



Liebert® AC8

User Manual

Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures. Visit <https://www.VertivCo.com/en-us/support/> for additional assistance.

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1 INTRODUCTION

The Liebert AC8 is ideal for coordinated control of systems with redundant equipment, such as multiple environmental units or pumps. When the Liebert AC8 controller detects an alarm in an operating device, the Liebert AC8 enables a standby device and controls the device in alarm as configured, either leaving that device operating or disabling it.

The Liebert AC8 controller can also balance usage of devices by rotating units through Operating and Standby modes according to a user-defined schedule. This helps keep redundant equipment operating efficiently and only when needed. The Liebert AC8 can perform routine testing of standby devices and alert personnel if a standby device fails an operating test and requires attention.

The staging feature permits standby devices to be turned on or off when a sensor detects specified levels. For example, the Liebert AC8 might be configured to turn on a fan when the temperature reaches 75°F, then turn on a second fan at 80°F. When the temperature falls below 80°F, the second fan is turned off; when it drops below 75°F, the first fan is turned off.

Another capability of the Liebert AC8 is monitoring the status of connected devices and keeping personnel apprised through local alarming. The Liebert AC8 employs local alarming and remote paging services to keep personnel on-site and at remote locations apprised of the status of equipment.

The Liebert AC8 controller can interface with anything that closes an electrical contact. To improve process efficiency and troubleshooting, the controller tracks data in three types of logs: alarm, event and trend. The Liebert AC8 has a local LCD interface and a remote dial-up interface.

When an alarm condition arises, the Liebert AC8 displays alarm information, sounds an audible alarm, changes the state of the common alarm relay and turns connected devices on or off according to user configuration. If configured, the controller also sends pager notifications. See [Typical Configuration](#) on page 3 for a more detailed example.

1.1 Methods of Viewing and Configuring the Liebert AC8

The Liebert AC8 features access through two interfaces that allow users to configure the unit, silence alarms, back up logs, and perform many other functions to keep a large or small operation running smoothly and safely.

- **LCD**—liquid crystal display on the front of the panel
- **Service Terminal Interface**—accessible via computer connected directly through an RS232 port or remotely through the Liebert AC8's onboard modem

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

These interfaces permit easy access and configuration of the Liebert AC8, allowing users to view data, silence alarms and have full access to information stored in the controller, including logs of alarms and events.

One more interface—Liebert's SiteScan Web® enterprise monitoring system—is primarily for monitoring, though SiteScan also provides some configuration functions.

1.2 Data Logs

The three types of data logs—alarm history, event history and trend data of analog sensor readings—can be viewed on the LCD on the front of the Liebert AC8 and downloaded through onboard communications ports.

1.3 Transformer Module

A Transformer Module converts 115VAC or 230VAC to 24VAC.

1.4 Available Alarms

The alarms available with the Liebert AC8 are:

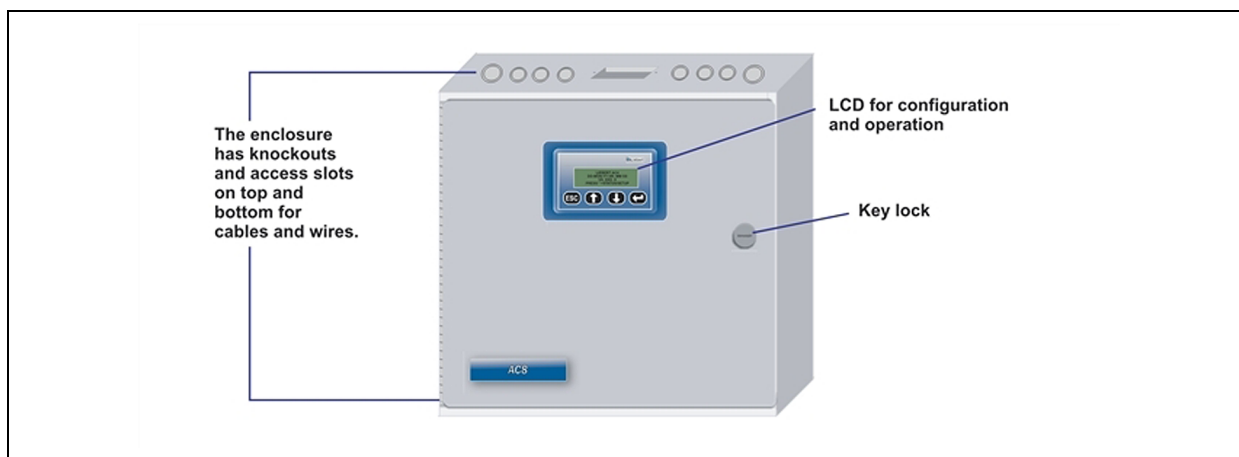
- Discrete input alarm (for each digital input)
- High setpoint
- Low setpoint
- Loss of power
- Low battery
- Check battery
- Battery unplugged
- Internal modem fault
- No standby available
- Standby device failed
- No restart available
- Emergency power alarm

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

1.5 Outside Enclosure Overview

The Liebert AC8 controller board comes in an enclosure that is 2-3/4" deep and has a built-in liquid crystal display (LCD) and a key lock, as shown in Figure 1.1 below. The enclosure is made of metal to accommodate secure conduit fittings and protect components against environmental debris.

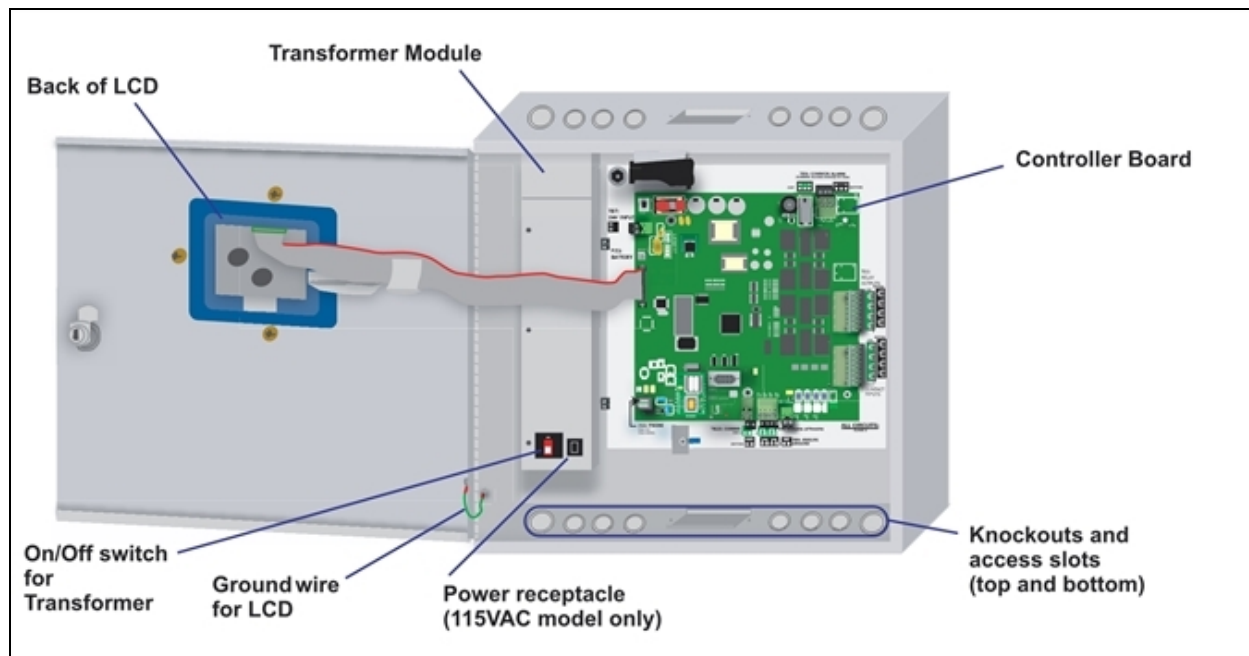
Figure 1.1 Liebert AC8 enclosure—external features



The enclosure houses the controller board and Transformer Module, as shown in Figure 1.2 on the facing page.

The enclosure must be secured to a wall, either flush-mounted or recessed in the wall, as described in [Installation](#) on page 11. Knockouts and access slots on the top and bottom allow easy connection of wires and cables (see 3.0 - Wiring and Connections) with either mounting type.

Figure 1.2 Liebert AC8 enclosure—internal features



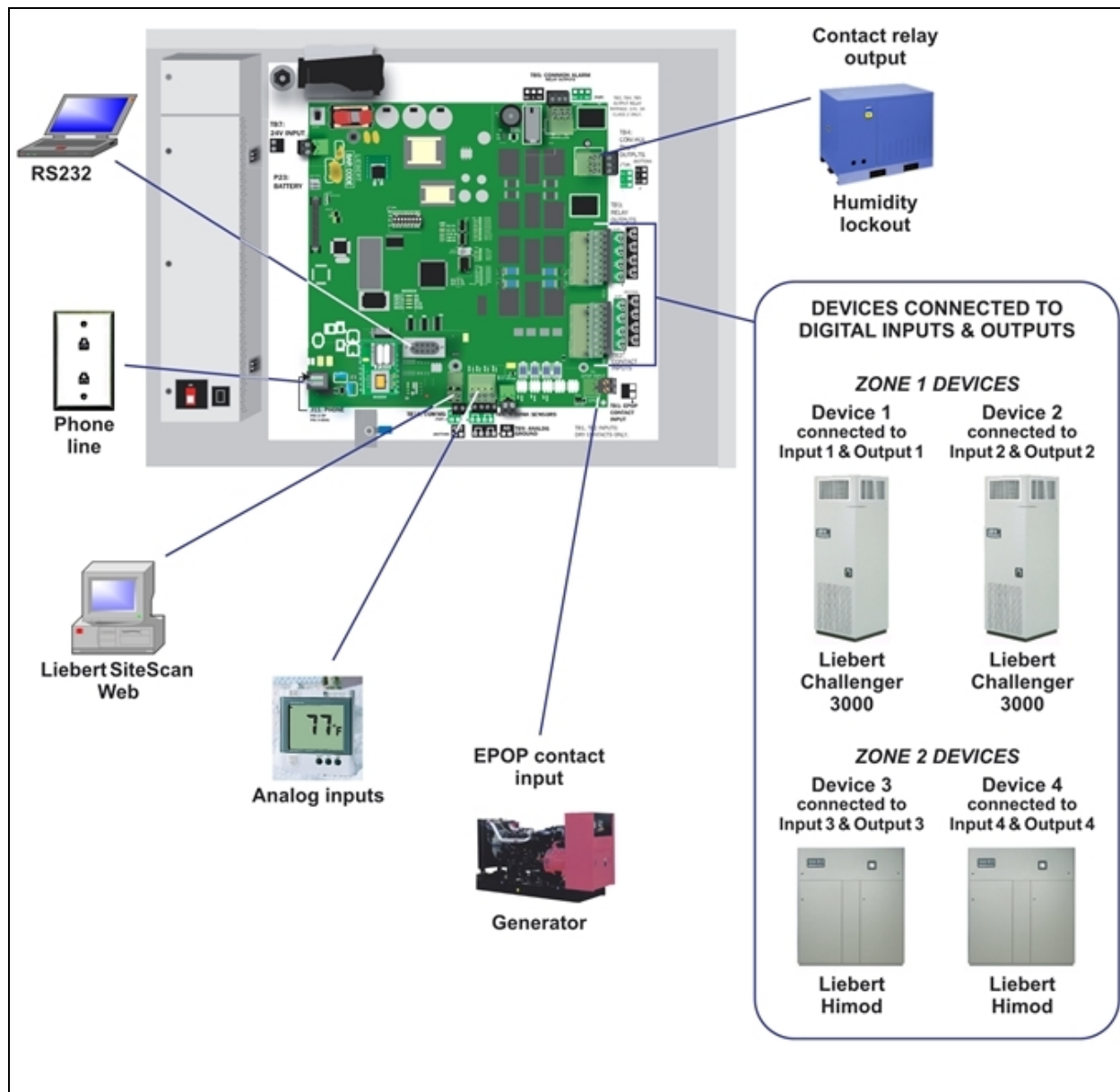
1.6 Typical Configuration

Figure 1.3 on the next page shows an example of external devices connected to the Liebert AC8 controller board. Up to eight devices may be connected to the eight digital inputs and eight digital outputs. There may be up to four analog sensors connected to the analog inputs, and up to two devices connected to the control relay outputs. The EPOP connection allows for one device, possibly a UPS or generator input actuated during a power failure.

Remote access is available via Liebert SiteScan Web™ and through the modem, which enables pager notifications and use of the Service Terminal Interface. A computer may be connected to the RS232 port, providing access to the features of the Service Terminal Interface.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

Figure 1.3 Typical Configuration



1.7 Controller Board Overview

The Liebert AC8 controller board has connectors for eight digital inputs, four analog inputs, eight digital outputs, two control relay outputs and an EPOP contact input, as shown below. The board comes complete with light emitting diodes (LEDs) to display the status of connected devices, a battery pack for short-term backup, communications ports, power connections and other features necessary to control your operation.

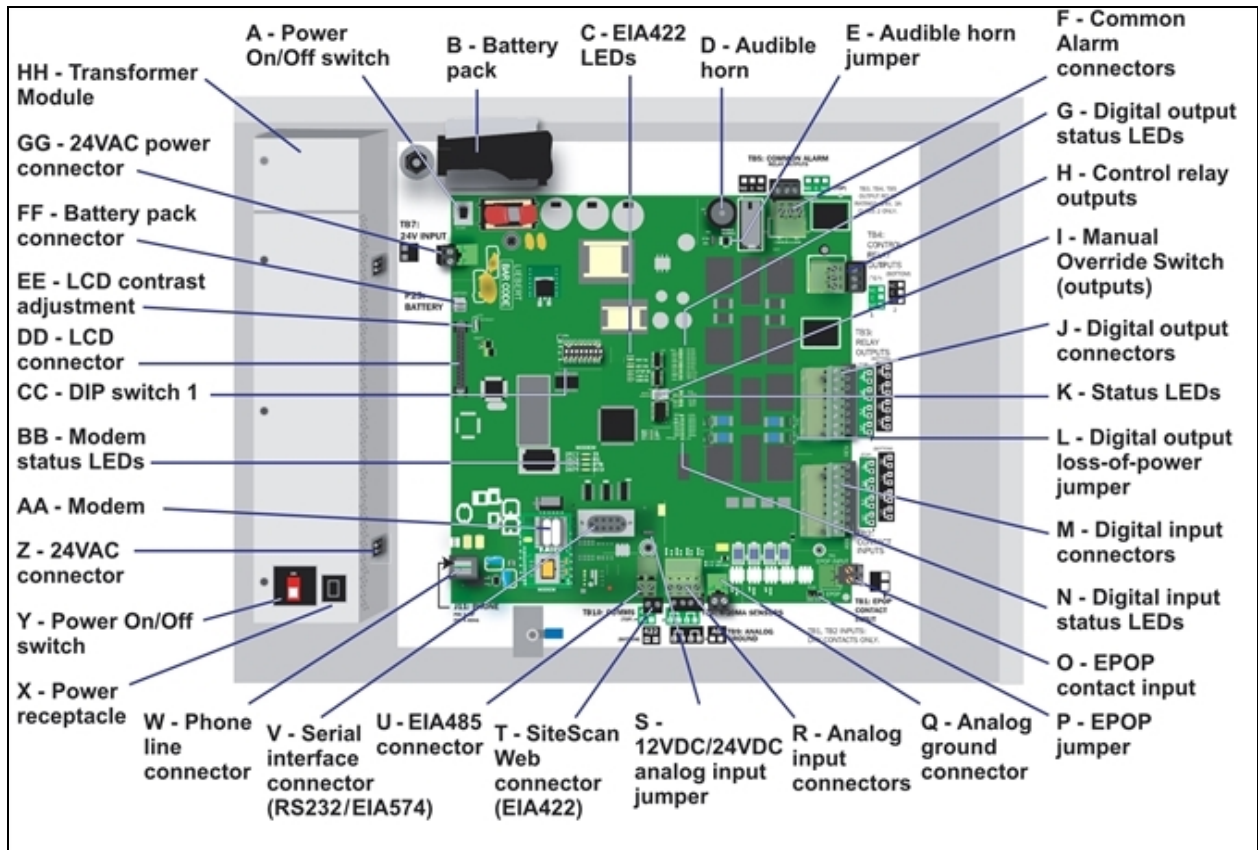


Table 1.1

Controller board components

Item	Description	For more information, see:
A - Power On/Off switch	Power switch for the controller board. When switched off, the battery pack is disabled.	Connect Power to the Liebert AC8 on page 14
B - Battery pack	Provides battery backup during a power loss to maintain normal operation of the panel for a minimum of 10 minutes. The analog inputs will not be functional during a power loss (P/N 133455P1).	Connecting the Battery Pack on page 16 Connect Battery on page 82
C - EIA422 LEDs	Indicates the connection status between the Liebert AC8 and Liebert SiteScan Web™.	LED Indicators on page 8
D - Audible horn	Provides audible notification when an alarm occurs.	N/A
E - Audible horn jumper	Jumper to disable the audible horn (factory default is enabled).	N/A
F - Common Alarm connectors	The two common alarm connections are used to connect to a secondary warning device such as a horn, light or Building Management System (BMS). When an alarm is present, the contacts close and the external warning device is activated/notified. The common alarm contacts may be configured to be reset with the Silence button/command.	3.0: Wiring and Connections Connecting Common Alarm Outputs on page 26 Setup System - Setup Common Alarm on page 59
G - Digital output status LEDs	Each output has an LED to indicate its status: ON/OFF (energized/de-energized).	LED Indicators on page 8
H - Control relay outputs	Each of the two output connections is a two-state point: ON/OFF (energized/de-energized). Digital and analog inputs may be mapped to either or both relays to trigger change in state. An example of a control relay output point is a humidity lock-out.	3.0: Wiring and Connections Connecting Control Relay Outputs on page 23 View Control Status on page 47 Setup System - Setup I/O Matrix on page 97
I - Manual Override Switch (outputs)	Placing the switch in the ON position will turn ON, or energize, all eight outputs simultaneously. This switch removes all automatic output control from the Liebert AC8. The factory default is OFF (outputs controlled by programming).	Override Output on page 99
J - Digital output connectors	Each of the eight output connections is a two-state point: ON/OFF (energized/de-energized). An example of a field digital output point is an air unit On/Off control circuit.	3.0: Wiring and Connections Connecting Digital Outputs on page 21 View Output Status on page 43 Setup System - Setup Outputs on page 68
K - Status LEDs	Indicates the operational status of the controller board.	LED Indicators on page 8
L - Digital output loss-of-power jumper	One of eight output jumpers. Each digital output has a jumper to set the <i>fail-safe</i> position of the output point when power fails. The OFF position makes the contact Normally Open (factory default). The ON position makes the contact Normally Closed. Note: The jumper position has no effect on the contact when the Liebert AC8 has power.	Setting the Digital Output Jumpers on page 21 Configure Output for Loss of Power ("Fail-Safe") on page 70

Table 1.1 Controller board components (continued)

Item	Description	For more information, see:
M - Digital input connectors	Each of the eight input connections is a two-state point: ON/OFF (energized/de-energized). An example of a field digital input point is a common alarm contact on an air unit.	3.0: Wiring and Connections Connecting Digital Inputs on page 20 View Input Status on page 42 Setup System - Setup Inputs on page 55
N - Digital input status LEDs	Each input has an LED to indicate its status: ON/OFF (energized/de-energized).	LED Indicators on the next page
O - EPOP contact input	The emergency power operation (EPOP) input connection is a two-state point: ON/OFF (energized/de-energized). An example of an EPOP input point is a UPS or a generator.	3.0: Wiring and Connections Connecting the Emergency Power Operation (EPOP) Input on page 24
P - EPOP jumper	Jumper to enable or disable emergency power operation (EPOP). Factory default is disabled.	Setting the EPOP Jumper on page 24
Q - Analog ground connector	Connection for an externally powered analog sensor that needs a reference to ground.	Connecting the Analog Ground on page 26
R - Analog input connectors	Each of the four input connections accepts a 4/20 mA signal. An example of a field analog input point is a temperature sensor.	3.0: Wiring and Connections Connecting Analog Inputs on page 25 View Input Status on page 42 Setup System - Setup Sensor on page 59
S - 12VDC/24VDC analog input jumper	Jumper to select voltage supplied for two-wire analog sensors. The jumper supplies all four analog input connectors with the same voltage. Factory default is 24VDC.	Setting the 12VDC/24VDC Analog Power Jumper on page 25
T - SiteScan Web connector (EIA422)	Connection to monitor Liebert AC8 from Liebert's SiteScan Web™ graphical monitoring package.	3.0: Wiring and Connections EIA422 Liebert SiteScan Web™ Connector on page 27
U - EIA485 connector	Not presently used	N/A
V - Serial interface connector (RS232/EIA574)	Connection for laptop or video terminal. Used for configuration and monitoring using the Service Terminal Interface. Requires a null modem cable for connectivity (P/N 201258P1). NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.	RS232 Connector on page 27 Connecting to the Service Terminal Interface on page 105
W - Phone line connector	Connection for phone line. Used for pager notifications, service phone number, and configuration and monitoring using the Service Terminal Interface. Requires an RJ11 connector.	Phone Line Connector on page 27 Setup System - Setup Modem & Pagers on page 70 Setup Serv Ph Num - Enter Phone Number on page 85 Connecting to the Service Terminal Interface on page 105
X - Power receptacle (Transformer Module)	115VAC power receptacle to power laptop during configuration and diagnostics. Receptacle not available on 230VAC Transformer Module.	Termination and Mounting on page 14 3.0: Wiring and Connections

Table 1.1 Controller board components (continued)

Item	Description	For more information, see:
Y - Power On/Off switch (Transformer Module)	Power switch to turn power On/Off to both Transformer Module 24VAC connectors and power receptacle.	Termination and Mounting on page 14 3.0: Wiring and Connections
Z - 24VAC connector (Transformer Module)	One of the two 24VAC connectors for power (the second is also on the right side of the Transformer Module near the top). Each connector is rated for 40VA.	Termination and Mounting on page 14 3.0: Wiring and Connections
AA - Modem	On-board modem with 9600 baud rate. NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.	Setup System - Setup Modem & Pagers on page 70
BB - Modem status LEDs	Indicates the operational status of the modem. NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.	LED Indicators below
CC - DIP switch 1	DIP switch used for resetting password to default.	Change Password on page 80
DD - LCD connector	Connection for the LCD on the enclosure door.	N/A
EE - LCD contrast adjustment	Adjustment contrast for the LCD on the enclosure door.	N/A
FF - Battery pack connector	Connection for battery pack lead.	Connecting the Battery Pack on page 16
GG - 24VAC power connector	Power connection for the controller. Requires 24VAC.	Connect Power to the Liebert AC8 on page 14
HH - Transformer Module	Transformer Module used to convert 115VAC or 230VAC to 24VAC.	Termination and Mounting on page 14

1.8 LED Indicators

The Liebert AC8 controller board has LED indicators that show the status of inputs, outputs and the common alarm, as well as the modem, Liebert® SiteScan Web™ and EPOP connections.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

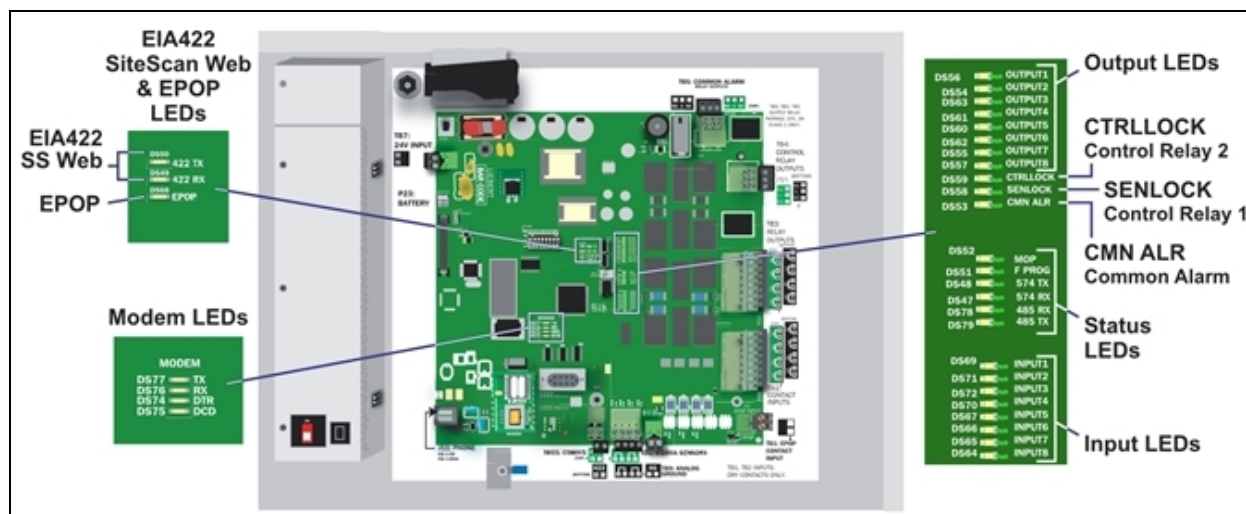


Table 1.2

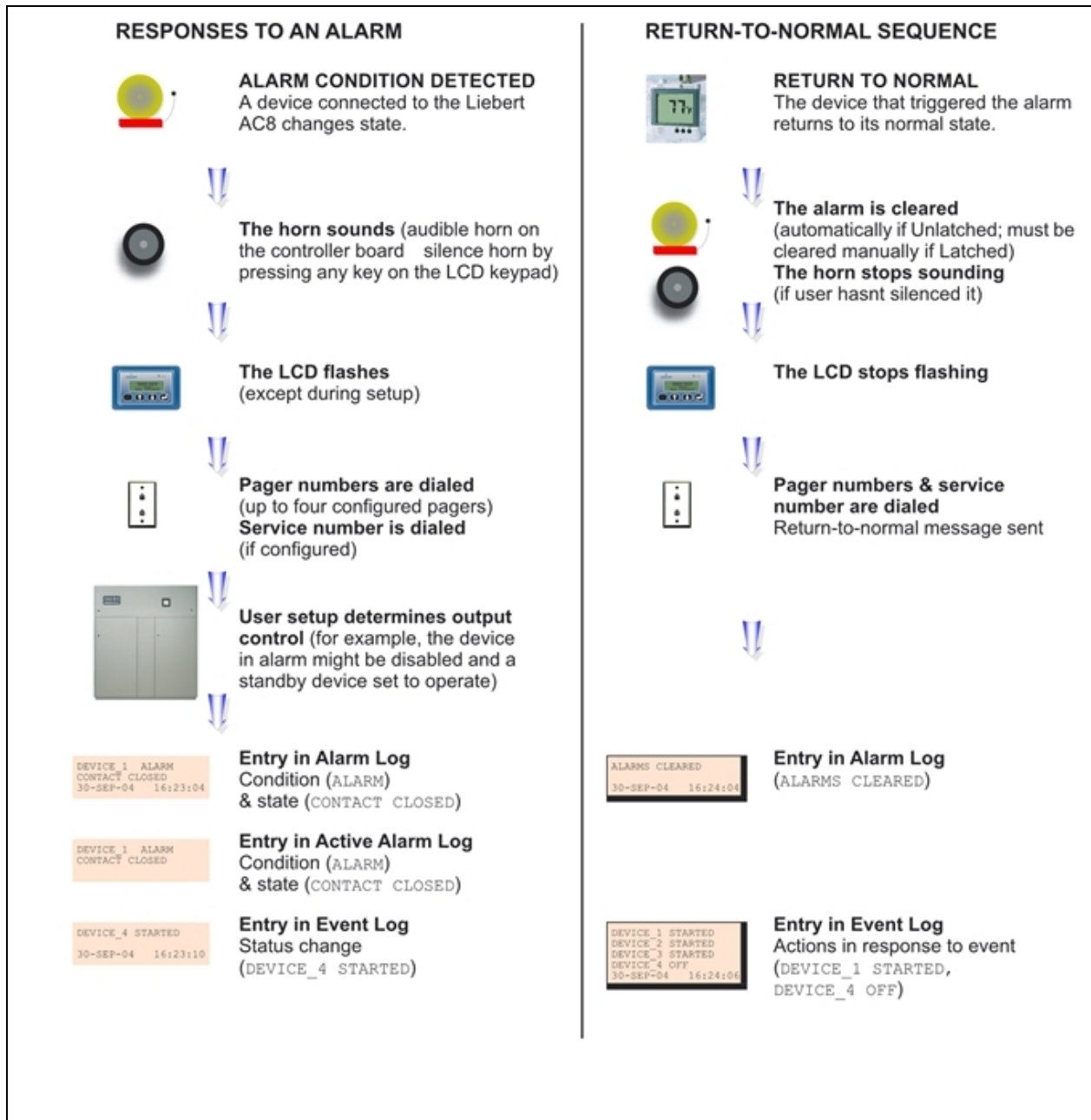
LED indicators summary

LED Type	LED	Color	Description
EIA422 LEDs	422 TX	Green	Liebert AC8 is transmitting information over the EIA422 port
	422 RX	Green	Liebert AC8 is receiving information over the EIA422 port
EPOP LED	EPOP IN	Red	Indicates Emergency Power Operation is open or in alarm
(optional) Modem LEDs	TX	Green	Liebert AC8 is transmitting information via the modem
	RX	Green	Liebert AC8 is receiving information via the modem
	DTR	Green	Indicates data terminal is ready (DTR)—lights up when modem is dialing
	DCD	Green	Indicates data carrier is detected (DCD)—lights up when modem has connection
Output LEDs	OUTPUT1	Green	Indicates output is ON or energized
	OUTPUT2	Green	Indicates output is ON or energized
	OUTPUT3	Green	Indicates output is ON or energized
	OUTPUT4	Green	Indicates output is ON or energized
	OUTPUT5	Green	Indicates output is ON or energized
	OUTPUT6	Green	Indicates output is ON or energized
	OUTPUT7	Green	Indicates output is ON or energized
	OUTPUT8	Green	Indicates output is ON or energized
	CTRLLOCK	Green	Indicates Control Relay 2 is ON or energized
	SENLOCK	Green	Indicates Control Relay 1 is ON or energized
CMN ALR	Green	Indicates Common Alarm Relay is ON or energized	
Status LEDs	MOP	Green	Indicates the microprocessor is operating properly (MOP)—must be on before Liebert AC8 will function
	FPROG	Green	Indicates firmware is being upgraded—lights up during upgrade process
	574 TX or 232 TX	Green	Liebert AC8 is transmitting information via the RS232 port
	574 RX or 232 RX	Green	Liebert AC8 is receiving information via the RS232 port
	485 RX	Green	Not used
485 TX	Green	Not used	
Input LEDs	INPUT1	Red	Indicates input is ON or energized
	INPUT2	Red	Indicates input is ON or energized
	INPUT3	Red	Indicates input is ON or energized
	INPUT4	Red	Indicates input is ON or energized
	INPUT5	Red	Indicates input is ON or energized
	INPUT6	Red	Indicates input is ON or energized
	INPUT7	Red	Indicates input is ON or energized
	INPUT8	Red	Indicates input is ON or energized

1.9 Typical Sequence

Figure 1.4 below shows a typical sequence of how the Liebert AC8 functions after detecting a change in a monitored device. Many responses depend on configuration settings. This example shows what happens when a digital input changes state—assuming the input is defined as alarmable—and when the condition returns to normal.

Figure 1.4 Example of typical sequence



2 INSTALLATION

This section provides instructions for installing, mounting and connecting power to the Liebert AC8.

2.1 Installation Considerations

The Liebert AC8 must be installed indoors and may be mounted on the surface of a wall or flush-mounted, depending on the user's application, the location of equipment and sensors to be monitored and the type of wall the unit will be mounted on.

The Liebert AC8 should be mounted where it can be easily accessed. On-site personnel would access the unit through the LCD on its front cover, service terminal connected to the RS232 port or through Liebert SiteScan™. For off-site monitoring, the Liebert AC8 should be placed near communications means such as a telephone line connection that would permit remote access.

In addition to the communications connections, the site also must have electrical service and must permit connecting the unit's eight digital inputs, eight digital outputs and four analog inputs.

