

# Power Quality Logger Models PQL 100 & PQL 120

**Power Quality Analysis Made Simple!**



US Patent Number 6,424,277

The PQL 100 Series is a single phase Power Quality Logger designed to measure and log from a complete suite of electrical and power quality parameters. It is accompanied by an easy-to-use report compliant software package. We provide several report templates to facilitate your work.

The PQL 100 Series is designed for North American commercial, industrial and residential applications, and is plugged into a standard AC receptacle. In turn, any 120V load may be plugged into the Power Quality Logger: office equipment, data equipment, machinery, compressors, heaters, motors, etc.

In industrial, commercial and residential sites, power quality is critical and may induce many problems, the causes of which

need to be identified. Outages reset clocks, timers and other sensitive devices; odd harmonics cause overheating in neutrals; harmonic energy causes motors and other devices to run improperly; spikes cause lighting to burn out prematurely; and surges and sags cause irritating flicker in lighting systems as well as inefficient machine operation.

The main advantage of the PQL 100 Series is its ability to perform a wide variety of recording tasks with high resolution and accuracy and easy, intuitive setup from a computer. The PQL 100 measures, records and stores selected parameters in its memory. Along with standard electrical parameters (V, A, W, Var, PF...), it also stores the Power Quality of the input waveforms (Harmonics, THD, Surge,

Sag, K-Factor...). The recorded information is retrieved from a computer via an RS-232 serial link using the report compliant DataView® Lite software package, which provides graphs, data and pre-configured reports. With the DataView® Professional edition, measurements and waveforms may be viewed in "real time" on a computer monitor and stored directly into the computer memory. Custom views and reports can then be created.

The Power Quality Logger is line powered from the voltage source that it is connected to, with an internal battery to protect data integrity during power outages for up to one year.

## Features

- Portable, compact unit — plugs into standard US 120V outlets
- Simple operation: Plug in, Record, Download and Read
- Measures and stores electrical parameters: V, A, Hz and more
- Measures and stores power parameters: W, VA, VAR, Demand, Peak Demand and more
- Measures and stores power quality parameters: Harmonics, THD (RMS and fundamental), K-Factor and more
- Automatically captures worst-case Surge, Sag and THD waveforms
- High accuracy and resolution: 128 samples/cycle, 16 bit resolution
- LEDs indicate mode of operation
- Records up to 12 data channels
- Powered from voltage input channel
- Battery backup data integrity during power outages for up to one year (configuration in non-volatile memory)
- Optically isolated RS-232 output for direct connection to a PC
- IEC 1010, 150V Cat. III
- Includes DataView® Lite software for data storage, analysis and report generation

## Applications

- Monitor power quality in North American commercial, industrial and residential application
- Monitor power quality at computer workstations
- Monitor power quality on laboratory equipment

PARAMETER	UNIT	RMS	MIN	MAX	VALUE	WAVEFORM	SPECTRUM	TEXT	COMMENTS
Voltage	V	✓	✓	✓		✓	✓	✓	Waveforms & Spectrum in real time using DataView® Professional
Current	A	✓	✓	✓		✓	✓	✓	Waveforms & Spectrum in real time using DataView® Professional
Frequency	Hz	✓	✓	✓				✓	
Even Voltage Harmonics	V	✓	✓	✓				✓	
Odd Voltage Harmonics	V	✓	✓	✓				✓	
Even Current Harmonics	A	✓	✓	✓				✓	
Odd Current Harmonics	A	✓	✓	✓				✓	
Real Power	W	✓	✓	✓				✓	
Reactive Power	Var	✓	✓	✓				✓	
Apparent Power	VA	✓	✓	✓				✓	
Total Harmonic Distortion		✓	✓	✓		✓	✓	✓	IEEE (THDrms) or IEC (THDfund); 5 worst waveforms for Voltage & Current
Power Factor		✓	✓	✓				✓	
Displacement Power Factor		✓	✓	✓				✓	
K-Factor		✓	✓	✓				✓	
Demand	VA, W				✓			✓	10/15/30 minutes or user-definable in 1 min. increments
Peak Demand	VA, W				✓			✓	Peak within the Demand Interval
Sag	V				✓	✓	✓	✓	
Surge	V				✓	✓	✓	✓	5 worst in Hi-Resolution – up to 256 single cycle RMS values & worst-case THD waveforms per event; Table of 100 worst-case events containing severity & time; Even counter for all triggered values

