ION Enterprise & ION EEM Overview

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PowerLogic ION Enterprise

Helps engineering and management personnel meet operational goals:

- Improve efficiency and cut energy-related costs
- Assure reliability and reduce downtime
- Optimise equipment utilisation and reduce the cost of operations
Data acquisition and integration

- Combined metering: electricity, gas, steam, air, water
- Monitor your distribution system, including:
  - PowerLogic meters
  - Circuit breakers
  - Protective relays
- Interface with third-party meters, transducers, PLCs, RTUs, power distribution or mitigation equipment:
  - Quickly add/configure Modbus RTU/TCP communications using templates
  - Connect transducers or other devices to the digital/analog inputs of PowerLogic meters.
- Integrate with other systems:
  - Energy management, SCADA, BAC, DCS, ERP
  - Use ODBC, XML, OPC, email, FTP, CSV, PQDIF, web services
Real-time monitoring

- View key distribution points
- Access from any workstation:
  - Real-time power and energy
  - Historical trends and data logs
  - Alarm conditions
  - Select pre-configured diagrams or easily create customised views
- Point-and-click navigation to reveal deeper layers of detail
Reporting

- Generate manually, scheduled or event-driven
- Distribute automatically as email, web, PDF, XML, and HTML
- Standard reports:
  - Aggregate energy and demand
  - Aggregate load profiles
  - Aggregated views of Energy usage by shift
  - IEC 61000-4-30 and EN50160 power quality compliance
  - Power Quality analysis
  - Multi-device energy usage
  - Tabular and Trend Views for any measurement
  - Alarm history
  - System Configuration Report
Power quality analysis

- Continuous, wide-area monitoring, data capture and reporting
- IEC 61000-4-30 and EN50160 compliance reports – view indices as numeric charts or graphic profiles
- Harmonic histograms, THD, K-factor, crest factor, phasors, symmetrical components
- Waveforms – long durations, overlays to correlate phase-to-phase
- Plot sags, swells, transients on industry-standard tolerance curves (ITIC/CBEMA, SEMI)
- Click on a time-stamped event to see more detail
Alarms and events

- Receive alerts to outages or impending problems
- Trigger on PQ events, thresholds or equipment conditions
- Trigger on complex/summary conditions
- Alarms from meters are immediately pushed to the system level
- Automatically:
  - Send out customised notifications to workstations, email, cell phone, PDA
  - Upload all associated event data
  - Generate a report
  - Log complete information (coincident conditions, waveforms, timestamps)
Manual and automated control

- Supervisory equipment control
- Perform manual control via on-screen trigger buttons
- Automated control:
  - Gathers data from multiple devices
  - Incorporates process variables
  - If predefined thresholds are exceeded, initiates coordinated control actions over multiple loads or other equipment
PowerLogic ION EEM
Enterprise Energy Management (EEM)

● EEM provides:
  ● Identification, justification, & prioritization of energy savings projects
  ● Auditing
    ● Performance reporting: Actual vs Baseline vs Target
    ● Evidence of success: Return on Investment (ROI)
  ● Early detection of poor performance
    ● Energy modeling
  ● Support for energy budgeting & forecasting
  ● A tool for achieving and maintaining a rating (ex: Energy Star, LEED)
  ● A tool for supporting the financial valuation of assets
PowerLogic ION EEM: Applications

- PowerLogic EEM supports:

  - Energy Conservation
  - Environmental Management
  - Operational Excellence
PowerLogic ION EEM: Energy Conservation

- Drive energy awareness and behavior
- Allocate energy usage and/or costs to Cost Centers/Customer
- Audit Utility bills
- Optimize energy procurement
- Identify, prioritize, justify, & audit energy savings projects
- Normalize, compare, and track energy usage, intensity, and costs
- Model, baseline, compare, and track equipment/process/plant/generation efficiency
- Forecast energy usage and costs
- Track actual usage vs budget vs target
Web Portal

- User/group security managed access
- Browser-based access, personalised dashboards
- Variety of data formats, integration of external web content
- “Drill-down” analysis
- Real-time content from PowerLogic ION Enterprise™ or PowerLogic System Manager™ software, or third-party systems
Reporting Engine

