

WinPM.Net power monitoring

Digital Dashboard and enhanced web applications energy management software

itrol

siemens.ca/powerdistribution

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WinPM.Net

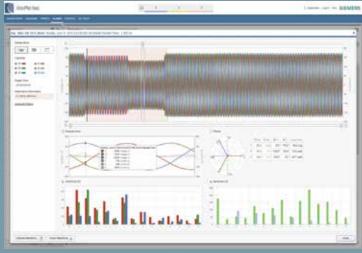
New! Digital Dashboard with an enhanced web-enabled energy management software

A complete energy information management solution for your business allowing you to process, analyze, store and share energy usage and power quality data across your entire enterprise. It offers control capabilities, comprehensive power quality and reliability analysis and can help you reduce energy-related costs. Power is critical to your operations. Disruptions impact productivity and safety. Wasted energy and equipment failures affect your bottom line. Grid systems are also becoming more dynamic, and regulations more challenging. You need a way to reveal hidden risk and new opportunities. WinPM.Net software simplifies management of a complex power system and allows you to manage intelligent metering and protective devices, analyze data, and decide on new courses of action to help you save money and keep your business up and running.

WinPM.Net takes full advantage of connectivity and distributed intelligence to help maximize your up time and operational efficiency:

- Smart events and alarm clustering for intuitive filtering, searching, and categorization of events and alarms
- Graphical time lines easily analyze event and alarm sequence, location and potential impact
- Advanced energy visualization analysis tools calculate, model, forecast, and track energy performance indicators
- Compliant with IEC62443 cybersecurity standards, for even the most demanding IT environments
- Interface to your existing systems through industry standard protocols and choose newer components as they become available

Application summary



New! PQ Incident summary report and Power Quality Event analysis pinpoint the sources of transients, harmonics, sags, swells, and disturbance direction detection – whether external or internal to your facility – and decide on the right corrective actions. By monitoring circuits 24 hours a day, you can develop strategies to avoid interruptions.

New! Power Quality Event Analysis

Access information from any workstation or smart device, locally or around the world

Features summary

Web Client

The Web Clients allow authenticated access to WinPM.Net information using standard web browsers like Explorer, Chrome, iOs and more. Key uses include; real-time energy monitoring, alarm management, system status, and an extensive array of reports and reporting tools. No control is allowed in the Web clients. Additional features include:

- New! Dashboards Allows you to customize, real-time monitoring using Smart dashboards to share information with your external stake holders and display any parameter in your power network
- Diagrams Navigate network displays to check system status and analyze trends
- Tables Promptly evaluate and compare multiple devices in your network in real-time
- Trends Allows you to monitor current system conditions by displaying real-time data in a graphical format

- Reports Generate or edit historical reports for energy cost, consumption, and power quality
- Enhanced Alarm Notifications–
 Promptly identify alarm states in your system and investigate root causes

Cost allocation and sub-billing

Track energy-related costs by building, feeder, or tool. Match virtually any billing structure and use comprehensive multiyear scheduling and time-of-use activity profiles.

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 so you can distribute loads and avoid demand peak.

Demand and power factor control

Eliminate penalties through automated power factor correction, load shedding, or peak shaving.

Equipment monitoring and control

Meter all your utilities including gas, steam, air and water. Set up alarms for pending problems, pre-alarm on impending or imminent conditions. Interface with other energy management, SCADA or Building Management systems directly from the WinPM.Net screens using various communication channels and protocols.

Preventative maintenance

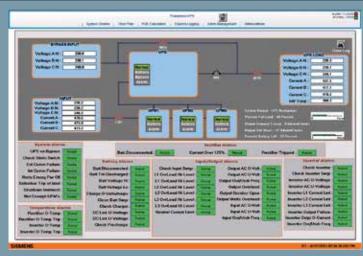
Base your maintenance schedule on actual operating history.

