

POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

POWER & ENERGY LOGGER PEL 52

MODEL PEL 52

*Time/date stamped electrical measuring instrument
to understand and improve electrical consumption*

SPECIFICATIONS

| MODEL | PEL 52 | | |
|--------------------------------------------------|-------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------|
| GENERAL | | | |
| Inputs | 2V / 2I | | |
| Types of installations | Single phase, split phase or 2 single-phase channels | | |
| Recording / Data Storage Rate | Unlimited duration (4 GB max recording size) / 1 s to 1 h (Min/Avg/Max) | | |
| Network Frequency | (45 to 65) Hz | | |
| Voltage | (10 to 600) V | | |
| ELECTRICAL | | | |
| VOLTAGE | RANGE | RESOLUTION | ACCURACY |
| Vrms | (10 to 660) V P to N | 0.1 V | ± 0.2 % Reading ± 0.2 V |
| Urms | (20 to 1200) V P to P | 0.1 V | ± 0.2 % Reading ± 0.4 V |
| CURRENT MEASUREMENT @ (50 and 60) HZ | RANGE | RESOLUTION | ACCURACY |
| Amps (1 V nominal) (excluding clamp accuracy) | Probe dependent (0.2 % < I < 120 % Inom) | Probe dependent | ± 0.2 % Reading ± 0.02 Inom |
| POWER | RANGE | RESOLUTION | ACCURACY |
| Watts P-Q-S (W-var-VA) | V = (100 to 660) V I = (5 to 120) % Inom | Probe dependent | ± 0.3 % R ± 0.003 % Pnom ± 1 % R ± 0.01 % Qnom ± 0.3 % R ± 0.003 % Snom |
| Power Factor | -1 to 1 | 0.001 | ±0.02 % |
| Cos φ (DPF) | -1 to 1 | 0.001 | ±0.05 % |
| ENERGY | RANGE | RESOLUTION | ACCURACY |
| Ep-Eq-Es (Wh, varh, VAh) | V = (100 to 660) V I = (5 to 120) % Inom | 0.001 and ±0.02% | ±0.5 % Reading ±2.5 % Reading ±0.5 % Reading |
| MECHANICAL | | | |
| Communication | Wi-Fi (access point and hot spot) | | |
| Data Storage | 8 GB SD-Card (included); expandable to 32 GB | | |
| Dimension | (7.08 x 3.46 x 1.45) in (180 x 88 x 37) mm | | |
| Weight | 14.10 oz (400 g) | | |
| Case | Compact and rugged, shock and vibration IEC 61010 | | |
| Display Type | LCD with blue backlight | | |
| Real-Time Clock | Time and date stamp for Trend mode | | |
| Power Supply | From phase 1 (90 to 660) V battery backup when power OFF | | |
| Battery Life | 3 h without Wi-Fi, 1 h typical with Wi-Fi enabled | | |
| ENVIRONMENTAL | | | |
| Operating Temperature / Relative Humidity | (-4 to 122) °F (-20 to 50) °C / (10 to 85) % RH | | |
| Storage Temperature | (-40° to 158) °F (-40 to 70) °C / (0 to 95) % RH w/out battery | | |
| SAFETY | | | |
| Electro-Magnetic- Compatibility (EMC) | EN 61326-1 for emission and immunity | | |
| Safety Rating / CE Rating | IEC/EN 61010-2-30 (600 V CAT III) / Yes | | |
| IP Rating | IP54 per IEC 60529 | | |

* Minimum and maximum values are current probe dependent.

Consult factory for NIST Calibration prices



DataView®

PRODUCT INCLUDES

CATALOG #2137.69 (WITH PROBES)

Soft carrying bag, (2) MiniFlex® MA193-10-BK sensors, (3) black test leads and alligator clips, 110 V US power Cord, (1) adapter for power cord, 8 GB SD card, USB SD card reader, (2) AAA rechargeable batteries, quick start guide, and USB drive with DataView® software and user manual.

CATALOG #2137.71 (NO PROBES)

Soft carrying bag, (3) black test leads and alligator clips, 110 V US power Cord, (1) adapter for power cord, 8 GB SD card, USB SD card reader, (2) AAA rechargeable batteries, quick start guide, and USB drive with DataView® software and user manual.

| CATALOG NO. | DESCRIPTION |
|-------------|---------------------------------------------------------------------|
| 2137.69 | Power & Energy Logger Model PEL 52 (w/LCD, w/2 MA193-10-BK sensors) |
| 2137.71 | Power & Energy Logger Model PEL 52 (w/LCD, no sensors) |

