POWER QUALITY ANALYZERS, METERS & LOGGERS

Power & Energy Loggers PEL 100 Series

Models PEL 102 & PEL 103

Monitor your energy usage & costs locally or from anywhere in the world!

Visit the PEL 100 Series website for more information on software, specifications and more!

▶SPECIFICATIONS

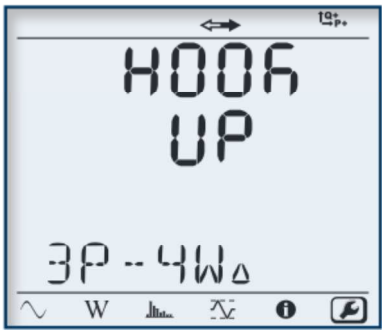
MODELS		PEL 102 & PEL 103		
GENERAL				
Sampling Frequency		128 samples per cycle; 50/60Hz (16 samples/cycle 400Hz)		
Data Storage Rate		1 per second		
Demand Period Storage Rate		User selectable (1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 and 60 minutes)		
Recorded Parameters (Single- and Poly-Phase)		V, I, W, VA, var, PF, Tan, Wh, VAh, VARh, THD (V and I), Individual harmonics (from 1 through 50 per phase); Crest Factor (CF), Cos f / DPF		
Event Log		Tracks and records status changes and error messages along with recorded data		
Front Panel Indicator LEDs		*Bluetooth* active, recording in progress, phase connection reversal, overload, battery charging and SD Card status		
Storage Capacity		2GB SD card (included) is used for storage. SD cards (up to 2GB); SDHC cards (4 to 32GB) formatted FAT32 are supported		
INPUTS	Voltage	3 voltage input channels via 4mm safety banana jacks		
	Current	3 current input channels via custom 4 pin jacks that accept AEMC• probes and sensors		
ELECTRICAL				
VOLTAGE MEASUREMENT		RANGE	RESOLUTION	* ACCURACY (% of Reading)
	50/60Hz	42.5 to 69Hz	–	±0.1Hz
Single-Phase RMS Voltages		10 to 1000Vrms	0.1V	±0.2% Rdg ± 0.2V
Phase-to-Phase RMS Voltages		17 to 1700Vrms	0.1 to 1V	±0.2% Rdg ± 0.4V
	400Hz	340 to 460Hz	–	–
Single-Phase RMS Voltages		10 to 600Vrms	0.1V	±1% Rdg ± 1V
Phase-to-Phase RMS Voltages		17 to 1200Vrms	0.1 to 1V	±1% Rdg ± 1V
	DC	100 to 1000V	0.1V	±1% Rdg ± 3V (typical)
PT Ratios		Programmable from 50V to 65,0000V	0.01V to 0.1V	–
CURRENT MEASUREMENT				
Current Probe: MiniFlex• Sensor MA193***		200mA to 100Arms	1 to 100mA	±1.2% ± 50mA
		0.8A to 400Arms	10 to 100mA	±1.2% ± 0.2A
		4A to 2000Arms	0.1 to 1A	±1.2% ± 1A
		20A to 10,000Arms	0.1 to 10A	±1.2%
CT Ratios		Programmable from 1:1 to 25,000:1 (probe dependent)		
POWER MEASUREMENTS				
Active Power (P)*		-2 to 2GW	0.001W	±0.5% Rdg ± 0.005% Pnom
Reactive Power (Q)*		-2 to 2Gvar	0.001var	±1% Rdg ± 0.01% Qnom
Apparent Power (S)*		0 to 2GVA	0.001VA	±0.5% Rdg ± 0.005% Snom
Power Factor		-1 to +1	0.001	± 0.05
Tangent ϕ (active/reactive power ratio)		-3.2 to +3.2	0.001	± 0.02
ENERGY MEASUREMENTS				
Active Energy (EP)		0 to 4 x 10^{18}	1Wh	±0.5% Rdg
Reactive Energy (EQ)		0 to 4 x 10^{18}	1varh	±2% Rdg
Apparent Energy (ES)		0 to 4 x 10^{18}	1Vah	±0.5% Rdg
THD		± 655%		
Individual Harmonics		1 to 50 displayed in percentage; 1 to 7 at 400Hz		
External Supply		110V/250V (10%) @ 50/60Hz; 400Hz		
Back-Up Power Source/Charge Time		Rechargeable 8.4V NiMH battery pack / Approximately 5 hours		
Battery Life		30 minutes minimum, 60 minutes typical		
MECHANICAL				
Communication Ports		USB 2.0, Ethernet (RJ45), Wireless *Bluetooth* Class 1 **		
Dimension/Weight		10.08 x 4.92 x 1.46" (256 x 125 x 37mm) / <1kg		
Case/Index of Protection		Double insulated, rubber over-molded, polycarbonate UL94 V1 rated / IP54 non operating		
Mounting/Security		Embedded magnets on back side, keyhole slot on back side / Kensington anti-theft system		
DISPLAY				
Display Type for Model PEL 103		2.63 x 2.16" (67 x 55mm), four line, monochrome, backlit LCD with adjustable brightness and contrast		
ENVIRONMENTAL / SAFETY				
Operating Temperature/Relative Humidity		50° to 122°F (10° to 50°C) / up to 85%		
Storage Temperature		-4° to 122°F (-20° to 50°C) with batteries; -4° to 158°F (-20° to 70°C without batteries)		
Safety Rating/CE Rating		Complies with IEC 61010-1:Ed3, and IEC 61010-2-030:Ed1 for 1000V CAT III / 600V CAT IV, Pollution Degree 2 / Yes		