# Specifications

MODEL	PQL 100 (128k)	PQL 100 (1MB)	PQL 120 (128kB)	PQL 120 (1MB)
<b>ELECTRICAL</b>				
Measurements	True RMS measurement. 128 samples are simultaneously taken for voltage and current channel.			
<b>VOLTAGE</b>				
Range	0 to 140V			
Resolution	0.1V			
Accuracy	±(0.3% of Reading + 0.3V)			
<b>CURRENT</b>				
Range	0 to 15A (70A peak maximum)			
Resolution	0.01A			
Accuracy	±(0.5% of Reading + 0.03A) @ 0.75A to 15A ±0.30A @ < 0.75A			
<b>FREQUENCY (Hz)</b>				
Range	45 to 65Hz			
Resolution	0.01Hz			
Accuracy	0.1Hz			
<b>HARMONICS</b>				
Range	Up to 50th for both Voltage & Current			
Resolution	0.1V for Voltage & 0.1A for Current			
<b>POWER – WATT/VA/VAR</b>				
Range	0 to 2,100 Watt, VA or Var			
Resolution	0.1W, 0.1VA, 0.1Var			
Accuracy	±(2.0% of Reading + 4x), where x is Watt or VA or Var			
<b>POWER &amp; POWER FACTOR</b>				
Resolution	0.01			
Accuracy	±0.03% @ PF/DPF = 1			
<b>PROGRAMMABLE PARAMETERS</b>				
	V, A, Hz, Odd & Even Harmonics ( V & A), W, VA, Var, THD (V & A), PF, DF, K-Factor			
Demand	VA, W (10/15/30 minutes or user-definable)			
Peak Demand	Over demand period			
Voltage Sag	User-definable magnitude			
Voltage Surge	User-definable magnitude			
<b>INPUT</b>				
Input Channels	1 Voltage/1 Current			
Sample Rate	128 per cycle per channel			
<b>RECORDING</b>				
Storage Rate	125ms to 7 days			
Recording Session Length	15 minutes to 8 weeks (user programmable)			
Total Memory	128kB	1MB	128kB	1MB
Date and Time	MM/DD/YY hh/mm/ss.sss			
Surge and Sag and THD Waveform Storage	5 worst-case	20 worst-case	5 worst-case	20 worst-case
<b>ENVIRONMENTAL</b>				
Operating Temperature	14° to 122°F (-10° to 50°C)			
Storage Temperature	-4 to 140°F (-20° to 60°C)			
Relative Humidity	0% to 85% @ 95°F (35°C), non-condensing			
<b>MECHANICAL</b>				
Material	UL94V-0 ABS plastic			
Dimensions	5.91 x 3.15 x 2.36" (150 x 80 x 60mm)			
Weight	1 lb 7 oz (650g) including the batteries			
<b>SAFETY</b>				
	IEC 1010-1, 150V Cat. III, Pollution Degree 2			



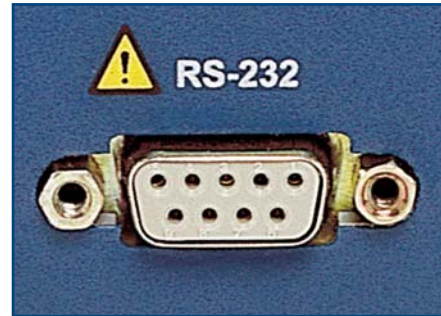
Monitor power quality at computer workstations



LED s indicate mode of operation



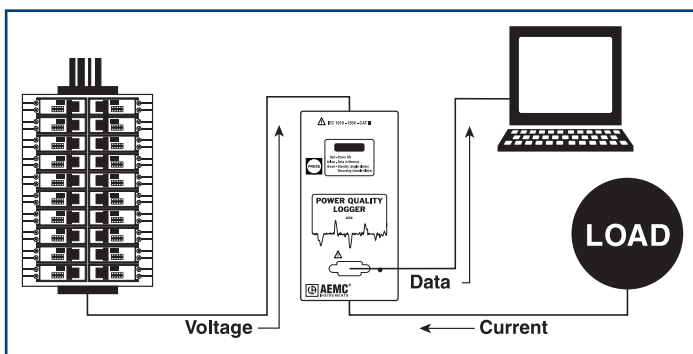
Monitor power quality on laboratory equipment



RS-232 interface for easy connection to a PC

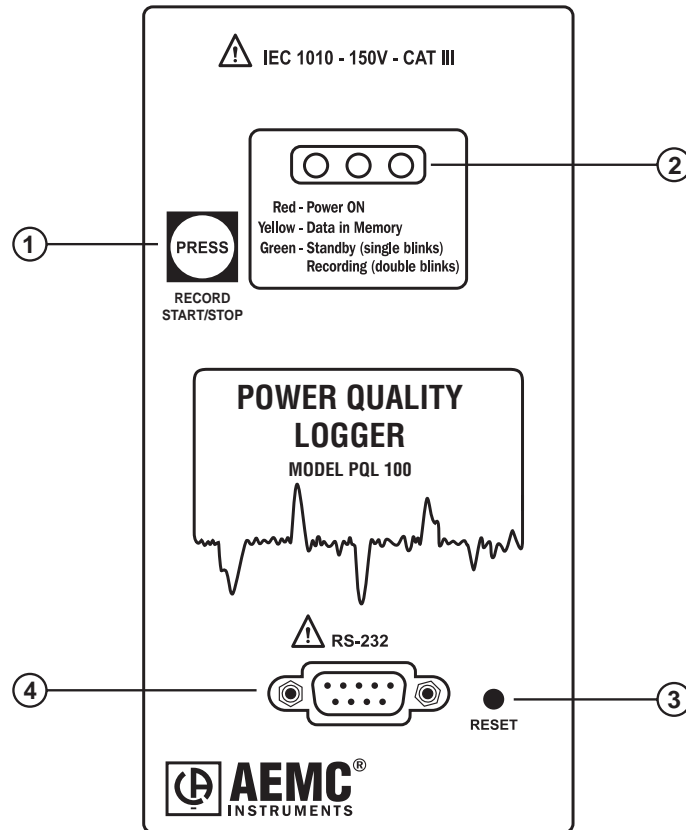


Standard 3-prong current input receptacle



Model PQL 100 has standard 3-prong plug on back of unit (shown). Model PQL 120 also available with 6' power cable.

