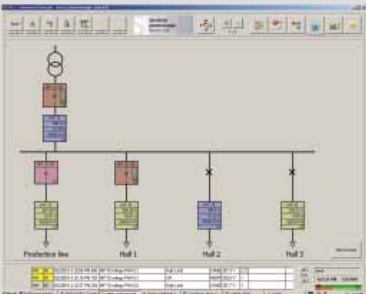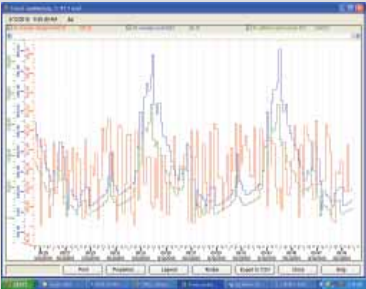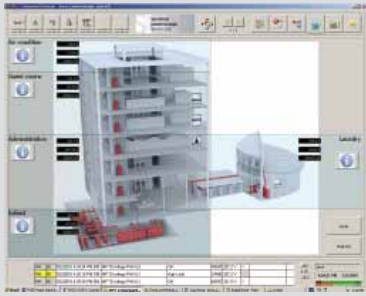# SENTRON Powermanager

Identifying hidden potential for energy optimization and savings

SENTRON Powermanager™ software, combined with Siemens power meters and low voltage protective devices, provides a complete energy management solution for your business. It allows you to measure, process, analyze, store and share energy usage and status information across your entire enterprise. It offers control capabilities, comprehensive energy usage and reliability, and detailed reporting that will help you reduce energy related costs.

SENTRON Powermanager allows you to manage all your intelligent devices and analyze the data, allowing you to identify hidden potentials for energy optimization and overall savings.

Its cutting edge flexibility and compatibility means you can add one piece at a time, at your own pace, while still maintaining your original investments. Additionally, the scalability lets you start with an easy to configure, low investment sub-metering solution which can be extended to an enterprise wide power management system later.

Highlights

- **Cost allocation and sub-billing:** Track energy related costs by building, feeder, or individual machines. Match virtually any billing structure and use comprehensive multi-year scheduling and time of use activity profiles to report and document the energy savings!

- **Load studies and asset management:** Trend power usage data to take full advantage of your electrical distribution system capacity and avoid over design or unnecessary expansion. Create usage profiles so you can distribute loads and avoid demand peaks.

- **Equipment monitoring and control:** Meter all your utilities including gas, steam, air and water. Set up alarms for real time pending problems and predictive alarming of impending or imminent conditions. Interface with other energy management and SCADA systems through multiple communication channels and protocols.

- **Energy usage analysis made easy:** Utilize the comprehensive reports, variable trend tool and customized graphics to analyze energy consumption to identify potential areas for energy and cost savings.

- **Low startup cost:** Minimum engineering expenditure is required for startup, thanks to the comprehensive built-in devices drivers and screens

- **Web access:** Monitor and analyze energy usage from anywhere with direct web access to any screen.

SENTRON Powermanager

Answers for industry.

SIEMENS

Power and energy flows become visible and controllable

Overview

SENTRON Powermanager software and intelligent electronic devices

The SENTRON Power Management system is designed to support many different applications utilizing a standard PC or server while communicating to the metering devices serially or over a standard Ethernet LAN / WAN network. General benefits of a power management system: To identify savings potential, to reduce power costs and to ensure power availability.

SENTRON Powermanager provides a comprehensive view of the existing power and energy conditions and protective device status. Detailed analysis of reports can be performed to identify waste. Control functions of the software or from ties to other supervisory systems then can be used to act to control the cost. Controlling energy cost can be a significant factor in a business' competitiveness in the market.

