

■ Monitoring  
For *Business-Critical Continuity™*

*Liebert Monitoring Solutions:  
Protecting Your Investment Against The Unknown.*





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**Liebert has built advanced monitoring and communications capabilities into virtually every product we make. Our monitoring and control products allow you to take full advantage of these features. You will find a broad range of monitoring and control systems, communications modules and other equipment designed to interface with a variety of communication protocols, operating platforms and building management systems.**

## *Monitoring Is Designed To Protect Against The Threats You Can't See*

### **Without Proper Support Vital Processes Just Cannot Function**

Critical systems are the lifeblood of your operations. If something should happen to them, you are simply out of business. You need to monitor and control your entire facility protection infrastructure to ensure maximum availability and continuous productivity. Vital computing, communications and industrial process control facilities all depend on power protection and mission-critical air control systems to maintain their operations.

If a problem develops in any one of these support systems — the performance of the entire facility is at risk. These systems may be located close by...or on the other side of the world. No matter where they are located, problems can and will develop. The difference is whether or not you will be able to react to these problems before they become disasters.

### **The Reasons For Monitoring Are Many**

- **Expose Unknown Threats** — Leaking water, developing equipment problems and other undetected conditions can shut down critical systems without any warning.
- **Enable Proactive Management** — A developing problem that goes unreported could signal trouble ahead for a vital piece of computer support equipment. Knowing the up-to-the minute condition of these systems allows preventive measures to be taken in the most efficient and effective manner.
- **Reduce Expenses** — Electronic monitoring give you the ability to detect and resolve problems for a wide range of products from a central location and notify support staff anywhere in the world. It also requires less manpower, reduces downtime and provides detailed information for easier troubleshooting.
- **Keep Equipment Operating** — The ability to eliminate previously unseen problems by graphically viewing the operation of support systems in real-time helps prevent downtime and promotes productivity.
- **Solve The Right Problem** — Unrecorded data involving an operational event might cause you to miss the real trouble spot. Having access to the right information provides the ability to properly diagnose the source of the problem in the first place and helps to prevent repeat occurrences.

*Undetected. Unrecorded. Unreported. Uncorrected.*



### **Can You Really Afford Not To Know?**

Monitoring is the key to knowing what is happening within your facility, not knowing may cost more than you can pay. Loss of productivity due to system downtime and the associated costs are a direct result of not reacting to problems within your operations.

Because of the major investment you've made in critical facilities and the systems to support and protect their operation—it just doesn't make sense not to monitor your investment.

*If you don't know what is happening inside your critical facilities, the end result will be loss of availability.*

## Liebert Monitoring Solutions Fall Into These Seven Categories:

### Automated Shutdown Software

1

Protects your data from being lost or corrupted during extended power outages by initiating an orderly shutdown of your computer systems.

### Local And Remote Monitoring

2

Provides basic monitoring and control for single or small groups of equipment either at the equipment location or to a remote site.

### Battery Monitoring

3

Detects battery problems by continuously monitoring all critical battery parameters such as cell resistance, inter-cell and inter-tier connections, cell voltage, overall string voltage, current and temperature.

### Leak Detection

4

Alerts facility personnel to the presence of leaking fluids before serious damage results.

### IT Monitoring

5

Provides cost-efficient, centralized monitoring of various power and environmental units utilizing an existing network infrastructure.

### Advanced Monitoring

6

Offers comprehensive, centralized monitoring, control, data analysis and reporting for a full range of computer support systems.

### Third Party Monitoring Connectivity

7

The use of open protocols allows you to interface Liebert units and monitoring systems with other types and brands of control equipment including BMS, NMS, SCADA and fire alarm systems.

## You Have To Know There Is A Problem Before You Can Correct The Problem

There are a number of points within a critical facility where an unseen small problem can develop—and lead to much larger and costlier disasters. These examples show the types of occurrences that can develop—and what can happen if they are not responded to in a timely manner.

### Enclosure Systems

Racks and cabinets are a great way to consolidate and protect equipment. But by nature of a cabinet, problems developed inside can be concealed.

1 2 5 7

### Critical Mechanical Systems

The good news is that you had a redundant pump so that when your primary pump failed your cooling system stayed on-line. The bad news is that you are down to one pump and you never know it.

2 5 6 7

### Automatic Transfer Switches

You have a utility power outage. Your UPS is supplying battery power to your computer equipment and your back-up generator just came on-line. Life is good, right? Wrong! If the ATS does not transfer the load to generator power, then your network is still going to go down when you run out of battery power. Too little knowledge can be a dangerous thing.

2 6 7

### UPS Systems

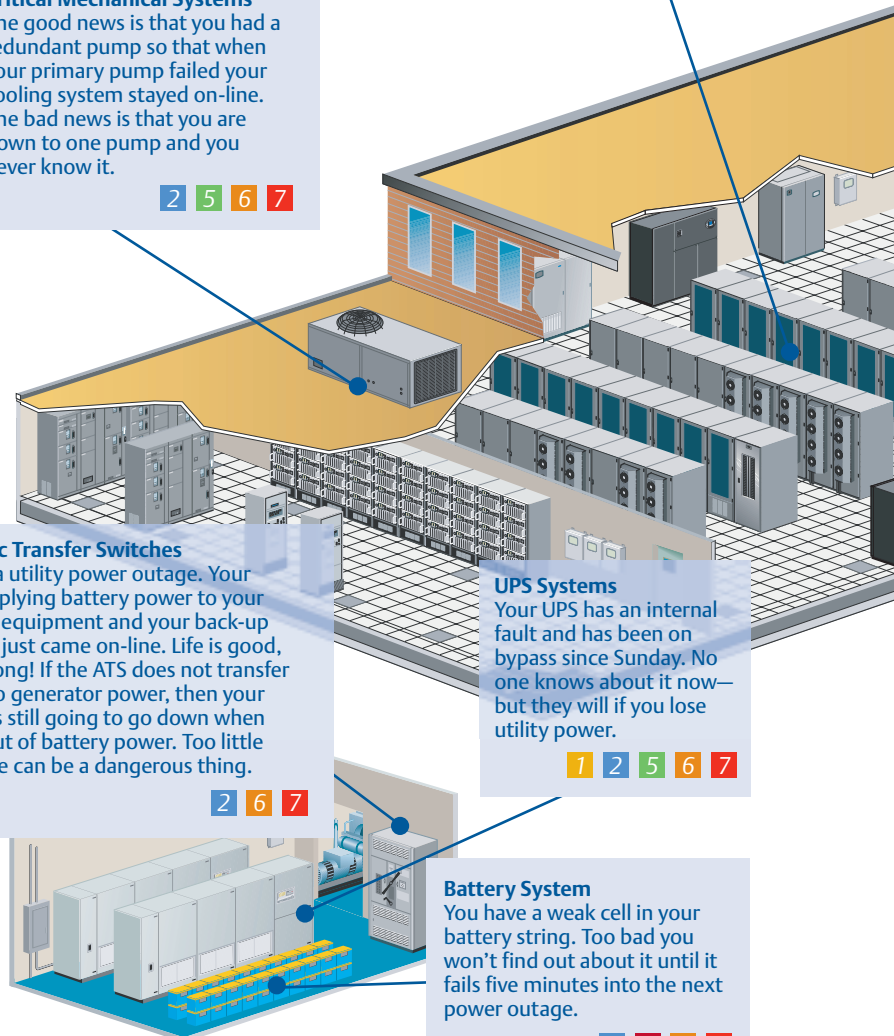
Your UPS has an internal fault and has been on bypass since Sunday. No one knows about it now—but they will if you lose utility power.

1 2 5 6 7

### Battery System

You have a weak cell in your battery string. Too bad you won't find out about it until it fails five minutes into the next power outage.

2 3 6 7



### Power Conditioning Units

A grounding problem in your power conditioning system causes small voltage disturbances. You may not even realize there is corrupt data or damage to other systems until bigger problems occur months later.

2 5 6 7

### UPS Systems

Yesterday the UPS failed its automatic battery self test. Today the UPS failed to carry the load during a momentary power interruption, halting a critical process. The problem isn't the UPS or the weak battery. The real problem is that you didn't know that the UPS failed a self-diagnostic test.

1 2 3 5 6 7

### Environmental HVAC Systems

High head pressure, compressor short cycling, dirty filters, pump or fan failure—these are just a few of the problems that can cause mission-critical air conditioning systems and other HVAC equipment to go down and temperatures to go up. One more problem? Not knowing that these troubles are developing in the first place.

2 5 6 7

### Breaker and Power Distribution

Several circuits are on the verge of overload. If one of these breakers trips, servers will crash. Too bad you are not aware of the situation.

2 5 6 7

### Static Transfer Switches

A transfer switch fails to transfer when your primary power feed goes down in the middle of the night. You won't know about it, though, until tomorrow morning when there are no sales reports, no e-mails and certainly no one conducting normal business.

2 5 6 7

### DC Power Systems

An overvoltage condition in an essential DC power system causes an alarm to sound. Problem is, no one is there to hear it.

2 5 6 7

### Surge Protection

Thank goodness you installed that surge protector. It has protected your site through many thunderstorms. Too bad it self-destructed protecting you from that last surge and you don't know that it needs to be replaced.

2 6 7

### Water Leaks

Your data cabling is lying in a growing puddle of water under the raised floor because of a plumbing leak. It is just a matter of time before that affects your operation. Who knows how long it will take to track down the cause of the problem.

2 4 6 7

### Generator Operation

The good news is your emergency generator came on-line during a power failure last night and kept things running for several hours. The bad news is that the fuel tank is now almost empty—and no one realizes it, leaving you unprotected for the next outage.

2 6 7

### Intrusion Alarm

The entrance of unauthorized personnel into a remote shelter is a big problem. The real problem is that the person who needs to know this is happening is unaware and possibly isn't in the same building—or even the same state.

2 6 7

*Liebert Monitoring Solutions Provide The Right Information To The Right People.*

## *How Deep Does Your Monitoring Need To Be?*

**Important facility operational and status information needs to be communicated by different means with varying levels of importance. This is why Liebert gives you so many ways to supervise your enterprise.**

### **Critical Information Takes Many Forms**

Monitoring can range from a simple remote panel that provides basic operating information from an air conditioning unit—all the way to full-scale monitoring and control of a critical facility including trending and data analysis.

Your requirements will vary according to the specificity of the information you need. You may require no more than a local readout of a unit's operating status. Or you may need the ability to control its operation and receive alarms.

These information requirements may also go beyond basic monitoring and control. You may need the ability to analyze performance data in order to pinpoint trouble spots so that the same problems don't happen again and again.

It may also be necessary to share information with an existing building management system (BMS) or other supervisory controls.