- Rich reporting features with graphics
- Generate billing, energy or power quality reports
- Zoom, search and export
- E-mail or HTML delivery, scheduled
- Custom report development from Schneider Electric services group
Trend Analysis

● Easy-to-use visualisation tools
● Applies business intelligence concepts to energy analysis
● Aggregates data from different sources
● Hierarchical views: cost centres, business units, buildings, etc.
● Reveals complex relationships between the influences on energy efficiency and cost
● Displays historical or predicted trends in different time dimensions
● Colour coding and overlays
● Reduces time series data to statistical rollups of information.
Cost Allocation module

- Accurately allocates energy costs by cost centre, department, production line or user-defined time periods, based on actual energy usage.
- Breaks out charges for each utility type.
- Simplifies the cost allocation process and ensures total utility costs are allocated.
- Adjusts for system losses and cases where the sum of sub-meters does not equal main meter.
- Makes cost allocation results available for trending, etc.
- Distributes reports via e-mail or web.
PowerLogic ION EEM: Environmental Management

- Environmental reporting
  - Greenhouse gases
  - Airborne pollutants
  - General waste
  - Process waste (ex: landfill, organic, recycling)

- Regulation compliance reporting
  - Boilers
  - Onsite generators
  - Industrial processes
Emissions Reporting

**Annual Output vs. Base Year Output**

**Total Emissions by Commodity**

**Monthly Emissions**

**Tuesday, January 01, 2008 – Wednesday, May 21, 2008**

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<th>Source Name</th>
<th>Total</th>
<th>Target Total</th>
<th>Target Variance</th>
<th>Base Year Total</th>
<th>Base Year Variance</th>
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<tr>
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<td>15,900.00</td>
<td>-310.00</td>
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</table>
Emissions Reporting

- Converts energy data into GHG emissions by applying CO2-equivalent (CO2e) factors
- Accurately reports on emissions from:
  - Direct sources: boilers, furnaces, vehicles, chemical production, etc.
  - Indirect sources: purchased electricity or steam
- Aggregates data from all business units
- Tracks success of reduction projects:
  - compares monthly CO2e to targets, base year
  - breaks down CO2e by commodity (fuel type)
- Compares different business units, regions, buildings, departments, etc.
PowerLogic ION EEM: Operational Excellence

- Identify, analyze, resolve, and track power quality issues that affect process/equipment reliability
- Identify, track, and minimize electrical losses
  - Current harmonics
  - Distribution
  - Power factor
- Capacity planning
- Equipment & infrastructure troubleshooting, preventative maintenance, & optimization
- Determine optimal run schedules for HVAC and generation equipment
Energy Modelling Module

- Models energy performance based on all relevant drivers
- Increases accuracy of:
  - benchmarking and comparison of facilities or processes
  - validation of savings against a baseline
  - forecasting of energy needs
- Regression and correlation*
- Normalises energy by weather, square footage, production volume, etc.
- Integrates relevant external data, e.g. equipment efficiency ratings, age, total/leasable space, occupancy, etc.
- Gauges dependencies and outcomes

* based on ASHRAE Guideline14, Measurement of
Bill Analysis module

- Inputs data for all commodity types (electricity, gas, water, etc.), combines with utility tariffs, generates business-relevant financial values
- Built-in rate engine with RateWizard™ accurately models and matches complex utility rate structures
- Validates utility bills
- Compares charges between or within organisations
- Runs ‘what-if’ scenarios to compare cost impacts of different tariffs
- Shares cost data with ERP or other applications
Power Quality module

- System-wide power quality and reliability analysis helps isolate problems
- Reports on international standards compliance (e.g. SARFI, EN50160, IEEE 1159)
- Trends performance over time
- Plots events against tolerance curves (ITI, CBEMA, SEMI-F47)
- Geographically maps events indicating age or severity
- Reduces data by visually categorising, classifying and correlating events with root causes
- Graphic waveform analysis with zooming, stacking and RMS overlays