WATT'S NEW?

SATEC'S EMPOWERING NEWSLETTER

NUMBER 2
NOVEMBER
2009

G2

There's something about fall...

Since we were all at school (remember?), fall was the time that we sharpened our pencils and brains, mapped out our goals and committed ourselves to achievements.

The days get shorter, but production rate picks up speed; we sometimes get gloomy about the weather, but we know that in spring we'll see our efforts blossom.

This fall at SATEC is no different...

The R&D team is working full force on a new generation of releases. Business development and Sales are establishing exciting new contacts with distributors and business partners.

Just like at school, the success is what's driving us all - but we're enjoying the challenge every inch of the way...

Happy toiling!

Galia & Gvira

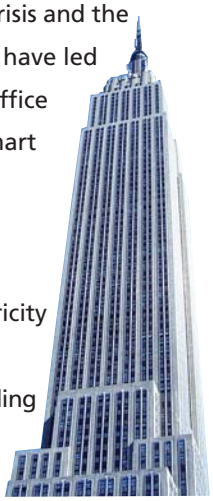
Got anything to say? Comment, project, interesting quote? Mail us!

NOTABLE PROJECTS

The Empire State Building

The Empire State Building is located in the heart of NYC and is one of the world's greatest landmarks. SATEC's Branch Feeder Monitor (BFM136) will be used to measure the building's energy usage. Cost allocation and monitoring tenant space for their actual energy usage will be the primary goal.

The recent financial crisis and the rising costs of energy have led shopping malls and office buildings to install smart systems, allowing for complete and precise control over the consumption of electricity and air conditioning. The Empire State Building consumes up to 40 million Kwh annually, therefore demanding a fully integrated system that provides solutions for measuring and managing electricity, as well as for conserving energy consumed by the air-conditioning systems.



For more info: marioa@oksatec.com

The New York Giants

SATEC recently completed the first stage of a project for New Jersey Sport & Expo Authority (NJSEA). This was for the New York Giants stadium, the Meadowlands. SATEC instruments are monitoring the stadium where the actual games take place as well as NJSEA's practice facility. This facility hosts Soccer and Football games as and many other events.

For more info: marioa@oksatec.com

NEW SATEC DISTRIBUTORS

NHP Electrical Engineering Products Ltd.

Australia

Specializing in the commercial market.

Contact: Robin Stephenson, Product Engineer - Green Technology

www.nhp.com.au

Engineering Computer Services Ltd.

New Zealand

Specializing in the Industrial market.

Contact: Garry Rayner, Managing Director

www.ecs.net.nz

www.lappgroup.co.nz

www.moxa.co.nz

SATEC EXPERTPOWER™ & ADIF/RENFE RAILWAYS, SPAIN

Salvador Burgaleta, STS Executive Director, Spain salvador@sts-e.com

ADIF control map

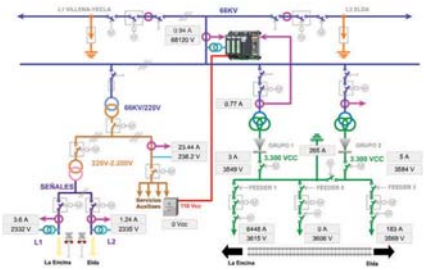
Spain's ADIF Electrical Railways spans over 13,000 km with about 530 railway stations.

ADIF's electric system operates on 66 kV AC /20 kV AC/ 3.3 kV DC. The railway's many substations needed to be monitored and controlled in order to supply the trains and the signaling systems with the necessary energy and with good power quality.

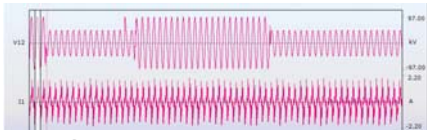
An effective monitoring system can help the operators of the electrical system choose the best tools for proper action in order to maintain the system's performance.

ADIF's monitoring system operates with SATEC's ezPAC SA330 analyzers. The SA330 monitors & analyzes the voltage level of the substations' AC incomer, the DC of the railways lines and the signaling systems.

- Special fast DC analog inputs offer accurate measurements of the voltage and the current variations.
- The 1/2 cycle data recording enables to analyze the correlation between the AC and the DC voltage variations.
- The high-speed waveform capture of the voltage disturbance enables to monitor and analyze the influence of the friction point on the DC lines.
- The SA330's digital inputs enable to monitor the exact status of the electrical switches and the signaling system. In addition, the SOE (Sequence of Events) function enables to analyze events in case of faults in the signaling system.
- The SA330 is connected to the Internet via TCP/IP port and to the local control system through several communications ports.