### **What Exactly Do You Need To Know?**

You need enough information to guard against anything that can keep your critical support systems from being able to protect the operation of your computing and communications systems. Knowing where and what the problem is—that's the first step to keeping it from becoming a disaster. No matter what you need to know about the operation of your facility and the essential systems inside, Liebert has a product that will enable you to do it.



## Liebert MultiLink®

Advanced Monitoring And System Shutdown For Your Liebert UPS

**Liebert MultiLink software provides comprehensive UPS status reporting and automated, orderly shutdown of assigned computers to protect critical data during extended power outages.**

### Stay In Control

Because today's critical business applications are often spread over several computers, there is a need for UPS shutdown software capable of protecting information on multiple machines. Liebert MultiLink automated shutdown software performs the critical task of protecting your computers from costly damage and loss of data as a result of power failures—on systems ranging from a single PC to a network of workstations, running on a wide variety of operating systems.

### Designed For Use With A Range Of Liebert UPS Systems

Installed on a host computer, Liebert MultiLink communicates with a variety of Liebert UPS systems to detect any loss of utility power and determine the status of the UPS battery. During an extended utility failure, Liebert MultiLink warns computer users of impending power loss and automatically shuts down computer operating systems in a smooth and orderly manner if UPS battery capacity runs low.

Liebert MultiLink offers integration to the Web Card interface, advanced action logging, enhanced unattended shutdown configurations and added support for Three-Phase UPS systems. The intuitive configuration management interface provides the user with full functionality and automated shutdown protection right out of the box, meaning virtually no configuration is required.

Liebert MultiLink can also interface with the user in one of four different languages, including English, Canadian French, Latin American Spanish and Simplified Chinese. Once the user selects a language, all text, menus and screens will appear in that language. Changing between the available languages is a simple menu option.

### Scalability

Liebert MultiLink supports multiple shutdown configurations that incorporate network and serial based shutdown solutions for one or many computer systems. Scalability has been designed into MultiLink's architecture to support orderly shutdown on virtually an unlimited number of computer systems. This scalability is extremely valuable in large data centers where multiple computers could be powered by a large UPS system.



For more information go to:  
<http://multilink.liebert.com>

## Network-Based And Serial Communications

Using the network to send alarm messages and data can dramatically reduce cable and installation costs. In situations where the use of network wiring is not feasible, a Liebert multiplexing device can be utilized to provide dedicated “out-of-band” communications to each computer using serial port connections.

## Provides A Front-End Graphic Interface Of UPS Status Information

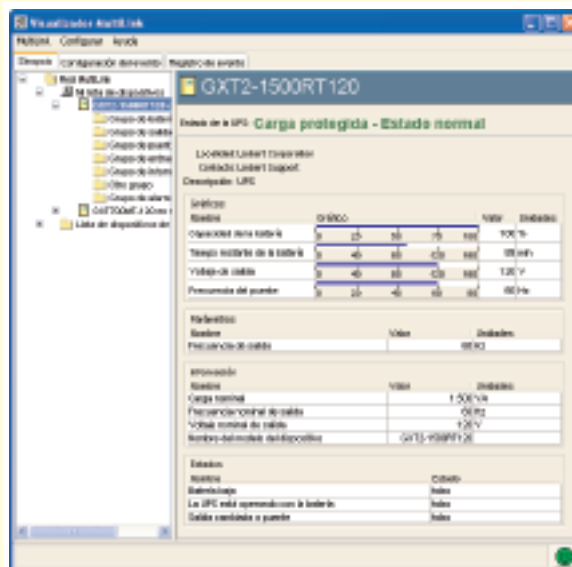
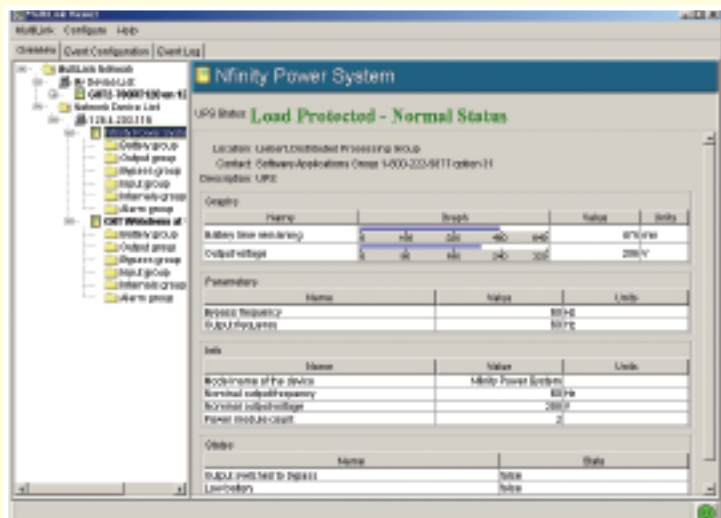
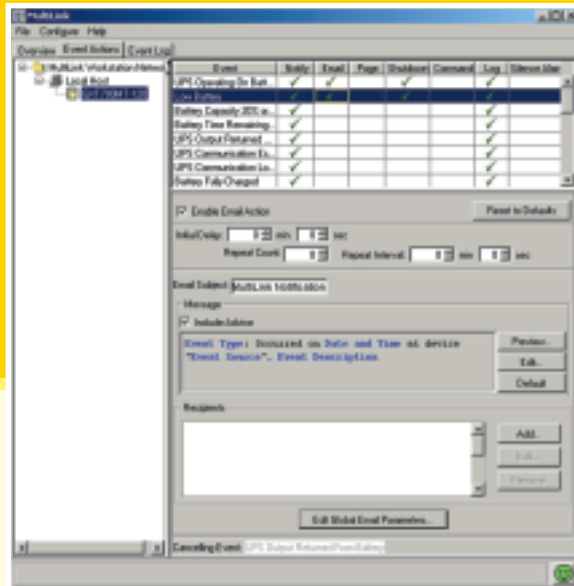
MuliLink enables the user to monitor UPS status and provides detailed instrumentation, a simple navigational tree and customizable event management. This flexible solution permits configurable responses to UPS status changes and alarms, including support for e-mail and pagers in advanced applications, as well as on-screen notification directly to users via pop-up messages.

## Configurable UPS Alarm And Event Notifications

Configuring MultiLink event actions is quick and easy through our unique event manager matrix. From one screen, users can configure specific event actions, while maintaining a view of the overall system configuration. This same matrix approach is also used to view event and action logs, graphically identifying event severity and action status.

## Suitable For A Single Workstation Or A Network Of Servers

Advanced network management of distributed MultiLink systems is also available with the network administration license. This will enable the system administrator to monitor and control any MultiLink installation on your network from one centralized computer. It allows you to efficiently manage your power protection by centralizing power management and coordinating the shutdown of other computers throughout your network.



# UPS Communications Hardware

*The Right Connections For A Choice Of Power Monitoring Options*

**Liebert UPS communications hardware solutions work with our MultiLink™ automated shutdown software to provide you with even greater flexibility in communications and control of your critical power protection systems.**

## A Network Communications Solution For Your Liebert UPS

When installed in the IntelliSlot® port on your Liebert UPS, the Liebert IntelliSlot Web Card will deliver SNMP and web-management communications capabilities to your power system. This card allows remote monitoring of the UPS from anywhere network access is permitted. Liebert MultiLink software will leverage the network capabilities of the Liebert IntelliSlot Web card to remotely monitor the UPS status by providing automated shutdown to all computer systems powered by the UPS.

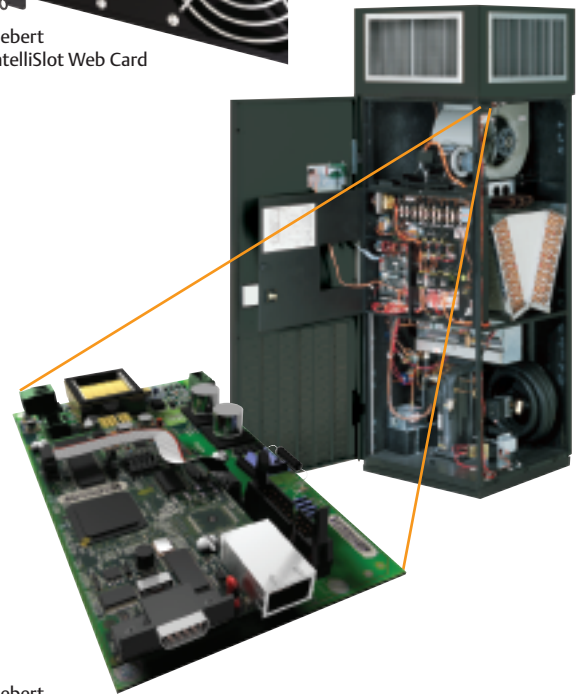
Intellislot cards also provide Liebert SiteScan® Web or Building Management Systems with the capability to monitor and control your Liebert UPS and precision cooling systems. Other cards include an interface for relay contacts as well as a SiteNet MultiPort 4 multiplexer that provides shutdown communications for up to four additional computers connected to a single UPS and using MultiLink software.

### Available products:

- Liebert IntelliSlot Web Card
- Liebert IntelliSlot Web/485 Card
- Liebert Interface Kit for Relay Contacts
- Liebert SiteNet MultiPort 4
- Liebert IntelliRack



