

Product Line Guide



Power Measurement offers a complete portfolio of cutting edge EEM (enterprise energy management) products and high-value services that provide the energy intelligence you need to gain a competitive advantage in today's business environment. Whether you are an energy supplier or consumer, our integrated solutions deliver fast and quantifiable payback by helping you to manage the quality and cost of your energy.

EEM systems from Power Measurement deliver the information and control your organization needs, at a single site or around the world. From monitoring through control, automation and reporting, an EEM system answers the requirements of diverse and demanding applications from power quality management through energy cost control, operations management, billing support, retail energy services, distributed generation, and many more.



**POWER
MEASUREMENT**

owned by
Schneider
Electric

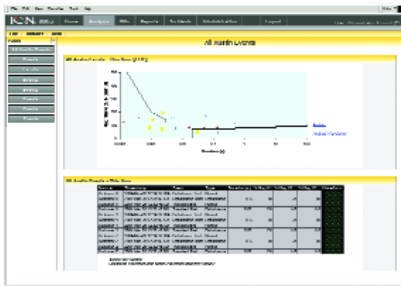
www.pwrm.com

ION® EEM web-based software helps organizations make better, more proactive energy decisions. The software does much more than provide tools to reduce energy costs and increase uptime. It is an enterprise-level software suite that unites energy management with corporate level strategy to help reduce energy-related business risks. ION EEM offers solutions for energy procurement, budgeting and benchmarking, cost allocation, operational cost reduction and more.

It gathers, cleanses, and integrates real-time and archived data from meters, weather service feeds, real-time pricing and many other sources, translates it into accurate information and via a web-based dashboard, presents it to anyone who needs it. ION EEM enables organization-wide collaboration by offering custom information to decision makers, planners, front-line staff and other stakeholders.



A browser-based interface simplifies the sharing and viewing of personalized real-time and historic information, anytime and anywhere



Analyze power quality events through ITI curves



Conduct complex power quality analysis using a variety of data sources

Data Acquisition

- Gather, cleanse and store any energy data from meters or third-party systems via the Internet, Ethernet, serial, modem and wireless
- Store historic and event data in a data warehouse
- Integrate other data sources, such as weather or real-time pricing information services

Monitoring

- Display KPIs, trends, tables, real-time data, power quality indicators, external web pages and alerts, all in one easy-to-use dashboard
- Customize graphics for facility views, status indicators, and more

Analysis

- Evaluate procurement and curtailment opportunities, bill accuracy, and real-time prices
- Correlate, categorize, filter and compare historical and real-time data
- Analyze waveforms, produce ITI (CBEMA) and SEMI voltage tolerance curves

Forecasting and Normalization

- Benchmark, baseline, forecast and normalize data
- Model your system, then alter independent variables to gauge the outcome
- Implement measurement and verification protocols

Reporting

- Produce forecast, cost allocation, load profile, and power quality reports
- Generate composite reports which include charts, tables, images, hyperlinks and other systems
- Distribute event- or schedule-driven reports via paper, email or web

Alarm Notification and Management

- Receive alarms in real-time at your desktop, pager or through email
- Customize alarms and assign staff to specific events with sign-off responsibilities
- Analyze historical alarm trends to reduce incidents and associated costs

ION Enterprise® software suite is an all-in-one solution for operational power system monitoring, analysis and control. It collects, processes, stores, and shares data across your entire enterprise and displays information at any desktop, locally or around the world, in any format you need. With its valuable combination of control, analysis and reporting capabilities, ION Enterprise is an ideal solution to help keep your operations running without interruption.

Cost-effective and full-featured, ION Enterprise can integrate with existing software systems and third-party equipment. ION Enterprise is available in packages designed to accommodate virtually any system and can grow at your own pace and within your own budget. Use it to manage a single site or through the Internet, to connect a global network of devices.

