

expertpower™

Energy Management Expertise

Enter the new era of Energy Management >>>

 **SATEC**
Powerful Solutions

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Transmission > > >
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 Distribution > > >
 Substations > > >

SUPPORT

POWER QUALITY

BILLING

SYSTEM LAYOUT

Energy Management Expertise
 Is just a mouse click away

Today's fast paced business world demands effective tools to keep up with advancing technology and ever growing competition. Managers in every field are expected to impose the order, regulation, coordination and stability vital to product quality and profitability.

As energy production and consumption are taking

a growing share in today's business expenditure, energy management is rapidly becoming an essential consideration for all levels of enterprise.

SATEC's innovative Energy Management e-Service eXpertpower™ delivers all the tools for monitoring, analyzing and managing entire power systems, through the Internet. With these powerful tools,

eXpertpower™ offers you the means to efficiently manage your resources to save both time and money.

eXpertpower™ utilizes the accessibility and immediacy of the Internet to bring you comprehensive expert analysis, monitoring, billing, history and alarms. The bottom line is a significant reduction of energy costs and greater management efficiency.

eXpertpower™ makes software and hardware purchasing, implementing and upgrading simply outdated. Instead, we offer you a complete service to answer all your energy needs. SATEC's expert team constantly improves and updates the eXpertpower™ cutting edge technology to provide all the data and analyses you need, anytime, anywhere.

eXpertpower™ is a division of **SATEC**, a proven leader in the energy management field. **SATEC** provides a total solution for all energy needs, ranging from hardware to software to our web-based Energy Management e-service, **eXpertpower™**.

eXpertpower™ was inspired by the rapid growth of the Internet platform. We have seen its great progress during the recent years and its improving accessibility, and have realised its potential benefits for our clients. **eXpertpower™** takes advantage of all the latest technological developments in the Application Service Provider (ASP) field, to bring you a sophisticated, user-friendly and expanding service.

This commitment to customer service is in keeping with our business vision. We at **SATEC** regard our clients as our most valuable asset. We consider product excellence and reliability, attentiveness to detail and an overall concern for quality of service to be central to gaining customer faith and satisfaction.

Our diverse customer base includes major players worldwide in the power utility and process industries as well as military and governmental authorities.



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eXpertpower™ has revolutionized the field of electric energy management by providing a cost-effective solution allowing users to access on-line data in real-time. By taking advantage of the Internet's powerful capabilities, eXpertpower™ enables any number of users to access their data at any time, from anywhere.

It all comes down to this: **To succeed in today's business world, you need to reduce costs and increase productivity.** You need tools to achieve these goals efficiently and cost-effectively.

Information is the key factor to controlling operations and making strategic decisions. Data must be immediate, highly accessible and designed to facilitate informed decisions.

SATEC's eXpertpower™ Energy Management e-service is a total power management system complete with all the necessary tools to monitor and manage the power system under one virtual roof.



Reduce operating costs

eXpertpower™'s power monitoring, diagnostic and historical capabilities provide concise insights on how and where to reduce costs and improve productivity.

➤ **No capital investment** necessary. eXpertpower™ e-service is available for a moderate periodic fee.

➤ **No maintenance costs** - No proprietary software or databases to install, learn, update or maintain. Fast payback is possible within a few months.

➤ **Prolong machinery lifetime** by diagnosing and taking effective proactive measures.

➤ **Reduce energy costs** by verifying utility meter readings and bill calculations to uncover billing discrepancies.

➤ **Reduce usage** during high-cost, peak demand periods.

➤ **Detect failures** & avoid costly damages.

➤ **Discover the causes** of poor power quality.

➤ **Justify** electric energy products and verify the savings after completion.

➤ **Reduce labor cost** - less staff required.

➤ **Avoid intensive regulation** - regulators demanding improved management systems and data driven work practices.

Maintain your competitive edge by improving efficiency

➤ **Save time** - eXpertpower™ Energy Management e-Service can be up and running within hours.

➤ **Improve system reliability** - Data from powermeters in different substations and customer sites can be analyzed and compared to identify problem circuits.

➤ **Increase production up-time** by rapidly diagnosing and solving power quality problems or exposing adverse trends before catastrophic events occur.

➤ **Allocate resources** - eXpertpower™ automatically records, archives and manages numerous power system parameters. This enables companies to deploy their limited human resources more efficiently and effectively.

➤ **Manage assets:** critical assets are now maintained according to antiquated, calendar-based schedules, resulting in catastrophic failure or premature, unnecessary replacements. With eXpertpower™ you can provide maintenance for machinery and power system when needed, to minimize downtime and control costs.

➤ **Comply** with power quality standards such as EN50160, IEEE1159 and IEEE519.

Management e-Service



Manage entire enterprise power systems under one roof

eXpertpower™'s unique monitoring capabilities allow managers to view large enterprises, whether single, multi-plant or multi-locations, as a single integrated system. This is a powerful tool for enterprise-level decision makers.

- **Exercise full control:** **eXpertpower™** provides remote visibility of the entire power system. Global enterprises can receive valuable world-wide data directly to headquarters.
- **Access data from anywhere:** view power system information, generate reports and monitor trends from across the hall or around the world.
- **Supervise** power failures, follow repair progress and prevent damage proactively.



Adapt our service to YOUR needs

eXpertpower™ is fully scalable and versatile. Our goal is to meet your every demand and to design tailor-made solutions for your unique needs.

