PowerLogic® Energy and Power Management Systems

Product range overview
Three dimensions of energy and power management savings

To maintain a competitive advantage, you need to carefully control the critical inputs and outputs that affect your bottom line. The energy your business consumes can represent three dimensions of savings opportunities to cut operational costs and reduce risk. Using the iceberg analogy, typically, we think of them as huge peaks rising above the water. In reality, the majority of an iceberg is actually under the water, out of view.

Reduce Utility Costs
Utility savings at most facilities can be thought of in much the same way. You can significantly reduce direct consumption-related costs. And if you’re a property manager, you can increase the accuracy of energy settlements or customer billing. Think of your utility bills as being the peak, easy to see every month. By simply installing a PowerLogic® power monitoring system, you can realize a 2-4% savings—but that’s just the “tip of the iceberg” in terms of your potential savings.

Optimize Equipment Utilization
The majority of savings, using a PowerLogic system, can be derived by looking beyond a utility bill—or below the surface. An additional 2-5% savings can be achieved by avoiding or deferring capital costs by better utilizing your existing electrical infrastructure.

Improve System Reliability
You can avoid the expensive and often hidden risks to productivity that can result from power problems. Typically, another 10% can be found by discovering power system reliability improvements with powerful PowerLogic metering that offers extremely accurate and high speed event capture information.

PowerLogic® systems give you the power to achieve this kind of savings, resulting in a quick return on your investment. With technology that can deliver the appropriate depth and reliability of information, you can identify these opportunities, make strategic decisions and then act. Square D / Schneider Electric, the world’s power and control expert, can help.

The new PowerLogic® systems
Square D / Schneider Electric has decades of experience in delivering energy and power management solutions to thousands of customers, including most of the Fortune 500. Having recently acquired Power Measurement and its ION® technology, Schneider Electric now offers the largest and most complete portfolio of energy and power management solutions available within our powerful Square D® PowerLogic® product range. PowerLogic is innovative technology that acts like a layer of intelligence across all of your energy assets, helping you accurately meter and monitor all electrical and piped utilities and, in turn, maximize energy and power reliability performance. A tightly integrated network of software and meters can span a single facility or an entire multi-site enterprise. The system monitors key points and equipment, 24 hours a day, from generators and substations to service entrances, mains, feeders and loads delivering timely, relevant information to anyone that needs it, anywhere they are. Advanced analytic tools enable effective decisions, while coordinated control capabilities help act on them. Together, this represents a fast and quantifiable return on investment, often within a few months.

The PowerLogic advantage

- Enterprise-level features
- Web-enabled communications
- World’s most advanced line of energy instrumentation
- Onboard memory to avoid data gaps
- Supports industry standards and accuracy certifications
- Power quality compliance reporting
- Measurement and verification protocols
- Scalable and easily tailored for custom solutions
- Modular hardware for easy/affordable field upgrades
- Ideal for retrofit applications
- Low cost of installation and ownership
- Cost-effective, feature-rich systems
- Easy to use
- Supported by extensive services organization
- Simple Integration with 3rd party systems and software
How to use this brochure
This brochure is an overview of all PowerLogic products to help you identify some of the solutions and components that may be a good fit for your needs. For more detailed information on specific products and applications and for help with system selection, please contact your local Schneider Electric representative or visit www.PowerLogic.com.

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Reduce Energy Costs
• Access automatic meter reading from revenue, piped utility pulses and sub-metering
• Verify and reconcile utility bills to catch errors
• Reveal energy inefficiencies and waste
• Allocate or sub-bill energy costs
• Optimize procurement through forecasting, load aggregation and rate analyses
• Implement power factor correction, lighting control, and fact-based reduction strategies
• Reduce demand through load scheduling, load control or generator control
• Respond to utility curtailment signals
• Make smart energy efficiency decisions by combining your experience with ours for Total Energy Control strategies that result in an actionable energy plan with quick payback

