

PowerEgg: In-Line Power Monitor

In-Line Power Monitor

- Simple installation
- Volts, amps, watts, condition
- Cumulative power use (kWh)
- Stand-alone or remotely accessed
- Choice of connectors

Monitor Power Condition and Consumption

The Power Egg is a low-cost, simple to install, real-time electrical power analyzer. The device is inserted between an existing power strip and the existing power receptacle. Existing receptacles and power strips can be used.

The Egg gives the IT manager a simple and economical means of determining how much power a power strip is consuming to prevent overloaded breakers from tripping and the quality of the power.

Where two power strips are used in a cabinet or a rack, the Eggs provide continuous monitoring of the load and an easy means to load balance.

In installations where equipment is routinely installed and de-installed, the Egg provides an easy means to check power consumption without having an electrician take amp meter measurements.

The risk of circuit breakers tripping is greatly minimized because the loads can be easily distributed.

Sub-Net Power Billing

The accuracy of the Egg (2%) permits easy sub-net billing because the amount of electricity used is counted continuously and totalled. The network is not burdened with continuous polling to achieve accuracy of power usage.

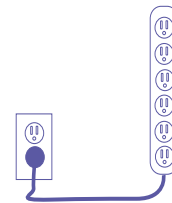
The site manager can read the total kWh monthly and know the energy consumed in the same manner as a utility meter reader.

Two types of plug and receptacle styles are available: 15 and 20 ampere three-prong push-in and twist-lock.

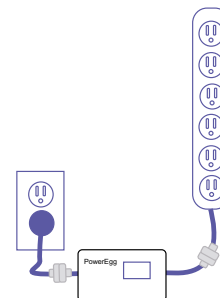


The Egg displays, volts, amps, power quality, peak volts and amps plus cumulative kilo Watt hours consumed.

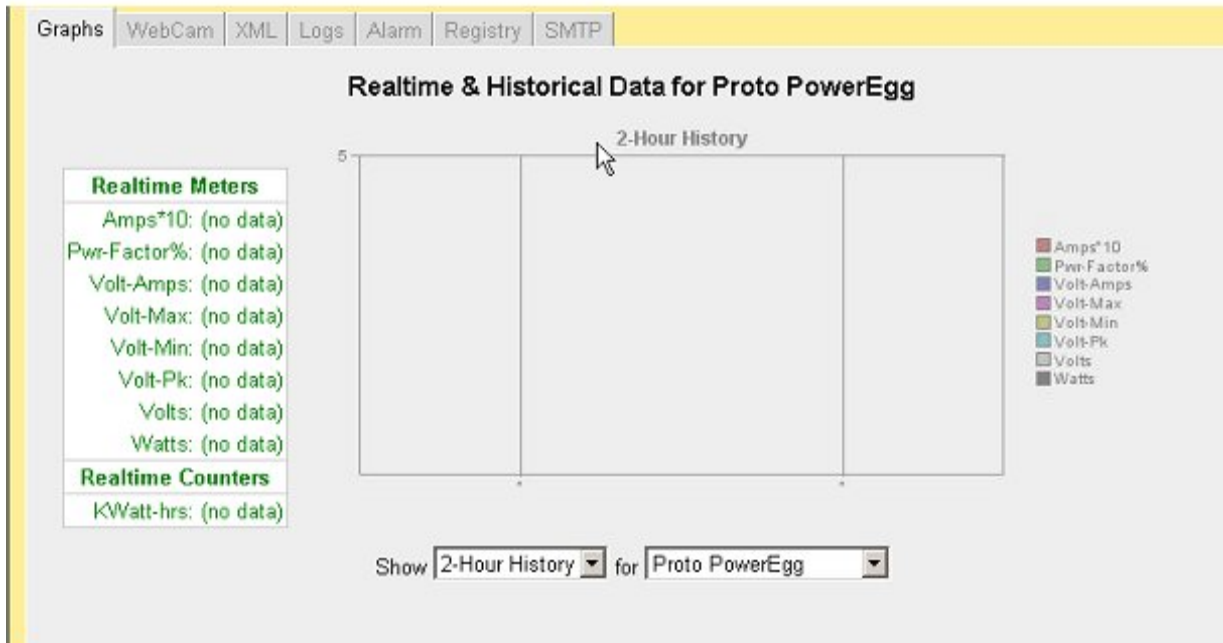
Simple Installation Uses Existing Power Strip



In a computer cabinet the power strip connects between the power source (receptacle) and the equipment serviced. Several types of connectors are used.



The Egg uses the existing plug, receptacle and power strip. The circuitry is passive: if the electronics in the Egg should fail, current to the load still flows. There are no fuses or circuit breakers in the PowerEgg.



When the Power Egg is attached to a CM-2 unit the data can be viewed by a web browser, logged in an Excel spreadsheet. Graphs from 2 hours to five days can be viewed. One CM-2 unit can read six *PowerEggs* and six *Remote Temperature Probes*. The *PowerEgg* can also be used stand-alone.

