

# PowerLogic power-monitoring units

## PM5350 power meter

Technical data sheet



# PM5350

## Functions and characteristics

PE60278



PowerLogic PM5350.

The PowerLogic PM5350 power meter offers all the measurement capabilities required to monitor an electrical installation in a single 96 x 96 mm unit extending only 44 mm behind the mounting surface.

With its large display, all three phases and neutral can be monitored simultaneously. The bright, anti-glare display features large characters and powerful backlighting for easy reading even in extreme lighting conditions and viewing angles. The meter menus are understood by all, with the availability of two languages (English/Chinese) included standard in the PM5350.

Its compact size and high performance make the PowerLogic PM5350 suitable for many applications.

### Applications

Panel instrumentation.  
 Cost allocation or energy management.  
 Electrical installation remote monitoring.  
 Alarming with under/over, digital status, control power failure, meter reset, self diagnostic issue.  
 Circuit Breaker monitoring and control with relay outputs and whetted digital inputs.

### Main characteristics

#### Easy to install

Mounts using two clips, no tools required. Ultra compact meter with 44mm depth connectable up to 480 VL-L without voltage transformers for installations compliant with category III, as per IEC 61010-1. See specification table for UL voltage limits.

#### Easy to operate

Intuitive navigation with self-guided, language selectable menus, six lines, four concurrent values. Two LEDs on the meter face help the user confirm normal operation (heartbeat/communications indicator LED: green and other LED orange, customizable either for alarms or energy pulse outputs).

#### Easy circuit breaker monitoring and control

The PM5350 provides two relay outputs (high performance) with capability to command most of the circuit breaker coils directly. In addition, monitored switches can be wired directly to the meter without external power supply.

#### System status at a glance

Bright, anti-glare, backlit display plus two LEDs; orange for energy pulse or alarm and green for heartbeat/communications indication.

#### IEC 62053-22 class 0.5S accuracy for active energy

Accurate energy measurement for cost allocation.

#### Power Quality analysis

The PM5350 offers THD and TDD measurements as standard. Total Demand Distortion is based on a point of common coupling (PCC), which is a common point that each user receives power from the power source. The TDD compares the contribution of harmonics versus the maximum demand load.

#### Load management

Peak demands with time stamping are provided. Predicted demand values can be used in basic load shedding applications.

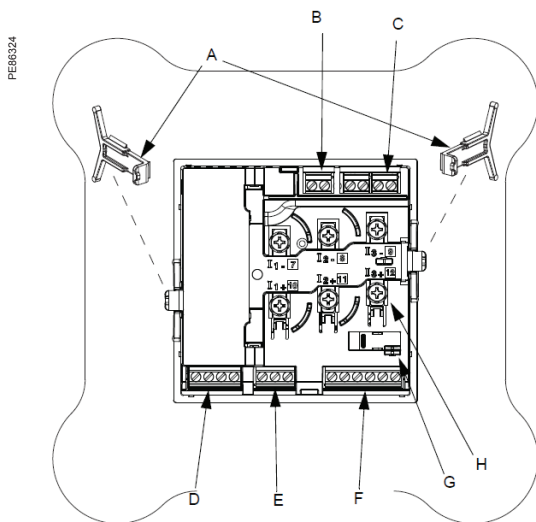
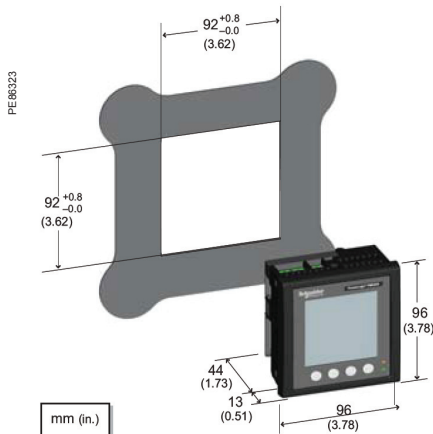
#### Alarming with time stamping

Over 30 alarm conditions, such as under/over conditions, digital input changes, and phase unbalance inform you of events. A time-stamped log maintains a record of the last 40 alarm events.

#### Load timer

Load timer setpoint adjustable to monitor and advise maintenance requirements.

#### Performance Standard Meets IEC 61557-12 PMD/S/K70/0.5.



### PM5350 meter parts

- A Retainer clips.
- B Control power supply connector.
- C Voltage inputs.
- D Digital outputs.
- E Rs485 port (COM1).
- F Digital outputs.
- G Optical revenue switch.
- H Current inputs.