Optimize Equipment Utilization
• Maximize use of existing equipment capacity to defer capital expenses
• Benchmark, profile and compare the performance of facilities or processes
• Document emergency power system testing results
• Prolong equipment life by identifying transformer and other equipment stresses
• Balance loads on substations, panelboards and other power equipment
• Perform proactive equipment maintenance and equipment monitoring of transformers, MCCs, switchgear, switchboards, circuit breaker status, protective equipment, capacitors, generators, panelboards, PDU, UPS and other piped utilities

Improve Reliability & Uptime
• Get early warning and remote alarm notification of impending problems
• Isolate problem sources quickly using real-time, historical and event data
• Pinpoint root cause with precise GPS time and event sequence recording
• Verify reliable equipment operation and identify vulnerabilities
• Diagnose transients, disturbances, power quality and harmonics
• Determine appropriate corrective measures based on accurate data
• Automate power system throw over and load preservation schemes
• Leverage Square D Engineering Services as your single source energy and power management solution provider — product, implementation, consulting, assessment and other system services
Solutions for every business and application

PowerLogic® ION® EEM is a complete enterprise energy management solution that unifies business and energy-related data resources from power monitoring and control systems, building and process automation systems, utility information systems, weather services, spot-market energy pricing feeds, and enterprise business applications.

PowerLogic® System Manager™ software, Circuit Monitors, Power Meters, and a plethora of intelligent monitoring devices, built on an open architecture with industry standard protocols, offer energy and power monitoring with real time diagnostics from the circuit breaker up to the entire enterprise level. Or for an entry level power monitoring solution, PowerView™ software will support up to 32 devices of power meters, ION6200, MicroLogic Trip Units. Providing a cost effective tool that allows you to track power conditions.

PowerLogic Tenant Submetering is ideal for monitoring energy usage and efficiency, aggregating energy purchases and providing the flexibility necessary to manage a wide range of tenants.
Square D® PowerLogic® systems are the industry’s most comprehensive energy and power management solution, offering a complete range of products to help you achieve your energy efficiency, reliability and cost saving goals.

PowerLogic® systems’ proven solutions are designed by power system experts and backed by engineering and technical support services that are second to none, with products that are ideal for businesses of all sizes and types, including:

**Industrial**
Manufacturing and Processing

**Buildings**
Government, Universities, Commercial and Retail

**Infrastructure**
Water and Wastewater, Data Centers, Hospitals, Transportation and Telecom

PowerLogic® ION Enterprise® operational software and ION® meters with patented ION® technology offer both flexibility and maximum integration capabilities, to give power monitoring and control systems the fullest functionality possible.
PowerLogic® ION® EEM software

PowerLogic® ION® EEM (enterprise energy management) software is a family of applications for energy suppliers and consumers. It exceeds the traditional boundaries of energy and power management by uniting business and energy strategies. Key performance indicators, advanced dimensional analytics and reporting tools help you manage energy in financial terms, manage risks and gain unique insight into the impacts of power quality on your business and all energy assets. Actionable energy intelligence helps reveal opportunities, isolate problems and drive strategy. The software benchmarks energy performance and reliability in identifying inefficiencies, losses and risks. It verifies the results of energy efficiency or reliability upgrades and helps you meet environmental goals. It gives you the information needed to manage, demand and support participation in utility rate reduction programs. It helps optimize procurement by forecasting needs, comparing rates, identifying billing errors and validating compliance with energy or power quality terms in contracts. It will identify unused capacity and help you avoid overbuilding. It can also allocate and recover utilities costs from tenants, departments or processes.