The SENTRON powermanager software:
- is available in a stand-alone or LAN/WAN based configuration that can also exchange information with other supervisory systems like building automation software
- can utilize any Ethernet or serial based connections
- is expandable from the basic monitoring application to a fully customized enterprise management system
- is fully scalable with regard to the connected devices and to the software's function to meet current and future needs
- ensures the seamless integration of power monitoring devices from the Siemens SENTRON PAC series meters and SENTRON WL/VL circuit breakers as well as other Modbus communicating devices
- is designed to collect, archive, monitor, display and evaluate any kind of energy related device data
- provides web based reporting and detailed graphics construction utilities as standard

Benefits
- Visibility and control of power flows
- Exact knowledge of the consumption profile
- Increase of energy efficiency
- Optimization of power supply contracts
- Compliance with contractual terms or regulations
- Allocation of costs to individual cost centers
- Optimization of plant maintenance
- Identification of critical systems conditions

The Siemens power meter and low voltage protection devices are seamlessly integrated in the SENTRON Powermanager software. Energy data acquisition can take place without any complicated configuration effort and the most important measured values or states are indicated with predefined screens. This reduces the engineering expenditures for the customer and gives the user the assurance of knowing that the device functions are optimally supported in the software at the time of startup.

See status information of entire power distribution system at a glance
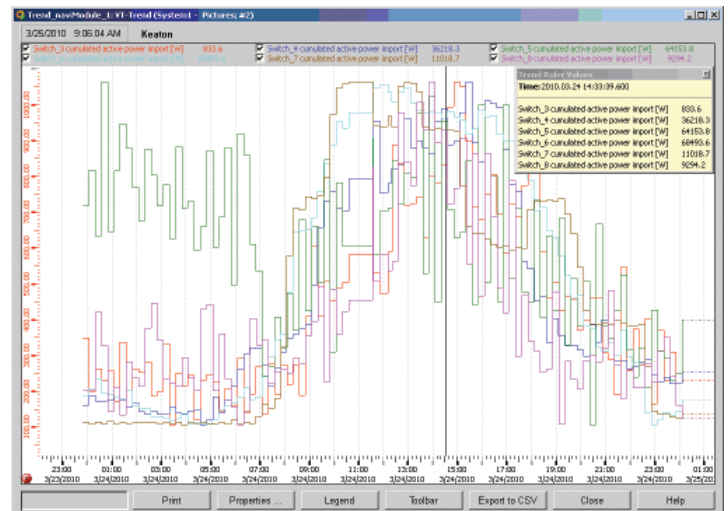
Discover unusual energy patterns

A power management system that can be customized to your needs

License Structure: The table below shows the type of package and the number of devices included in each license.

Licenses	Valid	Number of devices	Number of standard windows clients	Feature package "Web" number of standard web clients	Feature package "Expert"	OPC Server/client
Trial	30 Days	Up to 10	1	10	Yes	Yes server/client
Lean	unlimited	Up to 10	1	0	No	Yes server
Lean Plus	unlimited	Up to 10	1	10	Yes	Yes server/client
Standard Plus	unlimited	Up to 50	1	10	Yes	Yes server/client
Advanced Plus	unlimited	Up to 100	1	10	Yes	Yes server/client
Maximum Plus	unlimited	Up to 200	1	10	Yes	Yes server/client

Scalable

The SENTRON Powermanager system provides a scalable solution that starts with the basic functionality of the "Lean" package. This easy to use package provides basic status and energy monitoring, logging, trending and alarming. Additional functionality can be added by upgrading to the "Lean Plus," "Standard Plus," "Advanced Plus" or "Maximum Plus" packages. All upgrades require only a simple download of a key without the removal of the existing software.

The "Lean Plus", "Standard Plus," "Advanced Plus" license packages are ordered based on the number of devices attached to the software. The scalable packages come in 10, 50, 100 and 200 device licenses. Each "Plus" license version also includes the "Expert" and "Web" feature package.

