The Technology Behind Liebert® Monitoring Services

EMERSON™
Network Power

The Technology Behind Ntegrated Monitoring

With advanced monitoring and network security capabilities, Ntegrated Monitoring combines alarm management, data retrieval, maintenance and emergency service response to keep your system on-line and working. It provides periodic Liebert equipment and battery condition reports, alarm retrieval and warehousing, escalation management and 24x7x365 emergency service response.

Ntegrated Monitoring requires limited access to the customer network. Network Interface Cards (NIC) will allow Liebert Services to communicate through the customer network to the *Ntegrity Gateway™* (which we provide). This device ensures that all communication, monitoring and/or data retrieval is completely secure as it travels from your UPS through the Internet to Liebert Services. High level SSL encryption is the same used by banks to provide the highest level of information security possible. White papers are also available for explanation of network security.

Getting Started With Ntegrated Monitoring

To guarantee a successful Ntegrated Monitoring startup for your Liebert Technology, please review the five key items as described below:

1. Site Survey
Fill out the site survey in detail, including all required information (primary and network contact information, installation dates, etc.), and return it to the Ntegrated Monitoring group.

2. Contact Information
Designate a primary contact person for your site. This person will be responsible for coordination of the installation of monitoring devices, the development of escalation instructions, contact lists, and determining who will receive reports and authorize service charges.

We require a valid e-mail address for each designated person who will be receiving reports, including the primary contact person. This person will be responsible for assigning and changing IP addresses for routers/hubs and bridges for your WAN or network, installing network drops and providing access to company firewalls.

3. Service Requirements
Installation of Ntegrated Monitor and *Ntegrity Gateway*:

■ A static IP address for all monitored devices or systems.

■ A static IP address for the *Ntegrity Gateway* appliance.

■ Access to the Internet for our *Ntegrity Gateway*. We will need TCP port 443 opened on your firewall (See *Ntegrity Gateway* white paper for security issues). Additionally, we will need TCP Port 502 opened for battery services.
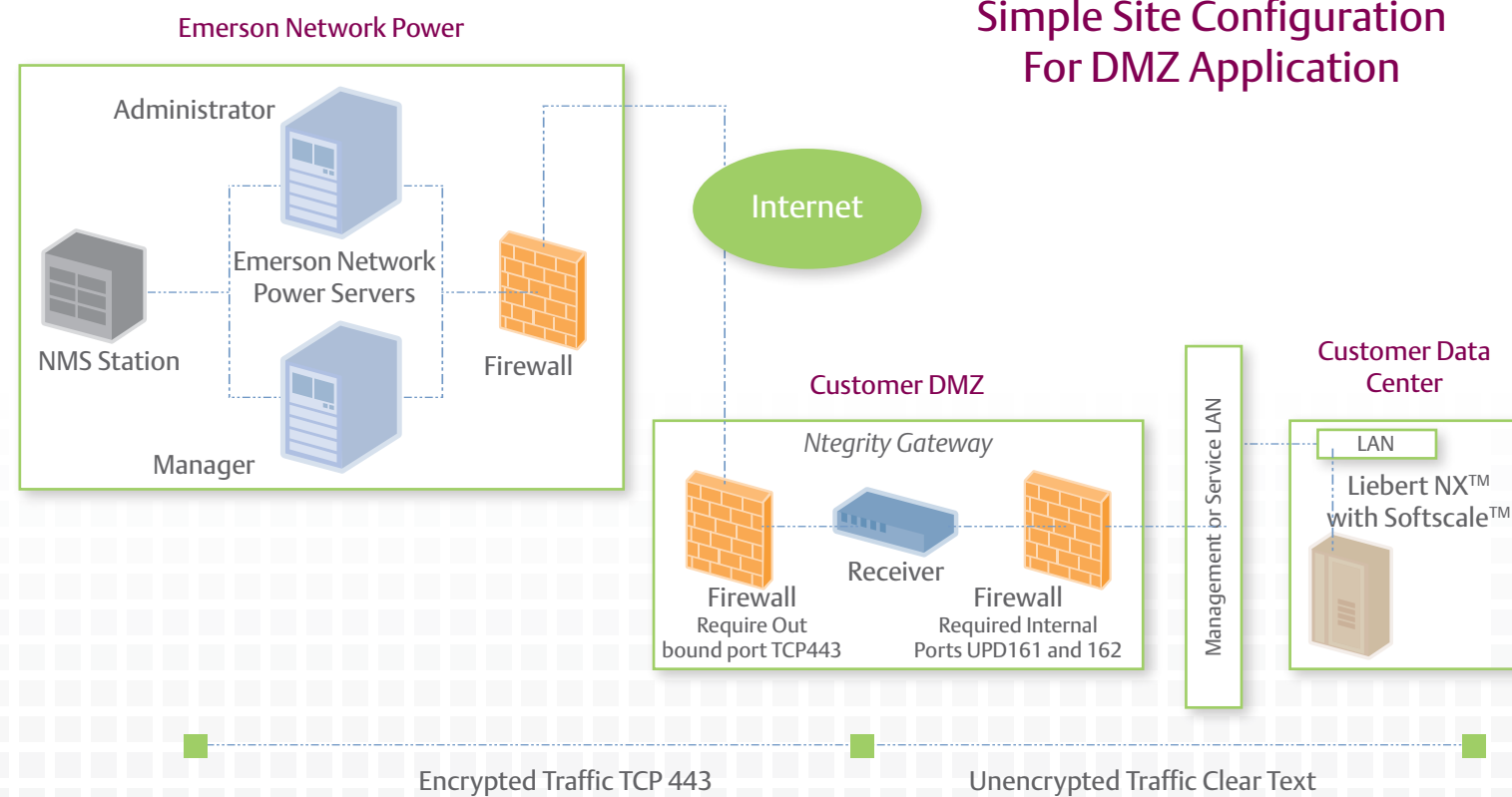
4. Interface Options
Along with your Liebert Sales Representative, you must ensure that all required interface options are installed prior to the startup of Ntegrated Monitoring.