* Maximum value is current probe dependent.
** Computers with Class II *Bluetooth* will restrict range to 40 ft. Computers without *Bluetooth* will require a Class I or Class II *Bluetooth* radio adapter.
*** Maximum current reduced by a factor of 2 for 400Hz fundamental frequency.

Models PEL 102 & PEL 103

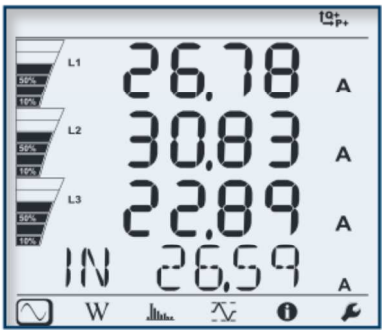
Large Functional Displays

Information Mode



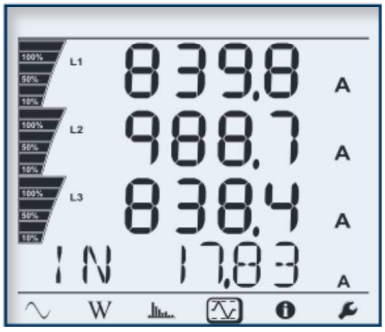
Hook up, voltage and current ratios and aggregation period can be configured from the front panel of the PEL 103.

Measurement Mode



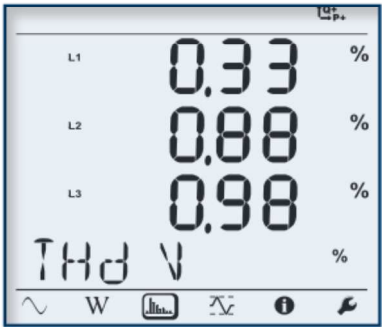
Real-time updates are displayed for voltage, current, power, frequency, power factor and tangent.

Max Mode



Max values for voltage, current (including neutral current), power and harmonics.

Harmonic Mode



Total Harmonic Distortion (THD) can be displayed by phase or phase to phase. Neutral current THD can also be displayed.

Android™ App Available!

- Configure Measurements and Recordings
- Display Data in Real-Time
- For Use on any Device with an Android Platform

▶FEATURES

- Simple to use, single-, dual (split-phase) and three-phase (Y, Δ) power & energy loggers
- Designed to work in 1000V CAT III and 600V CAT IV environments and fits in many distribution panels
- Power measurements: VA, W and var
- Energy measurements: VAh, Wh (source, load) and VARh (4 quadrants)
- DataView® software for configuring real-time communication with a PC and report generation with pre-defined or user defined templates
- Ethernet compatible
- Minimal programming required
- Displays stored measurements display or via *Bluetooth* (Class 1 - communicates up to 300 ft) to a PC or the Android™ based mobile application
- Satisfies the requirements of NEC Code 220.87
- Measures AC/DC (current probe dependent)

▶PRODUCT INCLUDES

PEL 102 & PEL 103 Kit

Small classic tool bag, three MiniFlex® MA193-10-BK sensors, 5 ft USB cable, four black test leads and alligator clips, power cord, 12 color-coded ID markers, Multifix mounting system, safety card, sensor compliance sheet, 2GB SD-Card with USB-SD-Card reader, quick start user guide, and USB stick supplied with DataView® software and user manual.