The **"Expert" feature package** provides the user with an easy to use graphic configuration tool that allows designing of custom interactive graphic screens like one-lines, elevations, floor plans and more. Object animation to events or status changes, real time data displays all linked by hyper link buttons can be designed by the end user. In addition the user can define his own devices using a device editor, which is included in the package, and integrate them in the system.
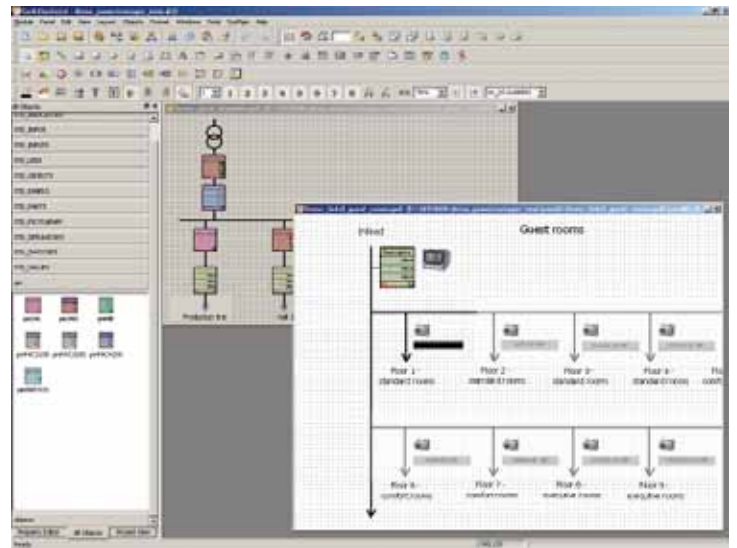
The user even has the possibility of creating their own runtime scripts to execute special functions like applying animation to objects, e.g. blinking, color change, appear or disappear. Existing data and configurations can still be used after upgrading.

The **"Web" feature package** is included in all "Plus" license packages and provides the user with all the features of the standard windows client in a web HTML format. This gives the user the ability to monitor, analyze and take actions (based on user rights) in a standard web browser screen with no software loaded on the computer from any computer with a Web connection.

SENTRON Powermanager comprises a web-based server/client software approach for the acquisition, processing, presentation and archiving of energy data. Every software license contains a data server license and a Windows client license. More than one Windows clients can be used as a separate power management station. Additional Windows clients can be added to the software as an option allowing full functionality at multiple locations.

Create your own diagrams, objects and device types with the Expert tool

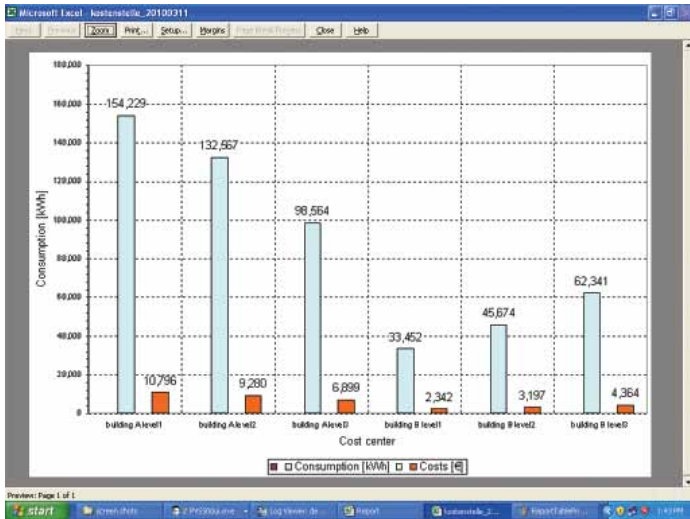Simple one line diagram displaying low voltage system information

These "Expert" and "Web" features have been designed to help you visualize the status of the entire power distribution system.

3

Powerful tools to analyze your energy consumption

Customer Benefits

Cost allocation and sub-billing reports

Cost allocation and sub-billing functionality in the SENTRON Powermanager software allows the user to track energy related costs by building, floor, tenant, feeder or location. Match virtually any fixed rate billing structure and use comprehensive multi-year scheduling and time-of-use features to manage the energy costs.

Cost center report graph

Cost center overview table per utility

Load studies and asset management

Trend power usage data to take full advantage of your electrical distribution system capacity and avoid over-design. Create usage profiles that will allow you to distribute loads and avoid demand peak which helps to identify energy leaks such as equipment running during down time.

Equipment monitoring and control

SENTRON Powermanager allows you to meter all your utilities including gas, steam, air and water and set up general condition alarming and pre-event alarms for impending or imminent conditions. Interface with other energy management and SCADA systems through multiple communication channels and protocols like OPC.

Reports

Standard reports provide models of daily electricity usage so you can distribute loads and avoid demand peaks. This enables you to allocate energy consumption and/or costs to individual areas and identify expensive processes that need attention. The historic trending report compiles data from load circuits over a users predefined period. This enables the user to fully utilize the power distribution system and run at near rated tolerances.

