



## PowerLogic power-monitoring units

### PM200 series power meter

Technical data sheet

2011





**Schneider Electric Industries SAS**

35 Rue Joseph Monier  
CS 30323  
92506 Rueil Malmaison Cedex  
Tel : +33 (0)1 41 29 70 00

<http://www.schneider-electric.com> <http://www.powerlogic.com>

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## PM200 series

### Functions and characteristics



The PowerLogic PM200 series power meter is an easy-to-use, cost effective meter that offers the basic measurement capabilities required to monitor an electrical installation. The compact 96 x 96 mm meter simultaneously monitors all three phases of voltage and current. Energy and demand readings provide the information needed to measure and control energy costs.

The meter includes an easy-to-read, anti-glare, back-lit LCD display. It features an intuitive interface with context-based navigational menus. Summary screens and bar charts provide system status at a glance. The default screen displays real energy and per-phase current values. The energy summary screen displays total real, reactive, and apparent energy. The power demand summary screen displays real, reactive, and apparent demand. The current demand summary screen provides the per-phase and peak values needed to understand circuit performance and loading.

The PowerLogic PM200 series power meter is available in three different versions to better fit specific applications:

- PM200, basic version
- PM200P, basic version plus two pulse outputs for energy metering
- PM210, basic version plus an RS485 port for Modbus communication.

#### Applications

- OEM applications.
- Panel instrumentation.
- Applications with space restrictions.
- Remote monitoring of an electrical installation.
- Sub-billing / cost allocation / utility billing verification.
- Cost constrained applications.

#### Characteristics

##### Compact

With a mounting depth of only 50 mm, the PM200 series is the perfect space saver.

##### Large, easy-to-read display

Summary screens for current, voltage, energy and demand on an anti-glare, green back-light display.

##### Bar charts

Graphical representation of system loading and Outputs status (PM200P) provide system status at a glance.

##### Easy to operate

Intuitive navigation with context-based menus for easy use.

##### Modbus communications and digital outputs

The PM210 provides standard Modbus communications. The PM200P provides two integrated digital outputs.

##### IEC 62053-21 Class 1 for real energy

Accurate measurement for sub-billing and cost allocation.

##### IEC 61557-12 performance standard

Meets IEC 61557-12 PMD/S/K55/1 requirements for combined Performance Measuring and monitoring Devices (PMD).

##### Direct connection for metering voltage inputs

No external PTs needed for voltages up to 480 V AC (L-L).

##### Easy to install

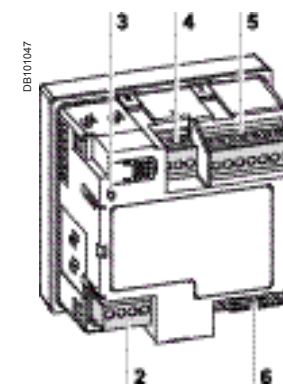
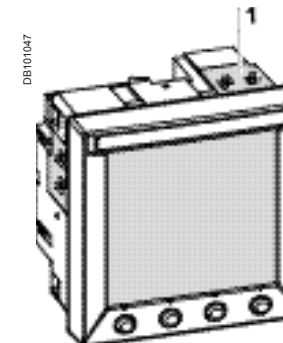
Uses only two clips. No tools needed.

#### Part numbers

Description	Schneider Electric	Square D
<b>Meter with Integrated Display</b>		
Meter PM200 power meter with basic readings, demand, and summary screens	PM200MG	PM200
Same as PM200 plus two digital outputs	PM200PMG	PM200P
Same as PM200 plus an RS485 communication port	PM210MG	PM210
<b>Parts and accessories</b>		
DIN-rail Mounting Kit	PM72DINRAILKIT	
Set of connectors	PM7AND2HWKIT	

## PM200 series

### Functions and characteristics (cont.)



PM200 series power meter.  
 1 Mounting slots.  
 2 RS485 communications (PM210) or 2 pulse outputs (PM200P).  
 3 Heartbeat LED.  
 4 Power supply.  
 5 Voltage inputs.  
 6 Current inputs.

