time	Duration	Event type	Forced end	Res value	Voltage by
Copen sessions	2022-06-27	22:39:10.23021218	2022-06-27	22:41:10.304751024	120.074538708 #	Prep band 1 Volv	No	2,9851	YoN
ENSOLO	2022-06-27	22:39:10.2994995	2022-06-27	22:39:11.421294181	1.021824037 s	RVC (rapid voltage changes)	No	95.29	TeN
	2022-06-27	22:39:13.937393691	2022-06-27	22/39/14/956238441	1.018824815.5	RVC (rapid voltage changes)	No	43.3087	YoN
- Slow variations	2922-06-27	22/39/18.534667541	2922-06-27	22/39/19/536292416	1.001624823.5	RVC (rapid voltage changes)	No	43.5087	YON
-ty Trend	2022-06-22	22129118.554042523	2022-06-27	22:29:22.670136624	4.115824052.6	Internet	No	0	YON
- Rapid voltage changes (RVC)	2022-06-27	22:29:22.670116624	2022-06-27	22:29:24.641966253	1.97184968 s	RVC (rapid voltage changes)	No	5,6922	Tel
Long and short interruptions		22:39:22.499993616	2022-06-27	22:39:23.600591408	0.900099715 s	Internet	No	0	YoN
Voltage dips	2022-06-27	22:39:29.491440174	2022-06-27	22:39:30.498189866	1.206749915 a	RVC (rapid voltage changes)	No	37,1293	Tell
X Voltage swells	2222-06-27	22,39:30.78971485	2022-06-27	22/39/32/620839506	1.831124783.5	RVC (rapid voltage changes)	No	37,1543	Wolf
	2922-06-27	22/39/33.776914225	2022-06-27	22 29:34 790029108	1.013124943.5	RVC (rapid voltage changes)	No	15.8564	YON
- Transient	2022-06-27	22:29:36.0 \$6038808	2022-06-27	22:29:42.993097324	6.977040492.6	RVC (rapid voltage changes)	No	37.1904	YigN
Class A Events	2022-06-27	22:39:49,420686056	2022-06-27	22:29:50.522785916	1.302099095 s	RVC (rapid voltage changes)	No	51.2503	YeN
	2022-06-27	22:39:53.666060249	2022-06-27	22:39:54,762785108	1.096724987 s	RVC (rapid voltage changes)	No	50.0183	Yell
	2022-06-27	22:39:56.250794949	2022-06-27	22:39:57.363299591	1,302474689 a	RVC (rapid voltage changes)	No	40.5755	Tell
	2222-06-27	22:40:00.153884133	2022-06-27	22:40:01.173198875	1.019224644.5	RVC (rapid voltage changes)	No	40.8068	TigN
	2922-06-27	22 40 03 217433481	2022-06-27	22 40 /04 317058341	1.099624872.5	RVC (rapid voltage changes)	No	\$1.8134	YON
	2022-06-27	22:40:06.638922878	2022-06-27	22:40:07.741032741	1.102099895 5	RVC (rapid voltage changes)	No	48.7458	YigN
	2022-06-27	22:41:18.337648009	2022-06-27	22:41:19.359322892	1.021674071 #	RVC (rapid voltage changes)	No	50.2368	Yell
	2022-06-27	22:41:25.045697284	2022-06-27	22:41:26.046947159	0.998250008 s	RVC (rapid voltage changes)	No	37.3547	Yell
	2022-06-27	22:41:27.885547059	2022-06-27	22:41:28.899071934	1.013524771 s	RVC (rapid voltage changes)	No	14,3165	Yell
	2222-06-27	22/41/29/442673859	2022-06-27	22:41:30.998923692	1.556249857.5	RVC (rapid voltage changes)	No	37, 2696	TigN
	2922-06-27	22 41 31 273521759	2022-06-27	22 41:32 41367 1626	1.14015007 s	RVC (rapid voltage changes)	No	37.1662	YON
	2022-06-27	22:41:32.498546609	2022-06-27	22:41:36.679996209	4.191449642.6	RVC (rapid voltage changes)	No	37.9621	YigN
	2022-06-27	22:41:30.071596159	2022-06-27	22:41:40.097421034	2.025824785 #	RVC (rapid voltage changes)	No	14,2925	VoN
	2022-06-27	22:41:40.144646034	2022-06-27	22:41:41.201570901	1.056925058 a	RVC (rapid voltage changes)	No	37,2659	YoN
	2022-06-27	22:41:46.856095434	2022-06-27	22:41:47.968220317	1.302124691 s	RVC (rapid voltage changes)	No	49,3888	YoN
	2022-06-27	22:41/51/699420084	2922-06-27	22:41:52.701695084	1.00227499 s	RVC (rapid voltage changes)	No	49.9914	VoN
	2022-06-27	22:41:51.721395084	2922-06-27	22141/55.248569884	3.52717495.5	Interrupt	No	0	VoN
	2022-06-27	22:41:55.245469084	2022-06-27	22:41:57.339044759	2.093575001 s	RVC (rapid voltage changes)	No	3.9512	YigN
	2022-06-27	22:41:55.270594004	2022-06-27	22:41:56.170229917	0.099625063 s	Interrupt	No	0	VoN
	2022-06-27	22:42:01.247894509	2022-06-27	22:42:02.249889509	1.00197506 s	RVC (rapid voltage changes)	No	46.0914	Yell
	2022-06-27	22:42:01.257619509	2022-06-27	2242:0141594359	3.173974752.5	Internet	No	0	YoN
	2022-06-27	22/12/01/11/59/359	2022-06-27	22 42:06.520794234	2,0791997915	RVC (rapid voltage changes)	No	6.2053	YoN
	2922-06-27	22 42 04 47 1944 359	2022-06-27	22 42:05.369694259	0.9977499015	Interrupt	No	0	YON
	2022-06-27	22:42:25.62116046	2022-06-27	22:42:26.611718368	0.990550041 s	RVC (rapid voltage changes)	No	40.1164	YigN
	2022-06-27	22:42:20.293010417	2022-06-27	22:42:29.291543409	0.998534904 s	RVC (rapid voltage changes)	No	30.0194	VoN
	2022-06-27	22:42:29.47446536	2022-06-27	22:42:30.465035235	0.990549803 a	RVC (rapid voltage changes)	No	35.0597	YeN
	2022-06-27	22:42:38.157193159	2022-06-27	22:42:39.159038167	1.001825094 s	RVC (rapid voltage changes)	No	48.0529	YoN
	2022-06-27	22/42/41/073143159	2022-06-27	22/42/42 143593034	1/070449829 5	RVC (rapid voltage changes)	No	37,9661	VoN
	2922-06-27	22:42:42.831817937	2022-06-27	22 42:43.969117961	1.1373000145	RVC (rapid voltage changes)	No	41.2812	YON
	2022-06-27	22:42:49.175843034	2022-06-27	22:42:50.22231901	1.146475077 s	RVC (rapid voltage changes)	No	40.2932	YigN
		22:42:49.33981801	2022-06-27	22:42:52.429257986	3.009449083 s		No	0.474	Tell
	2022-06-27					Interrupt			

