



EnergyMaster™

ENEC Monitoring System

An on-site supervision and remote monitoring solution



Take Control of Your Critical Infrastructure

No one knows better than you what's at stake if your power infrastructure is compromised or fails. No one knows better than Vertiv™ what it takes to achieve true critical infrastructure management.

KEY BENEFITS

Decrease loss of revenue and improve customer satisfaction

- Minimize downtime
- Solve problems faster with advanced alarm identification
- Get proactive real-time fault notification

Reduce and optimize preventive and corrective maintenance

- Diagnose problems remotely
- Reduce on-site travel with advanced alarm identification
- Utilize your service resources more effectively
- Maximize equipment performance for greater energy savings
- Perform remote battery tests
- Trace problems easily with alarm analysis

Improve investment planning

- Network utilization overview
- Plant reengineering – know the necessary resources (how much, where and when) ahead of time
- Optimize spare parts inventory.

Introduction

With operating and maintenance costs for energy equipment hitting the roof, uptime can be as costly as downtime if you don't properly control and monitor your network.

If you have in house experts that can supervise your infrastructure equipment, ENEC offers a totally computerized supervision and control system. ENEC provides detailed, condition-based information centrally and conveniently, giving you a complete and instant overview of the status of your critical infrastructure.

With ENEC, you can directly execute certain configuration and functionality commands on the connected equipment.

If you don't have in house expertise, Vertiv offers a broad array of monitoring services. We take an integrated approach to managing the energy and health of your network infrastructure. Our experts monitor your mission critical equipment for maximum energy savings and provide consistent network reliability through remote supervision routines that reduce maintenance costs.

Even selecting Vertiv's remote services or supervision and control system independent of one another will provide you better control of your network and costs. By being able to diagnose and solve problems remotely, you will reduce travel to site, lowering your CO₂ foot print and on-site costs.



ENEC is a total critical infrastructure management solution that provides all the user-friendly convenience and power of a computerized system.

ENEC lowers your operating and maintenance costs, and improves your network's reliability and availability.

ENEC – A Total Critical Infrastructure Management Solution

ENEC is a multi language, multi-user application that connects the systems it monitors over the internet or a proprietary intranet.

It can be installed on a single computer or distributed over several computers belonging to the same local area network.

ENEC allows users to connect to multi-vendor critical infrastructure equipment at telecom and datacom sites in order to monitor and manage the equipment. Via a remote connection, the supervisory system will gather a continuous stream of vital health parameters and equipment alarms at the site, such as batteries, genset, cooling equipment, UPS, renewable power sources, DC power and inverters.

ENEC includes predefined user profiles with corresponding rights and restrictions. These determine user access to the various system windows and functions.

The profiles and their associated users can easily be added, modified and deleted.

With Vertiv™'s remote services program, our experts will help you control and analyze all the incoming data gathered by ENEC. They will solve site problems either remotely or by dispatching field staff with the appropriate competence. The key in this service is not only our advanced system collecting the site data, but even more so the competence to review, understand, analyze and make conclusions based on the data.

Vertiv gives you access to these experts, helping you optimize the operation of your network.

ENEC ENTERPRISE

For middle to large sized supervision centers

- Capable of monitoring thousands of sites
- Provides SMS and email alarm upgrade, webcam, door access control, interface with other systems (SNMP, ARS, TCP/IP) and graphical navigation
- Features SSL, unlimited number of users, and no limit of communication processes.

