Gain energy insight and control with PowerLogic®

PowerLogic energy management systems

product range overview

for industry, buildings and infrastructure applications

Schneider Electric

Energy insight = energy control

Volatile energy prices and stringent emissions standards have made it more challenging to control operational costs. An increasingly unstable utility supply and power-sensitive processes also continue to put productivity and profits at risk.

PowerLogic energy management systems from Schneider Electric will help you make the most of your energy by:

- Achieving energy-related savings through improved efficiency, lower emissions, reduced per-unit energy costs and maximised use of your power distribution network.
- Improving the overall quality of power and reliability of your equipment and processes.

PowerLogic technology clarifies the complex dynamics that affect how energy is generated, distributed and consumed across a single facility or your entire enterprise. It will alert you to critical conditions and give you the tools to act quickly. It will support a comprehensive energy management program by tracking performance and empowering you to make effective decisions.

Thousands of organizations around the globe are using PowerLogic systems to make them more productive and sustainable. And it can do the same for you by helping you meet and exceed your energy goals, all with a fast and quantifiable return on investment.

This brochure will introduce you to PowerLogic products, systems and applications. For more information and help with system selection and implementation, please contact your local Schneider Electric representative or visit www.powerlogic.com.

25%

Studies have shown that commercial buildings can reduce utility costs by 25 percent or more if they are properly managed.

Solutions for industry

PowerLogic technology gives professionals from finance to engineering the level of energy intelligence and control needed to support strategic decisions and establish best energy practices. It will help you reduce operational costs and meet new emissions standards without compromising production schedules or product quality. Key points are monitored throughout your power distribution, building and backup systems. Enterprise-level software helps you maximize the use of your existing energy assets, increase energy efficiency and avoid demand or power factor penalties. You will also avoid the hidden power problems that can shorten equipment life or cause costly downtime.

Solutions for critical infrastructure

Whether managing data, communication, transportation or environmental services, you need to minimise the risk of power-related downtime while keeping costs under control. PowerLogic technology helps keep your systems operating continuously with a secure and economical supply of energy. All power and cooling systems are continuously monitored while energy consumption is accurately tracked. Enterprise-level software delivers insightful diagnostics and metrics to help verify the reliability of backup systems and maximise the use of existing capacity to defer new capital investments. You can also reveal energy inefficiencies and strengthen energy procurement across multiple sites.

Solutions for buildings

With the help of PowerLogic technology, building managers and operations staff can cut energy and maintenance costs without compromising the comfort or productivity of tenants, employees, students, patients or customers. All utilities and equipment conditions are continuously tracked while enterprise-level software helps you analyze and improve electrical reliability. You can forecast energy requirements, optimize multi-site contracts and accurately allocate or sub-bill costs. Key performance indicators help you find and sustain energy savings, reduce emissions and establish a “green” energy-efficient image for your properties that can increase their value and attract or retain tenants.

Advanced technology

helps you reach goals faster

PowerLogic is the world's largest and most advanced range of software and metering products for managing energy. Systems are cost-effective due to having a low cost of installation and ownership, being feature-rich and delivering multiple financial benefits. Products support important local and global standards, including accuracy certifications and international power quality compliance reporting.

A PowerLogic system acts like a layer of intelligence across all of your energy assets, spanning power, building and process systems. Key distribution points are monitored 24 hours a day, from generators and substations to service entrances, mains, feeders and loads. All real-time conditions, historical performance, and aggregate consumption of all electrical and piped utilities are unified into a single, accessible repository.