Data acquisition

- Gather data via the internet, serial, modem, or Ethernet links
- Store historic and event data in a networked "SQL" database
- Integrate metering of electricity, gas, water, steam, air, and more
- Interface to third party hardware and software through Modbus RTU, Modbus TCP, SNMP, XML, ODBC, OPC Server, OPC Client, and Web Services

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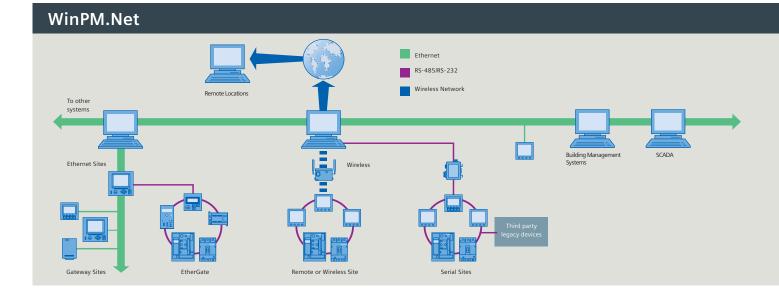
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WinPM.Net Custom UPS Realtime and Alarm Screen

WinPM.Net Custom Data Center Floor Plan Screen

WinPM.Net — customizable graphics screen



Monitoring

- Use your computers standard web browser to display the WinPM.Net graphics, logged data, real-time data, alarms, trends without any software loaded on the computer
- Customize graphics for alarms, status indicators, control triggers, and facility views
- Examine waveform overlays, odd/ even harmonics, THD, K-factor, crest factor, vector diagrams, and symmetrical components
- Receive alarms via e-mail, cell phone, PDA or other wireless devices

Modbus device support

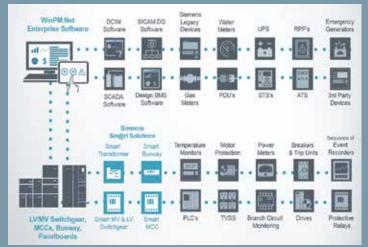
- WinPM.Net can read data from any third party Modbus/RTU or Modbus TCP device
- Integrate devices from many major manufacturers

Analysis

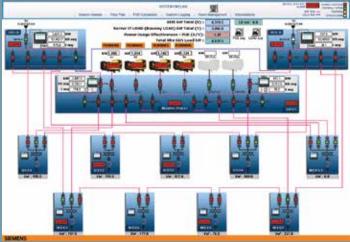
- Generate power quality, energy, billing and load profile reports based on events or schedules
- Correlate and categorize sequences of events to within one millisecond
- Analyze disturbances by plotting waveforms, and ITIC (CBEMA) curves

Control

- Initiate setpoint and event driven control schemes from multiple devices
- Automatically perform load shedding, generator startup, or relay control
- Implement distributed control in response to interruptible rates or real-time pricing
- Password protected breaker remote control operation



Digitally Integrated products in WinPM.Net software



Custom One-line Diagram

WinPM.Net standard components include

Custom graphical interface

WinPM.Net provides a comprehensive graphics utility as standard to build and edit any graphical screen whether it is a standard screen or a customized one. All screens are viewable through the Engineering Client as well as the Web Client. These custom screens can display real-time and historical data, alarms, status indications, meter, relay and third party equipment information.



Third Party UPS Screen



Custom Gear Elevation Diagram

Powerful math, logic and control

Aggregates data from multiple sources, analyzes it and initiates coordinated actions based on the results. Perfect for demand control, cost allocation, and power quality.

Enhanced Alarm Configuration

The Alarm Configuration application allows you to configure software alarms for multiple sources and measurements. Each alarm configuration is represented as an Alarm Rule. The rule includes a threshold value, pickup and dropout delays, an update rate, and the alarm priority.

Reporting tools

Produces load and energy profile, (per shift or period over period comparison) cost allocation, power quality, EN50160 and IEC61000-4-30 compliance, IEEE519 Harmonics compliance and custom reports in Excel, PDF and TIFF formats as standard.

Device configuration

Lets you graphically configure and customize devices and WinPM.Net across your network.

Database management

Installed with WinPM.Net is an SQL Express ODBC compliant database that allows immediate logging of data up to 10 GB in size. Larger systems can utilize a full SQL database for long term data storage if required. Logged data is time stamped to +/- 1 ms with accurate meter synchronization accuracy can be achieved using GPS. The software includes an OPC DA Client as standard and an OPC DA Server as an option. Further exportability can be achieved through the use of the PQDIF Exporter.

Off line Configuration

Lets you configure the specific meters using offline mode. Offline configuration reduces onsite startup time.

External Firmware upgrade

Updates the operating software inside your devices over the network whenever new versions are available.

