

Special product features



# POWER QUALITY ANALYZERS, METERS & LOGGERS

## Three-Phase Power Quality Analyzer

### PowerPad® III Model 8435

**SD card memory capacity up to 2GB for trend data storage: Up to 50 captured snapshots, 210 captured transients, 1 inrush and 10,000 alarm events**



\* Registration must take place within 30 days of purchase



**Four current and four voltage input terminals**

### ► SPECIFICATIONS

MODEL	8435
<b>ELECTRICAL</b>	
Sampling Frequency	256 samples/cycle
Data Storage	SD card for trend recording; Additional separate 12.5MB partitioned memory for snapshots, transient/inrush & alarms
Voltage (TRMS)	Phase-to-Phase: 2000V Phase-to-Neutral: 1000V Voltage Ratio: up to 500kV
Current (TRMS)	MN Clamp: 0 to 6A/120A or 0 to 240A SR Clamp: 0 to 1200A MR Clamp: 0 to 1000Aac, 0 to 1400Aac MiniFlex®: 10 to 3000A AmpFlex®: 10 to 10kA <sup>(1)</sup> SL261 Clamp: 50mA to 100Aac/dc J93: 50 to 3500Aac/dc Current Ratio: 10mA to 50kA
Frequency (Hz)	40 to 69Hz
Other Measurements	kW, kvar, kVA, PF, DPF, kWh, kvarh, kVAh, Factor K, Flicker
Harmonics	1 <sup>st</sup> to 50 <sup>th</sup> , Direction, Sequence
Power Source	9.6V NiMH rechargeable battery pack (included) External AC supply: 110/230Vac ±10% (50/60Hz)
Battery Life	≥8 hours with display on; ≤35 hours with display off (record mode)
<b>MECHANICAL</b>	
Communication Port	Optically isolated USB
Display	¼ VGA (320 x 240) color LCD display with adjustable brightness & contrast
Dimensions	10.6 x 9.8 x 7.1" (270 x 250 x 180mm)
Weight	8.2lbs (3.7kg) with batteries
Safety Rating	EN 61010, 600V CAT IV <sup>(2)</sup> , 1000V CAT III, Pollution Degree 2

<sup>(1)</sup>When used with SR193 or AmpFlex® probes.

<sup>(2)</sup>600V CAT III with MN193 or MR193 probes.

### ► KIT OPTION INCLUDES

#### 8435 Kit

Extra large tool bag, accessory pouch, 5ft USB cable, five 10ft black voltage leads with alligator clips, 110V US power cord, four water-tight AmpFlex® 196A-24-BK (included with Cat. #2136.42 only), NiMH battery, SD card, twelve color-coded input ID markers, quick start guide, and a USB drive containing DataView® software and user manual.



### ► FEATURES

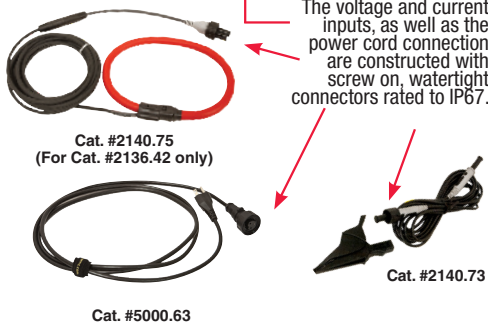
- Measurement of TRMS voltages up to 1000Vrms AC/DC for two-, three-, four- or five-wire systems
- Measurement of TRMS currents up to 6500Arms (sensor dependent)
- Direct measurement of neutral current & voltage
- Frequency measurement (40 to 69Hz systems)
- Record and display trend data as fast as once per second for one month for up to 25 variables
- Transient detection on all V and I inputs (up to 210)
- Selectable PT and CT ratios
- Inrush current measurement
- Calculation of Crest Factors for V and A
- Calculation of the Factor K for transformers
- Calculation of short-term flicker and three-phase voltage unbalance
- Measures harmonics (referenced to the fundamental or RMS value) for voltage, current or power, up to 50<sup>th</sup> harmonic
- Displays of harmonic sequencing and direction and calculation of overall harmonics
- Real-time display of phasor diagrams including values and phase angles
- Measurement of active, reactive and apparent power per phase and their respective sum total
- Calculation of power factor, displacement power factor and tangent factor
- Recording, time stamping and characterization of disturbance (swells, sags and interruptions, exceedance of power and harmonic thresholds)
- 2GB internal Trend Recording memory; Alarm, Snapshot and Transient/Inrush memories are separate
- Measurement of energy kVAh, kvarh & kWh
- The Max and Min RMS measurements are calculated every half-period
- Includes DataView® software for configuring, real-time display, analysis and report generation
- 65µs/sample transient recording

# PowerPad® III Model 8435

## Large Color Functional Displays

### Installation of the Leads and Current Sensors

Color-coded ID markers are supplied with the PowerPad® III to identify the leads and input terminals.