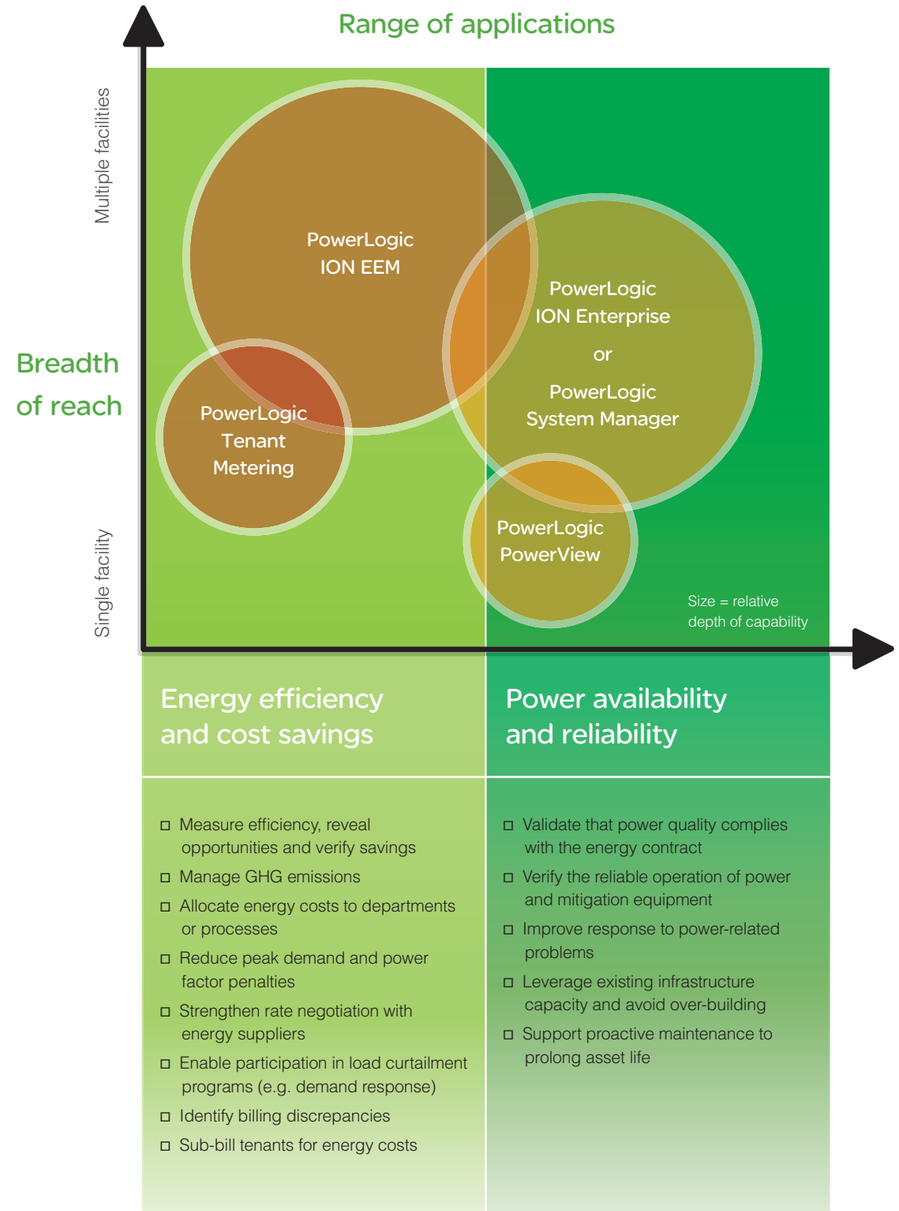
At the administrative level, acquired data is delivered as timely, relevant information to anyone that needs it, wherever they are. Powerful web-based portals give multiple stakeholders responsive and easy-to-use analytic, reporting, alarm annunciation and control capabilities.

A PowerLogic solution fits seamlessly with your workflow, and integrates tightly with other Schneider Electric power and automation solutions. It also shares information directly with your business and accounting applications. Solutions are highly scalable, letting you take advantage of modular components to add to or upgrade your systems affordably as required.

15%

Studies have shown that industrial plants can save up to 15 percent or more on process-related energy use and over 7 percent in total utility costs if opportunities are properly identified and addressed.

Complementary software solutions



- Measure efficiency, reveal opportunities and verify savings
- Manage GHG emissions
- Allocate energy costs to departments or processes
- Reduce peak demand and power factor penalties
- Strengthen rate negotiation with energy suppliers
- Enable participation in load curtailment programs (e.g. demand response)
- Identify billing discrepancies
- Sub-bill tenants for energy costs

- Validate that power quality complies with the energy contract
- Verify the reliable operation of power and mitigation equipment
- Improve response to power-related problems
- Leverage existing infrastructure capacity and avoid over-building
- Support proactive maintenance to prolong asset life

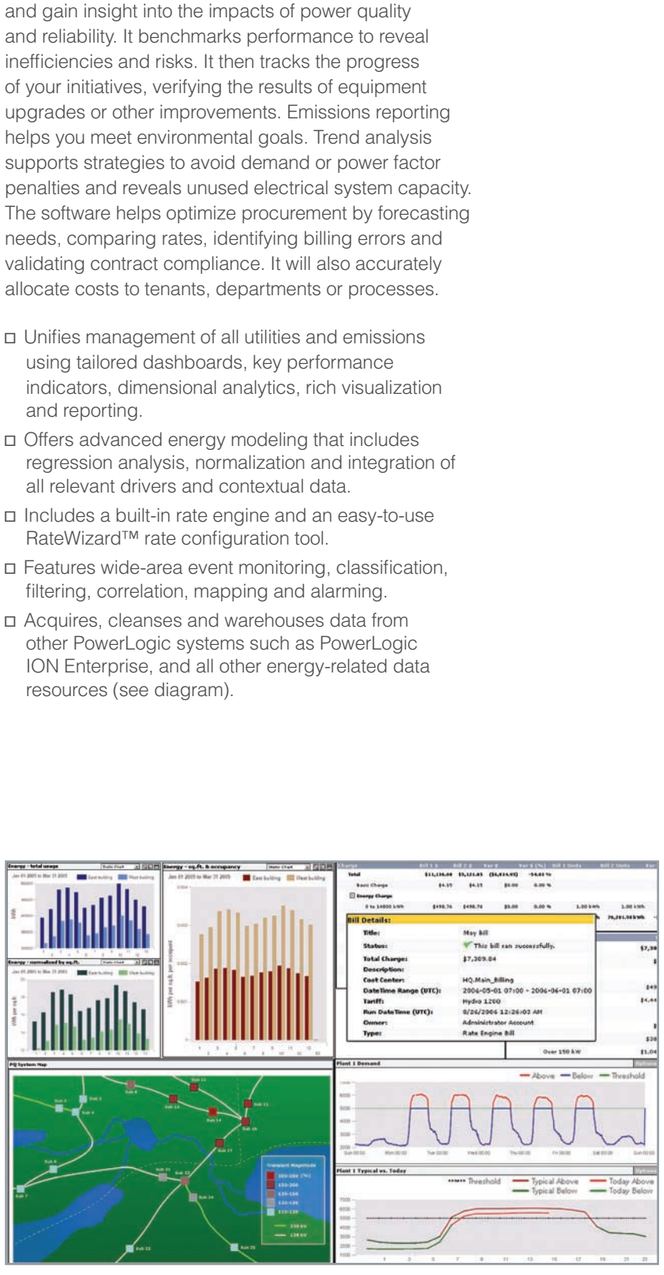
The depth of PowerLogic software offerings makes it easy to match a product to your needs, your facilities portfolio and your budget. As your business or energy management program grows your PowerLogic solution can grow with you. Products are highly complementary and interoperable, sharing information between platforms and benefits between users. Each software product collects energy-related data from a variety of sources, including PowerLogic meters, other devices and other systems. See the following pages for more detail on features and compatibilities.