WinPM.Net networks

Devices are grouped into "sites" based on their physical or logical locations and communication links. They offer:

- Sequence of events recording
- Load profiles
- Power quality data
- Alarms and control
- Breaker status and control
- Revenue accuracy
- PLC/RTU capabilities
- Simultaneous multi-protocol communication

Serial connectivity

Support for basic RS-485 Modbus RTU communications from any device is provided in WinPM.Net. A serial RS-485 to RS-232 converter will be needed and the serial RS-485 wire can be run up to 4000 feet with up to 31 devices on one string.

Ethernet connectivity

A WinPM.Net 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 customers WAN network. Using the existing Ethernet network provides efficient use of resources and allows visibility to the WinPM.Net system by anyone on the network though their computers web browser.

Gateway connectivity

The Gateway ability of the Siemens advanced meters allows a user to connect multiple serial devices on one RS-485 daisy-chain communications wire to the Ethernet by using one meter as the gateway or RS-485 to Ethernet converter. This allows the WinPM.Net software to communicate to multiple devices using one IP address.

Web deployment

With cross browser support, users can gain access to all the advanced features of WinPM.Net with Microsoft Internet Explorer, Google Chrome, and Apple Safari.

GPS time synchronization

WinPM.Net allows easy integration of common GPS Time synchronization systems. This provides a precise ± 1 millisecond time stamping for the logged data, which allows detailed sequence-of-events and power quality analysis.

WinPM.Net compatible devices

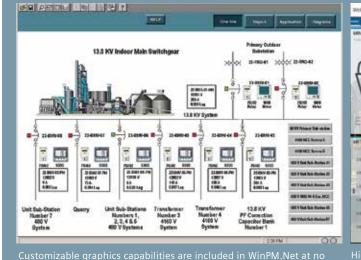
The flexibility of the WinPM.Net software to connect to any Modbus RTU, Modbus TCP, Seabus and more devices provides the ability to communicate in a large array of devices. The complete backwards compatibility for older Siemens devices means you can upgrade your monitoring system without the need to replace all the existing devices, saving time and money.

Typical devices connected to the system include:

- Siemens meters PAC3120, PAC3220, PAC4200, 9410, 9510, 9610, 9810, and Siemens Embedded Metering Unit SEM3
- SEM3T Siemens Thermal monitoring system
- The complete line of advanced SIPROTEC relays with Modbus communications
- Siemens Low Voltage Trip units WL ETU7xx, VL, VL555, VL586, STIIIc/cp, and SBEC
- SER3200 (Sequence of Event Recorder) for high speed digital inputs with NTP or PTP time synchronization
- Siemens PLCs S7-1200, S7-1500, 300 and 400 via Modbus or ODBC
- Siemens MCCs SIMOCODE and SIMOCODE Pro / Pro V
- Siemens Legacy Devices ISGS MV relay, SAMMS LV motor protectors, SIMPRO-100, and 9200, PAC3100, PAC3200, 9300, 9330, 9350, 9340, 9360, 9500, 9600, 9510, 9610, 9700 meters and 9510 ADR
- Custom 3VA device driver

Common third party devices:

- Liebert Devices UPS, PDU, STS, CRAC Units, etc.
- MGE Devices UPS, PDU, Galaxy PW, etc.
- GE Devices PQM series, EPM series, DF868 Thermal Meter, ATS, F60 Relays, Vortex Steam Flow, Automatic Voltage Regulator and Multilin relays
- Schneider Electric devices CM2000/ 3000/4000, PM600/700/800 series, PM 5000 series, PM8000 series, 7500, 7550, 7600, 7650, PM9000 Series, Masterpac breakers, Micrologic trip units and more
- Eaton Devices IQ series 4000/6000/ 8000 series meters, PDU, Powerware UPS, PM3 and Digitrip trip units
- PDI Devices PDUs, BCM Plus
- ABB Devices PDUs, STSs
- ASCO Devices ATS, Paralleling Switchgear
- Russelectric ATS, Paralleling Switchgear
- Mitsubishi 9900 UPS, Zenith MX250/ MX350, Toshiba UPS, APC UPS
- Veris metering products
- Qualitrol transformer temperature monitors
- Schweitzer Relays, SEL751A
- Alber Battery Monitoring.
- Pulsar HRG (High Resistance Ground)
- Generator Interfaces with Caterpillar, Cummins, EasyGen 2500 and Detroit Diesel
- Simplex Grinnell Fire Panel, PNEUMERCATOR Liquid Level Control Systems
- Any other Modbus RTU or Modbus TCP device for real time data



