

CLASS 0.2S ACCURACY

AS/IEC 62053-22 COMPLIANT

5.7" TOUCH SCREEN

EN 50160 REPORTS

1 MB LOG MEMORY

UL FILE E236895

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PM175 TFT

Power Quality Analyser with 5.7" Touch Screen Colour Display

The **PM175** is a compact multifunction three-phase AC power meter and power quality analyser. It is designed for users ranging from electrical panel builders to substation operators who need revenue-grade energy data and EN 50160 power quality reporting in one instrument.

Users can choose a bright 3-row LED display or a 5.7" colour graphic touch screen. The display module is detachable and can be mounted up to 1000 m from the meter. Two communication ports support local and remote meter reading and setup over serial, Ethernet (TCP/IP) and Profibus.



PM175

Power quality analyser with a bright 3-row LED display.



PM175-TFT

PM175 with a 5.7" colour graphic touch screen display.



RPM075

Transducer version without a local display.

Main Features

- Class 0.2S accuracy per AS/IEC 62053-22
- True RMS multifunction 3-phase metering
- Harmonic spectrum and angles to the 50th order
- EN 50160 power quality recorder and reports
- Time-of-Use metering with 8 tariffs and 4 seasons
- Two waveform recorders at up to 128 samples per cycle
- 16 programmable data recorders
- 1 MB battery-backed log memory
- Embedded controller with 16 setpoints
- Detachable LED or 5.7" colour touch screen display
- Up to 4 digital inputs and 4 relay outputs
- Two communication ports including Ethernet

Feature Capabilities

Measurements

- 3 voltage and 3 current transformer-isolated AC inputs for direct connection or via PTs and CTs
- True RMS volts, amps, power, power factor and frequency
- Neutral current plus voltage and current unbalance
- Ampere, volt, THD and TDD demand meter
- Class 0.2S accuracy (1A and 5A versions)

Power Quality Recorder

- EN 50160 power quality recorder (GOST 13109 or GOST 54149 also selectable)
- Compliance statistics and EN 50160 harmonics survey statistics
- Onboard power quality analyser with programmable thresholds and hysteresis
- Ready-to-use reports

Waveform Recording

- Two waveform recorders with simultaneous 6-channel AC recording in a single plot
- Sampling rates of 32, 64 and 128 samples per cycle
- 20 pre-fault cycles
- Up to 30 seconds of continuous recording at 32 samples per cycle
- Real-time waveform capture and monitoring: 6 channels, 4 cycles at 128 samples per cycle

Embedded Controller

- 16 control setpoints
- Programmable thresholds and delays
- Relay output control
- 1/2-cycle response time

Energy and Time-of-Use

- 8 tariff energy/demand registers x 8 tariffs
- 4 seasons x 4 types of day with 8 tariff changes per day
- Easily programmable tariff schedule
- Automatic daily profile of energy and maximum demand readings for total and tariff registers

Harmonic Analyser

- Embedded harmonic analyser
- Voltage and current THD, current TDD and K-factor
- Voltage and current harmonic spectrum and angles up to the 50th order
- Inter-harmonics THD

Logging and Memory

- Event recorder for internal diagnostics, control events and I/O operations
- 16 data recorders with programmable logs on a periodic basis or on any internal or external trigger
- 1 MB RAM with battery backup for long-term data and waveform recording
- Precise internal clock with battery backup

Inputs and Outputs

- 2 standard plus 2 optional digital inputs for external contacts and pulses from energy, water and gas meters
- 2 standard plus 2 optional relay outputs for alarms, control and energy pulses
- 2 optional optically isolated analogue outputs with internal power supply
- 2 optional optically isolated analogue inputs with internal power supply
- Optional analogue expander with an additional 2 x 8 analogue outputs

Feature Capabilities (continued)

Display Options

ONE OR TWO DISPLAYS PER METER

- Detachable display module with a 3-wire RS-485 interface, up to 1000 m from the meter
- LED: bright 3-row display (2 x 4 characters + 1 x 6 characters) with adjustable update time, auto-scroll, auto-return to a default page and a percent-load LED bar graph
- TFT: 5.7" colour graphic touch screen with easy-to-read screens for monitoring complex information at a glance
- Touch screen operation keeps setup and configuration simple