Liebert IntelliSlot Web Card



Liebert IntelliSlot Web/485 Card



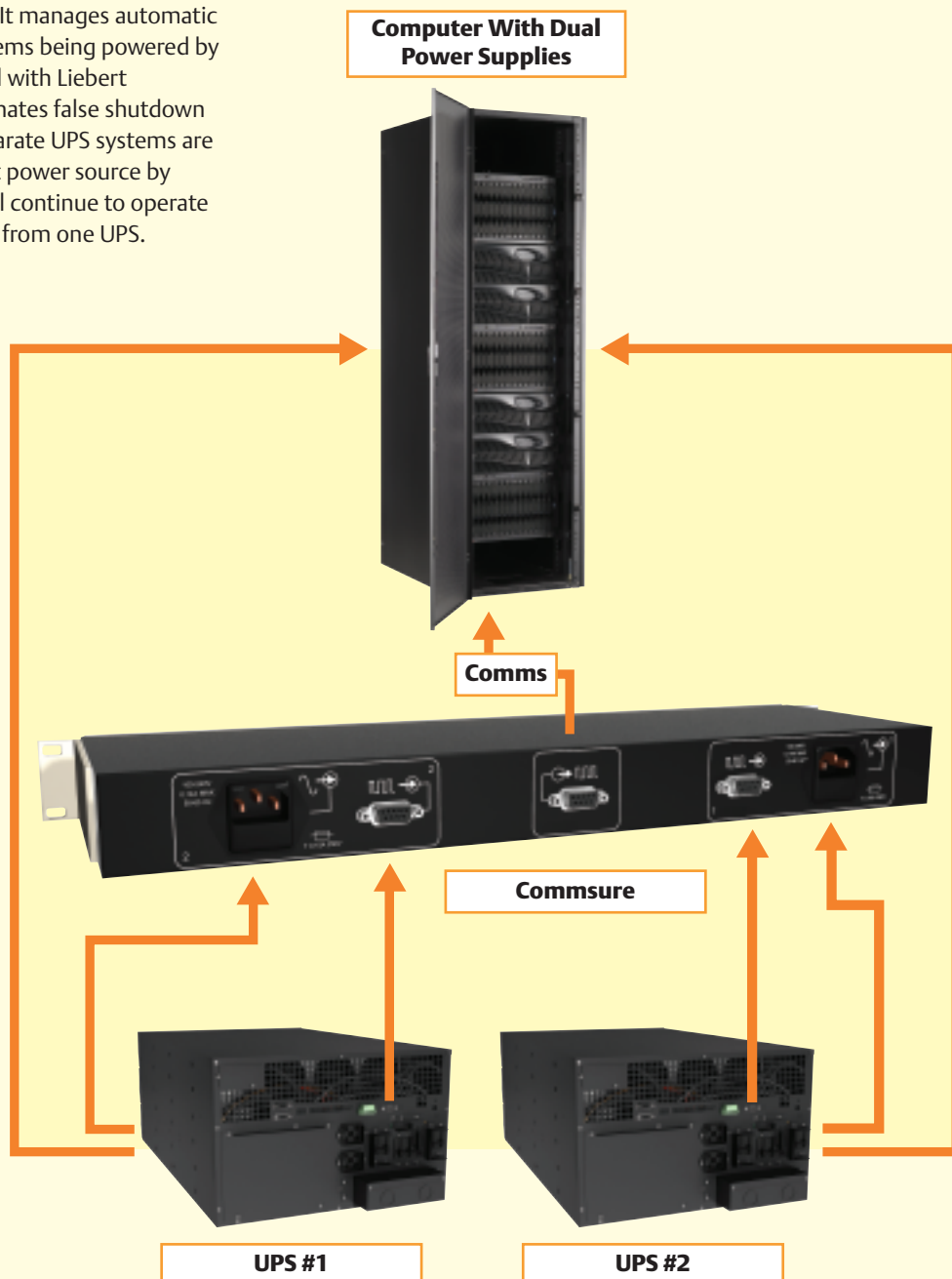
Liebert MultiPort® 4 Kit



Liebert IntelliRack

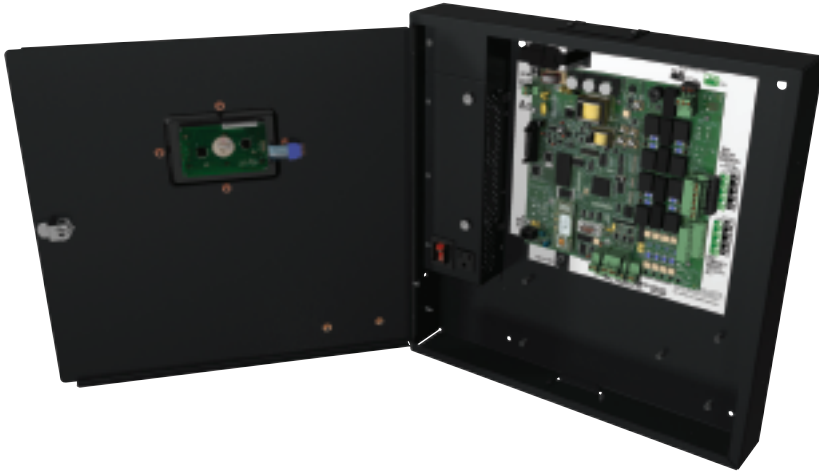
## Liebert CommSure

Liebert CommSure is designed to help users create a redundant, high availability power supply using existing UPS systems. It manages automatic shutdown of computer systems being powered by two UPS systems when used with Liebert MultiLink™ software. It eliminates false shutdown signals that occur when separate UPS systems are used to provide a redundant power source by ensuring that computers will continue to operate as long as power is available from one UPS.



# Liebert Universal Monitor

Local Monitoring For High Availability Support Systems



Liebert Universal Monitor is an all-purpose microprocessor-based alarm and notification unit that allows a variety of Liebert equipment to be monitored and controlled both remotely and locally from a single point. The Universal Monitor can also be connected to Liebert SiteScan® Web enterprise monitoring system.

### Monitor Inputs And Control Outputs

- Digital inputs
- Analog inputs
- Controllable output relays

### Local Alarm Plus Remote Paging Capability

Notification of personnel is facilitated with an on-board audible alarm. Internal modem allows for alarm notification of up to four alphanumeric pagers.

### Easy Start-Up And Operation

User interface via LCD display panel or RS232 connection will perform all set-up, configuration and monitoring without additional software.

### System Analysis Capabilities Provide Alarms And History

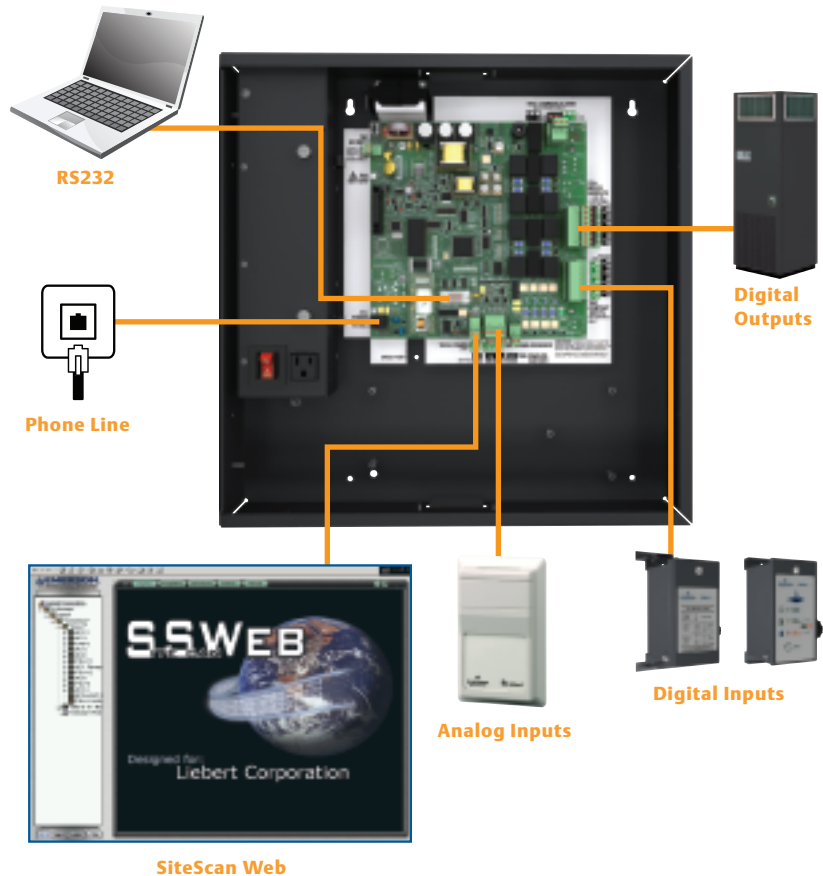
Alarm, event and trend logs with time and date stamp permit diagnostics and information retention for review of occurrences at a later time.

### Designed To Fit Right In

The Liebert Universal Monitor is efficiently packaged to make the unit aesthetically pleasing while requiring minimal wall space. The built-in LCD user interface makes the unit self-contained and accessible without additional hardware and software.

The Liebert Universal Monitor is ideal for monitoring equipment in many types of facilities, including:

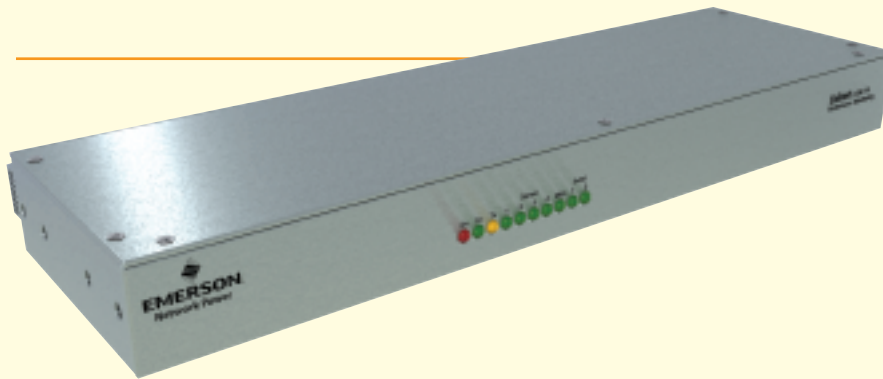
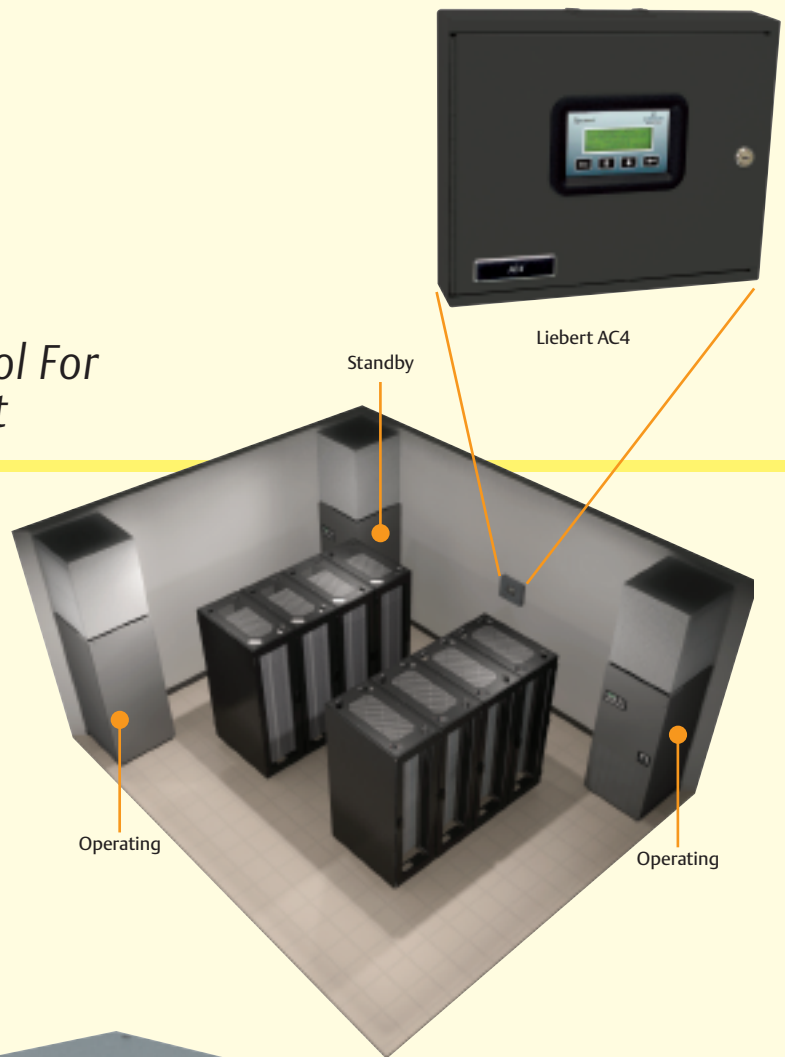
- Computer rooms.
- Process areas
- Telecom switch rooms
- Remote communications shelters
- Communications closets
- Electrical rooms



## Flexible Monitoring And Control For Individual Pieces Of Equipment

Autonomous control modules are available to provide supervision, control and remote alarm notification for a variety of Liebert power and environmental systems.

