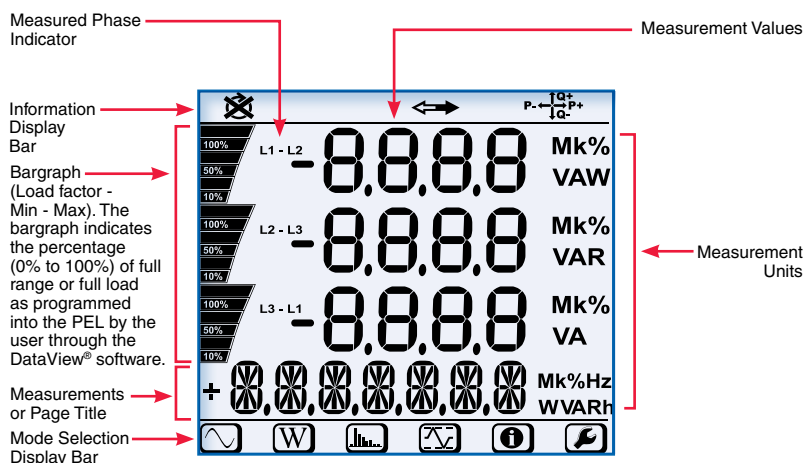


### Models PEL 102 & PEL 103

Economical, compact and simple to use!



#### KEY FEATURES OF THE PEL 103 DISPLAY



#### FEATURES

- Simple to use, single-, dual- (split-phase) and three-phase (Y, Δ) power & energy loggers
- Provides all the necessary functions for Power and Energy data logging for 50Hz, 60Hz, 400Hz and DC distribution systems
- Current measurements from 200mA up to 10,000A using flexible current sensors
- Automatic recognition of the connected current sensors/probes
- Power measurements: VA, W and var
- Energy measurements VAh, Wh (source/load indication) and varh (including quadrant indication)
- Record cost of energy usage
- Power Factor (PF), Cos (φ), Tan (Φ) and DPF
- Total Harmonic Distortion (THD) for voltages and currents
- Harmonics up to the 50<sup>th</sup> order for 50/60Hz voltages and currents and 7<sup>th</sup> order for 400Hz
- Simultaneous RMS measurements of each phase @ 128 samples/cycle and DC
- Bright blue, four line LCD on Model PEL 103 (3 phases shown simultaneously)
- Storage of measured and calculated values on a SD-Card or SDHC-Card
- Configuration of current and voltage ratios to external PT and CT ratios
- USB, LAN, and *Bluetooth* communication
- Includes DataView® software for data storage, real-time display, analysis and report generation with supplied pre-defined or custom templates

#### TOP AND BOTTOM DISPLAY BARS INDICATE THE FOLLOWING

TOP DISPLAY BAR	
ICON	DESCRIPTION
	Phase Sequence reversal indicator or missing phase (displayed in 3-Phase distribution systems)
	Data available for recording (non-display indicates possible internal problem)
	Power Quadrant Indication

BOTTOM DISPLAY BAR	
ICON	DESCRIPTION
	Measurement Mode (Real-time values)
	Power and Energy Mode
	Harmonics Mode
	Min/Max Mode
	Information Mode
	Not used



#### PRODUCT INCLUDES

##### Models PEL 102 & PEL 103

**Models PEL 102 and PEL 103 include:**  
 Small Classic Tool Bag, Three MiniFlex® MA193-10-BK Sensors (included with select models), 5 ft USB Cable, Four Black Test Leads and Alligator Clips, Power Cord, 12 Color-coded ID Markers, Multifix Mounting System, Safety Card for the PEL, Sensor Compliance Sheet, 2 GB SD-Card with USB-SD-Card Reader, Quick Start User Guide and USB Stick with DataView® and User Manual.