WinPM.Net — customizable graphics screen

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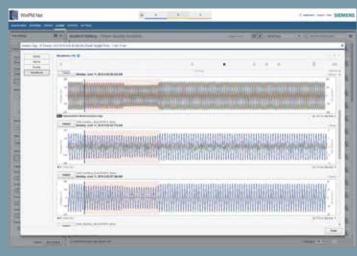
High-level KPI dashboard showing site energy usage and trending

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Cutting Edge Web Client

View your entire energy management system from anywhere using standard web browsers from Microsoft[®], Google[®] and Apple[®]. Everyday functionality including system status, alarm response, running historical reports or viewing custom dashboards can be provided by Web Client

Standard web application



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eb based Alarm/events display and respective incident waveform display



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Smart Alarm Viewer

The Alarm Viewer allows users to view system alarms and events in a tabular format. You can tailor the system view to your needs by choosing the alarm states, priorities, date range, and devices you want to view. You can also select the columns that you want to see, thus controlling the information you find helpful.

- Power Event Analysis: Faster analysis by automatic grouping of related alarms.
- Smart Alarm Clustering: Grouping of multiple alarm instances over time.
- Smart Alarm Visualization: Simplifies and speeds up analysis of incidents impacting the facility.

- Incident Timeline analysis: Easily analyze sequence of events on a graphical timeline.
- Alarm Incident Summaries : The incident details, and the wave forms associated with those incidents in a single view.

New! Dashboards

The Dashboards allows users to view high level historical and real-time data, for example Key Performance Indicators (KPIs). The information in the Dashboards application is accessed through dashboards with gadgets. In addition to viewing individual dashboards, you can create slideshows to automatically display a sequence of dashboards in a Kiosk. Also allows you to Integrate content from another website, for example, comparing temperature from a local weather website vs. chiller load.

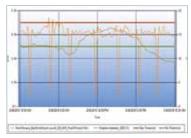


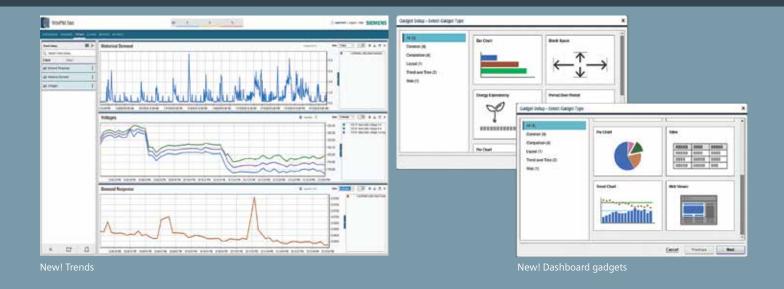
Custom alarms sent to your desktop or remote

Display alarm messages that are designed specifically for a fault or piece of equipment. Access these alarms from your desktop, remote computer or through a web accessible device like a cell phone or smart pad. This feature provides a fast method for retrieving alarms and acting on the situation without sitting at a computer.



Compare applications such as Energy consumption vs Driver (e.g Temp, production units, etc), Power vs Power factor, Load vs Harmonics, etc...





The Diagrams application

The Diagrams application manages the standard and custom graphics created in the Vista system tool for displaying real-time data in web pages. Objects that can be displayed in the browser include real-time numeric data, full or partial gauges, background graphics or diagrams, and basic views of event, data and waveform logs.

Hierarchy manager

Hierarchy Manager allows you to organize the devices you are currently monitoring in WinPM.Net into recognizable views by defining their relationships as parts of a system model. Once the model has been created, energy data associated with the hierarchy can be grouped, aggregated, and used by other components of WinPM.Net. The Hierarchy Manager views are intended to represent the real world electrical, physical, and business characteristics of your organization.

Modbus integration

WinPM.Net can act as a Modbus master or slave. The master writes data to and stores data from any Modbus slave device via the workstation's serial or Ethernet ports. The slave can respond to requests from a master and transmit power system information through the workstation's communications ports.

Reporting with WinPM.Net

The advanced capability of the WinPM. Net system to obtain data from a large array of devices means the imbedded reporting tool can provide detailed information for billing, power quality, trended data and other utility information in one system. Standard and custom WinPM.Net reports can be generated using an easy to use report wizard interface. The reports can be generated in a Microsoft Excel, TIFF and PDF format and can be e-mailed, saved or printed out automatically. Standard reports already setup include; Aggregate energy and demand (billing), load profiles, EN50160 and IEC61000-4-30 compliance, IEEE519 Harmonics compliance report and detailed power quality reports with waveforms and harmonic analysis.