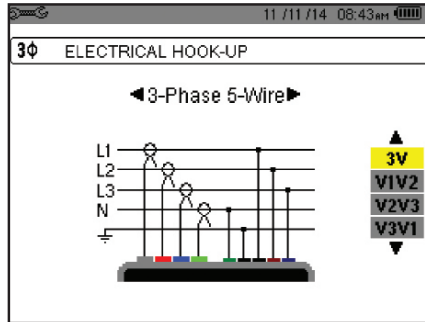
The voltage and current inputs, as well as the power cord connection are constructed with screw on, watertight connectors rated to IP67.

Cat. #2140.75  
(For Cat. #2136.42 only)

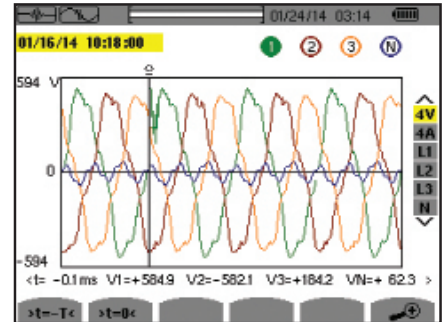
Cat. #5000.63

Cat. #2140.73

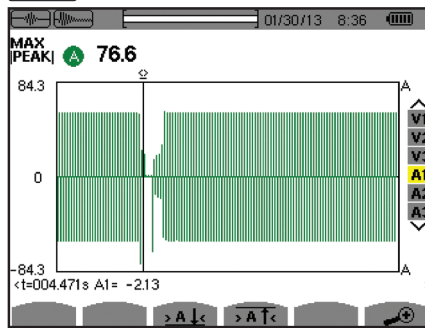
### Configuration



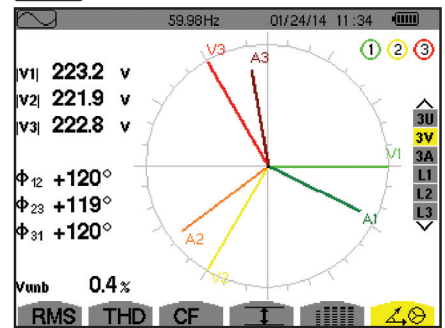
### Transient Mode



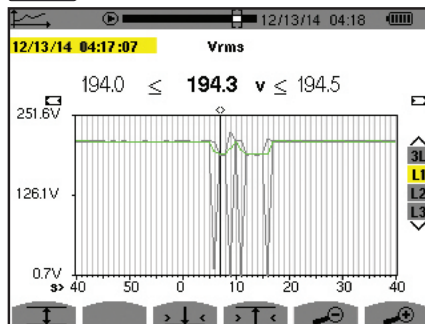
### Inrush Peak



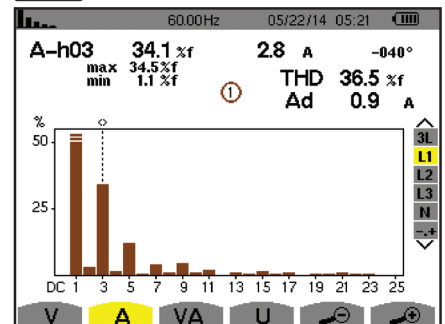
### Phasor Diagram



### Trend Analyze



### Harmonics Mode



CATALOG NO.	DESCRIPTION	PRICE	NIST CALIBRATION
2136.41	PowerPad® III Model 8435 (No Sensors - Waterproof IP67)	\$5,595.00	\$160.00
2136.42	PowerPad® III Model 8435 w/4 196A-24-BK (AmpFlex® - Waterproof IP67)	\$5,995.00	\$190.00
Accessories (Optional) See pages 26 and 27 for more optional current probes			
2133.73	Extra Large Classic Tool Bag	\$ 44.00	-
2140.19	Replacement – Battery 9.6V NiMH	\$ 199.50	-
2140.28	AC Current Probe Model MR193-BK	\$ 399.00	\$ 68.00
2140.32	AC Current Probe Model MN93-BK	\$ 185.00	\$ 68.00
2140.33	AC Current Probe Model SR193-BK	\$ 299.00	\$ 68.00
2140.35	AmpFlex® Sensor 36" Model 193-36-BK	\$ 319.00	\$ 68.00
2140.36	AC Current Probe Model MN193-BK	\$ 249.00	\$ 68.00
2140.45	Replacement – Set of 12, Color-coded Input ID Markers	\$ 24.00	-
2140.46	Replacement – 5ft USB Cable	\$ 10.95	-
2140.48	MiniFlex® Sensor 10" Model MA193-10-BK	\$ 219.00	\$ 68.00
2140.49	AC/DC Current Probe Model J93-BK	\$2,425.00	\$ 98.00
2140.50	MiniFlex® Sensor 14" Model MA193-14-BK	\$ 249.00	\$ 68.00
2140.73	Lead – One 10ft (3M) Black Lead (Waterproof cap) [Rated 1000V CAT IV] & one Black Alligator Clip (Rated 1000V CAT IV, 15A, UL)	\$ 26.95	-
2140.75	AmpFlex® Sensor 24" (waterproof - IP67) Model 196A-24-BK	\$ 289.00	-



