

# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

## THREE-PHASE POWER QUALITY ANALYZERS



8333

8336

### POWERPAD® III MODELS 8333 & 8336

*SD card for trend recordings and data storage,  
extensive memory for high snapshot quantity,  
captured transients/inrush and alarm events*

### SPECIFICATIONS

MODELS	8333	8336
Input Terminals	4 voltage / 3 current	5 voltage / 4 current
Inputs	3 voltage / 3 current	4 voltage / 4 current
Voltage (TRMS AC+DC)	(2 to 1000) V	
Voltage Ratio	up to 500 kV	
Current (TRMS AC+DC)	MN93: 500 mA to 200 Aac; MN193: (0.005 to 100) Aac SR193 Clamp: (1 to 1000) Aac AmpFlex® or MA193 Clamps: 100 mA to 10000 Aac MR193 Clamp: (1 to 1000) Aac/1300 Adc SL261 Clamp: 50 mA to 100 Aac/dc Current Ratio: up to 60 kA	
Frequency (Hz)	(40 to 69) Hz	
Distribution Systems	1P 2W, 1P 3W, 2P 2W, 2P 3W, 2P 4W, 3P 3W, 3P, 4W, Split-Phase 2W & 3W and Aron meters	1P 2W, 1P 3W, 2P 2W, 2 P 3W, 2P 4W, 3P 3W, 3P, 4W and 3P 5W, 2 ½ Element and Aron meters
Power Values	W, VA, var, VAD, PF, DPF, cos φ, tan φ	
Energy Values	Wh, varh, VAh, VADh	
Harmonics	1 <sup>st</sup> to 50 <sup>th</sup> , Direction, Sequence; THD: 0 to 50, phase	
Transients	up to 51	up to 210
Flicker (Pst/Plt)	Yes/No	Yes/Yes
Unbalance	Yes	
Recording	Yes	
Alarm Mode	10 types; 4000 recorded	40 types; 16,000 recorded
Peak	Yes	
Phasor Display	Automatic	
Display	Color ¼ VGA TFT screen (320 x 240) diagonal 5.82 in (148 mm)	
Snapshots	12	50
Languages	> 27	
Communication Interface	USB	
<b>MECHANICAL</b>		
Battery Life	≤ 10 h, ≥ 15 h in Record mode	
Power Supply	9.6 V NiMH rechargeable battery pack (included) External AC supply: (110/230) VAc ±10 % (50/60) Hz	
Dimensions / Weight	(9.8 x 7.8 x 2.6) in (249 x 198 x 66) mm / 4.3 lb (1.95 kg)	
<b>SAFETY</b>		
Safety Rating / IP	IEC 61010, 1000 V CAT III; 600 V CAT IV / IP53	

Consult factory for NIST Calibration prices

### KIT OPTIONS

#### 8333

AS ABOVE WITH AMPFLEX®  
193 FLEXIBLE CURRENT PROBE  
(10 kA) CATALOG # 2136.11  
24 IN, RATED 600 V CAT IV

OR

AS ABOVE, MN193 CURRENT  
PROBE (5/100 A)  
CATALOG # 2136.12  
Rated 600 V CAT III

#### 8336

AS ABOVE WITH AMPFLEX®  
193 FLEXIBLE CURRENT PROBE  
(10 kA) CATALOG # 2136.31  
24 IN, Rated 600 V CAT IV

OR

AS ABOVE, MN193 CURRENT  
PROBE (5/100 A)  
CATALOG # 2136.32  
Rated 600 V CAT III



DataView®

### PRODUCT INCLUDES

#### CAT. # 2136.10 MODEL 8333 (NO PROBES)

Extra large carrying bag, soft carrying pouch, (4) 10 ft black voltage leads with alligator clips, 5 ft USB cable, (12) color-coded input ID markers, 110/240 V power adapter with US power cord, 9.6 V NiMH battery, SD card, printed quick start guide and USB drive with DataView® software and user manual.



#### CAT. # 2136.30 MODEL 8336 (NO PROBES)

Extra large carrying bag, soft carrying pouch, (5) 10 ft black voltage leads with alligator clips, 5 ft USB cable, (12) color-coded input ID markers, 110/240 V power adapter with US power cord, SD card, 9.6 V NiMH battery, printed quick start guide, and USB drive with DataView® software and user manual.



