Powerware® eNotify Remote Monitoring and Diagnostics Service
Technical Briefing Paper

Executive Summary

Eaton offers Powerware eNotify Remote Monitoring & Diagnostics Service, hereafter referred to as the eNotify Service, for Powerware UPS service contract customers. This briefing paper describes the technical details of the eNotify Service, allowing your I.T. and Facilities personnel to become acquainted with the architecture, process, and requirements of this capability.

The eNotify Service provides you with monthly reports detailing the ongoing health of your Powerware UPS. This report, called a Customer Monitoring Report, delivers information on your unit’s voltages, loads, and external factors such as temperature and humidity, depending on the model. Additionally, the report provides information about the attached batteries and system availability. All of these factors contribute to the Relative Health Index (RHI) score that allows you to compare your unit’s health relative to Eaton’s optimum Powerware UPS operating levels.

Additionally, the eNotify Service informs you when critical events are experienced. This service also alerts our 24x7 Customer Reliability Center (CRC) of any critical events and provides for proactive monitoring. Anomalies are checked for in incoming parametric or event data logs, upon receipt of a status or event e-mail, respectively. If an anomaly is detected, a CRC Analyst further analyzes the data for possible impending failures.

This service relies on a Web Card (Reference Appendix J for detail connectivity descriptions) attached to your UPS sending one-way status and event e-mails to Powerware Remote Monitoring servers that analyze and store the data. Those servers also take the appropriate actions of sending off notifications and reports.

Significant product changes within eNotify 2.0 include:
1. Compatibility with single phase 9-Series Powerware UPS models
2. Expanded international voltage and phase compatibility
3. Self installation capability and 90-day free trial via new eNotify Installation Wizard tool
4. Improved user control over reporting and notification escalation options for one to six contacts

As of May 31, 2007 the following Powerware UPS models* are compatible with this service:

- Powerware BladeUPS models
- Powerware 9395 UPS
- Powerware 9390 UPS
- Powerware 9330 UPS
- Powerware 9355 UPS
- Powerware 9315 UPS
- Powerware 9315 SBM UPS
- Powerware Plus 50-750 UPS
- Powerware 9305 UPS
- Powerware 9370 UPS
- Powerware 9340 UPS
- Powerware 9170+ UPS
- Powerware 9155 UPS
- Powerware 9125 UPS
- Powerware 9120 UPS
- Powerware 9140 UPS
- Powerware 9150 UPS

* UPS model availability is subject to change. Not all features are supported in all models.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>eNotify Benefits</td>
<td>3</td>
</tr>
<tr>
<td>Service Architecture</td>
<td>4</td>
</tr>
<tr>
<td>eNotify Service Process</td>
<td>7</td>
</tr>
<tr>
<td>Tasks at Customer’s Site</td>
<td>12</td>
</tr>
<tr>
<td>Web Card Web-based Application</td>
<td>14</td>
</tr>
<tr>
<td>Frequently Asked Questions</td>
<td>15</td>
</tr>
<tr>
<td>Contact Information</td>
<td>17</td>
</tr>
<tr>
<td>Appendix A – Sample Critical Event E-Mail</td>
<td>18</td>
</tr>
<tr>
<td>Appendix B – Format of Lost Communication Report E-Mail</td>
<td>19</td>
</tr>
<tr>
<td>Appendix C – Format of Lost Communication Report</td>
<td>21</td>
</tr>
<tr>
<td>Appendix D – Format of Lost Communication Report: Restored Communications E-Mail</td>
<td>22</td>
</tr>
<tr>
<td>Appendix E – Format of Customer Monitoring Report E-Mail</td>
<td>23</td>
</tr>
<tr>
<td>Appendix F – Format of Lost Communication Report: Non-SBM</td>
<td>24</td>
</tr>
<tr>
<td>Appendix G – Format of Lost Communication Report: SBM</td>
<td>27</td>
</tr>
<tr>
<td>Appendix H – Web Card Pre-Installation Requirements</td>
<td>28</td>
</tr>
<tr>
<td>Appendix I – Generic Self-Install Procedures</td>
<td>29</td>
</tr>
<tr>
<td>Appendix J – eNotify Remote Monitoring Connectivity Parts and Labor</td>
<td>30</td>
</tr>
<tr>
<td>Appendix K – Customer Method of Procedure (CMOP) Information Form</td>
<td>31</td>
</tr>
<tr>
<td>Appendix L – Glossary of Terms</td>
<td>32</td>
</tr>
</tbody>
</table>
Benefits

Customer Monitoring Report
One of the foremost benefits of the eNotify Service is the Customer Monitoring Report. This report allows your personnel to review Eaton’s analysis of each monitored Powerware UPS. The detailed information in the report provides your IT and Facilities departments with minimum, maximum, and average data values for the various parametric data points collected from the unit over the previous month. Additionally, depending on the unit, the report provides battery information including the number of times the unit has gone on battery, the total time it has gone on battery, and a breakdown of the number of times on battery by length. The unit’s availability for the month is also given.

Additionally, the Customer Monitoring Report contains a list of all of the critical events that have occurred over the past month. The next section provides information on service tickets that have been opened or closed within the past month. The final sections provide a link to Eaton’s online reports and display the last and next service tickets.

Further information on the Customer Monitoring Report can be found in the Report Generation section below.

Proactive Monitoring
Another benefit of the eNotify Service is the proactive monitoring, called Anomaly Detection, which is performed on each unit. Once per day, when the status e-mail is received, all parametric data, current and historical, is analyzed by the system for trending issues. Our Subject Matter Experts (SMEs) have defined a set of factors, or rules, which may indicate a potential upcoming failure. These rules are then compared against your unit’s parametric data and appropriate anomaly notifications are sent to a CRC Analyst. Additionally, any time a critical event is detected, a second set of rules is checked for additional anomalies. Through this service, we can take pre-emptive, corrective action to ensure the highest level of availability of your unit.

Further information on Anomaly Detection can be found in the eNotify Service Process section below.

Common Transport Mechanisms
Since the eNotify Service runs on common protocols and transport mechanisms, the connectivity between your unit and Powerware Remote Monitoring servers is easy to set up. The Web Card that is monitoring your unit uses an e-mail client similar to Outlook to send the status and event e-mails. The e-mail travels just like any other e-mail to your corporate e-mail server, or to Eaton’s e-mail server. From there it is just a matter of letting the e-mail server do its job in sending the e-mail to the recipient. By utilizing the common e-mail transport mechanism, you do not have to open your network to proprietary or potentially un-secure protocols and transports.