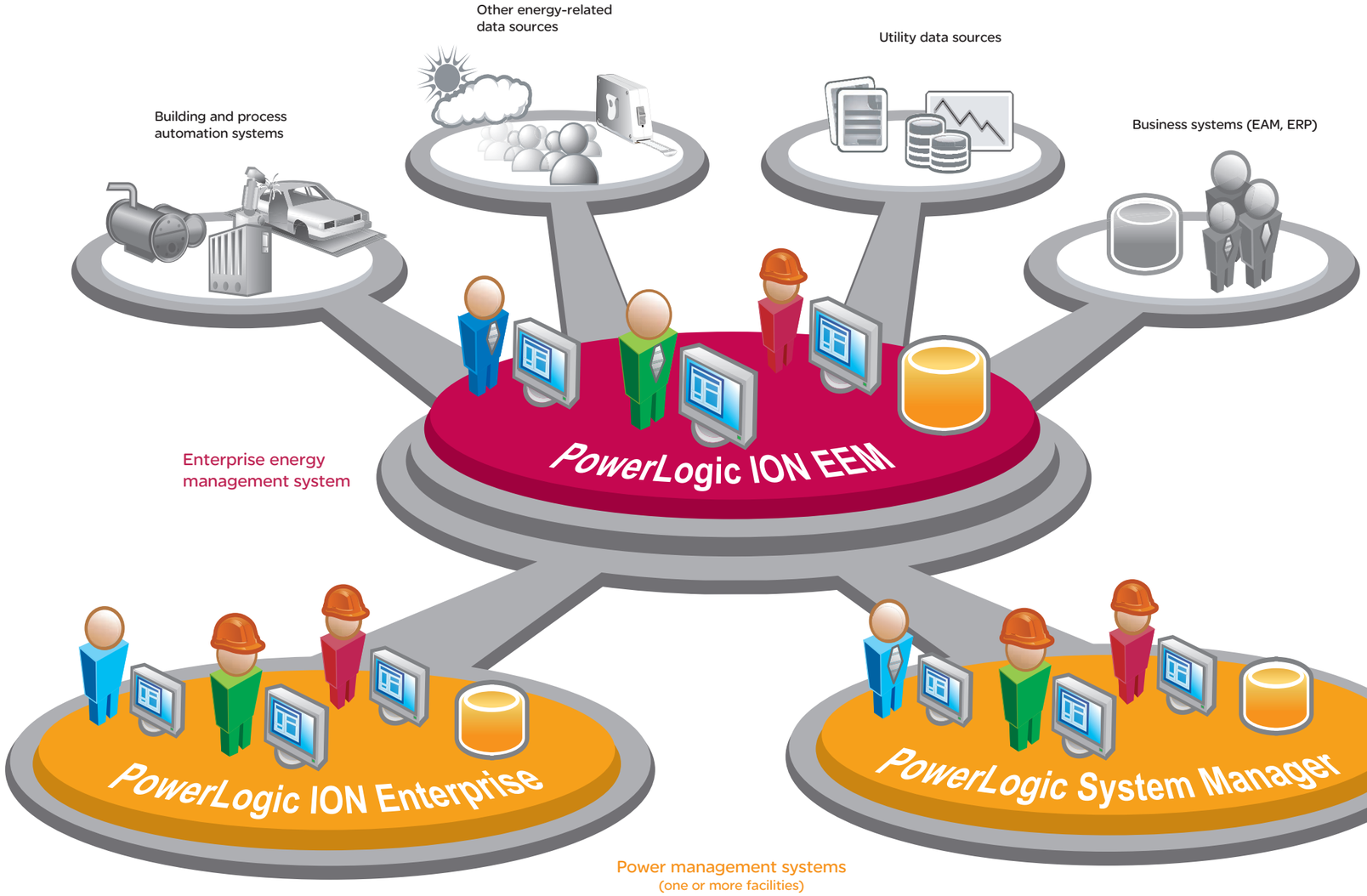
PowerLogic ION® EEM

Enterprise energy management (EEM) software that helps unite business and energy strategies.