### General

Use on LV and MV systems	■
Basic metering with THD and min/max readings	■

### Instantaneous rms values

Current	Total, Phases and neutral	■
Voltage	Total, Ph-Ph and Ph-N	■
Frequency		■
Real, reactive, and apparent power	Total and per phase	Signed
True Power Factor	Total and per phase	Signed, Four Quadrant
Displacement PF	Total and per phase	Signed, Four Quadrant
Unbalanced I, VL-N, VL-L		■

### Energy values

		Stored in non-volatile memory
Accumulated Active, Reactive and Apparent Energy	Received/Delivered; Net and absolute;	■

### Demand values

Current average	Present, Last, Predicted, Peak, & Peak Date Time	■
Active power	Present, Last, Predicted, Peak, & Peak Date Time	■
Reactive power	Present, Last, Predicted, Peak, & Peak Date Time	■
Apparent power	Present, Last, Predicted, Peak, & Peak Date Time	■
Peak demand with timestamping D/T for current & powers		■
Demand calculation	Sliding, fixed and rolling block, thermal	■
Synchronization of the measurement window		■

### Other measurements

I/O timer	■	■
Operating timer	■	■
Active load timer	■	■
Alarm counters	■	■

### Power quality measurements

THD, thd (Total Harmonic Distortion)	I, VLN, VLL
TDD, thd (Total Demand Distortion)	■

### Data recording

Min/max of instantaneous values, plus phase identification	■	■
Alarms with 1s timestamping	Standard 29; Unary 4; Digital 4	
Alarms stored in non-volatile memory	40 events	■

### Inputs/Outputs

Digital inputs	4 (DI1, DI2, DI3, DI4)
Digital outputs	2 relay outputs (DO1, DO2)

### Display

White backlit LCD display, 6 lines, 4 concurrent values	■
IEC or IEEE visualization mode	■

### Communication

Modbus RTU, Modbus ASCII, Jbus Protocol	■
Firmware update via RS485 serial port (DLF3000 via the Schneider Electric website: www.schneider-electric.com)	■



Front screen view of PM5350.

**Electrical characteristics**

Type of measurement		True rms up to the 15th harmonic on three-phase (3P, 3P + N) 32 samples per cycle, zero blind	
Measurement accuracy	Current, Phase <sup>(1)</sup>	±0.30%	
	Voltage, L-N <sup>(1)</sup>	±0.30%	
	Power Factor <sup>(1)</sup>	±0.005	
	Power, Phase	IEC 61557-12 Class 0.5; For 5 A nominal CT (for 1 A nominal CT when I > 0.15A) ±0.5% from 0.25 A to 9.0 A at COS φ = 1 ±0.6% from 0.50 A to 9.0 A at COS φ = 0.5 (ind or cap)	
	Frequency <sup>(1)</sup>	±0.05%	
Real Energy		IEC 62053-22 Class 0.5S; IEC 61557-12 Class 0.5; For 5 A nominal CT (for 1 A nominal CT when I > 0.15A) ±0.5% from 0.25 A to 9.0 A at COS φ = 1 ±0.6% from 0.50 A to 9.0 A at COS φ = 0.5 (ind or cap) IEC 61557-12 Class 0.5	
Reactive Energy		IEC 62053-23 Class 3, IEC 61557-12 Class 2 For 5 A nominal CT (for 1 A nominal CT when I > 0.15A) ±2.0% from 0.25 A to 9.0 A at SIN φ = 1 ±2.5% from 0.50 A to 9.0 A at SIN φ = 0.5 (ind or cap)	
Data update rate		1 second nominal (50/60 cycles)	
Input-voltage	VT primary	1.0 MV AC max, starting voltage depends on VT ratio.	
	U <sub>nom</sub>	277 V L-N	
	Measured voltage with overrange & Crest Factor	IEC: 20 to 480 V AC L-L; 20 to 277 V AC L-N, CAT III IEC: 20 to 690 V AC L-L; 20 to 400 V AC L-N, CAT II UL: 20 to 300 V AC L-L, CAT III	
	Permanent overload	700 Vac L-L, 404 Vac L-N	
	Impedance	10 M Ω	
	Frequency range	45 to 70 Hz	
	Input-current	CT ratings	Primary Adjustable 1 A to 32767 A Secondary 1A, 5A nominal
	Measured voltage with overrange & Crest Factor	5 mA to 9 A	
	Withstand	Continuous 20 A, 10 sec/hr 50 A, 1 sec/hr 500 A	
	Impedance	< 0.3 mΩ	
	Frequency range	45 to 70 Hz	
	Burden	< 0.024 VA at 9 A	
	AC control power	Operating range	85 - 265 V AC
		Burden	4.1 VA / 1.5 W typical, 6.7 VA / 2.7 W max at 120 V AC 6.3 VA / 2.0 W typical, 8.6 VA / 2.9 W max at 230 V AC 9.6 VA / 3.5 W maximum at 265 V AC
Frequency		45 to 65 Hz	
Ride-through time		100 mS typical at 120 V AC and maximum burden 400 mS typical at 230 V AC and maximum burden	
DC control power		Operating range	100 to 300 V DC
	Burden	1.4 W typical, 2.6 W maximum at 125 V DC 1.8 W typical, 2.7 W maximum at 250 V DC 3.2 W maximum at 300 V DC	
	Ride-through time	50 mS typical at 125 V DC and maximum burden	
	Real time clock	Ride-through time	30 seconds
Digital output	Number/Type	2 - Mechanical Relays	
	Output frequency	0.5 Hz maximum (1 second ON / 1 second OFF - minimum times)	
	Switching Current	250 V AC at 2.0 Amps, 200 k cycles, resistive 250 V AC at 8.0 Amps, 25 k cycles, resistive 250 V AC at 2.0 Amps, 100 k cycles, COS φ = 0.4 250 V AC at 6.0 Amps, 25 k cycles, COS φ = 0.4 30 V DC at 2.0 Amps, 75 k cycles, resistive 30 V DC at 5.0 Amps, 12.5 k cycles, resistive	
	Isolation	2.5 kVrms	
Status Digital Inputs	Voltage ratings	ON 18.5 to 36 V DC, OFF 0 to 4 V DC	
	Input Resistance	110 k Ω	
	Maximum Frequency	2 Hz (T ON min = T OFF min = 250 ms)	
	Response Time	10 ms	
Whetting output	Isolation	2.5 kVrms	
	Nominal voltage	24 V DC	
	Allowable load	4 mA	
	Isolation	2.5 kVrms	