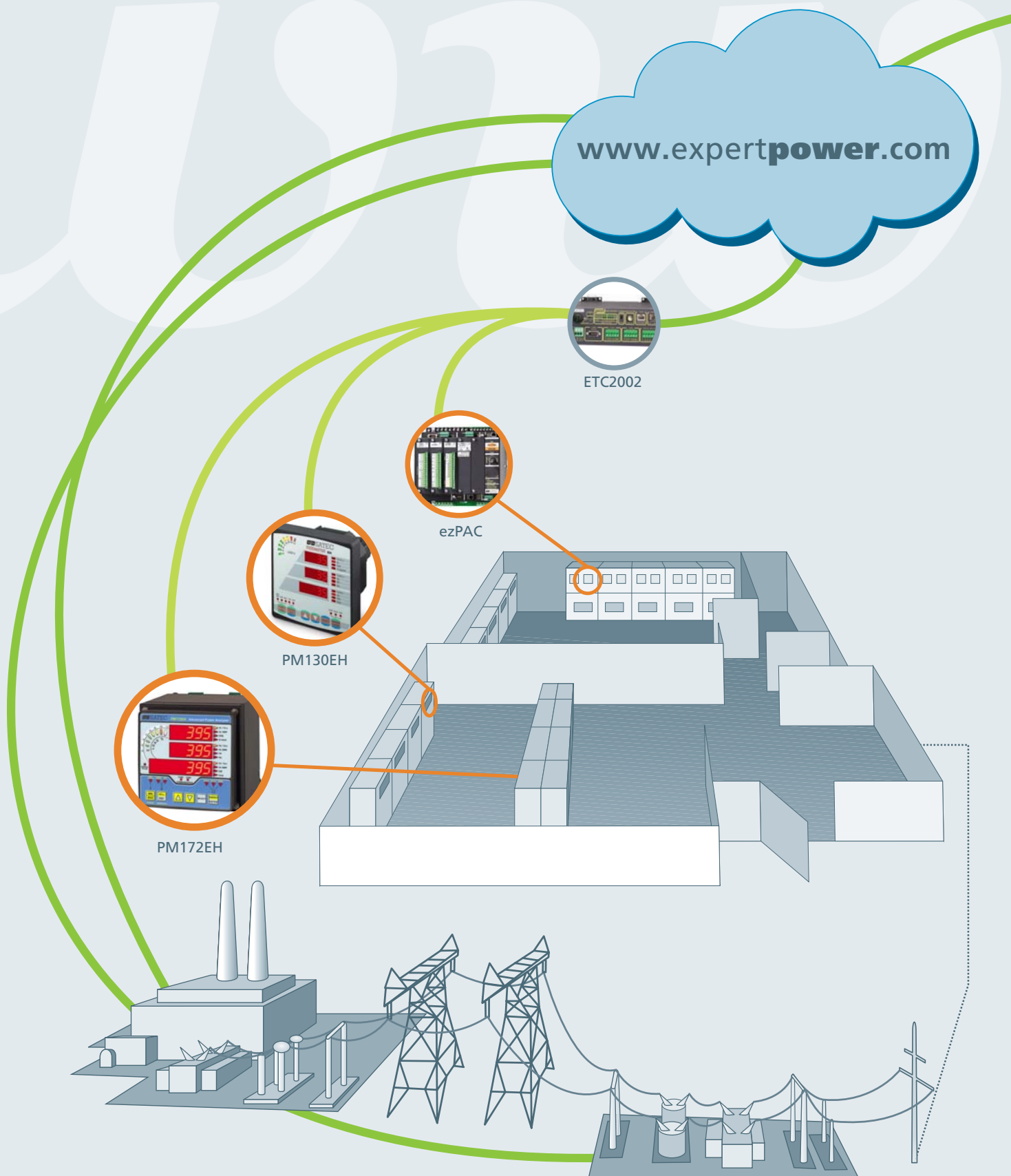
- **Customize:** Alarms and reports are user-definable for many measurable parameters, such as volts, amps and watts demand, active energy or billing. Data and user interface can be delivered in any format and in any language.
- **eXpertpower™'s open design** provides a fertile environment for growth and constant improvement.
- **New or improved features** are continually added to accommodate our various clients' requests. These improvements are immediately incorporated for the benefit of our entire client base.
- **Unlimited choice of equipment:** **eXpertpower™** is fully compatible with third party devices and systems.

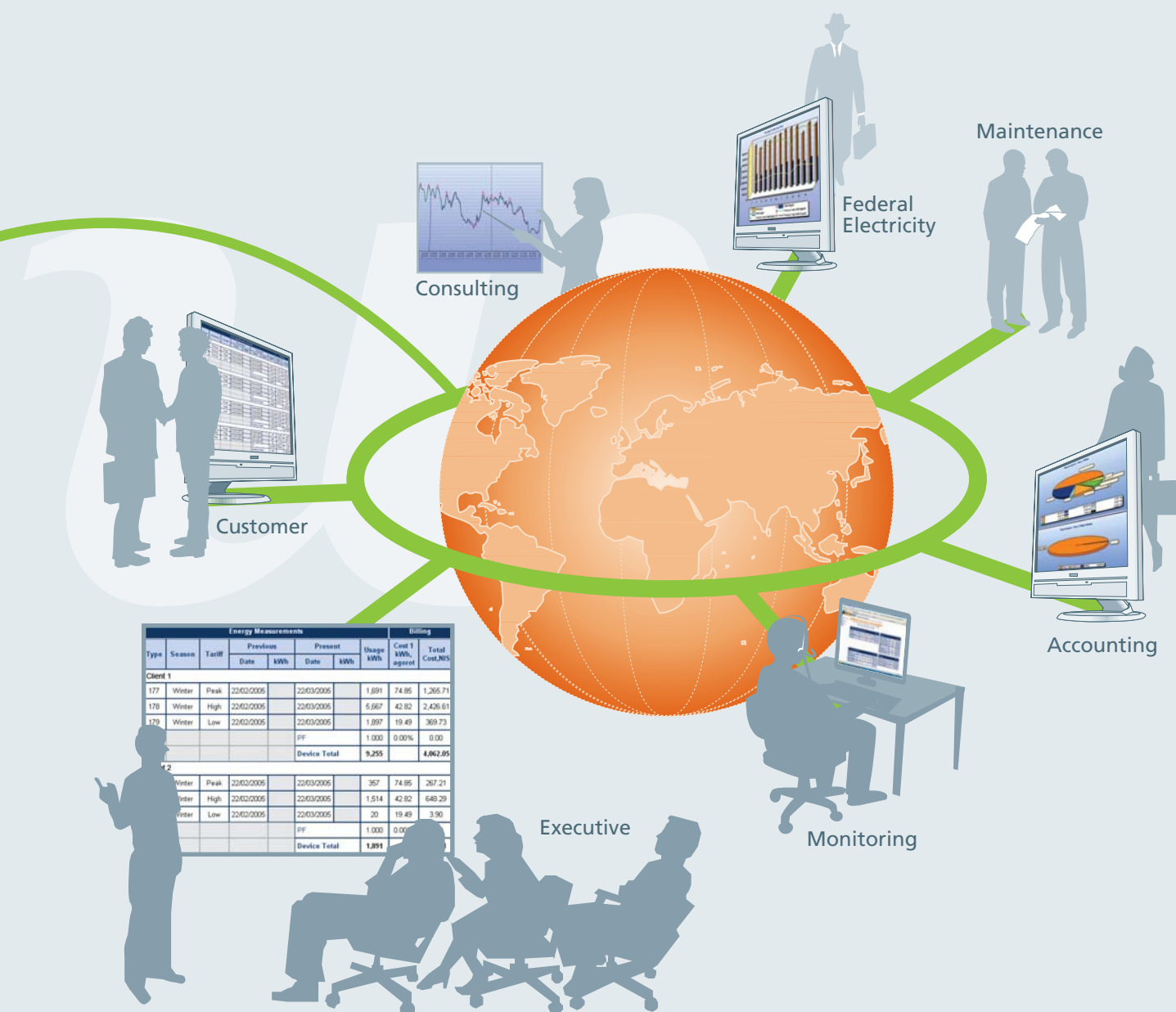


eXpertpower™ provides complete system visibility for directors making corporate-level capital decisions. It is also indispensable for managers and staff at all levels, whether floor managers, electrical engineers or the financial department.

eXpertpower™ collects, archives and analyzes power system data automatically while allowing multiple users to view this data in reports, tables, graphs, waveforms or charts. Thanks to its many unique advantages, **eXpertpower™** minimizes expenses and promotes better energy management and power quality.