5. Installation
You are required to hire a suitable trade contractor and supervise the installation of all network devices. Your Liebert Sales Representative can supply a list of recommended contractors.

Simple Site Configuration For DMZ Application

Emerson Network Power

Administrator

Emerson Network Power Servers

NMS Station

Firewall

Manager

Internet

Customer DMZ

Ntegrity Gateway

Firewall
Require Out bound port TCP443

Receiver

Firewall
Required Internal Ports UPD161 and 162

Management or Service LAN

Customer Data Center

LAN

Liebert NX™ with Softscale™

Encrypted Traffic TCP 443   Unencrypted Traffic Clear Text

Communicating with Your Network

With a UPS or battery contract that includes Ntegrated Monitoring, you will be provided with hardware that is used to facilitate communications between your system and The Liebert High Availability Response Center (HARC). Ntegrated Monitoring uses TCP/IP technology to provide monitoring and data retrieval from your equipment enabling access to dozens of alarm types making problems easier to diagnose and maximizing availability.

Ntegrity Gateway

Benefits of the *Ntegrity Gateway*:

- Secure and guaranteed transport of monitoring and management data across the Internet.
- Easier preventive maintenance and alarm diagnostics through the use of Network Interface Cards (NIC).
- Ability to monitor multiple pieces of enterprise equipment across multiple locations.
  - Up to 200 pieces of equipment per gateway appliance.
- A "outbound push-based" technology eliminating security risks.
- Secured access to monitored devices.
- Easier and more cost-effective than Virtual Private Networks (VPN).
- Continuous communication checks - verification of monitoring system integrity.
- Provides an effective audit trail, in full compliance with HIPAA and Sarbanes-Oxley.

Ntegrity Gateway provides a completely secure solution without use of VPN and dial-up solutions.

A Completely Secure Solution

The *Ntegrity Gateway* offers a solution to the security risks and expense that plague most remote monitoring services. It doesn't rely on dial-up modems or VPN, which can require a time and effort to manage. A dial-up option depends on costly dedicated phone lines and a modem and is unable to provide continuous communications.

