



# ION<sup>®</sup> Enterprise

## Enterprise Management Software

### Applicazioni

#### Power Quality & Affidabilità

Identifica le sorgenti di disturbi, armoniche, o sags, sia esterne che interne all'impianto, e decide la giusta azione correttiva. Con il monitoraggio permanente, 24 ore al giorno, potete sviluppare strategie per ridurre le interruzioni.

#### Allocazione dei costi e Fatturazione

Accresce l'accurata comprensione di impianto, con il rilevamento dei costi collegati all'energia per ogni edificio, linea, macchinario. Incontra virtualmente ogni struttura tariffaria e utilizza profili orari (fasce), in una articolata schedulazione annuale. Consente in tempo reale, transazioni economiche sull'energia.

#### Studio & Ottimizzazione dei carichi

Informazioni sui trend dei carichi usati nel vostro sistema di distribuzione alla piena capacità evita i sovra-dimensionamenti. Create profili, per una distribuzione dei carichi e la riduzione dei picchi.

#### Controllo del Prelievo e del PF

Elimina le penalta' attraverso la correzione automatica del PF, il controllo del carico e dei picchi.

#### Monitoraggio & Controllo

Misura tutte le grandezze compreso gas, vapore, aria e acqua. Implementa il controllo automatico basato su combinazioni di condizioni. Imposta allarmi sui problemi pendenti. Interfaccia con altri sistemi di supervisione energetica (SCADA) attraverso una architettura multiporta e multiprotocollo.

#### Manutenzione Preventiva

Basate la vostra manutenzione programmando gli interventi sulla storia dell'impianto.

### Caratteristiche

#### Acquisizione Dati

- ◆ Memorizza i dati storici e gli eventi data in un database ODBC
- ◆ Accesso dati via Internet, linea seriale o modem, o rete Ethernet
- ◆ Interfaccia a hardware e software d'interfa parte attraverso Modbus™ RTU e TCP, Ethernet, e DDE
- ◆ Misuratore Integrato per elettricità, gas, acqua, vapore, aria, e più'

#### Monitoraggio

- ◆ Visualizza i dati memorizzati, quelli in real-time, attua i comandi di controllo da ogni postazione attraverso web browser standard.
- ◆ Personalizza grafici per allarmi, crea indicatori di stato, triggers di controllo, e viste avanzate
- ◆ Esamina forme d'onda, armoniche pari e dispari THD, K-factor, fattore di cresta, diagrammi vettoriali e componenti simmetrici
- ◆ Riceve allarmi da rete o via email

#### Analisi

- ◆ Genera reports su power quality, energia, e profili di carico basati su evento o schedulati
- ◆ Correla e classifica sequenze di eventi
- ◆ Analizza disturbi stampando forme d'onda, con curve-limite (CBEMA), e istogrammi

#### Controllo

- ◆ Processa dati provenienti da diversi strumenti ed attua azioni o allarmi basati sui risultati
- ◆ Automaticamente gestisce lo stacco carichi, l'avvio di generatori o comanda relays
- ◆ Implementa controllo distribuito con valutazione in tempo reale dei costi e dei trend

Il software ION Enterprise™, web-compatibile, è un completo sistema di gestione delle informazioni energetiche, soluzione per il vostro business.

Offre capacità di controllo, valutazione della qualità e dell'affidabilità della fornitura elettrica e vi può aiutare nella riduzione dei costi energetici. ION Enterprise vi consente la gestione dei nostri strumenti intelligenti ION: misura, controllo e analisi dei dati per decidere nuove strategie di azione.

Peculiarità del software, sono flessibilità e compatibilità che consentono di aggiungere dispositivi in ogni momento. Si può ampliare il sistema, senza perdere l'investimento iniziale. È possibile interfacciare il vostro esistente sistema attraverso protocolli industriali standard e scegliere di inserire i nuovi e più performanti componenti disponibili.

ION Enterprise è un potente software che può processare, analizzare, memorizzare, e valutare dati di tutta la vs. attività. Si può avere accesso alle informazioni da ogni workstation, localmente o in giro per il mondo, nel formato che vi serve.

