PowerLogic® energy & power management systems

Product range overview for industry, buildings and critical infrastructure

The world's largest and most advanced range of software and meters for helping organizations understand and control energy-related cost, risk and opportunity.

industry  buildings  critical infrastructure

Make the most of your energySM
Energy insight = energy control

Volatile energy prices and stringent emissions standards have made it more challenging to control operational costs.

Square D® PowerLogic® energy and power management systems from Schneider Electric will help you make the most of your energy by:

> Reducing energy-related costs through improved efficiency, lower emissions, reduced per-unit energy costs and maximized use of your power distribution network.

> Optimizing equipment utilization to make better use of capital assets by balancing loads and determine capacity requirements.

> Improving the overall quality of power and reliability of your equipment and processes, as well as increase in safety through remote monitoring versus risk of arc flash.

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.
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:

• Maximize the use of your existing energy assets
• Increase energy efficiency and cut emissions
• Improve safety and 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 minimize 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. Delivers insightful diagnostics and metrics to help verify the reliability of backup systems. Maximizes the use of existing capacity to defer new capital investments. Reveals energy inefficiencies and strengthens 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 or customers. All utilities and equipment conditions are continuously tracked.

• Analyze and improve electrical reliability and safety
• 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 energy-efficiency
Advanced technology helps you reach goals faster

PowerLogic systems cover 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.

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.
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 software

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™ software**

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 emergency power supply system (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.
> Supports PowerLogic ION meters, circuit monitors and power meters, SEPAM digital relays, Masterpact® and PowerPact® breakers equipped with MicroLogic® control units, and other devices through Modbus® communications and OPC compliance.
> 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

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**Internet, intranet, telephone, serial or wireless networks**
PowerLogic® PowerView™ software

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 circuit monitors, PM800 and PM700 series meters, ION6200, PM210, and Masterpact and PowerPact breakers equipped with Micrologic control units.
network protection and control
power availability and reliability

PowerLogic® SCADA
power monitoring and control software

PowerLogic® SCADA software delivers a reliable, flexible, and high performance monitoring and control solution designed with operational traceability and full system redundancy. It is built to handle user requirements from the most demanding enterprises, while still providing data intelligence for power distribution through alarming and powerful graphical interface functions. Easy-to-use configuration tools and powerful features enable faster development and deployment of any size of application.

- Real-time control and monitoring of electrical distribution equipment through network IEDs.
- Dynamic user interface that blends control and animated display for greater control and higher operator efficiency in both normal and critical scenarios.
- On-board and PC-based alarms and events, time-stamped to millisecond precision to help determine cause and effect relationships.
- Software, network, and communication redundancy for data quality assurance.
PowerLogic products: High-accuracy energy and power quality

- Suitable 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 industrial automation standards, form factors and protocols.
- See page 12 for energy sub-meters and branch circuit monitoring products.

### Features

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<th>Inputs, outputs and control power</th>
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<td>Computer-serial time sync. / Ethernet NTP time sync.</td>
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<td>GPS time sync.: serial / IRIG-B / DCF-77</td>
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<td>Trigger data logging / waveform capture</td>
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<td>Custom programming: arithmetic / boolean / modular</td>
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<td>Downloadable firmware</td>
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<td>Ports: Ethernet 10BaseT / 10BaseFL / 100BaseTX / 100BaseFX</td>
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<td>Ethernet-to-serial gateway</td>
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<td>Telephone modem</td>
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<td>Modem-to-serial gateway</td>
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<td>Infrared</td>
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<td>RS485 / RS232</td>
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<td>Protocols: Modbus / DNP / MV-90 / DLMS</td>
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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.
### PowerLogic Products: High-Accuracy Energy and Power Quality

#### Protocols:
- Modbus
- Web server / email / SNMP / XML

#### Special Features:
- Setpoints, alarms and control
- Events and alarms with timestamps
- Minimum / maximum
- Trending / forecasting / billing
- On-board data and event logging
- Uptime (number of 9’s) calculation
- Harmonic distortion: individual / total
- Flicker measurement

#### Energy / time-of-use (energy per shift):
- ANSI energy accuracy class (% of reading)
- 0.001
- 0.2
- 200 ns

#### Specifications:
- Specifications represent maximum capabilities with all options installed; some options are not available concurrently.
- ION8600, ION7650, ION7550 offer Modbus Master capabilities.

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<tr>
<th>Model</th>
<th>CM9000T</th>
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<th>CM4250</th>
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1. Specifications represent maximum capabilities with all options installed; some options are not available concurrently.
Square D® SEPAM™ Protective Relays

> Standardized footprint for enhanced protection of mains/feeders, transformer, motor, generator, bus, capacitor bank applications

> Directional over-current protection for dual mains, ties and closed loop feeders

### 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, ION6800 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 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

Engineering Services
Schneider Electric offers a comprehensive set of Square D® Engineering Services associated with electrical distribution systems, energy and power management systems and energy efficiency. Together, we can help you reduce energy costs, optimize equipment utilization and improve reliability of your system. Whether you need integration to provide off the shelf functionality for a simply powerful configurable system or a tailored system designed specifically for your unique requirements. You’ll get more with Square D Engineering Services and our network of qualified power system experts.