Meter selection guide	PM200	PM200P	PM210	
<b>Performance standard</b>				
IEC 61557-12 PMD/S/K55/1 Performance Measuring and monitoring Devices (PMD)	■	■	■	
<b>General</b>				
Use from LV to HV power systems	■	■	■	
Current and voltage accuracy	0.5 %	0.5 %	0.5 %	
Active and reactive power accuracy	1 %	1 %	1 %	
Active energy accuracy	1 %	1 %	1 %	
Reactive energy accuracy	2 %	2 %	2 %	
Sampling rate (samples/cycle)	32	32	32	
<b>Instantaneous rms values</b>				
Current	Per-phase	■	■	■
Voltage	Ph-Ph and Ph-N	■	■	■
Frequency		■	■	■
Active and reactive power; and apparent power <sup>(1)</sup>	Total	signed	signed	signed
Power factor	Total	signed	signed	signed <sup>(2)</sup>
<b>Energy values</b>				
Active, reactive, apparent energy <sup>(1)</sup>	Total	signed	signed	signed
<b>Demand values</b>				
Current (thermal calculation mode only)	Present and max. values	■	■	■
Active, reactive, apparent power	Present and max. values	■	■	■
Setting of power demand calculation mode	Sliding, fixed, rolling block	■	■	■
<b>Outputs</b>				
Digital pulse outputs		-	2 <sup>(3)</sup>	-
<b>Display</b>				
Green backlit LCD display		■	■	■
IEC or IEEE menu mode		■	■	■
<b>Communication</b>				
RS485 (one port)		-	-	2-wire
Modbus protocol		-	-	■
Firmware update via RS485 serial port				■

(1) Signed real and reactive power and energy. The power meter includes net values only.  
 (2) See register 4048. Negative sign "-" indicates lag. PM210 only.  
 (3) kWh and kVARh pulse output mode only.

# PM200 series

## Functions and characteristics (cont.)



Rear view of PowerLogic PM200 series meter.

### Electrical characteristics

Type of measurement	True rms up to the 15 <sup>th</sup> harmonic on single, two or three-phase (3P, 3P + N) AC systems 32 samples per cycle	
Measurement accuracy	Current	± 0.5% from 1 A to 6 A
	Voltage	± 0.5% from 50 V to 277 V
	Power factor	± 0.0031, from 1A to 6A and from -0.5 to +0.5
	Power	± 1%
	Frequency	± 0.02 Hz from 45 to 65 Hz
	Active energy	IEC 62053-21 Class 1
	Reactive energy	IEC 62053-23 Class 2
Data update rate	1 s	
Input-voltage	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) <sup>(1)</sup>
	Metering over-range	1.2 Un
	Impedance	2 MΩ (Ph-Ph) / 1 MΩ (Ph-N)
	Frequency range	45 to 65 Hz
Input-current	CT ratings	Primary
		Adjustable from 1 A to 32767 A
	Secondary	5 A or 1 A
	Measurement input range	5 mA to 6 A
	Permissible overload	15 A continuous
		50 A for 10 seconds per hour 120 A for 1 second per hour
	Impedance	< 0.12 Ω
	Load	< 0.15 VA
Control power	AC	100 to 415 ± 10 % V AC, 5 VA; 50 to 60 Hz
	DC	125 to 250 ± 20 % V DC, 3 W
	Ride-through time	100 ms at 120 V AC
Output	Pulse outputs (PM200P)	Static output 240 ± 10 % V AC, 100 mA max. at 25 °C, (derate 0.56 mA per °C above 25°C), 2.4 kV rms isolation, 30 Ω on-resistance at 100 mA

### Mechanical characteristics

Weight	0.37 kg
IP degree of protection (IEC 60529)	Designed to IP52 front display, IP30 meter body
Dimensions	96 x 96 x 69 mm (meter with display) 96 x 96 x 50 mm (mounting depth)

### Environmental characteristics

Operating temperature	Meter	- 5 °C to + 60 °C
	Display	- 10 °C to + 55 °C
Storage temperature	Meter + display	- 40 °C to + 85 °C
Humidity rating	5 to 95 % RH at 50 °C (non-condensing)	
Pollution degree	2	
Metering category (voltage inputs and control power)	CAT III, for distribution systems up to 277 V Ph-N / 480 V AC Ph-Ph	
Dielectric withstand	EN 61010, UL508 Double insulated front panel display	
Altitude	3000 m	