System Architecture





If you can access the Internet you can access your data

eXpertpower™ Energy Management e-Service collects, stores and analyses data from the entire power system. This information, which is made accessible through 2-way communication over the Internet, enables the full range of management capabilities, from Automatic Meter Reading (AMR) to load control to fault detection. Because the information provided covers the entire system, control can be pinpointed to exactly the places where it is needed.

eXpertpower™ system utilizes advanced data collection and transmission technologies that gather energy usage information from intelligent devices

positioned throughout the entire organization, even in multi-site enterprises. These instruments are connected to the network directly or via our local Intelligent Communication Device ETC2002. These connections utilize Ethernet, dial-up modem, RF or cellular network to gain access to the **eXpertpower™** web server.

Energy data flows from the measuring instruments through a local Intelligent Communication Device and sent using TCP/IP protocol through the Internet into **eXpertpower™** Energy Management e-Service. The data is then processed to produce professional reports.

An Application Service Provider (ASP) framework processes the data through a multitude of applications. The vast amount of complex data is transformed into clear yet sophisticated charts and reports. Final reports are presented on the **eXpertpower™** web site and are easily accessed through any standard browser.

The client logs into the **eXpertpower™** web site, where multi-level access is permitted based upon predefined authorization and password schemes. Once access is established, personal user profiles and user interfaces are created.

expertpower™ Benefits

Most monitoring and reporting solutions available today are within the sphere of local PCs, using dedicated software such as SCADA (HMI) and others. The employment of PC-based systems limits monitoring capabilities in several fundamental aspects:

Capital Investment

Dedicated energy management software is extremely expensive. Fault reports, billing functions and power quality analysis are features for which corporations pay great sums of money.



eXpertpower™ minimizes upfront capital costs. For an affordable periodic fee, you get a complete e-service that delivers reports, analyses, solutions and more, with ease.



Operating Systems

Operating systems are subject to frequent changes and obsolescence. This problem becomes critical shortly after the initial investment, causing compatibility problems as well as escalating costs.



eXpertpower™ does not depend on operating systems. All you need is an Internet browser.



Human Resources

Complex systems deploy multi-user databases that require numerous skilled personnel for their daily operation. Such personnel are very expensive and are not easily obtained.



With eXpertpower™, your databases are automatically created and stored for years, so no specialized personnel is necessary.

System Developments

The commitment to a single pre-defined application impedes the development of the system's functions and of its scalability.



Far from impeding development, eXpertpower™'s flexibility enables us to upgrade and adapt the system to your enterprise's growth and to its every need.



Number of Users

Standalone systems limit the number of users, and are not always designed with non-core users in mind. These users, such as the accounting department or remote employees, are important to the corporation but cannot access the system.



eXpertpower™ can be securely accessed by an **unlimited number of users**, from anywhere in the world. The customer can define security-based access for any number of users.

Total Control

Local Systems are site-specific, and cannot provide aggregate control solutions for multi-location enterprises.



eXpertpower™ provides you with **total visibility of the entire corporation**, whether single or multi-location, and allows access to all or part of the aggregate corporate information, comparing systems and facilities.

Data Storage

Large corporations need to store, manage and maintain all corporate data in a central location for efficient management. PC-based systems are limited because they do not facilitate the concentration of all corporate data in a location accessible to all users.



eXpertpower™ utilizes the Internet to store and manage all enterprise data, in an unlimited range of formats, so that you gain virtually **unlimited memory, storage space and user access**.



expertpower™ For You



For YOU, eXpertpower™ means:

No Purchasing costs

No Implementation and operational costs

No Maintenance and upgrade costs

No Limitations on system growth

For US, eXpertpower™ means providing you with:

Expertise in all aspects of power monitoring and analysis

The optimum solution for **managing** your entire power system

Total control of your **energy expenditure**

The best tools for **increased efficiency** and **higher productivity**



Energy management was never easier

Monitoring

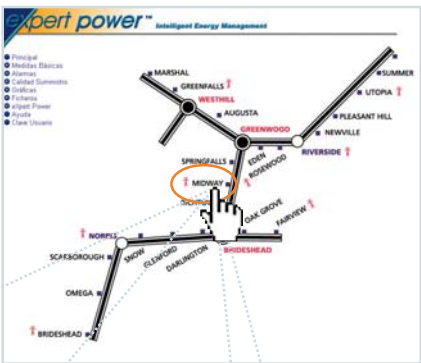
eXpertpower™’s powerful database stores and analyzes the data collected from all measuring instruments. Our web site then provides its various users, whether energy producers or consumers, with vital information and valuable insights into the system’s functionality and costs. Its flexibility and powerful data processor deliver the ultimate tools to guarantee optimal power system performance and effective electric energy management.

- **Grasp** the actual cost of enterprise electricity with eXpertpower™’s data analysis tools.
- **Prevent** serious damage with eXpertpower™’s analysis system, through early and rapid identification of malfunctions.
- **Defer capital** - Access substation dynamics, trends and characteristics that provide system planners the tools to accurately predict system growth and future expansion.

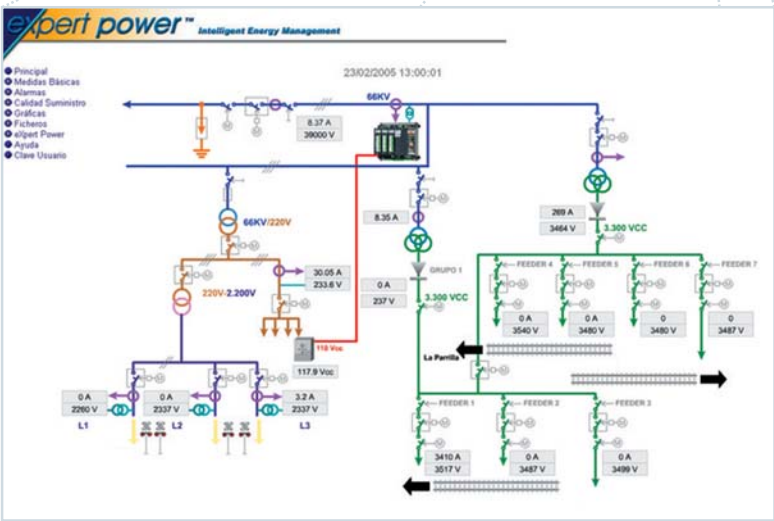
Visualize your power system

eXpertpower™ provides you with a tailor-made gateway into your entire electric system, enterprise-wide.

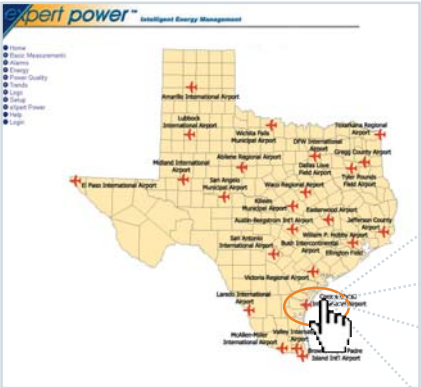
To maximize efficiency for managers and teams, any variety of options are available, according to your specific needs. Options range from world-locations maps, country or regional views, to a single building or multiple buildings, system diagrams or simple lists of networks and instruments.