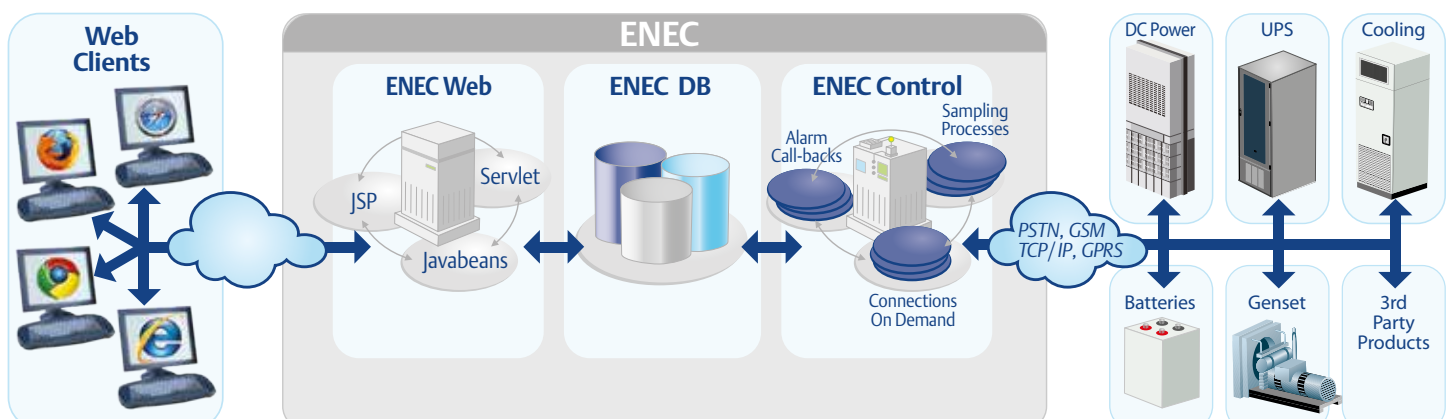
ENEC LITE

For small to medium sized supervision centers

- Designed for monitoring hundreds of sites
- Provides basic monitoring and control features
- Can be installed in a laptop or regular computer (automatic installation).



User management view



ENEC Enterprise

ENEC Enterprise is an advanced version of Vertiv™'s supervision and control system. ENEC Enterprise is an open system supporting industry-standard protocols, allowing an unlimited number of systems at several sites to be monitored at the same time. Using a simple Web browser, it is possible to see all data, alarms and statistics of any of its components at all times. ENEC Enterprise also includes an SNMP agent that sends notifications to one or more SNMP managers each time an alarm is activated or closed.

Alarm Management

The Alarm Management feature generates various types of configurable alarm reports, real time, displaying all existing and prior alarms for the equipment being monitored.

It can also report additional information on the equipment, such as the actual temperature that triggered a high temperature alarm.

The alarm reports are automatically and periodically updated, showing new alarms, closed alarms and any changes that have taken place and been detected during sampling, alarm report reception or on demand connections. These reports can be exported to different file formats.

The system can be configured to send an SMS to one or several predefined users when a new alarm is detected. This feature is also able to telephone the user when an alarm is not acknowledged, before the next SMS message is sent to another user level.

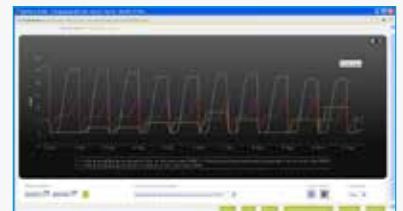
When active alarms are not attended or resolved within a specific, configurable time, the application can also send emails to predefined users. If, in spite of having sent the emails, the alarms stay active, the system will send further emails to the responsible users at the next user level and so on until the alarm is deactivated.

Maintenance & Control

The Maintenance & Control feature allows continuous collection of data from various sites simultaneously. At the same time, it can receive alarm reports from the sites and be connected on demand to one or more sites at a time. While connected to the equipment, remote commands and configuration parameters can be sent, permitting full remote management of the connected equipment at the plant.

Statistics Management

All data collected by ENEC can be used to produce statistics for any period of time defined by the user, with configurable times between measurements. Statistics are stored in a database capable of generating graphics in real time. The data can be exported to other applications, such as Microsoft Excel and CSV.

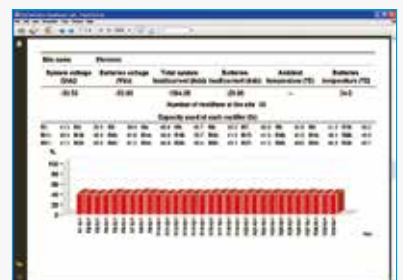


Statistics management graph

Report Generator

With the Report Generator feature, you can create various reports by different criteria according to your needs.

This way you can extract important information related to your infrastructure equipment as it is needed.



Site status overview report

User Interface

Network Camera Support

One or more netcams can be installed to enable remote surveillance functions.

This could be used for visual inspection of the site or remote guidance for on-site personnel, e.g. an installer.



Customized Site View

One or more customized views of the sites can be created.

It is possible to combine images, elements in the library and Widgets (gauges, panels, switches, etc.) that will represent the different information available in the site.