**Controllers** — Liebert Controllers monitor running and stand-by environmental units for proper operation, switching operation to a redundant unit in the event of a problem. The controllers will also balance the runtime of environmental systems for even wear and long system life. Controller can also provide staging to operate additional units for expanded capacity.



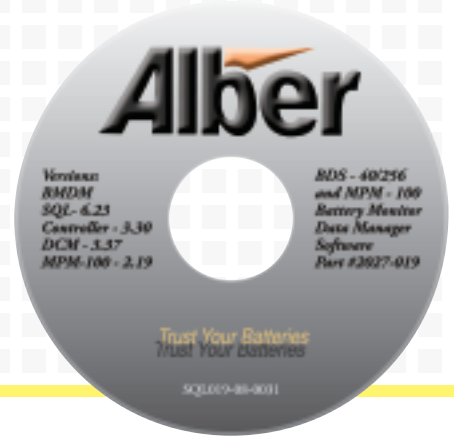
**Liebert vEM-14** — The Liebert vEM-14 allows virtually any device or sensor with a digital output to become a part of your SNMP management system, enabling you to monitor items such as UPS systems, air conditioners, water and smoke detectors, thermostats and secure doors.

**Remote Contact Monitor Panel** — The Liebert RCM4 is a four-point contact closure monitor that displays alarm indication for any dry contact input from leak detection, environmental, power and UPS systems, including Liebert units.



# Albér Battery Monitoring

Full Monitoring And Reporting Of Battery Status:  
UPS Battery Cabinets And Telecom Battery Systems



Liebert offers the latest in UPS battery monitoring technology with products by Albér—a leader in the field since 1972. Albér technologies by Emerson Network Power are designed to prevent battery failure, optimize useful battery life, reduce maintenance cost and increase safety.

### A Variety Of Solutions For Testing Flexibility

Albér offers a variety of battery monitoring systems with capabilities to meet a wide range of applications. These include monitoring and diagnostic units for UPS battery cabinets and large multi-cell configurations, as well as telecom and stationary battery systems. The included battery management software allows online monitoring and analysis of battery systems, simplifying the data to an understandable and manageable format that allows easy interpretation and proactive response.

### Early Warning For Battery Problems

Like an ultrasound for a battery, this technology lets you “look inside” and assess its true state of health. Albér battery monitors use a patented Internal DC resistance test method that bypasses the limitations of outdated AC based impedance testing. 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. It is essential to detect deterioration at an early stage to prevent catastrophic failures.

### Albér BMDM (Battery Monitor Data Manager) Software

This battery management software provides efficient trending analysis. It allows the setting of thresholds, alarms and reporting on all parameters. Color coded graphs simplify analysis. The standard Access database offers a simple method to configure and manage database environment for users who primarily log in on one computer for report and analysis. An SQL server version and Java-based web client are available options.

Each battery module in a system can be analyzed. Trending of internal resistance, charge voltage history and discharge analysis allow the user to properly assess the condition of the battery and make the correct decision. The BMDM software converts all the detailed data from the batteries into useful information for the user. The Battery Monitor Data Manager (BMDM) software enables a central computer to manage over 1000 battery systems.

### The Value of Monitoring Batteries

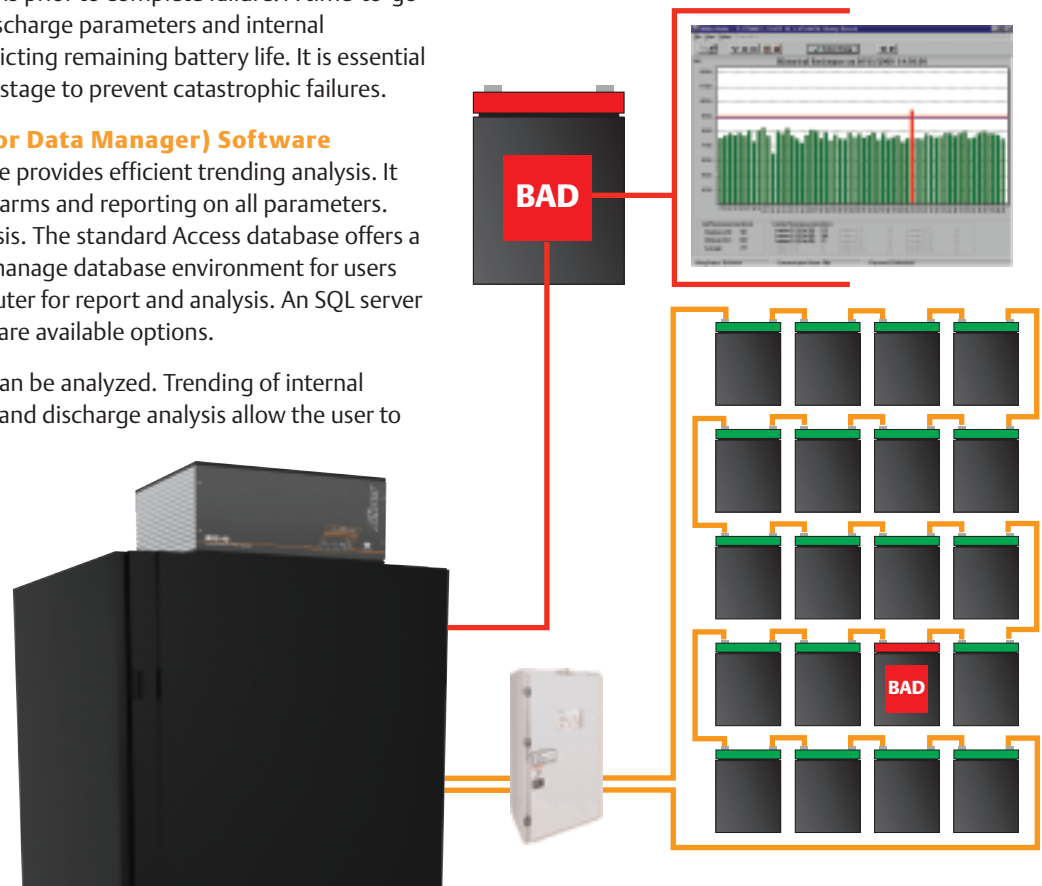
Lead Acid batteries are sensitive to temperature, excessive cycling and float voltage settings, which means battery life can be extended by optimizing these conditions. A battery monitor provides the user with information such as temperature, float current and cell voltages, allowing for cost savings by optimizing useful battery life. Instead of waiting for an inevitable failure or replacing batteries prematurely to prevent problems, you can continue to utilize your batteries longer and with confidence by knowing the true internal condition.

### Vented Lead Acid (Wet Cells) Batteries are ideally suited for:

- Battery rack applications over 500Kv
- Large data centers

### Sealed Lead Acid Batteries (VRLA) are ideally suited for:

- UPS battery cabinets using 12V sealed batteries
- Most power, telecom and cellular applications





### Albér BDS-40 Battery Monitoring System For UPS Battery Cabinets

The Albér BDS-40 is designed to monitor 12 volt, Valve Regulated Lead Acid (VRLA) batteries. The all-in-one unit and custom wire harness reduces installation cost. Easy to use, the system tracks internal resistance, predicting and reporting failing conditions prior to complete failure to allow proactive replacement.

The system consists of two products. The BDS-40 Base Unit

is the central point where UPS-supplied power and communication connections are made. It is complete, stand alone monitoring system for one string. To expand the system, each additional battery cabinet in the system may then use a BDS-40 Plus Unit, which transfers the data to the Base Unit for alarm and data storage. Each Base Unit can manage up to five Plus Units for a total of six battery cabinets.



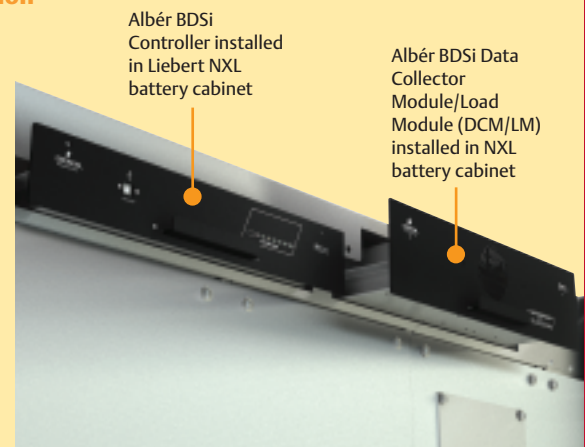
Albér BDS-40 on Liebert NX battery cabinet

### Albér BDSi Battery Monitoring System For UPS Battery Cabinet Integration

The Albér BDSi is designed specifically for factory integration into the Liebert NX and Liebert NXL battery cabinets for 12 volt battery applications. A factory installed monitor continuously monitors all critical battery parameters while reducing field installation and start-up. The result, a reliable system that is efficient to deploy. Field retrofit kits available.

The system consists of two units: A Controller and a Data Collector

Module/Load Module (DCM/LM). The Albér BDSi Controller stores the data, provides alarms, power and communication connections and the DCM/LM unit collects individual cell data and performs the resistance test. Each additional battery cabinet would use an Albér BDSi DCM/LM unit linked to a single Controller Unit. A Controller can communicate with a total of six DCM/LM units. Both Integral Ethernet network card and dial-up modem are standard.



Albér BDSi Controller installed in Liebert NXL battery cabinet

Albér BDSi Data Collector Module/Load Module (DCM/LM) installed in NXL battery cabinet

### Albér MPM-100 Battery Monitoring For Communications And Power Industry Applications

The Albér MPM-100 battery monitor is a diagnostic system designed for lower cell count applications such as telecom or stationary battery systems up to 130VDC. It identifies potential problems by continuously monitoring parameters such as cell voltage, overall string voltage, current and temperature. Automatic periodic tests of battery internal resistance verify the operating integrity of the battery.