Further information on the e-mail transport can be found in the Customer-side Architecture section below.
eNotify Service Architecture

Architecture Overview

Figure 1. Overall Service Architecture

Figure 1 details the entire service architecture of the Powerware eNotify Service. The Web Card gathers data from the Customer UPS and Environmental Monitoring Probe (EMP). The EMP provides temperature and humidity measurements and two contact closure terminals. Once daily, or upon a critical event, the Web Card sends an e-mail to the Remote Monitoring servers. Also, status and event e-mails may be sent directly to the customer, depending upon the Web Card configuration. The monitoring e-mail is sent through the Customer’s corporate e-mail server, if configured to do so, otherwise it is sent through Eaton’s e-mail server. Once the Remote Monitoring servers receive the e-mail, the data is stored in Eaton’s database server. Appropriate notifications are then sent to the CRC Analysts and to the Customer. Reports are also generated by the Remote Monitoring servers and delivered to the Customer via e-mail.

Customer-side Architecture
Web Card
The Web Card is attached to the UPS and EMP in order to record parametric and event data. It also includes a web-based application (detailed in the section entitled Web Card Web-based Application below) that allows the Customer and the onsite Powerware Customer Service Engineer (CSE) to view the parametric and event data. The contents of the parametric and event data are detailed in the eNotify Service Process section below. Additionally, the Web Card sends out status and event e-mails to the Remote Monitoring servers, containing the latest parametric and event data.

E-Mail Server
Depending on your corporate e-mail policy, the Web Card was designed to send the status and event e-mails through either your corporate e-mail server or through the Powerware e-mail server. The specific configuration requirements for each setup are detailed in the Tasks at Customer’s Site section below.

The Web Card utilizes the Simple Mail Transport Protocol (SMTP) to communicate with the Remote Monitoring servers. This protocol was chosen for three reasons: reliability, pervasiveness, and accessibility.

Since the only requirement for delivery is to hand off to a proper e-mail server, the transport is reliable. The e-mail servers and network between them are responsible for delivering the e-mail. The inherent architecture of the Internet allows the message to be routed and re-routed, sent and re-sent as need be until the intended recipient receives the message.

The pervasiveness of the SMTP protocol is another reason that it is the preferred transport protocol. Almost every company in the world has some form of e-mail service. This ensures that the company not only has the network set up to transfer e-mails, but also the expertise, internally or externally, to maintain the e-mail service. This reduces the maintenance and complexity of using another, more obscure or proprietary, protocol.

Thirdly, the SMTP protocol provides for accessibility. As long as a company can send e-mail externally, corporate security does not have to change to allow the monitoring communication. Openings in firewalls, internal routing of e-mails, and connectivity to the corporate e-mail server are already set up for normal e-mail traffic.

Two standardized alternatives to the SMTP protocol are Web Services and File Transfer Protocol (FTP). While Web Services provide the same accessibility as SMTP (running over standard HTTP traffic), security and reliability are of concern. Strong security standards are not defined for all Web Services, and reliability would require additional code to acknowledge a successful transfer, thereby adding an additional level of complexity to the service. FTP also poses security risks along with concurrency and efficiency issues. Since FTP deals with the file system, ensuring that files aren’t overwritten or locked (concurrency) becomes an additional issue. Efficiency becomes an issue since it involves reading and writing from hard drives, which is always an expensive operation in terms of computing efficiency.

While SMTP is the current best choice for the eNotify Service communications, Eaton is constantly investigating new technologies and incorporating feedback from its customers and the market in its product plans.

Customer-Internal E-Mails
The Web Card can be configured to send the status and event e-mails directly to any of your internal e-mail addresses. The Web Card can be loaded with up to four e-mail addresses; however, two of the spaces are required for the monitoring service. The remaining two can be set up to deliver the e-mails to an individual e-mail account or an internal ListServ account that can disseminate the e-mails to subscribed individuals. Even in the case of an individual account, a group of people can receive the e-mail by configuring rules in the e-mail client and automatically forwarding the e-mails to groups of individuals.
**E-Mail Server**
The Remote Monitoring server includes an e-mail server. This server is used in receiving your status and event emails, sending your Customer Monitoring and Lost Communication reports, and sending notifications to you and the CRC Analysts when a critical event occurs.

**Database Server**
Eaton’s database server is used to store a variety of information concerning your company, your contacts, and information about the unit. Additionally, the database server stores the historical parametric and event data that is used in data analysis and report generation. This database is secure behind our corporate firewall and is accessible only to a pre-defined set of individuals. Additionally, the database server is backed up nightly, ensuring that the historical data is maintained to provide you with accurate reports.

**Report Generation**
In addition to the e-mail and database servers, the Remote Monitoring servers include an application server used to generate the Lost Communication and Customer Monitoring reports. These reports are generated in PDF format in order to deliver you a well-formatted, easily transportable document. Details about the report generation process and the content of the reports can be found in the eNotify Service Process section below.
eNotify Service Process

Process Overview

After a CSE sets up the Web Card using a specially-developed application called the Install Wizard, configuration and contact information is saved in the Eaton database server. The UPS and Web Card send status and event e-mails to the Remote Monitoring servers, which store and analyze the data, sending out proper notifications to the CRC Analyst and you, the customer. Reports are generated by the Remote Monitoring servers and delivered to your designated contacts. Contact between the CRC Analyst and your personnel can be initiated by either party for troubleshooting issues and changing service levels or contact / configuration information.

Incoming E-Mails

Web Card Data and Event Logs
The Web Card gathers information from the unit directly and from any external sensors that are attached. This data is referred to as parametric data and is stored within the non-volatile memory logs on the Web Card. Depending on the model, a potential list of UPS parametric data could include:
• Date and Time of Reading
• Input Voltage A to B (Volts)
• Input Voltage B to C (Volts)
• Input Voltage C to A (Volts)
• Output Voltage A to B (Volts)
• Output Voltage B to C (Volts)
• Output Voltage C to A (Volts)
• Output Load A (%)
• Output Load B (%)
• Output Load C (%)
• Input Frequency (Hertz)
• Battery Voltage (VDC)
• Internal temperature

Additional external sensor data collected could include, but is not limited to:

• EMP Temperature (Celsius)
• EMP Humidity (%)

In addition to the parametric data, the Web Card also records all events that are generated by the UPS. The set of possible events, depending on the model, could approach 200 different types. All of these events are stored within the Web Card’s non-volatile memory logs along with the date and time that they occurred.

The parametric data and event logs are review-able through the Web Card’s web-based application as detailed in a later section.