The software helps you view energy in financial terms and gain insight into the impacts of power quality and reliability. It benchmarks performance to reveal inefficiencies and risks. It then tracks the progress of your initiatives, verifying the results of equipment upgrades or other improvements. Emissions reporting helps you meet environmental goals. Trend analysis supports strategies to avoid demand or power factor penalties and reveals unused electrical system capacity. The software helps optimize procurement by forecasting needs, comparing rates, identifying billing errors and validating contract compliance. It will also accurately allocate costs to tenants, departments or processes.

- Unifies management of all utilities and emissions using tailored dashboards, key performance indicators, dimensional analytics, rich visualization and reporting.
- Offers advanced energy modeling that includes regression analysis, normalization and integration of all relevant drivers and contextual data.
- Includes a built-in rate engine and an easy-to-use RateWizard™ rate configuration tool.
- Features wide-area event monitoring, classification, filtering, correlation, mapping and alarming.
- Acquires, cleanses and warehouses data from other PowerLogic systems such as PowerLogic ION Enterprise, and all other energy-related data resources (see diagram).



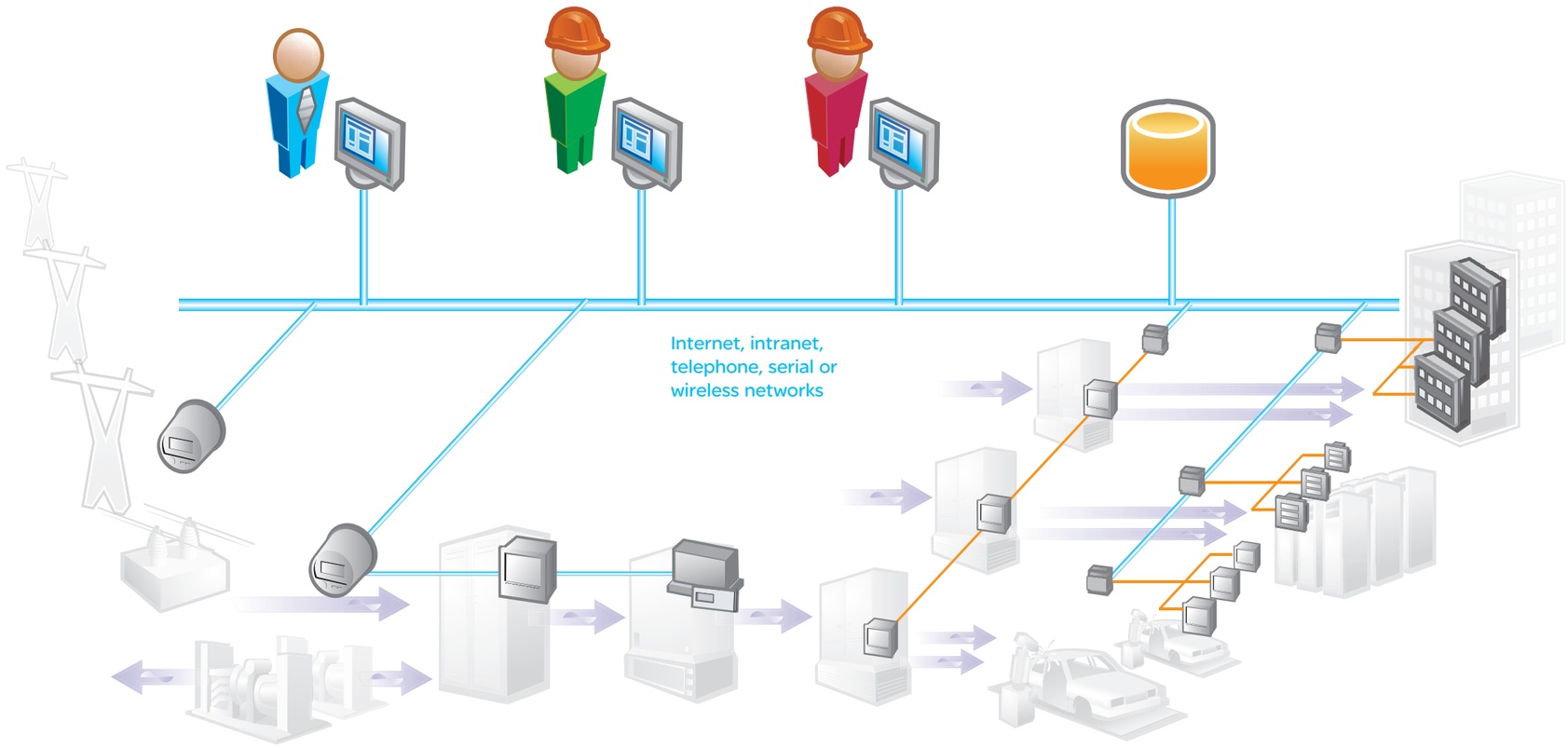


PowerLogic ION Enterprise® and PowerLogic System Manager™

A choice of two complete power management solutions for engineering and facility management personnel.