(1) Measurements taken from 45 Hz to 65 Hz, 0.5 A to 9 A, 57 V to 347 V & 0.5 ind to 0.5 cap power factor with a sinusoidal wave.

<b>Mechanical characteristics</b>	
Weight	250 g
IP degree of protection (IEC 60529)	IP51 front display, IP30 meter body
Dimensions W x H x D	96 x 96 x 44 mm (depth of meter from housing mounting flange) 96 x 96 x 13 mm (protrusion of meter from housing flange)
Mounting position	Vertical
Panel thickness	6.35 mm maximum
<b>Environmental characteristics</b>	
Operating temperature	Meter: -25 °C to 70 °C Display: -20 °C to +70 °C (Display functions to -25 °C with reduced performance)
Storage temp.	Meter + display: -40 °C to +85 °C
Humidity rating	5 to 95 % RH at 50 °C (non-condensing)
Pollution degree	2
Altitude	3000 m max.
<b>Electromagnetic compatibility</b>	
Electrostatic discharge	IEC 61000-4-2 <sup>(1)</sup>
Immunity to radiated fields	IEC 61000-4-3 <sup>(1)</sup>
Immunity to fast transients	IEC 61000-4-4 <sup>(1)</sup>
Immunity to impulse waves	IEC 61000-4-5 <sup>(1)</sup>
Conducted immunity	IEC 61000-4-6 <sup>(1)</sup>
Immunity to magnetic fields	IEC 61000-4-8 <sup>(1)</sup>
Immunity to voltage dips	IEC 61000-4-11 <sup>(1)</sup>
Radiated emissions	FCC part 15 class A, EN 55011 Class A
Conducted emissions	FCC part 15 class A, EN 55011 Class A
Harmonics	IEC 61000-3-2 <sup>(1)</sup>
Flicker emissions	IEC 61000-3-3 <sup>(1)</sup>
<b>Safety</b>	
Europe	CE, as per IEC 61010-1
U.S. and Canada	cULus as per UL61010-1, IEC 61010-1 (3rd Edition)
Measurement category (Voltage and current inputs)	Per IEC 61010-1: CAT III, 277 V L-N / 480 V L-L <sup>(1)</sup> nominal; CAT II 400 V L-N / 690 V L-L <sup>(1)</sup> nominal Per UL 61010-1 and CSA C22.2 No. 61010-1: CAT III, 300 V L-L
Overvoltage Category (Control power)	CAT III
Dielectric	As per IEC 61010-1 Double insulated front panel display
Protective Class	II
<b>Communication</b>	
RS 485 port	2-Wire, 9600, 19200 or 38400 baud, Parity - Even, Odd, None, 1 stop bit if parity Odd or Even, 2 stop bits if None; Modbus RTU, Modbus ASCII (7 or 8 bit), JBUS
Firmware and language file update	Update via communication port using DLF3000 software
Isolation	2.5 kVrms, double insulated
<b>Human machine interface</b>	
Display type	Monochrome Graphics LCD
Resolution	128 x 128
Backlight	White LED
Viewable area (W x H)	67 x 62.5 mm
Keypad	4-button
Indicator Heartbeat / Comm activity	Green LED
<b>Energy pulse output / Active alarm indication (configurable)</b>	
Type	Optical, amber LED
Wavelength	590 to 635 nm
Maximum pulse rate	2.5 kHz