When sending either a status or event e-mail, the Web Card converts the parametric data and event data logs into comma-separated variable (CSV) files. These files contain the data in text format, separated by commas. Both files are then incorporated into the e-mail as attachments and sent to the Remote Monitoring servers. This one-way communication ensures that both the parametric data and event data logs are sent with either a status or event e-mail.

Status E-Mails
The purpose of a status e-mail is to summarize the status and activities of the UPS and attached external sensors based on the data contained within the Web Card parametric data and event logs. This e-mail is sent daily at a time set in the Web Card configuration settings. The e-mail contains the unit’s Serial Number, MAC Address, model number, and the two attachments of the parametric data and event data logs.

When the status e-mail reaches the Remote Monitoring servers, it is first authenticated as being a valid e-mail. There are several checks that the e-mail is put through in order to determine its validity. Next, the attachments are opened and the data is placed into the Eaton database server.

As a subscriber to the eNotify Service, Anomaly Detection is run against the parametric data. The rules are compared against not only the current data, but against all current and historical data in order to identify anomalies. These rules are defined on a per-model basis to ensure customized, more accurate anomaly detection. If an anomaly is identified, a CRC Analyst is notified. The CRC Analyst will then do further analysis on the unit and determine the next appropriate action.

Event E-Mails
The purpose of an event e-mail is to notify Eaton personnel (and possibly your internal staff) of a potentially critical event. While there are approximately 200 possible events on any given unit, only about 50 events actually trigger an event e-mail. The e-mail is sent to the Remote Monitoring servers as soon as one of those approximately 50 events is encountered. The contents of the e-mail, like the status e-
mail, contain the unit’s Serial Number, MAC Address, model number, and the two attachments of the parametric data and event data logs.

When the event e-mail reaches the Remote Monitoring servers, as with the status e-mail, it is first authenticated as being a valid e-mail through the system’s various checks. Next the attachments are opened and the data is updated in Eaton’s database server.

The e-mail is then checked to see if it is a critical e-mail. Out of the approximately 50 events that trigger an event e-mail, only about 10 are deemed critical events. The following list details the current set of critical events:

- UPS output power will turn off after the configured delay period
- Low Battery Alarm present
- UPS hardware fault detected
- UPS Battery completely discharged
- UPS Inverter fault detected
- UPS internally bypassed
- UPS output has been turned off
- UPS Shutdown Imminent Alarm condition exists
- The failure of one or more fuses has been detected
- A Relay, Contactor, or Breaker has failed

Any incoming event that is identified as critical is forwarded to the CRC. The information is also saved for future trend analysis and troubleshooting.

As a subscriber to the eNotify Service, the CRC Analyst will take a number of actions. First, the CRC Analyst will analyze the current and historical parametric and event data. Next, they will check to see if a CSE is currently at your site. If they are on-site, the issue is tracked against the already-open service ticket; otherwise, a new Request ID (issue tracking number) is generated for the critical event. The CRC Analyst next determines the proper support level and contacts you through the previously-established contact list. The information about the critical event is then forwarded to a Service Coordinator who assigns the appropriate personnel and manages the issue until resolution.

Also, an e-mail notification will be sent to all of your designated contacts describing the critical event. The content of the e-mail contains general unit and event information as well as a list of alarm statements and possible next steps that you can undertake on the unit. These alarm statements and next steps are critical event- and model-specific. The description of the event, however, will not be the same as what was produced by the Web Card. We have leveraged our SME’s knowledge of the events to provide your contacts with a more appropriate description. The format of the e-mail is in plain text so that it can be opened and read through a variety of devices and e-mail clients and the priority of the e-mail is set to ‘high’ so that it is more noticeable. A sample of the e-mail you will receive is included in Appendix A.

While a single condition may cause a number of critical events to be generated, the eNotify Service collects all incoming events for the unit for a pre-determined timeframe (currently set at 3 minutes) before sending off a single e-mail for the entire issue. This prevents you from receiving multiple automated notification e-mails concerning the same event. Additionally, the CRC can assist you with temporarily suspending the e-mail notification or permanently disabling it on a per-unit basis.

Lastly, Anomaly Detection is run against the event data. A pre-defined set of rules for the identified event is checked and any detected anomaly is sent to the CRC. CRC personnel investigate the anomaly and take the appropriate action.

Report Generation

General Report Information
All reports are generated in Adobe PDF format. This allows the report to be transported across various platforms. Additionally, all e-mails that have the report attached are formatted in plain text. This allows a variety of devices and e-mail clients to access the e-mail.

The reports will not be generated and sent until Eaton has recorded your contact information, ensuring that information is only generated and delivered to the appropriate personnel at the appropriate time.

All reports are less than 1mb in size. This ensures that any e-mail size filters will not reject the e-mail because the report attachment is too large.

If a report is ever deleted or misplaced at your location, you can call or e-mail the CRC at the contact information given below to obtain a duplicate report. Although it is not required, it would help to have the report number at hand when contacting the CRC.

Report Types
There are two types of reports that will be generated and delivered to you—the Lost Communication Report and the Customer Monitoring Report. The purpose of the Lost Communication Report is to alert you that the eNotify Service has not received a status e-mail within a pre-defined amount of time (currently 48 hours). The purpose of the Customer Monitoring Report is to report on unit activity over the past month and to provide a Relative Health Index (RHI) for the unit.

Lost Communication Report
On an hourly basis, the eNotify Service checks to make sure it has received a status e-mail within a certain amount of time. This is currently set to 48 hours. In other words, if a status e-mail has not been received every 48 hours, a Lost Communication Report is generated and sent to the CRC and your designated contacts. The report is resent every 25 hours until it has either sent 5 such reports or the eNotify Service has received a status e-mail from the unit. An example of the report is included in Appendix C. A sample of the e-mail that accompanies this report is included in Appendix B.

When a status e-mail is received after a Lost Communication Report has been generated for a unit, a Restored Communications notification is e-mailed to your designated contacts. An example of a Restored Communications e-mail is included in Appendix D.

Customer Monitoring Report
The Customer Monitoring Report is generated within the first five business days of each month and is generated against the previous month’s data. It is generated on a per-unit basis, so you will receive one report for each monitored, entitled unit. The content of the report depends on the model of the unit and whether or not the unit is a System Bypass Module (SBM) unit.

Non-SBM unit reports, including BladeUPS reports, start with the general unit and customer information at the top of the report. The next section contains parametric data values for the month. Each data point contains the minimum, maximum, and average values for the parametric data point over the previous month. Beside each data point, a visual indicator shows how healthy the average value was for the past month. The visual indicator will either be green, yellow, or red, depending on the health level.