### Electromagnetic compatibility

Electrostatic discharge	Level III (IEC 61000-4-2)
Immunity to radiated fields	Level III (IEC 61000-4-3)
Immunity to fast transients	Level III (IEC 61000-4-4)
Immunity to impulsive waves	Level III (IEC 61000-4-5)
Conducted immunity	Level III (IEC 61000-4-6)
Immunity to magnetic fields	Level III (IEC 61000-4-8)
Immunity to voltage dips	Level III (IEC 61000-4-11)
Conducted and radiated emissions	C€ commercial environment/FCC part 15 class B EN 55011
Harmonics	IEC 61000-3-2
Flicker emissions	IEC 61000-3-3

### Safety

Europe	CE as per IEC 61010-1
U.S. and Canada	cULus (UL508 and CAN/CSA C22.2 No. 14-M95, Industrial Control Equipment)

### Communication

RS485 port (PM210)	2-wire, up to 19200 bauds, Modbus RTU, SELV circuit, 6 kV impulse (double insulation)
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### Display characteristics

Dimensions 73 x 69 mm	Green back-lit LCD (6 lines total, 4 concurrent values)
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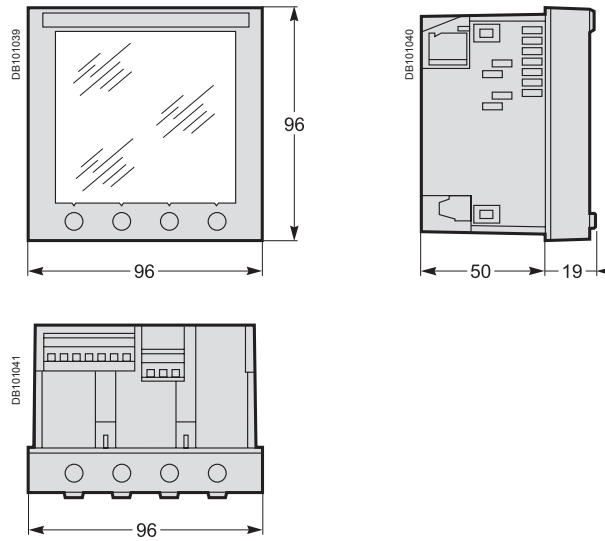
(1) Lower limit of measurement range depends upon PT ratio.