The wall material must be capable of supporting the weight of the Liebert AC8: see Specifications.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2.1.1 Unpacking and Preliminary Inspection

- Before unpacking the Liebert AC8, inspect the shipping carton for damage or signs of mishandling, such as gashes or holes in the carton or severely flattened corners.
- Open the shipping crates carefully. Use care to avoid puncturing the container with sharp objects that might damage the contents.
- Inspect the Liebert AC8 and all included components for damage.
- If any damage from shipping or mishandling is observed, immediately file a damage claim with the shipping agency and forward a copy to:

Vertiv Corporation
1050 Dearborn Drive
P.O. Box 29186
Columbus, OH 43229

Packing Contents

Standard Components

Liebert AC8 controller board in enclosure

User Manual

Keys (2) to panel door lock

Backup Battery - installed in unit (not connected or charged)

RS232 Configuration Cable

2.2 Surface-Mounting the Liebert AC8

NOTE: Removing the conduit knockouts before mounting the Liebert AC8 on the wall will ease installation and prevent strain on the mounting hardware and wall. It is imperative to remove the knockouts if the unit is to be flush-mounted.

After determining where to place the unit, check to ensure that you have all the hardware required to install the panel on the surface of a wall. Obtain the needed tools and material.

Required tools

- Electric drill (if surface is too hard to drive screws without pilot holes)
- Screwdriver
- Marker to denote layout of holes
- Four screws, each #10

2.2.1 Mounting the Panel

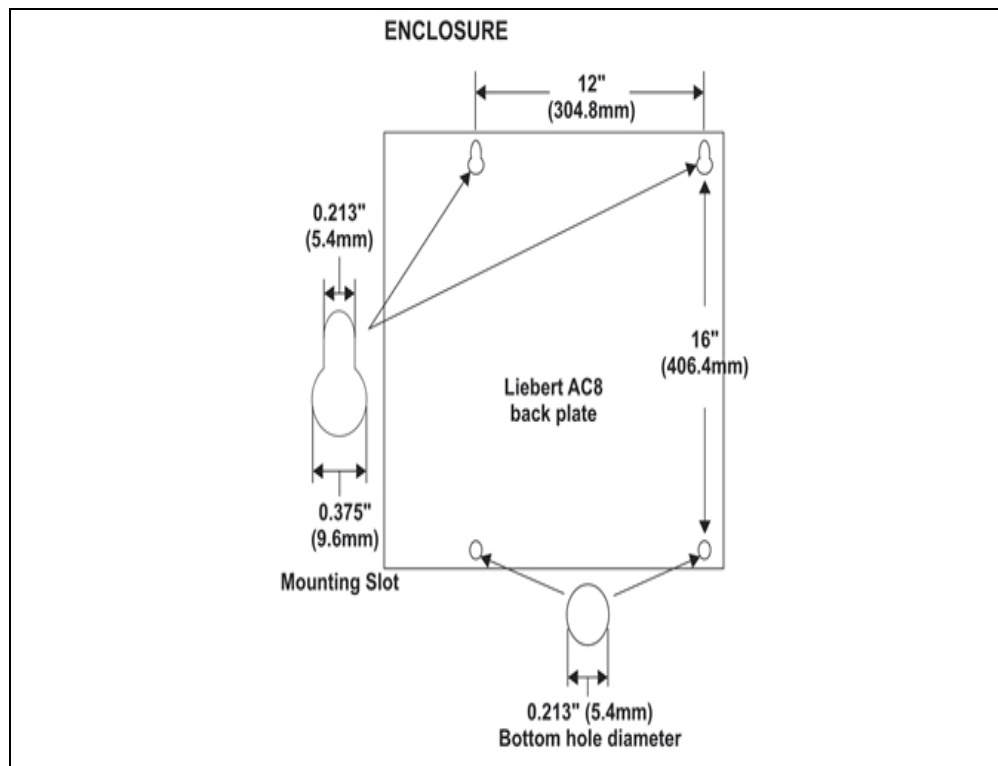


CAUTION: Check building plans and other relevant documents to determine whether mounting the Liebert AC8 at the selected location might cause cutting or otherwise damaging electrical or communication wiring or pipes.

To mount the panel:

1. Mark the wall for mounting holes, using the back of the unit as a template (see Figure 2.1 on the facing page).
2. Drill holes, if required, to install the four #10 screws that will secure the Liebert AC8 to the wall. Clean up the debris.
3. If the wall material is not strong enough to hold the screws securely, use wall anchors.
4. Install the top two screws—the screw heads must be small enough to slip through the larger, bottom portion of the pear-shaped mounting slot in the Liebert AC8 (see inset in Figure 2.1 on the facing page). The screws must also be large enough to extend over the edges of the top of the mounting slot.
5. Hang the Liebert AC8 on the screws, letting the panel slip down until the screws are in the smaller, upper portion of the slot.
6. Tighten the screws until they are snug.
7. Insert the remaining two screws in the bottom holes on the back of the panel and tighten.

Figure 2.1 Mounting dimensions



2.3 Flush-Mounting the Liebert AC8

NOTE: Removing the conduit knockouts before mounting the Liebert AC8 on the wall will ease installation and prevent strain on the mounting hardware and wall. It is imperative to remove the knockouts if the unit is to be flush-mounted.

The rectangular access doors on the top and bottom of the Liebert AC8 must be reversed so they slide the opposite direction. Leaving the doors as shipped from the factory prevents them from being opened when the panel is flush mounted in a wall.

The Liebert AC8 may be flush-mounted according to company practices—either with screws through the sides of the panel into wall supports or with hanging hardware that attaches to the back of the panel. After determining how and where to place the unit, check to ensure that you have all the hardware required to install the panel in the wall. Obtain the needed tools.

Required tools

- Saw
- Electric drill
- Screwdriver
- Marker to denote layout of the hole to accommodate the Liebert AC8
- Mounting hardware

2.3.1 Mounting the Panel



CAUTION: Check building plans and other relevant documents to determine whether mounting the Liebert AC8 at the selected location might cause cutting or otherwise damaging electrical or communication wiring or pipes.

To mount the panel:

1. Mark the wall for the cutout to accommodate the panel, using the back of the unit as a template.
2. Drill a pilot hole for the saw blade, if required.
3. Use the saw to cut out the marked section of the wall (if not new construction).
4. Rest the Liebert AC8 in the wall and mark where mounting screws will be inserted into the wall studs or other support member.
5. Remove the panel and drill the holes for the mounting screws or wall anchors. Clean up the debris.
6. Reverse the slide direction of the rectangular access doors on the top and bottom of the Liebert AC8. Leaving the doors as shipped from the factory prevents them from being opened when the panel is flush mounted in a wall.
7. Attach any field-supplied mounting hardware.
8. Reinsert the assembly into the wall.
9. Insert and tighten the screws or wall anchors.

2.4 Connect Power to the Liebert AC8

The Liebert AC8 must be supplied with 115VAC or 230VAC; the power supplied must match the rating of the unit's Transformer Module. For information, consult your local dealer, Liebert representative or the Liebert Worldwide Support Group.

The Liebert AC8 must be installed on a branch circuit protected by a certified 15A overcurrent device.



WARNING! Check that power is removed from wires prior to installation.



CAUTION: The Liebert AC8 is designed for use on properly grounded (earthed) 115VAC or 230VAC power, 60Hz or 50Hz. The ground wire for the power lead must be wired to the earth ground terminal (stud located next to the 24VAC terminal block).

This equipment is intended to be installed by a qualified and certified electrician who must review and approve customer supplied wiring and circuit breakers, verify correct input and grounded (earthed) connections to ensure compliance with technical standards and national and local electrical codes.



WARNING! Be sure that the Power On/Off switch is set to OFF before installing any wiring to this unit. The switch is in the top left corner of the unit, just below the battery pack.

2.4.1 Termination and Mounting



WARNING! Be sure that the Power On/Off switch is set to OFF before installing any wiring to this unit. The switch is at the bottom of the unit.

Input Power Connections

To connect electrical power to the Transformer Module:

1. Install electrical wiring from utility power to the Transformer Module.
2. Use copper wires only; proper wiring to use for power is 14/2 AWG copper wire with ground.
3. For the TM230 only: strip wires 3/8" (9.6mm).

Note: For the TM115, wires are pre-stripped 0.4" (10.2mm) at the factory.

4. Connect the wiring as follows:

TM115	TM230	Connection Type
White wire	Neutral (L2)	Neutral
Black wire	Line (L1)	Power (Line)
Green wire	Ground lead	Ground

5. Secure the incoming electrical service wires to the TM115 input wires with wire nuts as shown in Figure 2.2 below or to the TM230 connectors as shown in Figure 2.3 below.

24 VAC Output Power Connections

To connect to the 24VAC outputs:

1. Install electrical wiring from device requiring 24VAC power to the Transformer Module.
2. Use copper wire only; proper wiring to use for power is 18, 20 or 22 AWG copper wire. Strip wire 1/4".
3. There are two 24 VAC output connectors (TB1 and TB2). Terminate wires to the connector as shown in Figure 2.2 below and Figure 2.3 below. TB1 and TB2 are NOT polarity sensitive.
4. Secure the wires to the connector.

Figure 2.2 Power wiring to TM115

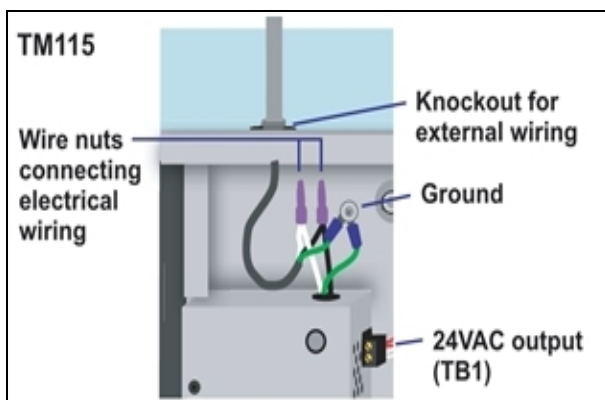
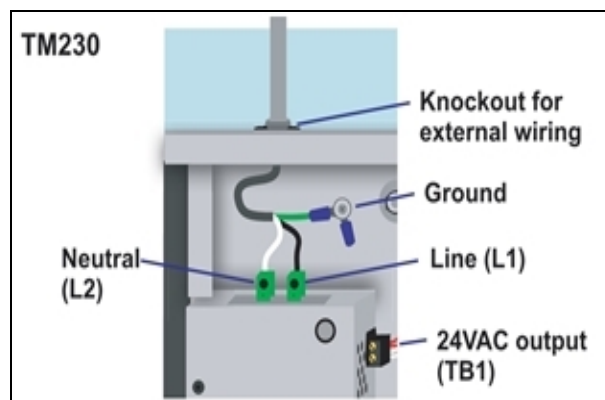


Figure 2.3 Power wiring to TM230

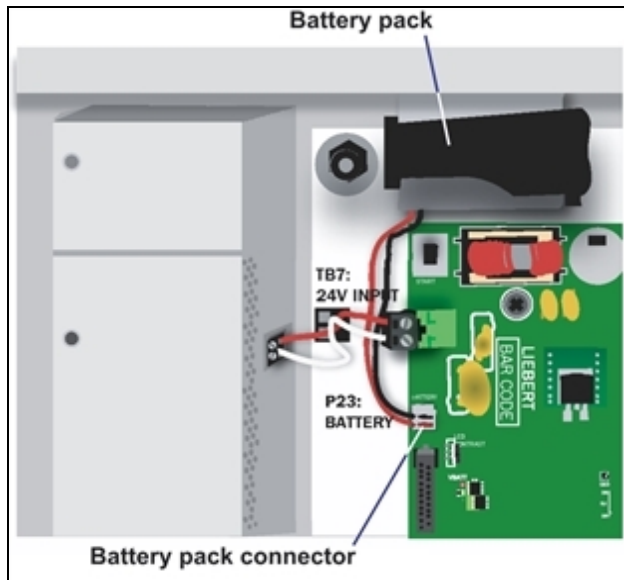


Troubleshooting - Transformer Module

A common problem and possible solution are shown in the table below. For further information or if you have other problems with the unit, consult your local dealer, Liebert representative or the Liebert Worldwide Support Group.

Problem	Possible Solution	Replacement Fuse Part Numbers
24 VAC power not available from TB1 or TB2	Check fuse for respective output (TB1 or TB2).	LITTLEFUSE 218002 <i>or</i> BUSSMANN GDC-2A

2.4.2 Connecting the Battery Pack



Before connecting input power to the Liebert AC8, connect the panel's backup battery (factory-supplied) to the jumpers so it will begin charging when electrical power to the Liebert AC8 is switched on.

NOTE: If the battery is not hooked up BEFORE the Liebert AC8 is switched on, it will trigger an alarm.

To connect the battery pack, insert the battery leads into the jumpers as shown at right. (To disconnect the battery pack, remove the battery leads from the jumpers.)

2.4.3 Turning On the Liebert AC8

After connecting the backup battery, turn on the power On/Off switches to the Liebert AC8 and the Transformer Module (see [Controller Board Overview](#) on page 4 for location of switches).

3 WIRING AND CONNECTIONS



CAUTION: Switch OFF electric power to the Liebert AC8 before installing any wiring to the unit or changing input or output connections. The Power On/Off switch is in the top left corner of the unit, just below the battery pack.

3.1 Wiring Specifications

Input and output connections to the Liebert AC8 may be made in any order—it is not necessary, for example, to make all input connections before making any output connections. Use copper conductors only for all wiring.

Table 3.1 Wiring specifications

Connection	Supported Wire Type	Maximum Wire Length			Rating
Digital Input/EPOP	18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 9740 Plenum - Belden 89740	750 ft. (225m)			Dry Contact (24VDC, 10 mA)
Digital Output/Control Relay	18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 9740 Plenum - Belden 89740	18 AWG* (recommended)	20 AWG	22 AWG	24VAC@3A
		@3A 50 ft. (15m) @2A 100 ft. (30m) @1A 200 ft. (60m)	@3A 40 ft. (12m) @2A 60 ft. (18m) @1A 100 ft. (30m)	@3A 25 ft. (7m) @2A 35 ft. (10m) @1A 75 ft. (23m)	
Analog Input 2-Wire Transducer	18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 9740 Plenum - Belden 89740	750 ft. (225m)			4-20 mA Signal Input Selectable Power Source (12/24VDC)
Analog Input 4-Wire Transducer	18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 8489 Plenum - Belden 88489	750 ft. (225m)			4-20 mA Signal Input Selectable Power Source (12/24VDC)
Common Alarm Output	18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 9740 Plenum - Belden 89740	18 AWG* (recommended)	20 AWG	22 AWG	24VAC @3A
		@3A 50 ft. (15m) @2A 100 ft. (30m) @1A 200 ft. (60m)	@3A 40 ft. (12m) @2A 60 ft. (18m) @1A 100 ft. (30m)	@3A 25 ft. (7m) @2A 35 ft. (10m) @1A 75 ft. (23m)	
Communication RS232	Null Modem Cable (optional)	50 ft. (15m)			N/A
Communication EIA422 Liebert SiteScan	18-22 AWG Stranded & Shielded 22 AWG* (recommended) Non Plenum - Belden 9461 Plenum - Belden 88761	1000 ft. (300m)			N/A
Communication EIA485	18-22 AWG Stranded & Shielded 22 AWG* (recommended) Non Plenum - Belden 9461 Plenum - Belden 88761	3000 ft. (900m)			N/A

Table 3.1 Wiring specifications (continued)

Connection	Supported Wire Type	Maximum Wire Length	Rating
Phone/Modem Line	4 Wire (Pins 3 & 4) RJ11 Connector	N/A NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.	N/A
24VAC Power Connection (TB7)	18-22 AWG Stranded & Shielded 18 AWG* (recommended) Non Plenum - Belden 8770 Plenum - Belden 88770	150 ft. (45m)	24VAC @1.3A
Power Connections (Transformer Module)			
115VAC	14 AWG Stranded & Unshielded Non Plenum - Belden 5101UE	150 ft. (45m)	115VAC @4A
230VAC	14 AWG Stranded & Unshielded Non Plenum - Belden 5101UE	150 ft. (45m)	230VAC @0.5A
* Recommended			

3.2 Connecting Digital Inputs and Digital Outputs

The digital inputs, digital outputs and control relay outputs are found on the right side of the Liebert AC8's printed wiring assembly board. Each set has two terminal blocks—one green, the other black:

- **Digital inputs:** two terminal blocks, with four inputs per block (8 inputs total)
- **Digital outputs:** two terminal blocks, with four outputs per block (8 outputs total)
- **Control relay outputs:** two terminal blocks, with one output per block (2 outputs total)

Each input is tied to an output with the same number:

- Input 1 is tied to Output 1 (default name: Device_1)
- Input 2 is tied to Output 2 (default name: Device_2)
- Input 3 is tied to Output 3 (default name: Device_3)
- ⋮
- Input 8 is tied to Output 8 (default name: Device_8)

Up to eight devices may be connected to the Liebert AC8. Each device must be connected to an input and an output with the same number.

To determine the proper wire size, see [Wiring and Connections](#) on page 17.

NOTE: Each terminal block is a removable, two-part assembly to permit easier connection of more than one input at a time. If making multiple connections, grasp the upper portion of a block and pull firmly to the right until the assembly pulls apart.

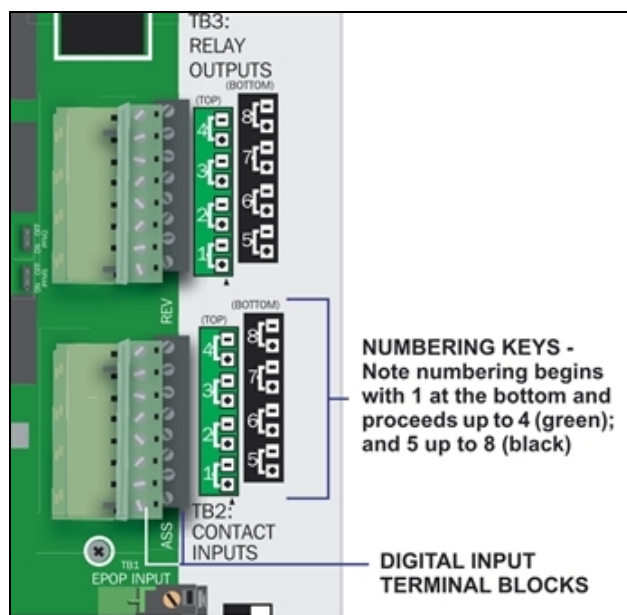
After making the connections, push the removed piece back into the portion attached to the printed wiring assembly until the terminal block pieces lock together.

Connecting Liebert Environmental Units

For Liebert environmental units, follow these steps (be sure to connect the same device to inputs and outputs with the same number—one device to Input 1 and Output 1, another to Input 2 and Output 2, and so on):

- Connect a digital input from the Liebert AC8 to the Common Alarm Relay of the environmental unit: terminals 75/76 or TB1-6, TB1-7.
- Connect a digital output (numbered the same as the input) from the Liebert AC8 to the Remote Shutdown (Power Control) of the environmental unit: terminal 37/38 or TB1-4, TB1-5.

3.2.1 Connecting Digital Inputs

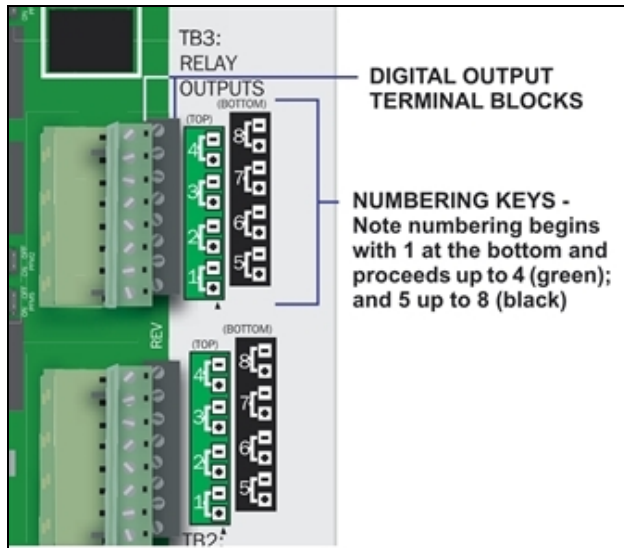


To connect a digital input:

1. Turn OFF electrical power to the Liebert AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC8 enclosure.
3. Bring the wire(s) into the Liebert AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.

NOTE: Connect digital inputs to nonpowered (dry) contacts only.

3.2.2 Connecting Digital Outputs



To connect a digital output:

1. Turn OFF electrical power to the Liebert AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC8 enclosure.
3. Bring the wire(s) into the Liebert AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



CAUTION: To reduce the risk of fire or electric shock, do not interconnect the outputs of different Class 2 circuits.

3.2.3 Setting the Digital Output Jumpers

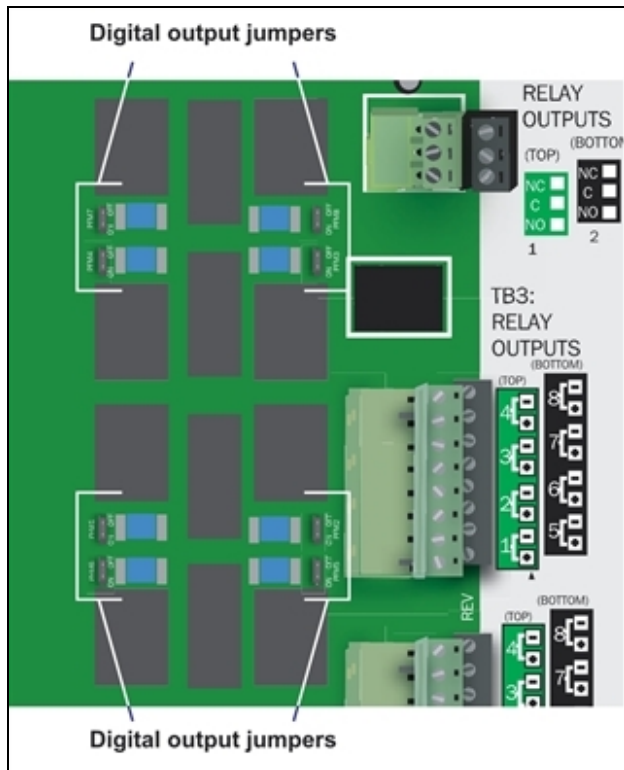
Each digital output has an associated jumper to define its operation when power is interrupted and there is no battery backup to the board. This puts the Liebert AC8 in a *fail-safe mode* and ensures proper functioning when the board has no power or battery backup.

The Liebert AC8 comes from the factory with all digital output jumpers in the OFF position (Normally Open). The jumper setting for each digital output can be changed to ON (Normally Closed). The settings are shown in Table 3.2 below.

Table 3.2

Digital output jumper settings

Setting	Output status (power loss & no battery backup)
OFF	Normally Open
ON	Normally Closed



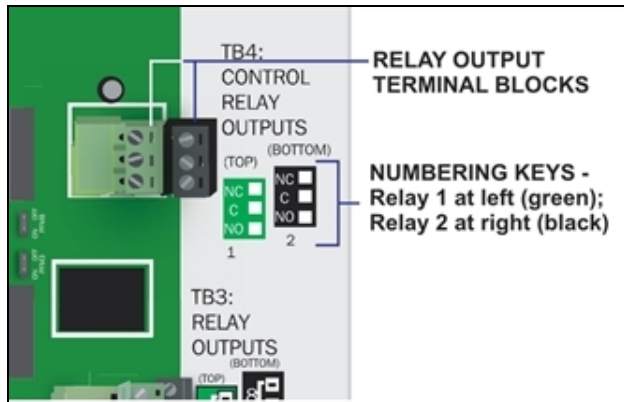
To change the output jumper setting:

1. Find the respective black output jumper on the circuit board, shown in the illustration, using the following guide.

Jumper	Associated output
PFM1	Output 1
PFM2	Output 2
PFM3	Output 3
PFM4	Output 4
PFM5	Output 5
PFM6	Output 6
PFM7	Output 7
PFM8	Output 8

2. Decide whether your configuration requires the jumper to be OFF or ON.
3. Set the jumper as needed:
 - Set the jumper to OFF by placing the black jumper on the middle and top pins.
 - Set the jumper to ON by placing the black jumper on the middle and bottom pins.

3.2.4 Connecting Control Relay Outputs



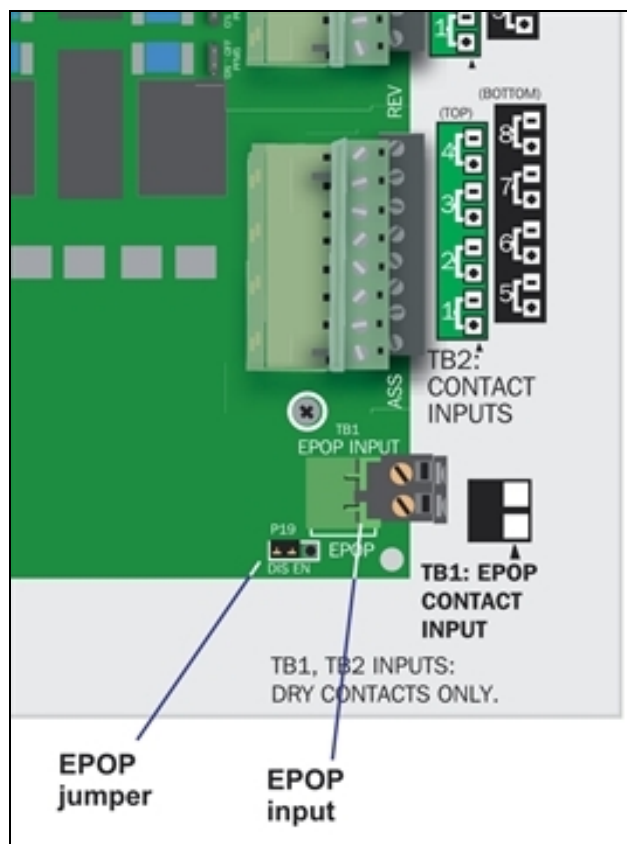
To connect a control relay output:

1. Turn OFF electrical power to the Liebert AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC8 enclosure.
3. Bring the wire(s) into the Liebert AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



CAUTION: To reduce the risk of fire or electric shock, do not interconnect the outputs of different Class 2 circuits.

3.2.5 Connecting the Emergency Power Operation (EPOP) Input



The emergency power operation, or EPOP, input connector block (TB1) is at the bottom right corner of the Liebert AC8 printed circuit board, just below the digital inputs.

To determine the proper wire size, see [Wiring and Connections](#) on page 17.

To connect to the EPOP input:

1. Turn OFF electrical power to the Liebert AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC8 enclosure.
3. Bring the wire into the Liebert AC8 enclosure through a conduit knockout or access slot.
4. Loosen each screw and slip the stripped end of the wire into the terminal block.
5. Tighten each screw until it holds the wire snugly.

3.2.6 Setting the EPOP Jumper

The EPOP contact input has an associated jumper to enable or disable emergency power operation (EPOP).

The Liebert AC8 comes from the factory with the EPOP jumper in the Disabled position (DIS); it may be changed to Enabled (EN).

To change the EPOP jumper setting:

1. Find the black EPOP jumper on the circuit board, as shown at right. The jumper is at the bottom right corner of the board just below the EPOP contact input (see [Controller Board Overview](#) on page 4).
2. Decide whether your configuration requires the jumper to be enabled or disabled.
3. Set the jumper as needed:

- To enable EPOP, place the black jumper on the middle and right pins. The right side of the jumper is labeled EN for Enabled.

NOTE: When the EPOP jumper is set to Enabled, a Normally Closed contact must be attached or an alarm will be generated and the outputs will default to the EPOP operation setting.

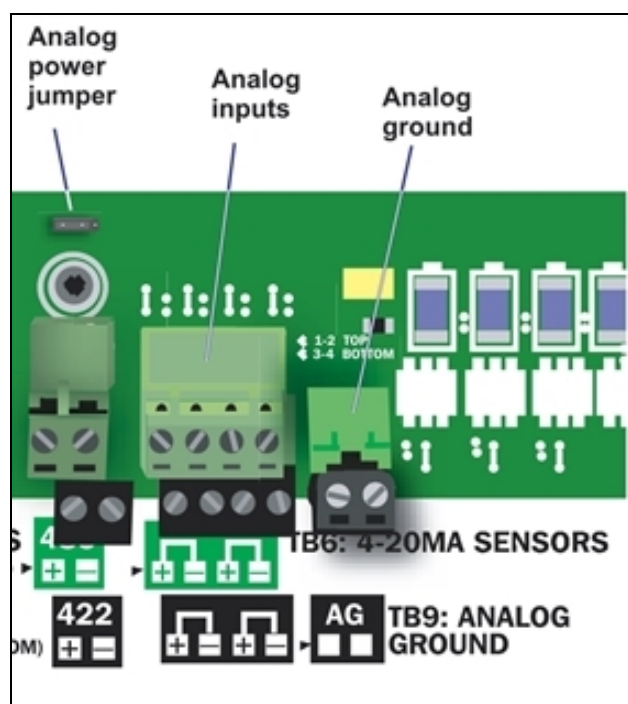
- To disable EPOP, place the black jumper on the middle and left pins. The left side of the jumper is labeled DIS for Disabled.

3.3 Connecting Analog Inputs

The analog input connector blocks are at the bottom center of the Liebert AC8 printed circuit board, as shown below right. The blocks are two-part assemblies to permit easier connections. To determine the proper wire size, see [Wiring and Connections](#) on page 17.

To connect an input:

1. Turn OFF electrical power to the Liebert AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC8 enclosure.
3. Bring the wire(s) into the Liebert AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



3.3.1 Setting the 12VDC/24VDC Analog Power Jumper

The analog power jumper sets the common voltage that is applied to all of the analog input connections. The jumper permits the user to modify the voltage supplied to the sensors, according to the power requirements.

The factory default position is 24VDC; it may be changed to 12VDC.

To change the analog power jumper setting:

1. Find the black analog jumper on the circuit board, as shown at right. The jumper is at the bottom of the board near the middle (see [Controller Board Overview](#) on page 4).
2. Decide whether your configuration requires the jumper to be 24VDC or 12VDC.

3. Set the jumper as needed:
 - To set the jumper to the 24VDC position, place the black jumper on the middle and right pins.
 - To set the jumper to the 12VDC position, place the black jumper on the middle and left pins.

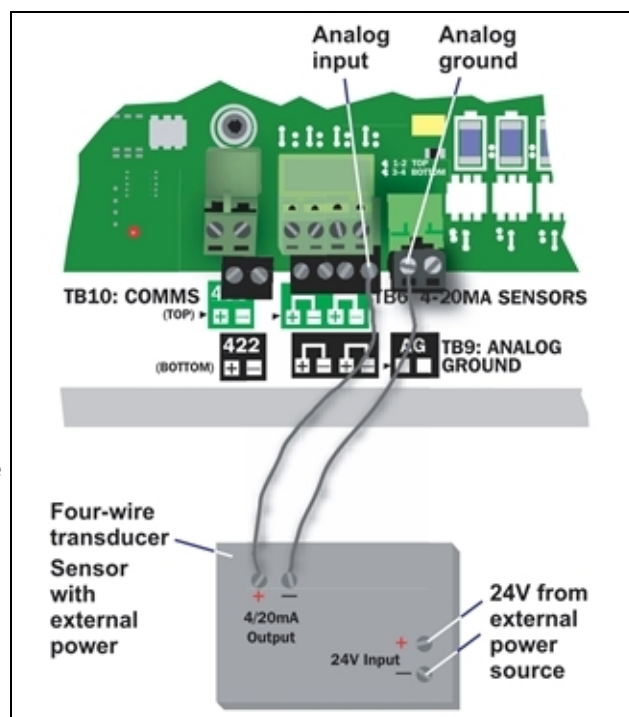
3.3.2 Connecting the Analog Ground

The Liebert AC8 features an analog ground connection for four-wire sensors that have an external power source. Such a four-wire sensor requires a reference to ground because they get power from an external power source.

A two-wire transducer, which does not have an external power source, does not need to be connected to the analog ground.

The analog ground connector has two terminals, each of which can accommodate two wires. This is adequate to connect four sensors that require a reference to ground because they get power from an external power source.

Connect the analog ground to an external four-wire sensor, as shown in the illustration at right.