The next section provides detailed information concerning the battery. The first part provides the total number of times the unit went on battery and for how long. It also provides the number of times the battery fully discharged. The total time on battery is also included. Lastly, this section provides the availability (not on bypass) of the unit over the past month.

A Relative Health Index (RHI) is then assigned to the unit and included on the report. This RHI score is on a scale of 0 to 10, with 10 being the best. It is computed by taking a weighted average of the individual parametric data RHI values along with the battery information. The exact formula for the RHI was carefully developed through extensive investigation from our SMEs. For comparison, a graph showing the 6 most recent RHI values including the current month is displayed.
The next section of the Customer Monitoring Report contains a list of critical events over the past month. This list includes how many times the event occurred and the dates that they occurred.

A list of service tickets that have been opened or completed over the past month appears next. This list includes the Ticket #, type of service, open date, completion date, and the current status of the ticket.

Also included in the report is a link to the Eaton Service Support History web page. This web site provides a snapshot of all of your service information. It provides the service history by date and includes very detailed troubleshooting and resolution information. The site is set up to view all of your units, letting you drill down into each individual unit.

The last section of this report contains the last and next service tickets including a brief description and the date. An example of this report can be found in Appendix F.

There are two main differences between SBM and non-SBM Customer Monitoring Reports. The first is that the SBM report parametric data points may be different and some may be labeled differently. The second main difference is that the report will not contain the sections that deal with battery information. A sample first page of an SBM Customer Monitoring Report is included in Appendix G.

The e-mail that accompanies the Customer Monitoring Report contains a Message of the Month. This message informs you of any pertinent information that Eaton wishes to convey to our eNotify Service customers. The priority of the e-mail is set to ‘high’ so that it is more noticeable. A sample of this e-mail is included in Appendix E.
Tasks at Customer’s Site

Web Card Pre-Installation Requirements
Appendix H lists the Web Card minimum requirements, while Appendix J details the parts and labor involved in setting up the eNotify Service.

There are various settings that must be gathered before the Web Card can be configured. First, a static IP address is required to identify the Web Card on the network. A static IP address is recommended. Additionally, the Gateway, Network (Subnet) Mask, and DNS (if used) IP addresses need to be defined.

If the corporate SMTP server is available for sending the e-mails, the IP address of the server, including any required authentication (username and password) is needed. Since the Web Card acts as an e-mail client (like Outlook), the SMTP server does not need to be set to relay the e-mails. If you are going to be using the e-mail server, port 25 (SMTP) must be open in your corporate firewall for the Web Card’s static IP address.

Initial Installation
An easy-to-use install wizard was created to configure the Web Card. Appendix I contains the information for the Quick Start Guide.

Ongoing Maintenance
During any scheduled or unscheduled maintenance, the Powerware CSE removes the Web Card from the unit so as not to record any false data or generate any incorrect events.

Scheduled Maintenance
While the Web Card does not require regularly scheduled maintenance, a firmware upgrade may be needed. While this procedure is rare, it should be performed by a Powerware CSE. After the upgrade is complete, the configuration settings will have to be re-applied since the Web Card is set to its default configuration during the firmware upgrade process.

Unscheduled Maintenance
If the unit subscribes to the eNotify service, the CRC will contact your designated point-of-contact as critical issues arise. If you notice and require any unscheduled maintenance and have not been contacted by a Powerware CRC Analyst, you can contact the CRC via the information contained in the Contact Information section below.

Customer Maintenance Responsibilities
There are a few customer responsibilities in maintaining the connectivity between the UPS unit and the Remote Monitoring servers. First, you will need to ensure that the Ethernet cable is physically connected to the Web Card. Second, connectivity to the SMTP server (either internal or external) needs to be maintained. Third, you need to provide Eaton with timely notification of any action that might affect the unit’s availability or the Web Card’s connectivity.

Additional Resources
Eaton offers Powerware product training through a variety of courses. One of the most popular is the First Responder course that is available on each Powerware UPS model. This course provides students with the basic operation of the model. Additionally, government agency customers are able to send staff to more rigorous training to become self-maintainers. This is the same training received by Powerware CSEs.

Also, extensive additional installation and operator documentation is available on all Powerware UPS models.
Customer Feedback
Eaton values your feedback as an important part of the entire process. We collect feedback for product, documentation, and training to allow for continuous quality improvement. In addition, we are always looking for ways to improve the feedback process.

If you wish to provide feedback or have a suggestion as to how to improve our feedback process, you can reach us through the contact information below or through our web site at http://www.powerware.com.
Web Card Web-based Application

Accessing
Accessing the Web Card web-based application is accomplished by pointing a web browser at the static IP address of the Web Card. This may be through a different port, however, depending on the Web Card’s configuration. Port 80 is used by default.

Functionality
The main purpose of the web-based application is to configure the Web Card to generate and send the status and event e-mails. Additionally, the Web Card can be used to browse the parametric data and event data logs, to optionally shutdown the unit, and to orchestrate the shutdown of multiple units. Please note, however, that some functionality may require additional configuration in order to function.

Security
The application can be configured to require a username and password for access. It also supports the SSH and SSL protocols in order to secure data traffic between your browser and the application. These settings are user-configurable and are made directly on the Web Card.
Frequently Asked Questions

1. **Does the Web Card support one-way or two-way external communication?**

   The Web Card only supports **one-way external communication**. This is accomplished through the Web Card sending the e-mail to the Remote Monitoring servers. Eaton has no way of externally communicating to your Web Card or unit.

2. **Can anyone breach my firewall or disrupt my UPS?**

   Access to the Web Card is controlled through two means—your network configuration and the security settings on the card itself. The Web Card has settings for SSL and SSH secure communications as well as the ability to change the port the web-based application runs over. Additionally, the web-based application can be configured to require a username and password to access the application. Your network configuration also plays an important part in the security of the Web Card. If you allow external access to the Web Card’s IP address, unwanted users may be able to access the card. It is important to mention however, that Eaton has no inherent way of externally accessing the Web Card.

3. **How do I change who receives the status and event e-mails?**

   The web-based application that is included in the Web Card allows you to configure who receives the e-mails. Currently the Web Card can hold a total of four e-mail addresses. The first two are used to send the status and event e-mails to the Remote Monitoring servers. You are able to set the remaining two e-mails to whatever e-mail address you choose, including a ListServ address that can send the e-mails to multiple individuals.

4. **How do I change who receives the Critical Event notifications and the reports?**

   You can update who receives the Critical Events notifications and the reports by contacting a Powerware CRC through the contact methods listed below. You can have the reports and the notifications sent to two different sets of contacts.