# Construction



## 1. Control Button (Record Start/Stop)

Used to start or stop recording and erase recording memory

## 2. Three LED Indicators

- **RED LED:** Indicates the presence of AC line voltage. The logger turns ON when the input voltage > 75V
- **YELLOW LED:** Indicates the status of the memory.  
LED OFF: No data in memory  
LED ON: Memory is partially filled  
LED Single Blink: Memory is full
- **GREEN LED:** Indicates the status of the data logger (STANDBY or RECORDING)  
LED Single Blink: PQ Logger is in Standby Mode (and not recording)  
LED Double Blink: PQ Logger is in Record Mode

NOTE: When the AC line power is turned off and the PQ Logger is not recording in a ride-through mode, the GREEN LED is OFF. If the GREEN LED remains continuously ON without blinking, or OFF even when the RED LED is ON, a fault condition has occurred

## 3. Reset Button

This button resets the CPU. The button is recessed and requires a small tool, such as a pen, to press it. Do not press the Reset Button under normal operation. If the Reset Button is pressed when the PQ Logger is recording, it will stop recording and data in the memory may be lost.

## 4. Female DB-9 Serial Connector

# DataView® Lite & Professional Data Analysis & Reporting Software for Models PQL 100 & PQL 120

## Features

- Display and analyze data on your PC
- Configure all data logger functions and parameters from your PC including sample rate, recording length, channel configuration and more
- Customize frames, templates and reports to your exact needs
- Display real time data on your PC and download previously recorded data
- Create and store a complete library of configurations that can be uploaded to the logger as needed
- Zoom in and out and pan through sections of the graph to analyze the data
- Display waveforms, trend graphs, harmonic spectrums and text summaries
- Display surge and sag events in high-resolution waveforms and as tabular listings

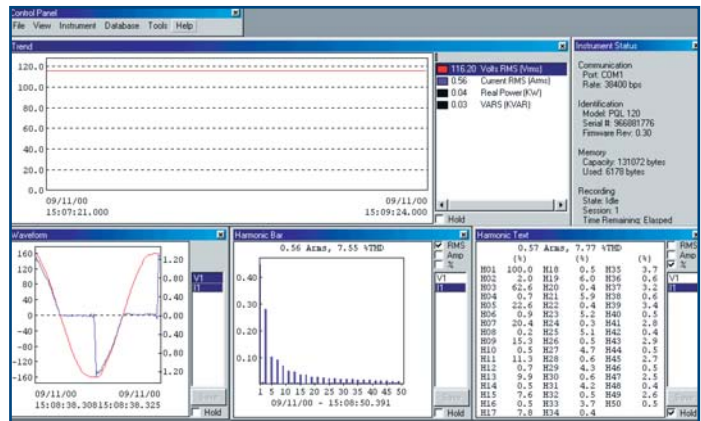


DataView® Professional

## Minimum System Requirements:

- Windows®98/2000/ME/XP or Windows®NT 4.0
- 128MB of RAM (256MB recommended) Windows®98/2000/ME or Windows®NT 4.0; 256MB of RAM for Windows®XP
- 35MB of Hard Disk Space (200MB recommended)
- CD Rom drive

DataView® Features	DataView® Lite	DataView® Professional
Configure and Start Logger from PC	✓	✓
Download and Store Data	✓	✓
Display and Report Recorded Data	✓	✓
Display Stored Trend, Waveform and Reporting Data	✓	✓
Six Factory Predefined Templates for Viewing and Reporting Data	✓	✓
Display Real Time Data and Waveforms	-	✓
Customize Templates	-	✓
Customize Reports	-	✓
Insert Text Annotations and Graphic Objects from Other Applications	-	✓
Customize Colors and Fonts	-	✓



View data in real time on your PC. Customize the layout to include what's important to you.





Model PQL 100 with DataView® Lite software and 6 ft. DB-9 MF serial PC cable



Model PQL 100



Model PQL 120



Soft Carrying Case



DataView® Professional Edition

**ORDERING INFORMATION**

**CATALOG NO.**

Power Quality Logger Model PQL 100 (128kB) .....	Cat. #2125.01
Power Quality Logger Model PQL 120 (128kB) .....	Cat. #2125.02
Power Quality Logger Model PQL 100 (1MB) .....	Cat. #2125.03
Power Quality Logger Model PQL 120 (1MB) .....	Cat. #2125.04
DataView® Professional Software .....	Cat. #2125.10
<b>Accessories (Optional)</b>	
Soft Carrying Case .....	Cat. #2119.02