3.4 Connecting Common Alarm Outputs

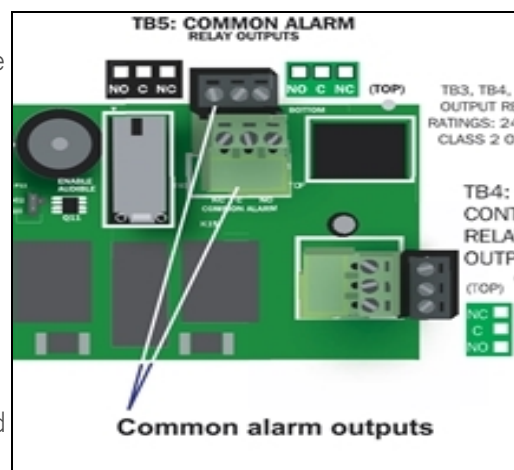
The common alarm relay, found in the top right corner of the Liebert AC8, permits the user to connect auxiliary notification equipment, such as lights, horns and sirens, to the Liebert AC8. To determine the proper wire size, see [Wiring and Connections](#) on page 17.

There are two connectors for the common alarm output. However, the connectors are not individual relay outputs. The connectors should be treated as a double-pole, double-throw (DPDT) relay.

The common alarm relay is energized whenever an alarm occurs.

To connect an output:

1. Turn OFF electrical power to the Liebert AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC8 enclosure.
3. Bring the wire(s) into the Liebert AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.

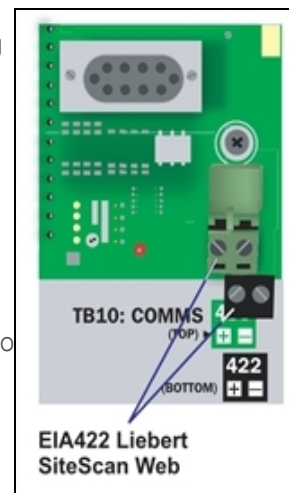


3.5 EIA422 Liebert SiteScan Web™ Connector

The Liebert AC8 will interface with Liebert's SiteScan Web enterprise monitoring system. Liebert SiteScan can be used to monitor analog and digital equipment from a host computer and also to perform some configuration.

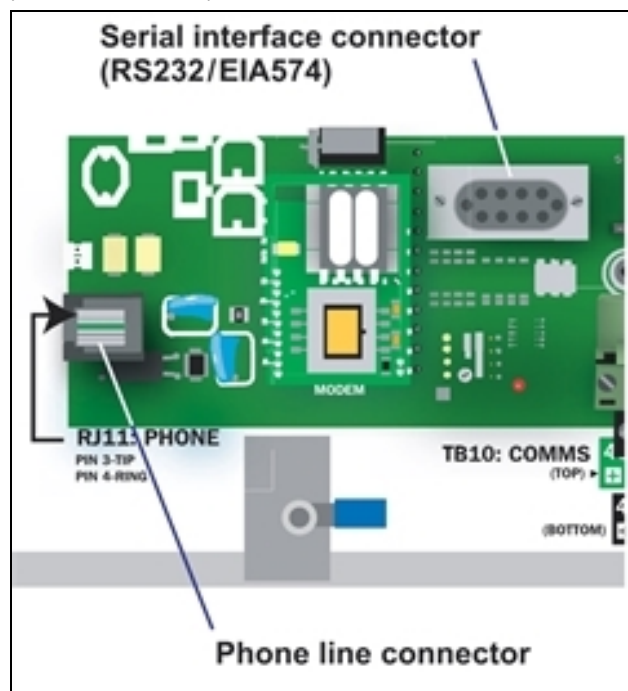
To connect the Liebert SiteScan host computer to the Liebert AC8:

1. Turn OFF electrical power to the Liebert AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC8 enclosure.
3. Bring the wire(s) into the Liebert AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



3.6 Communications Connections

The Liebert AC8's Service Terminal Interface offers full configuration and monitoring capability via the RS232 port and the phone line connector (see [Connecting to the Service Terminal Interface](#) on page 105). The phone line connector is also used for pager notifications and service phone number options.



3.6.1 RS232 Connector

The RS232 port requires a null modem cable.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

- Connect one end of the cable to the Liebert AC8's RS232 port, as shown above..
- Connect the other end to the COM1 port of a laptop computer or video terminal.

3.6.2 Phone Line Connector

The Phone Line Connector requires an RJ11 connector.

- Connect one end of the connector to the Liebert AC8's phone line connector, shown at right.
- Connect the other end to a telephone wall jack.

4 OVERVIEW OF MENUS

There are two ways to access the Liebert AC8: the LCD on the front of the enclosure and the Service Terminal Interface, which is accessible through any computer using a communications program. Many viewing and configuration tasks can be performed through either interface, but some are available only through the Service Terminal Interface.

- Step-by-step instructions for all functions appear in [View Status Options](#) on page 35 through [System and Control Options](#) on page 53. These instructions use examples of LCD screens to illustrate most functions, except those not available via the LCD.
- Examples of all Service Terminal Interface screens appear in [Service Terminal Interface](#) on page 103, along with instructions on how to connect to the Service Terminal Interface.

Table 4.1 below lists all Liebert AC8 functions and shows whether they can be performed through the LCD interface and where to find information.

Table 4.1

Guide to Liebert AC8 functions

Function	Can be performed via:		Where to find:	
	LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
VIEW STATUS FUNCTIONS				
View Active Alarms	x	x	View Active Alarms on page 37	View Active Alarms
View Alarm Log	x	x	View Alarm Log on page 38	View Alarm Log
View Event Log	x	x	View Event Log on page 39	View Event Log
View Trend Log	x	x	View Trend Log on page 41	View Trend Log
View Input Status	x	x	View Input Status on page 42	View Input Status
View Output Status	x	x	View Output Status on page 43	View Output Status
View Pager Numbers	x	x	View Pager Numbers on page 44	View Pager Numbers
View Operation	x	x	View Operation on page 46	View Operation
View Control Status	x	x	View Pager Numbers on page 44	View Control Status
SILENCE ALARM & BACK UP LOGS FUNCTIONS				
Silence Alarm <i>(On the LCD, press any key to silence an alarm)</i>	x	x	Silence Alarm (Service Terminal Interface) on page 49	Silence Alarm (Service Terminal Interface only)
Back Up Log Files	—	x	Back Up Log Files (Service Terminal Interface only) on page 49	Back Up Log Files (Service Terminal Interface only)
SYSTEM & CONTROL FUNCTIONS				
Login	x	x	Login on page 53	Login Menu
Setup System	x	x	Setup System - Overview on page 55	Setup Menu

Table 4.1 Guide to Liebert AC8 functions (continued)

Function		Can be performed via:		Where to find:	
		LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
Setup Inputs		x	x	Setup System - Setup Inputs on page 55	Setup Inputs
Setup Common Alarm		x	x	Setup System - Setup Common Alarm on page 59	Setup Common Alarm
Setup Sensor		x	x	Setup System - Setup Sensor on page 59	Setup Sensor
Setup Zones		x	x	Setup System - Setup Zones on page 66	Setup I/O Matrix
Setup Outputs		x	x	Setup System - Setup Outputs on page 68	Setup Output
Setup Modem & Pagers NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.		x	x	Setup System - Setup Modem & Pagers on page 70	Setup Modem & Pagers
Modem Setup NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.	Initialization String	x	x	Modem Setup - Initialization String on page 70	Modem Setup
	Enter Liebert AC8 Phone Number	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
	Enable Modem Diagnostic Messages	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
	Change Modem Dial Prefix	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
	Change Modem Hang Up Delay After a Call	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
Pager Setup NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.	Pager Number & PIN	x	x	Pager Setup - Pager Number and PIN on page 75	Pager Setup
	Communications Check	—	x	Pager Setup - Communications Check (Service Terminal Interface only) on page 77	Pager Setup
Setup System Info		x	x	Setup System - Setup System Info on page 79	Setup System Info
Change Password		x	x	Change Password on page 80	Change Password

Table 4.1 Guide to Liebert AC8 functions (continued)

Function	Can be performed via:		Where to find:	
	LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
Change Date & Time/Automatic Daylight Saving Time	x	x	Change Date & Time/Automatic Daylight Saving Time on page 81	Set Date & Time/Automatic Daylight Saving Time
Setup Site ID	x	x	Setup Site ID on page 82	Setup Site ID
Connect Battery	x	x	Connect Battery on page 82	Connect Battery
Backup and Upload Configuration File	—	x	Backup and Upload Configuration File (Service Terminal Interface only) on page 83	Backup and Upload Configuration File (Service Terminal Interface only)
Setup Serv Ph Num - Enter Phone Number	x	x	Setup Serv Ph Num - Enter Phone Number on page 85	Setup Service Phone Number
Setup Serv Ph Num - Communications Check	—	x	Setup Serv Ph Num - Communications Check (Service Terminal Interface only) on page 86	Setup Service Phone Number
Factory Defaults	x	x	Factory Defaults on page 88	Factory Defaults
Perform Firmware Update	—	x	Perform Firmware Update (Service Terminal Interface only) on page 88	Firmware Update (Service Terminal Interface only)
Initiate Remote Alarm Test	—	x	Initiate Remote Alarm Test (Service Terminal Interface only) on page 90	Initiate Remote Alarm Test (Service Terminal Interface only)
Setup Operation	x	x	Setup Operation on page 91	Setup Operation
Setup I/O Matrix	x	x	Setup System - Setup I/O Matrix on page 97	Setup I/O Matrix
Override Output	x	x	Override Output on page 99	Override Output
Clear Alarms & Logs	x	x	Clear Alarms & Logs on page 101	Clear Alarms & Logs
Clear Active Alarms	x	x	Clear Active Alarms on page 101	Clear Active Alarms
Clear the Alarm Log	x	x	Clear the Alarm Log on page 101	Clear the Alarm Log
Clear the Event Log	x	x	Clear the Event Log on page 102	Clear the Event Log
Clear the Trend Logs	x	x	Clear the Trend Logs on page 102	Clear the Trend Logs

4.1 Opening Screen Overview

The Liebert AC8 displays the Opening Screen at startup, as shown in Figure 4.1 on page 33.

- If any alarms are active, the Current Alarm screen appears. (Pressing any key on the LCD keypad will silence the audible alarm.)
- If any analog input sensors are connected, the LCD screen will alternately display the Opening Screen and a screen showing the analog value of each sensor.

If no alarms are present, the Main Menu appears.

4.2 Main Menu Overview

The Main Menu offers access to all functions within the panel. As shown in Table 4.2 below, the functions are organized into three sections with step-by-step instructions.

Table 4.2

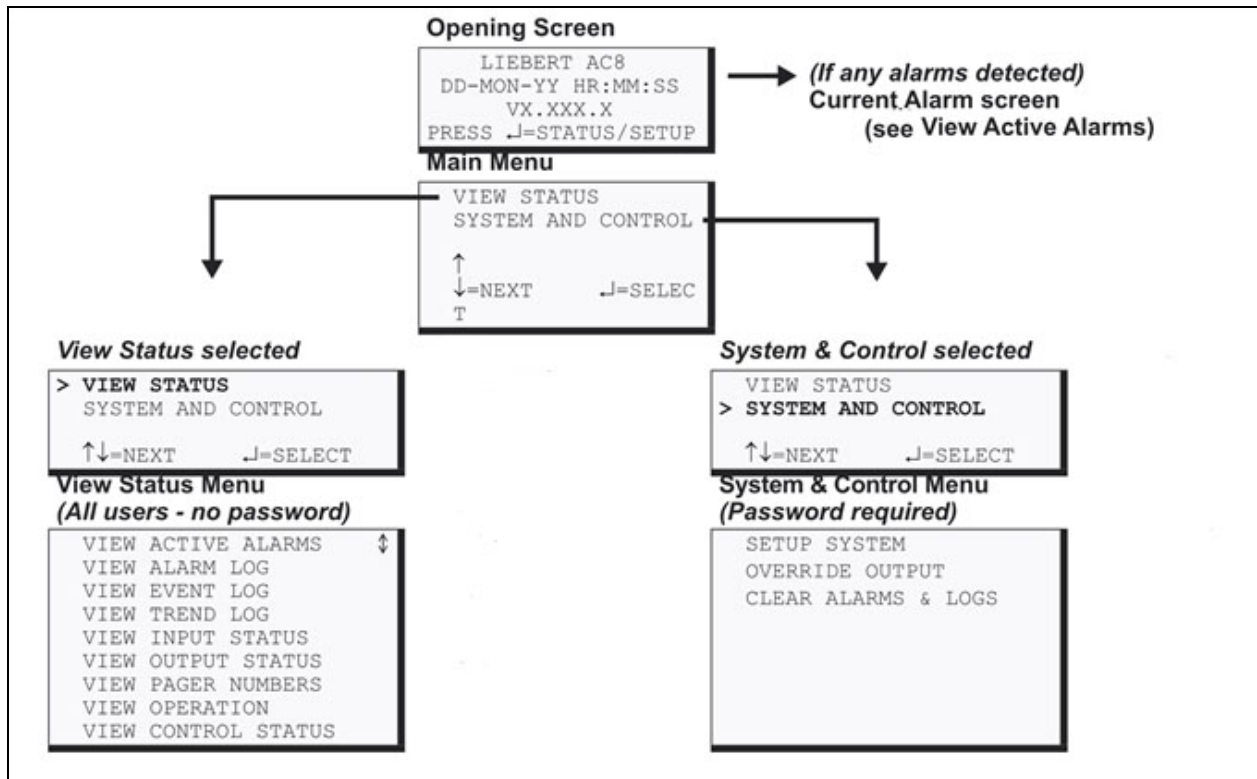
Primary functions overview

Section	Description
View Status Options on page 35 - View Status Options (both LCD and Service Terminal Interface)	These features are available to all users. This permits all personnel to check the status of any monitored equipment or location. From this menu, any user may: <ul style="list-style-type: none"> View current monitoring data—active alarms and the status of inputs and outputs View data stored in alarm, event and trend logs View pager numbers View auto sequencing and standby testing status
Silence Alarm & Backup Log Files (Service Terminal Interface) on page 49 - Silence Alarm & Backup Log Files (Service Terminal Interface only)	These features—available via the Service Terminal Interface only—allow users to: <ul style="list-style-type: none"> Silence the audible alarm Back up the alarm, event and trend logs
System and Control Options on page 53 - System and Control Options (some functions available via Service Terminal Interface only)	These options require a password. Authorized users may: <ul style="list-style-type: none"> Configure the Liebert AC8 Override automatic control of outputs to force an output ON or OFF Clear active alarms and delete all records in the alarm, event and trend logs

4.3 LCD Menu Overview

Figure 4.1 on the facing page shows an overview of the initial screens available through the LCD interface. For comparable information about the Service Terminal Interface screens, see Overview of Menus.

Figure 4.1 LCD Menu overview



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5 VIEW STATUS OPTIONS

NOTE: For ease of understanding, this section uses the LCD interface to illustrate most instructions, except for features that are available only through the Service Terminal Interface. All Service Terminal Interface screens appear in [Service Terminal Interface](#) on page 103.

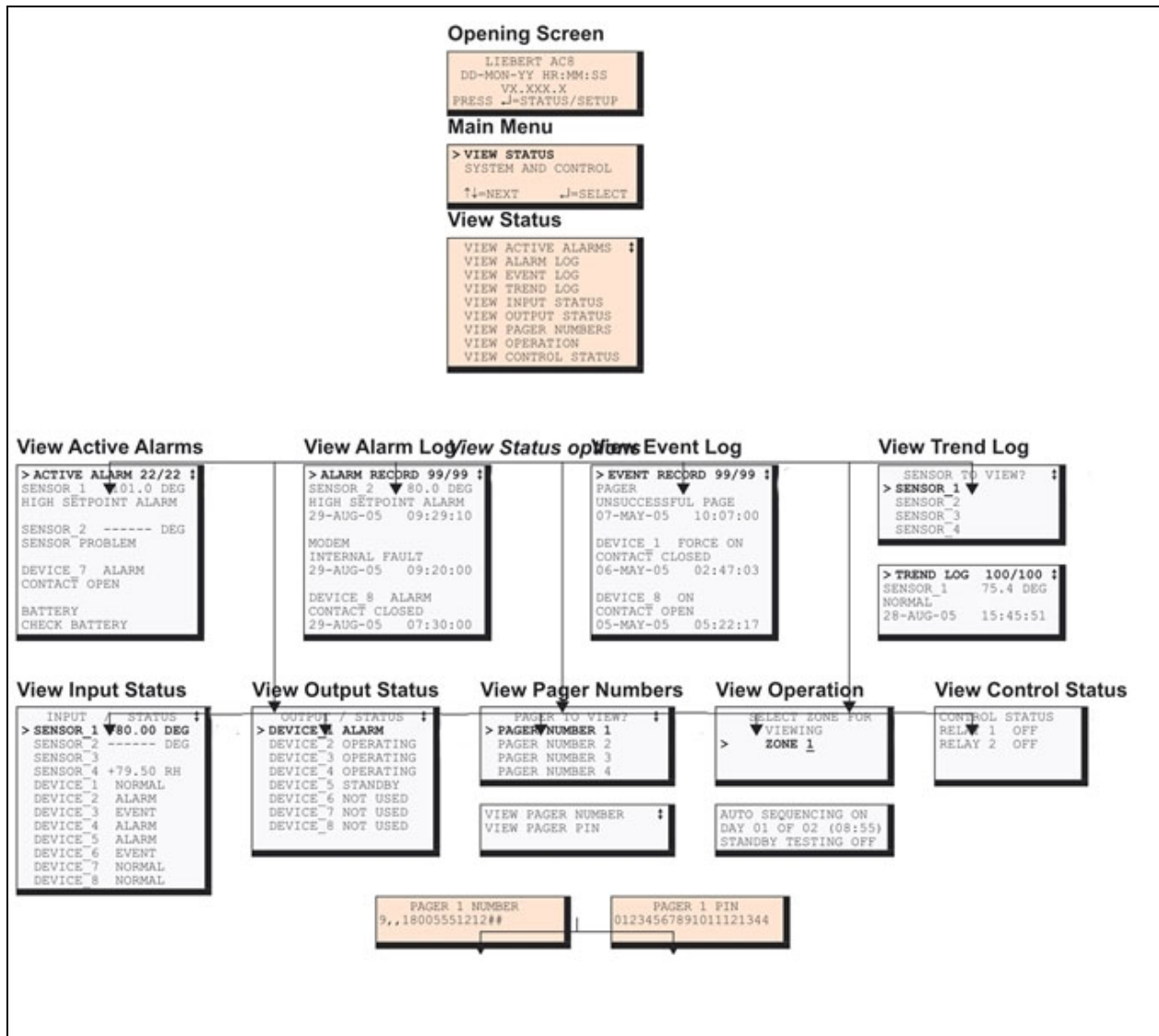
The View Status menu allows any user to view currently active alarms, monitoring data stored in the alarm, event and trend logs, the status of all inputs and outputs, and the four pager numbers. The arrows are used to scroll through the menu. The Enter key is used to select the menu item.

This section presents step-by-step instructions for each of the following options:

- View Active Alarms
- View Alarm Log
- View Event Log
- View Trend Log
- View Input Status
- View Output Status
- View Pager Numbers
- View Operation
- View Control Status

Figure 5.1 on the next page shows the main options available from the View Status menu.

Figure 5.1 Menu overview - View Status menu



5.1 View Active Alarms

The Active Alarm screen displays all alarms that are occurring, up to a maximum of 22.

A Current Alarm screen appears automatically whenever an alarm occurs—except during setup. This screen can display only the two most recent active alarms. To view any other active alarms, use the View Active Alarms feature.

You may view active alarms at any time by using the following steps:

- From the Main Menu, use the arrows to choose **View Status**, as shown at right, and then press Enter.
- From the View Status Menu, use the arrows to choose **View Active Alarms** and press Enter.

5.1.1 Active Alarms

The Active Alarms screen displays up to 22 records; it shows any active alarm and any Latched alarm that has not been cleared. Examples of alarms include inputs in alarm status, a low battery condition and a loss of connection to an analog input. When any alarms are present, the Active Alarms screen shows descriptive details for each alarm:

- the source of the alarm (for example, `SENSOR_1` or `BATTERY`)
- the status of an input or output (`101.0 DEG`)
- a brief description of the problem (`HIGH SETPOINT ALARM` or `CHECK BATTERY`)

If there are no active alarms, the screen displays the message:

NO ALARMS PRESENT

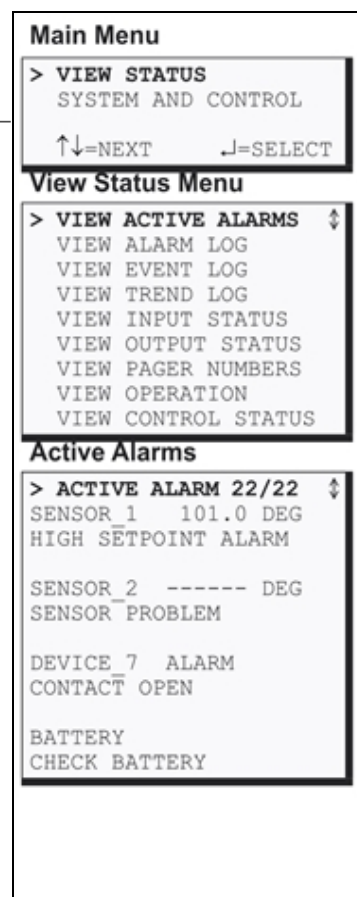
Viewing Additional Screens

There may be up to 22 records of alarm data.

- To view additional records, use the arrows `↑`.
- To return to the previous screen, press the ESC key.

Clearing Active Alarms

To clear all active alarms, see [Clear Alarms & Logs](#) on page 101. Alarm records are stored in the Alarm Log.



5.2 View Alarm Log

The Alarm Log contains up to 99 records of alarms that have occurred. Records are added to this log as alarms occur.

To view the Alarm Log:

- From the Main Menu, use the arrows to choose View Status, then press Enter.
- From the View Status Menu, use the arrows to choose View Alarm Log, then press Enter.

5.2.1 Alarm Log

The Alarm Log screen displays up to 99 records showing alarm data, including input alarms and other conditions, such as loss of power or low battery. If the log contains any alarm records, the Alarm Log screen displays details for each alarm:

- the source of the alarm (for example, `SENSOR_2`)
- the status of an input or output (80.0 DEG)
- a brief description of the problem (HIGH SETPOINT ALARM OR INTERNAL FAULT)
- the date and time the alarm occurred

Table 5.1 below shows conditions that the alarm log records for digital inputs and analog inputs and in the panel itself.

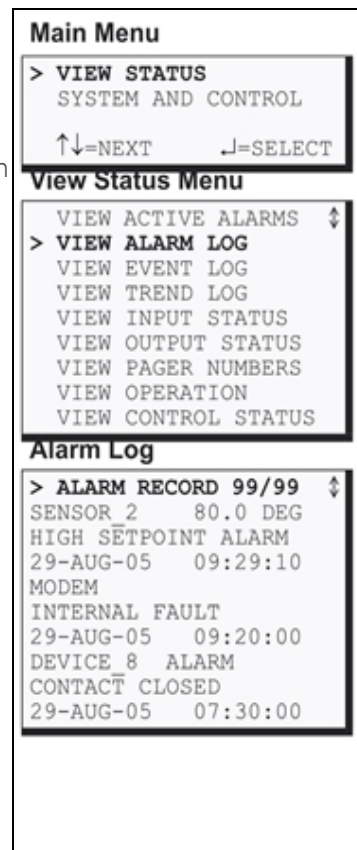


Table 5.1

Alarm log conditions

SOURCE	Digital Input	Analog Input	
CONDITIONS RECORDED	ALARM NORMAL	HIGH SETPOINT ALARM LOW SETPOINT ALARM RETURN TO NORMAL SENSOR PROBLEM (denoted by dashes -----)	
SOURCE	Panel		
CONDITIONS RECORDED	LOSS OF POWER LOW BATTERY CHECK BATTERY BATTERY UNPLUGGED	ALARMS CLEARED ALARM SILENCED MODEM INTERNAL FAULT	NO STANDBY AVAILABLE STANDBY DEVICE FAILED NO RESTART AVAILABLE EMERGENCY PWR ALARM

If there are no alarms in the log, the screen displays the message:

NO ALARMS

Viewing Additional Screens

There may be up to 99 records of alarm data.

- To view additional records, use the arrows \uparrow .
- To return to the previous screen, press the ESC key.

5.2.2 Backing Up the Alarm Log (Service Terminal Interface only)

The alarm log is stored as a file in the Liebert AC8; it can hold no more than 99 records. When the log is full, the oldest records are deleted from the end of the file as new alarm records are added at the beginning.

You may back up the alarm log file to a remote computer using the Service Terminal Interface, as described in [Back Up Log Files \(Service Terminal Interface only\)](#) on page 49.

To delete all records in the alarm log, see [Clear Alarms & Logs](#) on page 101.

5.3 View Event Log

In addition to alarms, the Liebert AC8 tracks other changes in the Event Log to assist users with verifying operational and troubleshooting problems. Events reflect changes in the status of an input that is defined as an event or the change of state of an output (i.e., manually forced ON or OFF). Other events may be informational, such as a user login or an unsuccessful page attempt. The Event Log contains up to 99 records of events, which are added as they occur.

To view the Event Log:

- From the Main Menu, use the arrows to choose **View Status**, then press Enter.
- From the View Status Menu, use the arrows to choose **View Event Log**, then press Enter.

5.3.1 Event Log

The Event Log screen displays up to 99 recent events. If the log contains any event records, the Event Log screen displays details for each event:

- the event source (for example, `PAGER` or `DEVICE_1`)
- the status of an input or output (`FORCE ON`)
- a brief description of the event (`UNSUCCESSFUL PAGE` or `CONTACT CLOSED`)
- the date and time the event occurred

Table 5.2 on the next page shows conditions that the event log records for inputs and outputs and in the panel itself.

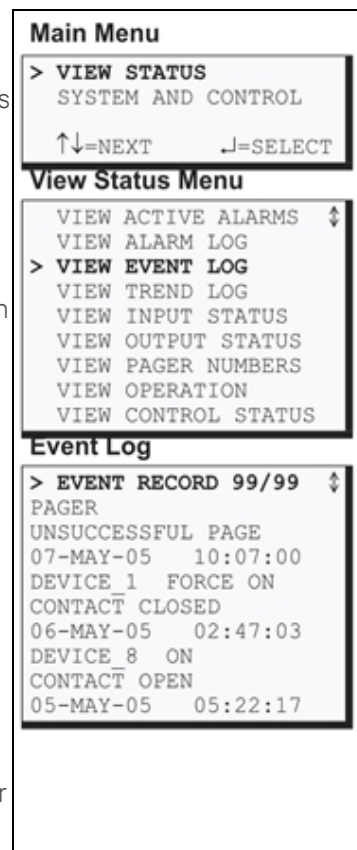


Table 5.2
Event log conditions

SOURCE	Digital Input	Analog Input	Digital Output	
CONDITIONS RECORDED	EVENT NORMAL	HIGH SETPOINT EVENT LOW SETPOINT EVENT RETURN TO NORMAL SENSOR PROBLEM (denoted by dashes -----)	FORCE ON FORCE OFF AUTO HW FORCE ON ON OFF	DISABLED STAGING DEVICE ON STAGING DEVICE OFF RESTORED STARTED
SOURCE		Panel		
CONDITIONS RECORDED	ALARMS CLEARED ALARM SILENCED DIAL OUT TEST PASSED DIAL OUT TEST FAILED UNSUCCESSFUL PAGE	DEFAULT PASSWORD SET MODEM RESET TIME & DATE SET USER LOGIN NOT USED DEVICES IN ZONE	NO STANDBY OUTPUTS AVAILABLE NO STANDBY TESTING DEVICE AVAILABLE EMERGENCY PWR ALARM STAGING DISABLED	

If there are no records in the log, the screen displays the message:

NO EVENTS

Viewing Additional Screens

There may be up to 99 records of event data.

- To view additional records, use the arrows \leftarrow .
- To return to the previous screen, press the ESC key.

5.3.2 Backing Up the Event Log (*Service Terminal Interface only*)

The event log is stored as a file in the Liebert AC8; it can hold no more than 99 records. When the log is full, the oldest records are deleted from the end of the file as new event records are added at the beginning.

You may back up the event log file to a remote computer using the Service Terminal Interface, as described in [Back Up Log Files \(Service Terminal Interface only\)](#) on page 49.

To delete all records in the event log, see [Clear Alarms & Logs](#) on page 101.

5.4 View Trend Log

The Liebert AC8 takes readings of configured analog input sensors at regular intervals and stores them in four separate trend logs, one for each sensor. The time interval is 30 minutes. Each log contains up to 100 records.

Follow these steps to select a sensor and view its trend log:

5.4.1 Select a Sensor

To select a sensor:

- From the Main Menu, use the arrows to choose View Status, then press Enter.
- From the View Status Menu, use the arrows to choose View Trend Log, then press Enter.
- From the Sensor Selection Menu, use the arrows to choose the sensor you want to view—`SENSOR_1` in the example at right—and press Enter.

5.4.2 View a Trend Log

The Trend Log screen displays up to 100 records for the selected sensor. If the log contains records, the screen displays details for each reading:

- the name of the selected sensor (for example, `SENSOR_1`)
- the reading (75.4 DEG)
- a brief description of the reading status (NORMAL)
- the date and time of the reading

Table 5.3 below shows conditions that the trend log records for analog inputs. Each analog input has its own trend log.

Table 5.3

Trend log conditions

SOURCE	Analog Input
CONDITIONS RECORDED	LOW SETPOINT ALARM
	LOW SETPOINT EVENT
	HIGH SETPOINT ALARM
	HIGH SETPOINT EVENT
	RETURN TO NORMAL
	NORMAL
	SENSOR PROBLEM (denoted by dashes -----)

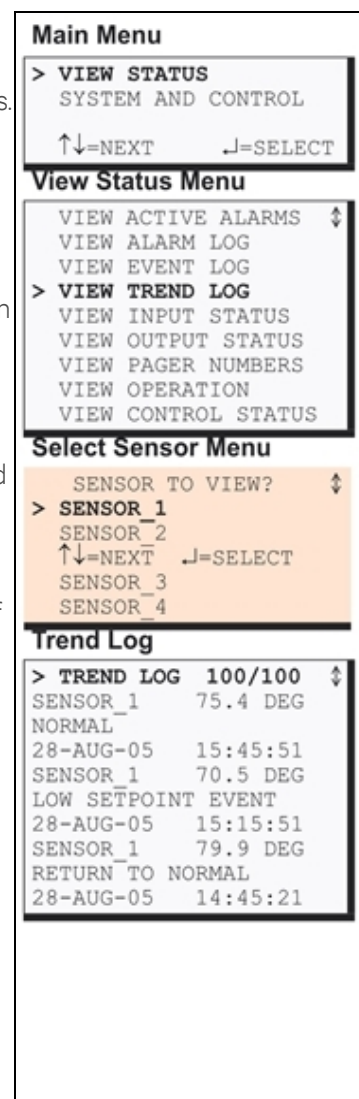
If there are no records in the log, the screen displays the message:

`NO TRENDS`

Viewing Additional Screens

There may be up to 100 records of trend data for the selected sensor.

- To view additional records, use the arrows `↑`.
- To return to the previous screen, press the ESC key.



5.4.3 Backing Up the Trend Log (Service Terminal Interface only)

The four trend logs are stored as files in the Liebert AC8, with a maximum of 100 records per sensor. When a log is full, the oldest records are deleted from the end of the file as new trend records are added at the beginning.

You may back up each trend log file to a remote computer using the Service Terminal Interface, as described in [Back Up Log Files \(Service Terminal Interface only\)](#) on page 49.

To delete all records in the trend logs, see [Clear Alarms & Logs](#) on page 101.

5.5 View Input Status

The Input Status option allows you to view the current status of all inputs: the four analog sensor inputs and the eight digital inputs.

To view the Input Status:

- From the Main Menu, use the arrows to choose View Status, then press Enter.
- From the View Status Menu, use the arrows to choose View Input Status, then press Enter.

5.5.1 Input Status

The Input Status screen displays the status of each analog sensor and digital input.