Il software collecta i dati attraverso collegamenti seriali, wireless, modem, o Ethernet, così da poter gestire un singolo sito o una rete globale di strumenti. Utilizzate ION Enterprise con ogni dispositivo ION o integrate i dispositivi nel sistema, con protocolli di terza parte.



**POWER  
MEASUREMENT**

## ION Enterprise Components

### Vista™

Provides graphical views of real-time and historic information, analyzes data, reports equipment status, and offers control capabilities.

### VIP™

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

### Reporter™

Produces load profile, cost allocation, power quality, EN50160 compliance and custom reports.

### Designer™ & Management Console

Lets you graphically configure and customize devices and ION Enterprise across your network.

### SQL Database

Installed with ION Enterprise, this ODBC-compliant database logs all system data.

### Firmware Upgrade Utility

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

### DDE Server

Makes metered data available to third party software via Dynamic Data Exchange (DDE).

## ION Enterprise Networks

ION Enterprise components like Vista or VIP, reside on Windows 2000™ servers and workstations.

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, control, alarming, status indicators, revenue accuracy, and PLC/RTU capabilities. Multi-protocol communication ports provide direct interfaces to existing systems and keep equipment and wiring costs to a minimum.

### Serial Sites

ION devices and software support RS-232, RS-485, and infrared/optical links. Serial communications between ION Enterprise and multiple ION devices require a COM-32 or COM-128 converter box. A meter's infrared/optical port can also transmit data to ION Enterprise.

### Ethernet Sites

An ION Enterprise system can be deployed on any Ethernet or TCP/IP network and can be connected direct to meters via Ethernet. The software makes efficient use of network resources to maintain high data throughput across your organization.

### Modem Sites

Data can be retrieved via modem from remote sites through one-time or scheduled dial-outs, or in response to a meter's alert signal. Modem pooling provides for efficient use of available resources and redundancy from equipment failure. Workstations and meters support internal or external modems.

### Gateway Sites

A Gateway Site is an RS-485 chain of devices that also communicates to an Ethernet and/or modem network. Devices with EtherGate™ and ModemGate™ capability pass data directly between the RS-485 and Ethernet or modem networks.

### Web Deployment

Full ION Enterprise functionality can be delivered over the Internet using Microsoft Terminal Services. Users can gain access to all the advanced features of ION Enterprise through standard web browsers.

### Time Synchronization

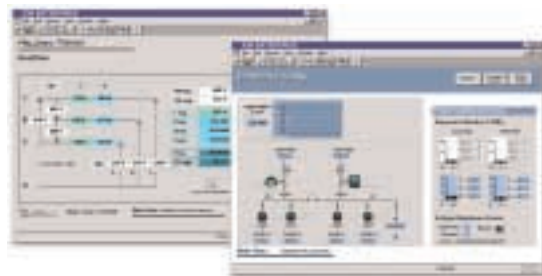
By synchronizing the meters' internal clocks, you can use timestamps on their data logs to achieve precise sequence-of-events and power quality analysis. ION Enterprise can synchronize a meter's clock to within ±16 ms of other meters in a serial network (a GPS receiver can do it within ±1 ms of Universal Time).

### Third Party Integration

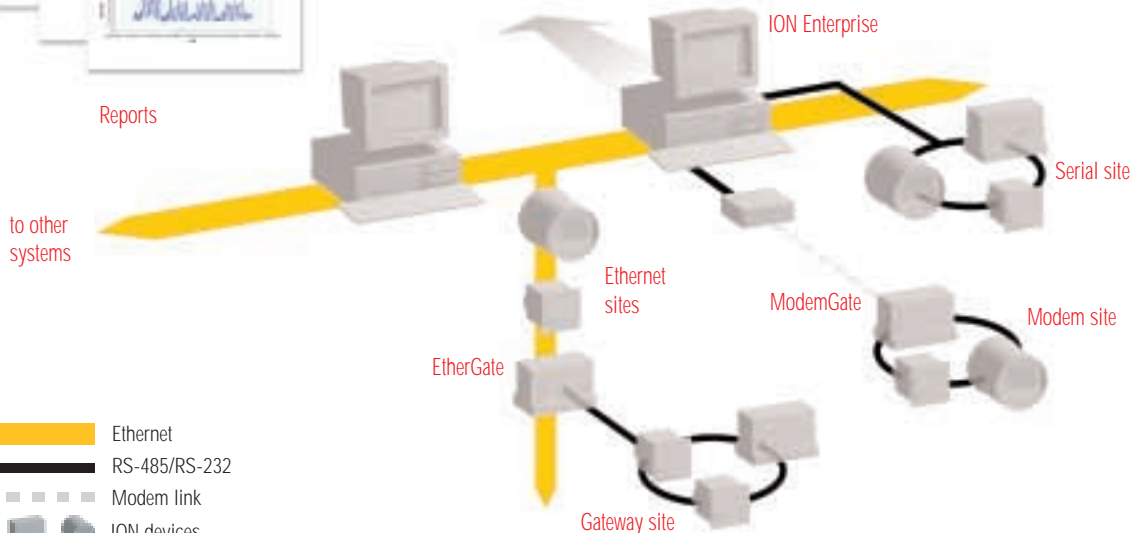
ION Enterprise supports Modbus RTU, Modbus TCP and DDE, so you can unify your diverse operations in one system. Interface to other energy management software, or include transducers, PLCs, and RTUs in an ION Enterprise network. DDE can extract values from other software applications like spreadsheets, then combine those values with up-to-date readings from ION devices to perform real-time calculations.