\* 3 YEAR WARRANTY ONLY APPLIES WHEN METER IS REGISTERED WITHIN 30 DAYS OF PURCHASE

# POWER QUALITY/ENERGY ANALYZERS, METERS & LOGGERS

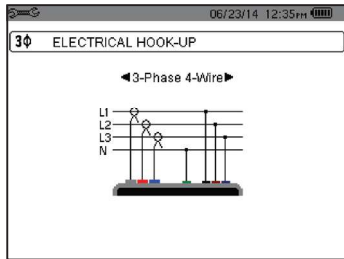
## THREE-PHASE POWER QUALITY ANALYZERS

*Captures and Records  
Transients, Events & Waveforms  
Simultaneously!*

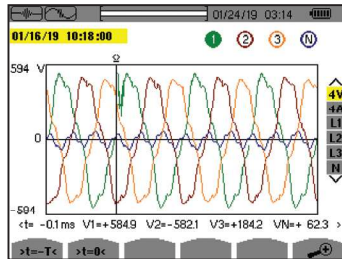
### MODELS 8333 & 8336

#### Large Functional Displays

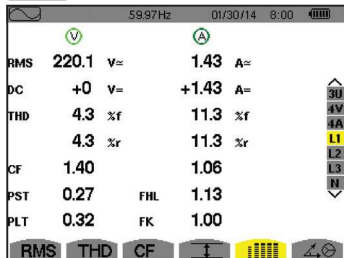
##### CONFIGURATION



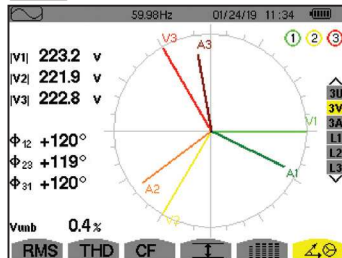
##### TRANSIENT MODE



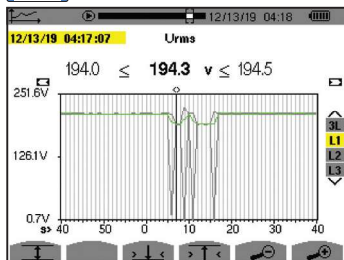
##### POWER AND ENERGY MODE



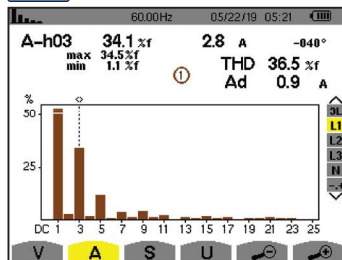
##### PHASOR DIAGRAM



##### RECORDING MODE



##### HARMONICS MODE



### FEATURES

- True RMS single-, two- and three-phase measurements at 256 samples/cycle, plus DC
- Real-time color waveforms
- Easy-to-use on-screen setup
- Automatic current probe recognition and scaling
- True RMS voltage and current measurement
- Measures DC volts, amps and power
- Displays and captures voltage, current and power harmonics to 50<sup>th</sup> order, including direction, in real-time
- Captures transients down to 1/256<sup>th</sup> of a cycle
- Stores comprehensive data base of logged data
- Phasor diagram display
- kVA, kvar and kW per phase and total
- kVAh, kvarh and kWh per phase and total
- Neutral current calculated and displayed for three-phase
- Transformer Factor K display (8333, 8336)
- Power Factor, displacement PF display
- Captures up to 210 transients (8336)
- Short term (8333) and Long term (8336) flicker display
- Phase unbalance (current and voltage)
- Harmonic Distortion (total and individual) from 1<sup>st</sup> to 50<sup>th</sup>
- Alarms, surges and sags
- Screen snapshot function captures waveforms or other information on the display
- Includes FREE DataView<sup>®</sup> software for configuring, data retrieval, real-time display, analysis and report generation

### ACCESSORIES/REPLACEMENTS

- CATALOG #2133.73** Extra Large Classic Tool Bag (18 x 9 x 12) in
- 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<sup>®</sup> Sensor 24 in Model 193-24-BK
- CATALOG #2140.35** AmpFlex<sup>®</sup> Sensor 36 in 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 and models for use with 8220, 8333, 8335, 8336, 8435, 8436 & PEL Series
- CATALOG #2140.44** (1) 10 ft (3 M) Black Lead w/(1) Black Alligator Clip (Lead rated 1000 V CAT IV 15 A, Clip rated 1000 V CAT IV 15 A, UL)
- CATALOG #2140.48** MiniFlex<sup>®</sup> Sensor 10 in Model MA193-10-BK
- CATALOG #2140.50** MiniFlex<sup>®</sup> Sensor 14 in Model MA193-14-BK
- CATALOG #2140.80** MiniFlex<sup>®</sup> Sensor 24 in Model MA194-24-BK
- CATALOG #2140.77** Phase Power Adapter (8333 & 8336)