Analog Sensor Inputs

The following details are displayed for analog sensor inputs:

- the name of the analog sensor input (for example, `SENSOR_1`)
- the current reading (`+80.00 DEG`)—values are updated constantly while being viewed

There are three possible states for an analog input, as shown in Table 5.4 below.

Table 5.4

Analog input states

State	Description
Functional	Reading—for example, <code>+80.00 DEG</code> or <code>+79.50 RH</code>
Problem with connection	Dashes (<code>-----</code>)
Not configured	Blank

NOTE: If the status displays dashes (`-----`), the Liebert AC8 was unable to take a reading. There may be a connection problem. If the status is blank, the sensor is not configured as being connected.

Digital Inputs

The following details appear for digital inputs:

- the name of the digital input (for example, `DEVICE_1`)
- the current status (`NORMAL`)—values are updated constantly while being viewed

There are three possible states for a digital input, as shown in Table 5.5 on the facing page.

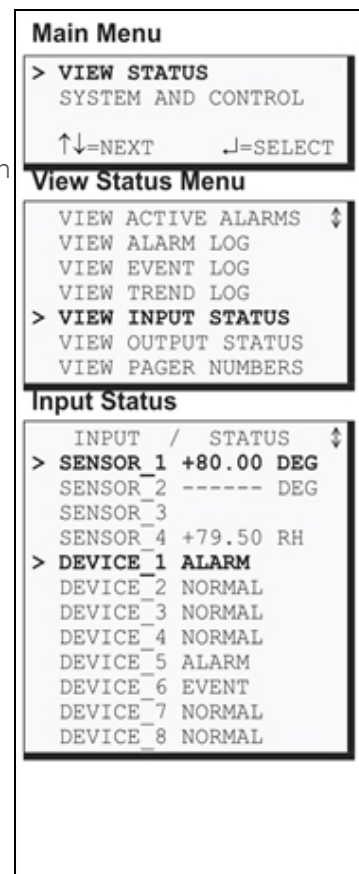


Table 5.5
Digital input states

State	Description
NORMAL	In normal state
ALARM	In alarm status (for an input configured as alarmable)
EVENT	An event has occurred (for an input configured as an event)

Viewing Additional Input Data

All input data may be viewed by scrolling beyond the four lines that appear on the LCD at one time:

- To view all inputs, use the arrows \uparrow .
- To return to the previous screen, press the ESC key.

5.6 View Output Status

The Output Status option allows you to view the current status of all eight outputs.

To view the Output Status:

- From the Main Menu, use the arrows to choose View Status, then press Enter.
- From the View Status Menu, use the arrows to choose View Output Status, then press Enter.

5.6.1 Output Status

The Output Status screen displays the status of each digital output.

The following details appear for digital outputs:

- the name of the output (for example, DEVICE_1)
- the current status (**ALARM**)—values are updated constantly while being viewed

There are eight possible states for a digital output, as shown in Table 5.6 on the next page.

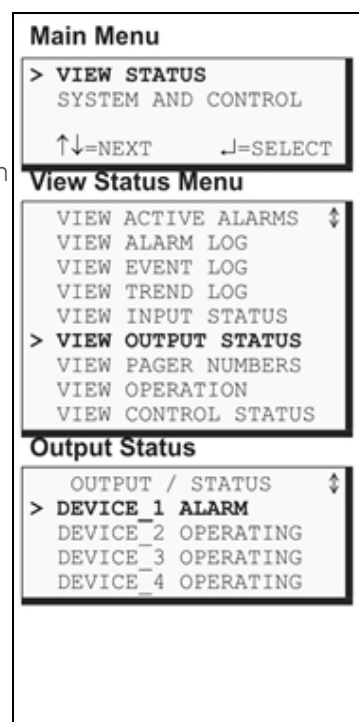


Table 5.6
Digital output states

State	Description
OPERATING	Device operating, or ON
STANDBY	Device in standby mode
ALARM	Device in alarm
FORCE ON	Device forced ON by operator
FORCE OFF	Device forced OFF by operator
HW FORCE ON	Device forced ON by hardware switch
STAGED ON	Device staged on by high sensor
EPOP OFF	Device forced off by emergency power operation
PENDING	Pending delay timer
NOT USED	Device not used

Viewing Additional Output Data

All output data may be viewed by scrolling beyond the four lines that appear on the LCD at one time:

- To view all outputs, use the arrows \leftarrow .
- To return to the previous screen, press the ESC key.

5.7 View Pager Numbers

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

The Liebert AC8 may be set up to dial pager numbers when an alarm is detected. Up to four pagers may be configured, as described in [Setup System - Setup Modem & Pagers](#) on page 70.

The View Pager Numbers option allows you to view the pager numbers and PINs for all configured pagers. Use the following steps to select a pager and view its information.

5.7.1 Select a Pager

To select a pager:

- From the Main Menu, use the arrows to choose **View Status**, then press Enter.
- From the View Status Menu, use the arrows to choose **View Pager Numbers**, then press Enter.
- From the Pager Selection screen, use the arrows to choose the pager you want to view—**Pager Number 1** in the example at right—and press Enter.
- Use the following steps to view a pager number or PIN for the selected pager.

5.7.2 View a Pager Number

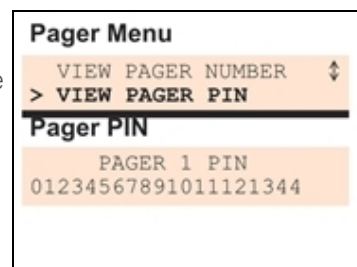
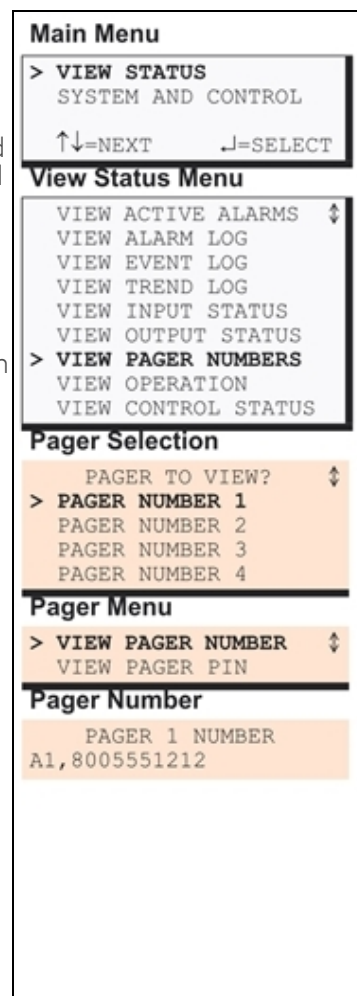
To view a pager number:

1. Choose **View Pager Number** from the Pager Menu and press Enter.
2. The Pager Number screen displays the number that is configured for the selected pager. The telephone number is preceded by A to dial an alphanumeric pager and includes a comma (,) to pause two seconds after dialing “1” before proceeding to dial the area code and number. To change this number, see [Pager Setup - Pager Number and PIN](#) on page 75.
3. Press ESC to return to the Pager Menu.

5.7.3 View a Pager PIN

To view a pager PIN:

- Choose **View Pager PIN** from the Pager Menu and press Enter.
- The Pager PIN screen displays the PIN that is configured for the selected pager. To change this number, see [Setup System - Setup Modem & Pagers](#) on page 70.
- Press ESC to return to the Pager Menu.



5.8 View Operation

The Operation option allows you to view the current settings for Auto Sequencing, Standby Testing and Staging in each zone.

Use the following steps to select a zone and view the status of these features.

5.8.1 Select a Zone

To select a zone:

1. From the Main Menu, use the arrows to choose View Status, then press Enter.
2. From the View Status Menu, use the arrows to choose View Operation, then press Enter.
3. From the Zone Selection screen, use the arrows to choose the zone you want to view—Zone 1 in the example at right—and press Enter.

5.8.2 View Operation

The Operation screen displays the following details for each feature:

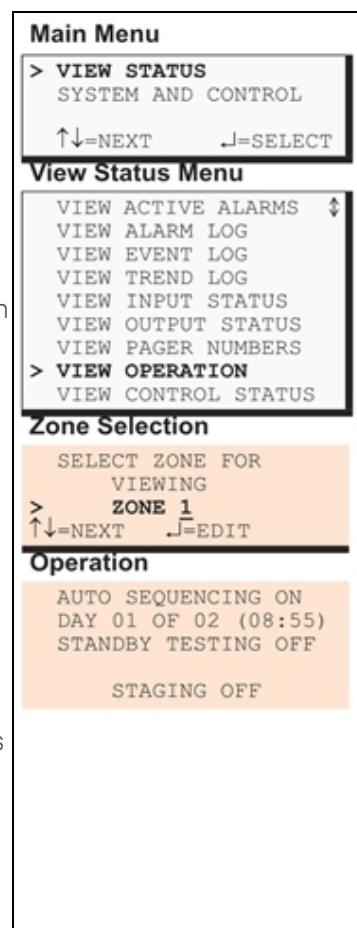
- the name of the feature (for example, AUTO SEQUENCING)
- the status (ON or OFF)
- the date and time when Auto Sequencing or Standby Testing is scheduled to occur (for example, DAY 01 OF 02 (08:55). The time appears in the format HH:MM (hours and minutes in military time)

OR

- the target setpoint and sensitivity level that will initiate Staging

To change these settings, see the following sections in [Setup Operation](#) on page 91:

- [Turn Automatic Sequencing On or Off](#) on page 92
- [Turn Standby Testing On or Off](#) on page 93
- Press ESC to return to the Zone Selection Menu.



5.9 View Control Status

The Control Status option allows you to view the current status of the two control relays.

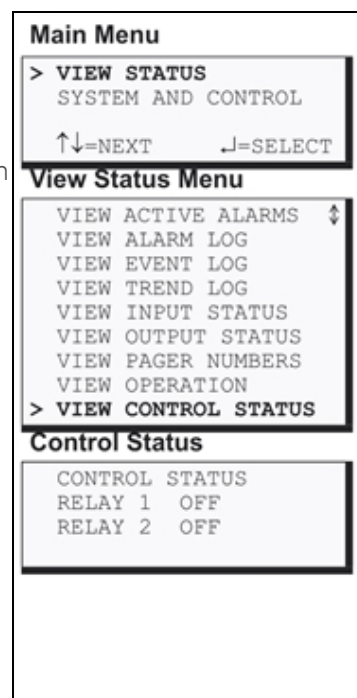
To view the Control Status:

- From the Main Menu, use the arrows to choose View Status, then press Enter.
- From the View Status Menu, use the arrows to choose View Control Status, then press Enter.

5.9.1 Control Status

The Control Status screen displays the status of each relay.

- the name of the output (for example, RELAY 1)
- the status (ON or OFF)



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6 SILENCE ALARM & BACKUP LOG FILES (SERVICE TERMINAL INTERFACE)

This section describes two features that are available in the Service Terminal Interface:

- Silence Alarm
- Backup Log Files

6.1 Silence Alarm (*Service Terminal Interface*)

The Silence Alarm menu item allows you to silence the audible alarm and reset the Common Alarm Relay output if the common alarm is configured to reset with silence.

This menu item is available only through the Service Terminal Interface and Liebert SiteScan Web™ connection.

NOTE: An alarm may also be silenced by pressing any key on the LCD keypad on the front of the Liebert AC8. The LCD does not offer Silence Alarm as a menu item.

To silence the alarm remotely through the Service Terminal Interface:

- Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
- At the Main Menu, enter 8 (Silence Alarm).
- At the Silence Alarm menu, shown below, enter 1 to silence the audible alarm immediately. (To exit without silencing the alarm, enter 2 or press the Escape key.)

```
SILENCE ALARM

Silence alarm and reset
common alarm relay if
common alarm relay is
configured to reset with
silence alarm

1=SILENCE ALARM
2=RETURN TO MAIN MENU

SELECT A NUMBER: 1

>ALARM HAS BEEN SILENCED
```

- A confirmation message appears: “Alarm has been silenced.”

NOTE: Through Liebert SiteScan Web, this option is available via the Liebert AC8 Graphic Screen.

6.2 Back Up Log Files (*Service Terminal Interface only*)

The Liebert AC8 maintains three types of logs—alarm, event and trend—that may be backed up to a remote computer.

This feature is available only through the Service Terminal Interface.

To back up any of the alarm, event or trend logs:

1. Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
2. At the Main Menu, enter 9 (Backup Log Files).
3. At the Backup Log Files menu, as shown below, enter a number for the type of file you want to back up:
 - Enter 1 to back up the Alarm Log
 - Enter 2 to back up the Event Log
 - Enter 3 to back up the Trend Log for the first sensor (Sensor_1)
 - Enter 4 to back up the Trend Log for the second sensor (Sensor_2)
 - Enter 5 to back up the Trend Log for the third sensor (Sensor_3)
 - Enter 6 to back up the Trend Log for the fourth sensor (Sensor_4)

Backup Log Files - Alarm Log File

```

BACKUP LOG FILES

Backup alarm, event and trend log files
1=BACKUP ALARM LOG FILE
2=BACKUP EVENT LOG FILE
3=BACKUP TREND LOG FILE-SENSOR_1
4=BACKUP TREND LOG FILE-SENSOR_2
5=BACKUP TREND LOG FILE-SENSOR_3
6=BACKUP TREND LOG FILE-SENSOR_4
7=RETURN TO MAIN MENU

SELECT A NUMBER: 1
  
```

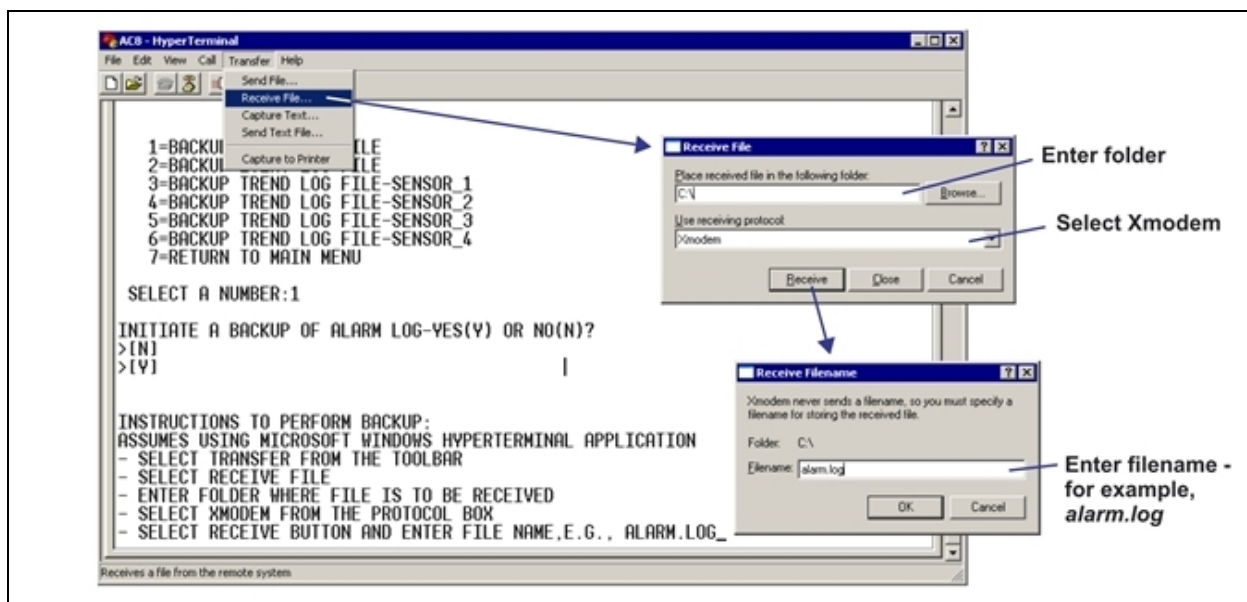
4. At the prompt to initiate a backup of the selected log file, enter Y (Yes - begin) or N (No - cancel), then press Enter. The current setting appears in brackets—[N] in the following example.

```

>INITIATE A BACKUP OF ALARM LOG-YES(Y) OR NO(N)?
>[N]
>[
  
```

NOTE: The following instructions refer to the Microsoft® Windows® HyperTerminal program. These steps may vary for other communications programs.

5. At the top of the HyperTerminal window, shown below, click on Transfer, then on Receive File.



6. In the Receive File window, as shown above:
 - In the Place Received File in the Following Folder box, enter the name and location of the folder where the configuration file should be placed—for example, C:\—or click on the Browse button to locate the folder.
 - In the Use Receiving Protocol box, select Xmodem from the drop-down list.
 - Click on the Receive button. (To close the window without backing up the file, click on Close or Cancel.)
7. In the Receive Filename window, enter a name for the log file—**alarm.log** in the example above.
8. When the transfer is complete, a confirmation message appears in the Service Terminal Interface window: “Backup Successful.”
9. The display returns to the Backup Log Files menu. You may choose another type of log file to back up (return to **Step 3** on the previous page) or press 7 (or Escape) to return to the Main Menu.

After backing up a log file, you may want to delete all records in the Liebert AC8’s log of that type. See [Clear Alarms & Logs](#) on page 101 for details.

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7 SYSTEM AND CONTROL OPTIONS

NOTE: For ease of understanding, this section uses the LCD interface to illustrate most instructions, except for features that are available only through the Service Terminal Interface. All Service Terminal Interface screens appear in [Service Terminal Interface](#) on page 103.

The System and Control menu allows you to configure the Liebert AC8—setting up inputs and outputs and an input/output matrix to trigger actions and system features such as date and time. This menu also provides a vehicle for manually changing the state of an output to ON or OFF, clearing active alarms and deleting records from the Liebert AC8’s alarm log, event log and trend logs.

The arrows are used to scroll through the menu. The Enter key is used to select the menu item and enter new information. Table 7.1 below shows characters that may be entered in labels and values.

Table 7.1

Valid characters for data entry

Alphanumeric	Special characters
A-Z, 0-9	space [] ^ _ ! " # \$ % & () * + - / . ; < = > @

The System and Control options require a password to prevent unauthorized users from making changes to the system.

This section presents step-by-step instructions for each of the following:

- **Login** - enter the password
- **Setup System** - configure inputs, outputs, system features
- **Override Output** - manually override automatic control of outputs; release the override
- **Clear Alarms & Logs** - clear active alarms; delete records from the alarm, event and trend logs

NOTE: If an alarm occurs while a user is logged on, the LCD backlight will flash and the audible alarm will sound. To obtain specific information about the alarm, you must access the Active Alarm screen (see [View Active Alarms](#) on page 37) or the Alarm Log (see [View Alarm Log](#) on page 38).

7.1 Login

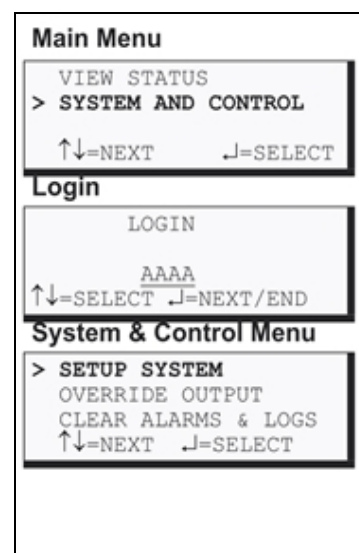
Users must enter a password to access any of the system and control options. The password consists of four characters (see Table 7.1 above for valid characters); the default password is AAAA. To set up or change the password, see [Change Password](#) on page 80.

To log in:

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter, as shown at right.
- Use the arrows to choose **System and Control**, and press Enter. The Login menu appears.
- To enter your password (the default is AAAA):
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

The System and Control Menu appears next, with these options that are described in the following sections:

- Setup System ([Setup System - Overview](#) on page 55 - [Setup System - Setup System Info](#) on page 79)
- Override Output ([Override Output](#) on page 99)
- Clear Alarms & Logs (

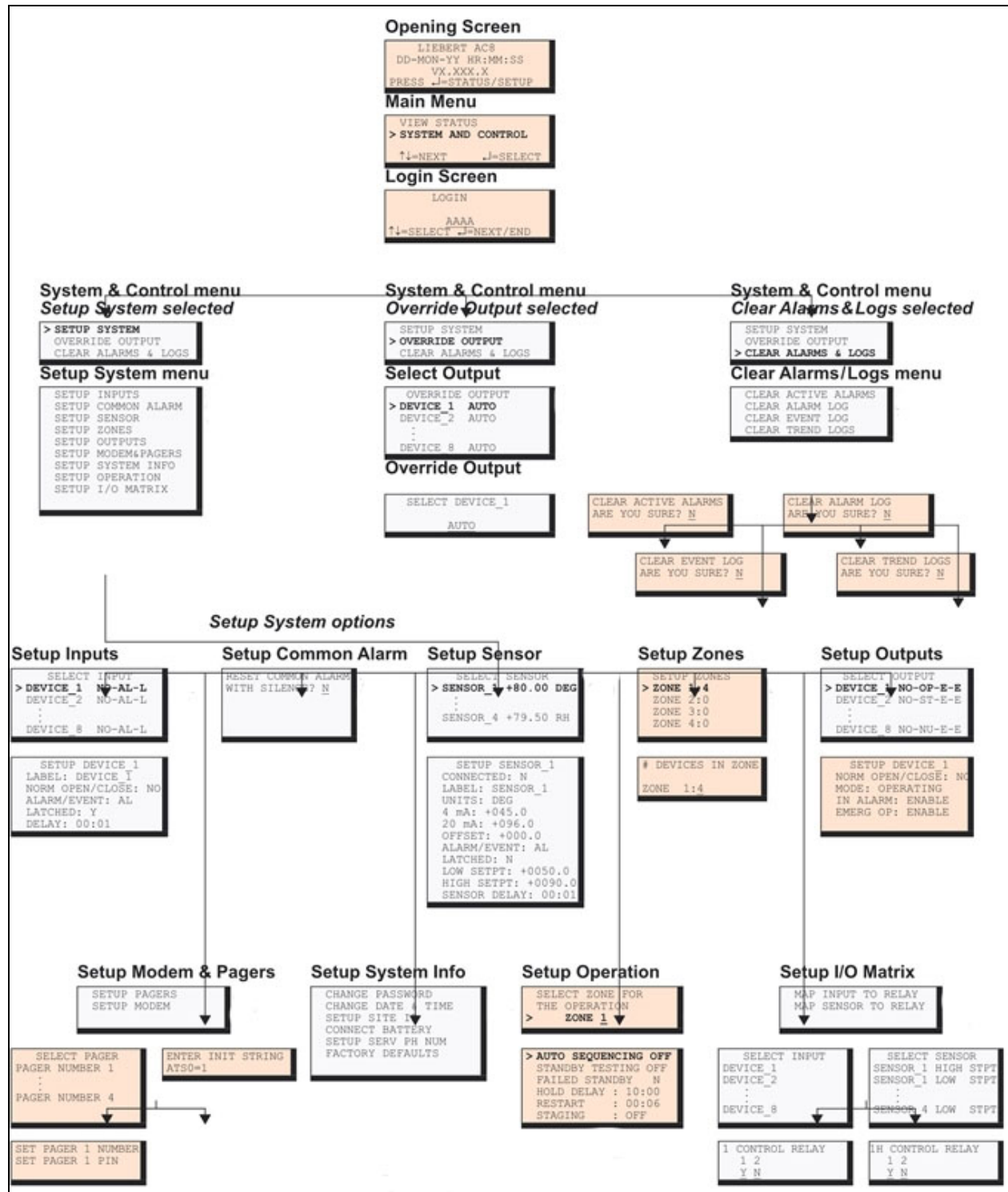


NOTE: If, after logging in, you press the ESC key to return to a previous screen that is not password-protected, you must log in again, including entering your password if you wish to access password-protected functions.

- [Clear Alarms & Logs](#) on page 101)

Figure 7.1 below shows the main options available from the System & Control menu.

Figure 7.1 Menu overview - System and Control menu

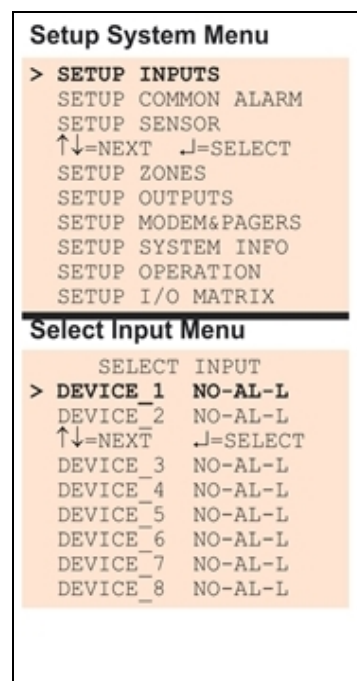


7.2 Setup System - Overview

The Setup System screen displays seven options that allow you to configure input and output devices and their relationships, the common alarm, the modem, pagers to be dialed when alarms occur, and a variety of system details, such as login password and system date and time:

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

- Setup Inputs
- Setup Common Alarm
- Setup Sensor
- Setup Zones
- Setup Outputs
- Setup Modem & Pagers
- Setup System Info
- Setup Operation
- Setup I/O Matrix



7.3 Setup System - Setup Inputs

The Liebert AC8 has eight digital input points that may be configured individually. These inputs may have a wide variety of Liebert or other manufacturers' equipment connected for monitoring.

To configure a digital input:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Select a Digital Input to Configure

- From the Setup System Menu, shown at right, use the arrows to choose **Setup Inputs** and press Enter.
- From the Select Input Menu, choose the input you want—for example, **Device_1**—and press Enter.

Table 7.2 on the next page shows the digital input features you may change, along with the default settings: you may change the name of the input, define it as Normally Open or Normally Closed, and specify it as alarmable or as an event.

- Alarmable inputs may be defined as either Unlatched or Latched.
- Event status allows you to monitor a digital input's state—and use a change in state to initiate an action through an output, if desired—without triggering an alarm. Events are always Unlatched.
- You may also specify a time delay before the Liebert AC8 responds to an alarm or event.

Use the steps following Table 7.2 on the next page to change the default settings for any digital input.

Table 7.2

Default settings - digital inputs

Feature	Default	Other Options
LABEL	DEVICE_1	Any name (up to eight characters)
NORM OPEN/CLOSE	NO (Normally Open)	NC (Normally Closed)
ALARM/EVENT	AL (Alarmable)	EV (Event)
LATCHED	L (Latched) / Y (Yes)*	NL (Unlatched) / N (No)*
DELAY	00:01 (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59

* NOTE: Different abbreviations are used to designate a digital input as Latched or Unlatched as shown below.

Settings - Select Input Menu (see Setup System - Setup Inputs on the previous page)			When configuring an input (see Set Up Alarmable Inputs in Latched or Unlatched Mode on page 58)	
	Unlatched	NL (Not Latched)	N (No, not latched)	
	Latched	L (Latched)	Y (Yes, latched)	

7.3.1 Change Label (Name of Input)

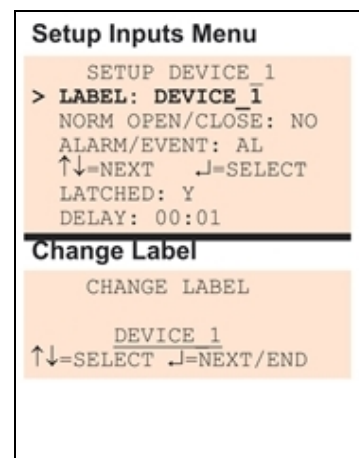
Each input has a default label (Device_1, Device_2, etc.) that you may change to a more descriptive name for ease in recognizing alarms and events associated with the input. The label may consist of up to eight characters (see Table 7.1 on page 53 for valid characters).

The device name assigned through this menu is also displayed for the corresponding output.

Table 7.3

Input and output labels

Label	Applies to:	Label	Applies to:
Device_1	Input 1 and Output 1	Device_5	Input 5 and Output 5
Device_2	Input 2 and Output 2	Device_6	Input 6 and Output 6
Device_3	Input 3 and Output 3	Device_7	Input 7 and Output 7
Device_4	Input 4 and Output 4	Device_8	Input 8 and Output 8



If the input label is changed, the output will change also.

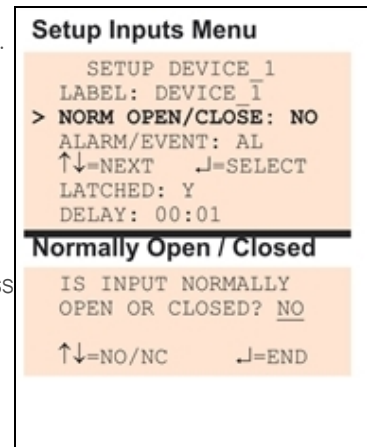
- From the Setup Inputs Menu, choose **Label** for the selected input—**Label: Device_1** in the example above right—and press Enter.
- To change the input's label, which may consist of up to eight characters:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

7.3.2 Define Input as Normally Open or Normally Closed

Each input may be set up as Normally Open (NO) or Normally Closed (NC). The default setting for all input points is NO (Normally Open).

If you require an input to be a supervised point, define the input as Normally Closed (NC).

- From the Setup Inputs Menu, choose Norm Open/Close, as shown at right, and press Enter.
- To change the normal state for this input, use the arrows to choose NO (Normally Open) or NC (Normally Closed), then press Enter.



7.3.3 Define Input as Alarmable or Event

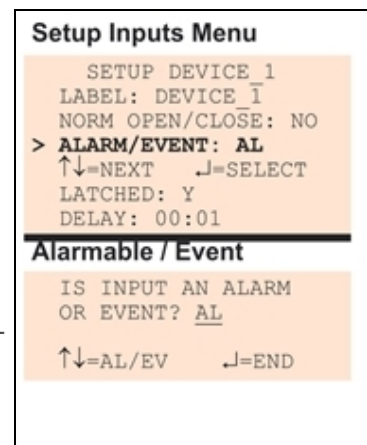
Each digital input may be defined as Alarmable (AL) or as an Event (EV).

- For a digital input defined as **alarmable**, the following alarm reactions occur when the status of the monitored input device changes: the LCD flashes, the audible horn sounds, configured pager numbers will be notified and a record is entered in the Alarm Log.
- For a digital input defined as an **event**, the status change is recorded in the Event Log.

For both types (alarmable and event), user setup determines output control—whether the device that changed status is disabled or kept in operating mode and whether a standby device is set to operate.

By default, all digital inputs are set up as AL (Alarmable).

- From the Setup Inputs Menu, choose Alarm/Event, as shown at right, and press Enter.
- To change the type of digital input, use the arrows to choose AL (Alarmable) or EV (Event), then press Enter.



7.3.4 Set Up Alarmable Inputs in Latched or Unlatched Mode

Alarmable input points may be set up in Latched mode (Y), which requires the user to clear the Liebert AC8 alarms after an alarm has occurred, or Unlatched mode (N), in which alarms will automatically clear after a return-to-normal state. The default setting for alarmable inputs is L (Latched).

Any input defined as an event is automatically Unlatched.

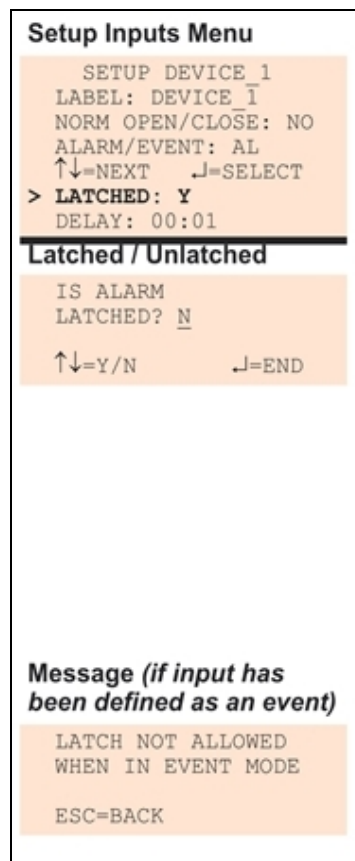
A digital input defined as Latched does not reset automatically after an alarm. It will remain in the *triggered* position even after the monitored device returns to normal. After an alarm, the user must manually reset Latched inputs, as described in [Clear Active Alarms](#) on page 101. This also means that any digital outputs linked to a Latched digital input will *remain* triggered until the input is manually reset.

A digital input defined as Unlatched will automatically track the status of the monitored device. No action by the user is required.