REGIONAL LOCATIONS



SYSTEM DIAGRAM (ONE-LINE DIAGRAM)



COUNTRY/STATE/PROVINCE LOCATIONS



OFFICE BUILDING LAYOUT

Just click to:



Just click **Basic Measurements** to easily view:

- Voltages
- Currents/Loadings
- Power
- Energy
- Power Factor
- Frequency
- and much more

Monitoring

Basic measurements

eXpertpower™'s Basic Measurements screen delivers processed data in an easy, user-friendly table format. Historical trends are easily accessible from hyperlinked text.

Phase Basic Measurements				History
Phase	L1	L2	L3	
Voltage LL	394	396	395	V
Current	838	875	873	A
Active Power	181	189	187	kW
Reactive Power	63	63	70	kVar
Acc. Power Demand	192	199	200	kVA
PF	.94	.95	.94	PF

Harmonic Distortion				History
Phase	L1	L2	L3	
Voltage THD	1.40	1.30	1.30	%
Current THD	3.80	3.60	3.50	%

Total		History
Active Power	557	kW
Reactive Power	191	kVar
Apparent Power	591	kVA
PF	.94	PF
Frequency	50	Hz
Neutral Current	0	A

Energy		History
Active Energy	8882447	kWh
kWh Export	37	kWh
Reactive Energy	3164342	kVarh
Apparent Energy	9499018	kVAh

Max.Demand				History
Parameter	Value	Date & Time		
Active Power	553	07/02/2005 13:45:00	kW	
Amp.Demand L1	859	20/02/2005 16:21:57	A	
Amp.Demand L2	896	20/02/2005 16:21:47	A	
Amp.Demand L3	888	20/02/2005 16:21:47	A	

BASIC MEASUREMENTS

Cost per hour

eXpertpower™'s unique Cost per hour feature offers immediate control over costs, allowing end users to track energy costs at any point in time.

Phase Basic Measurements				History
Phase	L1	L2	L3	
Voltage LL	22653	22596	22616	V
Current	36.14	34.84	33.40	A
Active Power	402	446	430	kW
Reactive Power	63	91	56	kVar
Apparent Power	474	455	434	kVA

BASIC MEASUREMENTS—COST PER HOUR

Alarms

The Alarms feature provides the user with a defined alarm log that contains detailed logged values, alarm location, date & time stamps and description.

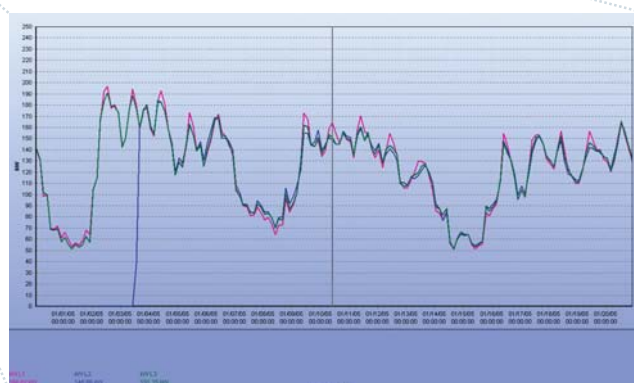


Receive Real Time Priority Alarms—instant alarm notification via SMS text messaging, e-mail, PDA or pager in order to proactively avoid problems.

Historical trends

eXpertpower™'s historical trending tools include all the functions for historical analysis and assessment:

- › Compare energy costs from one season to the other.
- › Scroll between time ranges (daily, monthly and annually) and Min/Max values.
- › Display specific values according to your needs.
- › Zoom in for a detailed view or zoom out for the entire picture.
- › Share data with any recipient, using any media; paste in third-party applications; or print customized reports.



HISTORICAL TRENDS

Just click to:



Just click the **New Alarms** hyperlink to access your recent alarms list directly from your first screen.

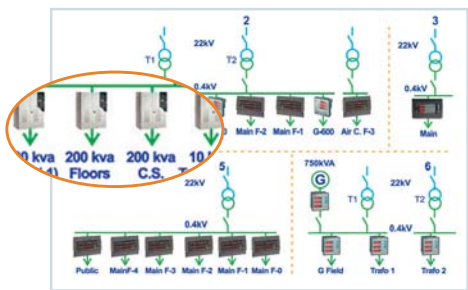


Just click the **Refresh** button to receive real-time data.

Third party compatibility

SATEC Powermeters have built-in support for **eXpertpower™**. This means faster data recording and more efficient data transmission and analysis. The ability to maximize the data available in the instruments allows for comprehensive report generation, predictive algorithms and much more.

Beyond the benefits and features associated with utilizing **SATEC** products, the **eXpertpower™** team can integrate virtually all Intelligent Electronic Devices (IEDs) into this service. These include PLCs, RTUs, thermometers, VPSs and more. Our seamless compatibility with third party instrument providers gives the end user the flexibility to utilize existing electronic devices effectively.



SYSTEM DIAGRAM

Benefits for energy producers

Today's electric industry is affected by technological evolution and rapidly growing consumption. Energy producers and distributors are facing harsh competition and increasing demands.

As technology advances, the electric companies' equipment, worth millions of dollars, is becoming more and more outdated. Retrofit, however, is extremely expensive. **eXpertpower™** offers an inexpensive solution for companies wishing to maintain their competitive edge. No need to replace old equipment to gain state-of-the-art energy expertise: add-on sensors can enhance existing equipment and communicate with **eXpertpower™**.

Electric utilities are downsizing and losing technical expertise. This loss has created a void in the knowledge base, requiring more sophisticated tools to manage your system. **eXpertpower™** provides full monitoring, analysis and control capabilities of power usage, cost, efficiency and power quality, without the high investment costs of typical software or web-embedded IED's.

- **Early fault detection:** locate electric faults and trace their causes.
- **Pinpoint** exact location of short circuits, without leaving the office.
- **Maintain** regulated levels of power quality with **eXpertpower™**'s waveform functions.

Electric companies can profit from **eXpertpower™ e-service** even without raising prices:

- **Save time** by fast fault detection, enabling speedy restoration.
- **Avoid catastrophic failure** and costly damages by early detection.
- **Reduce labor expenses:** **eXpertpower™** allows remote substation visibility without the time and expense related to dispatching personnel.

Benefits for energy consumers

Energy expenditures are a significant challenge to businesses that lack the knowledge and resources to address them systematically.

These businesses tend to overlook major savings opportunities and try to decrease costs through the more obvious energy consumers, such as lighting fixtures. While other consumers, such as old and inefficient motors and drives, consume much more energy and involve higher costs.

To effectively address this issue, **eXpertpower™** offers a variety of functions to monitor and analyze energy usage and expenditures. **eXpertpower™** provides all the knowledge you need, at a mouse click. Its user-friendly interface allows easy access to your data, enabling you to make better energy-related decisions.

Just click to:



Just Click the **Select Date Range** button to instantly generate historical or up-to-date reports, for any and all time ranges—in days, months or years.



Clickable bills for total cost control

Billing

Like all business overheads, energy costs in particular must be managed proactively. Controlling energy expenditure is crucial to good business management.

eXpertpower™ assesses how energy is used throughout the business cycle and when it is used. Through its powerful billing capabilities, users can define energy usage patterns and realize potential for energy cost savings.

