



# PM175

## POWER QUALITY ANALYZER

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The **PM175** is a compact, multi-function, three-phase AC powermeter and power quality analyzer, specially designed to meet the requirements of users ranging from electrical panel builders to substation operators. Bright 3-row LED display provides easy local meter readings. The display module is freely detachable and can be located at a distance of up to 1000 meters from device.

Two communication ports allow local and remote automatic meter reading and setup through the supplemental communication or user data acquisition software. Different communication options are available for remote communications with the meter including public telephone lines, LAN and the Internet.

### BENEFITS

- TOU Energy Measurement
- Integral, Built-in EN50160 Reports
- 0.2S Accuracy
- Communication Platforms and Various Protocols:
  - Telephone Modem**
  - Cellular Modem**
  - TCP/IP**
  - Ethernet**
  - Profibus DP**
- Measurement Compliance with Power Quality Standards:
  - EN50160**
  - IEC6100-4-7 Harmonic & Inter-harmonic**
  - IEC61000 Flicker**
  - CBEMA/ITIC**
  - IEEE519 & IEEE1159**

# FEATURES

## Measurements

- Class 0.2S revenue accuracy
- 128 samples per cycle true RMS measurements
- Fast, real-time, cycle-by-cycle measurements
- Four-quadrant measurements
- Min/Max values (instantaneous and demands)

## Wiring configurations

- Accepts all wiring configurations, selectable from front panel or via communication

## Full Harmonic Analyzer

- Voltage and currents individual harmonics up to 50<sup>th</sup> order
- Voltage and currents THD
- Currents TDD, K-factor
- Power harmonics and harmonic flow (direction of harmonics)
- Voltage inter-harmonic up to the 50<sup>th</sup> order
- Voltage and currents, harmonic spectrum and angles
- Conforms with harmonic standards: IEEE1159, G5/4

## Waveform Recording

- Two independent, simultaneous waveform recorders, each recording the complete 3-phase voltage and current waveforms
- Recording resolution at 32 and up to 128 samples per cycle
- Up to 16 pre-fault cycles and up to 2000 post-fault cycles
- Support programmable memory partition

## Event Log

- Programmable with 1 ms time stamp
- Support programmable memory partition

## Data Log

- 16 programmable data log tables, up to 16 parameters for each table
- Record intervals from 1 to 9999 seconds
- Support programmable memory partition

## Energy Measurement

Accuracy: Class 0.2S, class 0.2S IEC 62053-22:2003

## EN50160 Power Quality Recorder

EN50160 compliance statistics, EN50160 harmonics survey statistics, onboard power quality analyzer; programmable thresholds and hysteresis; ready-for-use reports; IEEE519 Power Quality.

## Customized EN50160 Power Quality Recorder

## Flicker: IEC 61000

## Transient Recording

Minimum width: 156 $\mu$ s@50Hz

## Sag/Swell Detection

## Automatic Reporting

## Real Time Clock

- 30 ppm real-time clock
- Synchronization with GPS pulse input

## Memory

- 1 MB of non-volatile log memory
- Full programmable memory partition for event logs, data logs and waveform logs

## Control Options

- 2 relay outputs
- 4 digital inputs
- 4 analog inputs (optional)
- Up to 16 analog outputs (optional)

## Communications

Two communication ports;

Communication options available:

- COM1: RS232/244/485  
56K Dial-up modem  
Ethernet 10/100 Base T, eXpertpower™ enabled
- COM2: RS422/485

# TECHNICAL SPECIFICATIONS

## Parameters

## Description

Dimensions	Height: 114 mm; Width: 127 mm; Length: 114 mm
Weight	1.23 kg / 2.7 lb.
Voltage Inputs	Operating range: 690 VAC line-to-line, 400 VAC line-to-neutral. Direct input and input via PT (up to 828 VAC line-to-line, up to 480 VAC line-to-neutral)
Current Inputs	5A secondary Operating range: continuous 10A RMS burden: <0.1 VA Overload withstand: 15A RMS continuous, 300A RMS for 1 second  1A secondary Operating range: continuous 2A RMS burden: <0.02 VA Overload withstand: 6A RMS continuous, 80A RMS for 1 second
Display	Bright 3-row LED display provides easy local meter readings. The display module is freely detachable and can be located at a distance of up to 1000 meters from the device. LCD color touch screen graphical display (optional)
Relay Outputs	2 relays rated at 3A/250 VAC; 3A/30 VDC, 2 contacts (SPST form A)
Optional Analog Inputs/Outputs	+/- 1mA 0-20 mA 4-20 mA 0-1 mA
Energy	Time-of-Use (TOU), 8 totalization and tariff energy/demand registers x 8 tariffs, 4 seasons x 4 types of days, 8 tariff changes per day, easy programmable tariff schedule Automatic daily profile for energy and maximum demand readings (total and tariff registers)
Frequency	15 Hz to 480 Hz
Real Time Clock	Accuracy: typical error 15 seconds per month @ 25°C
Accuracy	Class 0.2S, Class 0.2S IEC62053-22:2003
Burden	8 VA
Environmental Conditions	From -20°C to +60°C Humidity: 0 to 95% non-condensing
Communications	Modbus RTU and Modbus ASCII communication protocols 1. RS232 2. RS485           Up to 32 devices 3. TCP/IP           Ethernet 10/100 BaseT 4. Modem           56K dial-up modem
Warranty	3 years
Warranty of accuracy	10 years

# TECHNICAL SPECIFICATIONS

## PM175

## Accuracy (Reading)

Voltage (10-120% FS)	0.2%
Current (10-200% FS), Starting Current 0.1% FS	0.2%
Neutral Current	0.4%
Frequency	0.02%
Power Factor	0.2%
Active Power (W)	0.2%
Reactive Power (Var)	0.3%
Apparent Power(VA)	0.2%
Active energy (W.h.)	Class 0.2S Class 0.2S IEC 62053-22:2003
Reactive Energy (Var.h.)	Class 0.2S under conditions as per IEC 62053-22:2003, $ PF  \leq 0.9$
Apparent Energy (VA.h.)	Class 0.2S Class 0.2S IEC 62053-22:2003
Total Harmonic Distortion THD	0.1%
Total Demand Distortion TDD	1.5%
Temperature Coefficient	0.008% / °C
Input Circuit Consumption	Less than 0.1 VA
Measured Current Range	1% to 200%

## Standards Compliance

Accuracy per ANSI C12.20-1998

UL File #E129258 (pending)

Directive complied with:

EMC: 89/336/EEC as amended by 92/31/EEC and 93/68/EEC

LVD: 72/23/EEC as amended by 93/68/EEC and 93/465/EEC

Harmonized standards to which conformity is declared:

EN55011: 1991

EN50082-1:1992

EN61010-1:1993

A2/1995

EN50081-2 Generic Emission Standard—Industrial Environment

EN50082-2 Generic Immunity Standard—Industrial Environment

EN55022: 1994 Class A

EN61000-4-2

ENV50140:1983

ENV50204:1995 (900MHz)

ENV50141: 1993

EN61000-4-4:1995

EN61000-4-8:1993