#### CATALOG NO. DESCRIPTION

2136.10	PowerPad <sup>®</sup> III Model 8333 (no probes)
2136.11	PowerPad <sup>®</sup> III Model 8333 w/3 193-24-BK Sensors
2136.12	PowerPad <sup>®</sup> III Model 8333 w/3 MN193-BK Probes
2136.30	PowerPad <sup>®</sup> III Model 8336 (no probes)
2136.31	PowerPad <sup>®</sup> III Model 8336 w/4 193-24-BK Sensors
2136.32	PowerPad <sup>®</sup> III Model 8336 w/4 MN193-BK Probes



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# POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS OPTIONAL ACCESSORIES

SENSOR TYPE	CURRENT RANGE	ACCURACY (TYPICAL)	TYPICAL ERROR ON $\Phi$ AT (50/60) HZ	MAX CONDUCTOR SIZE	USED WITH MODEL	CATALOG NUMBER
<b>MiniFlex® MA193-BK* &amp; MiniFlex® MA194-BK*</b>  10, 14 or 24 in sensor	100 mA to 12,000 Aac <sup>(1)</sup>	± 1 %	0 °	2.75 in (70 mm) (10 in sensor)	PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.48 (10 in sensor)
				3.94 in (100 mm) (14 in sensor)		2140.50 (14 in sensor)
				7.64 in (194 mm) (24 in sensor)		2140.80 (24 in sensor)
<b>MR193-BK</b>  Battery operated	(1 to 1000) Aac (1 to 1300) Aac	± 2.5 %	-0.80 °	1.6 in (41 mm)	PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.28
<b>SR193-BK</b> 	(1 to 1200) Aac	± 0.3 %	0.2 °	2.05 in (52 mm)	PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.33
<b>AmpFlex® 193-BK*</b>  24 in or 36 in sensor	100 mA to 12,000 Aac <sup>(1)</sup>	± 1 %	0 °	7.64 in (194 mm) (24 in sensor)	PEL 102 PEL 103 PEL 105 8333 8336 8436 8345	2140.34 (24 in sensor)
				11.46 in (291 mm) (36 in sensor)		2140.35 (36 in sensor)
<b>MiniFlex® 196-BK*</b>  Waterproof, IP67 14 in or 24 in sensor	100 mA to 12,000 Aac <sup>(1)</sup>	± 1 %	0 °	3.9 in (99 mm) (14 in sensor)	PEL 105 8436	2140.79 (14 in sensor)
				7.64 in (194 mm) (24 in sensor)		2140.75 (24 in sensor)




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

(1) Current range may be limited by sensor size or meter type.

Consult factory for NIST Calibration prices

# POWER QUALITY/ENERGY ANALYZERS, METERS & LOGGERS OPTIONAL ACCESSORIES

SENSOR TYPE	CURRENT RANGE		ACCURACY (TYPICAL)	TYPICAL ERROR ON $\phi$ AT (50/60) HZ	MAX CONDUCTOR SIZE	USED WITH MODEL	LIMITED RANGE IF USED WITH MODEL	CATALOG NUMBER
MN93-BK 	(0.5 to 240) AAC		$\pm 1\%$	$0.8^\circ$	0.78 in (20 mm)	PEL 102 PEL 103 PEL 105 8333 8336 8345	N/A	2140.32
MN193-BK 	100 A	200 mA to 120 AAC	$\pm 1\%$	$0.75^\circ$	0.78 in (20 mm)	PEL 102 PEL 103 PEL 105 8333 8336 8345	N/A	2140.36
	5 A	5 mA to 6 AAC	$\pm 1\%$	$1.7^\circ$				
SL261 	100 A	(5 to 100) AAC/DC	$\pm 4\%$	$\pm 0.5^\circ$	0.46 in (12 mm)	PEL 102 PEL 103 PEL 105 8333 8336 8345	N/A	1201.51
	10 A	50 mA to 10 AAC/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 196 A-24-BK flexible sensors are waterproof. Consult factory for NIST Calibration prices

## ACCESSORIES/REPLACEMENTS

### CATALOG #1201.51

AC/DC Current Probe  
Model SL261 (BNC)