- › **Meets standards** and regulations in all countries around the world
- › **TOU** (Time of Use)/**fixed tariff** billing
- › **Totalized energy billing**: By simply selecting an individual point or group of points you can itemize selective billing reports from multiple locations.
- › Automatic bills for **single or multiple clients**
- › Daily/weekly/monthly/yearly **reports**
- › Unique **Compare bill** feature
- › **Cost per hour** - real time costs
- › Fully **customizable** reports
- › **Device-specific** billing

eXpertpower™ provides detailed energy reports on a monthly or annual basis, as well as advanced TOU Billing capabilities.

Take control of energy bills, maintenance and repair expenses and the high cost of inefficiency:

- **Analyze and control** electrical usage expenditure.
- **Reduce usage** during high-cost, peak demand periods.
- **Manage** production costs.

[illegible]

TOU (Time of Use) BILL—energy

Energy Measurements						Billing		
Usage code	Tariff	Previous		Present		Usage kWh/ Demand kW	Per 1 kWh cents/Per 1 kW \$	Total Cost \$
		Date	kWh	Date	kWh			
LOPK	On Peak	08/12/2004	4,201,382	08/01/2005	4,357,973	156,591	25.24	39,520.46
LOOP	Off Peak	08/12/2004	4,472,752	08/01/2005	4,641,678	168,926	18.23	30,792.95
				Fuel Adjustment		325,517	0.4629	1,506.82
				Gross Rec. Tax			5.6783%	4,078.17
				Energy Total		325,517		75,898.40
PDDM	Primary					581	35.64	20,706.77
SDDM	Secondary					581	4.33	2,517.76
				Prorated Charge			31/30	23,998.69
				Gross Rec. Tax			5.6783%	1,362.72
				Demand Total				25,361.41
				Total				101,259.80
				Sales Tax			8.25%	8,363.93
				Total Charge				109,613.74

TOU (Time of Use) BILL—energy & demand

Energy cost reduction

Energy-cost analyses enable you to supervise your expenditure on a customized basis, independent of the electric company's schedule. Annual reports, as well as customizable date-ranges, allow in-depth reviewing of financial strategies and plan revisions.

Use eXpertpower™ to:

- **Determine** process costs by allocating energy costs to individual plants, devices, procedures or users.
- **Reduce** human resource costs with automated meter reading and bill generation.
- **Create** site-wide or corporate-wide energy profiles, to aggregate loads and negotiate better terms with your power provider.

Just click to:



Just Click the **Select Device** button to view billing reports for single or multiple devices.



Just Click the **Select Date Range** button to instantly generate historical or up-to-date billing reports, for any and all time ranges - in days, months or years.

Billing

Compare bill

eXpertpower™'s Compare Bill function provides automatic comparisons between the electric company's bills and its own generated bills. This function is the perfect solution for clients who use multiple spreadsheet applications for this purpose. **eXpertpower™** performs all those painstaking manual calculations and comparisons, in a single tool.

Facilities with several utility meters can utilize **eXpertpower™** to combine meters for billing, resulting in significant cost savings.

Energy Measurements				Billing		eC Energy		eC Billing		Difference	
Tarif	Previous Date	Present Date	Usage kWh	Cost \$ kWh, against	Total Cost, \$US	Usage kWh	Cost \$ kWh, against	Total Cost, \$US	Usage kWh	Usage \$US	Total, \$US
W.P.	01/01/2008	01/02/2008	200000	0.05	10000.00	00.14					
W.P.	01/02/2008	02/02/2008	127040	0.05	6352.00	00.14					
W.H.	02/01/2008	01/02/2008	7047040	0.000000	0.00						
W.H.	01/02/2008	01/03/2008	280000	0.00	0.00						
W.H.	02/01/2008	01/02/2008	800000	0.00	0.00						
W.H.	01/02/2008	01/03/2008	170000	0.00	0.00						
W.H.	01/03/2008	01/04/2008	170000	0.00	0.00						
W.H.	01/04/2008	01/05/2008	170000	0.00	0.00						
Total											
Total Fee											
Total											
Cost											
Total Charge											

COMPARE BILL

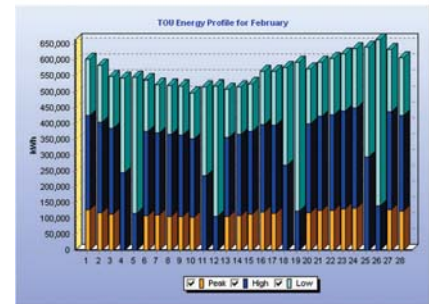
Monthly/yearly reports

eXpertpower™'s billing function generates monthly and yearly reports, valuable for long-term financial planning:

- **View** energy histograms according to various tariffs, days, months or years.
- **Monitor** your system's functionality to see where cost-cutting measures can be most effective.
- **Analyze** your system's functionality to increase efficiency.

Energy kWh	Previous	Present	Usage
Peak	3,393,272	5,751,568	2,358,296
High	9,835,535	16,955,115	7,119,480
Low	9,004,592	15,386,876	6,382,284
Total kWh			15,860,060

Monthly Power Factor	0.98
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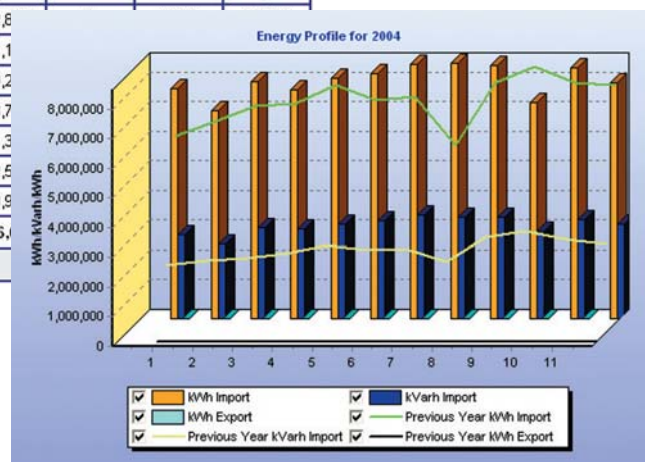


TOU Hours

MONTHLY REPORT

Month	kWh Import	kVarh Import	kWh Export	Power Factor	kW Max DMD
January	7,758,986	2,828,091	0	0.940	11,804
February	7,029,679	2,518,442	0	0.941	11,473
March	8,012,241	3,051,119	0	0.935	12,000
April	7,726,399	3,014,088	0	0.932	11,956
May	8,114,694	3,192,456	0	0.931	11,960
June	8,279,900	3,302,8			
July	8,565,530	3,471,1			
August	8,622,780	3,399,2			
September	8,558,808	3,403,7			
October	7,301,832	2,921,3			
November	8,468,224	3,342,5			
December	7,953,096	3,190,9			
Total	96,392,169	37,636,			
Average					

YEARLY REPORT



CURRENT YEAR-PREVIOUS YEAR

Just click to:



Just Click the **Send Mail** button to e-mail your clients a link to their electric bills.

