

Power meter

PowerLogic® PM700 series



Merlin Gerin



PowerLogic® PM700 series

The PM700 series meter offers outstanding quality, versatility, and functionality in a cost-effective, ultra-compact unit. The meter is simple to use and offers a large, bright LCD display for superior readability even in extreme lighting conditions and viewing angles. An ideal replacement for analog meters, PM700 meters can be used for stand-alone metering in custom panels, switchboards, switchgear, gensets, motor control centers, and UPS systems.

Complete with power, demand, energy, power factor, and frequency measurements, PM700 series meters are available in a variety of flexible configurations and have IEC62053-21 Class-1 and IEC62053-22 Class 0.5S (PM750 only) certification for basic sub-billing or cost allocation. The PM700 series meters are available in four versions:

- PM700: basic version with THD and min/max readings
- PM700P: basic plus two pulse outputs
- PM710: basic plus one RS 485 port (Modbus)
- PM750: basic plus an RS 485, two digital inputs, one digital output, and 15 user configurable alarms

Applications summary

Cost-effective metering

Easily mounted without tools (just two clips) and with a mounting depth of only 50mm, these cost effective and highly accurate power meters are ideal for OEMs and panel builders. The meters support direct connection up to 480 V AC Ph-Ph and seamlessly integrate with PowerLogic® energy management systems. Their high-accuracy power, energy, and demand measurements can be used for bill verification, monitoring backup power for critical systems, and cost effective energy solutions.

Remote monitoring and control

Get early warning of impending problems that could lead to equipment problems or downtime. Diagnose and isolate the cause of power-related equipment or process problems. The PM750 features 15 user-configurable alarms for the most common over and under conditions common in most power systems. Combine any of the PM750's I/Os with these alarms and communicate through its 2-wire RS-485 port for remote monitoring and control capabilities for greater control over the performance and overall health of your systems. Perfect for demand control applications.

Sub-billing and cost allocation

Perfect for monitoring right down to the tool level, the PM700 meter can help monitor cost centers, identify opportunities for demand control, and check energy consumption patterns.

Features summary

Cost-effective

- Simple retrofit
- Low initial investment

Ease of use

- Fast setup via display or software
- Compatible with entry-level PowerView™ software
- Bright, easy to read LCD display

High accuracy metering

- PM750 - Real Energy IEC62053-22.Class 0.5S
- PM700, PM700P and PM710: Real Energy IEC62053-21 Class 1

Communications

- RS-485 port (PM710, PM750)
- Modbus protocol for integration with energy management systems

Energy management systems

- Modbus compatible, ready to use with PowerLogic® PowerView™ and System Manager software

Pulse outputs

- 2 outputs for kWh or kVARh pulsing (PM700P)
- 1 output (PM750) for kWh-pulsing, alarm status, or external controlled output

Pulse inputs

- 2 inputs (PM750) for status, alarms or demand input synchronization

Patented technology

- An architecture that uniquely addresses monitoring and control applications
- Adapts to changing needs, avoiding obsolescence

Measurements

Metering

- Real time true RMS electrical parameters up to the 15th harmonic
- 32 samples per cycle
- Measurement accuracy per internationally recognized standards
- Energy and demand measurements
- Per phase voltage, current, peak current demand, watts, VARs, kWh, and more
- Neutral current, THD, frequency, power factor, and more

Meter unit

Physical configuration

- Ideal for low voltage switchboards, shallow cable compartments, standalone machines, and a wide range of commercial and industrial applications
- Mount on switchboard doors to maximise free space for electrical devices
- No tools required; mount meter with clips

Front panel display

Bright LCD back lit display with easy to read digits:

- Intuitive display operation and context-based menus
- Easy setup for common configuration parameters
- Password protection on setup parameters
- Password protection for demand reset

Pulse outputs (PM700P, PM750)

- kWh and kVARh with PM700P
- kWh with PM750

Pulse input (PM750)

- Trigger alarms or monitor I/O status applications via two digital inputs

Notifications and alarms (PM750)

- Control processes, avoid penalties and perform proactive maintenance using alarms

Communications (PM710, PM750)