CATALOG NO.	DESCRIPTION
2137.51	Power & Energy Logger Model PEL 102 (no LCD w/3 MA193-10-BK Sensors)
2137.52	Power & Energy Logger Model PEL 103 (with LCD w/3 MA193-10-BK Sensors)
2137.61	Power & Energy Logger Model PEL 102 (no LCD or Sensors)
2137.62	Power & Energy Logger Model PEL 103 (with LCD, no Sensors)

SENSOR TYPE	CURRENT RANGE		ACCURACY (TYPICAL)	TYPICAL ERROR ON Φ AT 50/60HZ	MAX CONDUCTOR SIZE	USED WITH MODEL	LIMITED RANGE IF USED WITH MODEL
MiniFlex® MA193 * 	100mA to 3000Aac		±1%	0°	2.75" (70mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
MR193  **Battery operated**	1 to 1000Aac 1 to 1300Adc		±2.5%	-0.80°	1.6" (41mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
SR193 	1 to 1200Aac		±0.3%	+0.2°	2.05" (52mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
AmpFlex® 193 *   **24" or 36" sensor**	100mA to 12,000Aac		±1%	0°	7.64" (190mm) or 11.46" (290mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
MN93 	0.5 to 240Aac		±1%	+0.8°	0.78" (20mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
MN193 	**100A**	200mA to 120Aac	±1%	+0.75°	0.78" (20mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
	5A	5mA to 6Aac	±1%	+1.7°			

SENSOR TYPE	CURRENT RANGE		ACCURACY (TYPICAL)	TYPICAL ERROR ON Φ AT 50/60HZ	MAX CONDUCTOR SIZE	USED WITH MODEL	LIMITED RANGE IF USED WITH MODEL
SL261 **  Battery operated	**100A**	5 to 100Aac/dc	±4%	±0.5°	0.46" (11.8mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
	10A	50mA to 10Aac/dc	±3%	±1°			
J93  Battery operated	50 to 3500Aac 50 to 5000Adc		±1%	±1°	2.83" (72mm) Busbar: 5 x 1.69" (127 x 43mm)	PEL 102 PEL 103 8333 8336 8435	N/A

* Maximum current reduced by a factor of 2 for 400Hz fundamental frequency.

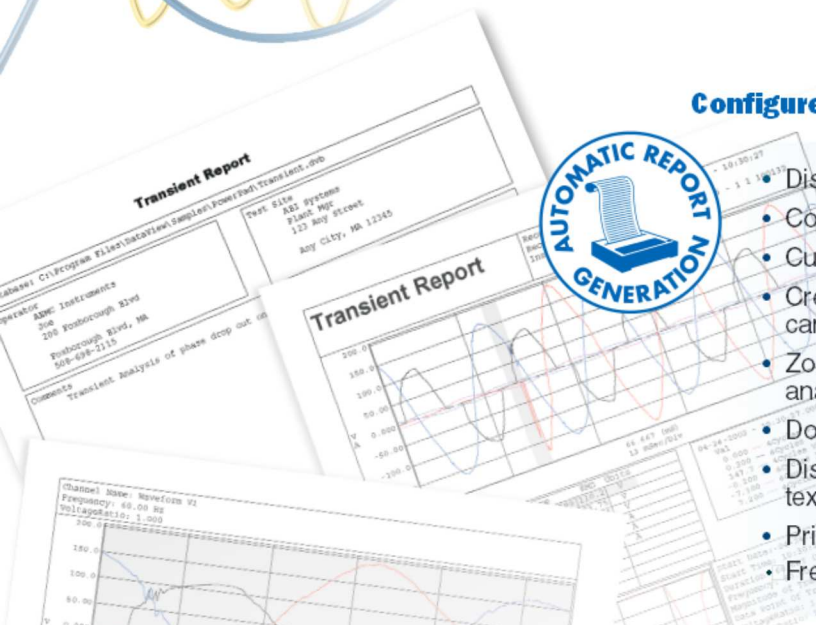
Note: Refer to the power meter's product user manual for complete specifications.