Data Acquisition

- Store historic and event data in an SQL database
- Interface to third-party hardware and software through Modbus RTU and TCP, ODBC, XML and OPC
- Integrate metering of electricity, gas, water, steam, air, emissions and more

Monitoring

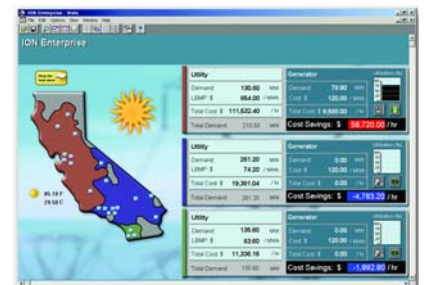
- Display real-time data and analyze logged information
- Automatically or manually control any operation within your energy system remotely
- Customize graphics for alarms, status indicators, control triggers, and facility views
- Examine waveform overlays, odd/even harmonics, THD, K-factor, crest factor, vector diagrams, and symmetrical components
- Configure alarms to annunciate through a variety of methods including an operator's workstation, pager or email

Analysis

- Generate power quality, energy, and load profile reports based on event or schedule
- Correlate and categorize sequences of events
- Analyze disturbances by plotting waveforms
- ITI (CBEMA) and SEMI voltage tolerance curves, and histograms

Control

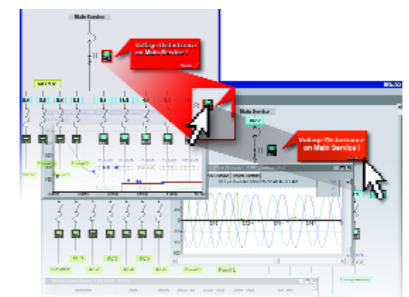
- Process data from multiple devices and initiate actions or alarms based on the results
- Automatically perform load shedding, generator startup, or relay control
- Implement distributed control in response to interruptible rates or real-time pricing
- Perform remote control functions using MS Terminal Services



Implement distributed generation



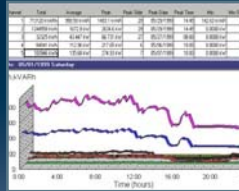
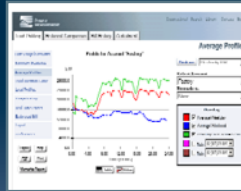
Aggregate demand from many remote sites



Receive immediate warning of an alarm condition

Retail Energy Software

Retail energy software solutions from Power Measurement offer utilities - whether in regulated or restructured markets - the cost-effective meter data management solutions they need to gain a competitive edge. Using intuitive Windows or Web-based user interfaces, retail energy software solutions automate previously manual tasks and offer a high level of flexibility and scalability that allow users to gain maximum productivity with a minimum of training.



Energy Profiler Online™ (EPO)

EPO is a web-hosted service that utilities can offer to key customers. It delivers load profiles, usage statistics, estimated and historical bills and weather overlays to utility customers and staff alike, all through an intuitive web browser interface.

EPO's instinctive online functionality gives first-time users an extremely short learning curve, while its powerful configuration options address the needs of more sophisticated users.

Energy BOSS®

Energy BOSS is a sophisticated calculation engine that can be used as a stand-alone billing application or utilized with existing customer information systems. It handles the most complex rate structures and provides an automated alternative to error-prone manual billing tasks. Energy BOSS offers a wide variety of options to provide your major commercial and industrial customers with bills that are accurate, informative and timely.

E-VEE™

E-VEE is a single data repository for interval and non-interval usage data that helps simplify the consolidation and "cleansing" of customer data from MV-90 and other data collection systems. E-VEE makes it easy to account for meter changes and other events that can disrupt the flow of data.