Tariff updates

The energy billing system can adapt to any local billing standard around the world, whether TOU (Time of Use), date-range or fixed price billing.

eXpertpower™'s billing service can adapt to all the rules, regulations and billing structures of the various local electric companies.

eXpertpower™ receives tariff updates from the electric companies and calculates the bills accordingly, using the companies' different algorithms. We can calculate new tariffs retroactively, starting from the actual update, regardless of notification delays. This could translate to significant cost savings.

Our accuracy is backed by **SATEC**'s advanced instruments. **SATEC**'s advanced models are designed with built-in support for data recording, so that records are not lost even if communication is interrupted.

Choose your own billing system

Your enterprise can be divided into any number of virtual sites and sub-sites (as small as one device), enabling you to generate separate bills for your clients or for divisions of your organization. Any number of devices can be defined as a billing site, regardless of geographical location.

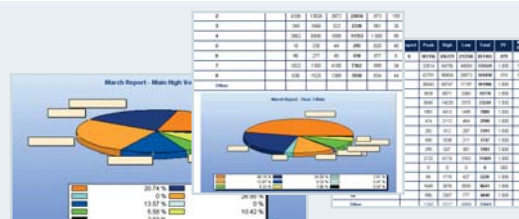
- Billing per site - real or virtual
- Billing per device
- Aggregate bill

Energy Measurements							Billing	
Type	Season	Tariff	Previous		Present		Usage kWh	Cost 1 kWh, agorot
			Date	kWh	Date	kWh		Total Cost,NIS
Client 1								
177	Winter	Peak	22/02/2005		22/03/2005	1,691	74.85	1,265.71
178	Winter	High	22/02/2005		22/03/2005	5,667	42.82	2,426.61
179	Winter	Low	22/02/2005		22/03/2005	1,897	19.49	369.73
							PF	1.000 0.00% 0.00
							Device Total	9,255 4,062.05
Client 2								
177	Winter	Peak	22/02/2005		22/03/2005	357	74.85	267.21
178	Winter	High	22/02/2005		22/03/2005	1,514	42.82	648.29
179	Winter	Low	22/02/2005		22/03/2005	20	19.49	3.90
							PF	1.000 0.00% 0.00
							Device Total	1,891 919.41
Client 3								
177	Winter	Peak	22/02/2005		22/03/2005	1,373	74.85	1,027.69
178	Winter	High	22/02/2005		22/03/2005	4,428	42.82	1,896.07
179	Winter	Low	22/02/2005		22/03/2005	1,376	19.49	268.18
							PF	1.000 0.00% 0.00
							Device Total	7,177 3,191.94
Client 4								
177	Winter	Peak	22/02/2005		22/03/2005	45	74.85	33.68
178	Winter	High	22/02/2005		22/03/2005	440	42.82	188.41
179	Winter	Low	22/02/2005		22/03/2005	28	19.49	5.46
							PF	0.939 0.00% 0.00
							Device Total	513 227.55
Client 5								
177	Winter	Peak	22/02/2005		22/03/2005	700	74.85	523.95
178	Winter	High	22/02/2005		22/03/2005	2,125	42.82	909.93
179	Winter	Low	22/02/2005		22/03/2005	1,873	19.49	365.05
							PF	1.000 0.00% 0.00
							Device Total	4,698 1,798.92
Client 6								
177	Winter	Peak	22/02/2005		22/03/2005	7,120	74.85	5,329.32
178	Winter	High	22/02/2005		22/03/2005	20,827	42.82	8,918.12
179	Winter	Low	22/02/2005		22/03/2005	0	19.49	0.00
							PF	0.000 0.00% 0.00
							Device Total	27,947 14,247.44
							Total	53,262 25,242.26
							Max. Demand	
							VAT	17.00% 4,291.18
							Total Charge	29,533.45

AGGREGATE BILLING

Just click to:

Just Click **Energy: TOU Import** for monthly and yearly usage summaries, showing energy consumption distribution. Use this data to discover high-cost energy consumers to implement better energy usage policy.





www.expertpower.com

**Instant
power quality
expertise**

Power Quality

Power quality has become a key concern for today's energy producers, distributors and consumers. The more sophisticated the equipment used, the higher its vulnerability to electrical disturbances. Since this sensitive electrical equipment is interconnected in networks and industrial processes, the danger of chain reaction is imminent.

Power quality anomalies such as harmonics, power factor problems, capacitor switching transients, voltage sags and swells may shut down entire processes. Losses caused by these disturbances can amount to millions of dollars of lost revenue.

eXpertpower™'s advanced power quality analysis offers you the means to detect, solve and prevent power quality problems, whether in utility or consumer power systems. Our expertise in the power quality field, combined with the immediacy of the Internet platform, are a sure fire recipe for substantial savings.

With eXpertpower™'s power quality functions you can view time-stamped event lists as well as comprehensive data on a wide variety of parameters, including: frequency variation, under and over-voltage, voltage unbalance, interrupts, sags/swells and harmonics, in full compliance with international standards.

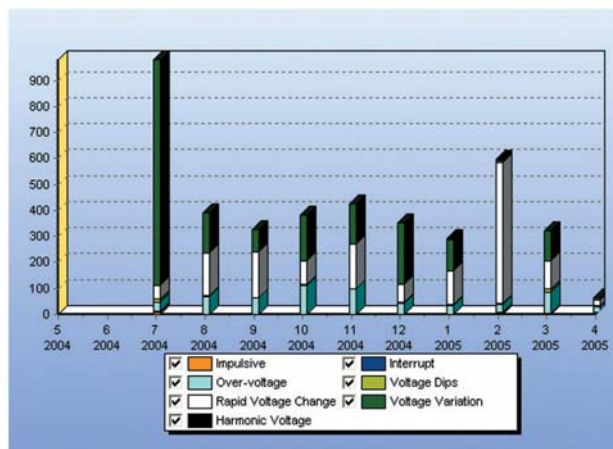
The eXpertpower™ system analyzes trends and provides in-depth knowledge through sophisticated algorithms, enabling early and rapid identification of serious problems before greater damage is caused.

Power quality applications

- › Capacitor bank regulation
- › Controlling and monitoring backup generators
- › Fault detection
- › Transformer loading control
- › Performance of protection systems
- › Protection applications
- › Voltage regulation
- › Performance regulation and control for power conditioning equipment
- › Controlling and monitoring motors, drives and Various Speed Regulators

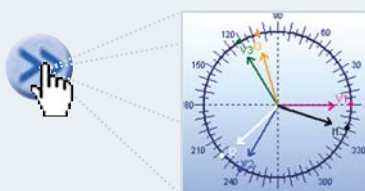
...And more

Category	No. of Events	Worst Case				
		Event No.	Date	Time	Volts / Hz	Duration
Voltage Variation	1932	234	10/07/2004	23:16:06.810	22,000	22:1:56.9 hrs
Rapid Voltage Change	1518	9857	01/02/2005	22:22:10.990	21,074	5.0 s
Voltage Dips	66	3095	13/09/2004	05:42:36.980	17,408	38.1 s
Under-voltage	1	12589	17/03/2005	15:51:20.130	16,059	5:4.6 min
Short interruption	28	444	17/07/2004	11:56:57.970	0	3:4.8 min
Long interruption	7	4688	23/10/2004	13:29:33.020	0	19:38.2 min
Over-voltage	563	2422	29/08/2004	03:24:20.240	22,019	3:50:34.8 hrs
Transient Overvoltage	2	468	18/07/2004	21:21:33.770	15,407	7.5 ms
Transient Undervoltage	10	469	18/07/2004	21:21:33.770	15,857	8.1 ms
Individual Harmonic H5	5	8214	01/01/2005	01:40:28.440	6.48	32:27:42.0 hrs
Individual Harmonic H2	6	11027	10/02/2005	09:28:17.620	2.66	30:20.8 min
Total	4138					



POWER QUALITY SUMMARY
Instantly displays all anomalies and problems.