(1) As per IEC 61557-12

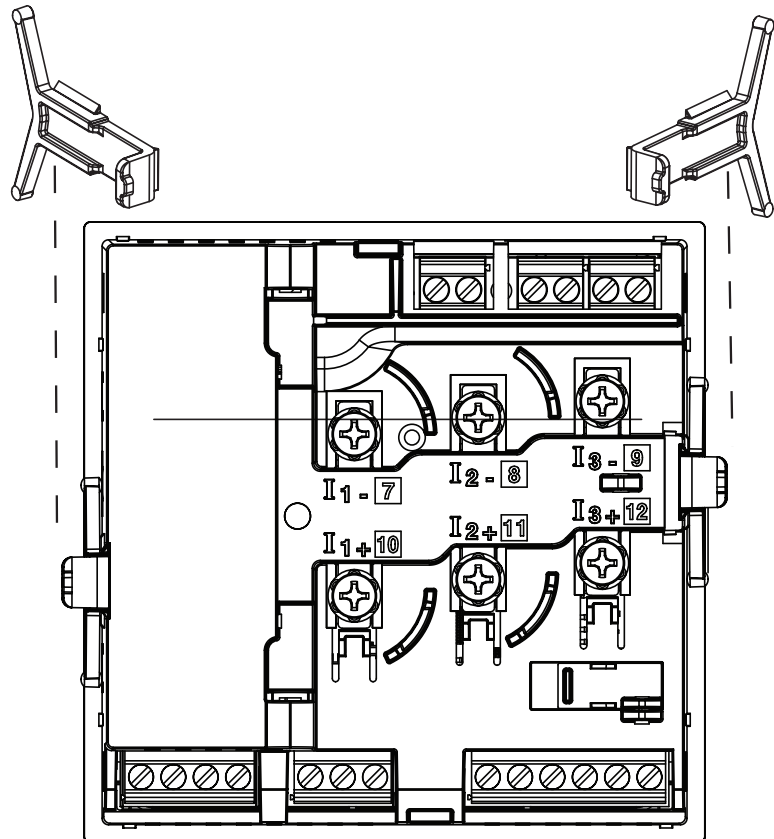
### Rear of meter - open

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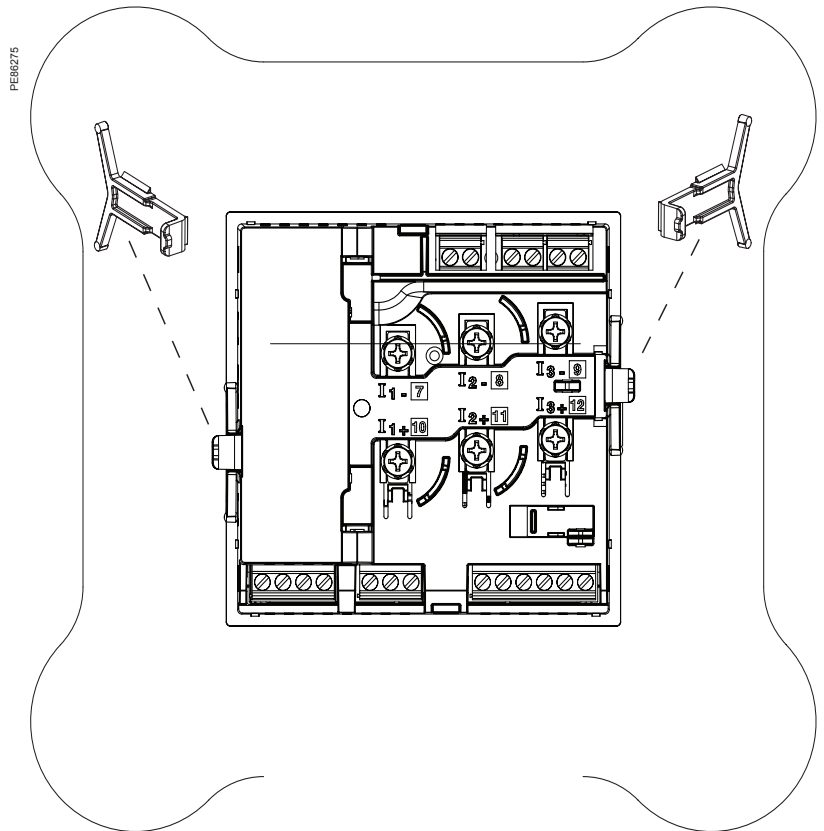
### Rear view retainers - installation

PE66274



For detailed installation instructions see the product's Installation guide.

## Rear view retainers - users



For detailed installation instructions see the product's Installation guide.

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