Power Measurement Software

	ION EEM	ION ENTERPRISE	ENERGY BOSS	ENERGY PROFILER ONLINE	E-VEE
CUSTOMER					
Commercial	■	■	■	■	■
Industrial	■	■		■	
Institutional	■	■	■	■	■
Data Center	■	■			
Utility	■	■	■	■	■
APPLICATIONS					
Energy usage analysis	■	■		■	
Power quality analysis	■	■			
Cost allocation and sub-billing	■	■	■		
Load studies and/or load shedding	■	■		■	
Demand and power factor control	■	■			
Equipment monitoring and control	■	■			
Utility bill verification	■		■	■	
Energy usage forecasting	■				
Multiple commodity monitoring and bill calculation	■		■		
Baselining and benchmarking system performance	■				
Utility billing			■	■	
Application Service Provider (ASP) hosting option				■	
INFORMATION MANAGEMENT					
Digital dashboard web portal	■				
Web browser interface	■	■		■	
User personalization	■	■			
Graphic user interface with default and custom displays	■	■	■		■
Multi-site data collection	■	■		■	■
Multi-site aggregation	■		■		■
Multi-hierarchy support of data sources	■		■		■
Real-time information display	■	■			
Validation, estimation and editing capabilities	■				■
Multiple commodities usage data	■	■	■	■	■
Remote meter configuration and firmware upgrades	■	■			
ANALYSIS and REPORTING					
Multiple time-dimension analysis	■				
Energy analytics	■			■	
Power Quality analytics	■				
Benchmarking with normalization factors	■			■	
Baselining	■			■	
What-if analysis	■			■	
Automated alarming	■	■		■	
Automated and manual report generation	■	■	■	■	■
Report delivery via the Internet	■	■		■	
BILLING and RATES					
Historical and estimated bills	■		■	■	
Rate comparisons	■		■	■	
User configurable Rate Wizard®	■		■	■	
Multiple billing cycles	■		■	■	
Complex C&I billing	■		■	■	
Multi-site billing	■		■	■	
Third-party billing	■		■		
Budgetary costs	■			■	
Revenue & consumption analysis	■		■	■	
INTEROPERABILITY					
Web services/XML	■	■		■	
Internet-based weather feeds	■			■	
Real-time pricing feeds	■		■	■	
Third-party system adapters	■				
OPC client and server	■	■			
Modbus	■	■			
ODBC-compliant database	■	■	■	■	■
Continuous retrieval of metered data	■	■			
Scheduled retrieval of metered data		■	■	■	■
POWER QUALITY ANALYSIS					
Multiple time-dimension analysis	■				
Event aggregation	■				
Event filtering on cause/type/phase/time/meter, and comment	■				
Event filtering by IEEE, SARFI, or user defined standards	■				
Event grouping by age, source, time, cause, and type	■				
Waveform viewer	■	■			
RMS waveform viewer	■				
Event correlation	■	■			
ITI (CBEMA) plots	■	■			
SEMI F47 plots	■				
Harmonics, K-factor, crest factor	■	■			

Intelligent Metering and Control Devices

Some features are optional. Refer to datasheets for allowable port configurations. Products meet or exceed the accuracy requirements of the standards listed; due to form factors, not all ANSI/IEC compliance tests may apply. Some products certified by third-party laboratory.

	ION 6100	ION 6200	ION 6300	ION 7300	ION 7330	ION 7350
POWER, ENERGY, and DEMAND						
Kwh Total	■		■			
Voltage/current: per phase, average, unbalance ⁺		■		■	■	■
Power: real, reactive, apparent, power factor, frequency		■		■	■	■
Energy: bi-directional, total, import, export, net ⁺		■		■	■	■
Demand: block, rolling block, thermal, predicted ⁺		■		■	■	■
POWER QUALITY ANALYSIS						
Sag/swell monitoring						■
Symmetrical components: zero, negative, positive						
Transient detection, microseconds						
Harmonics (individual, even, odd, total) up to		THD		15 th	15 th	31 st
Sampling rate, maximum samples/cycle		64		32	32	64
Flicker, harmonics to EN50160, IEC 61000-4-7 / 4-15						
Configurable for IEEE 519-1992, IEEE 1159, SEMI						
"Number of nines" uptime data (6 nines=99.9999%)						
DATA and WAVEFORM LOGS						
Triggered by setpoint, schedule, or external signal					■	■
Sequence-of-event logs, variable log depth					■	■
Minimum/maximum logs for any parameter					■	■
Historical logs, maximum # of channels					32	96
Waveform logs, maximum # of consecutive cycles [†]						48
Timestamps, resolution in seconds					0.001	0.001
GPS time synchronization						
COMMUNICATION PORTS and I/O (maximum #)						
Wireless	■		■			
RS-232/485 ports						
RS-485-only ports		1		1	2	2
Ethernet ports				1	1	1
Infrared optical ports			1	1	1	1
PROFIBUS ports				1		
Built-in modems					1	1
Modbus RTU Slave on serial, modem, infrared ports ^{**}		■		■	■	■
Modbus RTU Master on serial ports						
Modbus/TCP on Ethernet ports				■	■	■
DNP 3.0 on serial, modem, infrared ports ^{†† *}					■	■
EtherGate [™] : 31 other meters accessible via RS-485					■	■
ModemGate [™] : 31 other meters accessible via RS-485					■	■
MeterM@il [®] : data emailed from meter					■	■
WebMeter [®] : on-board web server				■	■	■
Analog inputs ^{**}				4	4	4
Analog outputs ^{**}				4	4	4
Digital status/counter inputs ^{**}					4	4
Digital relay outputs (control/pulse) ^{**}		2		4	4	4
SETPOINTS, ALARMING, and CONTROL						
Setpoints, minimum response time					1 sec	1 sec
Math, logic, trig, log, linearization formulas					■	■
Single- and multi-condition alarms					■	■
Call-out on alarm						■
REVENUE METERING						
ANSI C12.1 accuracy compliant	■		■			
ANSI C12.16 accuracy compliant	■			■	■	■
ANSI C12.20 0.2 accuracy compliant			■			
ANSI C12.20 0.5 accuracy compliant		■	■			
IEC 60687 0.2S compliant						
IEC 60687 accuracy class 0.5S compliant		■		■	■	■
ANSI class 10 (5A nominal, 10A max)				■	■	■
ANSI class 2, IEC 1/10 (1A nominal, 10A max)						
ANSI class 20, IEC 5/20 (5A nominal, 20A max)						
MV-90 on serial, Ethernet ports					■	■
Measurement Canada approved		■	°	■	■	■
Multi-year scheduling: hourly activity profiles					■	■
Transformer/line loss/instrument compensation						