Communications

- Two independent communication ports
- COM1: RS-232/RS-422/RS-485, Ethernet 10/100BaseT (Expertpower enabled) or Profibus DP
- COM2: RS-422/RS-485
- Modbus RTU, Modbus ASCII and Modbus/TCP
- DNP3 and DNP3/TCP (Level 1 Rev. 2.3)
- Full speed USB port on the PM175-TFT display

Security and Firmware

- Password security for setup parameters and resets via the front panel and communications
- Tampering attempts recorded to the device event log
- Easy field upgrade of device firmware through any communication port

Software Support

- **PAS Power Analysis Software** for setup, data retrieval and analysis
- **Expertpower™** web platform via the Ethernet port
- **eXpertConnect™ App** for mobile access to energy data
- MV90xi compatible

Specifications

ENVIRONMENTAL CONDITIONS

Operating temperature	-20°C to +60°C (-4°F to 140°F)
Storage temperature	-25°C to +80°C (-13°F to 176°F)
Humidity	0 to 95% RH non-condensing

CONSTRUCTION

Weight	1.23 kg (2.7 lb)
Dimensions (HxWxD)	127 x 127 x 143 mm (5 x 5 x 5.6")

POWER SUPPLY

120/230V AC, 110/220V DC option	Rated input 85-264V AC 50/60 Hz, 88-290V DC, burden 10W
Isolation	Input to output 3000V AC, input to ground 2000V AC
12V DC option	Rated input 9.6-19V DC
24V DC option	Rated input 19-37V DC
48V DC option	Rated input 37-72V DC
Wire size	Up to 12 AWG (up to 3.5 mm ²)

MATERIALS

Case enclosure	Plastic PC/ABS blend
Display body	Plastic PC/ABS blend
Front panel	Plastic PC
PCB	FR4 (UL94-V0)
Terminals	PBT (UL94-V0)
Plug-in connectors	Polyamide PA6.6 (UL94-V0)
Packaging case	Carton and Stratocell® (polyethylene foam) brackets
Labels	Polyester film (UL94-V0)

REAL-TIME CLOCK

Accuracy	Typical error 30 seconds per month at 25°C
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LOG MEMORY

Onboard memory	1 MB with battery backup
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Specifications (continued)

VOLTAGE INPUTS

Operating range	690V AC L-L, 400V AC L-N
Direct input and input via PT	Up to 828V AC line-to-line, up to 480V AC line-to-neutral
Input impedance	1 MΩ
Burden for 400V	<0.4 VA
Burden for 120V	<0.04 VA
Overvoltage withstand	1kV AC continuous, 2kV AC for 1 second
Galvanic isolation	3500V AC
Wire size	Up to 12 AWG (up to 3.5 mm ²)

CURRENT INPUTS

Operating range	5A: continuous 10A RMS, burden <0.1 VA 1A: continuous 2A RMS, burden <0.02 VA
Overload withstand	5A: continuous 15A RMS, 300A for 1 second 1A: continuous 6A RMS, 80A for 1 second
Galvanic isolation	3500V AC
Wire size	12 AWG (up to 3.5 mm ²)

RELAY OUTPUTS

Relays	2 relays rated 3A/250V AC and 3A/30V DC, 2 contacts (SPST Form A)
Galvanic isolation	Between contacts and coil 2000V AC for 1 minute, between open contacts 1000V AC
Operate time	10 ms max.
Release time	5 ms max.
Update time	1 cycle
Wire size	14 AWG (up to 1.5 mm ²)

DIGITAL INPUTS

Inputs	2 digital inputs, dry contacts
Galvanic isolation	2000V RMS
Internal power supply	15V
Scan time	1 ms
Wire size	14 AWG (up to 1.5 mm ²)

OPTIONAL ANALOGUE INPUTS

Inputs	2 analogue inputs (optically isolated)
Ranges (upon order)	±1 mA (100% overload), 0-1 mA (100% overload), 0-20 mA, 4-20 mA
Isolation	2000V RMS
Accuracy	0.5% FS
Scan time	1 cycle
Wire size	14 AWG (up to 1.5 mm ²)

OPTIONAL ANALOGUE OUTPUTS

Outputs	2 analogue outputs (optically isolated)
Ranges (upon order)	0-20 mA and 4-20 mA, max. load 510 Ω ±1 mA and 0-1 mA, max. load 5 kΩ (100% overload) ±5 mA and 0-5 mA, max. load 5 kΩ
Isolation	2000V RMS
Power supply	Internal
Accuracy	0.5% FS
Update time	1 cycle
Wire size	14 AWG (up to 1.5 mm ²)