These reports allow you to:

- Allocate costs to individual areas and identify expensive processes that need attention
- Compile historic trending data to load circuits at higher levels and run systems near rated tolerances
- Create models of daily electricity usage so you can distribute loads and avoid demand peaks
- Verify your power system's compliance with EN50160 and IEC61000-4-30 power quality standards

- Energy period over period reports compare a measurement from multiple devices over specified aggregation periods (e.g. this week vs. the same week from the previous month)
- Energy Usage by Shift report compares a measurement from multiple devices for specified time periods (or shifts)
- Verify power quality for contracts between energy suppliers and consumers

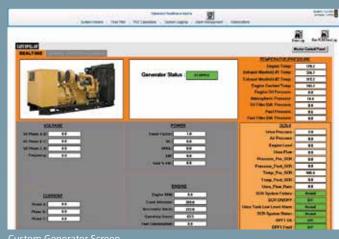
Multi-Site Support:

Multi-Site support allows you to monitor multiple sites with system access to multiple internal/external stakeholders and allows you to configure the system with localized Role Based Access Control (RBAC).

- For local users in a system connected to multiple sites, enables a user experience like having their own system
- Enables restriction of users to authorized sources and content based on their Group.
- Easy setup and administration.
- Simplifies user management with Active Directory integration.



WinPM.Net Integration



WinPM.Net supports Modbus RTU, Modbus TCP, ION, XML, and OPC, FTP, and PQDIF compliant systems, so you can unify your diverse operations into one system. Interface to other energy management software, or include transducers, PLCs and RTUs in a WinPM.Net network. OPC can extract values from other software databases then combine these values with up-to-date readings from WinPM.Net to perform real-time calculations.

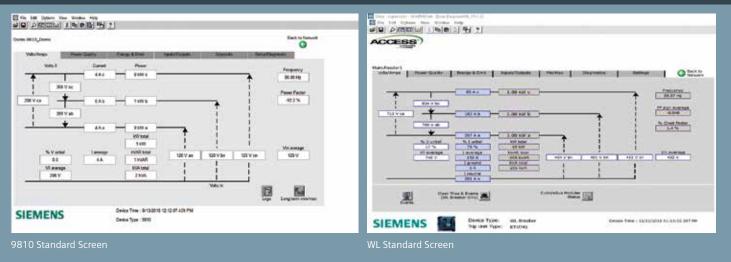
Custom Generator Screen

Siemens Advanced Embedded Metering Unit



the most advanced micro-metering technology, SEM3 from Siemens. The SEM3 unit provides detailed metering and energy data for up to 45 poles in one unit. The SEM3 data is seamlessly integrated to the WinPM.Net software allowing complete power monitoring, logging, alarming and reporting.

WinPM.Net — screens



Take advantage of default graphics

Display odd/even harmonics, THD, K-factor, crest factor, vector diagrams, and symmetrical components



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Speed up your system configuration with default displays. Immediate access to

all meters is just a few mouse clicks away with the "Generate Network Diagram"

in WinPM.Net option.

Breaker/system status indicators

Display the current status of breakers, motors or any device. See a transformer change color to indicate over-temperature. Watch a switch change when you press a trigger button.

Power quality analysis

Overlay waveforms to correlate phaseto-phase relationships between voltages and currents and cascading failures. View several seconds of consecutive waveforms using cursor control and zoom options. Plot transients, surges, and sags on ITIC (CBEMA) curves. Provide detailed analysis of the fault with the Fault Directional tool that provides an indication of where the fault occurred, line or load side, from the Siemens 9810, 9610, 9510 and 9410 power meters.

Generate trend graphs

Interpret data using analyses that are easy to understand at a glance. Watch the KW

load change over a month, a week, or during production changes for both real-time and historical data.

