

The All-In-One Smart Meter

NEW!



SATEC
Powerful Solutions

expertmeter™

PM180—The Future of Smart Meters

smart grid
substation automation
green energy
power quality analysis
energy management
communication platforms
submetering
alarms
smart meter

The Future of Smart Meters



expertmeter™ PM180

The SATEC eXpertMeter™ Model PM180 Series is the ultimate in digital metering technology with exceptional power quality analysis unsurpassed in the market.

Unlike other typical high end Power Quality devices, the Model PM180 Series fits in the existing 4" round instrument cutout making installation cost-effective in a small package design. The eXpertMeter™ offers a new color TFT Touch Panel graphic LCD display for local monitoring, including a front USB port for easy connection with a local PC.

SATEC's Add-On module concept allows you to configure the meter to your changing needs with three extra slots for expansion and customization. This unique Hot Swap modularity is the key to its remarkable versatility and unprecedented effort

to add intelligence, control and communications to electrical metering.

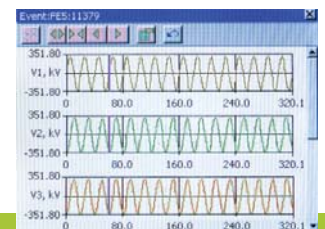
The PM180's intelligent versatile metering chassis electronic totally new platform—IEP, combines 0.05% accuracy revenue meter capabilities with high-end power quality analysis, fault recording, data recording and transient detection functions. Its high-resolution graphical display incorporating a touch screen, enables to view all online data, stored data, and real-time waveforms.

The PM180 complies with all appropriate energy measurement and power quality analysis standards. It has unique communication capabilities allowing simultaneous reading of another meter output, wire or wireless communication to a local SCADA, automation and billing systems (SATEC's eXpertPower™) and local network. In addition it supports communication modules "hot swapping" enabling adoption of constantly changing communication technologies without switching off the meter. Single instrument serving all above-mentioned functions improves overall system reliability. The instrument can be connected to any existing wiring mode.

The eXpertMeter™ PM180 can serve as a main revenue meter or test meter to manage complex energy supply contracts that include commitment to power quality standards. It can be used for dispute resolutions between electric energy suppliers and consumers on issues of power quality standards violations and/or faults.

Main functions

- Energy metering Class 0.2S including Time of Use
- Multi-feeder Monitoring advanced substation automation (up to three 3-phase feeder monitors)
- Fast and easy install Clip-On CT's
- Digital Fault Recorder 50A
- Cross Trigger via Ethernet
- Full Power Quality, compliant with EN50160 / IEEE1159 / GOST standards
- Transients measurement and analysis
- Intelligent control, monitoring and alarm capabilities
- Chart recorder replacement
- Communication Master/Slave
- Built in Web features
- Poly Phase recorder - Phase Angle measurements 3 Phase
- DC measurement Channel input
- Choice of communication platforms: Wired / Wireless / Fiber Optic Ethernet, GPRS, RS232/422/485, PROFIBUS, USB





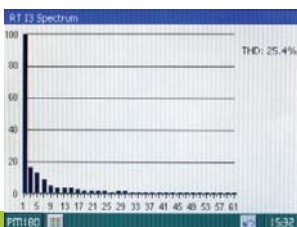
Applications

1. Smart power grid, smart generator systems
2. Green energy generation: solar, wind, geothermal
3. Utilities: Metering, Automation & Power Quality
4. Industrial: Metering & Power quality data for monitoring and control
5. Public facilities: Government, Hospitals, Education and more (metering & power quality for control & alarms)