One-line diagram, Villena substation



Waveform log

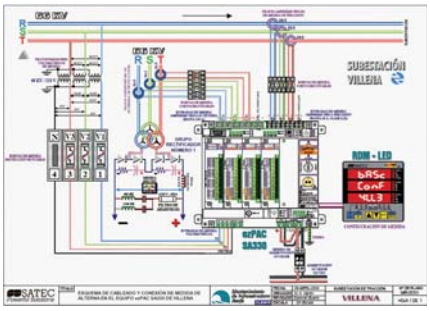
ezPAC SA330

Phase Basic Measurements				History
Phase	L1	L2	L3	
Voltage LN	66010	66110	66060	V
Current	105.50	105.60	105.70	A
Current X	220.50	222.50	224.50	A

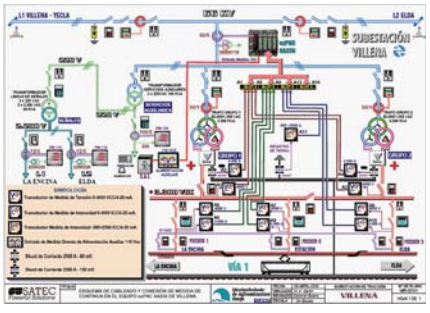
Total		History	
Active Power	123466		kW
Reactive Power	9886		kVar
Acc. Power Demand	36801		kVA

Analog Input		History	
V Grupo1	65.50		V
I Grupo 1	4010		A
V Grupo2	4020		V
I Grupo 2	89.50		A
V Feeder1	4025		V
I Feeder1	92.40		A
V Feeder2	4022		V
I Feeder 2	91.30		A
V Feeder3	4021		V
I Feeder 3	90.20		A

Real-time AC/DC data



ezPAC—AC supply monitor



ezPAC—DC systems monitor

BACK FROM...

September 10-12 2009

INDIA ELECTRICITY

New Delhi, India

www.indiaelectricity.in

WWW.WWW.WWW

New at satec-global.com

1. Complete reviews on the four **eXpertpower™ packages**:
   a. eXpertpower™ **Lite**
   b. eXpertpower™ **Billing**
   c. eXpertpower™ **Savings**
   d. eXpertpower™ **Pro**

Each contains a general description, detailed features and a screenshot gallery that presents more capabilities than thousands of words.

2. A new **Info Center** upgrades our site with articles written by SATEC's leading experts. We strongly recommend that you read Ed's article on our partnership for a Smarter Grid; Learn about our demand response solution in "Generating Income with SATEC solutions" and brush up your technical knowledge with BFM136 Application notes.

Keep visiting us at www.satec-global.com—you'll always find something new!

WHERE TO?

November 12-13 2009

SAEEC 2009—Southern Africa Energy Efficiency Convention

Johanessburg, Gauteng

The SAEEC2009 is an important energy event of national scope for end-users and energy professionals in all areas of the energy field. This is a comprehensive forum where you can fully assess the "big picture" and see exactly how all the economic and market forces, new technologies, regulatory developments and industry trends merge to shape the critical decisions for the organisation's energy and economic future.

www.saeec2009.org.za

December 1-4 2009

ELECTRICAL NETWORKS OF RUSSIA

Moscow, Russsia

The international exhibition and seminar, at the All-Russian Exhibition Centre (AREC), Exhibition hall 69.

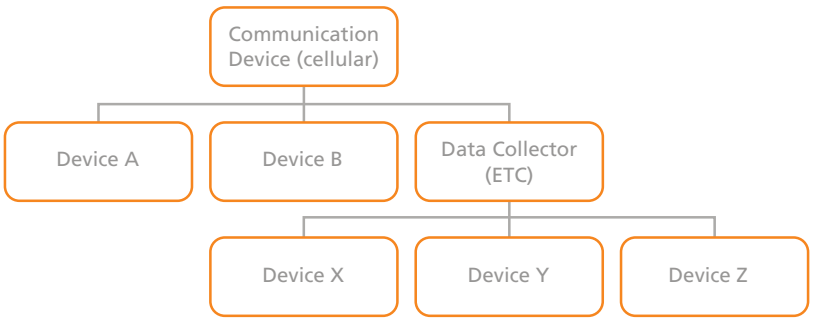
expoelectroseti.ru

SATEC
Powerful Solutions

eXPERTIP

In an application with multiple meters being read via GPRS, you may find that the readings are not synchronized. This can cause discrepancies in calculating collective max demands, virtual readings and may even affect certain energy calculations.