- Manages all utilities and emissions through a single, unified interface.
- Automatically acquires, cleanses and warehouses data from existing energy-related resources including power management systems such as PowerLogic® System Manager™ software or PowerLogic® ION Enterprise® software, building and process automation systems, substation automation and SCADA systems, weather, square footage, occupancy, utility billing systems, spot-market energy pricing and other enterprise business applications.
- Uses advanced modeling capabilities including regression analysis, normalization, correlation and integration of all relevant drivers and contextual data.
- Built-in rate engine and rate wizard.
- Wide-area event monitoring, classification, filtering, correlation, mapping and alarming.
PowerLogic® ION® EEM (Enterprise Energy Management System)

Other energy-related data sources
Weather feeds, occupancy, square footage

Utility data sources
Billing systems, real-time pricing

Business systems (EAM, ERP)
Organization and tracking of physical assets, resources, products

Power management systems
Active monitoring and control of power infrastructure and energy use across one or more facilities

PowerLogic ION EEM

PowerLogic ION Enterprise
PowerLogic® System Manager™ software

PowerLogic® System Manager™ software is a family of web-enabled power management software applications that give you the tools to harness power and energy data from across your facility or enterprise. Targeted for virtually any level of your operation, the easy to use, intuitive browser-based interface provides access to reports, real time electrical and piped utilities (e.g. gas, water) meter values, alarm conditions and power quality analysis. The software helps you reduce utility costs, determine where excess capacity exists, identify over-stressed equipment and improve system reliability to maximize your facility equipment investments and help you avoid expensive downtime and lost productivity.

- Distributed monitoring and automatic onboard data collection eliminates nuisance data gaps.
- Simultaneous multi-user browser access – no client software required
- Predefined graphical or tabular views are properly formatted upon setup, which allows you to tailor to your own needs.
- Real-time data display, historical logging and trending, waveform display and harmonic analysis, event logging and control of external devices (e.g. opening and closing of circuit breakers) and alarm notification to email, pagers, and other devices.
- Secure access to information includes easy wizard driven report creation that auto-builds queries for inexperienced database user. Report outputs include pre-defined interval and total energy and shift usage reports, energy cost summary reports with time of use support, and pre-configured historical logged value outputs (table, trend or pie chart).
- Open system architecture with modular add-ons for advanced graphics, advanced reports (Crystal Enterprise platform with easy wizard-driven report creation), billing and customized functionality enhancements.

- Fully supports all PowerLogic® circuit monitor and power meter series meters, PowerLogic® sub-meters and branch circuit monitors, the PowerLogic® ION6200 meter, a variety of other power and automation products from Schneider Electric (see page 12) and third-party devices that support Modbus protocol.

Features*

Inputs, outputs and control power
- 3-phase / single-phase
- Digital in and out / analog in and out
- Power supply options

Power and energy measurements
- Voltage, current, frequency, power factor
- Power, demand
- Energy / energy per shift (time-of-use)
- ANSI energy accuracy class (% of reading)

Power quality analysis
- Compliance monitoring (e.g. EN50160)
- Flicker measurement
- High-speed transient disturbance capture (200 ns)
- Transient disturbance capture
- Disturbance direction detection
- Sag/swell monitoring
- Harmonics measurement
- Uptime (number of 9’s) calculation
- Waveform capture
- Waveshape alarm

Data and event logging
- Trend / billing
- Minimum and maximum
- Events / maintenance
- Timestamp resolution (seconds)
- GPS sync

Setpoints, alarms and control
- Annunciator / call out on alarm
- Trigger logging
- Trigger relay or digital output control

Special features
- Custom programming: arithmetic, boolean
- Downloadable firmware

Communications
- Ethernet port / web server / email
- Infrared port
- RS485 / RS232 ports
- Modbus protocol

* Specifications represent maximum capabilities with all options installed.
### PowerLogic® Circuit Monitors and Power Meters

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<th>CM4000T</th>
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Some options are not available concurrently. This is not a complete feature list, please refer to detailed product specifications.
PowerLogic® ION Enterprise® software

PowerLogic® ION Enterprise® software is a complete web-enabled power management solution for industrial facilities and commercial/retail operations. It forms a layer of energy intelligence across your facility, campus or your entire enterprise, acting as a unified interface to electricity and other consumable resources such as water, gas, compressed air and steam. It helps you track real-time power conditions, analyze power quality and reliability, and respond quickly to alarms to avoid critical situations. You can study historical trends to reveal energy waste or unused capacity as well as verify efficiency improvements and allocate costs to buildings, departments or processes. The software will aggregate loads, help control power factor and manage loads or generators to reduce demand.