The *Ntegrity Gateway* is a profoundly safer alternative. Only the IP addresses of the contracted supported devices are assigned to the gateway, which eliminates the need for inbound holes in the firewall through our patented "outbound push" technology. This leaves no risk for reuse or for "man-in-the-middle" attacks. A single *Ntegrity Gateway* can be connected to 200 target devices over a single LAN making it the most scalable solution in the industry.
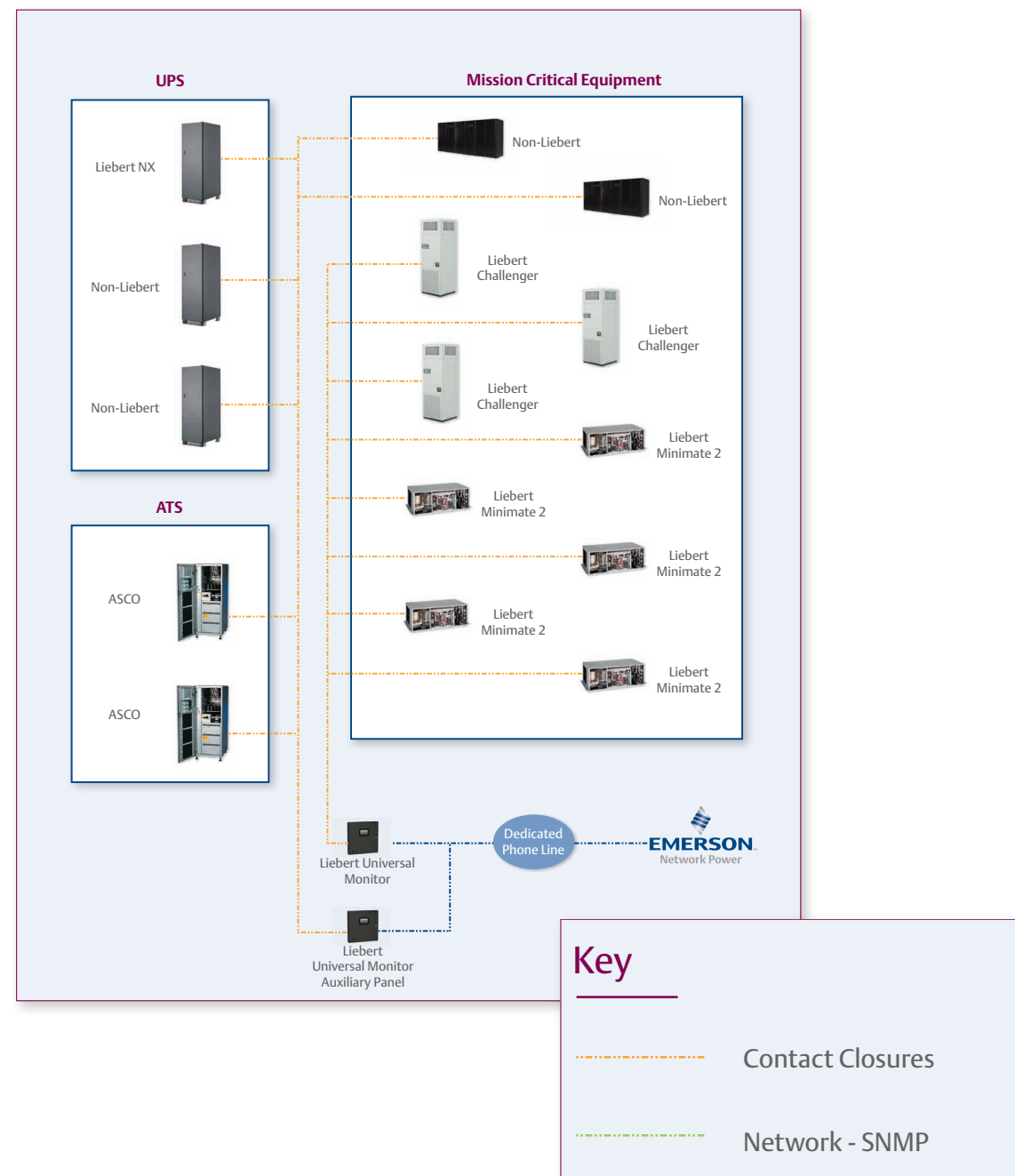
The diagrams on the following pages demonstrate the differences between a modem/phone line installation and the SNMP/Network installation of the *Ntegrity Gateway*.