Feature summary

Monitoring

Breaker/system status indicators – Display the current status of breakers, motors or any device. See a feeder change color to indicate overload. Watch a breaker status change when you press the open/close button.

Control – Perform remote operation from the Windows client or Web client e.g. remote control of a breaker or reset of power meter device data. All control features are user defined with password verification.

Reports – Standard and custom SENTRON Powermanager reports can be generated using an easy to use report wizard interface. The reports can be generated in a Microsoft Excel or HTML format and can be e-mailed, saved or printed out automatically. Aggregate Energy and Demand (billing), Load Profiles and a SQL query are standard pre-defined reports included with the software.

Display the status of your power distribution system

Take advantage of default graphics
Speed up your system configuration with default screens. Immediate access to all meters is just a few mouse clicks away with the "PM Explorer Start Page": pick your meter, assign an IP address and immediately see data in the predefined views. Predefined data representation helps users examine standard power management data as well as more sophisticated data like odd/even harmonics, and THD.
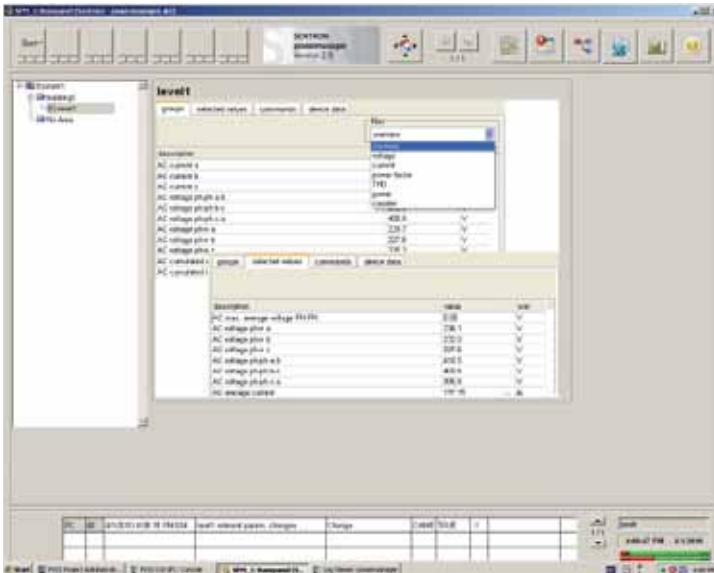

Basic PAC metering table view
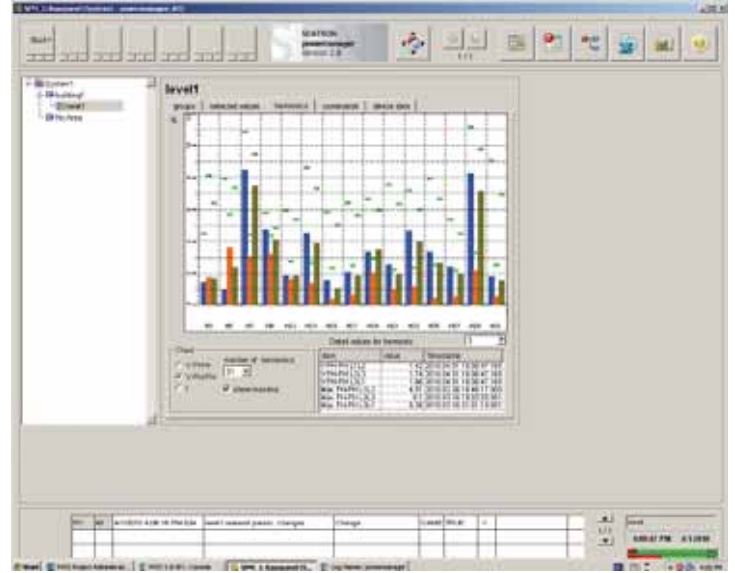
View power quality data in the standard PAC 4200 screen

Generate trend graphs
The Variable Trend tool allows you to view and interpret a mixture of historic and instantaneous data. You can watch the KW load change over a month, a week, or during production shifts. The tool also allows you to get a closer look using the versatile zoom functions, add or remove values at your need and export viewed data to a CSV file.

