

Models PEL 102 & PEL 103

Monitor your power & 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 ϕ / DPF			
Event Log	Tracks and records status changes and error messages along with recorded data			
Front Panel Indicator LEDs	<i>Bluetooth</i> 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	± 65%			
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 <i>Bluetooth</i> 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.





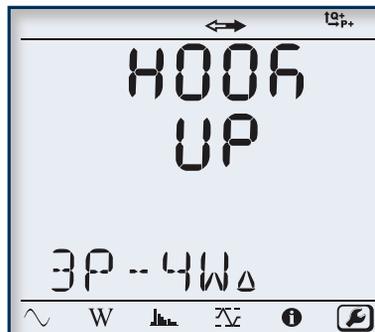
FEATURES

- 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)

Models PEL 102 & PEL 103

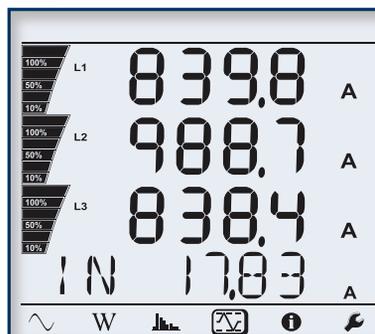
Large Functional Displays

Information Mode



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

Max Mode



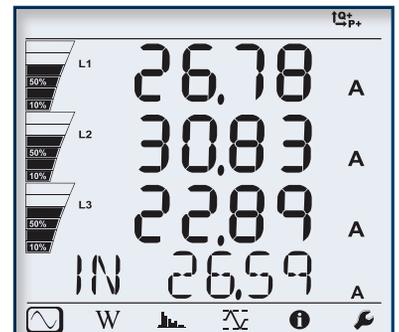
Max values for voltage, current (including neutral current), power and harmonics.

Android™ App Available!



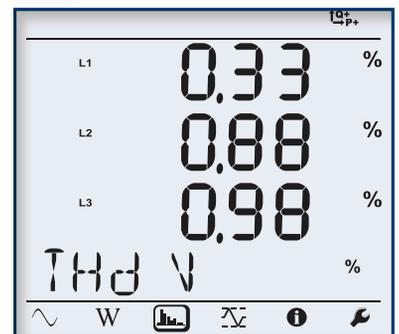
- Configure Measurements and Recordings
- Display Data in Real-Time
- For Use on any Device with an Android Platform

Measurement Mode



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

Harmonic Mode



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

PRODUCT INCLUDES

PEL 102 & PEL 103 Kit

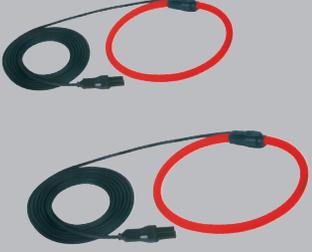
Small classic tool bag, three MiniFlex® MA193-10-BK sensors, 5 ft USB cable, four black test leads and alligator clips, power cord, 12 color-coded ID markers, Multifix mounting system, safety card, sensor compliance sheet, 2GB SD-Card with USB-SD-Card reader, quick start user guide, and USB stick supplied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

POWER QUALITY ANALYZERS, METERS & LOGGERS

Optional Accessories

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
 <p>MiniFlex® MA193 *</p>	100mA to 3000A _{AC}		±1%	0°	2.75" (70mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
 <p>MR193</p> <p>Battery operated</p>	1 to 1000A _{AC} 1 to 1300A _{DC}		±2.5%	-0.80°	1.6" (41mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
 <p>SR193</p>	1 to 1200A _{AC}		±0.3%	+0.2°	2.05" (52mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
 <p>AmpFlex® 193 *</p> <p>24" or 36" sensor</p>	100mA to 12,000A _{AC}		±1%	0°	7.64" (190mm) or 11.46" (290mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
 <p>MN93</p>	0.5 to 240A _{AC}		±1%	+0.8°	0.78" (20mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
 <p>MN193</p>	100A	200mA to 120A _{AC}	±1%	+0.75°	0.78" (20mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
	5A	5mA to 6A _{AC}	±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 100A _{AC/DC}	±4%	±0.5°	0.46" (11.8mm)	PEL 102 PEL 103 8333 8336	8220 8230 8435
	10A	50mA to 10A _{AC/DC}	±3%	±1°			
J93  Battery operated	50 to 3500A _{AC} 50 to 5000A _{DC}		±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.

