

POWER QUALITY/ENERGY ANALYZERS, METERS & LOGGERS

POWER & ENERGY LOGGERS PEL 100 SERIES

MODEL PEL 105

Three-Phase Power and Energy Logger
Watertight...great for outdoor use!

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
- Supports 17 different network connections
- Power measurements: kVA, kW and kvar
- Energy measurements: kVAh, kWh (source, load) and kvarh (four quadrant indication)
- Includes DataView® software for configuring, real-time display, analysis and report generation
- 8GB SD card supplied, can be upgraded up to 32GB
- USB, LAN, Ethernet, Wi-Fi and Bluetooth communication (Class 1 wireless communication, up to 300 ft away)
- Satisfies the monitoring requirements of NEC Code 220.87
- PEL 105 can be configured from front panel, DataView® control panel or the FREE Android™ application
- Provides all the necessary functions for power and energy data logging for 50Hz, 60Hz, 400Hz and DC distribution systems
- Automatic recognition of the connected current sensors and probes
- Powers directly from phase input
- Pole mountable

ACCESSORIES

CATALOG # 2137.82

Set of (2) with hardware



SEE PAGES 122 & 123 FOR
MORE OPTIONAL ACCESSORIES



DataView®



cover open



cover closed



PRODUCT INCLUDES

PEL 105 KIT

Extra-large tool bag, accessory pouch, 5 ft USB cable, (5) 10 ft black voltage leads (watertight cap) with alligator clips, power adapter 110/230V with US power cord, (4) water-tight AmpFlex® 196A-24-BK sensors (not included with Cat. #2137.57), 9.6V NiMH battery, 8GB SD-card, USB SD-card reader, (12) color-coded input ID markers, Quick Start guide, and a USB drive supplied with DataView® software and a user manual.



CATALOG NO.	DESCRIPTION
2137.57	Power & Energy Logger Model PEL 105 (No sensors, Waterproof IP67, DataView® Software)
2137.59	Power & Energy Logger Model PEL 105 w/ 4 196A-24-BK (Waterproof IP67, DataView® Software)

POWER QUALITY/ENERGY ANALYZERS, METERS & LOGGERS

POWER & ENERGY LOGGERS PEL 100 SERIES

SPECIFICATIONS

MODELS		PEL 102, PEL 103 & PEL 105			
GENERAL					
Sampling Frequency		128 samples per cycle; 50/60Hz (16 samples/cycle 400Hz)			
Data Storage Rate		1 per second (200ms also available on PEL 105)			
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		8GB SD card included / SD cards up to 32GB formatted FAT32 are supported			
INPUTS		Voltage			
		PEL 102/103: 3 input channels; PEL 105: 4 input channels via 4mm safety banana jacks			
Current		PEL 102/103: 3 input channels; PEL 105: 4 input channels via custom 4 pin jacks that accept AEMC® probes and sensors			
ELECTRICAL					
VOLTAGE MEASUREMENT		RANGE		RESOLUTION*	
50/60Hz		42.5 to 69Hz		—	
Single-Phase RMS Voltages		10 to 1000Vrms		0.1V	
Phase-to-Phase RMS Voltages		17 to 1700Vrms		0.1 to 1V	
400Hz		340 to 460Hz		—	
Single-Phase RMS Voltages		10 to 600Vrms		0.1V	
Phase-to-Phase RMS Voltages		17 to 1200Vrms		0.1 to 1V	
DC		100 to 1000V		0.1V	
PT Ratios		Programmable from 50V to 650,000V		—	
CURRENT MEASUREMENT		A193*** (PEL 102/103)		196A*** (PEL 105)	
Nominal range for current probes supplied with kit. (See chart on Pages 32 and 33 for other probes)		200mA to 10,000A		—	
CT Ratios		Programmable from 1:1 to 25,000:1 (probe dependent)			
POWER MEASUREMENTS		RANGE		RESOLUTION*	
Active Power (P)*		-2 to 2GW		0.001W	
Reactive Power (Q)*		-2 to 2Gvar		0.001var	
Apparent Power (S)*		0 to 2GVA		0.001VA	
Power Factor		-1 to 1		0.001	
Tangent φ (active/reactive power ratio)		-3.2 to 3.2		0.001	
ENERGY MEASUREMENTS		RANGE		RESOLUTION*	
Active Energy (EP)		4 EWh		1Wh	
Reactive Energy (EQ)		4 Evarh		1varh	
Apparent Energy (ES)		4 EVah		1Vah	
THD		±655%			
Individual Harmonics		1 to 50 displayed in percentage; 1 to 7 at 400Hz			
External Supply		110V/250V (10%) @ 50/60Hz; 400Hz			
Power From Phase Measurement		PEL 102/103: Requires optional 600V Power Adapter Cat #2137.83; PEL 105: Internal up to 1000Vac			
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		USB 2.0, Ethernet (RJ45), Wireless Bluetooth Class 1 **/ Wi-Fi (PEL 105)			
Dimension/Weight		PEL 102/103: 10.08 x 4.92 x 1.46" (256 x 125 x 37mm) / 2.20lbs (1kg); PEL 105: 9.8 x 7.8 x 2.6" (250 x 200 x 67mm) / 8.8lbs (4kg)			
Case		Double insulated, rubber over-molded, polycarbonate UL94 V1 rated			
Display Type for Models PEL 103 & 105		2.63 x 2.16" (67 x 55mm), four line, monochrome, backlit LCD with adjustable brightness and contrast			
ENVIRONMENTAL / SAFETY					
Operating Temperature/Relative Humidity		PEL 102/103/105: 32° to 108.5°F (0° to 42.5°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		PEL 102/103: Complies with IEC 61010-1, and IEC 61010-2-030 for 1000V CAT III / 600V CAT IV 1000V CAT IV (PEL 105), Pollution Degree 2 / Yes			
Ingress Protection		PEL 102/103: IP54 non operating; PEL 105: IP67 with cover closed			