The Variable Trend tool allows a user to compare energy consumption of different buildings or different machines at the same time i.e.: last month, last week or last year. This tool also allows a user to view one specific value over time. For example, a motor current that is rising over time, could indicate a need for maintenance that would prevent downtime and costly repairs or replacement.

The advanced features of the Variable Trend tool allows a user to add a second time period. This makes it very convenient and easy to compare one or multiple values over 2 time periods. For example, to compare energy consumption this week to energy consumption of the previous week.
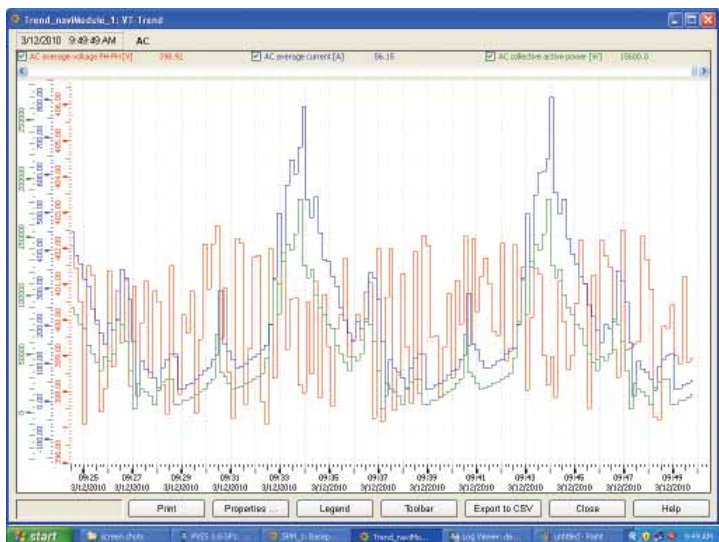
Variable trend tool – One value over two time periods
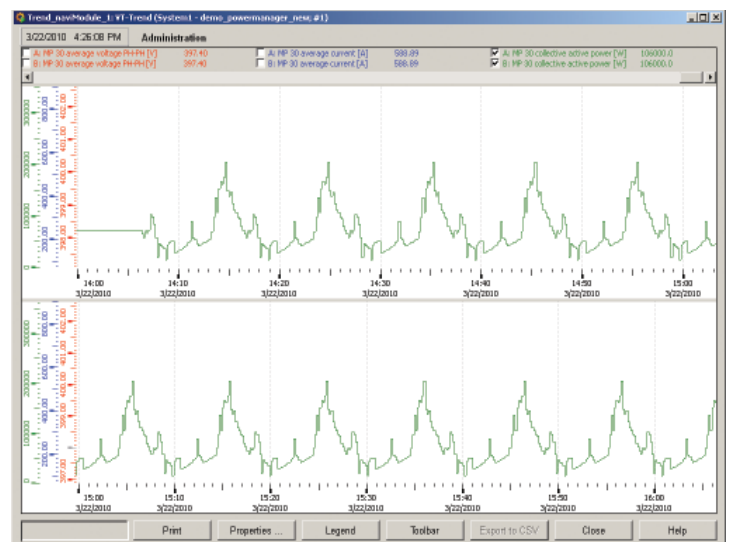
Variable trend tool – Multiple values over one time periods

View and control your facilities' infrastructure condition from anywhere

"Expert" feature package: Customized graphics
Graphical tools in the SENTRON Powermanager "Expert" feature package help create custom graphics for:
- an overview of the power distribution system status for the entire facility or just selected locations
- specific alarm conditions e.g. to alert the operator of unusual load circumstances
- status indicators of 3rd party devices like transformers, generators etc.
- control triggers
- Powerful math, logic and control functions used to aggregate data from multiple sources, analyze it and initiates coordinated actions based on the results. Perfect for demand control and cost allocation.

Plan overview provides energy usage per building

"Web" feature package: Web client access
Your web browser is now a window to the power management system. Web clients provide the same functionality as a full client, even with control ability. Use any computer's standard web browser to display the SENTRON Powermanager graphics, logged data, real time data, alarms, trends without any software loaded on the computer. Windows client functionality is required to create, change or schedule reports.

Database management
All data is captured in SENTRON Powermanager's high performance database thus avoiding any additional database development investment. The software comes with OPC DA Server and Client as well as OPC AE.