# POWER QUALITY ANALYZERS, METERS & LOGGERS





## Optional Accessories

SENSOR TYPE	CURRENT RANGE	ACCURACY (TYPICAL)	TYPICAL ERROR ON $\Phi$ AT 50/60Hz	MAX CONDUCTOR SIZE	USED WITH MODEL	LIMITED RANGE IF USED WITH MODEL	CATALOG NUMBER
<b>MiniFlex® MA193-BK *</b>  10" or 14" sensor	100mA to 3000Aac	±1%	0°	2.75" (70mm)	PEL 102 PEL 103 PEL 105** 8333 8336	8220 8230 8435	2140.48 (10" sensor)
							2140.50 (14" sensor)
<b>MR193-BK</b>  Battery operated	1 to 1000Aac 1 to 1300Adc	±2.5%	-0.80°	1.6" (41mm)	8220 8230 PEL 102 PEL 103 PEL 105** 8333 8336 8435**	N/A	2140.28
<b>SR193-BK</b> 	1 to 1200Aac	±0.3%	0.2°	2.05" (52mm)	8220 8230 PEL 102 PEL 103 PEL 105** 8333 8336 8435**	N/A	2140.33
<b>AmpFlex® 193-BK *</b>  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	8220 8230 8435	2140.34 (24" sensor)
							2140.35 (36" sensor)
<b>AmpFlex® 196A</b>  24" sensor IP67	100mA to 12,000Aac	±2%	0°	5.73" (145mm)	PEL 105 8435	N/A	2140.75 (24" sensor)

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

\*\* Not waterproof with Model 8435 & PEL 105.



SENSOR TYPE	CURRENT RANGE		ACCURACY (TYPICAL)	TYPICAL ERROR ON $\phi$ AT 50/60Hz	MAX CONDUCTOR SIZE	USED WITH MODEL	LIMITED RANGE IF USED WITH MODEL	CATALOG NUMBER
MN93-BK 	0.5 to 240Aac		±1%	0.8°	0.78" (20mm)	PEL 102 PEL 103 PEL 105** 8333 8336 8435**	8220 8230	2140.32
MN193-BK 	100A	200mA to 120Aac	±1%	0.75°	0.78" (20mm)	8220 8230 PEL 102 PEL 103 PEL 105** 8333 8336 8435**	N/A	2140.36
	5A	5mA to 6Aac	±1%	1.7°				
SL261 **  Battery operated	100A	5 to 100Aac/dc	±4%	±0.5°	0.46" (11.8mm)	8220 8230 PEL 102 PEL 103 PEL 105** 8333 8336 8435**	N/A	1201.51
	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 PEL 105** 8333 8336 8435**	N/A	2140.49

**Note: Refer to the Power Meter's product user manual for complete specifications.**

All current sensors can be used with the Models 8435 and PEL 105.

However, only the 196A flexible sensors are waterproof.