**► SPECIFICATIONS**

**Models PEL 102 & PEL 103**

<b>GENERAL</b>			
<b>Sampling Frequency</b>	128 samples per cycle; 50/60Hz (16 samples/cycle 400Hz)		
<b>Data Storage Rate</b>	1 per second		
<b>Demand Period Storage Rate</b>	User selectable (1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 and 60 minutes)		
<b>Recorded Parameters (Single- and Poly-Phase)</b>	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 $\phi$ / DPF		
<b>Event Log</b>	Tracks and records status changes and error messages along with recorded data		
<b>Front Panel Indicator LEDs</b>	<i>Bluetooth</i> active, recording in progress, phase connection reversal, overload, battery charging and SD Card status		
<b>Storage Capacity</b>	2GB SD card (included) is used for storage. SD cards (up to 2GB); SDHC cards (4 to 32GB) formatted FAT32 are supported		
<b>INPUTS</b>	<b>Voltage</b>	3 voltage input channels via 4mm safety banana jacks	
	<b>Current</b>	3 current input channels via custom 4 pin jacks that accept AEMC® probes and sensors	
<b>ELECTRICAL</b>			
<b>VOLTAGE MEASUREMENT</b>	<b>RANGE</b>	<b>RESOLUTION</b>	<b>* ACCURACY (% of Reading)</b>
	<b>50/60Hz</b>	42.5 to 69Hz	–
<b>Single-Phase RMS Voltages</b>		100 to 1000rms	0.1V
<b>Phase-to-Phase RMS Voltages</b>		100 to 2000Vrms	0.1 to 1V
	<b>400Hz</b>	340 to 460Hz	–
<b>Single-Phase RMS Voltages</b>		100 to 600Vrms	0.1V
<b>Phase-to-Phase RMS Voltages</b>		200 to 1200Vrms	0.1 to 1V
	<b>DC</b>	100 to 1000V	0.1V
<b>PT Ratios</b>	Programmable from 50V to 65,0000V		0.01V to 0.1V
			–
<b>CURRENT MEASUREMENT</b>			
<b>Current Probe: MiniFlex® Sensor MA193***</b>	200mA to 100Arms	1 to 100mA	±1% ± 50mA
	20 to 400Arms	10 to 100mA	±1% ± 0.2A
	100 to 2000Arms	0.1 to 1A	±1% ± 1A
	500 to 10,000Arms	0.1 to 1A	±1%
<b>CT Ratios</b>	Programmable from 1:1 to 25,000:1 (probe dependent)		
<b>POWER MEASUREMENTS</b>			
<b>Active Power (P)*</b>	-2 to 2GW	0.001W	±0.5% Rdg ± 0.005% Pnom
<b>Reactive Power (Q)*</b>	-2 to 2Gvar	0.001var	±1% Rdg ± 0.01% Qnom
<b>Apparent Power (S)*</b>	0 to 2GVA	0.001VA	±0.5% Rdg ± 0.005% Snom
<b>Power Factor</b>	-1 to +1	0.001	± 0.05
<b>Tangent <math>\phi</math> (active/reactive power ratio)</b>	-3.2 to +3.2	0.001	± 0.02
<b>ENERGY MEASUREMENTS</b>			
<b>Active Energy (EP)</b>	0 to 4 x 10 <sup>18</sup>	1Wh	±0.5% Rdg
<b>Reactive Energy (EQ)</b>	0 to 4 x 10 <sup>18</sup>	1varh	±2% Rdg
<b>Apparent Energy (ES)</b>	0 to 4 x 10 <sup>18</sup>	1Vah	±0.5% Rdg
<b>THD</b>	± 65%		
<b>Individual Harmonics</b>	1 to 50 displayed in percentage; 1 to 7 at 400Hz		
<b>External Supply</b>	110V/250V (10%) @ 50/60Hz; 400Hz		
<b>Back-Up Power Source / Charge Time</b>	Rechargeable 8.4V NiMH battery pack / Approximately 5 hours		
<b>Battery Life</b>	Provides up to 30 minute ride through upon power loss		
<b>MECHANICAL</b>			
<b>Communication Ports</b>	USB 2.0, Ethernet (RJ45), Wireless <i>Bluetooth</i> Class 1 **		
<b>Dimension/Weight</b>	10.08 x 4.92 x 1.46" (256 x 125 x 37mm) / <1kg		
<b>Case / Index of Protection</b>	Double insulated, rubber over-molded, polycarbonate UL94 V1 rated / IP54 non operating		
<b>Mounting / Security</b>	Embedded magnets on back side, keyhole slot on back side / Kensington anti-theft system		
<b>DISPLAY</b>			
<b>Display Type for Model PEL 103</b>	2.63 x 2.16" (67 x 55mm), four line, monochrome, backlit LCD with adjustable brightness and contrast		
<b>ENVIRONMENTAL / SAFETY</b>			
<b>Operating Temperature / Relative Humidity</b>	32° to 122°F (0° to 50°C) / up to 85%		
<b>Storage Temperature</b>	-4° to 122°F (-20° to 50°C) with batteries; -4° to 158°F (-20° to 70°C without batteries)		
<b>Safety Rating / CE Rating</b>	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 40ft. 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.

<b>CATALOG NO.</b>	<b>DESCRIPTION</b>
2137.51	Power & Energy Logger Model PEL 102 (no LCD, w3 MA193-10-BK sensors)
2137.52	Power & Energy Logger Model PEL 103 (with LCD, w3 MA193-10-BK sensors)
2137.61	Power & Energy Logger Model PEL 102 (no LCD, no sensors)
2137.62	Power & Energy Logger Model PEL 103 (with LCD, no sensors)