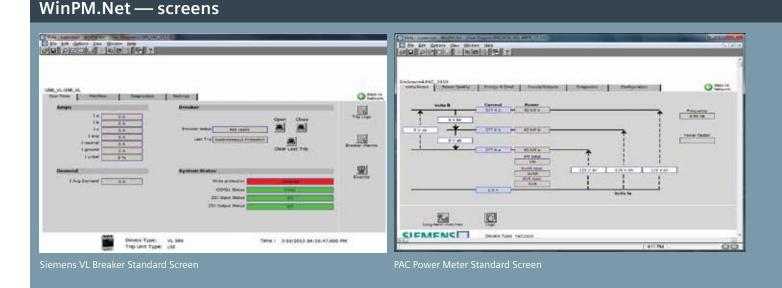
Scalability

WinPM.Net offers easy, cost-effective, and fast system expansion. The system grows as your needs grow. Add one piece at a time, at your own pace, within your own budget.

Flexibility of the software allows you to choose newer, faster, and lower-cost devices as they become available, while still maintaining your original investment.

This data sheet describes only a few of the capabilities that WinPM.Net offers. Some applications may require third party software or configuration assistance.

Contact your local representative for a WinPM.Net demonstration.

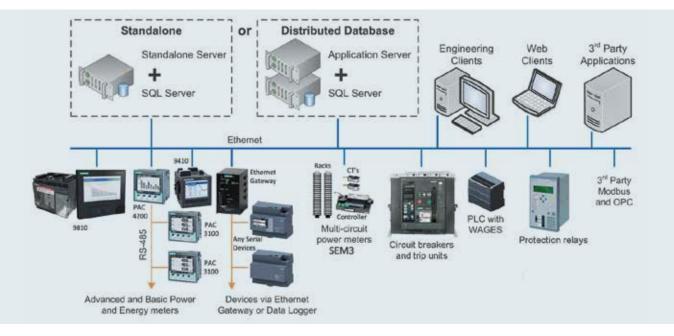


Power Event Analysis through the Web Alarms

The WinPM.Net software Power Event Analysis feature helps customer to get things back to normal faster than ever before.

- Faster incident analysis by automati grouping of related alarms
- Make faster decisions, with key alarm information such as disturbance direction available at a glance
- Ensure important information is not lost in a flood of data with intuitive and powerful alarm filtering, searching, and categorization
- Power Quality Incident report allows you to analyze power quality event and identity fault occurrences easily
- New Web Alarm Viewer simplifies and speeds up analysis of incidents impacting the facility
- New Incident Timeline Analysis allows you to understand deeper event analysis depending upon the selected time window range

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Secondary server Contact Technical support for any WinPM.Net configuration requirements

Highlights of this release

- Enhanced Web Applications
- New cursor mode analysis of waveform to understand how voltage and current were changed before, during, and after the power quality disturbance
- New datalog status alarm for devices connected via a gateway
- New Reports: Measurement Statistics Report, Profile Report, Scaled Energy Usage Report, and SARFI Report
- Enhanced Energy Usage by TOU report and multiple trend report
- The new operating environment, SQL Server 2019 (Standard and Express), are now supported
- Cyber Security improvements by enforcing password policy and security posture
- Improvements for Windows Active Directory Users and recommendations for system maintenance and database recovery
- Support of Siemens PAC 3120 and PAC 3220 meters

Ordering options

WinPM.Net is available in packages designed to meet almost any system or budget. It can be licensed to support as few as five devices to many hundreds of devices, and can present the information to as many users as required. With the included two Web Clients, and one full engineering client, your system is extended to everywhere you need it at no additional cost. Additional engineering, web client copies can be purchased.

Ordering information

Software	Order Number
WinPM.NET V10.0 DVD New (Includes 5 meter device licenses, 1 Eng Client, 2 Web Clients, New! Dashboards and PQDIF)	3ZS67100CC100BA0
WinPM.NET V10.0 DVD Replacement	3ZS67100CC100BC0
Device License	
WinPM.Net V10.0 9xxx Meter Device License Limit 6 to 50	3ZS68120CC100BA2
WinPM.Net V10.0 9xxx Meter Device License Limit 51 to 100	3ZS68130CC100BA2
WinPM.Net V10.0 9xxx Meter Device License Limit 101 to 1000	3ZS68140CC100BA2
WinPM.Net V10.0 3rd Party device/Modbus/SeaBus Dev. Lic. Limit 1 to 50	3ZS68220CC100BA2
WinPM.Net V10.0 3rd Party device/Modbus/SeaBus Dev. Lic. Limit 51 to 100	3ZS68230CC100BA2
WinPM.Net V10.0 3rd Party device/Modbus/SeaBus Dev. Lic. Limit 101 to 1000	3ZS68240CC100BA2
Options	
WinPM.Net V10.0 Engineering Client License Limit 2 to 50	3ZS67220CC100BA2
WinPM.Net V10.0 Engineering Client License Limit 51 to 100	3ZS67230CC100BA2
WinPM.Net V10.0 Web Client License	3ZS67420CC100BA2
WinPM.Net V10.0 OPC Server License	3ZS67520CC100BA2
WinPM.Net SQL Server 2019 - 2 CORE License increment (Minimum of 4 cores per server is required (2 x 3ZS67317CC100BA0 minimum)	3ZS67317CC100BA0
Software upgrade	
Contact your local Siemens D&CES Business Developer for ordering information	n and updgrade.