- From the Setup Inputs Menu, choose **Latched**, as shown above right, and press Enter.
- To change this feature, use the arrows to choose Y (Yes - Latched) or N (No - Unlatched), then press Enter.

NOTE: Only alarmable input points may be set up as Latched. Once an input is defined as an event, the Latched entry displays N/A. If you attempt to set up an event as Latched, the message shown at right appears. Press the ESC key to return to the previous screen to continue configuring the digital input.

The only way to reset latched alarms is by clearing active alarms. This step is required to return latched points to their normal state. For details, see [Clear Active Alarms](#) on page 101.



7.3.5 Set Up Delay Time

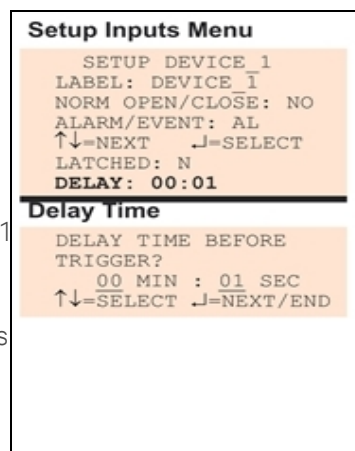
Each input may be set up with a specified time delay between the occurrence of an alarm or event—a monitored device changes state—and any response by the Liebert AC8. This feature can prevent needless responses to transient conditions.

This delay is the amount of time that must elapse before the Liebert AC8 acknowledges the change of state in the monitored device and takes any further action, such as dialing configured pagers. The default time delay is 1 second (displayed as 00 MIN : 01 SEC).

The time delay applies only when a monitored device changes *from* its normal state—for example, the Liebert AC8 detects a closed contact that is defined as Normally Open.

When the monitored device *returns* to its normal state, the Liebert AC8 acknowledges the change of state immediately.

- From the Setup Inputs Menu, choose **Delay**, as shown at right, and press Enter.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
 - For minutes (MIN), press and hold one of the arrow keys scroll through the numbers 00-99.
 - Press Enter to advance to seconds (SEC).
 - For seconds (SEC), press and hold one of the arrow keys scroll through the numbers 00-59.
 - When finished, press Enter again.



7.4 Setup System - Setup Common Alarm

The audible alarm sounds after the Liebert AC8 detects an alarm condition in any input that has been defined as alarmable, including digital and analog sensor inputs. Once the alarm is silenced, there are two options:

- By default, the common alarm remains energized until the input alarm is cleared.
- You may change this setting to de-energize the common alarm automatically once the alarm is silenced.

You might want to reset the common alarm with silence if an external alarm—for example, a horn—is connected to the common alarm output contacts.

You might not want to reset the common alarm contacts (let contacts reflect/track alarms) and simply silence the audible horn.

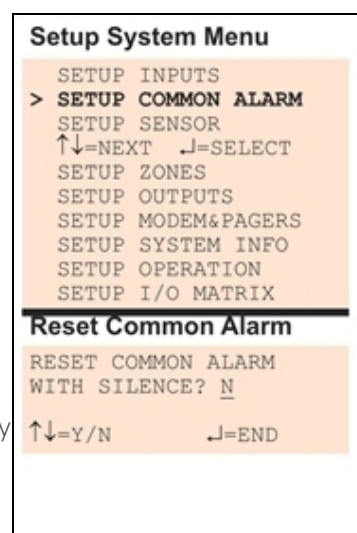
To change the common alarm setting:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Change to Reset (Y) or Not Reset (N)

- From the Setup System Menu, shown at right, use the arrows to choose **Setup Common Alarm** and press Enter.
- By default, the common alarm is set up not to reset automatically when the alarm is silenced (N). To change this setting, use the arrows to choose Y (Yes - reset with silence) or N (No - not reset), then press Enter.



7.5 Setup System - Setup Sensor

The Liebert AC8 has four analog sensor input points that may be configured individually. The panel monitors connected equipment for any 4-20 mA input—for example, temperature and humidity. Each sensor input is dedicated to a specific zone:

- Sensor_1 is for Zone 1
- Sensor_2 is for Zone 2
- Sensor_3 is for Zone 3
- Sensor_4 is for Zone 4

To configure a sensor:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Select a Sensor to Configure

- From the Setup System Menu, shown at right, use the arrows to choose **Setup Sensor** and press Enter.
- From the Select Sensor Menu, choose the sensor you want—for example, **Sensor_1**—and press Enter.

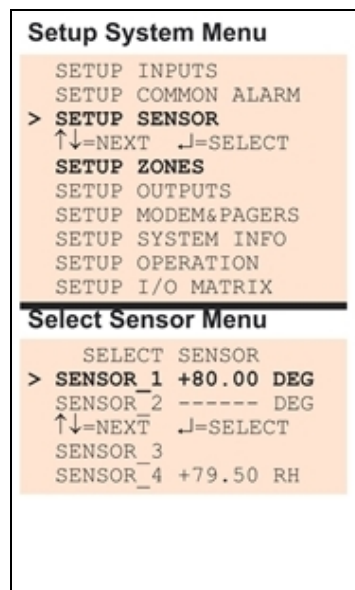


Table 7.4 below shows sensor features that may be changed, along with the default settings. By default, sensor inputs are not connected.

To activate a sensor input, you must specify it as connected and enter corresponding values for 4 and 20 mA, as well as high and low setpoints. Other features that may be altered include the name of the sensor, the abbreviation for the units, and defining the sensor as alarmable or as an event.

- Alarmable sensors may be Latched (Y) or Unlatched (N).
- Event status allows you to monitor a sensor's high and low setpoints—and use those setpoints to change the status of an output, if desired—without triggering an alarm. Events are always Unlatched.
- You may also specify a time delay before the Liebert AC8 responds to an alarm or event.

Use the steps following Table 7.4 below to change the default settings for any analog sensor input.

Table 7.4

Default settings - analog sensor inputs

Feature	Default	Other Options
CONNECTED*	N (Not connected)*	Y (Connected)**
LABEL	SENSOR_1	Any name (up to eight characters)
UNITS	DEG	Any units (up to three characters)
4 mA	+045.0	Can define up to two decimal places—for example, -99.99
20 mA	+096.0	Can define up to two decimal places—for example, +99.99
OFFSET	+000.0	Can define up to two decimal places—for example, +00.00
ALARM/EVENT	AL (Alarmable)	EV (Event)
LATCHED	N (Unlatched)	Y (Latched)
LOW SETPT	+0050.0	Can define up to two decimal places—for example, -999.99
HIGH SETPT	+0090.0	Can define up to two decimal places—for example, +999.99
SENSOR DELAY	00:01 (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59
<p>* If a sensor is configured as N (Not connected), the display will show an empty reading (blank spaces).</p> <p>** If a sensor is configured as Y (Connected) and is functioning properly, the display will show a reading. If the connected sensor is not functioning properly, the display will show dashes (-----) indicating a problem.</p>		

7.5.1 Identify the Sensor as Connected

To make use of an analog sensor, you must specify it as Connected (Y). By default, analog sensors are Not connected (N).

Disconnecting a sensor will turn off staging for that sensor's zone if staging has been turned on for the zone (see [Specify Staging](#) on page 96 for details on staging).

- From the Setup Sensor Menu, choose **Connected**, as shown at right, and press Enter.
- To change this feature, use the arrows to choose Y (Yes - Connected) or N (No - Not connected), then press Enter.

```

Setup Sensor Menu
  SETUP SENSOR_1
> CONNECTED: N
  LABEL: SENSOR_1
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
  
```

```

Sensor Connected
  IS THE SENSOR
  CONNECTED? N
  ↑↓=Y/N      ↵=END
  
```

7.5.2 Change Sensor Label (Name)

Each sensor has a default label (Sensor_1, Sensor_2, etc.) that you may change to a more descriptive name. The label may consist of up to eight characters (see Table 7.1 on page 53 for valid characters).

- From the Setup Sensor Menu, choose **Label** for the selected sensor—**Label: Sensor_1** in the example—and press Enter.
- To change the sensor's label, which may consist of up to eight characters:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

```

Setup Sensor Menu
  SETUP SENSOR_1
  CONNECTED: Y
> LABEL: SENSOR_1
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
  
```

```

Change Sensor Label
  CHANGE SENSOR LABEL
  LABEL: ROOM TMP
  ↑↓=SELECT  ↵=END
  
```

7.5.3 Change Units Label

For each sensor, you may use a three-character label to specify measurement units, such as DEG (see Table 7.1 on page 53 for valid characters).

- From the Setup Sensor Menu, choose **Units** for the selected sensor and press Enter.
- To enter the units label, which may consist of up to three characters:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

```

Setup Sensor Menu
  SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM TMP
  ↑↓=NEXT  ↵=SELECT
> UNITS: DEG
  4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
  
```

```

Change Units Label
  CHANGE UNITS LABEL
  UNITS: DEG
  ↑↓=SELECT  ↵=NEXT/END
  
```

7.5.4 Change 4 mA Value

For the 4 mA value, enter the smallest value for the range of the sensor—for example, 50°F for a temperature sensor with a range of 50°F to 90°F.

The default value for each sensor is +045.0. Values that can be entered range from -999.9 to +999.9.

To enter a new value:

- From the Setup Sensor Menu, choose 4 mA for the selected sensor and press Enter.
- To change the 4 mA value:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

```

Setup Sensor Menu
  SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  > 4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
  -----
  Change 4 mA Value
  CHANGE 4 mA VALUE
  4 mA: +050.0
  ↑↓=SELECT  ↵=NEXT/END
    
```

7.5.5 Change 20 mA Value

For the 20 mA value, enter the largest value for the range of the sensor—for example, 90°F for a temperature sensor with a range of 50°F to 90°F.

The default value for each sensor is +096.0. Values that can be entered range from -999.9 to +999.9.

To enter a new value:

- From the Setup Sensor Menu, choose 20 mA for the selected sensor and press Enter.
- To change the 20 mA value:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

```

Setup Sensor Menu
  SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  > 20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
  -----
  Change 20 mA Value
  CHANGE 20 mA VALUE
  20 mA: +090.0
  ↑↓=SELECT  ↵=NEXT/END
    
```

7.5.6 Change Offset Value

For the Offset value, enter an adjustment factor—for example, if the sensor reading shows 70°F when the actual temperature is 75°F, the offset might be 5°F.

The default Offset value for each sensor is +000.0. Values that can be entered range from -999.9 to +999.9.

To enter a new value:

- From the Setup Sensor Menu, choose **Offset** for the selected sensor and press Enter.
- To change the Offset value:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

```

Setup Sensor Menu
  SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  20 mA: +090.0
  > OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
  -----
Change Offset Value
  CHANGE OFFSET VALUE

  OFFSET: +005.0
  ↑↓=SELECT  ↵=NEXT/END
    
```

7.5.7 Define Sensor as Alarmable or Event

Each sensor may be defined as Alarmable (AL) or as an Event (EV).

- For a sensor defined as alarmable, the following alarm reactions occur when the high-setpoint threshold is crossed: the LCD flashes, the audible horn sounds, configured pager numbers will be notified and a record is entered in the Alarm Log.
- For a sensor defined as an event, the high-setpoint occurrence is recorded in the Event Log.

By default, all sensors are set up as AL (Alarmable).

- From the Setup Sensor Menu, choose **Alarm/Event**, as shown at right, and press Enter.
- To change the type of sensor, use the arrows to choose **AL** (Alarmable) or **EV** (Event), then press Enter.

```

Setup Sensor Menu
  SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  20 mA: +090.0
  OFFSET: +005.0
  > ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
  -----
Alarmable / Event
  IS SENSOR AN ALARM
  OR EVENT? AL
  ↑↓=AL/EV  ↵=END
    
```

7.5.8 Set Up Alarmable Sensors in Latched or Unlatched Mode

Alarmable sensor points may be set up in Latched mode (Y), requiring the user to clear the Liebert AC8 alarms after an alarm has occurred, or Unlatched mode (N), meaning that alarms will automatically clear after a return-to-normal state. The default setting for alarmable sensors is N (Unlatched). Any sensor defined as an event is automatically Unlatched.

A sensor defined as Latched does not reset automatically after an alarm. It will remain in the *triggered* position even after the monitored sensor returns to normal. After an alarm, the user must manually reset Latched sensors, as described in [Clear Active Alarms](#) on page 101. This also means that any digital outputs linked to a Latched sensor will *remain* triggered until the sensor is manually reset.

A sensor defined as Unlatched will automatically track the status of the monitored sensor. No action by the user is required.

- From the Setup Sensor Menu, choose Latched, as shown at right, and press Enter.
- To change this feature, use the arrows to choose Y (Yes - Latched) or N (No - Unlatched), then press Enter.

NOTE: Only alarmable sensors may be set up as Latched. If you attempt to set up an event as Latched, the message shown at right appears. Press the ESC key to return to the previous screen to continue configuring the digital input.

The only way to reset latched alarms is by clearing active alarms. This step is required to return latched points to their normal state. For details, see [Clear Active Alarms](#) on page 101.

7.5.9 Change Low Setpoint

When the sensor detects a condition below the Low Setpoint value, an alarm or event will occur, depending on the sensor configuration.

The Low Setpoint value must not be set below the sensor's 4 mA value plus the offset value. For example, if the 4 mA value is 50°F and the Offset value is 5°F, the Low Setpoint must be 55°F or higher.

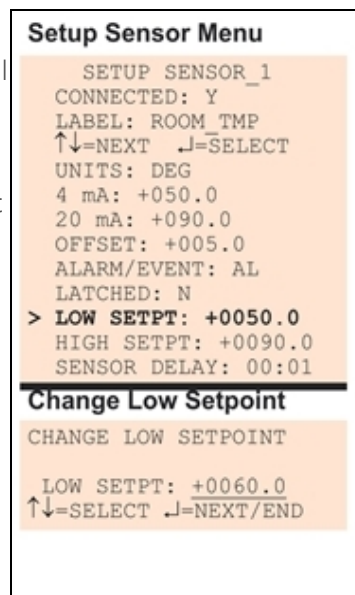
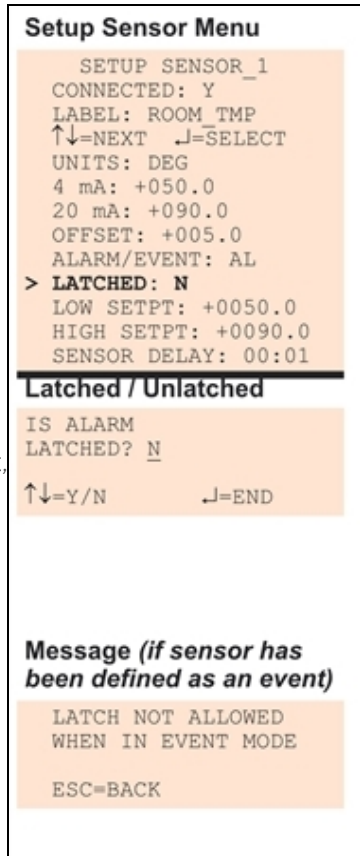
The default Low Setpoint for each sensor is +0050.0. Values that can be entered range from:

- the 4 mA value + the Offset value (in the example, 50+5=55)
to
- the 20 mA value + the Offset value (in the example, 90+5=95)

To view or change these values, see [Change 4 mA Value](#) on page 62, [Change 20 mA Value](#) on page 62 and [Change Offset Value](#) on the previous page.

To enter a new value:

- From the Setup Sensor Menu, choose Low Setpt for the selected sensor and press Enter.
- To change the Low Setpoint:



- Use the arrows to choose a character.
- Press Enter to advance to the next character position.
- When finished, press Enter again.

7.5.10 Change High Setpoint

When the sensor detects a condition above the High Setpoint value, an alarm or event will occur, depending on the sensor configuration.

The High Setpoint value must not be set above the sensor's 20 mA value plus the offset value. For example, if the 20 mA value is 90°F and the Offset value is 5°F, the High Setpoint must be 95°F or lower.

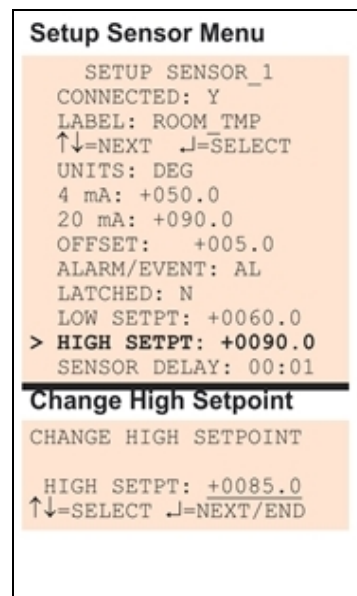
The default High Setpoint for each sensor is +0090.0. Values that can be entered range from:

- the 4 mA value + the Offset value (in the example, 50+5=55)
to
- the 20 mA value + the Offset value (in the example, 90+5=95)

To view or change these values, see [Change 4 mA Value](#) on page 62, [Change 20 mA Value](#) on page 62 and [Change Offset Value](#) on page 63.

To enter a new value:

- From the Setup Sensor Menu, choose **High Setpt** for the selected sensor and press Enter.
- To change the High Setpoint:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.



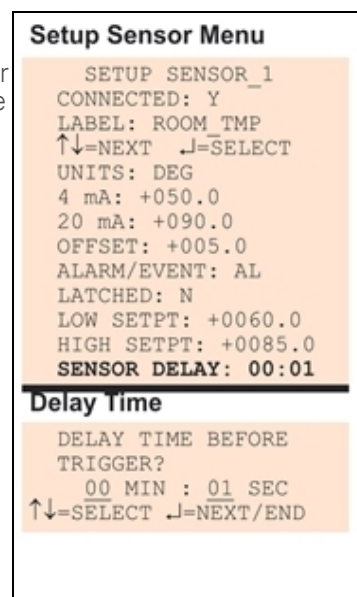
7.5.11 Set Up Delay Time

Each sensor may be set up with a specified time delay between the triggering of a high or low setpoint—a monitored sensor crosses the high or low setpoint threshold—and any response by the Liebert AC8. This feature can prevent transient conditions from prompting unnecessary responses.

This delay is the amount of time that must elapse before the Liebert AC8 acknowledges the change in the monitored sensor and takes any further action, such as dialing configured pagers. The default time delay is 1 second (displayed as 00 MIN : 01 SEC).

The time delay applies to the triggering of a high or low setpoint and also after the monitored sensor *returns* to its normal state. When the monitored device *returns* to its normal state, the specified time delay must elapse before the Liebert AC8 acknowledges the return-to-normal condition.

- From the Setup Sensor Menu, choose **Sensor Delay**, as shown at right, and press Enter.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
 - For minutes (MIN), press and hold one of the arrow keys scroll through the numbers 00-99.
 - Press Enter to advance to seconds (SEC).
 - For seconds (SEC), press and hold one of the arrow keys scroll through the numbers 00-59.



7.6 Setup System - Setup Zones

The Liebert AC8 has four zones that may be used to define different areas—rooms or sections of a room. If set up with four zones, the Liebert AC8 effectively performs as four separate units, controlling each zone separately, for example, using a different rotation sequence for devices in each zone.

A single zone may have one to eight outputs associated with it. The minimum number of outputs per zone is one, and the maximum for all zones combined is eight.

By default, the Liebert AC8 is configured to have one zone with four outputs: Zone 1 has four associated outputs and Zones 2-4 have none.

To set up zones:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Select Setup Zones

- From the Setup System Menu, shown at right, use the arrows to choose **Setup Zones** and press Enter.

7.6.1 Set Up a Zone

- From the Setup Zones Menu, choose a zone—for example, **Zone 1**—and press Enter.
- In the Number of Devices screen, use the arrows to select the number of outputs for this zone, then press Enter. The example at right shows four outputs in **Zone 1**.

Guidelines for Setting Up Zones

- The Liebert AC8 assigns outputs to zones in numerical order, based on entries in the Number of Devices screen. For example:

Example	Zone 1	Zone 2	Zone 3	Zone 4
If the Number of Devices is:	4	2	2	(none)
The Liebert AC8 assigns these outputs to this zone:	Outputs 1-4	Outputs 5-6	Outputs 7-8	(none)

- The total number of outputs for all zones cannot exceed 8.
If you try to enter more than 8 devices in total, **Message 1** appears (shown at right). Press Escape to return to the Setup Zones menu.
- Zones must be set up in order, starting with Zone 1.
If you try to enter devices for Zone 2 before Zone 1 has any outputs, **Message 2** appears (shown at right). Press Escape and set up Zone 1 before attempting to set up Zone 2.
- Remove outputs in descending order, ending with Zone 1.
If you try to remove all devices from Zone 1 before Zone 2, **Message 3** appears (shown at right). Press Escape and remove devices from Zone 2 before removing devices from Zone 1.

Table 7.5 on the next page shows the default number of outputs for each zone.

Setup System Menu

```

SETUP INPUTS
SETUP COMMON ALARM
SETUP SENSOR
↑↓=NEXT  ↵=SELECT
> SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
  
```

Setup Zones

```

SETUP ZONES
> ZONE 1:4
  ZONE 2:0
  ↑↓=NEXT  ↵=SELECT
  ZONE 3:0
  ZONE 4:0
  
```

Number of Devices

```

# DEVICES IN ZONE
ZONE 1:4
↑↓=SELECT  ↵=NEXT/END
  
```

MESSAGES:

1. Total devices > 8

```

TOO MANY DEVICES
ESC BACK
  
```

2. Previous zone has no devices

```

USE ZONE_BEFORE
ESC BACK
  
```

3. Subsequent zone has devices

```

ZERO ZONE_AFTER
ESC BACK
  
```

Table 7.5

Default zones

Zone	Default number of outputs
Zone 1	4 (Outputs 1-4)
Zone 2	0
Zone 3	0
Zone 4	0

7.7 Setup System - Setup Outputs

The Liebert AC8 has eight outputs that may be configured individually. These outputs correspond to the eight numbered inputs. For example, Device_1 is the unit connected to Input 1 and to Output 1.

The output name is the same as the input name, as described in [Change Label \(Name of Input\)](#) on page 56.

To configure an output:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Select an Output to Configure

- From the Setup System Menu, shown at right, use the arrows to choose **Setup Outputs** and press Enter.
- From the Select Output Menu, choose an output—for example, **Device_1**—and press Enter.

Table 7.6 on the facing page shows digital output features and their default settings: you may define an output as Normally Open or Normally Closed, set the device's mode—operating, standby or not used—and specify whether to disable the device during emergency power operation.

Use the steps following Table 7.6 on the facing page to change the default settings for any digital output.

Setup System Menu

```

SETUP INPUTS
SETUP COMMON ALARM
SETUP SENSOR
↑↓=NEXT  ↵=SELECT
SETUP ZONES
> SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX

```

Select Output Menu

```

          SELECT OUTPUT
> DEVICE_1  NO-OP-E-E
  DEVICE_2  NO-ST-E-E
↑↓=NEXT    ↵=SELECT
  DEVICE_3  NO-ST-E-E
  DEVICE_4  NO-ST-E-E
  DEVICE_5  NO-NU-E-E
  DEVICE_6  NO-NU-E-E
  DEVICE_7  NO-NU-E-E
  DEVICE_8  NO-NU-E-E

```

Table 7.6

Default settings - digital outputs

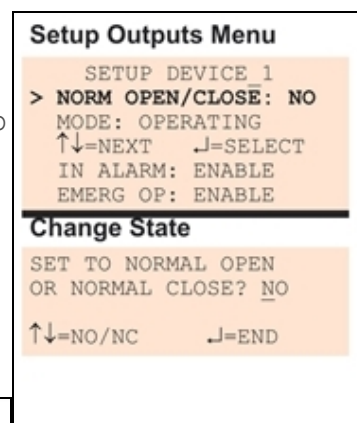
Feature	Default		Other Options
NORM OPEN/CLOSE	NO (Normally Open)		NC (Normally Closed)
MODE*	Outputs 1-2:	OP (Operating)	OP (Operating)
	Outputs 3-4:	ST (Standby)	ST (Standby)
	Outputs 5-8:	NU (Not Used)	NU (Not Used)
IN ALARM	E (Enable)		D (Disable)
EMERG OP	E (Enable)		D (Disable)

* Outputs defined as Not Used should be kept in a separate zone that does not include any outputs defined as Operating or Standby. The Auto Sequencing feature will not function properly in a zone with outputs defined as Not Used. See [Turn Automatic Sequencing On or Off](#) on page 92 for more information.

7.7.1 Define Output as Normally Open or Normally Closed

Each output may be set up as Normally Open (NO) or Normally Closed (NC). The default setting for all output points is NO (Normally Open).

- From the Setup Outputs Menu, shown at right, use the arrows to choose **Norm Open/Close** and press Enter.
- To change the normal state for this output, use the arrows to choose the state:
 - NO (Normally Open)
 - NC (Normally Closed)
- Press Enter.



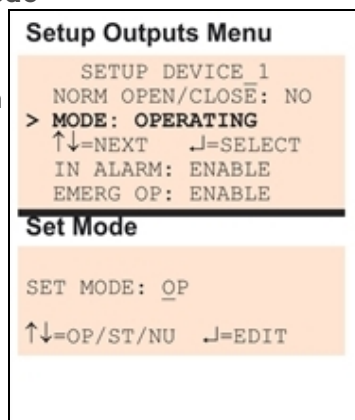
7.7.2 Define Operating or Standby Mode

Each output may be defined as Operating (OP), Standby (ST), or Not Used (NU). This setting takes precedence over any setting in the override menu (see [Override Output](#) on page 99). The default settings are:

- Outputs 1 and 2 are in Operating (OP) mode
- Outputs 3 and 4 are in Standby (ST) mode
- Outputs 5 through 8 are in Not Used (NU)

To change the mode:

- From the Setup Outputs Menu, shown at right, use the arrows to choose **Mode** for the selected output and press Enter.
- To change the output's mode, use the arrows to choose one of these options:
 - OP (Operating)
 - ST (Standby)
 - NU (Not Used)

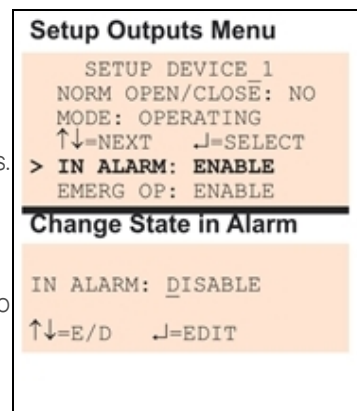


- Press Enter.

7.7.3 Enable or Disable an Output Device in Alarm Status

You may choose whether to Enable or Disable an output when the connected device is in alarm status. The default setting for all output points is Enabled. If Enabled, the device stays enabled when in alarm status. If Disabled, the device is disabled when it goes into alarm.

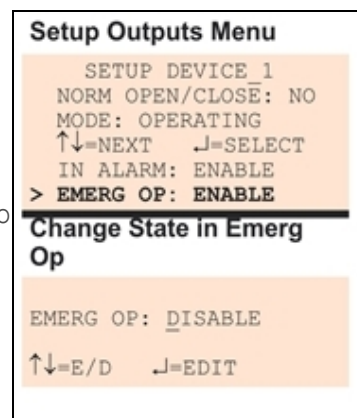
- From the Setup Outputs Menu, choose In Alarm, as shown at right, and press Enter.
- To make a change, use the arrows to choose Enable or Disable to determine what happens when an alarm is detected in the device.
- Press Enter.



7.7.4 Enable or Disable a Device during Emergency Power Operation

You may choose whether to Enable or Disable an output when the Liebert AC8 is in emergency power operation. The default setting for all output points is Enabled.

- From the Setup Outputs Menu, choose Emerg Op, as shown at right, and press Enter.
- To make a change, use the arrows to choose Enable or Disable to specify what occurs in emergency power operation.
- Press Enter.



7.7.5 Configure Output for Loss of Power (“Fail-Safe”)

Each output has an associated jumper that can help prevent undesired effects when the controller board loses power. For example, without the proper fail-safe jumper setting, a loss of power might close a switch that is Normally Open (NO)—perhaps shutting off an environmental unit or a fan or closing a valve.

This fail-safe jumper setting is unrelated to configuring an output as Normally Open (NO) or Normally Closed (NC), as described in [Define Output as Normally Open or Normally Closed](#) on the previous page.

To configure a digital output jumper for a loss of power:

- Set the jumper in the “OFF” position (*factory default*) to make the output Normally Open (NO).
- Set the jumper in the “ON” position to make the output Normally Closed (NC).

For more information, see [Setting the Digital Output Jumpers](#) on page 21.

7.8 Setup System - Setup Modem & Pagers

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

To use the modem and pager features, be sure to connect the phone line connector to a telephone wall jack using an RJ11 cord, as described in [Phone Line Connector](#) on page 27.

7.8.1 Modem Setup - Initialization String

The Liebert AC8 has an on-board modem that offers dial-up access to all LCD functions as well as features available only through the Service Terminal Interface (see [Comparison of Functions: LCD and Service Terminal Interface](#) on page 103). The modem also permits remote notification of alarms.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

Supported Modem Settings

Supported settings vary for different types of access:

Table 7.7

Supported modem settings

For:	Modem supports:
Dial-up via terminal	9600 baud, no parity, 8 data bits, 1 stop bit
Pager access	9600 baud, even parity, 7 data bits, 1 stop bit and TAPI protocol version 1.8
International dialing	For calls involving countries that do not support country code B5 (see Table 7.9 on the next page): Modem model MT5600SMI is required (model number is on the modem label). +GCI=xx (xx is the country code) must be added to the initialization string (see Step 1 in this section).

Default Modem Settings

Table 7.8 below shows the default settings for modem options.

Table 7.8

Default settings - modem

Feature	Default	Other Options
Initialization String (Init String)	ATS0=1	Any string (up to 40 characters); for international dialing, add +GCI=xx, where xx is the country code (except B5 countries—see Table 7.9 on the next page)
Enable Modem Diagnostic Messages	N (disable)	Y (enable)
Modem Dial Prefix	ATEOX4DT	Any string
Modem Hang Up Delay After a Call	10 seconds	Any number (up to 99 seconds)

Configuring the Modem

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

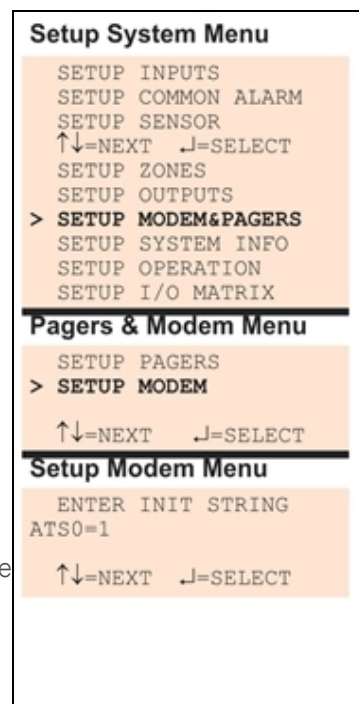
To configure the modem:

Log In and Choose Setup System

1. From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
2. Enter your password at the Login screen.
3. From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Select Modem Setup

1. From the Setup System Menu, shown at right, use the arrows to choose **Setup Modem&Pagers** and press Enter.
2. Use the arrows to choose **Setup Modem** from the Pagers & Modem Menu and press Enter.
3. The Setup Modem Menu displays the initialization string (Init String), which may consist of up to 40 characters (see Table 7.1 on page 53 for valid characters). The default Init String is ATSO=1.



International Dialing

1. To enable international dialing involving countries that do not support country code B5 (see Table 7.9 below), you must add the appropriate country codes to the initialization string using the format:

+GCI=xx

where xx is the country code.

(This also requires the modem model MT5600SMI; the model number can be found on the modem label.)

Note: For countries that support B5, there is no need to add country codes to the init string.

Table 7.9

Country codes

Country	Code*	Country	Code*	Country	Code*	Country	Code*
Argentina	07	Finland	FD	Italy	FD	Philippines	B5
Australia	09	France	FD	Japan	00	Portugal	FD
Austria	FD	Germany	FD	Korea	B5	Slovak Republic	FD
Belgium	FD	Greece	FD	Liechtenstein	FD	Spain	FD
Canada	B5	Hong Kong	99	Luxembourg	FD	Sweden	FD
China	B5	Hungary	FD	Mexico	B5	Switzerland	FD
Cyprus	FD	Iceland	FD	Netherlands	FD	Taiwan	FE
Czech Republic	FD	Indonesia	99	New Zealand	7E	United Kingdom	FD
Denmark	FD	Ireland	FD	Norway	FD	United States	B5

* B5 is the default setting—initialization string +GCI=xx is not needed for these countries

Edit the Init String

1. To enter or edit the Init String:

- Use the arrows to choose a character.
- Press Enter to advance to the next character position.
- When finished, press Enter again.