Multi-language support
The SENTRON Powermanager supports English and German as standard. The graphical user interface can be operated in different languages even in one project simultaneously. Additional languages can be imported using a tool to support international locations.
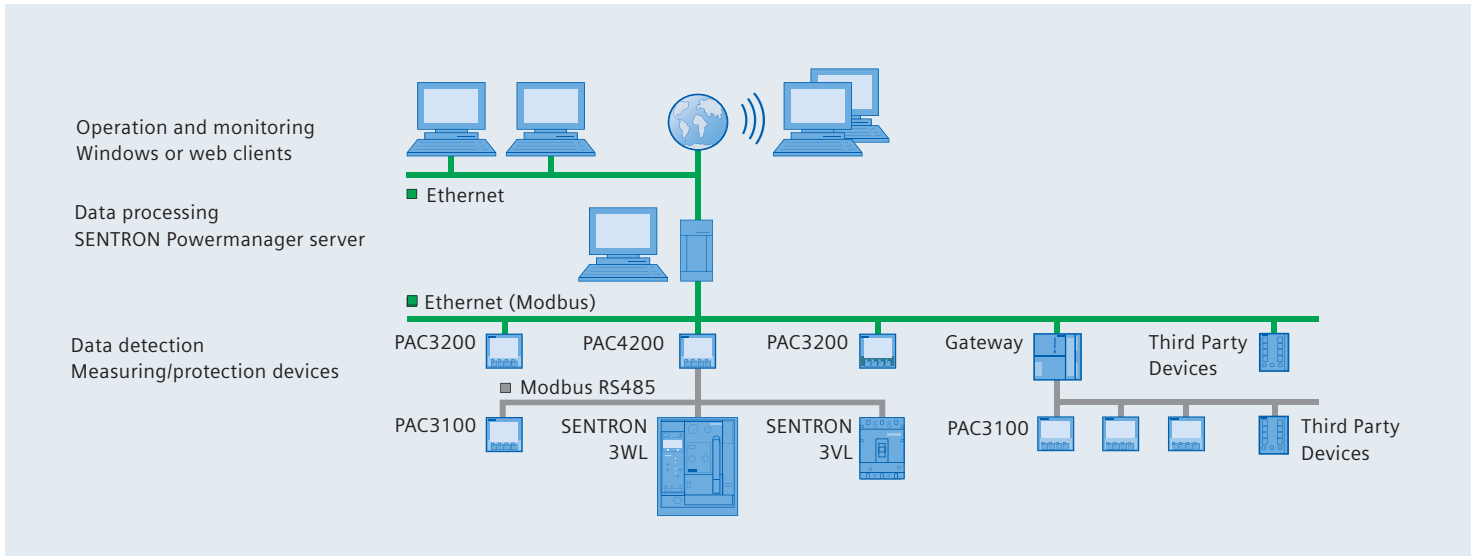
User administration
User access can be assigned to multiple groups and up to 32 different security levels. Several special functions e.g. password aging and auto logout are used to create a highly sophisticated access security system.
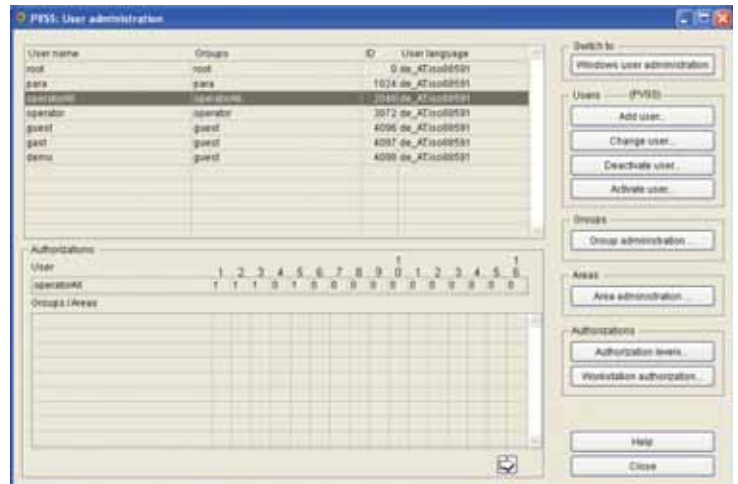
Sophisticated user administration tool