Contact your local Siemens D&CES Business Developer for ordering information and updgrade. Allows remote configuration of base WinPM.Net software. Excel is required for excel base reports using Reporter. Outlook is required for e-mailing report.

WinPM.Net 10.0 Computer – Server Configurations

The following information describes the software requirements for WinPM.Net 10.0 software.

Client computers

Engineering Client computers require Windows 7, 8.1, or 10 operating systems. Web Client computers require network connectivity to a WinPM.Net primary server to access the Web Applications component of WinPM.Net.

Primary server system requirements

This guideline is based on the number of 9810/9410 meters in an Ethernet network.

≤ 50 Devices

Computer Type: Desktop OS: Windows 64 bit SQL: 2019 Express CPU: Intel Core i5 (2 core), or better RAM: 8+ GB HDD: 500+ GB Years of Logging: ~4 years(10 GB) Users: Less than 5

≤ 100 Devices

Computer Type: Desktop OS: Windows 10 64 bit SQL: 2019 Express CPU: Intel Core i7 (2 core) RAM: 12+ GB HDD: 500+ GB Years of Logging: ~2 years(10 GB) Users: Less than 5

≤ 250 Devices

Computer Type: Workstation OS: Window 10 (64 Bit) or Windows Server 2016 standard or Windows Server 2019 standard SQL: Server 2019 Standard CPU: Server Intel Xeon E3-12xx (6 core) RAM: 16+ GB HDD: x2 500+ GB Years of Logging: ~2.5 years(30 GB) Users: Less than 10

All computers or servers must have a CD-Rom drive and it is recommended that a UPS (power supply) and at least 17" or greater monitor be used.

Operating Environment

WinPM.Net supports the following environments and software:

NOTE: The operating system and SQL Server combination you choose must be supported by Microsoft. This applies to edition, version, and 32/64-bit.

Software	Supported versions
	Windows 10 Professional/Enterprise
	Windows Server 2012 R2 Standard
Operating system	Windows Server 2012 R2 Standard/Enterprise
	Windows Server 2016 Standard
	Windows Server 2019 Standard
	SQL Server 2012 Express
	SQL Server 2014 Express
	SQL Server 2016 Express
	SQL Server 2017 Express
Database system ¹	SQL Server 2019 Express (included with WinPM.Net 10.0)
Database system.	SQL Server 2012 Standard/Enterprise/Business Intelligence
	SQL Server 2014 Standard/Enterprise/Business Intelligence
	SQL Server 2016 Standard/Enterprise/Business Intelligence
	SQL Server 2017 Standard/Enterprise/Business Intelligence
	SQL Server 2019 Standard/Enterprise/Business Intelligence
	VMWare Workstation 10
	VMWare ESX1 6.0
	Oracle Virtual Box 5.0.4
Virtual environment ²	Microsoft Hyper-V from Windows 8.1, Windows Server 2012
	Citrix XenServer 6.2
	Parallels Desktop 10
	QEMU-KVM
Microsoft Excel	Microsoft Excel 2013, 2016, 365
	Google Chrome version 42 and later
Decktop Web browser	Mozilla Firefox version 35 and later
Desktop Web browser	Apple Safari versions 7 or 8 and later
	Microsoft Edge
Mobile Web browser	Safari on iOS8.3+ operating systems, Chrome on Android systems
.NET Framework	.NET 4.6 or higher

¹ WinPM.Net includes a free version of SQL Server Express. You have the option to install this Express version during the installation of WinPM.Net, if you don't want to use a different SQL Server.

² You must configure virtual environments with a supported Windows operating system and SQL Server edition. It is possible to mix virtual and non-virtual environments for WinPM.Net server and clients.

Published by Siemens Canada Limited

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Order No.: SI-EP-1774 Printed in Canada © 2022 Siemens Canada Limited

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