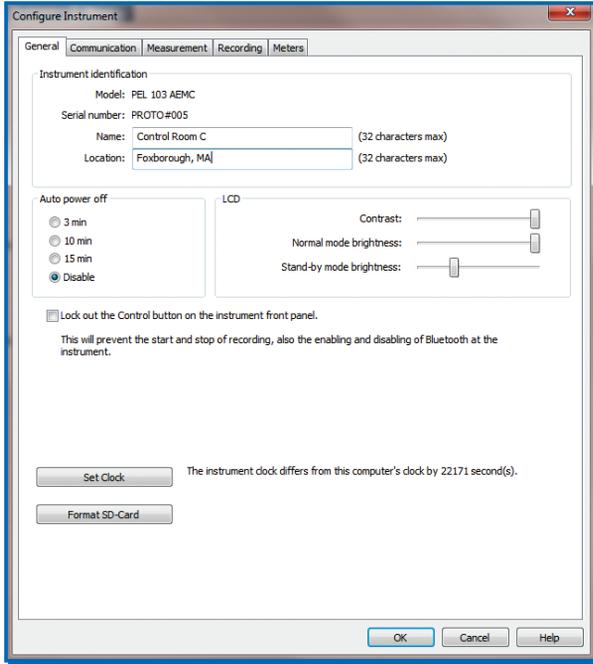
** AC/DC Current Probe BNC Adapter for Model SL261 only
Catalog #2140.40



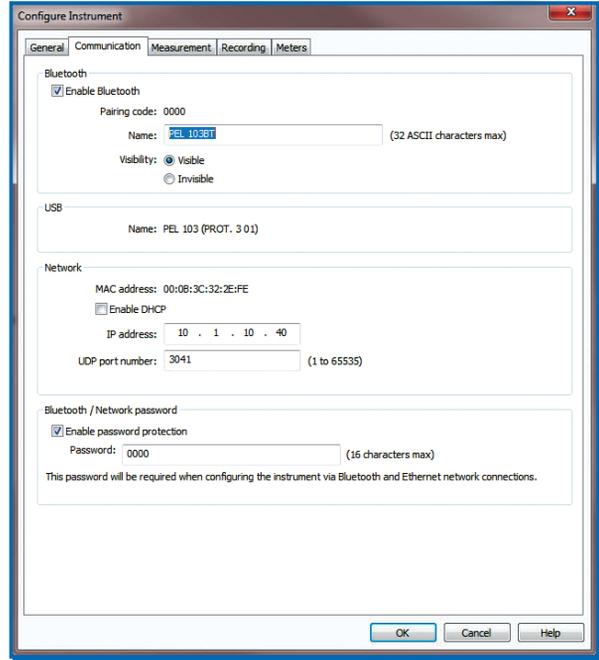
CATALOG NO.	DESCRIPTION
1201.51	AC/DC Current Probe Model SL261 (BNC)
2140.28	AC Current Probe Model MR193-BK
2140.32	AC Current Probe Model MN93-BK
2140.33	AC Current Probe Model SR193-BK
2140.34	AmpFlex® Sensor 24" Model 193-24-BK
2140.35	AmpFlex® Sensor 36" Model 193-36-BK
2140.36	AC Current Probe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