Installation Example Diagrams

The diagrams demonstrate the advantages over a modem/phone line installation of an SNMP/Network installation with the *Ntegrity Gateway*.
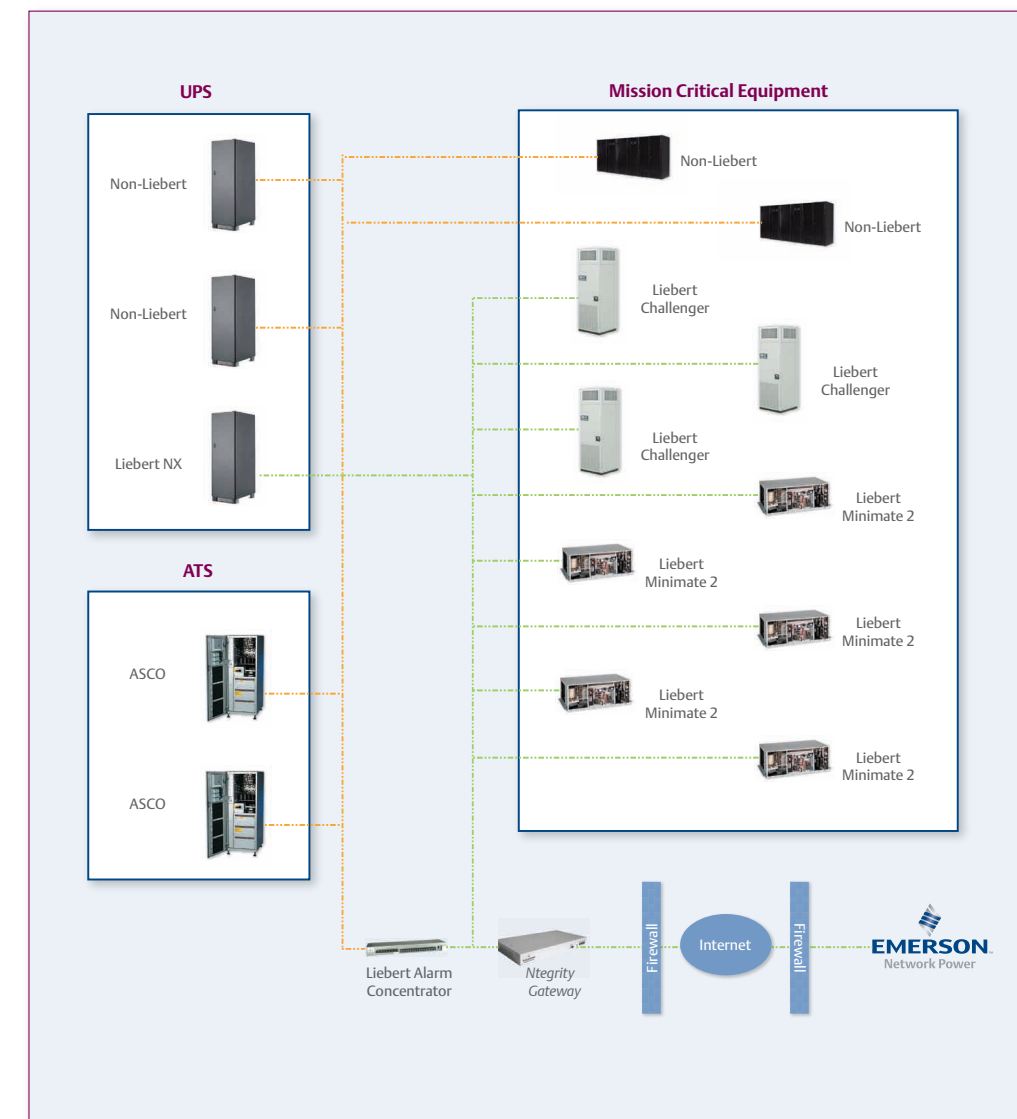
Modem / Phone Line Example Diagram

- 15 contact closures monitored by 2 universal monitors at each site.

- Dedicated phone line at each site.