Reports



System diagrams



## VIP: per Analisi & Controllo

This powerful ION Enterprise component performs system-wide data aggregation and supervisory control. It processes information from multiple metering sites at your computer and initiates actions based on the results. Decisions happen automatically in response to combinations of conditions.

You decide what set of functions one or more VIPs will focus on: power quality analysis, demand control, load profiling, cost allocation, alarming, substation automation, or other tasks.

### Configurazione e visualizzazione

A VIP's data, alarms, events, and control actions appear in Vista just like information from an ION or third party device. A VIP's operation is also defined in the same way as an ION monitor's - you use Designer to graphically arrange drag-and-drop icons called ION modules.

### Power Quality

A network of continuously-active ION devices and VIPs help you determine the sources of power quality disturbances and alert you to phase imbalances.

A VIP can react to a power outage by running a PC application that dials a pager. Or it can automatically trigger the Report Generator to produce reports in response to transients, sags, swells, or other events.

### Allocazione dei costi

VIPs can track system-wide power factor, demand peaks, and penalty tariff structures. You may want a VIP to calculate real-time electricity costs by combining metered data with tariff values from spreadsheets or other DDE-compatible sources. Tariff structures may include demand and time-of-use penalties.

### Controllo Automatizzato

VIPs can perform an enormous variety of control actions:

- ◆ Activate fans to prevent transformers from overheating if total harmonic distortion (THD) is too high.
- ◆ Shed non-essential loads or start up generators when demand exceeds a threshold. This helps you avoid demand peaks that impact billing for future calendar periods.
- ◆ Control capacitor banks to correct power factor.

### Memorizzazione dagli Strumenti

Use a VIP to log data from devices that don't have data recorders. For example, a VIP can store a meter's total kWh values every 15 minutes.

### Aggregazione dei Consumi

A VIP can aggregate energy and power consumption readings from devices distributed across a facility or an entire nation, with results displayed in near real time.

All this information helps you negotiate volume pricing for power contracts or manage loads based on short-term electricity rates.

### Modbus Master

ION Enterprise can act as 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 serial port.

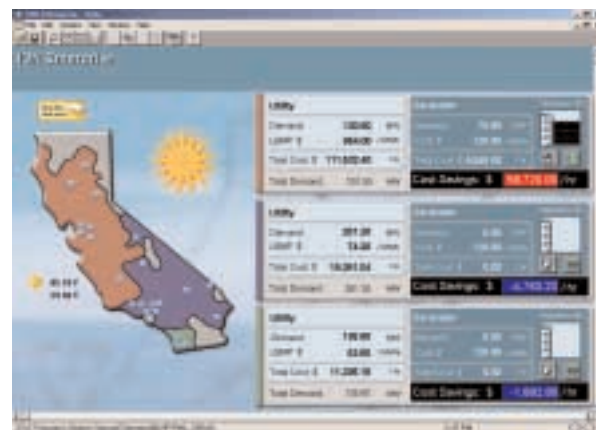
Aggregate demand from many remote sites.



Receive alarms via pager or email. Automatically control the operation of boilers, generators, or other equipment.