Just click to:



Just Click the **Details** button to access the vector analysis screen.

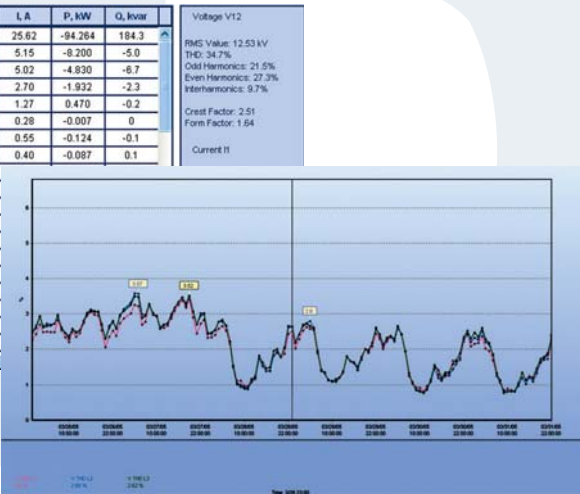
Power Quality

International standards compliance

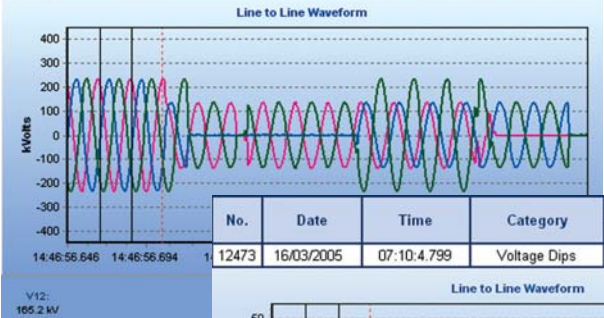
eXpertpower™ complies with international power quality standards EN50160, IEEE1159 and IEEE519. Clients may select which standard is most suitable to their purposes. The standard used by the local electric company is usually a good choice.

	V, %	I, %	P, %	Q, %	Angle	V, kV	I, A	P, kW	Q, kvar
H01	100.0	100.0	100.0	100.0	117.09°	8.078	25.62	-94.264	184.3
H02	23.0	20.1	8.7	2.7	-148.84°	1.859	5.15	-8.200	-5.0
H03	20.4	19.6	5.1	3.6	-125.71°	1.647	5.02	-4.830	-8.7
H04	13.7	10.5	2.0	1.2	-130.18°	1.109	2.70	-1.932	-2.3
H05	4.9	5.0	0.5	0.1	-20.56°	0.395	1.27	0.470	-0.2
H06	0.9	1.1	0	0	0°	0.070	0.28	-0.007	0
H07	3.8	2.1	0.1	0.1	-137.67°	0.307	0.55	-0.124	-0.1
H08	4.7	1.6	0.1	0.1	124.48°	0.379	0.40	-0.087	0.1
H09	2.5	1.1	0	0	-158.95°	0.205			
H10	1.4	1.0	0	0	140.51°	0.115			
H11	1.2	0.3	0	0	0°	0.097			
H12	0.3	0.5	0	0	0°	0.023			
H13	0.5	0.9	0	0	0°	0.043			
H14	0.7	0.7	0	0	0°	0.053			
H15	0.6	0.3	0	0	0°	0.048			
H16	0	0	0	0	0°	0			
H17	0	0	0	0	0°	0			
H18	0	0	0	0	0°	0			
H19	0	0	0	0	0°	0			

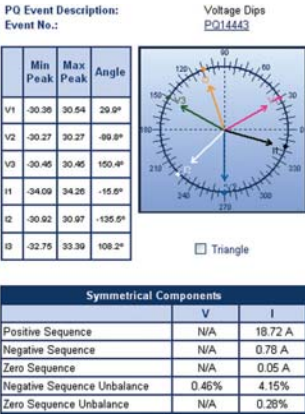
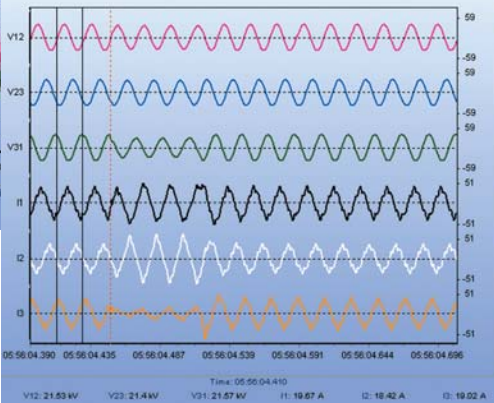
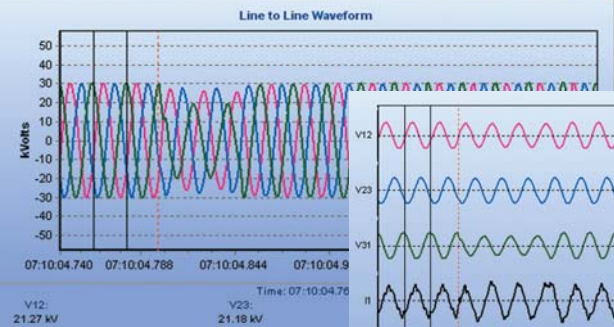
HARMONIC SPECTRUM TABLE



No.	Date	Time	Category	Phase	Magnitude Value	pu	Duration
943	09/01/2005	14:46:56.704	Sag	L12	19.267	.12	11.00 cycles.



No.	Date	Time	Category	Phase	Magnitude Value	pu	Duration
12473	16/03/2005	07:10:4.799	Voltage Dips	L31	13.288	.664	2.00 cycles.