- Automatic data collection and storage using industry-standard network technologies, including Ethernet and wireless.
- Simultaneous multi-user browser access — no client software required — with multi-level security and customized views for each user.
- Real-time display of data and status indicators, graphical system diagrams, historical logging and trending, event logging, power quality analysis, alarm condition notification (email, pagers, other devices), preconfigured and custom reports, manual or automated control of loads, generators, relays or other power distribution and mitigation equipment.
- Shares data securely with other business and automation systems and is compliant with ODBC, OPC and PQDIF standards.
- Scalable, flexible architecture with ION® modular programming for complex data processing and control functions.
- Fully compatible with all PowerLogic® ION® series meters and third-party devices that support Modbus communications.

**Features**

<table>
<thead>
<tr>
<th>Inputs, outputs and control power</th>
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<tr>
<td>3-phase / single-phase</td>
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<tr>
<td>Digital in and out / analog in and out</td>
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<tr>
<td>Power supply options</td>
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</table>

**Power and energy measurements**

- Voltage, current, frequency, power factor
- Power, demand
- Energy / time-of-use (energy per shift)
- ANSI energy accuracy class (% of reading)
- Measurement Canada approval
- Loss compensation

**Power quality analysis**

- Compliance monitoring (e.g. EN50160)
- Flicker measurement
- Transient disturbance capture
- Sag and swell monitoring
- Harmonics measurement
- Uptime (number of 9’s) calculation
- Waveform capture

**Data and event logging**

- Trend / snapshot
- Min/max
- Events
- Timestamp resolution (seconds)
- GPS sync

**Setpoints, alarms and control**

- Annunciation / call out on alarm
- Trigger logging
- Trigger relay or digital output control

**Special features**

- Custom programming: arithmetic, boolean, object-oriented
- Downloadable firmware

**Communications**

- Ethernet port / web server / email
- Telephone modem port
- Infrared port
- RS485 / RS232 ports
- Modbus / DNP / MV-90 protocols

* Specifications represent maximum capabilities with all options installed.
### PowerLogic® ION Series Power and Energy Meters

<table>
<thead>
<tr>
<th>Feature</th>
<th>ION8600</th>
<th>ION7650</th>
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<td>RS485 / RS232 ports</td>
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<td>Modbus / DNP / MV-90 protocols</td>
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Some options are not available concurrently. This is not a complete feature list, please refer to detailed product specifications.
PowerLogic® PowerView™ software

PowerLogic® PowerView™ power management software for power meters is an easy-to-use, entry-level power monitoring solution ideally suited for small system applications. Companies continually look for innovative solutions to cut power-related costs and optimize equipment use. PowerView™ power management software simplifies system and device configuration by polling your network for compatible PowerLogic devices. Connection and data logging begins automatically at factory preset intervals, settings which are easily changed by the user. The software allows you to track real-time power conditions and perform remote monitoring of electrical equipment or installations at key distribution points across your electrical network. Use logged values to reveal energy waste, unused capacity and historical trends. Its Report Builder includes time of use configurations, allowing you to create reports with energy and demand values for time periods with specific billing requirements. Generated reports publish to Microsoft® Excel for easy data access and custom reporting. PowerView is a cost-effective power monitoring solution and a key first step towards a comprehensive energy intelligence strategy. Within one hour, you can install and begin monitoring.