7.8.2 Modem Setup - Additional Features (*Service Terminal Interface only*)

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

The Service Terminal Interface offers four additional options for the modem that are not available through the LCD interface:

- Enter Liebert AC8 phone number
- Enable modem diagnostic messages
- Change modem dial prefix
- Change modem hang up delay after a call

To access these options:

- Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
- At the Main Menu, enter 0 (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter 6 (Setup Modem&Pagers).
- At the Setup Modem & Pagers menu, shown below, enter 5 to begin configuration.

Setup Modem & Pagers - Modem Setup

```

SETUP MODEM&PAGERS
Input pager and
modem information

Select pager or modem

CURRENT NUMBER
*****

1=PAGER NUMBER 1
2=PAGER NUMBER 2
3=PAGER NUMBER 3
4=PAGER NUMBER 4
5=MODEM CONFIGURATION
6=RETURN TO SETUP MENU
7=RETURN TO MAIN MENU
*****

SELECT A NUMBER:5
  
```

An "A" is required as 1st character for an alpha pager, an "N" for a numeric pager, and an "M" for a remote modem.

- At the Change Modem Initialization String prompt, you may press Enter to bypass this option (or see [Modem Setup - Initialization String](#) on page 70 for instructions on entering the string).

```
>CHANGE MODEM INITIALIZATION STRING(40 CHARACTERS MAX).  
>[ATS0=1]  
>[  
>COMMAND SUCCESSFUL
```

Enter Liebert AC8 Phone Number

This entry allows you to store the phone number that must be dialed to access the Liebert AC8 for future reference. This has no effect on the Liebert AC8's modem settings or functionality—it simply places the phone number in an accessible location.

- At the Liebert AC8 Phone Number prompt, enter the phone number for the Liebert AC8. The current setting appears in brackets []—nothing has been entered in the following example.

```
>ENTER AC8 PHONE NUMBER(40 CHARACTERS MAX).  
>[]  
>[  
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: "Command Successful."

Enable Modem Diagnostic Messages

Enabling modem diagnostics will provide the following additional information about the modem to the computer using the Service Terminal Interface:

```
Hang-up modem  
Modem model number  
No dial tone  
No carrier  
Busy  
No answer  
Pager checksum error  
Pager pin number error  
Error (indicates incorrect phone number, dial prefix or modem initialization string)  
  
For alphanumeric pager failures:  
Paging company non answer on 1st  
Paging company non answer on 2nd  
Paging company non answer on Last  
Paging company non answer on Handshake
```

- At the Enable Modem Diagnostic Messages prompt, enter Y (Yes - enable) or N (No - disable). The current setting appears in brackets—[N] in the following example.


```
>ENABLE MODEM DIAGNOSTIC MESSAGES-YES(Y) OR NO(N)?  
>[N]  
>[  
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

Change Modem Dial Prefix

- At the Change Modem Dial Prefix prompt, enter the prefix to be dialed. The current setting appears in brackets—[ATEOX4DT] in the following example.

```
>CHANGE MODEM DIAL PREFIX.  
>[ATEOX4DT]  
>[  
>COMMAND SUCCESSFUL
```

- For international dialing involving countries that do not support B5 (see Table 7.9 on page 72), add country codes to the initialization string using the format **+GCI=xx**, where **xx** is the country code.
(Note: Also requires MT5600SMI modem; model number is on modem label.)

See [Modem Setup - Initialization String](#) on page 70 for more information.

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

Change Modem Hang Up Delay After a Call

- At the Change Modem Hang Up Delay After a Call prompt, enter the number of seconds to delay hanging up after a call. The maximum is 99 seconds. The current setting appears in brackets—[10] in the following example.

```
>CHANGE MODEM HANG UP DELAY AFTER A CALL(99 SEC MAX).  
>[10]  
>[  
>COMMAND SUCCESSFUL
```

Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

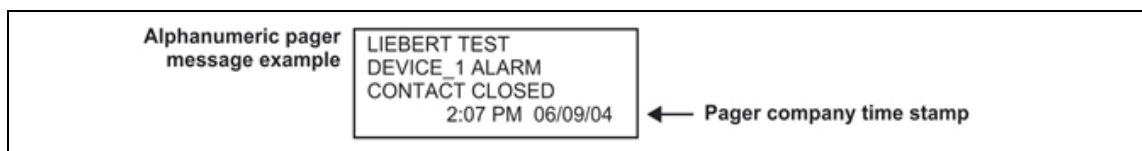
7.8.3 Pager Setup - Pager Number and PIN

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

The Liebert AC8 may be configured to dial numeric or alphanumeric pagers when an alarm is detected. You may enter up to four pager numbers—all configured pagers will be dialed each time an alarm occurs. For each configured pager, you must enter the pager number to be dialed and the pager’s Personal Identification Number (PIN).

See Liebert AC8 Specifications for supported pager settings.

The Liebert AC8 can send numeric or alphanumeric messages to supported pagers, as shown in the following example:



When an alarm is detected, the first pager number is dialed—up to three times, if needed. After a successful page or three dialing attempts, the next pager number is dialed, again with three attempts as needed, and so on for all configured pagers.

Table 7.10
 Pager dialing results

Result of Page	Action	Message Generated
Successful	Liebert AC8 dials next configured pager.	—
Unsuccessful due to:		
Busy signal / no answer / no dial tone	Liebert AC8 generates message after all three redial attempts have failed, dials next configured pager.	<i>Unsuccessful Page</i> (Event Log)
General modem communication problem	Liebert AC8 resets modem, generates message, redials pager up to three more times.	<i>Modem Reset</i> (Event Log)
No communication with modem (internal hardware problem)	Liebert AC8 generates messages, makes no further dialing attempts.	<i>Modem Internal Fault</i> (Active Alarm Report, Alarm History Log)

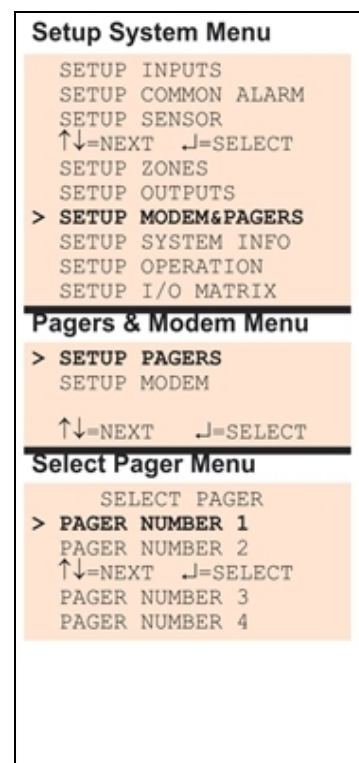
To configure a pager:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Select a Pager to Configure

- From the Setup System Menu, shown at right, use the arrows to choose **Setup Modem&Pagers** and press Enter.
- Use the arrows to choose **Setup Pagers** from the Pagers & Modem Menu, and press Enter.
- From the Select Pager Menu, choose the pager number you want—for example, **Pager Number 1**—and press Enter.



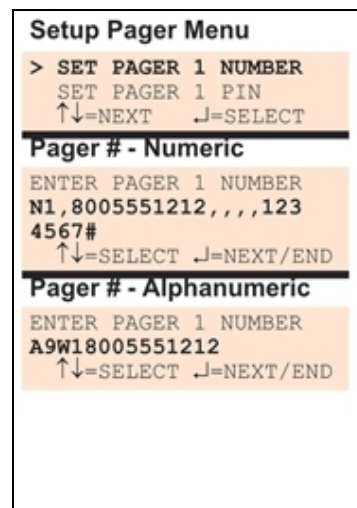
Enter a Pager Number

- From the Setup Pager Menu, choose **Setup Pager Number** for the selected pager—**Setup Pager 1 Number** in the example at right—and press Enter.
- See Table 7.11 below for guidelines on entering the pager number, which may consist of up to 40 characters. To enter the pager number:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

Table 7.11

Guidelines for dialing pagers

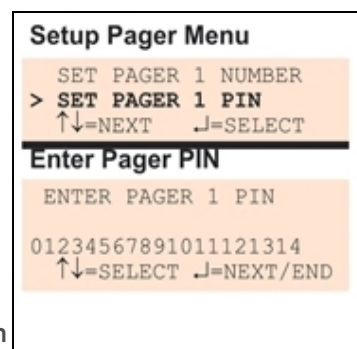
Device type	Required entries	Example
Numeric pager	The first character must be "N".	N18005551212
Alphanumeric pager	The first character must be "A".	A18005551212
Remote modem	The first character must be "M".	M18005551212
Device type	Optional entries	Example
All types of devices	Use "9" if needed to access an outside line—place after first character (N, A or M).	A918005551212
	Use "W" to wait for a second dial tone before dialing if the phone system has two dial tones (initial tone and a second tone for outside line)—place after "9" (before the number to be dialed).	A9W18005551212
	Use "," (comma) to pause two seconds.	N1,8005551212
Numeric pager	Use "#" as the last character to terminate page string if required by paging company.	N18005551212 ,,,1234567#



Enter a Pager PIN Number

- From the Setup Pager Menu, choose **Setup Pager PIN**, as shown for Pager Number 1 in the example at right, and press Enter.
- To enter the pager PIN, which may consist of up to 20 characters (see Table 7.1 on page 53 for valid characters):
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

NOTE: For international dialing, you might need to add country codes in the modem initialization string. See [Modem Setup - Initialization String](#) on page 70.



7.8.4 Pager Setup - Communications Check (Service Terminal Interface only)

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

The Service Terminal Interface offers two additional options for pager setup, which are not available through the LCD interface:

- Enable communications check

- Enter time to perform communications check

To access these options:

- Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
- At the Main Menu, enter 0 (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter 6 (Setup Modem&Pagers).
- At the Setup Modem & Pagers menu, shown below, enter a number (1-4) to select a pager.

Setup Modem & Pagers - Pager Setup

```

SETUP MODEM&PAGERS

Input pager and
modem information

Select pager or modem

CURRENT NUMBER
*****
1=PAGER NUMBER 1           An "A" is required
2=PAGER NUMBER 2           as 1st character
3=PAGER NUMBER 3           for an alpha pager,
4=PAGER NUMBER 4           an "N" for a numeric
5=MODEM CONFIGURATION      pager, and an "M"
6=RETURN TO SETUP MENU     for a remote modem.
7=RETURN TO MAIN MENU
*****
SELECT A NUMBER: 1
  
```

- At the Enter Pager Number prompt, you may press Enter to bypass this option (or see [Pager Setup - Pager Number and PIN](#) on page 75 for instructions on entering the pager number).

```

>ENTER PAGER NUMBER(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL
  
```

- At the Enter Pager PIN Number prompt, you may press Enter to bypass this option (or see [Pager Setup - Pager Number and PIN](#) on page 75 for instructions on entering the pager PIN).

```

>ENTER PAGER PIN NUMBER (20 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL
  
```

Enable Communications Check

Enabling this function permits a daily communications test between the Liebert AC8 and the selected pager. Once each day the Liebert AC8 dials the pager at a specified time and sends this message: “AC8 COMM CHECK.” (The time of the test is specified at the next prompt, [Enter Time To Perform Communications Check](#) below.)

- At the Enable Communications Check prompt, enter Y (Yes - enable) or N (No - disable). The current setting appears in brackets—[N] in the following example.

```
>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

Enter Time To Perform Communications Check

This function schedules the daily communications test between the Liebert AC8 and the selected pager, as described in the previous section.

- At the Enter Time To Perform Communications Check prompt, enter the time to initiate the communications check, using the format HH:MM (hours and minutes in military time), ranging from 00:00 for midnight to 23:59 for 11:59 p.m. The current setting appears in brackets—[00:00] in the following example.

```
>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM).
>[00:00]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

7.9 Setup System - Setup System Info

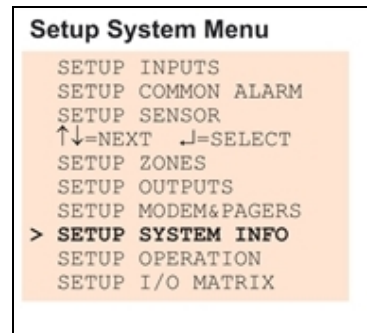
The Setup System Info options allow users to:

- **Change Password**—used for access to system setup functions
- **Change Date & Time/Automatic Daylight Saving Time**—used to set the Liebert AC8’s date and time and to enable automatic time change for Daylight Saving Time
- **Setup Site ID**—the Liebert AC8’s location to differentiate among sites if more than one Liebert AC8 is in use
- **Connect Battery**—stops the Liebert AC8 battery from backing up the panel
- **Backup and Upload Configuration File** (*Service Terminal Interface only*)—permits the user to copy the Liebert AC8’s configuration settings and to upload the file to the Liebert AC8
- **Setup Serv Ph Num**—enables alarm notification to the telephone number entered (in addition to the four pager numbers).
- **Restore Defaults**—returns the Liebert AC8 to its factory settings
- **Perform Firmware Update** (*Service Terminal Interface only*)—changes the Liebert AC8’s firmware to newest version
- **Initiate Remote Alarm Test** (*Service Terminal Interface only*)—used to test auxiliary alarm

To change any Setup System Info features:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose System and Control, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose Setup System, then press Enter.

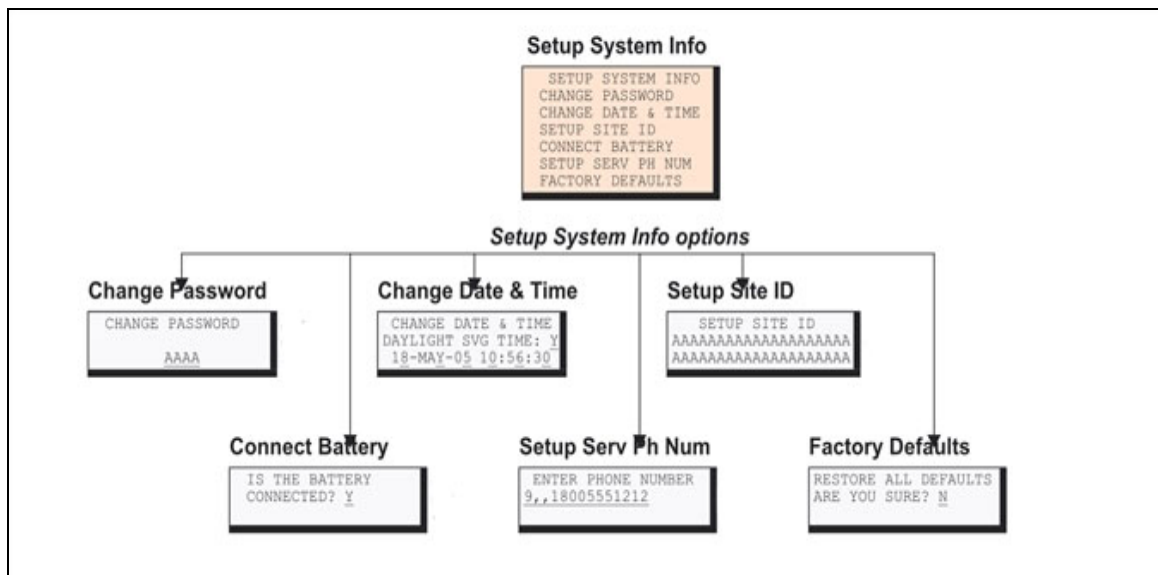


Select Setup System

- From the Setup System Menu, shown at right, use the arrows to choose Setup System Info and press Enter.
- Use the steps following Figure 7.2 below to access any of the Setup System Info options.

Figure 7.2 below offers a quick look at the Setup System Info screens available via the LCD interface.

Figure 7.2 Menu overview - Setup System Info menu



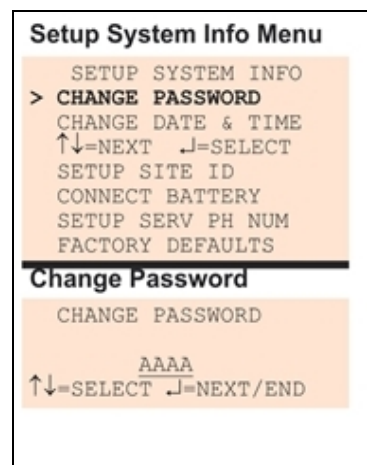
7.9.1 Change Password

A password is required to access the Liebert AC8 system and control options, as described in [Login](#) on page 53. The password consists of four characters (see Table 7.1 on page 53 for valid characters). The default password is AAAA.

Change the Password

To change the password:

- From the Setup System Info Menu, use the arrows to choose Change Password, then press Enter.
- To change your password:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.



Reset Password to the Factory Default (“AAAA”)

To reset the password to the factory default of AAAA:

- Locate DIP switch 1 on the unit’s circuit board (see [Controller Board Overview](#) on page 4) and move all switches to the OFF position (down).
- Move the second switch to the ON position, then to the OFF position.
- Move the seventh switch to the ON position, then to the OFF position.
- Move the eighth switch to the ON position, then to the OFF position.

The password should now be AAAA.

7.9.2 Change Date & Time/Automatic Daylight Saving Time

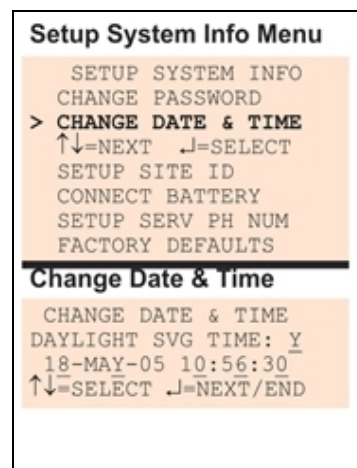
The Liebert AC8 has a built-in real-time clock that is backed up by an encapsulated lithium battery and set up to adjust automatically for daylight saving time twice a year. The Setup System Info menu allows you to change the date or time or automatic adjustment at any time.

To change the daylight saving time setting, date or time:

- From the Setup System Info Menu, use the arrows to choose **Change Date & Time**, then press Enter.
- To change the daylight saving time setting:
 - To the right of **Daylight Svg Time?** use the arrows to choose Y (Yes - automatically adjust for daylight saving time) or N (No), then press Enter.
- The format of the date and time is DD-MMM-YY HR:MM:SS. To change the date or time:
 - Press Enter to advance to the next character position you want to change.
 - Use the arrows to choose from available entries:

Date	Day (DD)	0-31
	Month (MMM)	JAN-DEC
	Year (YY)	00-99
Time	Hour (HR)	00-23
	Minutes (MM)	00-59
	Seconds (SS)	00-59

- Press Enter to advance to the next character position.
- When finished, press Enter again.

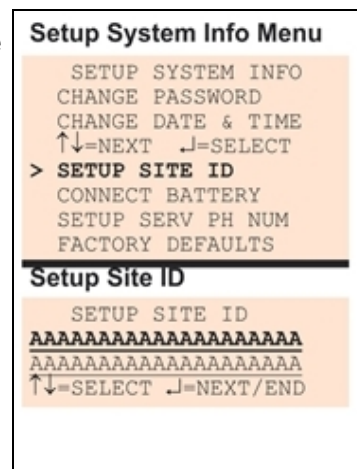


7.9.3 Setup Site ID

You may enter a Site ID to identify the Liebert AC8's location, using a name that may consist of up to 40 characters (see Table 7.1 on page 53 for valid characters). The Site ID will appear with each alarm.

To enter or change the Site ID:

- From the Setup System Info Menu, use the arrows to choose **Setup Site ID**, then press Enter.
- To enter a Site ID:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - If the Site ID is less than 40 characters, you may enter an underscore () character to indicate the end of the name.
 - When finished, press Enter again.



7.9.4 Connect Battery

By default, the Liebert AC8 checks the battery and sounds an alarm when the power fails, the battery runs low or the battery needs to be checked.

NOTE: The battery will continue to power and provide full operation of the Liebert AC8 with the exception of powering the analog inputs (sensors). The battery will provide backup for a minimum of 10 minutes.

Using the following procedure to disconnect the battery will disable battery alarm features only. The battery itself will continue to provide backup. If battery backup is not desired, the battery must be unplugged from the circuit board. This can be done by removing the battery leads from the jumpers (see [Connecting the Battery Pack](#) on page 16).

The default is to connect the battery. However, there may be times that you want to disconnect the battery so that it does not provide backup.

Table 7.12 below shows battery problems that will affect operation.

Table 7.12

Battery alarms

Result of Battery		Message Generated
Battery falls below a minimum charge.	Battery will not provide battery backup.	LOW BATTERY
Battery is connected to the circuit board but not recognized by the circuit board.	Battery will not provide battery backup.	CHECK BATTERY
Battery is unplugged from the circuit board.	Battery will not provide battery backup	BATTERY UNPLUGGED
Utility power (24VAC) to the circuit board is too low to power the board.	Liebert AC8 board will not be able to function properly.	LOSS OF POWER

To connect or disconnect the battery:

- From the Setup System Info Menu, use the arrows to choose **Connect Battery**, then press Enter.
- Use the arrows to choose Y (Yes - the battery is connected) or N (No - the battery is not connected), then press Enter.

7.9.5 Backup and Upload Configuration File (*Service Terminal Interface only*)

This operation may be performed only through the Service Terminal Interface. It permits the user to make a copy of the Liebert AC8 configuration settings and save it as a file on the computer connected through the RS232 port. Should the need arise, the user can upload the configuration file from the computer to the Liebert AC8, instead of re-entering the settings manually.

To access these options:

1. Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
2. At the Main Menu, enter 0 (zero—Setup System - Login Required).
3. At the Login Menu, enter your password, then press the Enter key.
4. At the Setup Menu, enter 7 (Setup System Information).
5. At the Setup System Information Menu, enter 5 (Backup & Upload Configuration File). The Backup & Upload Configuration File menu appears, shown below:

Backup & Upload Configuration File - Backup

BACKUP AND UPLOAD CONFIGURATION FILE

Backup from panel saves panel configurations
 Upload to panel restores panel configurations
 Select to backup or upload file

1=BACKUP CONFIGURATION FILE
 2=UPLOAD CONFIGURATION FILE
 3=RETURN TO SETUP SYSTEM INFO MENU
 4=RETURN TO SETUP MENU
 5=RETURN TO MAIN MENU

SELECT A NUMBER: 1

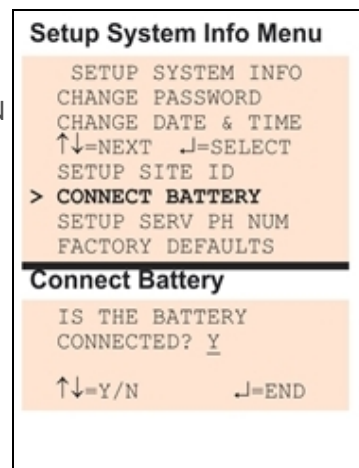
6. Enter 1 to back up the configuration file from the Liebert AC8 to the computer and proceed to Step 1. below,

OR

7. Enter 2 to upload the configuration file from the computer to the Liebert AC8 and proceed to Step 1. on the next page. **NOTE:** This will replace the current configuration settings in the Liebert AC8 with the most recent backup.

Back Up the Configuration File

1. At the prompt to Initiate a Backup of Configuration File, enter Y (Yes - begin) or N (No - cancel). The current setting appears in brackets—[N] in the following example.

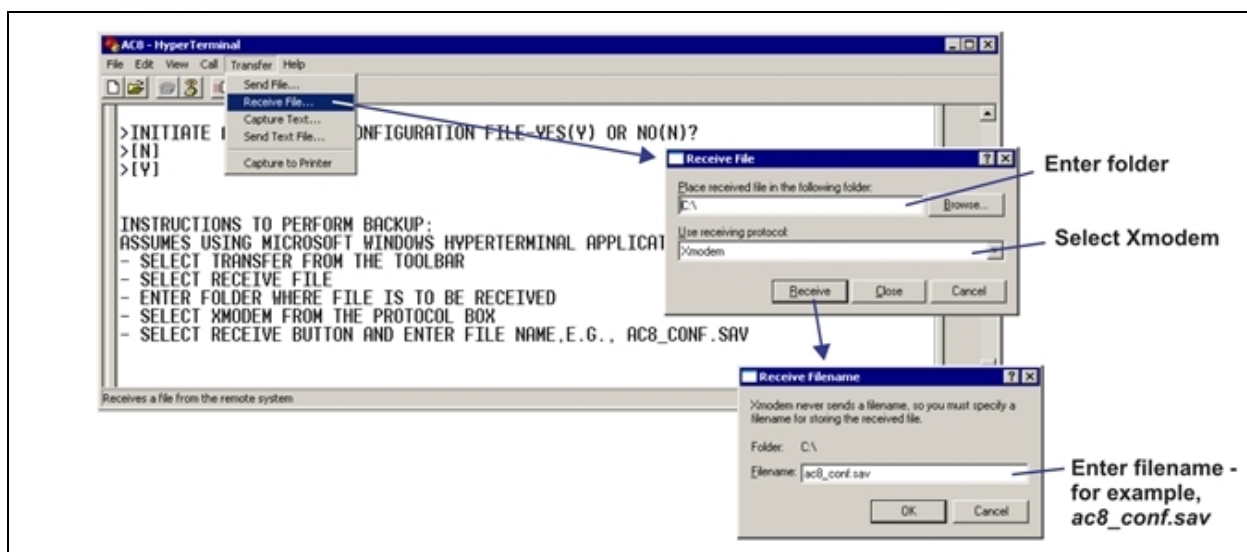


```
>INITIATE A BACKUP OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[
```

2.

NOTE: The following instructions refer to the Microsoft Windows HyperTerminal program. These steps may vary for other communications programs.

3. At the top of the HyperTerminal window, shown below, click on Transfer, then on Receive File.



4. In the Receive File window, as shown above:

- In the Place Received File in the Following Folder box, enter the name and location of the folder where the configuration file should be placed—for example, C:\—or click on the **Browse** button to locate the folder.
- In the Use Receiving Protocol box, select **Xmodem** from the drop-down list.
- Click on the **Receive** button. (To close the window without backing up the file, click on **Close** or **Cancel**.)

5. In the Receive Filename window, enter a name for the file—for example, **ac8_conf.sav**—and click **OK**.

6. When the transfer is complete, a confirmation message appears in the Service Terminal Interface window: “Backup Successful.”

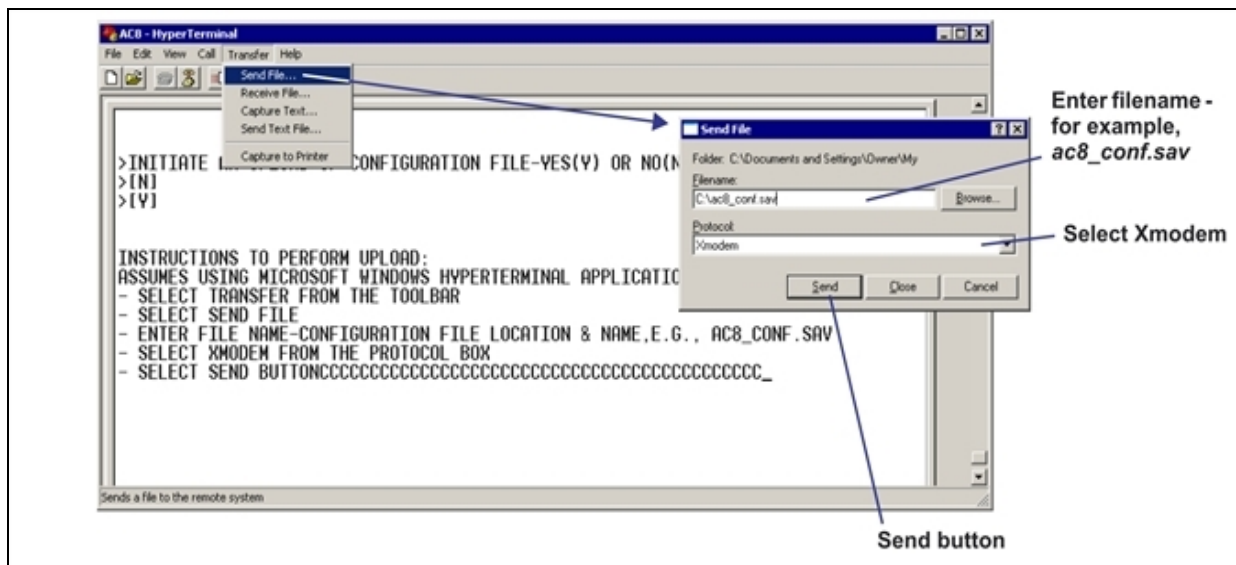
Upload the Configuration File

1. At the prompt to Initiate an Upload of Configuration File, enter Y (Yes - begin) or N (No - cancel). The current setting appears in brackets—[N] in the following example.

```
>INITIATE AN UPLOAD OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[
```

NOTE: The following instructions refer to the Microsoft Windows HyperTerminal program. These steps may vary for other communications programs.

2. At the top of the HyperTerminal window, shown below, click on Transfer, then on Send File.



3. In the Send File window, as shown above:
 - In the Filename box, enter the full path of the file to be uploaded—for example, C:\ac8_conf.sav—or click on the Browse button to locate the file.
 - In the Protocol box, select Xmodem from the drop-down list.
 - Click on the Send button. (To close the window without sending the file, click on Close or Cancel.)
4. When the transfer is complete, a confirmation message—“Upload Successful”—appears in the Service Terminal Interface window and the Liebert AC8 reboots with the new configuration.

7.9.6 Setup Serv Ph Num - Enter Phone Number

The Service Phone Number (Serv Ph Num) is used for remote monitoring in systems with modems. The number is designed to allow remote monitoring services to connect to the Liebert AC8. All alarms will be sent to this number. When an alarm occurs, this number is dialed before any of the four pager numbers.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

To use the service phone number features, be sure to connect the phone line connector to a telephone wall jack using an RJ11 cord, as described in [Phone Line Connector](#) on page 27.

Table 7.13

Service phone number dialing results

Result of Dialing	Action	Message Generated
Successful	—	—
Unsuccessful due to:		
Busy signal / no answer / no dial tone	Liebert AC8 generates message after all three redial attempts have failed, dials next configured pager.	<i>Unsuccessful Page</i> (Event Log)
General modem communication problem	Liebert AC8 resets modem, generates message, redials up to three more times.	<i>Modem Reset</i> (Event Log)
No communication with modem (internal hardware problem)	Liebert AC8 generates messages, makes no further dialing attempts.	<i>Modem Internal Fault</i> (Active Alarm Report, Alarm History Log)

To set up the service phone number:

- From the Setup System Info Menu, use the arrows to choose **Setup Serv Ph Num**, then press Enter.
- See Table 7.14 below for guidelines on entering the phone number, which may consist of up to 40 characters. To enter the phone number:
 - Use the arrows to choose a character.
 - Press Enter to advance to the next character position.
 - When finished, press Enter again.

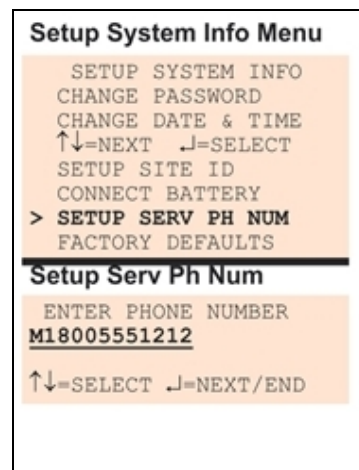


Table 7.14

Guidelines for dialing service phone number

Device type	Required entries	Example
Remote modem	The first character must be "M".	M18005551212
Device type	Optional entries	Example
All types of devices	Use "9" if needed to access an outside line—place after first character (M).	M918005551212
	Use "W" to wait for a second dial tone before dialing if the phone system has two dial tones (initial tone and a second tone for outside line)—place after "9" (before the number to be dialed).	M9W18005551212
	Use "," (comma) to pause two seconds.	M1,8005551212

7.9.7 Setup Serv Ph Num - Communications Check (Service Terminal Interface only)

The Service Terminal Interface offers two additional options for setting up the Service Phone Number (Serv Ph Num) that are not available through the LCD interface:

- Enable communications check
- Enter time to perform communications check

To access these options:

- Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
- At the Main Menu, enter 0 (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter 7 (Setup System Information).
- At the Setup System Information Menu, enter 6 (Setup Service Phone Number).
- At the Setup Service Phone Number menu, shown below, enter 1 to begin the setup.