Just click to:



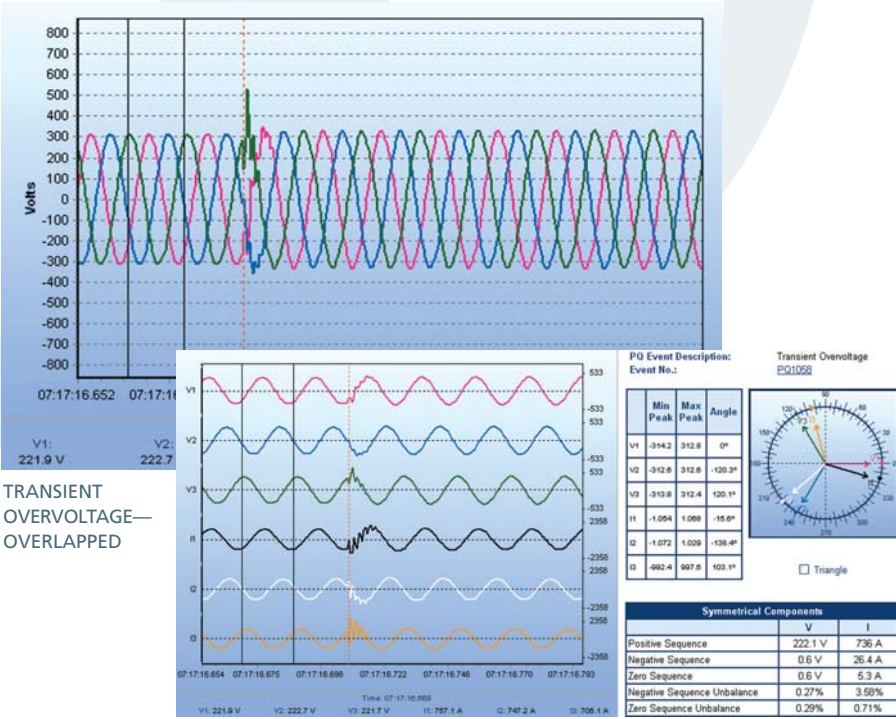
	V, %	I, %	P, %	Q, %	Angle	V, kV	I, A
H01	100.0	100.0	100.0	100.0	117.09°	8.078	25.62
H02	23.0	20.1	8.7	2.7	-148.84°	1.859	5.15
H03	20.4	19.6	5.1	3.6	-125.71°	1.647	5.02
H04	13.7	10.5	2.0	1.2	-130.18°	1.109	2.70
H05	4.9	5.0	0.5	0.1	-20.56°	0.395	1.27
H06	0.9	1.1	0	0	0°	0.070	0.28

Just Click the **Spectrum Table** button to view the harmonic spectrum page.

Benefits for Utilities

Due to the dynamics of the energy field, standardization is fast becoming a major concern. Some of these standards pose a real challenge for utilities. Many find that the high cost of equipment is an obstacle in the path of progress. eXpertpower™'s power quality monitoring bypasses this obstacle and enables utilities to improve their service and meet standard requirements. As a result, utilities can lower expenditure on personnel, maintain high levels of power quality and prolong asset lifetime. All this amounts to considerable savings.

- **Meet industry standards** such as EN50160, IEEE1159 and IEEE519.
- **Determine fault sources:** whether internal, in another utility or in the customer site.
- **Generate sophisticated reports** effortlessly. Engineers need no longer waste precious time on ploughing through raw data. eXpertpower™ does it for them.
- **Avoid litigation** following poor power quality events.



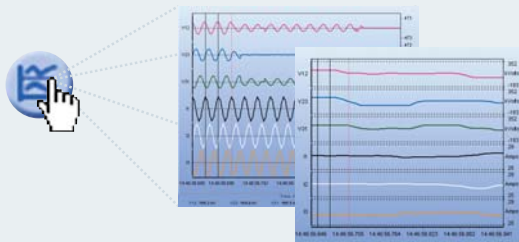
TRANSIENT OVERVOLTAGE WITH VECTOR ANALYSIS

Benefits for energy consumers

Power quality is not just about sensitive end-use devices. It has much to do with the AC power line of each facility. This indispensable source of power for all operations may also be a cause of equipment malfunctions and component failures. The AC feed delivers not only electric power but also voltage sags, surges and transients. eXpertpower™ presents you with comprehensive tools to cope with the entire range of power quality issues. Use our expertise in power quality to monitor, analyze and repair power quality problems.

- **Become an expert** in power quality at a mouse click. eXpertpower™ processes the complex data into user-friendly tables, charts and graphs.
- **Understand** standard requirements with the aid of clarification tables prepared by our experts.
- **Identify and solve** power quality problems to preserve equipment and ensure uninterrupted work flow.

Just click to:



Just Click the **RMS Plot** button to view waveform captures in RMS values .



Vaulted intelligence at your disposal

Security & Access

Data protection

Data privacy and system security are of vital importance to any corporation, and more so when corporate data is accessed via the Internet. This makes us doubly attentive to security issues. Our e-Service is therefore designed to maintain high security on all levels of data storage and user access.

eXpertpower™ employs one of the leading web security solutions available today, offering comprehensive security against worms, viruses, unauthorized hacker attacks and more. This solution encompasses firewall, VPN, intrusion prevention and anti-virus protection. With our 128-bit SSL browser access, all employees, including those using remote or mobile access, can securely connect to eXpertpower™. All they need is a standard browser and Internet access.

eXpertpower™ is a multi-level security system, so as to achieve a containment of separate elements in the system. This separation strengthens the system's immunity, and guarantees our clients' privacy. The security mechanisms supporting the eXpertpower™ security model, combine therefore to make it a highly immune system. To confirm this, SATEC has commissioned a security firm specializing in security verification.

The security is further divided into two areas - incoming data and browser security. The information collected from the measuring instruments is partly sent through encrypted channels, using SATEC proprietary protocols. The next system updates will implement encryption for all data sent from client devices to eXpertpower™ collecting clusters.



User access

eXpertpower™ uses a role-based model to administer and control user access. A unique profile is created for each user, defining the data he/she is allowed to view or edit, and restricting access via user ID and password protection. The user ID system prevents willfull or accidental exposure to uncertified persons. eXpertpower™ cannot be accessed via the browser's history options. The Login screen will always appear in these cases, requiring users to supply user name and password once again.

Users accessing eXpertpower™ do not have access to the customer LAN, devices or the customer facility. The user can only access the data that resides in eXpertpower™.

Service tailored to your needs

Our expert team designs an application tailored to your needs, based on your input.

- **Utilize** the experience and vast knowledge of our service-oriented team to effectively address all your energy needs and perfect your management system.
- **Create** your own energy management site within eXpertpower™. Your needs and requirements are our guide. Additional features and developments are always available at your request. Moreover, additions developed at the request of other clients will also be implemented for your benefit.
- **Extract information** and reports from the data base in common formats (Excel, Access, etc.)
- **View eXpertpower™ in your own language.** eXpertpower™ is fully compatible with the latest Unicode specifications, enabling it to support all modern languages, both left-to-right and right-to-left.
- **Define** any number of virtual sites and sub-sites (as small as one device), for separate monitoring, management and billing. Virtual sites can be created independent of geographic location.

Just click to:



Just Click the **Select Event Category** button in the Event Log or Alarms page to filter your events by category.



Just Click the Administration menu (if your user rights allow it) to fine-tune user options.

The new world of power management confronts business executives with the rising importance of power quality, cost and up-time. Good energy management means good business management, and this requires a powerful energy management system capable of addressing all your energy needs, present and future.

eXpertpower™'s Internet-based service brings you all the advantages of electric power management expertise without capital investment and maintenance expenses.

eXpertpower™ delivers aggregate data analysis and corporate overview, to promote better energy management and power quality. With **eXpertpower™**, you can monitor, analyze and manage your entire power system to increase efficiency and save money.





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