StruxureWare Power Monitoring 7.2
Functions and characteristics

StruxureWare Power Monitoring dashboard (sample)

Dashboard - Energy Summary

Engineering Client Applications

StruxureWare Power Monitoring is an operations-level supervisory software that provides a complete power management solution for industry, large commercial and institutional buildings, data centres, healthcare facilities, and utilities. Engineering and management personnel can cut energy-related costs, avoid downtime, and optimise equipment operations by using the information provided by StruxureWare Power Monitoring software.

StruxureWare Power Monitoring also enables tracking of real-time power conditions, analysis of power quality and reliability, and quick response to alarms to avoid critical situations. The software forms a layer of energy intelligence across your facility, campus or service area, acting as a unified interface to all electrical and piped utilities.

Typical applications
StruxureWare Power Monitoring software has many applications:
■ Monitor the facility electrical network and verify reliable operation
■ Improve response to power-related events and restore operations quickly
■ Analyze and isolate the source of power quality problems
■ Analyze energy use to identify waste and reduce cost
■ Estimate utility bills to verify accuracy and identify errors
■ Allocate energy costs to departments to drive accountability and awareness
■ Reduce peak demand surcharges and power factor penalties
■ Idenfity excess capacity in existing infrastructure and avoid over-building
■ Support proactive maintenance to prolong asset life.

For electric utilities:
■ Improve T&D network reliability
■ Enhance substation automation
■ Maximise the use of existing infrastructure
■ Verify compliance with new power quality standards
■ Analyse and isolate the source of power quality problems
■ Help customers manage reliability using operational and power quality data.

Scalable, flexible architecture
Functional components
Provides operators with a rich environment to view and navigate real-time displays of measurements and status indicators; perform power quality and reliability analysis; historical trending; alarms; and manual control.
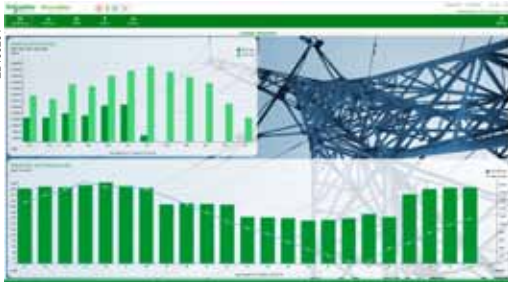
Web Clients
■ Reports - generate or edit historical reporst for energy cost, consumption, and power quality (requires Microsoft SQL Server Standard Edition)
■ Access power monitoring system from anywhere on your network using a web browser. Day-to-day functionality including system status, alarm response, or viewing dashboards. Web client provides authenticated access to common functions:
■ Diagrams – navigate network displays to check system status and analyze trends
■ Tables – quickly compare multiple devices in your network in real-time
■ Reports – generate or edit historical reports for energy cost, consumption, and power quality
■ Alarms – quickly identify alarm states in your system and investigate root causes
■ Dashboards – share information from your power monitoring system with any occupant.

Engineering Workstations
Client software to allow engineers and power users access to administrative and configuration functions of the software, and real-time display, control, and historical analysis functions. The Engineering Workstation includes:
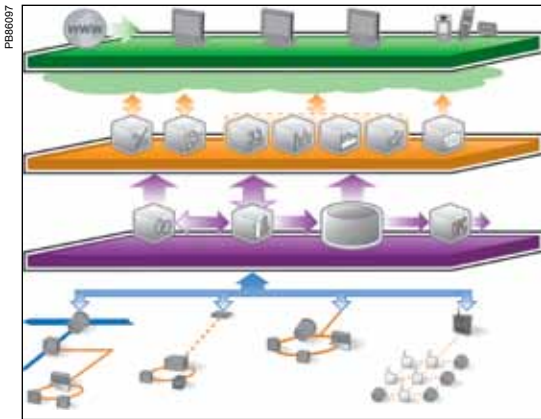■ Management Console – use this component to configure your StruxureWare Power Monitoring network, including communication paths, devices and logical groups
■ Vista – build and edit custom graphical displays to represent your facility. One-line diagrams, campus maps, equipment plan views and mimic diagrams can be created using Vista graphical objects and imported graphic files
■ Designer – use this interface to program ION devices and create system applications with ION Technology and Virtual ION Processors
■ Reporter - generate or edit historical reporst for energy cost, consumption, and power quality.

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*One Line example - **Diagrams***

*Equipment Status example - **Diagrams***

Scalable, flexible architecture (cont.)