UPS

Liebert NX

Non-Liebert

Non-Liebert

ATS

ASCO

ASCO

Mission Critical Equipment

Non-Liebert

Non-Liebert

Liebert Challenger

Liebert Challenger

Liebert Challenger

Liebert Minimate 2

Liebert Minimate 2

Liebert Minimate 2

Liebert Minimate 2

Liebert Minimate 2

Liebert Universal Monitor

Liebert Universal Monitor Auxiliary Panel

Dedicated Phone Line

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Key

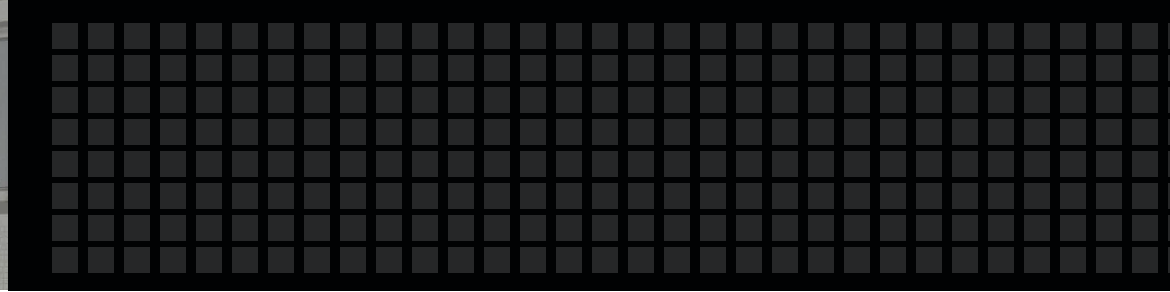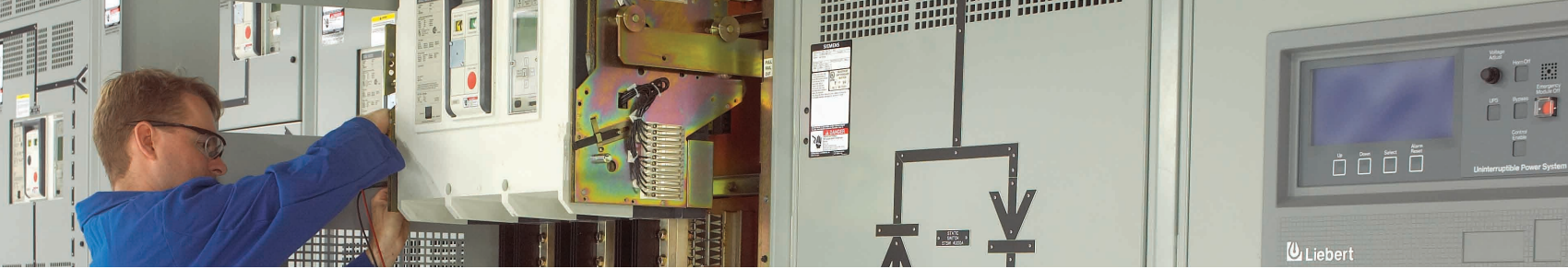···· Contact Closures

···· Network - SNMP

SNMP / Network Line Example Diagram

- 19 sites.

- 6 contact closures — (2 UPS, 2 ATS, 2 cooling) monitored by 1 alarm concentrator at each site.

- 9 Network Interface Cards (NIC) — (1 UPS, 8 cooling) at each site.

- 1 *Ntegrity Gateway*.

UPS

Non-Liebert

Non-Liebert

Liebert NX

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Liebert Challenger

Liebert Challenger

Liebert Challenger

Liebert Minimate 2

Liebert Minimate 2

Liebert Minimate 2

Liebert Minimate 2

Liebert Minimate 2

Liebert Alarm Concentrator

Ntegrity Gateway

Firewall

Internet

Firewall

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The Ntegrity Gateway, installed in an SNMP / Network Line, is a profoundly safer alternative. The single point of connection, and patented "outbound push" technology ensure lower risk.

Liebert UPS and Battery Services
with Ntegrated Monitoring

We ensure total *Business-Critical Continuity* from utility to load, optimizing equipment health and life. By combining technology and traditional service we are able to provide the most robust and comprehensive services available in the market today, for your Liebert Technology. Whether you are seeking an enhancement of your existing services, or if you are in need of total and complete overhaul, Liebert Services will be there for you.

Ntegrated Monitoring links your critical resources (power, UPS, environmental equipment) to the Liebert High Availability Response Center (HARC) for 24x7x365 monitoring. Redundant system hardware and separate connections in two countries maintain a continuous connection at all times. Your system is safe, secure and always working.