Industrial Energy Consulting
The Total Energy Control™ program is a strategic energy partnership that differs from traditional performance contracting or one-time energy audits. Our certified energy managers work with energy-intensive industrial facilities as a trusted partner to deliver a comprehensive Energy Action Plan. The plan integrates all three areas affecting energy efficiency for a total energy strategy – procurement (gas and electricity), demand management as well as process and utility systems. Our Total Energy Control program assures the process is one of continuous interaction including semi-annual updates, annual reviews and expert consultation. We take accountability that goals are met and that the Energy Action Plan reflects what is happening in the market, as well as changes that take place in the facility.

Total Energy Control for the ongoing success and accountability of your energy plan:
> Project Energy Services make the Total Energy Control program a dynamic process. These services include making changes and updates in the Energy Action Plan to reflect product and process changes, capacity, contingency planning, equipment selection/replacement and generation assessment.

> Supply management provides ongoing assistance on how and where to purchase energy. It is a supply side service that ensures that energy is purchased from the lowest cost source and provides guidance in risk/reward scenarios such as hedging fuel costs.

> The key is that the Energy Action Plan does not become a one-time static snapshot that becomes stale and outdated.
Energy and Power Management System Services

Power System Automatic Controls
Square D Power System Automatic Controls are a total solution approach that includes control design, programmable controller logic and supervisory software functions tailored to provide user interaction, digital alarming for extremely fast response, graphical animation and the exact amount of flexibility that you need. Here are some examples:

> Automatic Throwover Schemes - provide automatic selection of available utility or generator sources to maintain service continuity to connected loads.
> Load Shedding Schemes - control peak demand levels or ensure service continuity to critical loads
> Load Preservation - fast acting sophisticated control systems designed to stabilize critical power systems to greatest extent possible by monitoring frequency and power sources from utility plus generation capacity versus total circuit load.
> Breaker sequencing - operate breakers in accordance with user specified sequences and time delays such as bringing large motors on-line across several billing kw demand periods to avoid demand penalties.
> Lighting Control - Controlling lights during non-occupancy periods can significantly decrease energy costs as well as defer replacement costs of lamps and ballasts by reducing annual burn hours.

System Integration
Our Square D Engineering Services solution specialists can work with you to design or upgrade your existing system to best achieve your energy and power management objectives and informational needs. With expertise in electrical systems, communications, and automatic control systems, we can integrate, install and commission your system for optimal performance.

> System Design
> System Integration
> Startup & Commissioning
> Custom Graphical Interface
> Turnkey Project Management
> On-site training

Engineered Solutions

> Enclosures - Simplify retrofit installations with pre-wired factory assembled enclosures that include documentation for quick installation.
> Sequence of Events Recording - Qualitative and time-accurate information with precise 1 ms event time stamps aid to quickly pinpoint the cause of a disruption in service in very large, complex power systems.
> Custom Software - Supplement existing product capabilities with capabilities such as monitoring piped utility pulses, OPC and database integration with other applications, tailored reports and web pages.
> Emergency Power Supply System Reporting – Provides conclusive equipment reliability results regarding the health and status of automatic transfer switches and generators during EPSS exercise test.
> Active Pager Module – PowerLogic system alarms can be automatically sent to alphanumeric pagers, mobile phones and PCs can be performed for consolidated or filtered with flexible user paging schedules.
> WAGES (water, air, gas, electric, steam) Monitoring - Offers the ability to get information for electrical and piped utilities.
> Enterprise Energy Management Service - Data source integration services for PowerLogic ION EEM software offering that unify energy and emissions information from other PowerLogic systems, SCADA systems, building and process automation systems, utility billing systems, weather services, spot-market energy pricing feeds, and enterprise business applications.

Technical Support
Square D PowerLogic Technical Support offers you more than just troubleshooting assistance for your energy and power monitor system. In addition to free technical support, we also offer Priority and Service Agreements for a higher level support. Our e-Service is a remote hassle-free service that allows us to provide individualized service of your PowerLogic energy and power management system. By simply connecting to Square D PowerLogic technical support, you can have system maintenance and analysis, in short notice.

Training
PowerLogic University is where knowledge saves you money. Our courses empower you to more fully utilize your energy and power management system, improve your energy management skills and make you more knowledgeable in system administration and operations of your PowerLogic systems.
Power System Engineering
Our nationally recognized Square D Power System Engineering professionals have proven problem solving skills, extensive utility and industrial experience and comprehensive power system expertise to identify opportunities for improvements to complex energy and power-related issues.

Power System Studies
> Arc Flash
> Harmonics
> Short Circuit and Time Current Coordination Studies
> Power Quality
> Circuit Loading
> Motor Starting (voltage drop & torque speed/acceleration)
> Transient Disturbances
> Power Factor Correction
> Motor re-energization
> Power System Assessments & Design Services
> Electrical Distribution Retrofit Design
> Malfunction Assessments
> Power System Assessments
> Relay Design & Applications
> Lighting System Design
> Grounding & Ground Fault Systems
> Code Compliance (ITIC/SEMI, F47 Compliance, IEEE519, Others)
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 Web enabled communications
Access devices on downstream serial networks through fast Transparent Ready® Ethernet communications featuring customized web pages. Additionally, a remote terminal unit for transducer and equipment monitoring.

PowerLogic BCM and Branch Circuit Power Meters
Multi Circuit metering to monitor to 84 branch circuits of a high performance power distribution unit (PDU or remote power panel (RPP).

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.

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.

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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