Data acquisition and management
- Device Support Library
- Virtual ION Processor
- Site server
- SQL ODBC-compliant databases
- SQL Server 2008 R2. Log device data, system data and events with accurate meter synchronisation (+/- 16 ms or +/-1 ms using GPS) for precise event timestamping, power quality analysis and revenue billing. This data is accessible using industry-standard database tools and you can add distributed databases and servers for load balancing
- OPC DA Client (included) OPC DA Server (optional).

Functions

StruxureWare Power Monitoring offers a wide range of functions:

- Data acquisition and integration
- Real-time monitoring
- Trend analysis
- Power quality analysis
- Alarms and events
- Reporting
- Dashboards
- Manual and automated control
- Patented ION® technology.

Data acquisition and integration

Integrate WAGES (water, air, gas, electricity, steam) metering. Native, out-of-the-box support for dozens of devices (See Supported Devices section for details).

Enables access to real-time and timestamped historical meter data, control of on-board relays and digital outputs, and server time synchronization. Communicate over Internet, Ethernet, wireless. Interface with third-party meters, transducers, PLCs, RTUs and power distribution or mitigation equipment through Modbus or OPC. Add and configure direct communications with remote devices over Modbus RTU or Modbus TCP protocols using easy-to-use device templates.

Scalable platform enables remote device and user client addition as needs grow while maintaining original investment. Integrate other energy management or automation systems (e.g. SCADA, BAC, DCS, ERP) through ODBC, XML, OPC, email, FTP, CSV and PQDIF compliance; integrate with web services through XML.

Real-time monitoring

- View the status of your electrical network from any workstation
- See numeric values, status indicators, gauges, and trends, all with intuitive graphical navigation
- Extend comprehensive out-of-the-box displays and create custom graphical diagrams to represent your facility; one-line diagrams, campus maps, equipment plan views and mimic diagrams can be created using embedded graphical objects and imported graphic files
- Quickly compare multiple devices in your network in real-time in a tabular display
- Choose from a library of pre-built tables, or create your own. Save your favorites for quick access later.
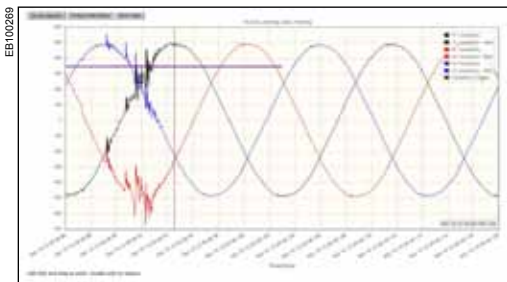
*The **Diagrams** web application allows users to easily view create trend plots and analyze historical data.*

*The **Diagrams** web application allows users to view and analyze waveforms captured by devices.*

Trend analysis
■ Trend any parameter to reveal demand peaks and track system-wide energy costs.
■ Graph any combination of measured parameters
■ Plot time-series or scatter charts
■ Perform calculations, obtain statistics, and display historical data
■ Identify dangerous trends and redistribute loads
■ Optimise network capacity and avoid over-building
■ View operating parameters and determine when maintenance is required
■ Avoid peak demand surcharges and power factor penalties.

Power quality analysis
■ StruxureWare Power Monitoring software allows continuous, wide-area monitoring and data capture for power quality and reliability conditions.
■ Power quality events automatically detected by PQ-capable metering devices are uploded to the system automatically. Analyze waveforms to determine source and cause of issue
■ Determine if power quality events are upstream or downstream (requires PowerLogic meter with Disturbance Direction Detection feature)
■ IEC 61000-4-30 and EN50160 compliance reporting verifies power quality performance to international standards and allows you to quickly review power quality indices as numeric charts or graphic profiles (requires PowerLogic meters that support compliance monitoring)
■ Display harmonic histograms, odd/even harmonics, THD, K-factor, crest factor, phasor diagrams, and symmetrical components
■ Plot waveforms of up to many seconds in duration, with overlays that correlate phase-to-phase relationships between voltages, currents, and cascading failures
■ Plot sags, swells, short duration transients and other disturbance events on industry-standard voltage tolerance curves, including ITIC (CBEMA) and SEMI
■ For any event, you can display a list of associated time-stamped incidents, then click on any incident to see more detailed information.

Alarms and events
StruxureWare Power Monitoring software allows you to receive alerts to outages or impending problems that could lead to equipment stress, failures, or downtime.