Real-time monitoring, alarming and power quality analysis help you avoid critical conditions that can cause equipment failures and downtime. These tools also support EPSS reporting for healthcare facilities. The systems track consumption of electricity, gas and other resources and will break down usage by building, department or process. Historical trending identifies energy waste, unused system capacity and ways to extend equipment performance and life span. Dynamic control capabilities help you manage loads, generators or capacitor banks to reduce demand, avoid power factor penalties or to support participation in utility rate reduction programs.

- Collects data automatically using industry-standard network technologies.
- PowerLogic ION Enterprise supports PowerLogic ION and PM series meters, Masterpact® and PowerPact® breakers equipped with MicroLogic® control units, and other devices through Modbus® communications and OPC compliance. PowerLogic System Manager supports PowerLogic CM and PM series meters, Sepam® relays, and other devices through Modbus communications.
- Offers secure, customized browser-based access to graphical system views, real-time data, trending, events, power quality analysis, alarm notification and reporting.
- Includes sophisticated load aggregation and arithmetic calculation capabilities.
- Shares data with PowerLogic ION EEM software and is interoperable with third-party automation systems through ODBC, OPC and PQDIF compliance.

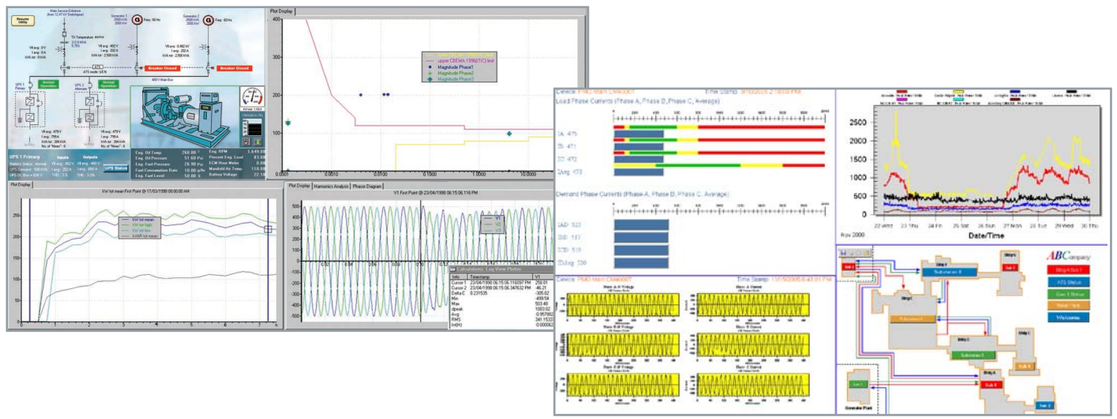


Metering at substations, service entrances and backup generators

Metering at power mitigation equipment (transfer switches, UPS)

Metering on main and feeder power distribution points

Sub-metering on production lines, server racks, tenants and other loads

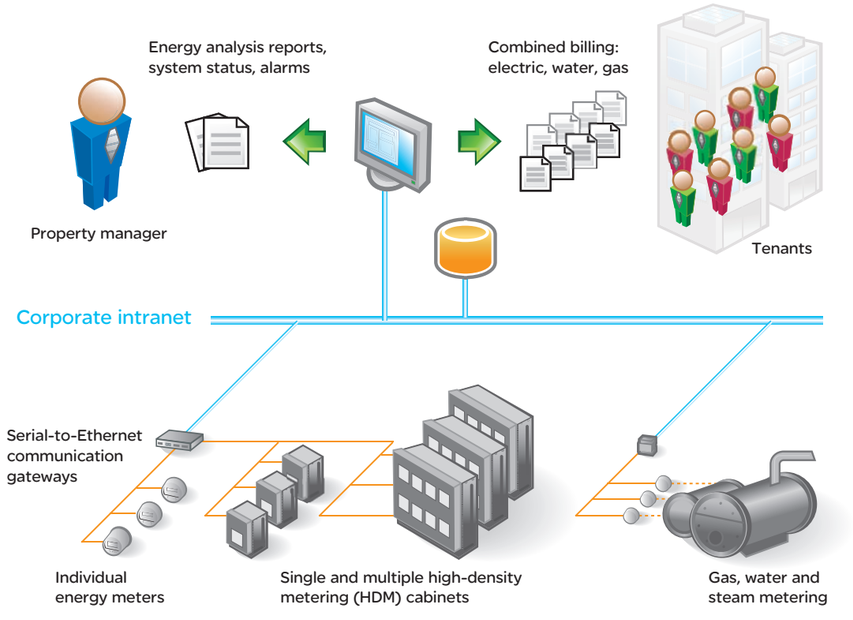


PowerLogic Tenant Metering, Commercial Edition

A flexible software solution that takes the difficulty out of tenant sub-metering while increasing tenant retention and property value through fair and transparent billing.