Flexibility allows the system to be adjusted to your needs

System architecture

System configuration

- Integration of devices with predefined device templates for the SENTRON PAC™ family and the SENTRON 3WL/3VL circuit breakers
- Easy integration of existing Modbus devices
- Communication through Standard Ethernet
- Integration of devices with RS485 interface (Modbus RTU) through Modbus gateway, e.g. the SENTRON PAC4200 can be used as a gateway

System requirements

Hardware requirements

- Processor: Intel® Pentium® IV 2.8 Ghz (or better)
- RAM: At least 2 GB
- Hard disk: At least 1 GB free
- Graphics: VGA with at least 1280 x 1024 pixels and 16-bit color intensity

Supported operating systems

- Windows Vista Business®, Ultimate; SP1
- Windows XP®; CP with SP2/SP3
- Windows 2003®: Server 2003 (32-bit)
- Windows 2008®: Server 2008 server (32-bit)

Supported Excel versions (required for reporting)

- Excel® 2000, Excel XP, Excel 2007, Excel 2003

Network connectivity

Ethernet connectivity

A SENTRON Powermanager system can be deployed on any standard Ethernet TCP/IP network for fast transmission of data from any Ethernet device tied to the network. These devices can be locally or remotely connected using the plant's WAN network. Using the existing Ethernet network provides efficient use of resources and allows visibility to the system by anyone on the network though their computer's Internet Explorer screen.

Gateway connectivity

The gateway ability of the Siemens meters allows a user to connect multiple serial devices on one RS485 daisy-chain communications wire to the Ethernet by using one meter as the gateway or RS485 to Ethernet converter. This allows the SENTRON Powermanager software to communicate to multiple devices using one IP address. This ability reduces the amount of IP addresses required by the system, thus reducing server space requirements.

Modbus device support

SENTRON Powermanager can read data from any third party Modbus RTU or Modbus TCP device.

Data acquisition

- Gather data via Ethernet or serial links using the gateway functionality of a meter or another device
- Store historic and event data in a database
- Integrate metering of electricity, gas, water, steam, air, and more
- Interface to third party hardware and software through Modbus RTU, Modbus TCP, Ethernet, OPC AE and DA

Ordering option

SENTRON Powermanager is available in packages designed to meet almost any system or budget. It can be licensed to support either a few devices or many hundreds of devices, and can present the information to as many users as required. The feature packages "Web" and "Expert" are included in every "Plus" license. Additional Windows client copies can be purchased separately.

SENTRON Powermanager V 2.0	Part Number
• **Trial license** 10 devices, includes feature packages "Expert" and "Web" product full license limited to 30 days	3ZS27110CC200YA7
• **Product license Lean** 10 devices	3ZS27110CC200YA0
• **Product license Lean Plus** 10 devices includes feature packages "Expert" and "Web"	3ZS27118CC200YA0
• **Product license Standard Plus** 50 devices includes feature packages "Expert" and "Web"	3ZS27128CC200YA0
• **Product license Advanced Plus** 100 devices includes feature packages "Expert" and "Web"	3ZS27138CC200YA0
• **Product license Maximum Plus** 200 devices includes feature packages "Expert" and "Web"	3ZS27148CC200YA0
• **Upgrade license** from Lean Plus to Standard Plus	3ZS27120CC200YD0
• **Upgrade license** from Standard Plus to Advanced Plus	3ZS27130CC200YD0
• **Upgrade license** from Advanced Plus to Maximum Plus	3ZS27140CC200YD0
• **Windows Client <= 5** Expansion up to 5 total clients	3ZS27103CC200YH0
• **Windows Client <=10** Expansion from 5 to 10 clients Requirement: Windows Client <=5	3ZS27104CC200YH0

Price advantages through system packages

SENTRON Powermanager with SENTRON PAC3200
Contains one SENTRON Powermanager product license Lean
(3ZS27110CC200YA0) and, depending on the package, three
or five or ten units of SENTRON PAC3200 (7KM21120BA003AA0)

• SENTRON Powermanager System3	**3ZS28132CC200YA0**
• SENTRON Powermanager System5	**3ZS28152CC200YA0**
• SENTRON Powermanager System10	**3ZS28172CC200YA0**