POWER, ENERGY, and DEMAND	ION 7550 RTU	ION 7550	ION 7650	ION 7700	ION 8600		
					Features A	B	C
POWER, ENERGY, and DEMAND							
Kwh Total							
Voltage/current: per phase, average, unbalance*		■	■	■	■	■	■
Power: real, reactive, apparent, power factor, frequency		■	■	■	■	■	■
Energy: bi-directional, total, import, export, net*		■	■	■	■	■	■
Demand: block, rolling block, thermal, predicted*		■	■	■	■	■	■
POWER QUALITY ANALYSIS							
Sag/swell monitoring		■	■	■	■	■	■
Symmetrical components: zero, negative, positive			■	■	■	■	■
Transient detection, microseconds			17	130	65		
Harmonics (individual, even, odd, total) up to		63 rd	63 rd	63 rd	63 rd	63 rd	31 st
Sampling rate, maximum samples/cycle		256	1024	128	256	256	256
Flicker, harmonics to EN50160, IEC 61000-4-7 / 4-15			■		■		
Configurable for IEEE 519-1992, IEEE 1159, SEMI			■		■		
"Number of nines" uptime data (6 nines=99.9999%)		■	■		■	■	■
DATA and WAVEFORM LOGS							
Triggered by setpoint, schedule, or external signal	■	■	■	■	■	■	■
Sequence-of-event logs, variable log depth	■	■	■	■	■	■	■
Minimum/maximum logs for any parameter	■	■	■	■	■	■	■
Historical logs, maximum # of channels	800	800	800	320	800	320	32
Waveform logs, maximum # of consecutive cycles [†]		96	96	96	96		
Timestamps, resolution in seconds	0.001	0.001	0.001	0.001	0.001	0.001	0.001
GPS time synchronization	■	■	■	■	■	■	■
COMMUNICATION PORTS and I/O (maximum #)							
Wireless							
RS-232/485 ports	1	1	1	1	1	1	1
RS-485-only ports	1	1	1	2	1	1	1
Ethernet ports	1	1	1	1	1	1	1
Infrared optical ports	1	1	1		1	1	1
PROFIBUS ports							
Built-in modems	1	1	1	1	1	1	1
Modbus RTU Slave on serial, modem, infrared ports**	■	■	■	■	■	■	■
Modbus RTU Master on serial ports	■	■	■		■	■	
Modbus/TCP on Ethernet ports	■	■	■		■	■	■
DNP 3.0 on serial, modem, infrared ports ^{††} *	■	■	■	■	■	■	■
EtherGate™: 31 other meters accessible via RS-485	■	■	■	■	■	■	■
ModemGate™: 31 other meters accessible via RS-485	■	■	■	■	■	■	■
MeterM@il®: data emailed from meter	■	■	■		■	■	■
WebMeter®: on-board web server	■	■	■		■	■	■
Analog inputs**	4	4	4	18			
Analog outputs**	4	4	4	30	4	4	4
Digital status/counter inputs**	16	16	16	38	11	11	11
Digital relay outputs (control/pulse)**	7	7	7	30	12	12	12
SETPOINTS, ALARMING, and CONTROL							
Setpoints, minimum response time	1/2 cycle [†]	1/2 cycle	1/2 cycle	1 cycle	1/2 cycle	1/2 cycle	1 sec
Math, logic, trig, log, linearization formulas	■	■	■	■	■	■	■
Single- and multi-condition alarms	■	■	■	■	■	■	■
Call-out on alarm	■	■	■	■	■	■	■
REVENUE METERING							
ANSI C12.1 accuracy compliant							
ANSI C12.16 accuracy compliant		■	■	■	■	■	■
ANSI C12.20 0.2 accuracy compliant		■	■		■	■	■
ANSI C12.20 0.5 accuracy compliant		■	■		■	■	■
IEC 62053-22 accuracy class 0.2S & 0.5S compliant		■	■		■	■	■
IEC 60687 accuracy class 0.5S compliant		■	■	■	■	■	■
ANSI class 10 (5A nominal, 10A max)				■			
ANSI class 2, IEC 1/10 (1A nominal, 10A max)		■	■		■	■	■
ANSI class 20, IEC 5/20 (5A nominal, 20A max)		■	■		■	■	■
MV-90 on serial, Ethernet ports		■	■	■	■	■	■
Measurement Canada approved				■	■	■	■
Multi-year scheduling: hourly activity profiles		■	■	■	■	■	■
Transformer/line loss/instrument compensation		■	■		■	■	■