It can meet your unique needs and budget for new construction or for retrofitting existing apartments, shopping centres, offices or government facilities. The software will help you allocate and recover the true cost of utilities at each facility, for both tenant spaces and common areas. Automated data collection, data correction and invoice generation help reduce administrative costs for multiple locations. Fully customizable billing periods and rate structures adapt to regional regulatory requirements. Detailed load profiling and energy consumption reports can help promote accountability for energy use and assist in implementing efficiency initiatives and achieving LEED certification.

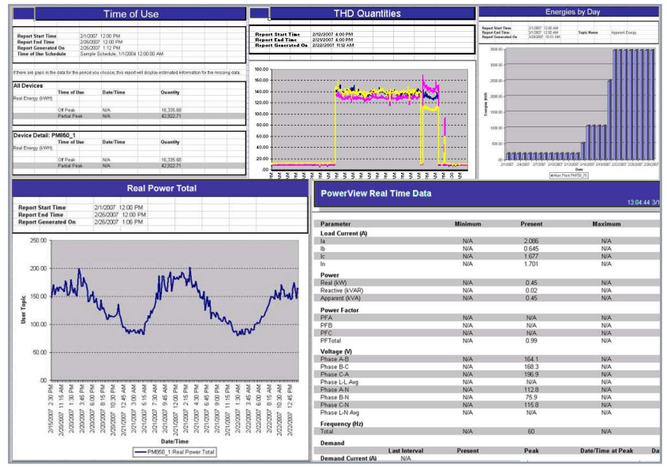
- Offers comprehensive invoicing for water, air, gas, electricity and steam (WAGES).
- Includes a proven billing engine and easy-to-use RateWizard rate configuration tool support demand, time of use, flat and tiered rates, seasonal rates and power factor.
- Features easy report generation for viewing load profiles, energy consumption trends and energies by month, week and day.
- Offers automated data collection for up to 2000 metering devices: supports PowerLogic energy meters and branch circuit monitors as well as third-party Modbus-enabled meters.



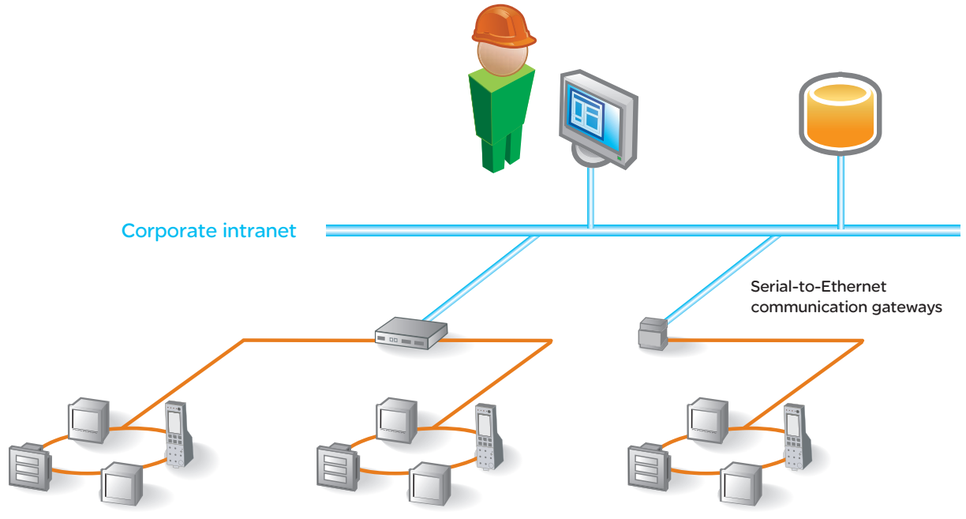
PowerLogic PowerView™

An easy-to-use, entry-range power monitoring solution suited for small system applications.

The software helps cut power-related costs and optimize equipment use by remotely monitoring your electrical network and tracking real-time conditions. It polls the network for compatible devices, simplifying system setup and device configuration. Once connections are made, data logging begins automatically at factory preset intervals, which can be easily changed.



- Supports up to 32 devices over Ethernet or RS-485 serial networks using Modbus communications.
- Offers PC-based data logging for devices without on-board memory.
- Features pre-configured real-time and historical data displays, reports leverage Microsoft Excel.
- Supports PowerLogic PM series meters, ION6200 meter and Masterpact and PowerPact breakers equipped with Micrologic control units.



Remote metering sites communicating on serial networks

PowerLogic high-accuracy energy and power quality metering for every distribution point[1]

- Suited for use in all electrical environments and compatible with PowerLogic software solutions.
- Standardized configuration, flexible customization, modular I/O, communications and remote display options. Support for international automation standards, form factors and protocols.
- See page 12 for energy sub-meters and branch circuit monitors.