POWER QUALITY/ENERGY ANALYZERS, METERS & LOGGERS

FEATURES

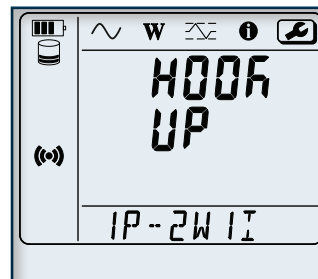
- Low cost, simple-to-use, portable, single- and dual- (split-phase) power & energy data logger
- Wide backlit LCD display
- Install without cutting off the electrical network being monitored
- Vital energy data is easily measured, recorded and analyzed
- TRMS voltage and current measurement up to 600 V
- Powered via the measuring phase
- Measurement of the AC phase currents (I1, I2) *(dependent on sensor)*
- RMS AC measurements (50 Hz and 60 Hz), aggregation every second without missing measurements
- Easy to use, automatic recognition of current sensors
- W, VA and var (P, Q, S, N and D) power measurements
- Calculation of the Cos ϕ and Power Factor (DPF)
- Aggregation measurements over a period from 1 minute to 1 hour
- Storage of the 1 s and aggregated measurements on SD/SDHC card; data can be read directly on a PC
- Remote connectivity via IRD server
- Integrated web server for remote viewing *(Android™, iOS, Windows, etc.)*
- Wi-Fi offers accessibility to diagnose problems in real-time and/or multi-station operation.
- Data saved on SD card for easier transport
- Includes FREE DataView® software for configuring, data retrieval, real-time measurement display, data analysis and report generation
- Compact casing with built-in magnets to facilitate mounting for easier implementation in electrical cabinets 2-year warranty
- ECO-DESIGN - environmental aspects considered during product development to make the lowest possible environmental impact throughout the product life cycle

APPLICATIONS

- Load surveys - Find out how much energy each item of equipment consumes operating at its min/max power level.
- Energy analysis - Estimate energy consumption before and after the improvements.
- Energy surveys - The measurements for energy surveys must be performed at several locations on the evaluation site. Starting with the main power, compare the power and energy measurements on the electricity meter and bills. Sub metering can then be performed on downstream of the installation.

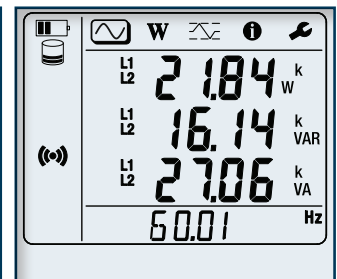
Large Functional Displays

INFORMATION MODE



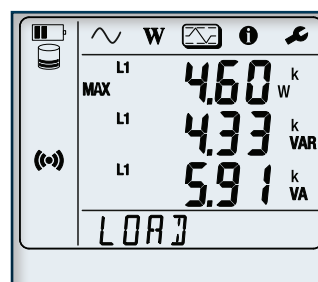
Hook up, Wi-Fi, aggregation period, can be configured from the front panel of the PEL 52. Current ratios and number of turns need to be configured via the PEL Transer software based on the current sensor type.

MEASUREMENT MODE (2P-3W2I)



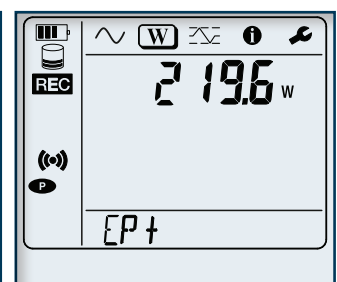
Real-time updates are displayed for voltage (V), current (A) active power (P), reactive power (Q), apparent power (S), frequency (Hz), power factor (PF).

MAX MODE (1P-2W1I)



Max aggregated values of measurements and energy.

ENERGY MODE



Active energy (Wh), reactive energy (varh), apparent energy (VAh). The energies displayed are the total energies, of the source or of the load.

(The "h" symbol is not displayed on the screen. You will see W, VA, var for Wh, VAh and varh. Downloaded recordings will show the "h")

ACCESSORIES/REPLACEMENTS

CATALOG #2140.32 AC Current Probe Model MN93-BK

CATALOG #2140.33 AC Current Probe Model SR193-BK

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 #2140.44 (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 #2140.45 Set of (12), color-coded Input ID Markers

CATALOG #5000.43 Magnetized Voltage Probe Set of (2) color-coded (Red/Black) magnetized voltage probes (Rated 600 V CAT IV, 1000 V CAT III)

POWER QUALITY / ENERGY ANALYZERS, METERS & LOGGERS

OPTIONAL ACCESSORIES

| SENSOR TYPE | CURRENT RANGE | ACCURACY (TYPICAL) | TYPICAL ERROR ON Φ AT (50/60) HZ | MAX CONDUCTOR SIZE | USED WITH MODEL | CATALOG NUMBER |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------|---------------------------------------|----------------------------------|---------------------------------------------------------------|------------------------|
| MiniFlex® MA193-BK* & MiniFlex® MA194-BK*  10, 14 or 24 in sensor | 100 mA to 12,000 Aac ⁽¹⁾ | ± 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) |
| MR193-BK  Battery operated | (1 to 1000) Aac (1 to 1300) Adc | ± 2.5 % | -0.80 ° | 1.6 in (41 mm) | PEL 102 PEL 103 PEL 105 8333 8336 8436 8345 | 2140.28 |
| SR193-BK  | (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 |
| AmpFlex® 193-BK*  24 in or 36 in sensor | 100 mA to 12,000 Aac ⁽¹⁾ | ± 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) |
| MiniFlex® 196-BK*  Waterproof, IP67 14 in or 24 in sensor | 100 mA to 12,000 Aac ⁽¹⁾ | ± 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 Φ 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° | 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° | 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° | | | | |
| 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/TYPE/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 notifications | Yes (no limit with SD card) | DC to 63 rd order; < 3 % U _{din} / 0 to 62 nd order; < 0.5 % U _{din} | 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 | 1 P-2 W, 1 P-3 W, 3 P-3 W D2, 3 P-3 W O2, 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 | None | Line Power with internal NiMH battery pack |
| PEL 103 | 2137.52 | | Yes | | | No | | Yes / No | Monochrome LCD | | |
| PEL 105 | 2137.57 | | Yes | | | No | | | Yes / No | Monochrome LCD | Power phase input or external adapter with internal NiMH battery pack |