eXpertpower™ solved this problem by adding a new entity called a data collector: use the ETC2002 for data logging, in a manner that's non-dependant on cellular services. The data will be logged in a synchronized manner and then polled via GPRS communications.



ezPAC, EM720

SNTP client

The SNTP client provides periodic synchronization of the meter clock with a publicly available SNTP server or with a local SNTP server. Number of remote SNTP servers supported: 2 (primary and secondary).

ezPAC

- **1 PPS time synchronization**

1 PPS clock synchronization via a digital input from an external GPS master clock.

- **32 Digital Inputs module**

New ezPAC module enabling up to 32 Status Inputs capture in one single module, up to 96 Status inputs per device (up to 48 inputs in waveform log).

- **16 Relay Outputs module**

16 relays, one contact Form A in one single module, up to 64 relays per device.

- **Programmable relay blocking**

Programmable relay blocking option - blocking is set by default if programmed for a relay, unblocking relay operation is via setpoints.

- **IEC 61850 communication protocol**

IEC 61850 communication protocol over IP for substation automation control

- **GOST 13109-97**

Russian Power Quality standard support.

PM130 PLUS

- **TOU Enhancement, Event log, Data log, Daily profile log**

Up to 8 TOU tariffs. Freely configurable 59520 bytes of non-volatile memory: event log, one data log (up to 9 parameters per record, periodic or setpoint driven recording), one daily profile log of energy and maximum demands.

TCP Notification client

Protocol: Modbus/TCP.

Communications: Ethernet, GPRS.

Devices supporting this feature: PM130 PLUS, PM172P/E-N, PM172EH-N, PM174, PM175, BFM136.

The TCP notification client can establish connections with a remote Modbus/TCP server and send notification messages either on events, or periodically on a time basis. Notification messages are sent via a block of 16 Modbus registers using write function 16. The server's IP address, port number and starting Modbus register address are programmable in the meter. Client connections are triggered via programmable setpoints, which are configured to respond to desired triggers or to periodic time events. After receiving a write acknowledgement from a server, a TCP connection is still open for 10 seconds (20 seconds via GPRS) to give the server an opportunity to access meter registers through an open socket.

GPRS client communications in meters using RS-232 port

Protocol: Modbus/TCP. GPRS modems supported: Enfora GSM1308.

Applications: eXpertpower™ client connections, TCP notification client connections.

Devices supporting this feature: PM130 PLUS, PM172P/E-N, PM172EH-N, PM174, PM175, BFM136.

GPRS communications allows the eXpertpower™ client and the TCP notification client to establish remote connections with the eXpertpower™ server and TCP notification server via a wireless network.

expertpower™ - ENERGY MANAGEMENT TO EMPOWER

WATT'S NEW IN EXPERTPOWER™?