	Advanced revenue metering, energy metering and power quality analysis								Midrange energy metering and power quality analysis				Basic energy metering
													
Features[2]	ION8600			ION7650	ION7550	CM4000T	CM4250	CM3350	CM3250	PM870	PM850	PM820	PM810	ION6200
	A	B	C											
Inputs, outputs and control power														
3-phase / single-phase	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■
Digital in and out / analog in and out	16 / 4	16 / 4	16 / 4	20 / 8	20 / 8	24 / 4	24 / 4	9 / 0	9 / 0	18 / 8	18 / 8	18 / 8	18 / 8	2 /
Power supply options	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Power and energy measurements														
Voltage, current, frequency, power factor	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Power, demand	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Energy / time-of-use (energy per shift)	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ /
ANSI energy accuracy class (% of reading)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Loss compensation	■	■	■	■	■									
Power quality analysis														
EN50160 compliance reporting / IEC 61000-4-30 Class A standard	■ /			■ / ■		■ /	■ /	■ /	■ /	■ /	■ /			
Flicker measurement	■			■		■								
Transient detection / disturbance direction	65 µs /			17 µs / ■	/ ■	200 ns / ■	32 µs / ■							
Sag/swell monitoring	■	■	■	■	■	■	■	■		■				
Harmonic distortion: individual / total	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	/ ■
Uptime (number of 9's) calculation	■	■	■	■	■									
Waveform capture	■			■	■	■	■	■	■	■	■			
On-board data and event logging														
Trending / forecasting / billing	■ / / ■	■ / / ■	■ / / ■	■ / ■ / ■	■ / ■ / ■	■ / ■ / ■	■ / ■ / ■	■ / ■ / ■	■ / ■ / ■	■ / / ■	■ / / ■	/ / ■	/ / ■	
Minimum / maximum	■	■	■	■	■	■	■	■	■	■	■	■	■	
Events and alarms with timestamps	■	■	■	■	■	■	■	■	■	■	■	■	■	
Timestamp resolution (seconds)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	1	1	1	
Computer-serial time sync. / Ethernet NTP time sync.	■ /	■ /	■ /	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ /	■ /	■ /	
GPS time sync.: serial / IRIG-B / DCF-77	■ / ■ /	■ / ■ /	■ / ■ /	■ / /	■ / /	/ / ■	/ / ■	/ / ■	/ / ■	/ / ■				
Setpoints, alarms and control														
Log alarm conditions / call out on alarm	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	
Trigger data logging / waveform capture	■ / ■	■ /	■ /	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ /	■ /	
Trigger relay or digital output	■	■	■	■	■	■	■	■	■	■	■	■	■	
Special features														
Custom programming: arithmetic / boolean / modular	■ / ■ / ■	■ / ■ / ■	■ / ■ / ■	■ / ■ / ■	■ / ■ / ■	■ / ■ /	■ / ■ /	■ / ■ /	■ / ■ /	■ / ■ /	■ / ■ /	■ / ■ /	■ / ■ /	■ / /
Downloadable firmware	■	■	■	■	■	■	■	■	■	■	■	■	■	
Communications														
Ports: Ethernet 10BaseT / 10BaseFL / 100BaseTX / 100BaseFX	■ / ■ / /	■ / ■ / /	■ / ■ / /	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / / ■ /	■ / / ■ /	■ / / ■ /	■ / / ■ /	
Ethernet-to-serial gateway	■	■	■	■	■	■	■	■	■	■	■	■	■	
Telephone modem	■	■	■	■	■									
Modem-to-serial gateway	■	■	■	■	■									
Infrared	■	■	■	■	■									
RS485 / RS232	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ /
Web server / email / SNMP / XML	■ / ■ / / ■	■ / ■ / / ■	■ / ■ / / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	■ / ■ / ■ / ■	
Protocols: Modbus[3] / DNP / MV-90 / DLMS	■ / ■ / ■ /	■ / ■ / ■ /	■ / ■ / ■ /	■ / ■ / ■ /	■ / ■ / ■ /	■ / / /	■ / / /	■ / / /	■ / / /	■ / / /	■ / / /	■ / / /	■ / / /	■ / / /

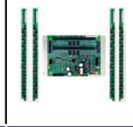
[1] This is not a complete list of meter models, features and specifications; please refer to the PowerLogic website, catalog, technical data sheets or product brochures for more detail.

[2] Specifications represent maximum capabilities with all options installed; some options are not available concurrently.

[3] ION8600, ION7650, ION7550 offer Modbus Master capabilities.

PowerLogic sub-metering for every tenant or load

- Ideally suited for tenant metering, cost allocation and PDU monitoring
- Cost effective for single or multiple circuits
- See pages 10-11 for other energy and power quality metering products.