LED DISPLAY MODULE

Display	High-brightness seven-segment digital LEDs, two 4-digit and one 6-digit windows
Keypad	6 push buttons
Communication	EIA RS-485 port with 12V supply voltage
Connector type	DB15, 15 pins
Wire size	Up to 14 AWG (up to 1.5 mm ²)
Distance	Up to 1000 m (3200 ft)

Specifications (continued)

COM1 · RS-232 PORT (OPTIONAL MODULE)

Port	Serial EIA RS-232, optically isolated
Isolation	2000V RMS
Connector type	DB9 female
Baud rate	Up to 115.2 kbps
Supported protocols	Modbus RTU, Modbus ASCII, DNP3 (firmware V25.2.01 and later)

COM1 · RS-422/RS-485 PORT (OPTIONAL MODULE)

Port	RS-422/RS-485, optically isolated
Isolation	2000V RMS
Connector type	DB9 female
Baud rate	Up to 115.2 kbps
Supported protocols	Modbus RTU, Modbus ASCII, DNP3 (firmware V25.2.01 and later)

COM1 · ETHERNET PORT (OPTIONAL MODULE)

Port	Transformer-isolated 10/100BaseT Ethernet
Connector type	RJ45 modular
Supported protocols	Modbus/TCP on port 502, DNP3/TCP on port 20000 (firmware V25.2.01 and later)
Simultaneous connections	4 (4 Modbus/TCP or 2 Modbus/TCP + 2 DNP3/TCP)

COM2

Port	RS-422/RS-485, optically isolated
Isolation	2000V RMS
Connector type	Removable, 5 pins
Wire size	Up to 14 AWG (up to 1.5 mm ²)
Baud rate	Up to 115.2 kbps
Supported protocols	Modbus RTU, Modbus ASCII, DNP3 (firmware V25.2.01 and later)

TFT DISPLAY MODULE

Display	5.7" colour graphic touch screen
USB	Full speed USB port
Distance	Up to 1000 m from the meter

Standards Compliance

Accuracy

- Class 0.2S per AS/IEC 62053-22 (1A and 5A versions)

Emission

- EN 55011:1991
- EN 55022:1994 Class A
- EN 50081-2 Generic Emission Standard, Industrial Environment

Safety

- EN 61010-1:1993/A2:1995

Certification

- UL File no. E236895

Immunity

- EN 50082-1:1992
- EN 50082-2 Generic Immunity Standard, Industrial Environment
- EN 61000-4-2, EN 61000-4-4:1995, EN 61000-4-8:1993
- ENV 50140:1983, ENV 50141:1993, ENV 50204:1995 (900 MHz)

Directives

- 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

Ordering Information

MODEL	VOLTAGE	CURRENT	CAL. FREQ.	POWER	I/O MODULE	COMMS
MODEL				POWER SUPPLY		
PM175 power quality analyser		PM175		85-265V AC and 88-290V DC		ACDC
PM175 with 5.7" touch screen colour graphic display		PM175-TFT		9.6-19V DC		1DC
Transducer version		RPM075		19-37V DC		2DC
				37-72V DC		3DC
VOLTAGE INPUTS				I/O MODULE		
690V AC nominal voltage input		-		2 digital inputs/2 digital outputs (standard)		-
120V AC nominal voltage input		U		Additional 2 DI/2 DO (total 4 DI/4 DO)		DIO
CURRENT INPUTS						
5 Ampere		5		2 analogue outputs: ±1 mA		AO1
1 Ampere		1		2 analogue outputs: 0-20 mA		AO2
5A split core remote high accuracy current sensor		RS5		2 analogue outputs: 0-1 mA		AO3
				2 analogue outputs: 4-20 mA		AO4
				2 analogue outputs: 0-5 mA		AO5
				2 analogue outputs: ±5 mA		AO6
				2 analogue inputs: ±1 mA		AI1
				2 analogue inputs: 0-20 mA		AI2
				2 analogue inputs: 0-1 mA		AI3
				2 analogue inputs: 4-20 mA		AI4
CALIBRATION AT FREQUENCY				COMMUNICATION		
50 Hz		50Hz		Standard communications RS-232/422/485		-
60 Hz		60Hz		Ethernet (TCP/IP)		ETH
				Profibus		PRO



Place an Order or Get Support

Phone: **+61 2 4774 2959**

Email: **sales@satec-global.com.au**

Web: **satec-global.com.au/contact**

DOCUMENT VERSION

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