Maintenance features

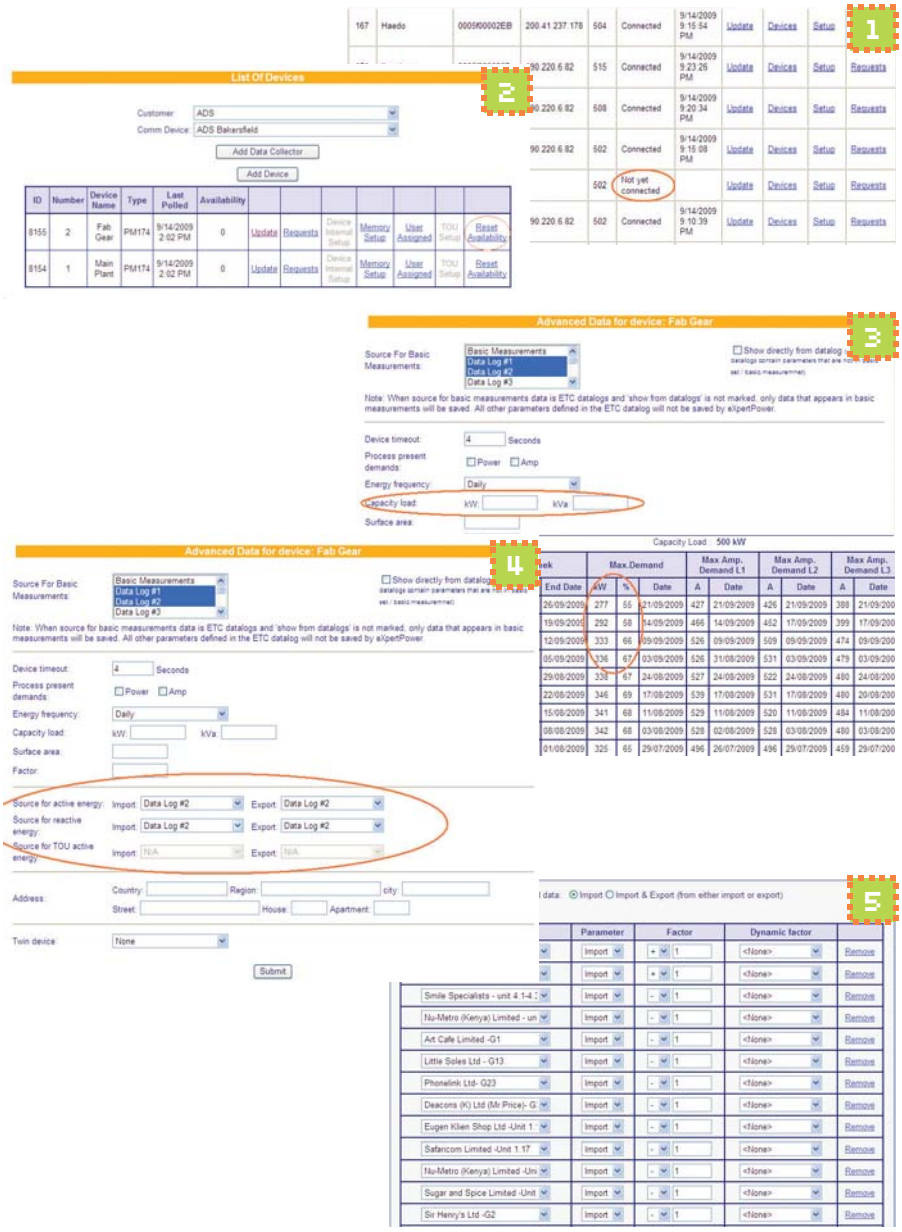
1. Differentiate between new/not yet connected ETCs and disconnected ones.

2. Reset device availability: when an ETC does not communicate for a while, it's priority is continuously lowered in order to avoid extensive load on the system caused by multiple retries. If the cause for lack of communication was fixed, the availability can be reset to normal using the "reset availability" function.

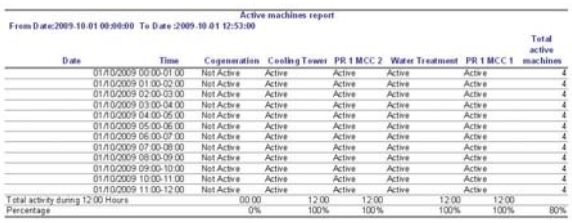
3. Define capacity load for a device: display on One Line Diagram or as reference in maximum demand report.

4. Choose which of the energy measurements serves for calculating import and export.

5. Define a formula for virtual devices based on other devices and requested factor.

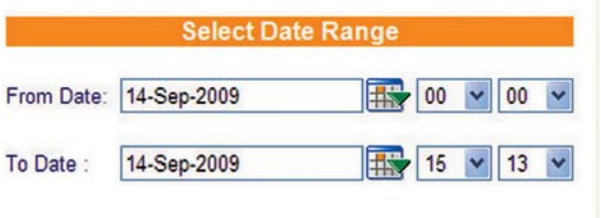


Active Machines



An overview of which machines were active or non active at a given time. Great tool for Energy management.

And More:



Cut back on clicking between irrelevant readings and zoom into a specific hour using the high resolution data picker. You'll find it in basic measurement history and data logs.

For more info: noamb@satec-global.com

CLIP-ON TO AUTOMATE TECHNOLOGIES REVOLUTIONIZE SUBSTATION AUTOMATION

Edwin R. Hoinowski, President SATEC Inc. ehoinowski@oksatec.com

Most of the distribution substations in need of automation today are typically older subs constructed 20 or more years ago, with feeders equipped with analog type metering and electromechanical type protective relaying for system protection.

Though the existing electromechanical relaying may be old, they still have many years of remaining service in them. They are also regarded by most to be highly reliable, and easily understood by the operators and maintenance people utilizing them. However, they lack the ability to remotely send back measurement and status data information regarding loading, protective relay operation and breaker status. With the ever increasing need for "Smart Grid" performance at these locations, a viable solution must be found to automate these substations in a fast, economical manner that extends the useful life of the existing relays and minimizes any disruption of operation.