Service Advantages

The major advantages of Ntegrated Monitoring are the ability to catch and correct minor issues before major failure. This correlates into an improvement on the consistency of service. You will be leveraging our broad experience base and expert analysis to fix failures faster and improve system availability. All of these steps and advantages will increase reliability and optimize the life of your Liebert system.

Liebert UPS Service with Ntegrated Monitoring

- 24x7x365 proactive remote diagnostic and trend analysis.

- Centralized HARC with service dispatch to diagnose and respond to potential problems.

- Combined remote and on-site service.

- Easy to read monthly electronic health reports.

- Determine unit and health capacity.

- One year free during warranty period for Liebert NX with Softscale Models.

Battery Service with Ntegrated Monitoring

- 24x7x365 proactive remote diagnostic and trend analysis.

- Centralized HARC with service dispatch to diagnose and respond to potential problems.

- Combined remote and on-site service.

- Easy to read monthly electronic health reports.

- Through proactive battery service and on-site visits, our experts will analyze and trend your battery data to manage your battery system.

- Proactive battery maintenance utilizing proven Albér technology helps maximize battery efficiency and minimize risk of downtime.

- This approach minimizes battery failure, optimizes useful battery life, and increases safety for batteries that you can trust.

The Albér equipment continuously diagnoses all critical battery parameters such as cell voltage, overall string voltage, current and temperature. Automatic periodic tests of the batteries internal resistance will verify the operating integrity of the battery. By tracking internal resistance, the system can predict and report failing conditions prior to complete failure. A time-to-go estimate algorithm, which uses discharge parameters and internal resistance readings, assists in predicting remaining battery life.

This makes measurement technology the more important consideration when selecting a monitoring system. Other battery monitoring services uses internal ohmic readings become inconsistent as the UPS load varies because of variations in AC ripple on the battery.

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Safeguarding Your Critical Power System

- Ntegrated Monitoring links your critical resources (power, UPS, environmental equipment) to the Liebert High Availability Response Center (HARC) for 24x7x365 monitoring. The HARC is redundant in two countries ensuring your system is safe, secure and always working.

- Our systematic communication checks ensure continuous communication between your gateway, monitored device and Liebert Services.

- An escalation plan will determine the steps that are taken when a specific alarm occurs, and who receives critical alarm reports. So in every situation, your company will have a constant, definite and automatic course of action. No confusion. No delay. No worries.

Monitoring Alarms, Diagnostic, & Problem Resolution

- Every time an alarm occurs there is a specific process in order to properly diagnose and restore your system.

- Alarms are immediately received by the HARC, which continuously monitors your system.

- A specifically trained HARC technician will diagnose the condition.

- The HARC technician will determine whether the situation warrants a service dispatch.

- Liebert Services stores and reports vital information on your monitoring devices status so our technicians can easily analyze new patterns and areas of concern. Whenever an alarm is generated at your site, it is recorded and entered in our database along with the action that was taken. Any service calls are also recorded and saved. These records are always available for you to review.

- System activity and status reports will be sent to you every month. Liebert Services will use these reports to pinpoint any trouble spots or to resolve any issues that may have your monitored devices running at less than peak performance. The goal is zero percent downtime. Ntegrated Monitoring will help you achieve it.

Always Watching—Always There for You

If you have any questions or concerns regarding the startup process for the technology behind Ntegrated Monitroing, our experts are always here to help. We are committed to your service, your security and your satisfaction.

No Confusion.   No Delay.   No Worries.

Emerson Network Power

■ **The *Business-Critical Continuity*™ promise**

***Business-Critical Continuity*™** is our promise that your network infrastructure will not go down and disrupt your business. Emerson Network Power consistently anticipates your rapidly changing business environment, to ensure that your business backbone is protected and always running. With Emerson Network Power, you have the peace of mind that comes with knowing your business will run continuously and seamlessly. And you know your network infrastructure is delivering value to your customers.

To find out more about what Emerson Network Power can do for you, visit **EmersonNetworkPower.com** today.

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The global leader in enabling *Business-Critical Continuity*™.

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■ Connectivity	■ Embedded Power	■ Power Switching & Controls	■ **Services**
■ DC Power	■ Monitoring	■ Precision Cooling	■ Surge Protection

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