

APPLICATION NOTE

PEL vs. PowerPad®



Choosing the Right Tool for Power Monitoring

- ▶ PEL = energy quantity
- ▶ PowerPad® = power quality
- ▶ Choose by usage vs. diagnosis

Technical Hotline: (800) 343-1391
www.aemc.com

PEL VS. POWERPAD® FEATURE COMPARISON

AEMC® Instruments Power and Energy Loggers Model PEL instruments provide all the necessary functions and features for power and energy data logging for most (50, 60, 400) Hz, and DC distribution systems worldwide. Primary uses include performing power system evaluation and monitoring.

The PowerPad® family combines data logging with sophisticated power quality analysis. These portable three-phase network analyzers enable utility company personnel to measure single and three-phase networks, and perform diagnostics.

Although the PEL and PowerPad® instruments share a number of the same capabilities, there are also significant differences between the two product lines. These differences are important considerations when deciding which instrument is better suited for your applications and requirements.

Common Features

Both the PEL and PowerPad® are designed to provide mobile, easy to use data analysis and logging, although different models emphasize different features and functionality.

Both measure a variety of (50 and 60) Hz distribution systems. And both are supported by our DataView® software with a dedicated Control Panel for configuring the instrument, viewing real-time measurement data, and generating reports.

In addition, both the PEL and PowerPad® families include a rugged case that provides IP67-level protection.



The PEL 115 and PowerPad® 8436 are both ideal for harsh outdoor environments with its IP67-rated, waterproof and dust-proof casing



The PowerPad® 8345 boasts an intuitive interface with advanced capabilities

PowerPad® Features

At first glance, one of the more obvious characteristics of the PowerPad® is its **user interface**. The front panel features a variety of **function, mode, configuration, and selection buttons**. Combined with the **bright, backlit display screen and sophisticated graphics**, these buttons provide an extensive suite of advanced standalone capabilities.

For example, you can **view data as tables, bar charts, waveforms, or phasor diagrams**. You can **save a snapshot** of the displayed data in the instrument's memory. The PowerPad® can **detect and record short-term anomalies** such as transients and inrush current. You can also **configure alarms** to identify when a measurement falls outside defined parameters.

The PowerPad® takes **256 samples per cycle**, resulting in over **15,000 samples per second on 60 Hz networks**. This allows the instrument to calculate highly detailed sub-cycle data. The PowerPad® can also **measure neutral voltage and current, and supports 5-wire networks**.

PEL Features

The economical PEL 112 and PEL 113 are smaller with a slimmer profile than PowerPad® instruments, so they can be unobtrusively mounted in locations where space is limited.

They provide a wider range of connection options, including Bluetooth®, Ethernet, Wi-Fi, and DataViewSync™, depending on model. This allows you to set up PEL networks consisting of many instruments widely scattered throughout the world, all centrally managed from a single location. This enables an operator to **configure, monitor, and download data** from a global PEL network, and then **generate reports** that includes data from all or a select subset of these instruments.

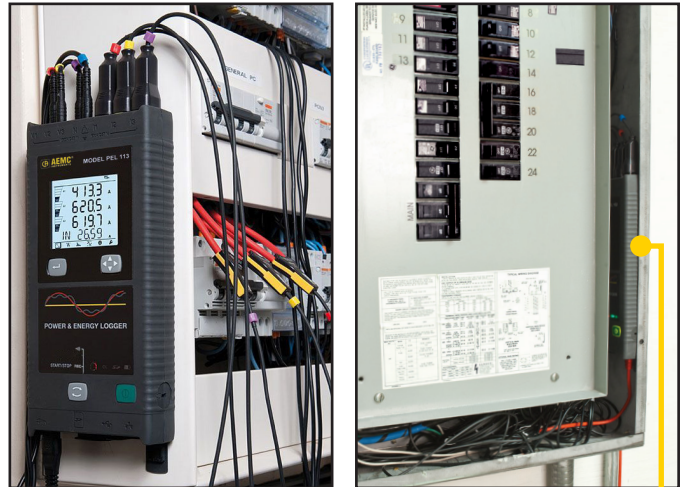
Typical applications for the PEL include demand metering and curtailment programs that often entail protracted recording sessions. Each instrument can **store up to 32 GB of trend data** for recording sessions that can run for many months or even years, depending on configuration. PEL instruments work with 400 Hz distribution networks.

Conclusion

In summary, a general rule of thumb is that PowerPad® instruments are optimal for applications involving **detailed power quality analysis**, especially those that require **capturing short-duration anomalies**. If your primary focus is performing on-site analysis and diagnostics in real time, the PowerPad® is the best choice.

The PEL, on the other hand, is ideal for **recording large amounts of power and energy data** while **operating unattended for long durations**, in environments **with limited space and access**.

A wide range of connectivity options enable you to build global networks of centrally controlled instruments. You can perform long-term data logging and monitoring of trend data, which can then be downloaded to a computer for analysis and troubleshooting.



Both PEL 112 and 113 use strong magnets for easy panel mounting—even in tight, limited-access spaces

PEL vs. PowerPad®

PEL	PowerPad®
PEL 52 PEL 112 PEL 113 PEL 115	8333 8336 8345 8436
- Designed to provide mobile, easy to use data analysis and logging - Measure a variety of (50 and 60) Hz distribution systems - DataView® software included, with a dedicated Control Panel for configuring the instrument, viewing real-time measurement data, and generating reports - IP67-level protection thanks to rugged case available in select models; PEL 115 and PowerPad® 8436	- Advanced UI - More robust standalone features - Data snapshots - Transients and inrush - Measure neutral voltage and current - Supports 5-wire networks - Faster operation
Power and energy logging over extended periods, for example, demand metering and curtailment programs	Detailed power quality analysis and diagnostics performed on-site in real-time

Bear in mind that both PowerPad® and PEL are versatile and share a number of capabilities. For instance, PEL does offer limited power quality analysis capabilities, while PowerPad® can perform data logging. There are many applications in which either instrument would be well-suited.

However, if you need to select one instrument over the other, the functionality and feature differences discussed in this Application Note can help you decide which model is ideally matched to your specific requirements.



Family of Products

UNITED STATES & CANADA

Chauvin Arnoux[®], Inc.
d.b.a. AEMC[®] Instruments
15 Faraday Drive
Dover, NH 03820 USA
(603) 749-6434

Customer Support
Place orders, obtain prices
and delivery options
(800) 343-1391
customerservice@aemc.com

Sales & Marketing Department
sales@aemc.com
marketing@aemc.com

Repair & Calibration Service
repair@aemc.com

**Technical & Product
Application Support**
(800) 343-1391
techsupport@aemc.com

INTERNATIONAL SUPPORT

**South America,
Central America,
Mexico & the Caribbean,
Australia & New Zealand**

Chauvin Arnoux[®], Inc.
d.b.a. AEMC[®] Instruments
15 Faraday Drive
Dover, NH 03820 USA
export@aemc.com

All other countries

Chauvin Arnoux[®]
12-16 Rue Sarah Bernhardt
92600 Asnières-Sur-Seine, FR
+1 33 1 44 85 45 85
info@chauvin-arnoux.com
www.chauvin-arnoux.com

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Call the Technical Assistance Hotline: (800) 343-1391

AEMC[®] Instruments • 15 Faraday Dr. • Dover, NH 03820 USA • (800) 343-1391 • E-mail: sales@aemc.com
Export Department: +1 (603) 749-6434 x520 • E-mail: export@aemc.com

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