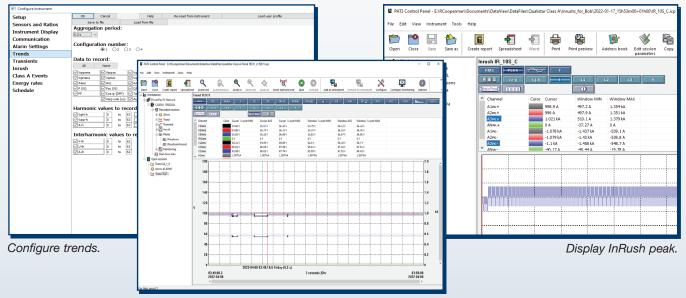
Display Class A list.



Display transient waveforms.

Configure Instrument				
Setup	OK Cancel	Help	Re-read from instrument	
Sensors and Ratios	Save to file	Load from file		
Instrument Display	Nominal phase-to-neutral voltage:			
Communication	120			
Alarm Settings	Nominal phase-to-ph	iase voltage:		
Trends				
Transients	Dips: Threshold % of nominal:			
Inrush				
Class A Events	₽2.0			
Energy rates	Voltage hysteresis in %:			
Schedule	2.0			
	Swells:			
	Threshold % of nominal:			
	110.0			
	Voltage hysteresis in %:			
	2.0			
	Interrupts:			
	Threshold % of nominal:			
	5.0			
	Hysteresis in %:			
	2.0			
L				











United States & Canada

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