** AC/DC Current Probe BNC Adapter
for Model SL261 only
Catalog #2140.40

CATALOG NO.	DESCRIPTION
1201.51	AC/DC Current Probe Model SL261 (BNC)
2140.28	AC Current Probe Model MR193-BK
2140.32	AC Current Probe Model MN93-BK
2140.33	AC Current Probe Model SR193-BK
2140.34	AmpFlex® Sensor 24" Model 193-24-BK
2140.35	AmpFlex® Sensor 36" Model 193-36-BK
2140.36	AC Current Probe Model MN193-BK
2140.48	MiniFlex® Sensor 10" Model MA193-10-BK
2140.49	AC/DC Current Probe Model J93-BK

DataView®

Data Analysis and Reporting Software for Power Quality Meters

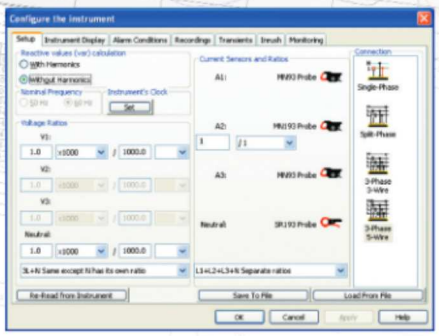


Configure all functions of the Power Quality Meters

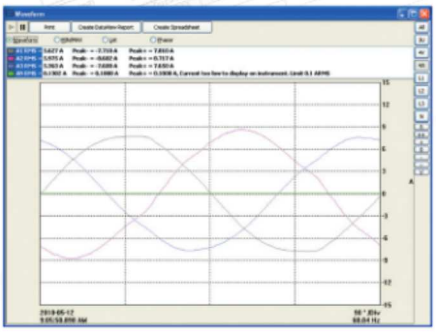
AUTOMATIC REPORT GENERATION

- Display and analyze real-time data on your PC
- Configure functions and parameters from your PC
- Customize views, templates and reports to your exact needs
- Create and store a complete library of configurations that can be uploaded as needed
- Zoom in and out and pan through sections of the graph to analyze the data
- Download, display and analyze recorded data
- Display waveforms, trend graphs, harmonic spectrums, text summaries, transients, event logs and stored alarms
- Print reports using standard or custom templates you design
- Free updates are available on our website www.aemc.com

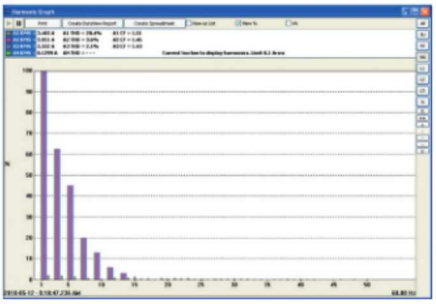
Typical DataView® Functional, Digital & Graphical Displays



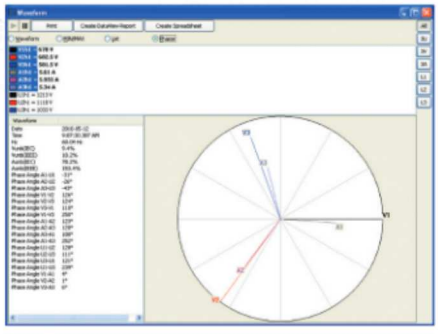
Clear and easy setup of all functions from one tabbed dialog box.



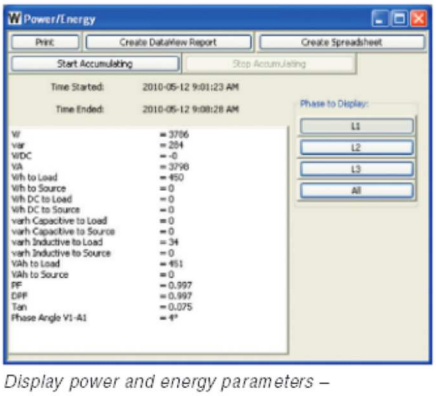
Display real-time waveforms by phase, parameter or total.



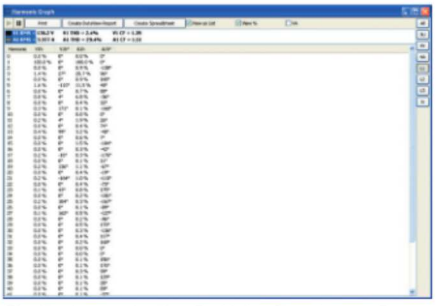
Display all harmonics from 1st to 50th in bargraph form for voltage, current and power.



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



Display power and energy parameters – both instantaneous and total.



Display harmonics in a text table from harmonic 0 (DC) through the 50th.