For added flexibility, the Albér MPM-100 supports more than 80 different battery configurations and can be factory configured for nonstandard configurations. The Albér MPM-100 is available in either 19" or 23" rack mount, and can be configured for most power, telecom and cellular applications.



Albér MPM-100 in telephony rack



# Albér Battery Monitoring

## Full Monitoring And Reporting Of Battery Status: Wet Cell Battery

*The Importance Of Battery Monitoring For Large Applications*

**Downtime in your mission-critical data center, even a few critical minutes, can cost you millions of dollars. As a precaution, many large enterprises invest heavily in backup power systems with highly sophisticated UPS systems—systems that are completely dependent upon full-functioning batteries. If these batteries fail, power and valuable data and communications will be lost.**

### Albér BDS-256 XL Battery Monitoring System For Large UPS Systems

The Albér BDS-256 XL battery monitoring system continuously monitors and diagnoses all critical battery parameters for large UPS systems and is uniquely adaptable for wet cell applications. It identifies potential problems by continuously monitoring parameters such as cell voltage, overall string voltage, current and temperature.

Automatic periodic tests of the battery's internal resistance will verify the operating integrity of the battery. If resistance values exceed set thresholds, the user can take the proactive action of replacing a bad battery before it affects others in the string.

The BDS-256 XL is composed of the Controller, the Data Collection Module and the Resistance Test Module.

The Controller is the brain of the system and coordinates alarms and traffic to and from the other components in the system. The built in power supply provides 24VAC for all components in the system.

The Data Collection Module (DCM) is a scanning voltmeter that acquires overall voltage, cell voltage, current and temperature readings from the monitored battery strings. When the DCM has captured the data, it compares all parameters with preset thresholds and alerts the user via the Controller if any of these parameters are violated.

The last component of the system is the RTM (Resistance Test Module), which provides the load during the patented resistance test. This unit provides the high reliability and repeatable test results that are required.



Albér BDS-256XL Battery Monitoring System in battery room application.



# Albér Battery Monitoring Portable Testing For Single Or Multicell Modules

Battery Monitoring Wherever You Need It

Testing your critical battery systems wherever necessary is key to assuring their uptime. That's why Albér has created portable handheld cell voltage and resistance testing technology that can make this job as accurate and easy to deploy as possible. You get the convenience of a portable, packaged system, plus a wide range of customization options to meet any application requirement.

## Albér Cellcorder CRT-400 Provides Portable Testing For A Variety Of Applications

The handheld Albér CRT-400 cell resistance tester displays and records cell float voltage, internal cell resistance and intercell connection resistance. The portable unit is lightweight, rugged and durable and can be used on single cell or multicell modules. The unit can also transfer readings to a PC for analysis and report generation.

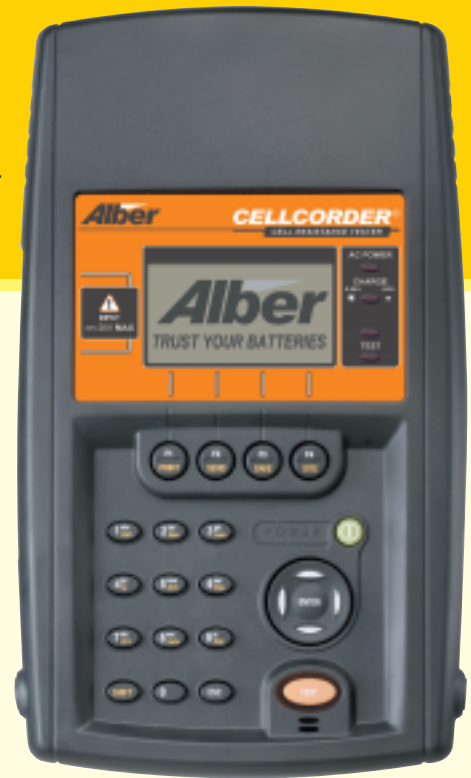
Designed to strictly comply with IEEE standards for testing batteries online, the Albér CRT-400's uses the same proven DC resistance test method used in all of our stationary monitors.

The unit comes with a hard shell carrying case, AC charger, data trending and analysis software. An optional IR printer is available. Bluetooth compatible.

The Battery Analysis Software helps you identify bad cells, generate descriptive reports and archive data.

### Ideally suited for:

- Wet cell batteries
- Single or multicell modules



## Albér Cellcorder CRT-400 Advantages and Features

- Patented Internal Resistance testing eliminates inaccuracy
- New graphical display makes menu navigation easy
- Measures cell voltage and internal battery resistance as well as intercell resistance
- Flash drive can be used to transfer data to your PC
- Battery Analysis PC software lets you identify bad cells, create reports and archive data
- IrDa allows wireless communication with a variety of peripheral equipment including compatible DMA-35N-CRT Hydrometer
- Tests batteries from 0-16V
- Includes battery test clamps with interchangeable jaws
- Portable, lightweight design, measuring H 305mm (12") x W 178mm (7") x D 76mm (3") at 1.5Kg (3.4lb)
- Durable system features polyurethane coated rubber keypad

## Liebert Liqui-tect®

### Comprehensive Leak Detection And Reporting For Critical Spaces

**Your critical computing, communications or process control facility could be filling up with water due to broken pipes, leaking roofs or other causes—and you may not even know about it until it's too late. In fact, water damage due to leakage is far more common than fire or other more visible hazards.**

#### **Provides Area, Zone Or Point Detection**

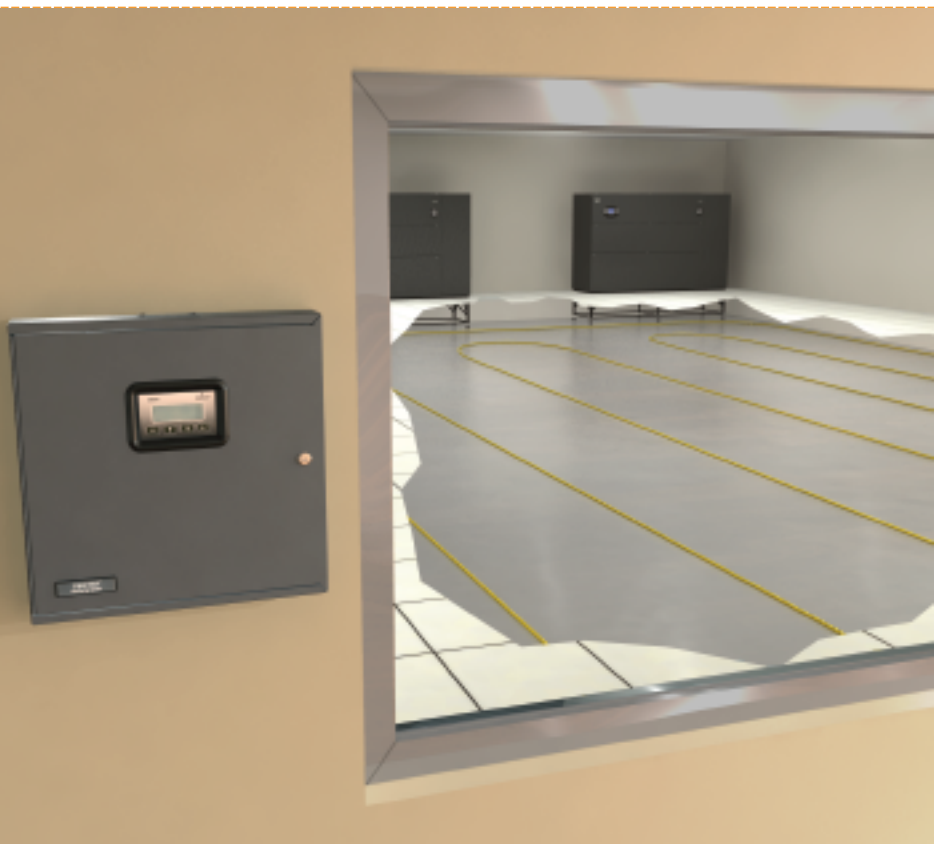
Liebert Liqui-tect® leak detection systems provide accurate reporting of leaks below the floor, above the ceiling or at the perimeter of a room in critical facilities.

#### **Provides Local And Remote Alarms, Location And Reporting**

These reliable systems provide immediate warning and precise location, allowing you to find and correct a leak before moisture can damage computers, wiring connections or other sensitive electronics.

#### **Flexible Communications**

Liebert Liqui-tect leak detection systems offer the ability to interface with building monitoring and management systems to provide the broadest possible range of communication with authorized personnel.



Liebert Liqui-tect leak detection systems are ideal for a variety of applications, including:

- Computer rooms.
- Large-scale network control centers.
- Telecommunications facilities.
- Satellite ground stations and other specialized data communications nodes.
- Industrial process control rooms.
- Any location where water can cause problems.

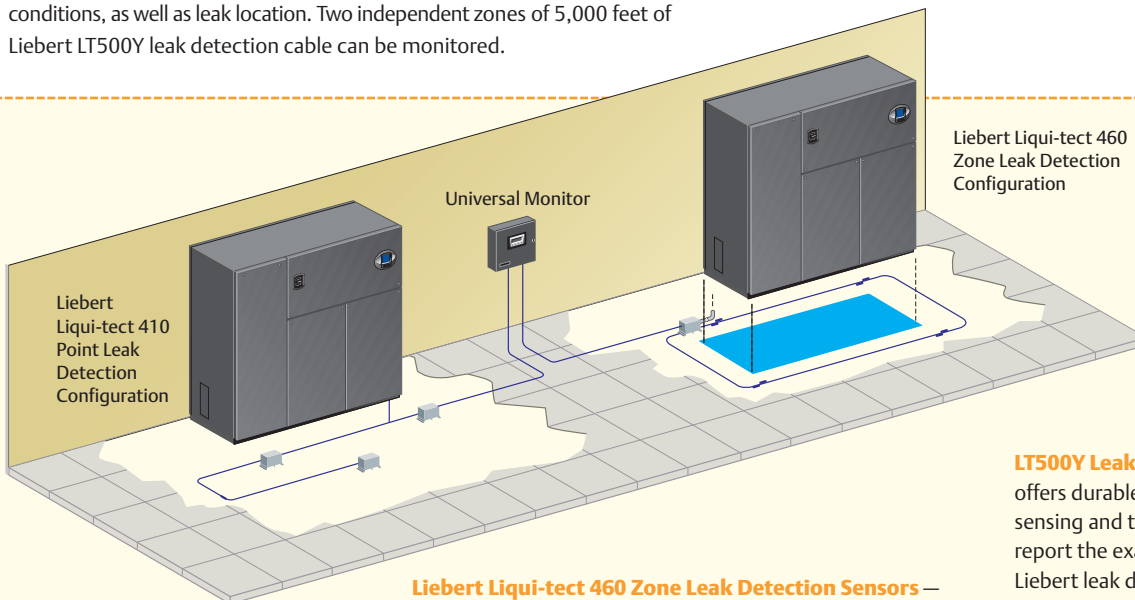
## The Liebert Liqui-TECT Product Family Includes:

### Liebert Liqui-TECT Panel Two Channel Direct Read Leak Detection —

The ultimate in leak detection and reporting, this system provides two channels for monitoring different areas with direct-read at the control unit location, plus the ability to communicate with Liebert SiteScan Web enterprise monitoring system or a building management system. Features an easy-to-use liquid crystal display (LCD) panel for readout of normal and alarm conditions, as well as leak location. Two independent zones of 5,000 feet of Liebert LT500Y leak detection cable can be monitored.