■ Quickly filter on active or unacknowledged alarms
■ Acknowledge alarms from anywhere in your facility
■ Trigger on complex conditions
■ Log all relevant data sequence of events for diagnosis
■ Flag & avert potential problems
■ Alert key personnel 24/7
■ Optimise maintenance scheduling.

Dashboards
■ Create engaging dashboard displays of your power monitoring system information and easily share information with anyone in your facility
■ Make power monitoring information visible and engaging
■ Promote education and drive behaviour
■ Display as an interactive kiosk, on a corporate intranet, or as a slideshow on a large wall-mounted display
■ Replace hard to maintain home-grown portals and dashboards
■ Chart or trend any quantity in your power monitoring database
■ Simple conversions into other units (e.g. dollars, emissions, normalizations, etc.)
■ Compare multiple time-ranges
■ Show impact of temperature, occupancy, or production values on energy usage
■ Add eye-catching backgrounds to enhance presentation value
■ User authentication for configuration, and both authenticated and unauthenticated modes available for display.

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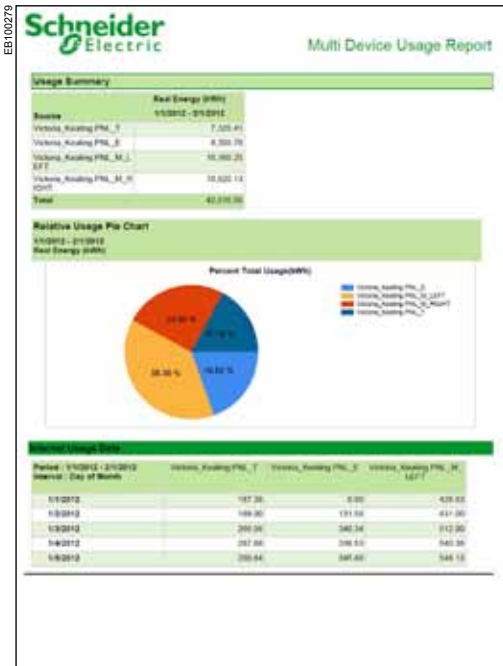
*The **Reports** web application provides many different report templates to allow users to easily display and deliver the information they need .*
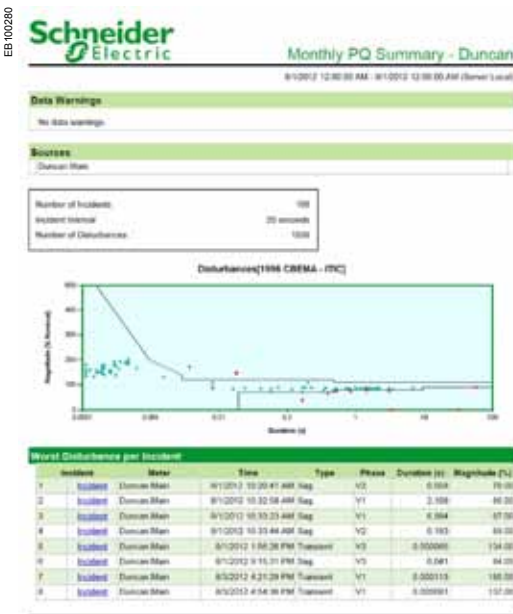
*Power Quality Summary Report example - **Reports***

Reporting

■ The powerful, intuitive reporting options let users see critical information exactly how, where, and when they need it

■ Reports can be generated manually and saved as Excel, HTML and other formats or scheduled to automatically distribute to a printer or via email

■ There are two different report engines that may be used (Reporter and web-based Reports). See the table below to compare their features.

Feature Set	SPM7 Reporter	SPM7 Web Reporter
Energy Cost Management		
Energy and Demand	■	■
Load Profile	■	■
Multi-Device Energy Usage	-	■
Energy Usage by Shift	-	■
Single Device Energy Usage	-	■
Network Management		
Power Quality	■	■
EN50160 Compliance	■	■
IEC-61000-4-30 10 Mins	■	■
IEC-61000-4-30 2 Hours	■	■
IEC-61000-4-30 3 Secs	■	■
100ms Report	-	■
Alarm History	-	■
Generic Reports		
Generic data query	■	-
Tabular Report	-	■
Trend Report	-	■
Feature Set		
Excel 2003 support	■	■
Excel 2007 support	■	■
Excel 2010 support	■	■
Export to Excel	■	■
Export to PDF	-	■
Export to HTML	■	■
Export to XML	-	■
Email	■	■
Print	■	■
Run on a Schedule	■	■
Run on Alarm	-	■
Accessible via Web Browser	-	■
Report Configuration Save	■	■
Report Edit	■	■
Custom Reports	■	■
Data Validation	■	-
TOU	■	■
User Administration	-	■
Translatable Reports	■	■