5. **What happens if my e-mail server fails (loses power, etc.)?**

   If your e-mail server fails, there are two scenarios that could occur. First, if an e-mail was already sent from the Web Card to the server but the server has not had a chance to forward it, the e-mail will be queued to send the e-mail once the server is back online. This is one of the benefits of using SMTP as the communication protocol. The second scenario is that the Web Card cannot connect to the e-mail server for some reason. In this situation, the Web Card will queue up the e-mails and send them once the connectivity has been restored.

6. **Will I get called if a critical alarm occurs?**

   When a critical alarm is received, a CRC Analyst will contact your designated contacts by the method and in the order you specify within the eNotify Installation Wizard tool or on-line at www.powerware.com.

7. **How quickly will I get notified of a critical alarm?**

   A critical alarm notification will be e-mailed to your designated contact immediately after the event is recognized by the Remote Monitoring servers. Upon receiving an initial critical event e-mail, the Remote Monitoring servers wait for a short period of time until any other event e-mails come in. Once the traffic has died down, the critical event notification is sent to your contact and to the CRC. This reduces the number of notifications that are sent for the same issue.
8. Will the Powerware CSE have my alarm information if they need to make an on-site repair?

The Powerware CSE will have access to a CRC Analyst who can access your alarm information. Additionally, the CRC Analyst will have an in-depth analysis of the particular alarm along with numerous resources with which to assist the CSE in correcting the issue.

9. How do I go about obtaining a past report?

Past reports can be obtained by contacting the Powerware CRC via the contact information listed below. Although it is not necessary, including the report number in your request would be helpful in locating the correct report.

10. How often do I get reports?

The Lost Communication report is delivered after a set period (currently 48 hours) of not receiving a status e-mail from one of your monitored units. The report is sent up to five times or until a status e-mail is received. The Customer Monitoring Report is delivered monthly. This is currently generated within the first five business days of each month against the previous month’s data.

11. What does this monitoring service cost?

The cost of the service depends on your hardware and your current service contract. Current prices are listed on the Powerware Remote Monitoring Service (RMS) Pricing sheet. For detailed pricing, please contact your Powerware Sales Representative.

12. If I have a question, whom do I call?

Installation, configuration, and/or ongoing performance issues, along with informational and service changes should be directed to the Powerware CRC at:

1-800-843-9433, Option 1, then Option 3

Additionally, you can contact the Powerware CRC via e-mail at: CRCTriageGroup@Eaton.com

13. What is the maximum installation distance of the environmental monitoring probe (EMP)?

Twenty (20) meters / sixty (60) feet.

14. How do I know whether my Powerware UPS model has eNotify included for free or if I need to pay for it? How about the connectivity parts (free or do I pay)?

Check the www.powerware.com web site for the model and country to determine whether eNotify is included at no extra charge or a PowerTrust Support Agreement purchase is required. Many larger Powerware UPS models (three phase) include eNotify and the connectivity parts for the first year at no extra charge, and then a PowerTrust Support Agreement must be purchased to retain eNotify. Most other Powerware UPS models require a PowerTrust contract purchase along with appropriate connectivity parts to obtain eNotify. Check with your local Eaton service sales representative or contact Eaton directly for more information.
Contact Information

Installation, configuration, and/or ongoing performance issues, along with informational and service changes should be directed to the Powerware CRC at:

1-800-843-9433, Option 1, then Option 3

Additionally, you can contact the Powerware CRC via e-mail at: CRCTriageGroup@Eaton.com
Appendix A – Sample Critical Event E-Mail

Below is the format and content of the auto-generated e-mail that is sent when a Critical Event is trapped. The actual notification may contain slight variations in content and/or layout.

Subject: CRITICAL ALERT REGARDING YOUR POWERWARE UPS: READ IMMEDIATELY

Dear Eaton Electrical Inc. Customer:

The purpose of this e-mail is to ALERT you of a critical event, which has just occurred on your Powerware UPS.

The alert of, “<error message>” on your <Model Number>, S/N <Serial Number> <Location> indicates any one of the following, or a combination of the following has just occurred:

<Alarm Statements>

Eaton’s Customer Reliability Center has received this same e-mail alert and is already in process of evaluating the information, and will be contacting you soon with further information.

Actions you should take at this time:

<Next Steps>

An Eaton technician will be contacting you shortly to resolve this event or advise you that a Customer Service Engineer is enroute to your site to remedy your product and/or battery. In case of immediate questions, call 800/843-9433, option 1 (outside of USA call 01-919-870-3028).

NOTICE: Powerware Remote Monitoring Service may be required to validate service coverage. Your monthly Monitoring Summary report may be interrupted or reflect missing data until the monitoring connection is reestablished.

LIMITATION OF LIABILITY: Eaton Electrical Inc. makes no warranty regarding, and has no obligation with respect to, the accuracy, completeness or omissions of any data, analysis or recommendation contained within this report. The End User must use reasonable judgment in interpreting this data and contact his or her local Eaton sales representative or Eaton Technical Support at the addresses below with any questions. In no event shall Eaton Electrical Inc. be liable for any indirect, incidental, special or consequential damages of any kind or type whatsoever, or based on any claim or cause of action, however denominated.

Copyright Eaton Electrical Inc. 2004-2007
Appendix B – Format of Lost Communication Report E-Mail
The actual notification may contain slight variations in content and/or layout.

**** PLEASE DO NOT REPLY TO THIS AUTO-ANSWER MESSAGE ****

Eaton Power Quality Corporation Number: <REPORTNUM>

Dear <FNAME> <LNAME>,

Thank you for using Eaton Powerware Remote Monitoring Services. This email is to notify you that your monitoring service has been interrupted for the following Eaton Powerware UPS product(s):

Model <MODELID>, Serial Number <Serial Number> <Location>, at <ADDRESS 1>, <CITY>, <STATE>, <ZIP>, <Country>

Common reasons why the remote monitoring connection has been interrupted may include:

1. The cable has been disconnected (is the CAT5 LAN cable plugged in to the Powerware Web/SNMP card to the UPS?)

2. An email server problem has prevented the Eaton Powerware UPS from transmitting an email to Eaton Powerware indicating its status as OK (have you experienced any email delays? Check with your IT administrator to verify any changes)

3. The Powerware UPS is in maintenance mode or unable to communicate (has the UPS been serviced or disconnected?)

4. The IP address information has been changed preventing the monitoring data from reaching Eaton Powerware (has anyone modified the Web/SNMP card?)