Setup Service Phone Number

```

SETUP SERVICE PHONE NUMBER

This number receives all alarms in addition to the 4 pagers

CURRENT NUMBER
*****
1=SETUP SERVICE PHONE NUMBER
2=RETURN TO SETUP SYSTEM INFO MENU
3=RETURN TO SETUP MENU
4=RETURN TO MAIN MENU
An "M" is required
as 1st character.

*****
SELECT A NUMBER: 1

```

- At the Enter Service Phone Number prompt, you may press Enter to bypass this option (or see [Setup Serv Ph Num - Enter Phone Number](#) on page 85 for instructions on entering the number).

```

>ENTER SERVICE PHONE NUMBER(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL

```

Enable Communications Check

Enabling this function permits a daily communications test between the Liebert AC8 and the selected service phone number. Once each day the Liebert AC8 dials the service phone number at a specified time and sends this message: "AC8 COMM CHECK." (The time of the test is specified at the next prompt, [Enter Time To Perform Communications Check](#) on page 79.)

- At the Enable Communications Check prompt, enter Y (Yes - enable) or N (No - disable). The current setting appears in brackets—[N] in the following example.

```

>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)?
>[N]
>
>COMMAND SUCCESSFUL

```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: "Command Successful."

Enter Time To Perform Communications Check

This function schedules the daily communications test between the Liebert AC8 and the selected service phone number, as described in the previous section.

- At the Enter Time To Perform Communications Check prompt, enter the time to initiate the communications check, using the format HH:MM (hours and minutes in military time), ranging from 00:00 for midnight to 23:59 for 11:59 p.m. The current setting appears in brackets—[00:00] in the following example.

```
>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM).
>[00:00]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

7.9.8 Factory Defaults

At any time, you may restore all default values for settings in the Liebert AC8 as it was shipped.

NOTE: This action will overwrite any configuration settings. You may want to back up your settings before restoring the factory defaults. See Backup and Upload Configuration File (Service Terminal Interface only) in Setup System Info for details on backing up settings using the Service Terminal Interface.

The password is the sole exception when reverting to the factory default settings. The password can be reset to the factory default of AAAA only through the DIP switches. For details, see [Change Password](#) on page 80.

7.9.9 Perform Firmware Update (Service Terminal Interface only)

This function, which may be performed only through the Service Terminal Interface, upgrades the Liebert AC8’s firmware to the newest version.

NOTE: This action will overwrite any configuration settings. You may want to back up your settings before restoring the factory defaults. See Backup and Upload Configuration File (Service Terminal Interface only) in Setup System Info for details on backing up settings using the Service Terminal Interface.

- Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
- At the Main Menu, enter 0 (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter 7 (Setup System Information).
- At the Setup System Info menu, enter 8 (Perform Firmware Update).
- At the Perform Firmware Update menu, shown below, enter 1 to proceed with an update.

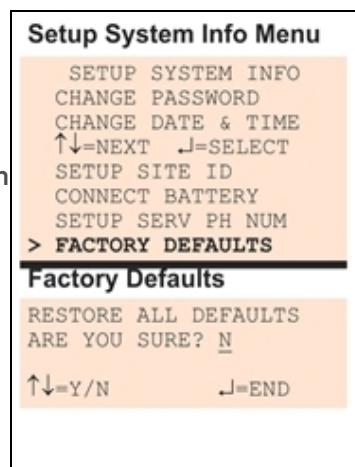
Firmware Update

```
PERFORM FIRMWARE UPDATE

This command will update the existing firmware

1=PERFORM FIRMWARE UPDATE
2=RETURN TO SETUP SYSTEM INFO MENU
3=RETURN TO SETUP MENU
4=RETURN TO MAIN MENU

SELECT A NUMBER: 1
```



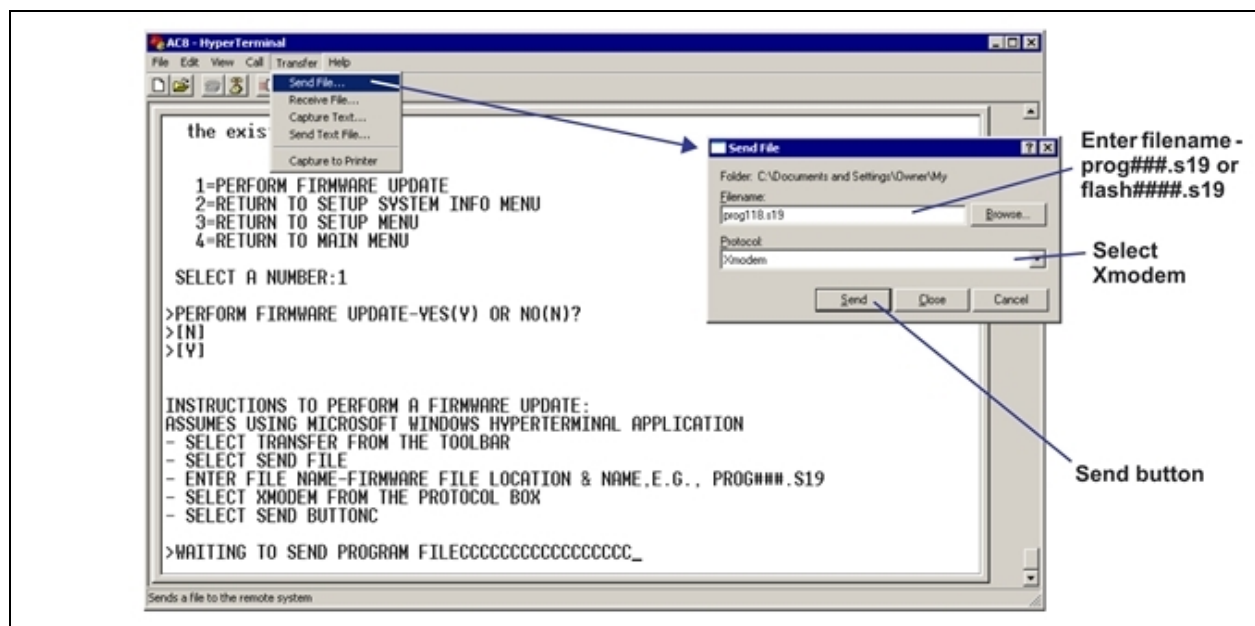
To perform the update:

1. At the Perform Firmware Update prompt, enter Y (Yes - begin) or N (No - cancel). The current setting appears in brackets—[N] in the following example.

```
>PERFORM FIRMWARE UPDATE-YES(Y) OR NO(N)?
>[N]
>[
```

NOTE: The following instructions refer to the Microsoft Windows HyperTerminal program. These steps may vary for other communications programs.

2. The firmware update is a two-step process—this step describes how to upload the file **prog###.s19** (where ### is a number—for example, prog118.s19) to the Liebert AC8:
 - a. At the top of the HyperTerminal window, shown below, click on Transfer, then on Send File.



- b. In the Send File window, as shown above:
 - In the Filename box, enter the full path of the file to be uploaded—**prog###.s19**—or click on the Browse button to locate the file.
 - In the Protocol box, select **Xmodem** from the drop-down list.
 - Click on the **Send** button. (To close the window without sending the file, click on Close or Cancel.)

When the transfer is complete, a confirmation message appears in the Service Terminal Interface window.

3. Next, follow these steps to upload the file **flash####.s19** (where #### is a number—for example, flash1000.s19) to the Liebert AC8:
 - a. At the top of the HyperTerminal window, shown above, click on Transfer, then on Send File.
 - b. In the Send File window, shown above:
 - In the Filename box, enter the full path of the file to be uploaded—**flash####.s19**—or click on the Browse button to locate the file.
 - In the Protocol box, select **Xmodem** from the drop-down list.

Click on the **Send** button. (To close the window without sending the file, click on **Close** or **Cancel**.)

When the transfer is complete, a confirmation message—“Firmware Update Successful”—appears in the Service Terminal Interface window and the Liebert AC8 reboots with the new firmware update.

7.9.10 Initiate Remote Alarm Test (*Service Terminal Interface only*)

The service phone number is used for remote monitoring in systems with modems. The Service Terminal Interface may be used to test communications between the Liebert AC8 and the service modem. This test will send a “DIAL OUT TEST PASSED” message to the service phone number.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

The test is used to simulate an alarm to verify the proper configuration and functioning of the modem and other communications required for receiving alarms. This simulated alarm bypasses the normal alarm sequence—the LCD will not flash, the horn will not sound and there will be no record in the Alarm Log. A message is sent to the service phone number only if the alarm system is set up correctly.

To initiate the remote alarm test:

- Connect to the Liebert AC8 either from a remote computer or through the RS232 port (see [Connecting to the Service Terminal Interface](#) on page 105).
- At the Main Menu, enter 0 (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter 7 (Setup System Information).
- At the Setup System Info menu, enter 9 (Initiate Remote Alarm Test).
- At the Initiate Remote Alarm Test menu, shown below, enter 1 to initiate the remote alarm.

Initiate Remote Alarm Test

INITIATE REMOTE ALARM TEST

This command simulates an alarm to test alarm notification setup for the service phone number

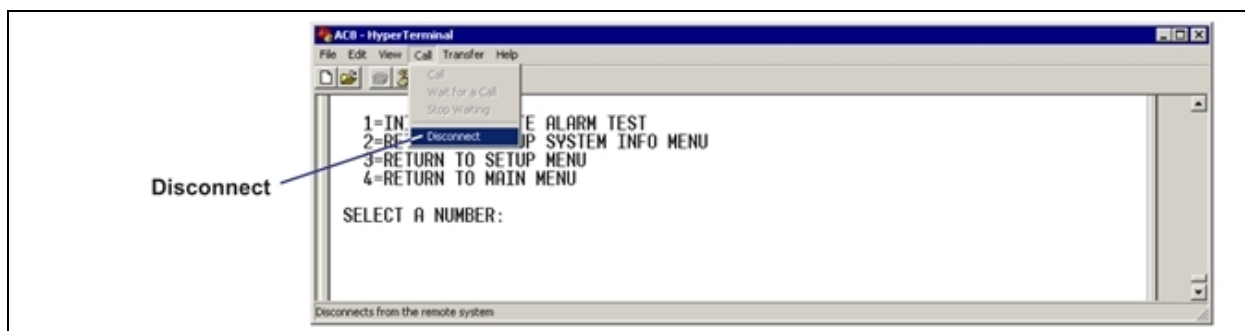
1=INITIATE REMOTE ALARM TEST
 2=RETURN TO SETUP SYSTEM INFO MENU
 3=RETURN TO SETUP MENU
 4=RETURN TO MAIN MENU

SELECT A NUMBER: 1

- At the Simulate An Alarm Condition prompt, enter Y if you wish to proceed or N if you want to cancel the alarm simulation.

```
>SIMULATE AN ALARM CONDITION-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

- After the “Command Successful” message appears, disconnect from the modem—at the top of the HyperTerminal window, click on **Call**, then on **Disconnect**, as shown below.



- Wait for the Liebert AC8 to dial out to send a test message.
- To verify whether the test was successful, check the Event Log (see [View Event Log](#) on page 39) for one of these two messages: *Dial out test passed* or *Dial out test failed*.

NOTE: Also verify that a message was received at the Service Phone Number.

If the test is NOT successful, check the following:

- Modem configuration (see [Modem Setup - Initialization String](#) on page 70)
- Pager configuration (see [Pager Setup - Pager Number and PIN](#) on page 75)

7.10 Setup Operation

The Liebert AC8 operation features allow you to set up a rotation sequence to alternate which devices are operating and which are placed on Standby, as well as test devices while in Standby mode and specify what to do when a Standby device goes into alarm as it is powered up. You may specify delay times after an output changes state, directing the Liebert AC8 to wait before acknowledging inputs (hold delay time) or turning an output on or off (restart delay time). With staging, you may configure the Liebert AC8 to turn a standby device on or off when an analog sensor detects a condition above or below specified levels.

To change any operation feature:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose System and Control, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose Setup System, then press Enter.

Select Setup Operation

- From the Setup System Menu, shown at right, use the arrows to choose Setup Operation and press Enter.

Select a Zone to Configure

- From the Select Zone Menu, use the arrows to choose the zone you want—for example, Zone_1—and press Enter.
- Use the steps following Table 7.15 on the next page to access any of the Setup Operation options.

Table 7.15 on the next page shows the default settings for operation options: automatic sequencing, standby testing, failed standby, hold delay, restart and staging.

```

Setup System Menu
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  > SETUP OPERATION
  SETUP I/O MATRIX

Select Zone Menu
  SELECT ZONE FOR
  THE OPERATION
  >  ZONE 1
  ↑↓=NEXT  ↵=EDIT

Setup Operation Menu
  > AUTO SEQUENCING OFF
  STANDBY TESTING OFF
  FAILED STANDBY N
  ↑↓=NEXT  ↵=SELECT
  HOLD DELAY : 10:00
  RESTART    : 00:06
  STAGING    : OFF
  
```

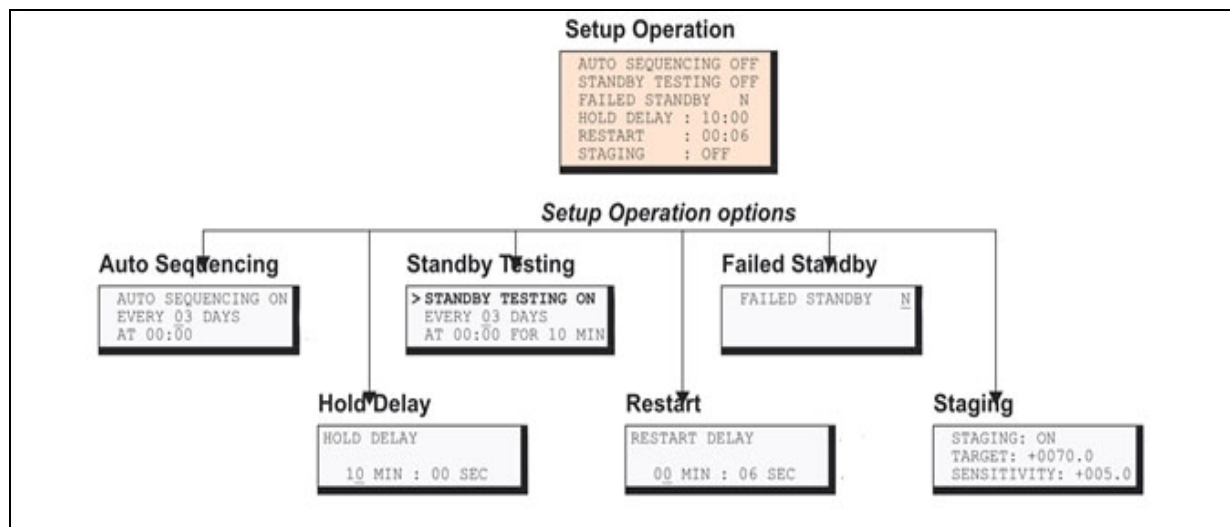
Table 7.15

Default settings - operation features

Feature	Default	Other Options
AUTO SEQUENCING	OFF (Deactivated)	ON (Activated), 12h (Activated for 12-hour intervals)
STANDBY TESTING	OFF (Deactivated)	ON (Activated)
FAILED STANDBY	N (Deactivated)	Y (Activated)
HOLD DELAY	10:00 (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
RESTART	00:06 (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
STAGING	OFF (Deactivated)	ON (Activated)

Figure 7.3 below provides an overview of the Setup Operation screens available via the LCD interface.

Figure 7.3 Menu overview - Setup Operation menu



7.10.1 Turn Automatic Sequencing On or Off

Use automatic sequencing to set up a schedule for rotation of redundant devices. For example, three devices might be in operating mode while a fourth device is in standby mode. Every two days, the Liebert AC8 returns the standby device to operating mode and places one of the operating devices on standby.

When zones are used, the Liebert AC8 manages the rotation sequence for each zone separately, so each zone might have one device in operating mode and one in standby mode.

NOTE: Auto sequencing will not function in a zone with any devices defined as Not Used. All outputs in the zone must be defined as Operating or Standby (see [Setup System - Setup Outputs](#) on page 68).

Auto sequencing is OFF (deactivated) by default. When auto sequencing is activated (ON or 12h, for a 12-hour interval), the Liebert AC8 cycles devices at the specified interval and time of day as follows:

- An output device in Standby mode is returned to Operating mode.
- An output device that is Operating is put in Standby mode.

When more than one device is in Standby mode or turned On, the Liebert AC8 performs the operations in a sequence that rotates the order. For example, in a sequence set up to occur every two days:

- Monday: Device 1 is placed on Standby, and Devices 2, 3 and 4 operate.
- Wednesday: Device 2 is placed on Standby, and Devices 1, 3 and 4 operate.
- Friday: Device 3 is placed on Standby, and Devices 1, 2 and 4 operate.

- Sunday: Device 4 is placed on Standby, and Devices 1, 2 and 3 operate.

NOTE: The Liebert AC8 will not cycle outputs that have been manually forced On or Off through the Override Output Menu or the hardware switch (see [Override Output](#) on page 99).

To change the auto sequencing settings:

1. From the Setup System Operation Menu, use the arrows to choose **Auto Sequencing**, then press Enter.

Activate or Deactivate

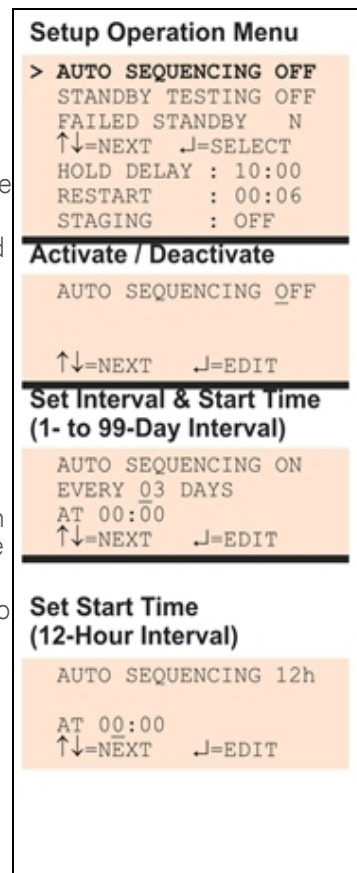
1. In the Activate / Deactivate screen, use the arrows to choose one of three options:
 - a. **ON** for intervals of every 1 to 99 days, then press Enter and proceed to **Step1.** below.
 - b. **12h** for an interval of every 12 hours, then press Enter and proceed to **Step1.** below.
 - c. **OFF** to deactivate auto sequencing, then press Enter to return to the previous menu.

Specify Start Time and Interval: Every 1 to 99 Days

1. Select the interval for how often the sequencing should occur in the **Every 03 Days** field. The default is 3 days; valid entries range from 0 to 99 days.
 - For each digit, use the arrows to choose a number from 0 to 9, then press Enter to advance to the next digit.
 - When finished, press Enter to set the time of day.

Specify Start Time: Every 12 Hours

1. Specify the time of day the sequencing should begin in the **At 00:00** field. The format is HH:MM for hours and minutes.
 - Use the arrows to choose from available entries for hours (00-23), then press Enter to advance to minutes.
 - Use the arrows to select minutes (00-59).
 - When finished, press Enter again.



7.10.2 Turn Standby Testing On or Off

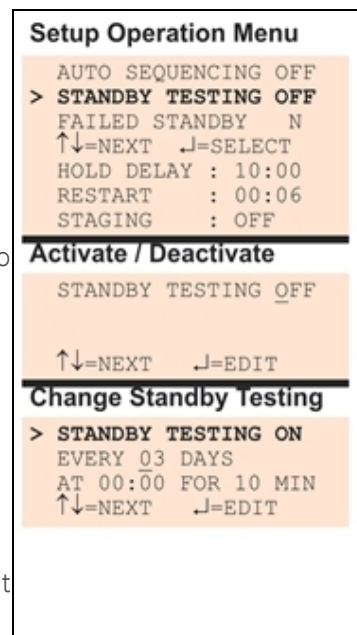
Standby testing permits scheduling an automatic operational check of devices in Standby mode.

When this feature is activated (ON), the Liebert AC8 tests all devices in Standby mode by putting each device in operating mode for a designated time. If an operating unit is designated as disabled on alarm, the unit is turned off during standby testing, then turned on when the test ends.

You may specify the time of day the testing begins, the duration of the test and the interval between tests. Standby testing is OFF (deactivated) by default.

To change the standby testing settings:

1. From the Setup System Operation Menu, use the arrows to choose **Standby Testing**, then press Enter.
2. In the **Activate / Deactivate** screen, use the arrows to choose:
 - a. Choose **ON** to activate standby testing, then press Enter and proceed to **Step 3**.
 - a. Choose **OFF** to deactivate the feature, then press Enter and return to the previous screen.
3. Select the desired interval for how frequently testing should occur in the **Every 03 Days** field. The default is 3 days; valid entries range from 0 to 99 days.
 - For each digit, use the arrows to choose a number from 0 to 9, then press Enter to advance to the next digit.
 - When finished, press Enter to configure the time of day.
4. Specify the time of day the test should begin in the **At 00:00** field. The format is HH:MM for hours and minutes.
 - Use the arrows to choose from available entries for hours (00-23), then press Enter to advance to minutes.
 - Use the arrows to select minutes (00-59).
 - When finished, press Enter again.
5. Specify the duration of the test in minutes—the length of time the standby units will be turned On—in the **For 10 Min** field. Use the arrows to choose a number from 0 to 59 minutes. The default is 10 minutes.
6. When finished, press Enter.



7.10.3 Specify Failed Standby Response

The Liebert AC8's Failed Standby feature determines what happens when an operating device fails and a standby device then becomes an operating unit. A subsequent alarm in the newly operating unit (previously the standby device) results in either restarting the previously operating device that was alarmed or not. This feature specifies whether each device remains in its current state or returns to its previous state of operation.

When this feature is activated (Y), each device returns to its previous state, as Table 7.16 below shows. The newly enabled Standby device is disabled; the previously operating device returns to Operating mode.

The default setting is N (deactivated), meaning that each device remains in its current state: the Standby device remains enabled and the previously operating unit remains disabled.

Table 7.16

Failed Standby response

Failed Standby Setting	Previous Standby Device (alarm after being enabled)	Previously Operating Device
Activated (Y)	Disabled	Returns to Operating mode
Deactivated (N)	Remains enabled	Remains disabled

To change the Failed Standby settings:

- From the Setup System Operation Menu, use the arrows to choose **Failed Standby**, then press Enter.
- In the Change Failed Standby screen, press use the arrows to choose Y to activate or N to deactivate the feature.
- Press Enter.

7.10.4 Specify Hold Delay Time

After an output changes state, the hold delay timer directs the Liebert AC8 to ignore all inputs in the same zone for the specified time.

This delay is the amount of time that must elapse before the Liebert AC8 acknowledges a change of state in any input. The default is 10 minutes (displayed as 10 MIN : 00 SEC).

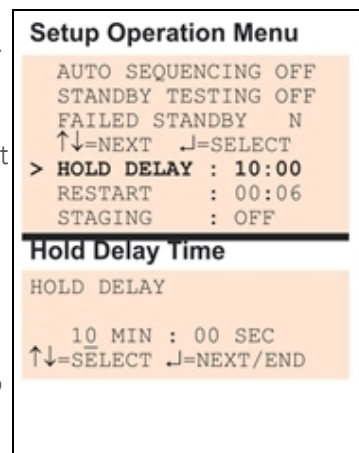
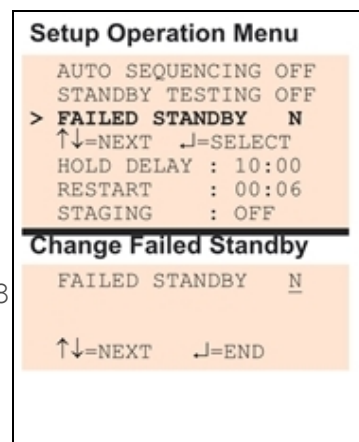
The time delay applies only when a monitored output device changes *from* its normal state—for example, the Liebert AC8 detects a closed contact that is defined as Normally Open.

When the output device *returns* to its normal state, the Liebert AC8 acknowledges any input change of state immediately.

The hold delay timer also takes effect when the Liebert AC8 is powered up. All alarms are ignored until the hold delay time expires.

To change the Hold Delay Time settings:

- From the Setup Operation Menu, choose **Hold Delay**, as shown at right, and press Enter.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
 - For minutes (MIN), press and hold one of the arrow keys to scroll through the numbers 00-99.
 - Press Enter to advance to seconds (SEC).
 - For seconds (SEC), press and hold one of the arrow keys to scroll through the numbers 00-59.
 - When finished, press Enter again.



7.10.5 Specify Restart Time

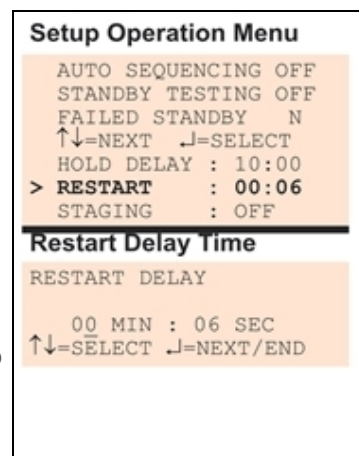
The restart delay timer directs the Liebert AC8 to wait a specified time before changing the state of an output. This feature can prevent needless responses to transient conditions.

If two or more outputs change state simultaneously, the Liebert AC8 begins a new countdown between each output change of state.

The default is 6 seconds (displayed as 00 MIN : 06 SEC).

To change the Restart Time settings:

- From the Setup Operation Menu, choose **Restart**, as shown at right, and press Enter.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
 - For minutes (MIN), press and hold one of the arrow keys to scroll through the numbers 00-99.
 - Press Enter to advance to seconds (SEC).
 - For seconds (SEC), press and hold one of the arrow keys to scroll through the numbers 00-59.
 - When finished, press Enter again.



7.10.6 Specify Staging

Staging allows a standby device to be turned On when a sensor detects a monitored point reaching a specified setpoint. The Liebert AC8 continues to turn On additional standby units, if available, at specified intervals.

Staging also turns Off devices as the condition returns to normal. Devices are turned off in a last-on / first-off order, triggered by decreases of half the specified sensitivity increment.

- The following example illustrates the staging process for a temperature sensor with a Target setpoint of 70°F and a Sensitivity increment of 5°F.

Temperature Reaches Target Level: First Device Turned On

- When the temperature in Zone 1 reaches 75°F (target plus sensitivity), the Liebert AC8 turns On a cooling unit that has been on standby.

Temperature Rises by Sensitivity Increments: Second & Third Devices Turned On

- When the temperature reaches 80°F—an additional 5°F—the Liebert AC8 turns On a second standby cooling unit.
- If the zone has a third standby unit and the temperature rises another 5°F to 85°F, a third standby unit is turned On.

Temperature Returns to Normal: Devices Turned Off

- When the temperature drops from 85°F to 82.5°F (a decrease of 2.5°F, half the sensitivity increment of 5°F), the third unit is turned Off.
- When the temperature falls to 77.5°F, the second device is turned Off.
- When the temperature falls below 75°F, the first device is turned Off.

Staging is OFF by default.

To change the Staging settings:

- From the Setup Operation Menu, choose **Staging**, as shown at right, and press Enter.
- In the Activate/Deactivate screen, use the arrows to choose **ON** to activate or **OFF** to deactivate the feature, then press Enter.

NOTE: If the sensor for the zone is not connected, a **SENSOR NOT CONNECTED** message is displayed, shown below right. Press Escape to return to the previous screen.

The sensor in the zone must be set to **CONNECTED** to turn staging on.

- Once the feature is activated (ON), set the following features in the Staging screen:
 - Use the arrow keys to set the Target sensor reading value that will initiate the staging process.
 - Press Enter to advance to Sensitivity.
 - Use the arrow keys to set the Sensitivity that defines the increment for the next change in the staging process.
The default value is 2.
- When finished, press Enter again.

7.11 Setup System - Setup I/O Matrix

The Setup I/O Matrix menu allows you to configure the Liebert AC8 digital and analog inputs to trigger various actions in either or both of the two control relays. Each relay can be set up to respond to more than one digital or analog input.

Almost any mapping combination can be used. For example, you may decide to trigger an action in Control Relay 1 when Device_1 goes into alarm, or you might want to generate an action in Control Relay 2 when Sensor_1 High Setpoint goes into alarm.

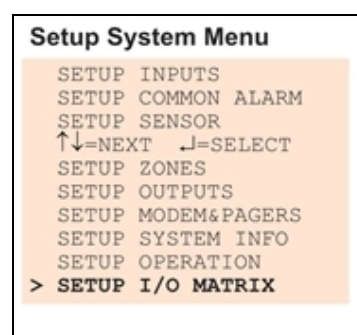
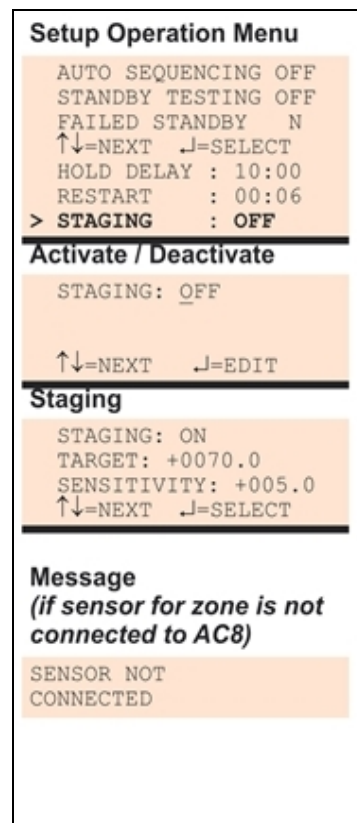
To set up the mapping of inputs to relays:

Log In and Choose Setup System

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Setup System**, then press Enter.

Select Setup I/O Matrix

- From the Setup System Menu, shown at right, use the arrows to choose **Setup I/O Matrix** and press Enter.
- Use the following instructions to set up the mapping of each digital input or analog sensor input to each relay.

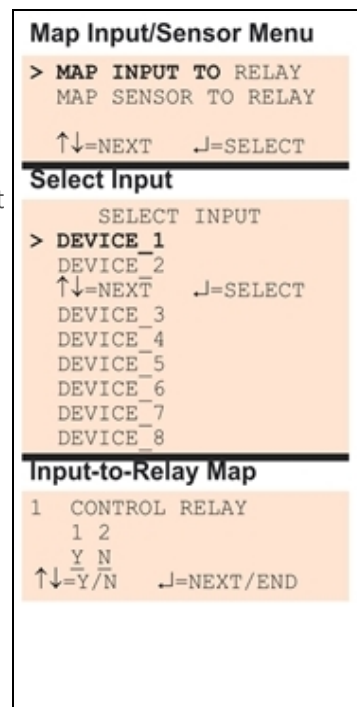


7.11.1 Set Up Mapping for a Digital Input

- Use the arrows to choose **Map Input To Relay** from the Map Input/Sensor Menu, and press Enter.
- From the Select Input Menu, choose the input you want—for example, **Device_1**—and press Enter.
- On the Input-to-Relay Map screen, you may map the selected input to either or both of the control relays (1-2). The example at right shows **Device_1** mapped to **Control Relay 1**.

To make changes to the mapping:

- If needed, press Enter to advance to the position directly below the relay.
- Use the arrows to choose **Y** (Yes - Mapped to this relay) or **N** (No - Not mapped), then press Enter.
- Press Enter to advance to the next position where you want to make a change.
- Use the arrows to choose **Y** (Yes - Mapped to this relay) or **N** (No - Not mapped), then press Enter.
- When finished, press Enter again.



Default Mappings - Digital Inputs to Control Relays

By default, digital inputs are not mapped to any control relay, as shown in Table 7.17 below.