- RS-485 port with standard Modbus RTU
- Baud rates from 9,600 bps to 19,200 bps

Flexible power supplies

- 100 to 415 $\pm 10\%$ V AC, 5 VA
- 125 to 250 $\pm 20\%$ V DC, 3 W

Specifications

Accuracy

- Current: $\pm 0.4\%$ (PM750), $\pm 0.5\%$ (PM700, 700P, PM710) from 1 A to 6 A
- Voltage: $\pm 0.3\%$ (PM750), $\pm 0.5\%$ (PM700, 700P, PM710) from 50 V to 277 V
- Power Factor: 0.5 % from 1 A to 6 A
- Power: 0.5% (PM750), 1% (PM700, PM700P and PM710)
- Frequency: $\pm 0.02\%$ from 45 to 65 Hz
- Real Energy
 - Class 1 as defined by IEC 62053-21 (PM700, PM700P, and PM710)
 - Class 0.5S as defined by IEC 62053-22 (PM750)
- Reactive Energy: Class 2 as defined by IEC 62053-23

Environmental conditions

- Operating temp: -5°C to 60°C (meter)
 -10°C to 55°C (display)
- Storage temp (meter and display): -40°C to 85°C
- Humidity rating: 5% to 95% RH at 50°C (non-condensing)
- Altitude: 3000m maximum

Input-voltage characteristics

- Measured voltage:
 - 10 to 480 V AC (direct Ph-Ph)
 - 10 to 277 V AC (direct Ph-N)
 - up to 1.6 MV AC (with external VT), start of measuring voltage depends on PT ratio
- Metering over-range: 1.2 U_n
- Impedance: 2 M Ω (Ph-Ph) / 1 M Ω (Ph-N)
- Frequency range: 45 to 65 Hz

Input-current characteristics

- CT ratings:
 - Primary: adjustable from 5 A to 32767 A
 - Secondary: 5 A or 1 A
- Measurement input range: 5 mA to 6 A
- Permissible overload:
 - 10 A continuous
 - 50 A for 10 seconds per hour
 - 120 A for 1 second per hour
- Impedance: $< 0.1\ \Omega$
- Load: $< 0.15\ \text{VA}$

Mechanical characteristics

- Dimensions: 96 x 96 x 69 mm (meter with display)
96 x 96 x 50 mm (behind mounting surface)
- Weight: 0.37 kg (0.8 lb)

Software

- Fully compatible with entry level software PowerLogic® PowerView™ and PowerLogic® System Manager Software (SMS).

Selection Guide		PM700	PM700P	PM710	PM750
General					
Use on LV and HV systems		■	■	■	■
Current accuracy (1A to 6A)		±0.5 %	±0.5 %	±0.5 %	±0.4 %
Voltage accuracy (50V to 277V)		±0.5 %	±0.5 %	±0.5 %	±0.3 %
Energy and power accuracy		1.0 %	1.0 %	1.0 %	0.5 %
Instantaneous rms values					
Current	Phases and neutral	■	■	■	■
Voltage	Ph-Ph, Ph-N	■	■	■	■
Frequency		■	■	■	■
Power ¹					
Real		■	■	■	signed
Reactive		■	■	■	signed
Apparent		■	■	■	■
Power factor	Total	■	■	■	signed ²
Energy values					
Active, reactive, apparent energy		■	■	■	signed ²
Demand values					
Current (present and max.)		■	■	■	■
Active, reactive, apparent power		■	■	■	■
Setting of calculation mode		■	■	■	■
Power quality measurements					
Harmonic distortion (current, voltage)		■	■	■	■
Data recording					
Min/max of instantaneous values		■	■	■	■
Display and I/O					
Backlit LCD display		■	■	■	■
Pulse output		-	2	-	1
Pulse input		-	-	-	2
Communication					
RS 485 port		-	-	■	■
Modbus protocol		-	-	■	■
Alarms					
Over/under conditions		-	-	-	15

¹ Total and per phase

² Real and reactive power and energy are signed net consumptions (PM750)

Software integration

PowerLogic® PowerView Software

PowerLogic® System Manager Software

PowerLogic® and ION®

Power Measurement and its ION products were recently acquired by Schneider Electric and integrated within our PowerLogic range of software and hardware, creating the world's largest line of power and energy management solutions.

PowerLogic®

ION®

Schneider Electric Industries SAS
89, boulevard Franklin Roosevelt
F - 92500 Rueil-Malmaison (France)
Tel: +33 (0)1 41 29 85 00
<http://www.schneider-electric.com>
<http://www.merlin-gerin.com>
<http://www.PowerLogic.com>

As standards, specifications and designs develop from time, always ask for confirmation of the information given in this publication

 Printed on recycled paper

Publication: Schneider Electric
Production: Schneider Electric PMC
Printing: Imprimerie du Pont-de-Claix