5. You or someone in your organization has requested suspension of the Eaton Powerware Remote Monitoring Service

For your convenience, you will receive this reminder email until this interruption has been resolved unless you request in writing at the email address below to discontinue these notices.

Monitoring enables Eaton Powerware to manage and diagnose 100+ alarms and data from both the UPS and battery systems, helping expedite critical service repairs and provide peace of mind.

NOTICE: Eaton Powerware Remote Monitoring Service may be required to validate service coverage. Your monthly Monitoring Summary report may be interrupted or reflect missing data until the monitoring connection is reestablished.

LIMITATION OF LIABILITY: Eaton Powerware makes no warranty regarding, and has no obligation with respect to, the accuracy, completeness or omissions of any data, analysis or recommendation contained within this report. The End User must use reasonable judgment in interpreting this data and contact his or her local Eaton Powerware sales representative or Eaton Powerware Technical Support at the addresses below with any questions. In no event shall Eaton Powerware be liable for any indirect, incidental, special or consequential damages of any kind or type whatsoever, or based on any claim or cause of action, however denominated.

For obtaining warranty or contract service, questions, comments: Inside the USA, call Eaton Powerware 7x24 at 800-843-9433; outside of the USA, call your local Eaton Powerware sales or service representative. For Eaton Powerware International Customer Support in the USA call 919-870-3028, or write to Customer Quality Representative, 3301 Spring Forest Road, Raleigh, North Carolina 27616 USA, or send an email to: CRCTriageGroup@eaton.com.
Eaton Power Quality Corporation(R)

Confidence TM

**** PLEASE DO NOT REPLY TO THIS AUTO-ANSWER MESSAGE ****
Appendix C – Format of Lost Communication Report
The actual notification may contain slight variations in content and/or layout.

Lost Communication Report

Generated: <Date> <Time> ET.
Report ID: <Report ID>

| Company: <Customer Name> | Customer ID: <Customer ID> |
| City: <Customer City> | State: <Customer State Abbreviation> |
| Site ID: <Address 1> |
| Date of Last Contact: <Date mm/dd> Time: <hh:mm:ss> |
| Site Contact: <POC Name> |
| Telephone: <POC Phone #> | Email: <POC email address> |
| Equipment Model: <Model #> |
| Serial Number: <Serial #> |

Page: <x> of <y>
Appendix D – Format of Lost Communication Report – Restored Communications E-Mail

**** PLEASE DO NOT REPLY TO THIS AUTO-GENERATED MESSAGE ****

Dear <Customer Name>,

Thank you for using Powerware Remote Monitoring Services. This email confirms that your monitoring service has been restored and is now operational.

For further inquiries, please contact Eaton at 1-800-843-9433 in the U.S. or Canada, or send an email to: crc.support@powerware.com.

Eaton Electrical, Inc.

**** PLEASE DO NOT REPLY TO THIS AUTO-GENERATED MESSAGE ****
Appendix E – Format of Customer Monitoring Report E-Mail
The actual notification may contain slight variations in content and/or layout.

**** PLEASE DO NOT REPLY TO THIS AUTO-ANSWER MESSAGE ****

Eaton Power Quality Corporation Report Number: CM1247383EY071CAA0414

SITE ID: <Address 1>

Dear <Customer Name>,

Thank you for using Powerware Remote Monitoring Services. We have attached below your monitoring service Summary Report for the following Powerware UPS product(s):

Model <Model ID>, Serial Number <Serial Number>, at <Address>, <City>, <State>, <Postal Code>, <Country>

To add eNotify to your other Powerware UPS units, call your Eaton Powerware sales specialist or 800-843-9433.

Eaton provides services on thousands of large and small Powerware UPS products, including products from Exide Electronics, Industrial Power Machine (IPM), Best Power, Deltec, DataTrax and other UPS brands not made by Powerware. Service plans are available on both new and older products offering 7x24 guaranteed response times, all parts and labor, replacement battery coverage and full UPS and battery preventive maintenance. Only Powerware has access to factory certified parts, software diagnostic tools, the latest firmware, remote monitoring infrastructure, and trained technicians to assure you that your Powerware or legacy brand UPS is calibrated to factory specifications.

Eaton makes no warranty regarding, and has no obligation with respect to, the accuracy, completeness or omissions of any data, analysis or recommendation contained within this report. The End User must use reasonable judgment in interpreting this data and contact his or her local Eaton sales representative or Eaton Technical Support at the addresses below with any questions. In no event shall Eaton be liable for any indirect, incidental, special or consequential damages of any kind or type whatsoever, or based on any claim or cause of action, however denominated.

For obtaining warranty or contract service, questions, comments: Inside the USA, call Eaton 7x24 at 800-843-9433; outside of the USA, call your local Eaton Powerware sales or service representative. For Eaton International Customer Support in the USA call 919-870-3028, or write to Customer Quality Representative, 3301 Spring Forest Road, Raleigh, North Carolina 27616 USA, or send an email to: crc.support@powerware.com.

Eaton Electrical Inc.(R)

Confidence TM

**** PLEASE DO NOT REPLY TO THIS AUTO-ANSWER MESSAGE ****
Appendix F – Format of Lost Communication Report: Non-SBM

<table>
<thead>
<tr>
<th>Key Parameter</th>
<th>Measurement</th>
<th>Units</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>482.0</td>
<td>VAC</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>486.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>477.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Frequency</td>
<td>59.9</td>
<td>Hertz</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>60.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Voltage</td>
<td>481.0</td>
<td>VAC</td>
<td>R</td>
</tr>
<tr>
<td></td>
<td>492.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>481.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Phase A</td>
<td>27.0</td>
<td>Percent</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>30.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Phase B</td>
<td>20.0</td>
<td>Percent</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>21.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load Phase C</td>
<td>33.0</td>
<td>Percent</td>
<td>G</td>
</tr>
<tr>
<td></td>
<td>36.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>34.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Temperature

<table>
<thead>
<tr>
<th>Degrees C</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.0</td>
</tr>
<tr>
<td>24.0</td>
</tr>
<tr>
<td>26.0</td>
</tr>
</tbody>
</table>

### Humidity

<table>
<thead>
<tr>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.0</td>
</tr>
<tr>
<td>24.3</td>
</tr>
<tr>
<td>27.0</td>
</tr>
</tbody>
</table>

### On-Battery Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Duration</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-Battery &lt;1 Minute</td>
<td>1.000</td>
<td>Each</td>
</tr>
<tr>
<td>On-Battery 1-4 Minutes</td>
<td>0.000</td>
<td>Each</td>
</tr>
<tr>
<td>On-Battery &gt;4 Minutes</td>
<td>0.000</td>
<td>Each</td>
</tr>
</tbody>
</table>

### Total On-Battery Events

- **1.000** Each

### Full Battery Discharge

- **0.000** Each

### Time On-Battery

- **0** Hour(s) **0** Minute(s) **23** Second(s) **-** Minutes

### Availability

- **100.000** Percent

### Monthly Relative Health Index

- **7.8500**
Relative Health Index (RHI)

The Eaton Relative Health Index (RHI) is a compilation of your system's 11 key parametric variables that are remotely measured, collected, and recorded on Eaton's Remote Monitoring Services system. These combined variables as listed above are analyzed and published at our Customer Reliability Center (CRC) to provide you with a single snapshot showing the relative performance and health of your system.