Liebert Liqui-TECT



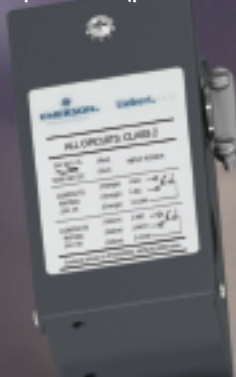
### Liebert Liqui-TECT 410 Point Leak Detection Sensors —

offer leak detection at critical points. Two corrosion-resistant gold-plated probes detect moisture and immediately signal the monitoring system.

**Liebert Liqui-TECT 460 Zone Leak Detection Sensors —** provide zone detection of leaks up to 100 feet. Designed for use with Liebert LT500Y leak detection cable, the Liqui-TECT 460 is the ideal solution for perimeter sensing or serpentine coverage of small areas.

**LT500Y Leak Detection Cable —** offers durable design for accurate sensing and the ability to read and report the exact position of the leak. Liebert leak detection cables have a multi-wire design for precise identification of moisture and signaling. Rugged, durable materials resist corrosion and abrasion for long cable life. The cable's non-kink design makes it easy to position around equipment.

Liebert Liqui-TECT 410 (point sensor)



Liebert Liqui-TECT 460 (zone sensor)



Leak Detection Cable



# Liebert Nform

Liebert Nform Centralizes The Management Of Your Distributed Liebert Network Equipment

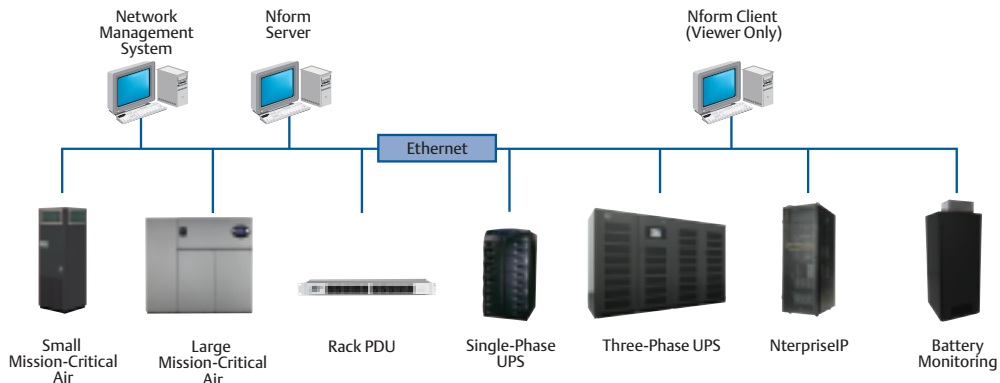


## When Systems Are Critical... Monitoring Is Not An Option

Liebert Nform software solution combines full-scale monitoring with cost-effective deployment through the use of the existing network infrastructure—so the cost of dedicated, out-of-band communications cabling is eliminated. It is both scalable and adaptable so it can grow as your systems expand and needs change.

## Alarm Management Capabilities

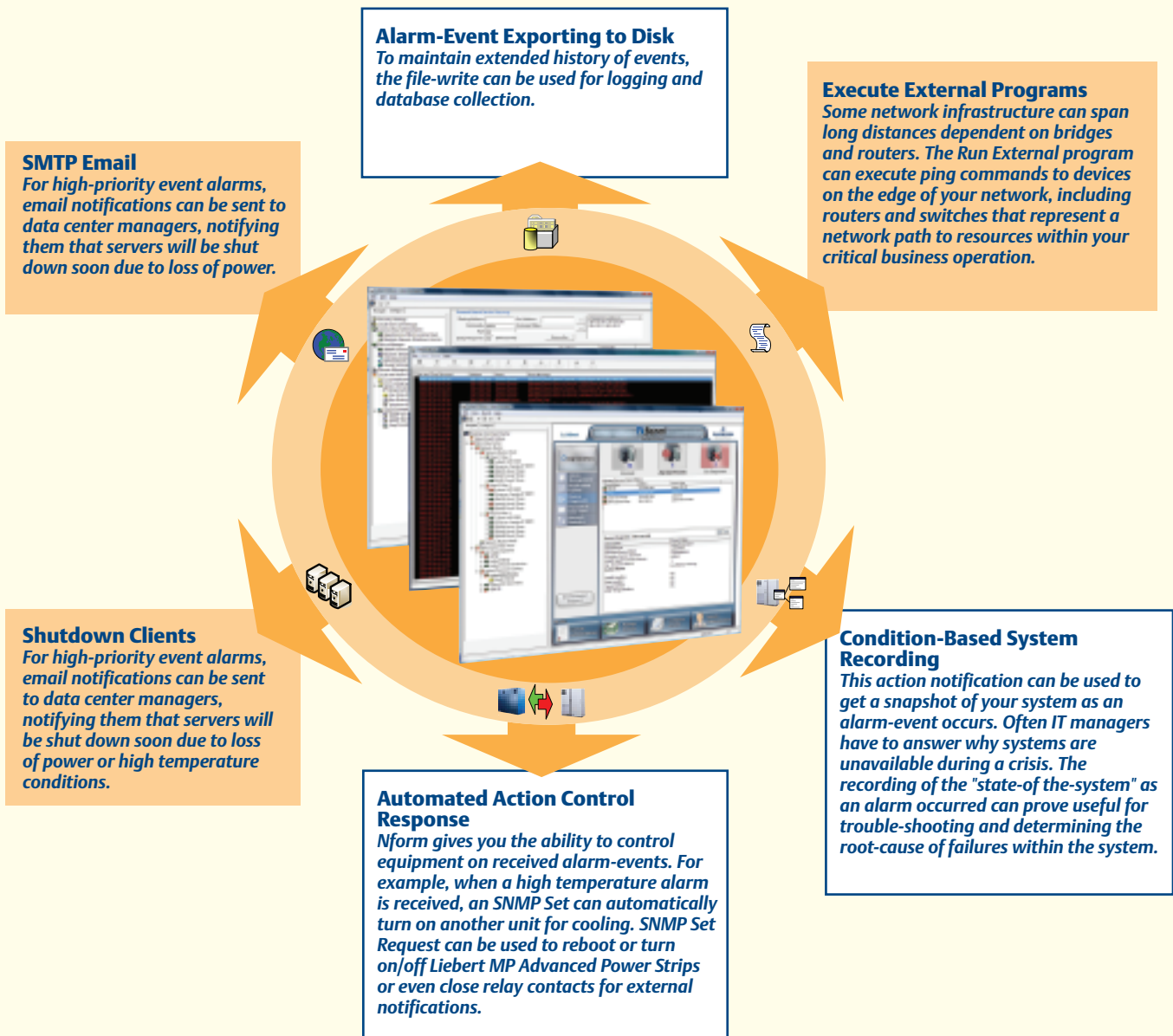
Liebert Nform can be configured to monitor your network for alarm notifications from Liebert power protection and mission-critical cooling equipment. These alarms can be processed to trigger event actions such as e-mail alerts or local notifications. The software will manage all alarms, including notifying the user of new or active alarms, enabling the user to acknowledge alarms and then deleting acknowledged alarms.



For more information go to:  
<http://nform.liebert.com>

# Liebert Nform

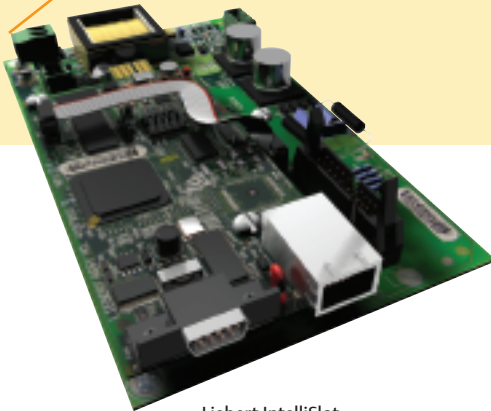
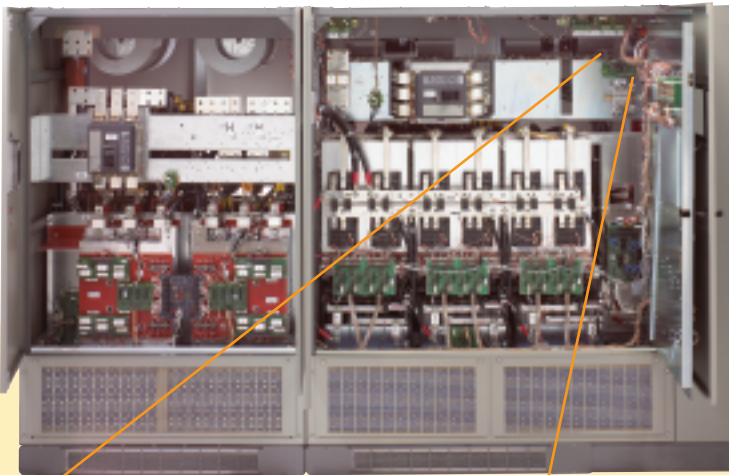
Monitoring And Control Through Your Existing Network



## Liebert IntelliSlot Web Card Liebert IntelliSlot Web/485 Card w/Adapter

**The Liebert IntelliSlot Web Card communicates to Network Management Systems using SNMP. The card also produces a web page which provides real-time information through your web browser.**

The Liebert IntelliSlot 485 Card with Adapter provides SiteScan Web or Building Management Systems Monitoring and control of Your Liebert equipment. The card delivers Modbus or Liebert's Proprietary protocol via the EIA-485 port. The Liebert IntelliSlot Web/485 Card with Adapter bridges the gap between Network and Building Management systems with its ability to communicate to BMS systems with Modbus, as well as communicating to NMS systems through SNMP and Web. All interfaces can operate concurrently.