Implement distributed generation.



## "Reporter": per l'Analisi dei Dati

Reporter automatically interprets and analyzes information from the ION Enterprise database or any other ODBC-compliant database.

Reports can follow a timetable, respond to system events, or be manually-driven.

You have options for automatically printing the reports, storing them to a folder, distributing them by email, or saving them in HTML web-ready format.

Because the ION Enterprise database is ODBC-compliant, you can also use reporting tools from other vendors. Plus, through data warehousing, you can combine ION Enterprise data with other databases across your enterprise to develop a clear picture of business conditions. Develop simulations to forecast the results of changes to operational processes or expenditures like substations.

### Rapportistica Standard

Four standard reports are generated in Microsoft® Excel™ format: aggregate energy and demand, load profile, EN50160 compliance monitoring and power quality. They help you:

- ◆ 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
- ◆ Consolidate billing for services received across multiple feeds
- ◆ Verify your powers system's compliance with EN50160 power quality standards
- ◆ Analyze power quality to identify disturbance sources and take corrective actions
- ◆ Verify power quality for contracts between energy suppliers and consumers

To produce a standard report, just specify the data to be retrieved and distribution method.

Graphs and tables update every time the report is generated. Select any tab at the bottom of a report's summary page for further details.

### Aggregate Energy & Demand Reports

Provide analyses and cost breakdowns of your system's power and energy consumption over the requested intervals. Information includes: tariff names and monetary values; calculated costs for each tariff period; and the kWh, kVARh, and kVAh values for each tariff.

### Aggregate Load Profile Reports

Contain data and graphs about the power usage of your system over the specified date range. Timestamps and peak power usage are shown.

### Power Quality Reports

Include charts displaying line disturbances and list all incidents with timestamps and related details. Click on any event's timestamp to view more information.

### EN50160 Reports

Use the EN50160 compliance monitoring scheme to quickly assess your system's power quality levels. Flicker data is provided.

### Rapporti personalizzati

You can set up custom reports using Visual Basic® for Applications. Any of these reports can be further analyzed through Excel's mathematical and graphical functions.

You can also create reports with other tools. Simply set up "report views" using the Report View Manager. Create one report view for each data log and assign custom names to the views.

Power Measurement Technical Service also offers a custom report generation service.

*Aggregate energy and demand report provides detailed billing information*

*Load profile report shows detailed usage patterns*

*Compliance Monitoring report displays compliance to EN 50160*

*Power Quality report provides detailed disturbance analysis*



## "Vista": Monitorate il vostro impianto

Vista gives you desktop access to all your power system information.

Every user can set up unique views with time-saving graphical displays. People in various departments - accounting, customer service, and engineering - can simultaneously review the information they need.

**Take Advantage Of Default Views**  
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" option.

**Power Quality Displays**  
Overlay waveforms to correlate phase-to-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 ITI (CBEMA) curves. Display odd/even harmonics, THD, K-factor, crest factor, vector diagrams, and symmetrical components.

**Customize Your Backgrounds**  
Select any one-line diagrams, photos, or maps that help you understand the power monitoring system.

**Display Data The Way You Want**  
Represent any measurements as digital readouts, dials, or bar graphs. Adjust text labels to help you identify the source of data.

**Receive Alarms At Your Desktop**  
Display alarm messages designed specifically for your task. Access more information with a simple point and click. Receive alarms via pager or email even when you're not logged on to ION Enterprise. Meters can immediately alert ION Enterprise without waiting for system polls.

**Perform Manual Control Operations**  
Click on trigger buttons to control breakers, switches, and other devices.

**Create Your Own Database Queries**  
Use the Query Wizard to extract information from the ION Enterprise database.

**Check Status indicators**  
You can display the current status of any device. See a transformer change color to indicate over-temperature. Watch a switch change when you press a trigger button.

**Generate Trend Graphs**  
Interpret data using analyses that are easy to understand at a glance.

**Tunnel into "Hot Spots"**  
Click into deeper layers of detail. For example, start with an aerial view of your site, click into a substation, and select a feeder to produce a disturbance analysis.

**Set Up Grouping Windows**  
You can group all relevant trigger buttons, indicators, and measurements into one location and omit unnecessary information.