Use Stand-alone or Remotely Monitored

The unit contains an internal liquid crystal display (LCD) which is illuminated continuously. The measured values continuously appear in the window. The unit continuously displays nine values of power condition that give the IT manager a comprehensive picture of the cabinet's power condition.

RMS Volts: 85 - 150 vac: The general method of voltage measurement (Root Mean Square) of the line voltage. This is the value that electrician's voltmeters display.

RMS Current: 0 - 20 amps: The current value as would be displayed by an in-line ammeter.

Power: 0 - 2,400 watts: The instantaneous value of the amount of energy being consumed. (Watts = Volts times Current).

Energy (Low): 0 - 999 watt hours: During the last hour, the lowest amount of energy being consumed.



A small, internally illuminated LCD display shows the readings. The display rotates through the readings continuously. The values are easily seen even in dark cabinets.

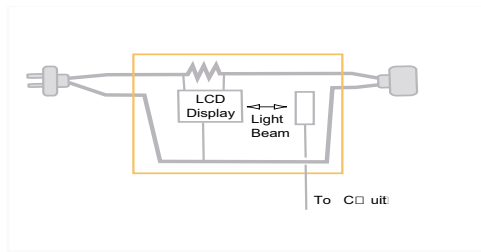
Energy (High): 0 - 65,535 watt hours: During the 1st hour, the maximum amount of energy being consumed (peak).

Peak Voltage: 100 - 450 volts. The instantaneous peak value of (not RMS) sample over 4,000 times per minute.

Minimum RMS Voltage: 85 - 120: The lowest RMS value the voltage has sagged to over the last hour.

Maximum RMS Voltage: 120 - 150: The highest RMS value the voltage has surged to over the last hour.

Passive Circuitry, Optically Isolated Communications



A passive device, power passes through the PowerEgg without touching any active components. If the internal electronic circuits fail, the current will continue to flow to the power strip. The connection to the CM-2 unit is optically isolated to protect the CM-2 unit from hazardous voltage in the event of a failure.

Power Quality: 100 (good) - 0 (bad): Using a calculation of Power Factor (phase difference between voltage and current) a value is displayed. A low value will cause early equipment failure.

High Accuracy Measurements

The PowerEgg uses high-grade components which yields an exceptional accuracy of +/- 2%.

If higher accuracy is needed, the factory can provide custom calibration.

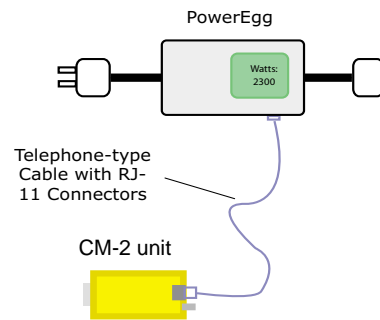
Accessing the Data Remotely

A female RJ-11 connector connects the PowerEgg to a CM-2 unit which automatically adds the PowerEgg to the Web, graphing, and Excel functions. Discovery of the PowerEgg is automatic. Up to six PowerEggs can be used with one CM-2 unit. The Remote Temperature Sensors and PowerEggs can be added without regard to order or location.

Like the Remote Temperature Sensors, the PowerEgg is connected using telephone splitters and telephone extension wires from stores selling telephone accessories. These wires are available from SwiftBase or can be fabricated using telephone crimping tools.

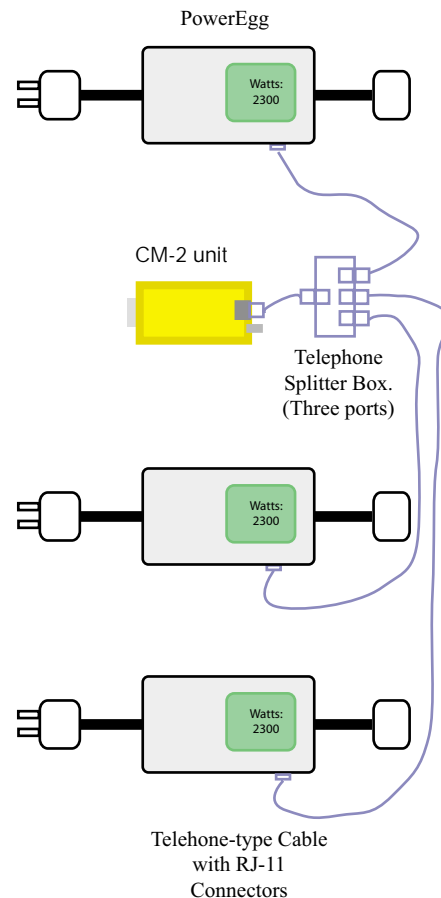
Note that while CM-2 unit uses telephone-type wires and connectors the devices cannot communicate over telephone circuits.

Single PowerEgg Connection



To view the PowerEgg data remotely, a telephone-type cable up to 30 meters connects the device to a CM-2 unit which discovers the device automatically

Multiple PowerEgg Connection



Add a telephone splitter box and connect up to six PowerEggs. The software supplied automatically discovers and begins collecting data from the PowerEggs. Remote Temperature Sensors (up to six) can be added, also.