### CATALOG #2140.40

BNC Adapter for AC/DC Current Probe  
Model SL261



### CATALOG #2140.77

Phase Power Adapter for use with  
PowerPad Models 8333 & 8336



### CATALOG #2137.98

600 V CAT III 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



## ACCESSORIES/REPLACEMENTS

### CATALOG #2140.34

AmpFlex® Sensor 24 in  
Model 193-24-BK



### CATALOG #2140.35

AmpFlex® Sensor 36 in  
Model 193-36-BK

### CATALOG #2140.36

AC Current Probe  
Model MN193-BK



### CATALOG #2140.48

MiniFlex® Sensor 10 in Model MA193-10-BK

### CATALOG #2140.50

MiniFlex® Sensor 14 in Model MA193-14-BK

### CATALOG #2140.80

MiniFlex® Sensor 24 in Model MA194-24-BK



### CATALOG #2140.75

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

### CATALOG #2140.79

MiniFlex® Sensor 14 in (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	4 V/3 I	3 V/4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 Vdc	10,000 Aac	5000 Adc	Yes	Yes
8336	2136.30	5 V/4 I	4 V/4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 Vdc	10,000 Aac	5000 Adc	Yes	Yes
8345	2136.35	5 V/4 I	4 V/4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 Vdc	10,000 Aac	5000 Adc	Yes	Yes
8436	2136.43	5 V/4 I	4 V/4 I	1000 Vrms	2000 Vrms	1414 Vpk	2828 Vpk	1200 Vdc	10,000 Aac	5000 Adc	Yes	Yes
PEL 52	2137.71	2 V/2 I	2 V/2 I	660 Vrms	1200 Vrms	–	–	–	3600 Aac	–	No	Yes
PEL 102	2137.51	4 V/3 I	3 V/3 I	1000 Vrms	1700 Vrms	1414 Vpk	2400 Vpk	1000 Vdc	10,000 Aac	5000 Adc	Yes	Yes
PEL 103	2137.52	4 V/3 I	3 V/3 I	1000 Vrms	1700 Vrms	1414 Vpk	2400 Vpk	1000 Vdc	10,000 Aac	5000 Adc	Yes	Yes
PEL 105	2137.57	5 V/4 I	4 V/4 I	1000 Vrms		1414 Vpk	2400 Vpk	1000 Vdc	10,000 Aac	5000 Adc	Yes	Yes

AEMC MODEL NUMBER	AEMC CATALOG NUMBER	DISTRIBUTION SYSTEMS	PHASE ROTATION	WAVEFORM MODE	TRANSIENT MODE	TRUE INRUSH MODE/TIME/DURATION	ALARM MODE	SNAPSHOT MODE	HARMONIC MODE/ INTERHARMONIC MODE	TYPE LCD	POWER SOURCE
8333	2136.10	1 P-2 W, 2 P-3 W, 3 P-3 W, 3 P-4 W		Yes		No	10 types/ up to 2 active/ 4662 recorded	Yes (12)	Yes / No	TFT - 5.7 in diagonal 320 x 240 resolution	External adapter with internal NiMH battery pack
8336	2136.30	1 P-2 W, 1 P-3 W, 2 P-2 W, 2 P-3 W, 2 P-4 W, 3 P-3 W, 3 P-4 W, 3 P-5 W		Yes		Yes (RMS+PEAK & RMS) up to 1 & 10 min	40 types/ up to 7 active/ 16,362 recorded	Yes (50)	Yes / No	TFT - 5.7 in diagonal 320 x 240 resolution	External adapter with internal NiMH battery pack
8345	2136.35	1 P-2 W, 1 P-3 W, 2 P-2 W, 2 P-3 W, 2 P-4 W, 3 P-3 W, 3 P-4 W, 3 P-5 W		Yes		Yes (RMS+PEAK & RMS) up to 10 & 30 min	40 types/ 20,000 w/ email notificatoins	Yes (no limit with SD card)	DC to 63 <sup>rd</sup> order; < 3 % U <sub>din</sub> / 0 to 62 <sup>nd</sup> order; < 0.5 % U <sub>din</sub>	7 in color LCD touch screen: 800 x 480 (WVGA)	External adapter with Li-ion battery pack
8436	2136.43	1 P-2 W, 1 P-3 W, 2 P-2 W, 2 P-3 W, 2 P-4 W, 3 P-3 W, 3 P-4 W, 3 P-5 W		Yes		Yes (RMS+PEAK & RMS) up to 1 & 10 min	40 types/ up to 7 active/ 16,362 recorded	Yes (50)	Yes / No	TFT - 5.7 in diagonal 320 x 240 resolution	Line Power with internal NiMH battery pack
PEL 52	2137.71	1 P-2 W, 2 P-3 W, 1 P-3 W	Yes			No			No / No	Monochrome LCD	Power phase input with internal NiMH battery pack
PEL 102	2137.51		Yes			No			Yes / No	None	Line Power with internal NiMH battery pack
PEL 103	2137.52	1 P-2 W, 1 P-3 W, 3 P-3 W D2, 3 P-3 W Y2, 3 P-3 W D3, 3 P-3 W O3, 3 P-3 W Y, 3P-3 W DB, 3 P-4 W Y, 3 P-4 W YB, 3 P-4 W Y2 1/2, 3 P-4 W D, 3 P-4 W OD, DC-2 W DC-3 W, DC-4 W	Yes			No			Yes / No	Monochrome LCD	Line Power with internal NiMH battery pack
PEL 105	2137.57		Yes			No			Yes / No	Monochrome LCD	Power phase input or external adapter with internal NiMH battery pack