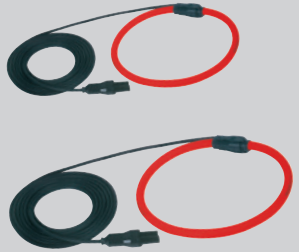
* Maximum value is current probe dependent.

** 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.

POWER QUALITY/ENERGY ANALYZERS, METERS & LOGGERS

OPTIONAL ACCESSORIES

SENSOR TYPE	CURRENT RANGE	ACCURACY (TYPICAL)	TYPICAL ERROR ON Φ AT 50/60HZ	MAX CONDUCTOR SIZE	USED WITH MODEL	CATALOG NUMBER
MiniFlex® MA193-BK*  10, 14 or 24" sensor	100mA to 3000Aac	±1%	0°	2.75" (70mm)	PEL 102 PEL 103 PEL 105 8333 8336	2140.48 (10" sensor)
						2140.50 (14" sensor)
MR193-BK  Battery operated	1 to 1000Aac 1 to 1300Adc	±2.5%	-0.80°	1.6" (41mm)	PEL 102 PEL 103 PEL 105 8333 8336	2140.28
SR193-BK 	1 to 1200Aac	±0.3%	0.2°	2.05" (52mm)	PEL 102 PEL 103 PEL 105 8333 8336	2140.33
AmpFlex® 193-BK*  24" or 36" sensor	100mA to 12,000Aac	±1%	0°	7.64" (190mm) or 11.46" (290mm)	PEL 102 PEL 103 PEL 105 8333 8336	2140.34 (24" sensor)
						2140.35 (36" sensor)
AmpFlex® 196-BK*  Waterproof, IP67 14 or 24" sensor	100mA to 3000Aac (10,000A)	±1%	0°	2.75" (70mm)	PEL 105 8436	2140.79 (14" sensor)
	200mA to 10,000Aac (12,000A)	±2%		7.64" (190mm)		2140.75 (24" sensor)

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

All current sensors can be used with Models PEL 105, 8435 and 8436. However, only the MA196-14-BK and 196A-24-BK flexible sensors are waterproof.

POWER QUALITY/ENERGY 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	CATALOG NUMBER
MN93-BK 	0.5 to 240Aac		$\pm 1\%$	0.8°	0.78" (20mm)	PEL 102 PEL 103 PEL 105 8333 8336	N/A	2140.32
MN193-BK 	100A	200mA to 120Aac	$\pm 1\%$	0.75°	0.78" (20mm)	PEL 102 PEL 103 PEL 105 8333 8336	N/A	2140.36
	5A	5mA to 6Aac	$\pm 1\%$	1.7°				
SL261 	100A	5 to 100Aac/dc	$\pm 4\%$	$\pm 0.5^\circ$	0.46" (11.8mm)	PEL 102 PEL 103 PEL 105 8333 8336	N/A	1201.51
	10A	50mA to 10Aac/dc	$\pm 3\%$	$\pm 1^\circ$				

All current sensors can be used with models PEL 105 and 8436. However, only the MA196-14-BK and 196A-24-BK flexible sensors are waterproof.