Simply Clip-on to existing 5 Amp CT secondaries up to 400 feet away

New Clip-on to Automate technologies provide the needed solution for today

At last there is now a solution that can be deployed quickly without disruption and without major investment, while providing the precise information and correct operational data required for today's critical power environment, in an ultra easy, accessible and useable manner.

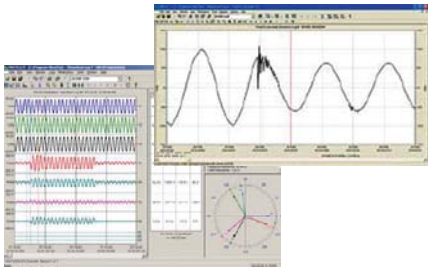
Automate by adding to existing relays, instead of replacing them.

A viable solution to automate substations in a fast, economical manner, extending the useful life of the existing relays and minimizing any disruption of operation

SATEC's **Clip-On to Automate** concept calls for adding a single PM174/5 Power Quality/Fault Analyzer to each feeder with the utmost minimal panel and wiring changes, to give total automation information, while co-working with the existing electro-mechanical relays, and not interfering with the protection scheme. It extends the useful life of these relays by providing all the information that they cannot. **The result is the most cost-effective, compact, and fastest means to automate.**

The PM174/5 PQ Analyzer

- Fits into the standard 4-inch round meter hole, replacing the space of any existing analog "needle" meter; also available in a DIN-Rail transducer version.
- Connects to the existing PT's for voltage and simply "clips-on" to existing CT secondaries for currents – not disturbing the CT circuits at all. The clip-on CTs are milliamp driven (not voltage driven) to allow up to 400 feet distance without signal degradation, provide excellent noise immunity, etc. **They cut the traditional installation time and costs in half over direct wiring practices.**
- Provides True RMS, simultaneously sampled, cycle-by-cycle measurements at 128 samples per cycle for 0.2 percent revenue grade accuracy.
- Provides memory for data logging and trending information traditionally supplied by chart recorders.



100 Amp (20X) Fault Currents, Phasors and Symmetical Components, as well as Power Quality per IEEE 1159

- Measures fault currents to 100 Amps (20X) via clip-on CTs and provides complete fault waveforms at 128 samples-per-cycle, to allow full analysis from long duration trip/reclose recordings to short duration capacitor bank switching disturbances. Also provides phasor diagrams and symmetrical components.
- Provides extensive Power Quality information per IEEE-1159 categories. These include a detailed description of the event (sag/swell, transient, etc.), phase, magnitude and duration. They also provide full 3-phase voltage and current waveform information, with pre/post fault, at 128 samples per cycle. Measurements of Flicker per IEC 61000-4-15, ITI (CBEMA) curves, Statistical report writer, and export to PQDIF and COMTRADE format are supported.
- Provides full Harmonic information to the 63rd harmonic, and includes Voltage, Current, and Power harmonics, including the direction of each individual harmonic, whether Source or Load generated. It also features intelligent Setpoint monitoring to alarm if harmonic levels rise to a point that will cause decreased capacity of equipment, to help prevent transformers, feeder wires, fuses, etc., from being inadvertently overloaded.
- Provides Smart I/O for status information, logic and control.
  - Up to four digital inputs for monitoring Breaker status, relay trip targets, etc., time stamped to 1 ms.
  - Up to four relay outputs for selective alarm and logical control of capacitors, voltage control, load shedding, etc., via AND/OR set point logic.
  - Two optional analog outputs are available to output transducer data such as Watts, Vars, etc., to older type SCADA RTUs.
  - Two optional analog inputs for sensor data such as transformer temperature, pressure, etc.

Bright LED display and optional intelligent touch-screen display for waveforms

- Provides bright 3-phase-at-once LED local display with optional surface or rackmount Intelligent Graphic Touch-screen display for Fault and PQ waveforms, Phasors, etc.
- Provides multi-port remote communications to allow standard operational data to be collected by traditional SCADA systems from one port, and higher level "non-operational" type data from substation feeders to help identify and solve power system problems, that the traditional relays cannot provide, to be polled and collected by different departments. These include Power Quality, Waveform analysis, Harmonics and predictive information. It is ideal for substation automation because of its support of the industry standard DNP3.0 and Modbus RTU protocols over RS232, RS485, Ethernet or modem options.

At last there is now a solution available in the Substation / Feeder Automation market that is considerably less costly than the process of total replacement of the electromechanical relay scheme with new microprocessor devices, is tremendously faster to implement, keeps disruption to an absolute minimum, and provides the precise information and operational data needed for today's critical loads.

Got anything to say?

Comment, project, interesting quote?

Mail us!

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