Power Adapter for Models PEL 102 & PEL 103 only  
Catalog #2137.77



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



CATALOG NO.	DESCRIPTION	PRICE	NIST CALIBRATION
1201.51	AC/DC Current Probe Model SL261 (BNC)	\$ 449.00	\$68.00
2137.77	Adapter – Power Adapter PEL 102 & PEL 103 only	\$ 199.95	–
2140.28	AC/DC Current Probe Model MR193-BK	\$ 399.00	\$68.00
2140.32	AC Current Probe Model MN93-BK	\$ 185.00	\$68.00
2140.33	AC Current Probe Model SR193-BK	\$ 299.00	\$68.00
2140.34	AmpFlex® Sensor 24" Model 193-24-BK	\$ 269.00	\$68.00
2140.35	AmpFlex® Sensor 36" Model 193-36-BK	\$ 319.00	\$68.00
2140.36	AC Current Probe Model MN193-BK	\$ 249.00	\$68.00
2140.37	Adapter – US 110V Power Adapter (eliminates need for batteries) 8220 & 8230 only	\$ 135.00	–
2140.48	MiniFlex® Sensor 10" Model MA193-10-BK	\$ 219.00	\$68.00
2140.49	AC/DC Current Probe Model J93-BK	\$2,425.00	\$98.00
2140.50	MiniFlex® Sensor 14" Model MA193-14-BK	\$ 249.00	\$68.00
2140.75	AmpFlex® Sensor 24" (waterproof - IP67) Model 196A-24-BK	\$ 289.00	\$68.00
2140.77	Adapter – Phase Power Adapter for use with PowerPad Models 8333 & 8336	\$ 299.95	–

# DataView®

## Data Analysis and Reporting Software

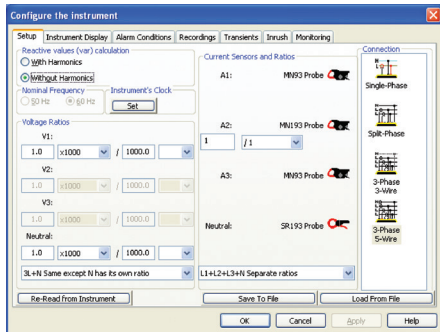


### Configure all functions of the Power & Energy Loggers

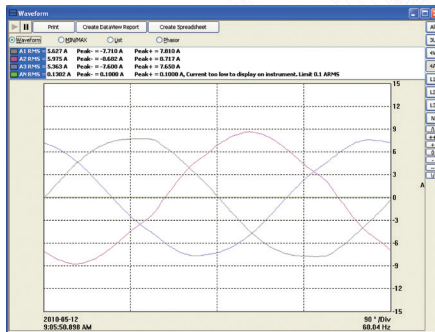


- Display and analyze real-time data on your PC
- Configure functions and parameters from your PC
- Customize views, templates and reports to your exact needs
- Create and store a complete library of configurations that can be uploaded as needed
- Zoom in and out and pan through sections of the graph 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](http://www.aemc.com)

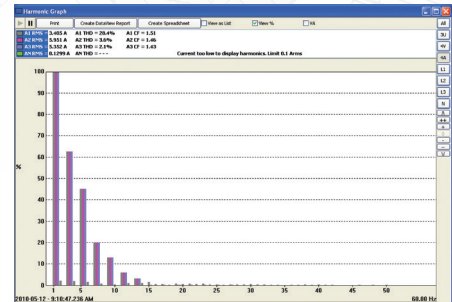
### Typical DataView® Functional, Digital & Graphical Displays



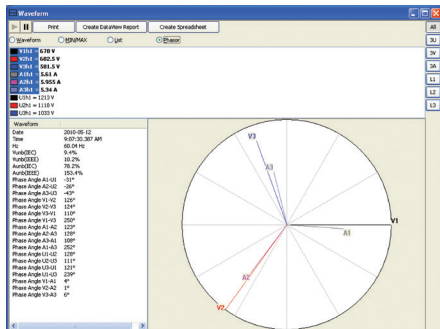
Clear and easy setup of all functions from one tabbed dialog box.



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



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



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

Parameter	Value
W	= 3786
Var	= 294
WDC	= 0
VA	= 3798
Wh to Load	= 450
Wh to Source	= 0
Wh DC to Load	= 0
Wh DC to Source	= 0
varh Capacitive to Load	= 0
varh Capacitive to Source	= 0
varh Inductive to Load	= 34
varh Inductive to Source	= 0
VAh to Load	= 451
VAh to Source	= 0
PF	= 0.997
CPF	= 0.997
Tan	= 0.075
Phase Angle V1-A1	= 4°

Display power and energy parameters – both instantaneous and total.