ACCESSORIES/REPLACEMENTS

CATALOG #1201.51

AC/DC Current Probe
Model SL261 (BNC)



CATALOG #2137.83

600V Power Adapter for use with
Models PEL 102 and PEL 103 only



CATALOG #2140.28

AC/DC Current Probe
Model MR193-BK



CATALOG #2140.32

AC Current Probe
Model MN93-BK



CATALOG #2140.33

AC Current Probe
Model SR193-BK



CATALOG #2140.34

AmpFlex® Sensor 24"
Model 193-24-BK



ACCESSORIES/REPLACEMENTS

CATALOG #2140.35

AmpFlex® Sensor 36"
Model 193-36-BK



CATALOG #2140.36

AC Current Probe
Model MN193-BK



CATALOG #2140.40

BNC Adapter for AC/DC Current Probe
Model SL261



CATALOG #2140.48

MiniFlex® Sensor 10" Model MA193-10-BK

CATALOG #2140.50

MiniFlex® Sensor 14" Model MA193-14-BK



CATALOG #2140.75

AmpFlex® Sensor 24" (Waterproof - IP67)
Model 196A-24-BK

CATALOG #2140.79

MiniFlex® Sensor 14" Waterproof - IP67
Model MA196-14-BK



POWER QUALITY/ENERGY ANALYZERS, METERS & LOGGERS SELECTION CHART

AEMC MODEL NUMBER	AEMC CATALOG NUMBER	INPUT TERMINALS	CHANNELS	RMS VOLTAGE MAX PHASE-TO- NEUTRAL	RMS VOLTAGE MAX PHASE-TO- PHASE	PEAK VOLTAGE MAX PHASE-TO- NEUTRAL	PEAK VOLTAGE MAX PHASE-TO- PHASE	DC VOLTAGE MAX	AC CURRENT MAX (PROBE DEPENDENT)	DC CURRENT MAX (PROBE DEPENDENT)	RATIOS VOLT	RATIOS AMPERE
8333	2136.10	4V/3I	3V/4I	1000Vrms	2000Vrms	1414Vpk	2828Vpk	1200Vdc	10,000AAC	5000Adc	Yes	
8336	2136.30	5V/4I	4V/4I	1000Vrms	2000Vrms	1414Vpk	2828Vpk	1200Vdc	10,000AAC	5000Adc	Yes	
PEL 102	2137.51	4V/3I	3V/3I	1000Vrms	1700Vrms	1414Vpk	2400Vpk	1000Vdc	10,000AAC	5000Adc	Yes	
PEL 103	2137.52	4V/3I	3V/3I	1000Vrms	1700Vrms	1414Vpk	2400Vpk	1000Vdc	10,000AAC	5000Adc	Yes	
PEL 105	2137.57	5V/4I	4V/4I	1000Vrms		1414Vpk	2400Vpk	1000Vdc	10,000AAC	5000Adc	Yes	

AEMC MODEL NUMBER	AEMC CATALOG NUMBER	DISTRIBUTION SYSTEMS	PHASE ROTATION	WAVEFORM MODE	TRANSIENT MODE	TRUE INRUSH MODE/ TYPE/ DURATION	ALARM MODE	SNAPSHOT MODE	HARMONIC MODE	TYPE LCD	POWER SOURCE
8333	2136.10	1P-2W, 2P-3W, 3P-3W, 3P-4W	Yes			No	10 types/ up to 2 active/ 4662 recorded	Yes (12)	Yes	TFT - 5.7" diagonal 320 x 240 resolution	External adapter with internal NiMH battery pack
8336	2136.30	1P-2W, 1P-3W, 2P-2W, 2P-3W, 2P-4W, 3P-3W, 3P-4W, 3P-5W	Yes			Yes (RMS+PEAK & RMS) up to 1 & 10 mins	40 types/ up to 7 active/ 16,362 recorded	Yes (50)	Yes	TFT - 5.7" diagonal 320 x 240 resolution	External adapter with internal NiMH battery pack
PEL 102	2137.51	1P-2W, 1P-3W, 3P-3W D2, 3P- 3W O2, 3P-3W Y2, 3P-3W D3, 3P-3W O3, 3P-3W Y, 3P- 3W DB, 3P-4W Y, 3P-4W YB, 3P-4W Y2 1/2, 3P-4W D, 3P- 4WOD, DC-2W DC-3W, DC-4W	Yes	No					Yes	None	Line Power with internal NiMH battery pack
PEL 103	2137.52		Yes	No					Yes	Mono- chrome LCD	
PEL 105	2137.57		Yes	No					Yes	Mono- chrome LCD	Power phase input or external adapter with internal NiMH battery pack