Highlights

- High accuracy 0.05% Energy and Power Demand Meter, Multiple Tariffs & Time-Of-Use (TOU, 16 Summary energy and demand registers for substation energy management, accumulation of energy pulses from external watt-meters, block and sliding demands), transformer and line losses, unique anti-tampering and self-test functions
 - State of the art Power Quality Recorder: onboard Power Quality analyzer according to EN50160; programmable thresholds and hysteresis; ready-for-use reports; sags/swells, interruptions, frequency variations; flicker, temporary over voltages, transient over voltage recording—down to 17μS at 60Hz, voltage unbalance, harmonic and inter-harmonic voltages
 - Digital Fault Recorder: onboard fault detector—programmable fault thresholds and hysteresis, up to 50 Amps fault currents (10xIn), zero-sequence currents and volts, current and volt unbalance; under-voltage, neutral current; ready-for-use fault reports— fault currents magnitude and duration, coincident volts magnitude, fault waveforms and RMS trace
 - “Clip-On CTs” for fast and easy install
 - The 16 High-Speed Inputs module can be tied to the waveform recording—1ms sampling
- rate. Record when a breaker tripped as compared to when the relay activated. This is very useful for fault and breaker integrity analysis
- High capacity memory log up to 1 GB
- Versatile USB port (Disk-On-Key / PC)
- Auto-range AC/DC Power Supply
- Redundant Power Supply option
- Three slots for hot swap field installable option modules
- Three detachable HMI unit options:
 - Smart console—5.7 inch TFT Color Display with Touch Panel, combining conservative and up-to-date technologies
 - Three 6-Digits windows display with super-bright LEDs
 - Multi-window display with 12 super-bright LEDs window
 - Multiple I/O ports for sequence of events applications



Digital Input/Output Options

- Up to 32 Digital Inputs
- Up to 16 Relay Outputs

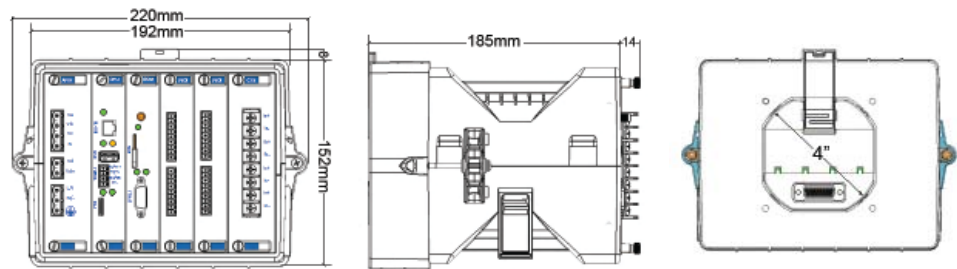
Analog Input/Output Options

- Up to 8 Analog Input / Outputs
(0-20 mA, 4-20 mA, ± 1 mA, etc.)

Communication Options

- 10/100Base T Ethernet port (Modbus/TCP or DNP3.0/TCP or IEC 61850 protocols, up to 12 non-intrusive simultaneous connections, Telnet service port)
- USB—OTG port, accessible from HMI unit (Modbus RTU/ASCII and DNP3.0 protocols)
- RS422/485 universal serial communications port (up to 115,200 bps, Modbus RTU/ASCII and DNP3.0 protocols)
- Fiber optic Ethernet 100Base FX port (Modbus/TCP or DNP3.0/TCP or IEC 61850 protocols, up to 12 non-intrusive simultaneous connections, Telnet service port)
- WiFi Ethernet 802.11g port (Modbus/TCP or DNP3.0/TCP or IEC 61850 protocols, up to 4 non-intrusive simultaneous connections, Telnet service port)
- 2G/3G cellular modem (Modbus/TCP or DNP3.0/TCP protocols) with RS232 serial communications port (up to 115,200 bps, Modbus RTU/ASCII and DNP3.0 protocols)

Dimensions



Standards

ACCURACY

- IEC 62053-22, class 0.2S
- ANSI C12.20 Class 20, 0.2S

POWER QUALITY

- IEC 61000-4-30 class A
- EN50160: Voltage characteristics of electricity supplied by distribution networks
- IEEE 1159
- GOST 13609

EMC

- IEC 61000: According to industrial standards
- IEC 60255: According to protection standards

IEC 529: IP54 (NEMA type 13): Enclosure protection

Emission (radiated/conducted)

- EN55022: 1994 Class A (CISPR 22)

SAFETY

- IEC/EN 61010-1

INSULATION

- IEC 62052-11, protective class II: Insulation impulse 6KV/500 Ins @ 1.2/50 Ins
- IEC 62053-22, protective class II: AC voltage tests related to ground, 4 KV r.m.s. @ 1min

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