Liebert IntelliSlot  
Web/485 Card w/Adapter

Liebert IntelliSlot  
Web Card In Liebert GXT



### Ideally Suited For

- Small and large data centers
- Computer rooms, network access spaces or server closets
- Telecommunications facilities
- Industrial process control centers
- Other sensitive electronic applications

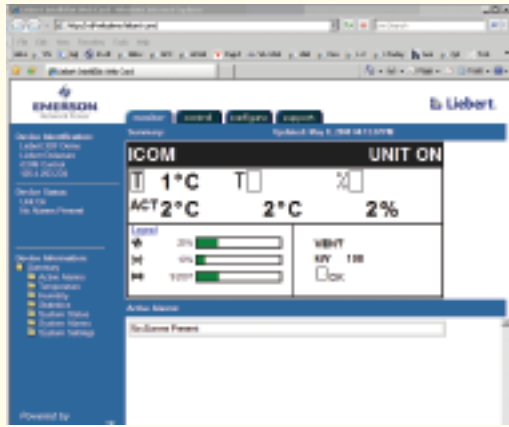
### Available Products

- Liebert IntelliSlot Web Card
- Liebert IntelliSlot Web/485 Card

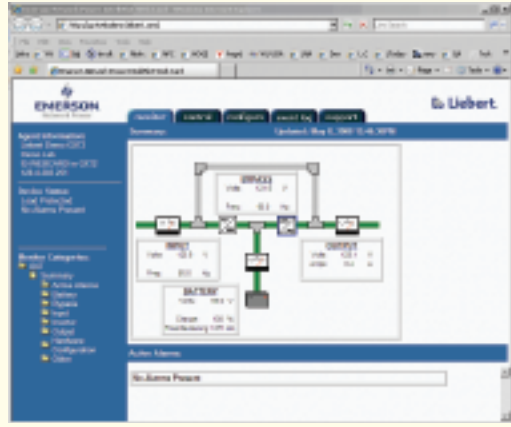
# The Right Connections For A Choice Of Monitoring Options

## Local Monitoring For High Availability Systems Support

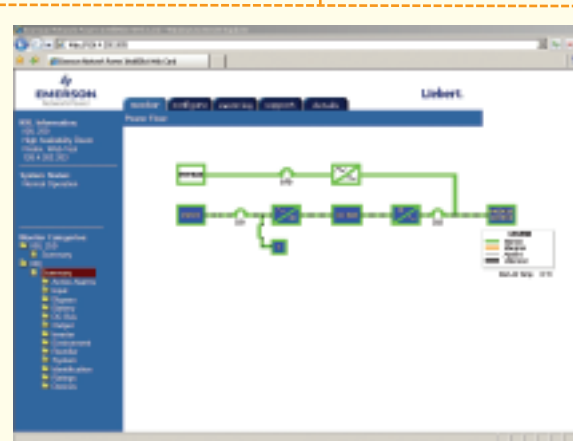
Liebert XDF



Liebert GXT2



Liebert DS



Liebert NXL

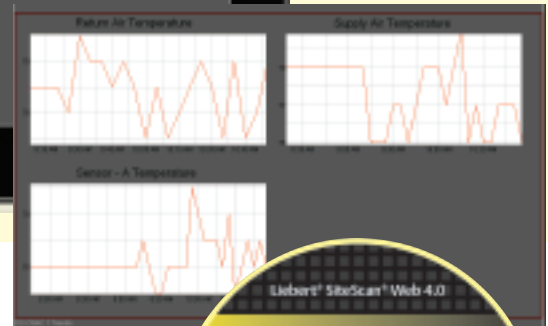
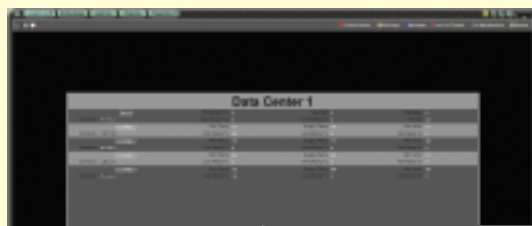
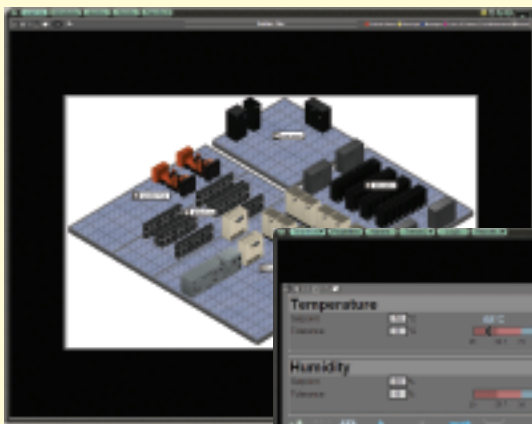
# Liebert SiteScan® Web

Everyone, Everywhere, Every Time

Important information can be right in front of you... but it's probably buried in a mountain of data. Liebert SiteScan Web can provide trend and historical analysis in a graphic format: easy-to-read charts and comparative analysis of multiple parameters at one time. It's easier to compare and differences can be spotted more quickly. Problems can be solved in many ways, but the best solutions usually start with good information delivered quickly. Liebert SiteScan Web gives you both.

## Design The System Around Your Facility— And Your Needs

SiteScan Web's operation can be tailored to the specific requirements of your critical support infrastructure and the needs of different people in your organization, giving you a powerful tool to manage your enterprise.



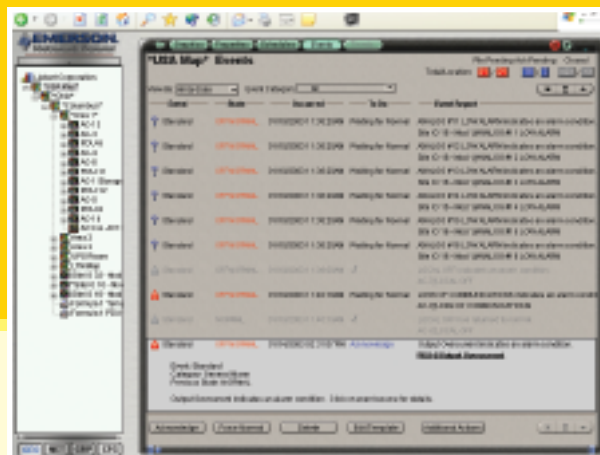
## Liebert SiteScan Web Does It All

Liebert SiteScan Web provides comprehensive monitoring and control of your critical facility support systems—and lets you do it from virtually anywhere in the world.

### Real-Time Monitoring And Control

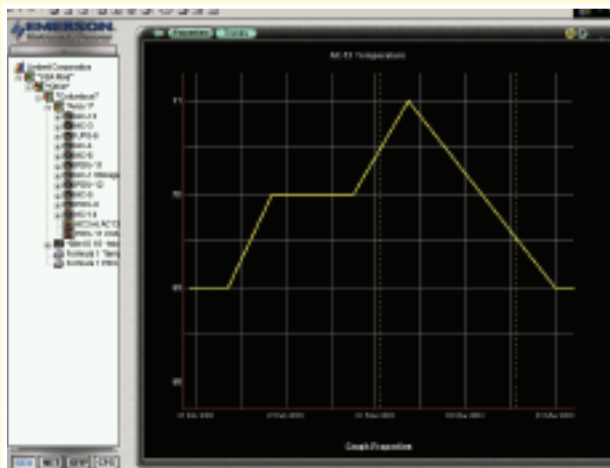
With SiteScan Web you can get a real-time status “snapshot.” It allows the operator not only to access current data—but to interact with graphic programming logic in real-time for full control functionality. During an alarm, the system can provide instant information—a view of actual performance. This allows for quick equipment assessment and the ability to take corrective action based on current, factual information.

### Web Appliance (WAP) And PDA Support



### Event Management And Reporting

SiteScan Web will show you exactly where the problem is—not some cryptic message that will leave you guessing. Events and alarms associated with a specific system, area or equipment selected in the navigation tree are displayed. This view allows you to monitor alarm or event information geographically, as well as to acknowledge events, sort events by category, actions and verify reporting actions.



### Data Analysis And Trend Reporting

With SiteScan Web you get powerful tools to analyze data and use it to prevent specific problems from occurring again. The operator can view trends by using the navigation tree and selecting the “trends” button in the graphic window. Users can create custom trend data that consist of one or more multiple data points.

### Enhanced Trend Reporting

With SiteScan Web you get a comprehensive report writing tool to create customized reports.

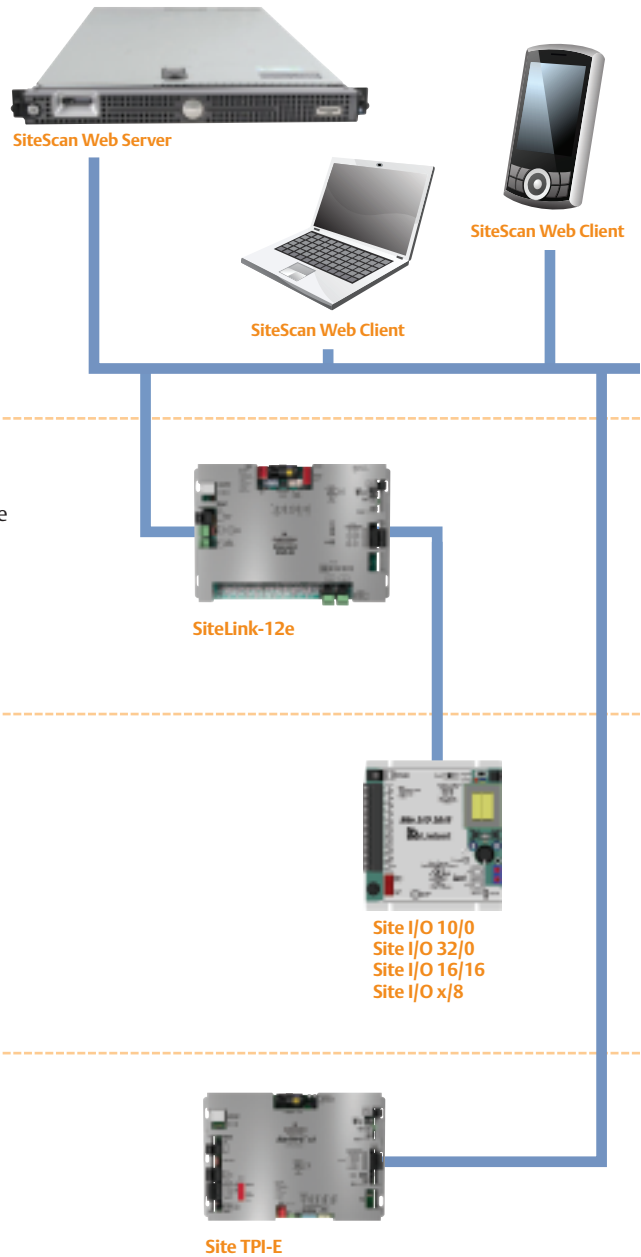
### System Features And Functions Make The Difference

SiteScan Web offers a number of unique operational features that make it comprehensive yet easy-to use. These involve the areas of security, accessibility, internationalization, operating features, subsystems, open standards, ease-of-learning, system configuration and reliability.