Critical Event Description | Number Of Occurrence | Date Time
--- | --- | ---
Total Number of Critical Events for the Period: 0

Service Request(s)

<table>
<thead>
<tr>
<th>Request ID</th>
<th>Service Code</th>
<th>Open Date</th>
<th>Completion Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1254238</td>
<td>11/15/2006</td>
<td>11/15/2006</td>
<td>COMPLETED</td>
<td></td>
</tr>
<tr>
<td>1251462</td>
<td>11/10/2006</td>
<td>11/10/2006</td>
<td>COMPLETED</td>
<td></td>
</tr>
</tbody>
</table>

Service Request Type Codes and Descriptions

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMC</td>
<td>Emergency Maint Contract</td>
</tr>
<tr>
<td>EMW</td>
<td>Emergency Maint Warranty</td>
</tr>
<tr>
<td>SMC</td>
<td>Scheduled Maint Contract</td>
</tr>
<tr>
<td>SMW</td>
<td>Scheduled Maint Warranty</td>
</tr>
<tr>
<td>CV</td>
<td>Customer Visit</td>
</tr>
<tr>
<td>TS</td>
<td>Technical Services</td>
</tr>
<tr>
<td>SU5</td>
<td>STARTUP - 5 X 8</td>
</tr>
<tr>
<td>SU7</td>
<td>STARTUP - 7 X 24</td>
</tr>
<tr>
<td>PMC</td>
<td>PM Contract</td>
</tr>
</tbody>
</table>

Previous and Next Scheduled Events
Eaton Electrical Inc.

Activity | Date
---|---
Previous: | UPS PERFORMANCE CHECK 7x24  9/4/2005 12:00:00 AM

Next Scheduled:

LIMITATIONS OF LIABILITY: Eaton Electrical Inc. makes no warranty regarding, and has no obligation with respect to, the accuracy, completeness or omissions of any data, analysis or recommendation contained within this report. The End User must use reasonable judgment in interpreting this data and contact his or her local Eaton sales representative or Eaton Technical Support at the addresses below with any questions. In no event shall Eaton Electrical Inc. be liable for any indirect, incidental, special or consequential damages of any kind or type whatsoever, or based on any claim or cause of action, however denominated.

For Questions or Comments: Inside the USA, call Eaton 7x24 at 800-843-9433; outside of the USA, call your local Eaton sales or service representative, or call Eaton International Customer Support in the USA at 919-870-3028; or, write to Customer Quality Representative, 3301 Spring Forest Road, Raleigh, North Carolina 27616 USA.

1-800-843-9433 or 919-870-3028
CRCTriageGroup@eaton.com
Appendix G – Format of Customer Monitoring Report: SBM

This is only the first section of the report. The subsequent pages match the rest of the Non-SBM Customer Monitoring Report pages in Appendix F.

### UPS Monitoring Summary for S/N ES1967XX01

<table>
<thead>
<tr>
<th>Generated</th>
<th>1/3/2007</th>
<th>For Period</th>
<th>November 2006</th>
</tr>
</thead>
</table>

| Customer   | QWEST COMMUNICATIONS |
| Location   | 1400 KIFER RD |

| Unit Serial Number | ES1967XX01 |

This document contains your monthly report for the above listed equipment.

<table>
<thead>
<tr>
<th>Number of Days In Month</th>
<th>31</th>
</tr>
</thead>
</table>

Please Note: A report with no Key Parameter data means no parametric data was received from the unit for the entire month.

| Number of Days of Data | 30.4 |

### Key Parameter Measurement

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Min</th>
<th>Max</th>
<th>Units</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Bypass Voltage</td>
<td>473.0</td>
<td>492.0</td>
<td>VAC</td>
<td>R</td>
</tr>
<tr>
<td>System Bypass Frequency</td>
<td>55.0</td>
<td>60.0</td>
<td>Hertz</td>
<td>G</td>
</tr>
<tr>
<td>Critical Bus Voltage</td>
<td>480.0</td>
<td>483.0</td>
<td>VAC</td>
<td>R</td>
</tr>
<tr>
<td>Critical Bus Load Phase A</td>
<td>51.0</td>
<td>65.0</td>
<td>Percent</td>
<td>G</td>
</tr>
<tr>
<td>Critical Bus Load Phase B</td>
<td>51.0</td>
<td>64.0</td>
<td>Percent</td>
<td>G</td>
</tr>
</tbody>
</table>
Critical Bus Load Phase C

Availability

Monthly Relative Health Index

6 Month Relative Health Index Score

Relative Health Index (RHI)
The Eaton Relative Health Index (RHI)™ is a compilation of your system’s 11 key parametric variables that are remotely measured, collected, and recorded on Eaton’s Remote Monitoring Services system. These combined variables, as listed above, are analyzed and published at our Customer Reliability Center (CRC) to provide you with a single snapshot showing the relative performance and health of your system.

Critical Event Description

Total Number of Critical Events for the Period: 0

Service Request(s)

Previous and Next Scheduled Events
Appendix H – Web Card Pre-Installation Requirements