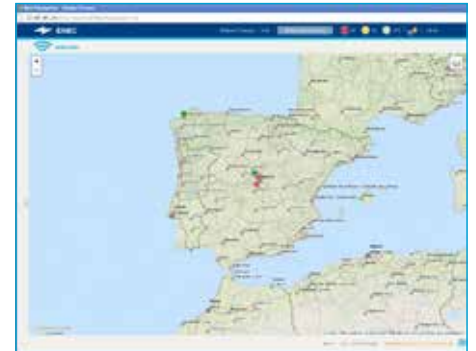


The user can choose to view the monitored sites in two different ways:

- 1 A general view of the country/area with configurable maps, showing where the equipment is located (region, country, city and on the site). In the most detailed view, on the site, the users can see the alarm status of the connected equipment by use of colors.



Select the region



Zoom to specific country

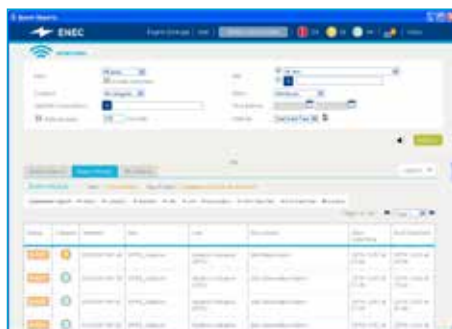


Zoom to city (or N number of sub levels)



Zoom to specific site view

- 2 A plant structure shown as a report (the example to the right shows an alarm report). From both views it is possible to access N sublevels until the actual site is reached. From the site view it is possible to access all available data, alarms, statistics and commands for any component shown in the site view.



Alarm report

ENERGYMASTER™ ENEC MONITORING SYSTEMS

AN ON-SITE SUPERVISION AND REMOTE MONITORING SOLUTION

ENEC Lite

ENEC Lite is a user friendly monitoring system for multiple users that enables real-time monitoring of your whole network. It can manage all Vertiv™ equipment as well as most third party systems. Since many problems can be solved remotely, site failure prediction and high accessibility saves money and avoids unnecessary trips to sites.

ENEC Lite is designed for remote supervision of smaller operation centers with up to 255 systems that don't require sharing with external system alarms using SNMP traps, Report Generator, Network Camera Support or other advanced remote supervision features. ENEC Lite is easy to install by means of a CD on a laptop or regular computer.

With all the user-friendly convenience and power of a computerized system, ENEC monitoring systems from Vertiv improve your network's reliability and availability, reducing operating and maintenance costs.



ENEC can manage a network of sites with critical infrastructure equipment from Vertiv as well as third party suppliers.

	ENEC ENTERPRISE	ENEC LITE
Number of Sites	More than 2500	Maximum of 255
Database	Oracle 12c Standard edition 2	Oracle 11g XE
Web Server	Apache Tomcat 7.0	Apache Tomcat 7.0
Web Environment	✓	✓
Distributed	✓	-
Multi-User	Unlimited	4
Multilanguage (English, Spanish, Russian)	✓	✓
SSL	✓	-
Energy Systems Management	✓	✓
Climate Systems Management	✓	✓
UPS Management	✓	✓
Site Access Control	✓	-
Netcam Surveillance	Unlimited	-
Number of User Profiles	Unlimited	2
Number of Concurrent Polls	Unlimited	3
Number of Concurrent Alarm Reports	Unlimited	3
Number of Concurrent Connections	✓	4
Graphical Navigation (Static maps, Google maps and OpenStreetsMaps)	✓	-
Customizable Site View	✓	✓
User Management	✓	-
Messages Between Users	✓	-
System Events	✓	✓
Alarm Reports	✓	✓
Alarm Management	✓	Two Alarm States: Acknowledged / Not Yet Acknowledged
Email Alarm Upgrade	✓	-
SMS Alarm Upgrade	✓	-
Statistics	✓	✓
SNMP	✓	-
Adaptable Reports	✓	-
Communication Media (TCP/IP, PSTN, GSM, GPRS, Serial)	✓	✓
Multi-vendor Equipment Management via MODBUS Protocol	✓	✓
Multi-vendor Equipment Management via SNMP Protocol	✓	✓
Equipment Management via YDN23 and SiteWeb Protocol	✓	✓
Interface with External Systems (ARS Remedy, SNMP, TCP/IP, WebServices etc.)	✓	-
Supported browsers: Microsoft Internet Explorer, Mozilla Firefox, Apple Safari, Google Chrome	✓	✓



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