Accessories



ION 8600
Intelligent revenue meter in socket-mount and switchboard cases



ION 7700
Advanced power meters, analyzers and controllers



ION 7550
ION 7650
High visibility energy and power quality compliance meters



ION 7300
ION 7330
ION 7350
Intelligent transducers and monitors



ION 6300
Socket-based wireless energy metering system



ION 6200
Basic power and energy meters with revenue metering capabilities



ION 6100
Wireless metering system

Power Measurement makes it easy for you to order a total ION solution by offering a number of accessories.

ION Enterprise™ Workstations, Servers and Networking Components

Power Measurement offers four options designed to maximize the performance of your enterprise energy management solution:

- **ION Enterprise™ Client Workstation:**
Primary desktop for 1-5, 1-12, or 1-25 metering points
- **ION Enterprise™ Laptop:**
Laptop for 1-5, 1-12, or 1-25 metering points
- **ION Enterprise™ Server 50:**
Primary Server for 1-50 metering points
- **ION Enterprise™ Server 200:**
Primary Server for 51-200 metering points

For systems exceeding 201 metering points, please contact us directly for secondary server requirements.

NOTE: ION Enterprise software must be ordered separately, but all systems include installation and configuration of the operating system and ION Enterprise.

Input / Output Modules

Grayhill OpenLine series

Grayhill OpenLine input/output (I/O) modules enable you to monitor or control a large number of conditions through your ION meters, including transformer temperatures, generator fuel levels and equipment status, as well as water, air, gas, electricity and steam (WAGES) monitoring. Data can be collected, analyzed, and displayed locally on ION meters, passed upstream to head-end software, or accessed directly from the meter via a web browser.

CTs, VTs, Shorting Blocks and Terminal Block Assemblies

For customers in the US, we offer a range of high-quality, low-voltage Current Transformers (CTs) and Voltage Transformers (VTs), shorting blocks and terminal blocks, suitable for use with all ION revenue-accurate meters.

Communication Interfaces

RS-232 to RS-485 communication interfaces are available to connect computers or other equipment to ION and third-party devices via RS-485 network loops. Options include the single port COM32, suitable for direct computer connection, or the multi-port COM128, suitable for connecting up to four RS-485 buses.

Training

Training services bring the benefits of your EEM system full circle. Our trainers provide tips and strategies that help you maximize productivity on the job. Courses are taught by expert, factory-certified instructors, who work directly with participants in a hands-on classroom atmosphere. Instruction combines practical lectures with real world application exercises, to ensure you receive the training and skills you need to extract maximum value from your Power Measurement system.



**POWER
MEASUREMENT**

owned by Schneider Electric

Power Measurement has a long history of providing enterprise energy management solutions to power suppliers and consumers around the globe. Our real-time information and control systems manage the quality, reliability, and cost of energy. All products are supported by training programs, engineering services, a worldwide network of sales professionals, and uncompromising customer support.

www.pwrm.com

Tel: 1-250-652-7100

Fax: 1-250-652-0411

Email: sales@pwrm.com

Toll free: 1-866-466-7627

ION, ION Enterprise, MeterM@il, WebMeter, EtherGate, ModemGate, EPO, Energy BOSS, E-VEE, Rate Wizard and "drive energy performance" are either registered trademarks or trademarks of Power Measurement. All other trademarks are the property of their respective owners. Information contained herein is subject to change without notice.

Revision Date: January 2006 © 2006 Power Measurement Printed in Canada 70200-0127