The following table shows the various models and configurations that are able to communicate with the Remote Monitoring servers via a Web Card. The minimum Web Card firmware version required for eNotify Service compatibility is shown in the far right column.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9125</td>
<td>YES</td>
<td>NO</td>
<td>TBD</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9155</td>
<td>YES</td>
<td>NO</td>
<td>TBD</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9170</td>
<td>YES</td>
<td>NO</td>
<td>TBD</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9315/30-160 &amp; BP-III Reverse Transfer</td>
<td>YES</td>
<td>YES</td>
<td>1.52</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9315/30-160 Parallel Redundant</td>
<td>YES</td>
<td>YES</td>
<td>1.52</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9315/180-500 &amp; BP-III Reverse Transfer</td>
<td>YES</td>
<td>YES</td>
<td>1.52</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9315/180-500 Parallel Redundant</td>
<td>YES</td>
<td>YES</td>
<td>1.52</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9315/180-500 Parallel Capacity with SBM</td>
<td>YES</td>
<td>YES</td>
<td>1.52</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9315/625-750 Reverse Transfer</td>
<td>YES</td>
<td>YES</td>
<td>1.16</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9315/625-750 Parallel with SBM</td>
<td>YES</td>
<td>YES</td>
<td>1.16</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9330/BP-IV Reverse Transfer</td>
<td>YES</td>
<td>NO</td>
<td>3.14</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9330/BP-IV Parallel</td>
<td>YES</td>
<td>NO</td>
<td>3.14</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9355 Reverse Transfer</td>
<td>YES</td>
<td>NO</td>
<td>1.02</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9355 Parallel (TBD)</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>9390 Reverse Transfer</td>
<td>YES</td>
<td>NO</td>
<td>1.0</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9390 Parallel with SBM</td>
<td>YES</td>
<td>NO</td>
<td>1.0</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>9395</td>
<td>YES</td>
<td>NO</td>
<td>TBD</td>
<td>3.20/4.20</td>
</tr>
<tr>
<td>BladeUPS</td>
<td>YES</td>
<td>NO</td>
<td>TBD</td>
<td>3.20/4.20</td>
</tr>
</tbody>
</table>
Appendix I – Generic Self Start Procedures (Quick Start Guide)

eNotify 2.0 can now be self installed with a Powerware UPS compatible model, appropriate connectivity parts and a Microsoft Windows compatible computer.

To purchase or request a no-charge eNotify connectivity kit, go to www.powerware.com

The Quick Start Guide, along with the eNotify Installation Wizard, can be downloaded at http://www.powerware.com.

Additionally, you can contact the Powerware CRC via email at: crcTriageGroup@eaton.com.
Appendix J – eNotify Remote Monitoring Connectivity Parts and Labor

<table>
<thead>
<tr>
<th>Connectivity Parts</th>
<th>Non-RoHS</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powerware 9315-50-500 x-slot Field Upgrade kit</td>
<td>103003870</td>
<td></td>
</tr>
<tr>
<td>Powerware 9315-750 X-Slot Field Upgrade kit</td>
<td>103003871</td>
<td></td>
</tr>
<tr>
<td>Powerware ConnectUPS-X/Web/SNMP X-Slot Card Kit</td>
<td>103002974-5501</td>
<td>116750221-001</td>
</tr>
<tr>
<td>Environmental Monitoring Probe (EMP)</td>
<td>103003637-550</td>
<td>116705224-001</td>
</tr>
</tbody>
</table>

* An active Ethernet cable is provided in each kit.

Installation Labor

Eaton includes eNotify service at no extra charge within the product purchase price for specific Powerware UPS and other devices (this includes both the connectivity parts and installation labor). For all eNotify compatible products, customers may also self-install and either purchase or request a no-charge “connectivity kit” on-line at [www.powerware.com](http://www.powerware.com). If requesting an on-site installation, the technician will deliver the necessary parts. On-site installation and parts may be purchased if not already included in the product price.

Note: A PowerTrust Service Plan is required for eNotify eligibility (or a new Powerware UPS that includes eNotify during the initial warranty; varies by model and country)

Not all UPS models may require the above parts, however an x-slot equipped UPS with a Web/SNMP card and EMP must be available to complete a eNotify installation; other connectivity devices may be substituted (e.g., Expansion Chassis). Minimum firmware may require replacement or upgrading of components to support eNotify.
Appendix K – Glossary of Terms

Anomaly Detection – A check in the eNotify process where the parametric data is checked for incoming status e-mails and the event data is checked for incoming event e-mails. The data is checked against a set of rules that are looking for various anomalies over a certain period of time. If an anomaly is detected, a notification is sent to the CRC for further investigation.

BladeUPS – A type of UPS that uses plug-in modules and batteries, or “Blades”, as circuitry for the UPS. Each Blade is interchangeable and has a serial number that becomes part of the BladeUPS system.

CRC – Customer Reliability Center – Powerware product support group that responds to critical events and anomalies. They also manage your contact and report setting information within the eNotify Service offering.

CSE – Customer Service Engineer – an Eaton employee who installs and configures your UPS and Web Card. Additionally, they troubleshoot, repair, and maintain your unit.

CSV – Comma-Separated Variable – the format that the attachments are placed when sending the parametric data and event data logs in the status and event e-mails. Each value is placed in a text file, separated by a comma. Each data set is separated by a line break.

Event E-Mail – The e-mail that is sent to the Remote Monitoring servers when the Web Card detects that a specific event has occurred. The e-mail contains attachments of the Web Card’s parametric data and event data logs. A critical event e-mail will generate a critical event notification to the CRC and to your company contacts.


Install Wizard – Eaton-provided proprietary software tool created to easily enable self-configured installations

Parametric Data – Minute-by-minute data collected by the Web Card that measures such items as voltages, frequency, temperature, and humidity. The data is stored in the Web Card’s data log before being attached to a status or event e-mail.

QSG – Acronym for Quick Start Guide; an accompaniment to the Install Wizard

RHI – Relative Health Index – a measurement of the health of your UPS, measured on a scale of 0 to 10, with 10 being the best. This score is calculated by using weighted averages of parametric data and recorded events and is reported to you through your monthly Customer Monitoring Report.

SBM – System Bypass Module – provides bypass capability for paralleled UPS systems to be serviced without taking the critical load off of protected power.

SME – Subject Matter Expert – a Senior Analyst, thoroughly knowledgeable in the Powerware product line including features, operation, and maintenance. The SMEs have provided such items as the rules for anomaly detection, the list of critical events, and the lists of “Alarm Statements” and “Next Steps” that are included in the critical e-mails you receive.

SMTP – Simple Mail Transfer Protocol – a protocol used to send e-mail on the Internet. SMTP is a set of rules regarding the interaction between a program sending e-mail and a program receiving e-mail.
**SSH** – Secure Shell – a protocol that allows you to encrypt all data traveling from your computer to your server or other computer using different types of encryption algorithms.

**SSL** – Secure Sockets Layer – a protocol that transmits your communications over the Internet in an encrypted form. SSL ensures that the information is sent, unchanged, only to the server you intended to send it to.

**Status E-Mail** – The e-mail that is sent to the Remote Monitoring servers on a daily basis. It contains attachments of the parametric and event data logs. If a status e-mail is not received by the Remote Monitoring servers within a set timeframe, you will repeatedly receive a Lost Communication until either five such reports are sent or a status e-mail is received.