DataView®

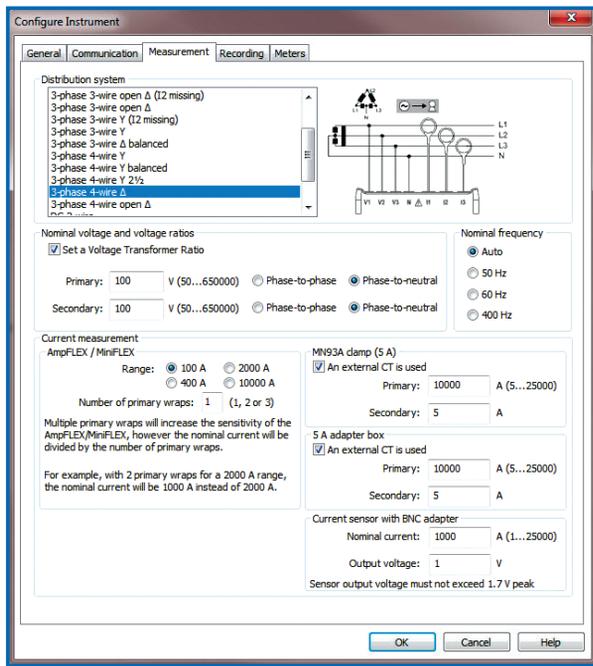
Data Analysis and Reporting Software for the PEL 100 Series



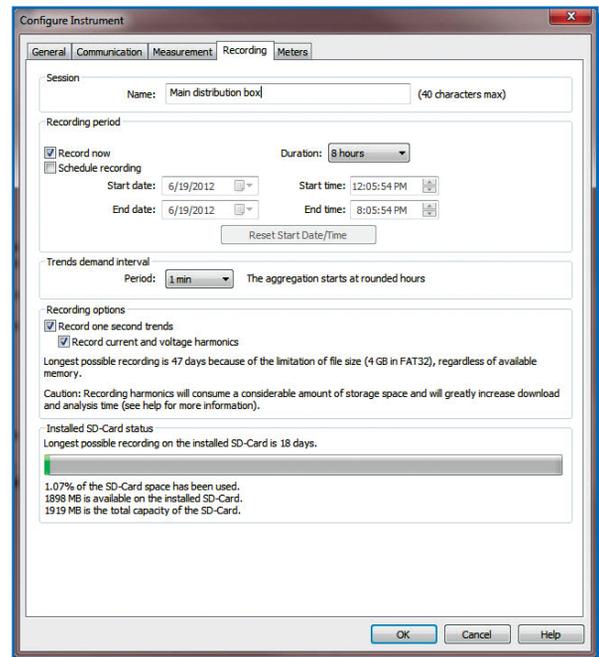
Basic information regarding Auto Power Off, instrument name and location, display brightness and contrast (Model PEL 103), setting of the real-time clock and SD-card formatting is easily accomplished from the General tab.



The Communication tab provides information about the various communication mediums supported by the instrument with clear and easy setup of all functions from one dialog box.



The Measurement tab specifies the electrical distribution system, voltage ratios, nominal frequency and current probe options and ratios.



In the Recording tab, configure the instrument to measure (and record) over a user selectable recording period from a few hours to a month or longer. Select demand intervals from one to sixty minutes and view available memory for data storage.