# Liebert SiteScan® Web

## The Step-By-Step Method To Configuring Your SiteScan® Web System

Selecting the appropriate hardware to use with your Liebert SiteScan Web software is key to creating the optimum monitoring and control system for your critical facility.



### Step One 1

#### Server Software And Client License

Choose the software and software components that complement your vision of the system.

**SSWEB** — the base software package that includes 2 concurrent user.

### Step Two 2

#### IGM Interface Control Modules

Choose the type and number of SiteLink modules that will communicate to Liebert units, otherwise known as IGMs. Models are available to allow communication to 2, 4 or 12 Liebert units.

**SiteLink-2E** — connects up to 2 Liebert units.

**SiteLink-4E** — connects up to 4 Liebert units.

**SiteLink-12E** — connects up to 12 Liebert units.

### Step Three 3

#### Input/Output Control Modules

Choose the number of I/O modules necessary to monitor your digital and analog points. Next, choose your sensors if necessary.

\***Site I/O 10/0** The model number follows the number of inputs and outputs of a module. For example, Site I/O 10/0 equals 10 inputs, 0 outputs.

\***Site I/O 32/0** equals 32 inputs, 0 outputs.

\***Site I/O 16/16** Digital = Dry contact

\***Sensors** Analog = 0-5 VDC, 4-20mA and thermistor sensors

**Site I/O 10E** 10 input module, dry contacts and thermistor compatible. For distributed applications.

\* SiteGate required

### Step Four 4

#### Third-Party Interfaces

Decide whether or not it will be necessary to intelligently communicate to third-party equipment such as fire alarm panels, chiller plants, generators and non-Liebert equipment.

**Site TPI-E** — will integrate to third-party equipment. Contact Liebert's AE Group for a quotation on interfacing to third-party equipment.

### Step Five 5

#### Contact Us

Contact your local representative to assist with your site-specific applications.

#### Online Demo

<http://sitescandemo.liebert.com>

Logon: **LiebertRep**

No Password Required

## Third Party Interfaces

**The Liebert Monitoring Group can provide multiple paths for integrating Liebert equipment into your existing Building or Network Management system. Through strict conformance to Open Protocols like Modbus, BACnet, SNMP, Liebert can provide robust and effective integrated solutions.**

### Building Management System Interfaces

Building Management Systems maintain a vital role on overall operations of facilities and buildings. Simply stated, Building Management Systems (BMS) create and maintain controlled, energy-efficient environments for all types of premises. This includes the management and monitoring of core aspects of each facility, from power supply, temperature, and humidity, to fire, access and security.

Generally speaking, most BMS systems contain the ability to communicate to Modbus and or BACnet devices. These languages or protocols are considered “Open” from the standpoint that they do not require special tools in order to integrate these devices into a BMS system.

Supports Modicon’s Modbus and ASHRAE’s BACnet definitions.

### Network Management System Interfaces

One of the main purposes of deploying a Network Management System (NMS) is to maintain data availability. This includes access to data and applications vital to business critical operation. One of the key elements of an NMS operation is that devices or units reside on a network infrastructure. All of the devices that reside on the network require space and manageability in order for professionals to successfully manage the entire network. This implies that network performance is critical.

Supports SNMP v1, v2c and MIB II structures.

SiteLink modules integrate 2, 4 or 12 Liebert units into a single device. The SiteLink has the ability to stand alone and act as a Modbus or BACnet slave through either a EIA-232 or EIA-485 (2-wire or 4-wire) configurable port. BACnet over IP can be accomplished by adding a SiteGate. See the Advanced Monitoring Solution section for more details.



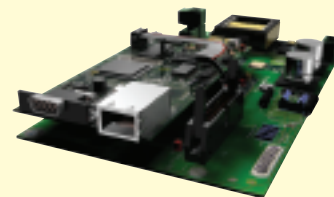
Output to Building Management Systems using Modbus and BACnet MSTP.

The Site TPI-E product can be used to intelligently communicate to non-Liebert units within your infrastructure. This allows you to effectively monitor critical equipment with SiteScan Web. See the Advanced Monitoring Solutions section for more details.



Input from non-Liebert units that use Modbus, BACnet, LonTalk and other non-standard protocols.

The Liebert IntelliSlot 485 Card w/Adapter provides SiteScan Web or Building Management Systems monitoring and control of your UPS. The card delivers Modbus or Liebert’s Proprietary protocol via the EIA-485 port.



The Liebert IntelliSlot Web/485 Card with Adapter bridges the gap between Network and Building Management systems with its ability to communicate to BMS systems with Modbus, as well as communicating to NMS systems through SNMP and Web. All interfaces can operate concurrently.

Output to Building Management Systems using Modbus over EIA-485.  
Output to Network Management Systems using SNMP and Web.

The Liebert IntelliSlot Web Card communicates to network Management Systems SNMP. As the name infers, the card also produces a Web page which allows users to get real-time data through their Internet browser.



Output to Network Management Systems using SNMP and Web.

## Liebert Services

### Complete Start-up And Preventive Maintenance Services

Liebert Services brings you a time-tested record of performance. Our on-site response time averages under 2 hours. For this and other reasons, nearly 100 percent of our customers recommend us.

- We have hundreds of certified engineers on staff. Each year, they undergo more than 60,000 total hours of technical training. This team is available 24x7x365 to provide application support to you.
- Our safety record is unparalleled. So is our commitment to training, in everything from low-voltage electric and OSHA lock-out/tag-out to routine safety audits and adherence to ISO standards.

■ We offer a comprehensive, advanced logistics support system, with more than 7,000 unique parts stocked. We fill 97 percent of emergency part orders in less than 24 hours, and all parts are fully factory certified.

■ At Liebert Services, live professionals are available to take your call when you need us most. Our Customer Resolution Center answers hundreds of thousands of calls per year, with an average resolution time of only two and a half minutes.

**Emerson offers a full range of testing, operations and maintenance services—all designed to protect the availability of your critical systems.**

	Data Center Assessment	Electrical Infrastructure Assessment	Short Circuit & Coordination	Arc Flash Analysis	Power Quality Assessment	One-Line Diagram Update
System Design, Review & Evaluation	<b>Cooling Assessment</b> <ul style="list-style-type: none"> <li>■ Determine Hot Spots in Critical Spaces</li> <li>■ Measure Air Flow Over And Under Floors</li> </ul>	<ul style="list-style-type: none"> <li>■ Ensure Critical Documentation Accuracy</li> <li>■ Identify Deviation From Industry Standards</li> <li>■ Complete Critical Equipment Inventory</li> <li>■ One-Line Diagram Verification</li> </ul>	<ul style="list-style-type: none"> <li>■ Isolate Faulty Circuits Without Loss Of Power</li> <li>■ Identify Under Protected Equipment</li> <li>■ Protect Against Facility Outages</li> <li>■ Determine Magnitude Of Fault Current</li> <li>■ Evaluate Protective Devices</li> <li>■ Required For Arc Flash Analysis</li> </ul>	<ul style="list-style-type: none"> <li>■ Ensure NEC, NFPA, OSHA, And IEEE Compliance</li> <li>■ Improve Worker Safety In High Voltage Areas</li> <li>■ Update Safety Labeling</li> </ul>	<ul style="list-style-type: none"> <li>■ Determine The Integrity Of Grounding Systems</li> <li>■ Ensure ANSI/NFPA 70 &amp; NEC Compliance</li> <li>■ Identify High-Threat Harmonics</li> </ul>	<ul style="list-style-type: none"> <li>■ Identify Single Points Of Failure</li> <li>■ Ensure System Coordination</li> <li>■ NFPA-70E Requires An Accurate One-Line Diagram</li> </ul>
	<b>Electrical Infrastructure Power Audit</b> <ul style="list-style-type: none"> <li>■ Determine Loading And Capacity Of Electrical Equipment</li> <li>■ Single Point Of Failure Analysis</li> </ul>					
Operations & Maintenance	<b>Infrared Inspection</b> <ul style="list-style-type: none"> <li>■ Identify Catastrophic Failures Before They Occur</li> <li>■ Detect Abnormal Thermal Rises In Components</li> <li>■ May Be Performed On Energized Equipment</li> <li>■ Protect Your Investment In Data Center Infrastructure</li> </ul>	<b>Power &amp; Precision Cooling Maintenance</b> <ul style="list-style-type: none"> <li>■ Maintenance Solutions For Your Entire Critical Space</li> <li>■ Industry's Most Advanced Disaster Recovery System</li> <li>■ 24x7x365 Live Response Center</li> </ul>	<b>Electrical Test &amp; Breaker Test</b> <ul style="list-style-type: none"> <li>■ Only Way To Ensure Breakers Will Perform Properly</li> <li>■ Prevents Widespread Damage If Fault Occurs</li> <li>■ NETA Certified Technicians</li> </ul>			

## A Comprehensive Package of Mission-Critical Services



### **Remote Monitoring:**

Remote Monitoring from Liebert Services alerts you to problems that otherwise go unnoticed. It reduces the time it takes to identify the alarm source, trends and alarm types. Having the right information together with a defined escalation procedure, helps diagnose the true source of a problem.

### **Ntegrated Monitoring:**

With advanced monitoring and network security capabilities, integrating remote monitoring with field service for your UPS, Cooling and Battery systems, provide the ultimate peace-of-mind. Liebert Services Ntegrated Monitoring service provides remote monitoring, diagnostics, trending, and service dispatch with remote and on-site preventive maintenance.

### **Remote Monitoring With Service Dispatch:**

Combining remote monitoring and Ntegrated monitoring at the site level for all critical power equipment with service dispatch provides the ultimate protection. Whether you are a SiteScan user, lights-out facility or simply require the expertise from Liebert Services, we can provide assurance that you will be notified when a technician is required on-site.

**With Liebert Services as your availability partner, you can rest easy. We take care of the technology, so you can take care of your business.**

# Ensuring The High Availability Of Mission-Critical Data And Applications.

**Emerson Network Power, the global leader in enabling business-critical continuity, ensures network resiliency and adaptability through a family of technologies – including Liebert power and cooling technologies – that protect and support business-critical systems. Liebert solutions employ an adaptive architecture that responds to changes in criticality, density and capacity. Enterprises benefit from greater IT system availability, operational flexibility, and reduced capital equipment and operating costs.**

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852 28029250 FAX

## **liebert.com**

### **24 x 7 Tech Support**

800 222 5877 Phone  
614 841 6755 (outside U.S.)  
liebert.monitoring@emerson.com email

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

- AC Power
- Embedded Computing
- Outside Plant
- Racks & Integrated Cabinets
- Connectivity
- Embedded Power
- Power Switching & Controls
- Services
- DC Power
- **Monitoring**
- Precision Cooling
- Surge Protection

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