Campus map example - Diagrams

Manual and automated control
■ Perform fast, manual control operations by clicking on-screen trigger buttons, and operate remote breakers, relays, and other power distribution and mitigation equipment
■ Perform manual or setpoint-triggered functions
■ Coordinate control of multiple loads, generators, relays, etc.
■ Support energy-saving applications
■ Manage distributed energy assets
■ Automate substations & reduce service time.

Interoperability
■ Integrate all energy management and automation systems (SCADA, BAC, DCS, ERP, etc.)
■ Share data with third-party SCADA, automation, and accounting systems
■ Comply with ODBC, OPC, and PQDIF standards

Patented ION technology
StruxureWare Power Monitoring software and a variety of PowerLogic ION metering products feature the unique ION architecture. This modular, flexible architecture offers extensive customisation of functionality using a simple .building block. approach. The technology uniquely addresses advanced monitoring and control applications and adapts to changing needs, avoiding obsolescence.

Software is available in English, French, Spanish, German, and Chinese. Other languages may be available - contact your Schneider Electric representative.

Part numbers*		
New systems & add-ons	**IE7PME72DVD**	Power Monitoring Expert BASE software with Trial Licence - DVD Media
	IE7SPNCZZSPEZZ[1]	Power Monitoring Expert Primary Server Licence
	IE7SSNCZZSPEZZ[1]	Power Monitoring Expert Secondary Server Licence. For very large systems only , consult the PME 7.2 System Design Guide.
	IE7CZNCZZSPEZZ[3]	Unlimited Client Licence – Access to all Engineering and Web client applications for unlimited users, public displays or internet hosting
	IE7CENCZZNPEZZ[2]	Engineering Client Licence - Management Console, Vista, Designer One licence per user.
	IE7CWNCZZNPEZZ[2]	Web Client Licence -Dashboards, Diagrams, Tables, Alarms, Reports. One licence per user.
	IE7DZNCZZSPEZZ[3]	Unlimited Devices Licence. Compatible with all device types..
	IE7DSNCZZNPEZZ[1]	Individual Device Licence for High-End Device. Compatible with all device types.
	IE7DMNCZZNPEZZ[1]	Individual Device Licence for Mid-Range Device. Compatible with Mid-Range or Entry-Range devices types .
	IE7DENCZZNPEZZ[1]	Individual Device Licence for Entry-Range Device. Compatible with Entry-Range device types only.
	IE7SQL2008R2	SQL Server 2008 R2 Standard Edition CPU Processor Licence (Runtime). For use with a StruxureWare Power Monitoring Expert system only.
	IE7SONCZZSPEZZ	OPC DA Server Licence for Power Monitoring Expert system.
Upgrades from earlier versions	**IE7PME72DVD**	Power Monitoring Expert BASE software with Trial Licence - DVD Media
	IE7SPUCZZSPEZZ[4]	Power Monitoring Expert Primary Server Licence UPGRADE
	IE7SSUCZZSPEZZ	Power Monitoring Expert Secondary Server Licence UPGRADE. For very large systems only, consult the PME 7.2 System Design Guide.
	IE7CZUCZZSPEZZ[3]	Unlimited Client Licence UPGRADE - Access to all Engineering and Web client applications for unlimited users, public displays or internet hosting.
	IE7CEUCZZNPEZZ[2]	Engineering Client Licence UPGRADE - Management Console, Vista, Designer. One licence per user.
	IE7CWUCZZNPEZZ[2]	Web Client Licence UPGRADE -Dashboards, Diagrams, Tables, Alarms, Reports. One licence per user.
	IE7DZUCZZSPEZZ[2]	Unlimited Devices Licence UPGRADE. Compatible with all device types.
	IE7DSUCZZNPEZZ[3]	Individual Device Licence for High-End Device UPGRADE. Compatible with all device types.
	IE7DMUCZZNPEZZ[1]	Individual Device Licence for Mid-Range Device UPGRADE. Compatible with Mid-Range or Entry-Range devices types.
	IE7DEUCZZNPEZZ[1]	Individual Device Licence for Entry-Range Device UPGRADE. Compatible with Entry-Range device types only.
	IE7SQL2008R2	SQL Server 2008 R2 Standard Edition CPU Processor Licence (Runtime). For use with a StruxureWare Power Monitoring Expert system only.
	IE7SONCZZSPEZZ	OPC DA Server Licence for Power Monitoring Expert system.
Technical documentation	**CD-TECHDOC**	Latest version of technical documentation for StruxureWare Power Monitoring