		Single and multi-circuit sub-meters				Branch circuit monitors	
							
Features[1]		Energy Meter	Enercept®	Multi-Circuit Meter	High-Density Metering Cabinets	BCM	BCPM
Inputs, outputs and control power							
3-phase / single-phase		■ / ■	■ / ■	■ / ■	■ / ■	■ / ■	■ / ■
Number of circuits (maximum)		1	1	8	1 / 4 / 8 / 16	42	42 / 84
Power supply		AC	AC	AC	AC	AC	AC
Power and energy measurements							
Voltage / current / frequency / power factor		■ / ■ / ■ /	■ / ■ / ■ /	■ / ■ / ■ / ■	■ / ■ / ■ / ■	/ ■ / /	■ / ■ / ■ / ■
Power / demand		■ / ■	■ / ■	■ /	■ / ■		■ / ■
Energy / time-of-use (energy per shift)		■ /	■ /	■ /	■ / ■		■ /
ANSI energy accuracy class (% of reading)		1	1	1	0.5 / 1.0	2 (current)	2 (current), 3 (power)
Communications							
Ports:	Ethernet 10BaseT			■	■		
	Infrared	■					
	RS485	■	■	■	■	■	■
Protocols: Modbus		■	■	■	■	■	■

[1] Specifications represent maximum capabilities with all options installed. Some options are not available concurrently. This is not a complete feature list, please refer to detailed product specifications.

Accessories

Schneider Electric makes it easy for you to design, extend or enhance your PowerLogic solution with a number of system and meter accessories.

Remote meter displays

Enables mounting a meter within a switchgear cabinet with a panel-mounted display. Available for PowerLogic CM4000 series, CM3000 series, PM800 series, ION6200 and Enercept meters.

Meter input / output modules

Current / voltage modules — PowerLogic CM4250 meter comes standard with a CVM42 module that can be removed for calibration purposes or to a CVMT module for high-speed transient detection.

I/O cards and extender boards — provide various analog and digital input/output combinations for PowerLogic CM4000 series, PM800 series, ION8600 series, and ION7650 / ION7550 series meters.

CTs, VTs, shorting blocks and terminal blocks

Suitable for use with most PowerLogic meters.

Satellite time system

GPS time synchronization for PowerLogic CM4000 and CM3000 meters, accurate to 100 microseconds.

Portable Meter Enclosures

Ideal for temporary monitoring applications. PowerLogic CM4000 series meter in portable enclosure with detachable display, ride-through module, cable set and carrying bag. Portable meter enclosures.

Unique services

that maximize the value of your energy assets

Our **Power Application Engineering** team provides a complete range of design and operational services including specifying, developing, installing, commissioning, supporting and training users of power monitoring and control systems and remote power switching systems. Engineers maintain expertise in many areas such as communications, personal computers, protective relaying, automatic control systems and programmable controllers.

- System design and bill-of-materials recommendations
- Power monitoring and control
- WAGES (water, air, gas, electricity, steam)
- Enterprise web-based monitoring
- Specification development, drawings, documentation
- Enclosure panel deign and build
- Metering connection verification / testing
- Power distribution automation
- On-site installation assistance, component configuration and startup
- Turn-key project management
- Third-party device and communications interfaces
- Interactive graphic design to mimic facility layout, one-lines, equipment status
- Custom software, reports and applications, including billing and paging

Please contact us for additional information.

2007 FROST & SULLIVAN

North American Frost & Sullivan Award for Product Innovation

"The 2007 award recognizes Schneider Electric for its technological advancements and wide product range in the field of power quality (PQ) and energy management solutions. In total, this is the fourth award that Schneider Electric and [recently acquired] Power Measurement have received from Frost & Sullivan in recognition of achievements in this arena." *Prithvi Raj, Frost & Sullivan research analyst*

Enhance your PowerLogic solution

Support or expand your PowerLogic solution with matched accessories and complementary products or systems. Integrate with other Schneider Electric products or with third-party products through industry-standard protocols.

PowerLogic EGX Ethernet gateways

Access devices on downstream serial networks through fast *Transparent Ready®* Ethernet communications featuring customized web pages.

PowerLogic ION7550, RTU option

Remote terminal unit for transducer and equipment monitoring.

Preconfigured servers and workstations

Order desktop or laptop workstations and servers with PowerLogic software installed and preconfigured for your system.

PowerLink® lighting controls

Automated lighting control within building automation systems or stand-alone applications.

Sepam® protective relays

Monitoring, protection and control of substations, busbars, transformers, motors, generators and capacitors.

Masterpact® and PowerPact® breakers

Equipped with Micrologic control units, offering protection for LV networks.

Modicon® programmable logic controllers

Small-scale distributed control to robust, powerful stand-alone PLCs.

Altivar® variable frequency drives

Match motor output to required loads to reduce energy consumption and extend motor life.

Tesys® motor controllers

Motor branch short-circuit protection, manual disconnect, remote power circuit switching and thermal overload protection.

Power factor correction and harmonic filtering

Complete solutions including Reactivar® controllers, Accusine® filters and much more.

Please contact your local sales representative for ordering information.

Visit **www.powerlogic.com** for more information on PowerLogic products, applications and system solutions.

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