Order	Vol	Cur	Power
0	0.0%	0.0%	0.0%
1	100.0%	100.0%	100.0%
2	0.5%	0.5%	0.5%
3	1.5%	1.5%	1.5%
4	0.8%	0.8%	0.8%
5	0.6%	0.6%	0.6%
6	0.4%	0.4%	0.4%
7	0.3%	0.3%	0.3%
8	0.2%	0.2%	0.2%
9	0.2%	0.2%	0.2%
10	0.2%	0.2%	0.2%
11	0.2%	0.2%	0.2%
12	0.2%	0.2%	0.2%
13	0.2%	0.2%	0.2%
14	0.2%	0.2%	0.2%
15	0.2%	0.2%	0.2%
16	0.2%	0.2%	0.2%
17	0.2%	0.2%	0.2%
18	0.2%	0.2%	0.2%
19	0.2%	0.2%	0.2%
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26	0.2%	0.2%	0.2%
27	0.2%	0.2%	0.2%
28	0.2%	0.2%	0.2%
29	0.2%	0.2%	0.2%
30	0.2%	0.2%	0.2%
31	0.2%	0.2%	0.2%
32	0.2%	0.2%	0.2%
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37	0.2%	0.2%	0.2%
38	0.2%	0.2%	0.2%
39	0.2%	0.2%	0.2%
40	0.2%	0.2%	0.2%
41	0.2%	0.2%	0.2%
42	0.2%	0.2%	0.2%
43	0.2%	0.2%	0.2%
44	0.2%	0.2%	0.2%
45	0.2%	0.2%	0.2%
46	0.2%	0.2%	0.2%
47	0.2%	0.2%	0.2%
48	0.2%	0.2%	0.2%
49	0.2%	0.2%	0.2%
50	0.2%	0.2%	0.2%

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

# POWER QUALITY 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
8220	2130.90	1V/1A	1V/1A	600Vrms	660Vrms	850Vpk	935Vpk	600Vdc	6500Aac	1400Adc	Yes	No
8230	2130.81	1V/1A	1V/1A	600Vrms	660Vrms	850Vpk	935Vpk	600Vdc	6500Aac	1400Adc	Yes	No
8333	2136.10	4V/3I	3V/4I	1000Vrms	2000Vrms	1414Vpk	2828Vpk	1200Vdc	10,000Aac	5000Adc	Yes	Yes
8336	2136.30	5V/4I	4V/4I	1000Vrms	2000Vrms	1414Vpk	2828Vpk	1200Vdc	10,000Aac	5000Adc	Yes	Yes
8435	2136.41	5V/4I	4V/4I	1000Vrms	2000Vrms	1697Vpk	3394Vpk	1697Vdc	10,000Aac	5000Adc	Yes	Yes
PEL 102	2137.51	4V/3I	3V/3I	1000Vrms	1700Vrms	1414Vpk	2400Vpk	1000Vdc	10,000Aac	5000Adc	Yes	Yes
PEL 103	2137.52	4V/3I	3V/3I	1000Vrms	1700Vrms	1414Vpk	2400Vpk	1000Vdc	10,000Aac	5000Adc	Yes	Yes
PEL 105	2137.57	4V/3I	3V/3I	1000Vrms	1000Vrms	1414Vpk	2400Vpk	1000Vdc	10,000Aac	5000Adc	Yes	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
8220	2130.90	1P-2W 3P-3W DB	Yes, 2-Wire Method	Yes, Realtime through DataView® (recordable to PC)	No	Yes (RMS) duration: unspecified	No	Yes (9)	Yes	Backlit LCD	6 x AA batteries or external adapter
8230	2130.81	1P-2W 3P-3W DB	Yes, 2-Wire Method	Yes	No	Yes (RMS) <15 seconds at 60Hz	18 types/ up to 10 active/ 4096 recorded	Yes (8)	Yes	Color LCD	External adapter with internal NiMH battery pack
8333	2136.10	1P-2W, 2P-3W, 3P-3W, 3P-4W	Yes	Yes	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	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
8435	2136.41	1P-2W, 1P-3W, 2P-2W, 2P-3W, 2P-4W, 3P-3W, 3P-4W, 3P-5W	Yes	Yes	Yes	Yes (RMS+PEAK & RMS) up to 1 & 10 mins	40 types/ up to 7 active/ 16,362 recorded	Yes (50)	Yes	STN	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,	Yes	No	No	No	No	No	Yes	None	External adapter with internal NiMH battery pack
PEL 103	2137.52	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	No	No	No	No	Yes	Monochrome LCD	
PEL 105	2137.57		Yes	No	No	No	No	No	Yes	Power phase input or external adapter with internal NiMH battery pack	