DataView®

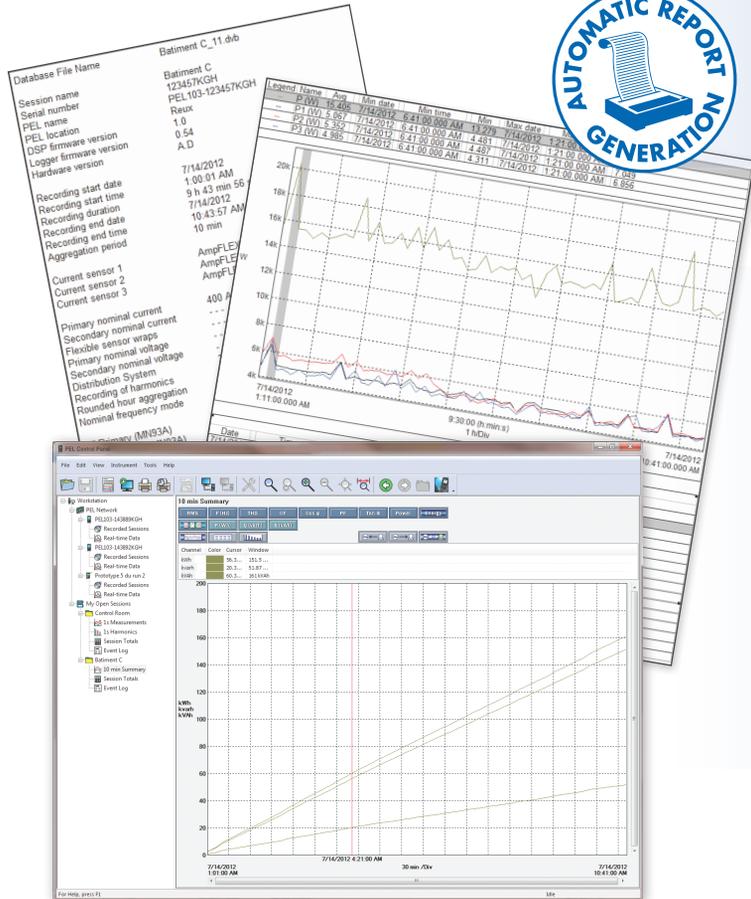


DataView® software provides a convenient way to configure and control power and energy tests from a computer. Through the use of clear and easy-to-use tabbed dialog boxes, all PEL 100 series functions can be configured and tests can be initiated.

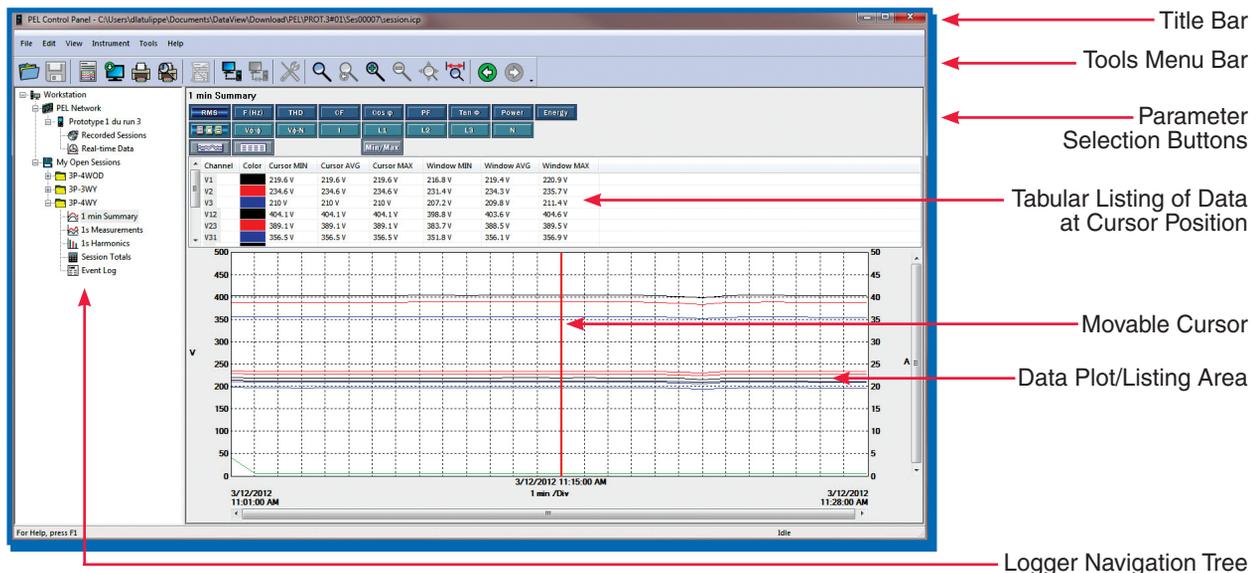
Configure all functions of the PEL

- 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

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.



Typical DataView® Functional, Digital & Graphical Displays Control Panel Trend View



In the PEL Control Panel you will find all the necessary tools and selection buttons to review recorded data as trend plots or tabular lists. Also logger selection, when multiple loggers are detected, is accomplished in the Control Panel.