Key features
- Automatic device detection for easy setup, supporting up to 32 simultaneously connected devices
- PC-based data logging for devices without onboard logging memory
- Pre-configured real-time and historical data displays
- Modbus® TCP/IP protocol and RS-485 supported serial communications
- 6 Easy steps to build and generate reports
- Reports leverage Microsoft Excel
- Microsoft MSDE database

Communication devices

PowerLogic® EGX Ethernet gateway
Delivers transparent web-access to downstream devices, with alarm notification, fast data transfer rates, easy access to data using only a web browser.

PowerLogic® ECC Ethernet communications card
For use with PowerLogic® CM3000 or CM4000 series circuit monitors (ECC21) or with PowerLogic® PM800 series power meters (PM8ECC). Delivers energy and power quality data via onboard web pages.

PowerLogic® COM32 and COM128 converters
RS-232 to RS-485 network converters, providing up to four RS-485 ports, each supporting up to 32 devices
PowerLogic® Tenant Metering™ software
The Complete Solution for Commercial Tenant Billing

PowerLogic™ Tenant Metering™ software allows you to allocate and recover the true cost of your facility’s utilities. Intuitively designed even for the most novice computer user, PowerLogic Tenant Metering software is available in two different editions.

PowerLogic® Tenant Metering™ Commercial Edition is ideal for more demanding billing applications, including the flexibility necessary to manage a wide range of tenants, multiple locations and comprehensive utilities. Equipped with a proven billing engine, it provides fully customizable billing periods and rate structures so you can better manage energy costs — and the bottom line.

PowerLogic® Tenant Metering™ is the entry-level submetering software that delivers basic meter reading, tenant billing and account statements. It allows you to account for demand charges and energy usage down to the very last kWh.

PowerLogic sub-meters
- Ideally suited for tenant metering, cost allocation and PDU monitoring
- Cost effective for single or multiple circuits

<table>
<thead>
<tr>
<th>Features *</th>
<th>Energy Meter</th>
<th>Enercept</th>
<th>Multi-Circuit Meter</th>
<th>High-Density Metering</th>
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<tr>
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<td>Modbus protocol</td>
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* 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.
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.

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
- Power Quality
- Transient Disturbances
- Harmonics
- Circuit Loading
- Power Factor Correction
- Short Circuit and Time Current Coordination Studies
- Motor Starting (voltage drop & torque speed/acceleration)
- Motor re-energization

Power System Assessments & Design Services:
- Electrical Distribution Retrofit Design
- Relay Design & Applications
- Code Compliance
- Malfunction Assessments
- Lighting System Design
- Power System Assessments
- Grounding & Ground Fault Systems

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.

- Working with you to reduce your energy costs
- Energy improvements and complex power-related energy issues
- System design and Integration
- Technical support and training

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.

Total Energy Control for the ongoing success and accountability of your energy plan
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, programable 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** - PowerLogic® ION® EEM unifies energy and emissions information from 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® and ION® systems.
Complementary products and systems

Your PowerLogic® system can integrate a wide range of other Schneider Electric products as well as third-party products through industry-standard protocol support. This can give you a more comprehensive view of your power system and all related equipment through a unified interface.

PowerLogic® ION7550, RTU option
- Ideal for combined utilities metering of water, air, gas, electricity and steam (WAGES), the ION7550 RTU provides an extensive combination of analog and digital I/O, and communicates to PowerLogic® ION Enterprise® software through a unique combination of integrated Ethernet, modem or serial gateways.

Sepam® protective relays
- Current or voltage protection for any distribution system.

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

Micrologic® breaker control units
- Protection for all types of LV electrical networks.

Modicon® programmable logic controllers
- Small-scale distributed control to robust, powerful standalone PLCs.

Branch Current Monitor
- Simple and cost effective solution for electrical load management at panelboards. Ideally suited for applications where load capacity requirements are dynamic.

Altivar® variable frequency drives
- Match motor output to required loads to reduce energy consumption and extend motor life.

Accessories

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

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

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, ION7300 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, ION7650, ION7550, and ION7300 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.