(1) An appropriate device licence (DL-S, DL-M, DL-E) is required for each device added to your system in Management Console. A minimum order value may apply.
(2) Each user of the system must have an appropriate Client Licence. An Engineering Client Licence permits access to Management Console, Vista, Designer, Reporter and the Web applications. This includes remote access through Terminal Services or other methods. A Web Client licence only permits access to web applications - Dashboards, Diagrams, Tables, Alarms, Reports. Contact your sales representative for more information.
(3) An Unlimited Client Licence provides access to all software applications (including Management Console, Vista, Designer, Reporter, Dashboards, Diagrams, Tables, Alarms, Reports) for an unlimited number of users. This type of Client License is required when accounting for individual users is not possible (applications available in public areas, internet hosting, etc). Engineering Client or Web Client Licenses are not required when an Unlimited Client License is in place. Please note that performance limitations of your installation may affect the practical number of concurrent users.
(4) Upgrade part numbers apply to PowerLogic ION Enterprise 5.6 and later, and PowerLogic SMS v4.x. Technical upgrades from earlier versions may be possible - contact your sales representative for more information.
* Please consult a Schneider Electric sales representative for full pricing and part numbers information.

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Features	Included	Optional
Dashboards	■	-
Diagrams	■	-
Tables	■	-
Alarms	■	-
Reports*	■	-
Modbus Device Importer	■	-
Designer	■	-
EGX300 Log File Importer	■	-
SQL Server 2008 R2 Express Edition	■	-
SQL Server 2008 R2 Standard Edition	-	■
OPC client	■	-
OPC server	-	■

Minimum system requirements
Please consult your local Schneider Electric representative for complete system requirements and commissioning information for StruxureWare Power Monitoring.
*__Note:__ There are two different report engines that may be used: Reporter and web-based Reports. The Reporter application is always available as an Engineering Client tool. The web-based Reports feature is only available when the system has been installed using **SQL Server Standard Edition**.*

Supported devices

PowerLogic power and energy meters:
■ ION8800 Series
■ ION8650 Series
■ ION7650/7550
■ ION7550RTU
■ ION6200
■ PM5350
■ PM3000 Series (PM3250, PM3255)
■ PM1200
■ PM800 Series (PM810, PM820, PM850, PM870)
■ PM700 Series (PM710, PM750)
■ PM600 Series (PM600, PM620, PM650)
■ PM210
■ PM9C
■ DM6200
■ DM6300
■ EM1200
■ EM5600
■ iEM3000 Series (iEM3150, iEM3155, iEM3250, iEM3255)
■ EM1200 Series

PowerLogic circuit monitors:
■ CM2000 Series (CM2050, CM2150, CM2250, CM2350, CM2450)
■ CM3000 Series (CM3250, CM3350)
■ CM4000 Series (CM4150, CM4250, CM4000T).

PowerLogic branch circuit power meters:
■ BCPM (A, B, C models).

Circuit breaker trip units
■ Micrologic A, E, P and H devices
■ Micrologic Compact NSX Type A and Type E.

Protective relays
■ Sepam Series 10, 20, 40, 48, 80.

Insulation monitors
■ Vigilohm IM20.

Power Measurement power and energy meters:
■ ION8000 Series (ION8300, ION8400, ION8500, ION8600,)
■ ION7000 Series (ION7500, ION7600, ION7700)
■ ION7500RTU
■ ION7300 Series (ION7300, ION7330, ION7350)
■ ACM3000 Series (ACM3300 , ACM3710, ACM3720).

PLCs for WAGES applications
■ Modicon Momentum M1 - TR (A8, D10, D16)
■ Twido Modular PLC (D12,D28, D44).

Communications Interfaces
■ Acti9 Smartlink.

"Limited Edition" (LE) drivers available for download from website
■ Modbus-compatible devices
■ Other devices through OPC.