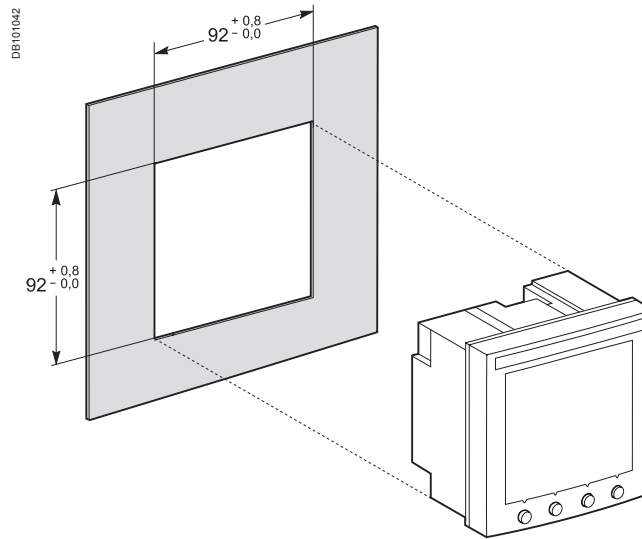
# Power Meter Series 200

## Installation and connection

### Dimensions

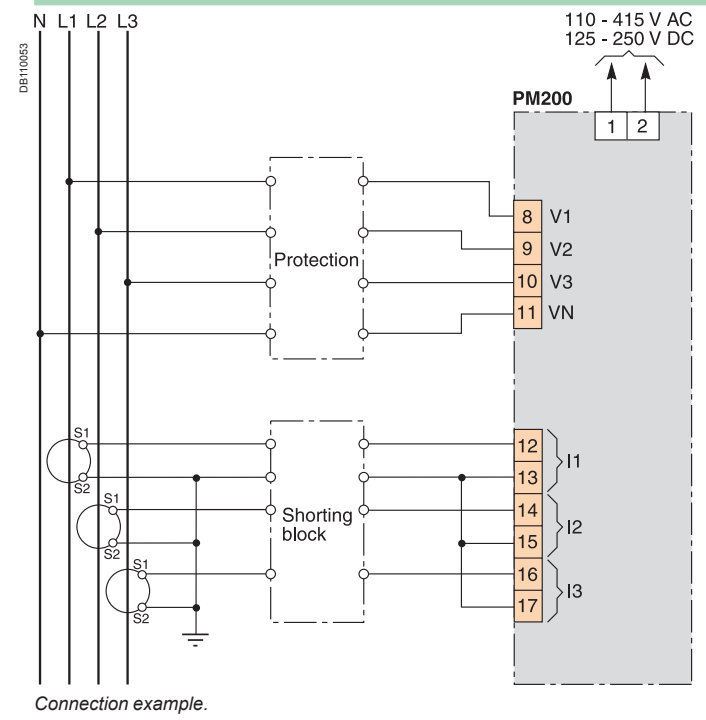


### Front-panel mounting

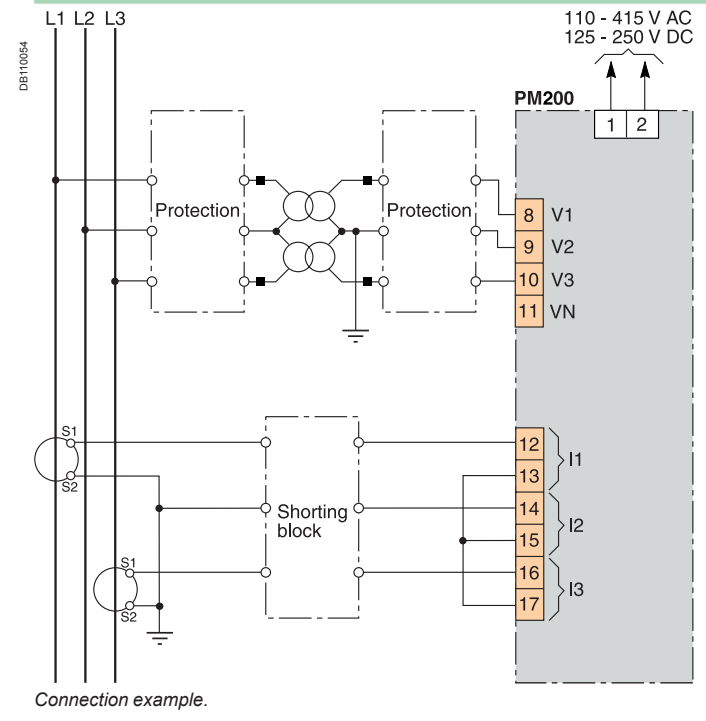


## Power Meter Series 200 Installation and connection (cont.)

### 4-wire connection with 3 CTs and no PT



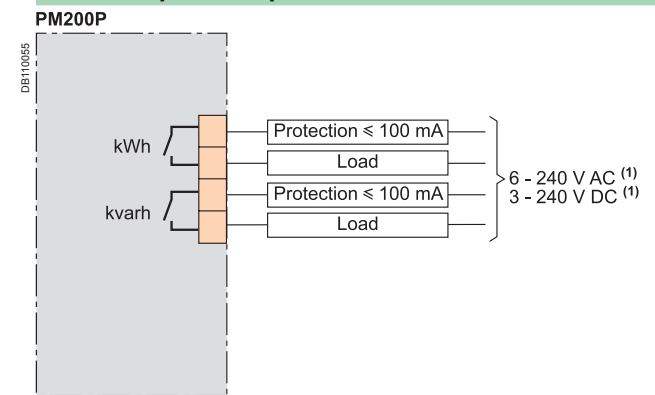
### 3-wire connection with 2 CTs and 2 PTs



Note: Other types of connection are possible. See product documentation.

## Power Meter Series 200 Installation and connection (cont.)

### PM200P : pulse outputs connection



### Meter (2-wire)