Table 7.17

Default mapping of digital inputs to relays

Digital input	By default, mapped to control relay:
Device_1	(none)
Device_2	(none)
Device_3	(none)
Device_4	(none)
Device_5	(none)
Device_6	(none)
Device_7	(none)
Device_8	(none)

7.11.2 Set Up Mapping for an Analog Sensor Input

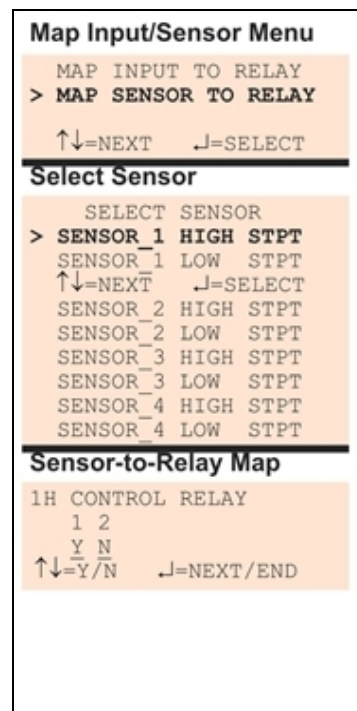
- Use the arrows to choose Map Sensor To Relay from the Map Input/Sensor Menu, and press Enter.
- From the Select Sensor Menu, choose the input you want—for example, Sensor_1 High Stpt—and press Enter.

Map Sensor to Control Relay

- On the Sensor-to-Relay Map screen, you may map the selected sensor to either or both of the control relays (1-2). The example at right shows Sensor_1 High Stpt mapped to Control Relay 1.

To make changes to the mapping:

- If needed, press Enter to advance to the position directly below the relay.
- Use the arrows to choose Y (Yes - Mapped to this relay) or N (No - Not mapped), then press Enter.
- Press Enter to advance to the next position where you want to make a change.
- Use the arrows to choose Y (Yes - Mapped to this relay) or N (No - Not mapped), then press Enter.
- When finished, press Enter again.



Default Mappings - Analog Inputs to Control Relays

By default, analog inputs are not mapped to any control relay, as shown in Table 7.18 below.

Table 7.18

Default mapping of analog inputs to relays

Analog input	By default, mapped to control relay:
Sensor_1	(none)
Sensor_2	(none)
Sensor_3	(none)
Sensor_4	(none)

7.12 Override Output

The Override Output feature allows you to manually change the state of any digital output to ON or OFF, overriding automatic control by the Liebert AC8 (the default setting for all outputs). This menu also allows you to release the manual override, returning any output to automatic control.

There are two ways to override automatic control of outputs:

- Use the Override Output menu, as described in this section, to turn any output ON or OFF.
- Use the hardware switch on the Liebert AC8 circuit board to force all eight outputs ON at the same time (see [Controller Board Overview](#) on page 4).

After an output is forced manually ON or OFF through the Override Output menu, it remains in that state until returned to automatic control through this menu.

Table 7.19 on the next page summarizes the four types of control, including the abbreviated message that appears on the LCD and in log reports.

Table 7.19

Automatic / manual control - output points

Message	Description	
AUTO	Automatic	Controlled by Liebert AC8 (default for all outputs)
FORCE ON	Manually ON	This output has been forced ON (operating) or OFF via the Override Output menu
FORCE OFF	Manually OFF	
HW FORCE ON	Manually ON (all outputs)	All outputs have been forced ON (operating) via the hardware switch on the circuit board (see Controller Board Overview on page 4)

To force an output point ON or OFF or return it to automatic control:

Log In and Choose Override Output

- From the Main Menu, use the arrows to choose System and Control, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose Override Output, then press Enter.

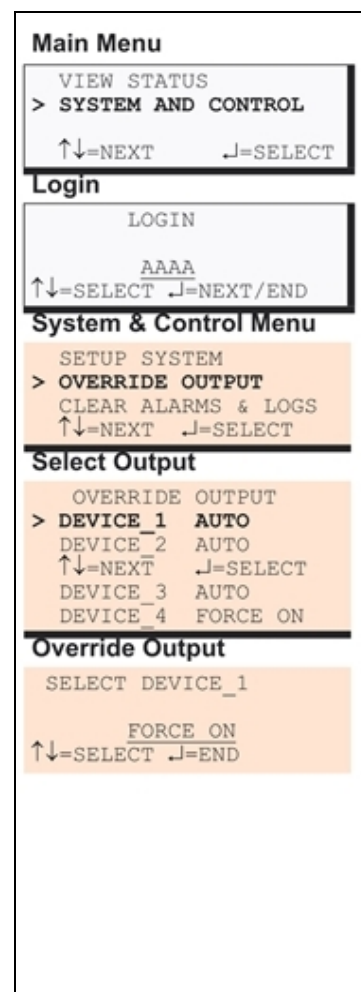
Select an Output

The Select Output menu, shown at right, displays the current status of all eight outputs.

- Use the arrows to choose the output you want—for example, Device_1—and press Enter.

Turn Output ON or OFF / Return to Automatic

- From the Override Output menu, use the arrows to choose one of these options:
 - AUTO - return to automatic control
 - FORCE ON - manually turn this output ON (operating)
 - FORCE OFF - manually turn this output OFF
- Press Enter.



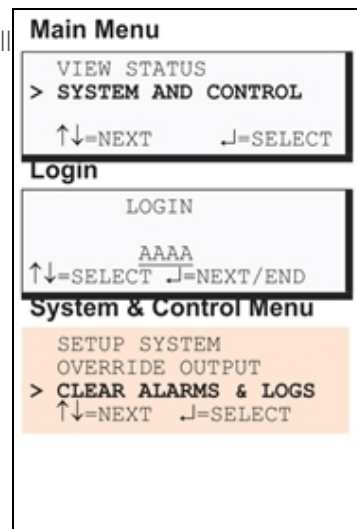
7.13 Clear Alarms & Logs

The Clear Alarms & Logs menu allows you to clear active alarms or delete all records from any of the Liebert AC8's three logs: alarm, event and trend logs.

To clear alarms or logs:

Log In and Choose Clear Alarms & Logs

- From the Main Menu, use the arrows to choose **System and Control**, then press Enter (see [Login](#) on page 53 for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows to choose **Clear Alarms & Logs**, then press Enter.
- Use the following steps to clear alarms or delete log records.



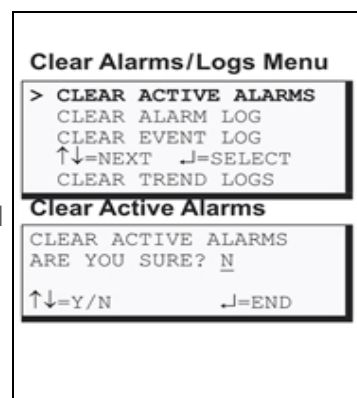
7.13.1 Clear Active Alarms

To clear all active alarms:

- From the Clear Alarms/Logs Menu, use the arrows to choose **Clear Active Alarms**, then press Enter.
- Use the arrows to choose Y (Yes - clear all active alarms) or N (No - do not clear alarms), then press Enter.

Clearing active alarms is the only means to reset latched alarms. This step is required to return latched points to their normal state. To set up a digital input or an analog sensor input as latched, see:

- [Set Up Alarmable Inputs in Latched or Unlatched Mode](#) on page 58
- [Set Up Alarmable Sensors in Latched or Unlatched Mode](#) on page 64



7.13.2 Clear the Alarm Log

The alarm log contains up to 99 records of alarms that have occurred. You may want to clear the log after backing up the file or simply to free up space.

NOTE: Before deleting the records in the alarm log, you may want to back up the file to a remote computer using the Service Terminal Interface, as described in [Back Up Log Files \(Service Terminal Interface only\)](#) on page 49.

To delete all records from the alarm log:

- From the Clear Alarms/Logs Menu, use the arrows to choose Clear Alarm Log, then press Enter.
- Use the arrows to choose Y (Yes - clear the alarm log) or N (No - do not clear the alarm log), then press Enter.

NOTE: Clear active alarms is the only means to reset Latched alarms. This action must be taken to return Latched points to their normal state.

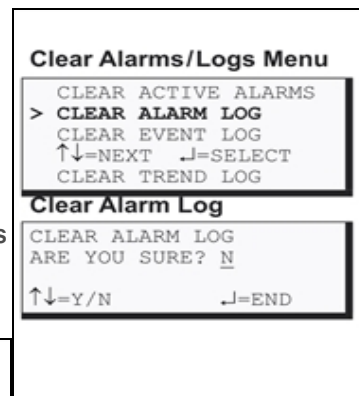
7.13.3 Clear the Event Log

The event log contains up to 99 records of events detected by the Liebert AC8. You may want to clear the log after backing up the file or simply to free up space.

NOTE: Before deleting the records in the event log, you may want to back up the file to a remote computer using the Service Terminal Interface, as described in [Back Up Log Files \(Service Terminal Interface only\)](#) on page 49.

To delete all records from the event log:

- From the Clear Alarms/Logs Menu, use the arrows to choose Clear Event Log, then press Enter.
- Use the arrows to choose Y (Yes - clear the event log) or N (No - do not clear the event log), then press Enter.



7.13.4 Clear the Trend Logs

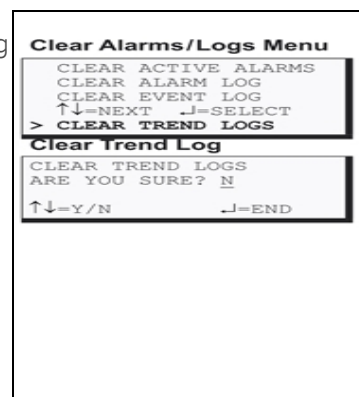
The Liebert AC8 maintains a separate trend log for each configured analog input sensor. Each log contains up to 100 records of data collected at regular intervals. You may want to clear the logs after backing up the files or simply to free up space.

Using the Clear Trend Logs command will clear all four trend logs maintained by the Liebert AC8. There is no method of clearing records from individual logs.

NOTE: Before deleting the records in the trend logs, you may want to back up the files to a remote computer using the Service Terminal Interface, as described in [Back Up Log Files \(Service Terminal Interface only\)](#) on page 49.

To delete the records from ALL four trend logs:

- From the Clear Alarms/Logs Menu, use the arrows to choose Clear Trend Logs, then press Enter.
- Use the arrows to choose Y (Yes - clear all trend logs) or N (No - do not clear the trend logs), then press Enter.



Appendix A: Service Terminal Interface

The Service Terminal Interface allows access to all functions of the Liebert AC8, including some that are not possible through the LCD interface. This interface is accessible through any computer using a communications program such as Microsoft® Windows® HyperTerminal.

This appendix provides directions for connecting to the Service Terminal Interface, an overview of each type of function and sample screens for each menu available through the Service Terminal Interface. References to more detailed instructions about each function are provided.

A.1 Comparison of Functions: LCD and Service Terminal Interface

Table A.1 below lists all functions for viewing and configuring the Liebert AC8 and shows whether they can be performed through the LCD interface and where to find information.

Table A.1

Guide to Liebert AC8 functions

Function	Can be performed via:		Where to find:	
	LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
VIEW STATUS FUNCTIONS				
View Active Alarms	x	x	View Active Alarms on page 37	View Active Alarms
View Alarm Log	x	x	View Alarm Log on page 38	View Alarm Log
View Event Log	x	x	View Event Log on page 39	View Event Log
View Trend Log	x	x	View Trend Log on page 41	View Trend Log
View Input Status	x	x	View Input Status on page 42	View Input Status
View Output Status	x	x	View Output Status on page 43	View Output Status
View Pager Numbers	x	x	View Pager Numbers on page 44	View Pager Numbers
View Operation	x	x	View Operation on page 46	View Operation
View Control Status	x	x	View Control Status on page 47	View Control Status
SILENCE ALARM & BACK UP LOGS FUNCTIONS				
Silence Alarm <i>(On the LCD, press any key to silence an alarm)</i>	x	x	Silence Alarm (Service Terminal Interface) on page 49	Silence Alarm (Service Terminal Interface only)
Back Up Log Files	—	x	Back Up Log Files (Service Terminal Interface only) on page 49	Back Up Log Files (Service Terminal Interface only)
SYSTEM & CONTROL FUNCTIONS				
Login	x	x	Login on page 53	Login Menu
Setup System	x	x	Setup System - Overview on page 55	Setup Menu
Setup Inputs	x	x	Setup System - Setup Inputs on page 55	Setup Inputs

Table A.1 Guide to Liebert AC8 functions (continued)

Function		Can be performed via:		Where to find:	
		LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
Setup Common Alarm		x	x	Setup System - Setup Common Alarm on page 59	Setup Common Alarm
Setup Sensor		x	x	Setup System - Setup Sensor on page 59	Setup Sensor
Setup Outputs		x	x	Setup System - Setup Outputs on page 68	Setup Output
Setup Modem & Pagers NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.		x	x	Setup System - Setup Modem & Pagers on page 70	Setup Modem & Pagers
Modem Setup	Initialization String	x	x	Modem Setup - Initialization String on page 70	Modem Setup
	Enter Liebert AC8 Phone Number	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
	Enable Modem Diagnostic Messages	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
	Change Modem Dial Prefix	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
	Change Modem Hang Up Delay After a Call	—	x	Modem Setup - Additional Features (Service Terminal Interface only) on page 73	Modem Setup
Pager Setup	Pager Number & PIN	x	x	Pager Setup - Pager Number and PIN on page 75	Pager Setup
	Communications Check	—	x	Pager Setup - Communications Check (Service Terminal Interface only) on page 77	Pager Setup
Setup System Info		x	x	Setup System - Setup System Info on page 79	Setup System Info
Change Password		x	x	Change Password on page 80	Change Password
Change Date & Time/Automatic Daylight Saving Time		x	x	Change Date & Time/Automatic Daylight Saving Time on page 81	Set Date & Time/Automatic Daylight Saving Time
Setup Site ID		x	x	Setup Site ID on page 82	Setup Site ID
Connect Battery		x	x	Connect Battery on page 82	Connect Battery

Table A.1 Guide to Liebert AC8 functions (continued)

Function	Can be performed via:		Where to find:	
	LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
Backup and Upload Configuration File	—	x	Backup and Upload Configuration File (Service Terminal Interface only) on page 83	Backup and Upload Configuration File (Service Terminal Interface only)
Setup Serv Ph Num - Enter Phone Number	x	x	Setup Serv Ph Num - Enter Phone Number on page 85	Setup Service Phone Number
Setup Serv Ph Num - Communications Check	—	x	Setup Serv Ph Num - Communications Check (Service Terminal Interface only) on page 86	Setup Service Phone Number
Factory Defaults	x	x	Factory Defaults on page 88	Factory Defaults
Perform Firmware Update	—	x	Perform Firmware Update (Service Terminal Interface only) on page 88	Firmware Update (Service Terminal Interface only)
Initiate Remote Alarm Test	—	x	Initiate Remote Alarm Test (Service Terminal Interface only) on page 90	Initiate Remote Alarm Test (Service Terminal Interface only)
Setup Operation	x	x	Setup Operation on page 91	Setup Operation
Setup I/O Matrix	x	x	Setup System - Setup I/O Matrix on page 97	Setup I/O Matrix
Override Output	x	x	Override Output on page 99	Override Output
Clear Alarms & Logs	x	x	Clear Alarms & Logs on page 101	Clear Alarms & Logs
Clear Active Alarms	x	x	Clear Active Alarms on page 101	Clear Active Alarms
Clear the Alarm Log	x	x	Clear the Alarm Log on page 101	Clear the Alarm Log
Clear the Event Log	x	x	Clear the Event Log on page 102	Clear the Event Log
Clear the Trend Logs	x	x	Clear the Trend Logs on page 102	Clear the Trend Logs

A.2 Connecting to the Service Terminal Interface

This section describes how to set up and connect to the Service Terminal Interface.

Connection Methods

There are two ways to access the Service Terminal Interface:

- **Direct**—Use a null modem cable to connect a computer’s COM1 port to the AC8’s RS232 port,

OR

- **Remote**—Use a remote computer’s modem to dial the telephone number of the phone line connected to the Liebert AC8.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

Both methods require a communications program, such as HyperTerminal, to connect to the Service Terminal Interface.

Refer to Table A.2 below for step-by-step instructions to set up each type of connection. Note that the remote connection does not require setting up the COM1 port.

Table A.2

Steps to set up a direct or remote connection

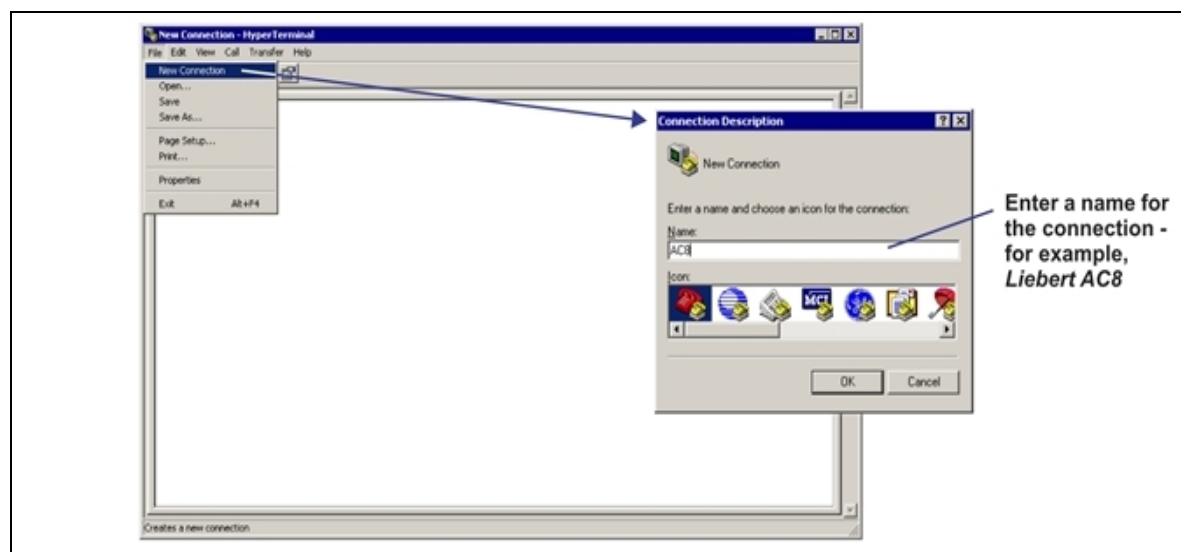
	Direct	Remote
Create a Connection below	x	x
Set Up the COM1 Port - Direct Connection Only on the facing page	x	N/A
Set Up the Connection's Properties	x	x
Connect to the Service Terminal Interface	x	x

The instructions in this section refer to the HyperTerminal program—they may vary for other communications programs.

Create a Connection

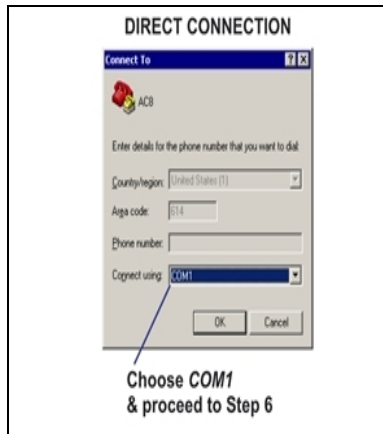
Before connecting to the Service Terminal Interface, you must create a connection and specify the method to be used for connection, as described in the following steps.

1. Start the HyperTerminal program—to do this, click on the Start button, then on Programs, then Accessories, then Communications, and finally HyperTerminal.
2. At the top of the HyperTerminal window, click on File, then on New Connection, as shown below left.



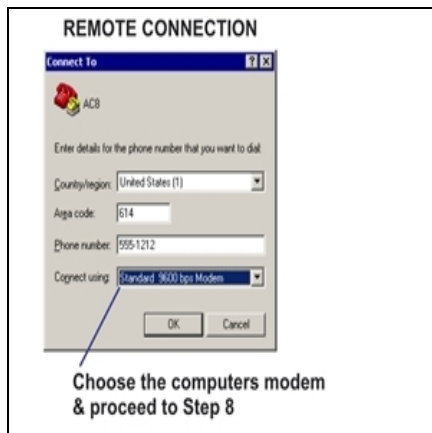
3. In the Connection Description window, shown above right, enter a name for the connection—for example, AC8. This becomes the file name (with the extension ".ht").
4. Click OK to close the window.
5. In the Connect To window, shown below, select the appropriate connection method from the Connect Using drop-down list:

Direct Connection via RS232



- To set up a direct connection via the Liebert AC8's RS232 port, select **COM1** as shown above. This opens the COM1 Properties window.
- Proceed to next section.

Remote Connection via Modem



- To make a remote connection through the Liebert AC8's modem, select your computer's modem—Standard 9600 bps Modem in the example shown above.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

- Enter the area code and phone number of the Liebert AC8's modem.
- Skip Steps 6 and 7 and proceed to Step 8 in Set Up the Connection's Properties.

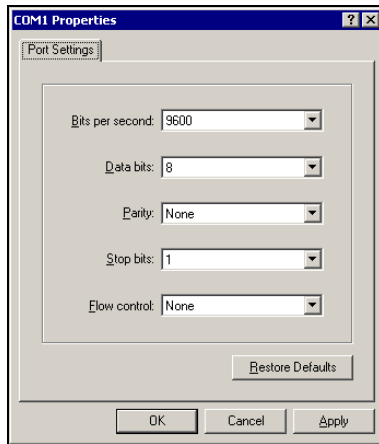
Set Up the COM1 Port - Direct Connection Only

The following steps apply only to setting up a direct connection to the Service Terminal Interface via the Liebert AC8's RS232 port. If you are setting up a remote connection via modem, skip to Step 8

COM1 Port Setup

6. In the COM1 Properties window, shown below, make the following selections:
 - Bits per second: 9600
 - Data bits: 8

- Parity: None
- Stop bits: 1
- Flow control:



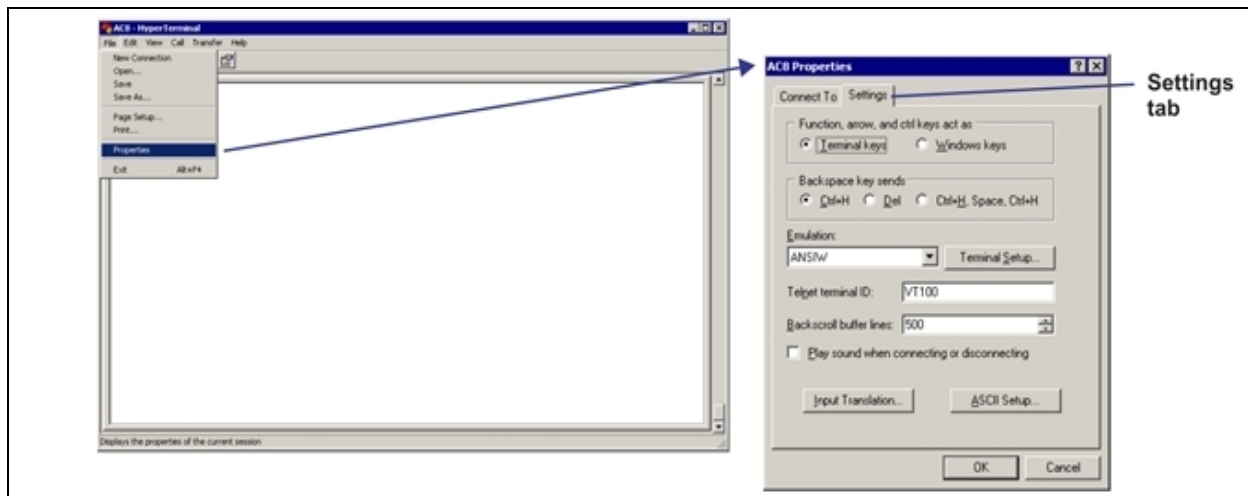
7. Click **OK**. When the connection is open, the connection name appears in the title bar of the HyperTerminal window. To complete the setup, continue with **Step 8** (next section).

Set Up the Connection's Properties

The following steps are needed for both direct and remote connection to the Liebert AC8.

Properties Setup

8. Open the Properties window by clicking on **File**, then on **Properties**, as shown below left.

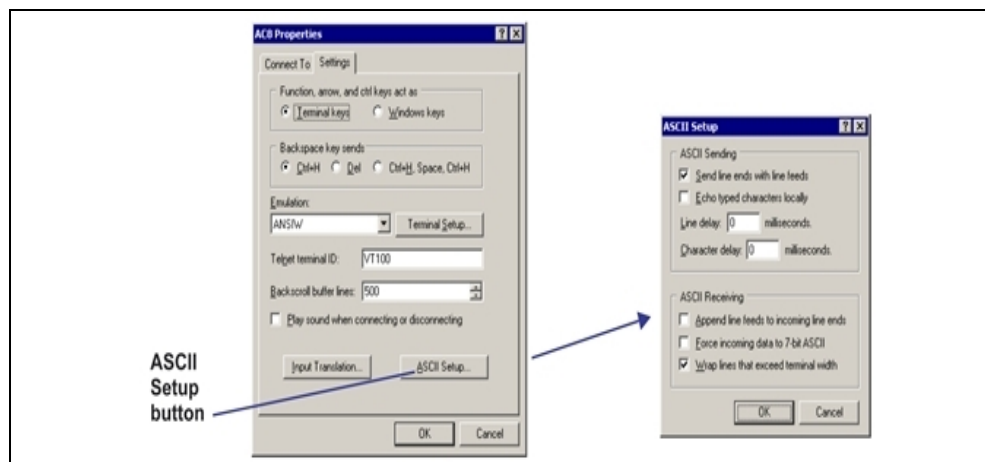


9. In the Properties window, above right, click on the **Settings** tab and choose the following settings:

- Function, arrow, and ctrl keys act as: **Terminal keys**
- Backspace key sends: **Ctrl+H**
- Emulation: **ANSI**
- Telnet terminal ID: **VT100**
- Backscroll buffer lines: **500**
- Play sound when connecting or disconnecting: **Unchecked**

ASCII Setup

10. In the Properties window, click on the ASCII Setup button, shown below left.



11. In the ASCII Setup window, shown above right, choose the following settings:
 - **ASCII Sending:** place a check mark (4) in the **Send Line Ends With Line Feeds** box.
 - **ASCII Receiving:** place a check mark (4) in the **Wrap Lines That Exceed Terminal Width** box.
 - Click **OK**.

The setup is now complete. To use the new connection, proceed to the next section, [Connect to the Service Terminal Interface](#) below.

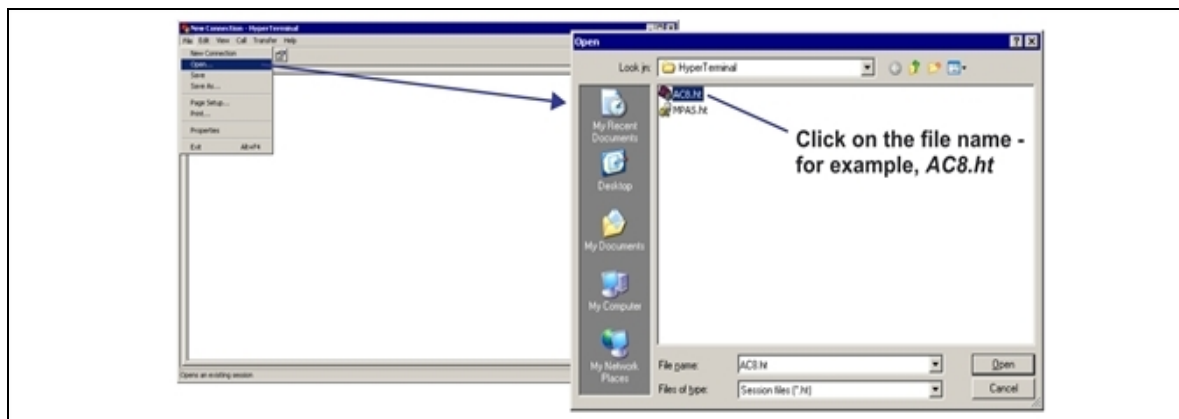
Connect to the Service Terminal Interface

After creating and setting up a connection, use a communications program such as HyperTerminal to access the Liebert AC8's Service Terminal Interface.

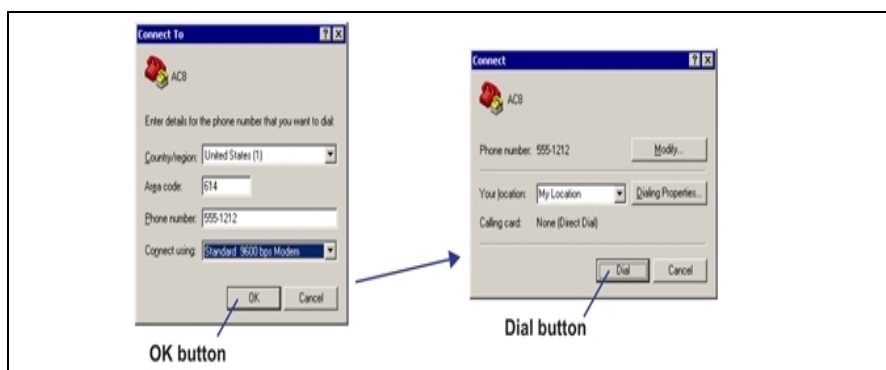
1. Verify communications connections between the remote computer and the Liebert AC8:
 - a. **For direct connection (via RS232 port):**
 - Connect a null modem cable from the computer's COM1 port to the Liebert AC8's RS232 port (for location, see [RS232 Connector](#) on page 27).
 - b. **For remote connection (via modem):**
 - Verify modem connections between the remote computer and the Liebert AC8. The remote computer should have connectivity through a telephone line, high-speed cable or an Ethernet. The Liebert AC8 must have a telephone line connected to its RJ11 port (for location, see [Phone Line Connector](#) on page 27).

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

2. Start the HyperTerminal program—click on the **Start** button, then on **Programs**, then **Accessories**, then **Communications**, and finally **HyperTerminal**.
3. Open the Liebert AC8 connection created in [Create a Connection](#) on page 106. To do this, click on **File**, then on **Open**, as shown below.



4. In the Open window, shown above right, select the file name—Liebert AC8.ht in this example—and then click on the **Open** button.
5. Follow the steps below to display the Main Menu of the Service Terminal Interface:
 - a. For direct connection (via RS232 port):
 - Press Enter (or Escape) to initiate communication and bring up the Main Menu.
 - b. For remote connection (via modem):
 - The Connect window opens, as shown below left. Click the **OK** button.
 - In the Connect window, below right, click **Dial**.
 - If the dialing attempt is successful, the Main Menu appears.



For more information on the Liebert AC8's options:

- See [Overview of Menus](#) below for examples of the Service Terminal Interface screens.
- See Table A.1 on page 103 to locate step-by-step instructions for each Liebert AC8 function.

A.3 Overview of Menus

The Main Menu offers choices for viewing the status of the Liebert AC8, silencing the audible alarm and backing up the unit's log files. It also allows access to the System and Control features, which require a password.

The following shows where to find examples of the Main Menu screens:

Main Menu	For sample screens, see:
1=VIEW ACTIVE ALARMS	View Status Menus below
2=VIEW ALARM LOG	
3=VIEW EVENT LOG	
4=VIEW TREND LOG	
5=VIEW INPUT & SENSOR STATUS	
6=VIEW OUTPUT STATUS	
7=VIEW PAGER NUMBERS	
8=SILENCE ALARM	Silence Alarm & Back Up Log Files (Service Terminal Interface only)
9=BACKUP LOG FILES	
0=SETUP SYSTEM-LOGIN REQUIRED	Setup Menu

View Status Overview

The View Status features are available to all users. This permits all personnel to check on the status of any equipment or location being monitored. These options allow any user to:

- View current monitoring data—active alarms and the status of all inputs and outputs
- View data stored in alarm, event and trend logs
- View pager numbers

Silence Alarm and Backup Log Files

Two Main Menu options—Silence Alarm and Backup Log Files—are unique to the Service Terminal Interface. As with the View Status options, these features do not require a password:

- **Silence Alarm**—silence the Liebert AC8’s audible alarm and reset the Common Alarm Relay output.
- **Backup Log Files**—make backup copies of the Liebert AC8’s Alarm Log, Event Log and Trend Logs and save the copies to a computer.

Setup Menu Overview

The Setup Menu options require a password. Authorized users may:

- Configure the Liebert AC8—this includes setting up digital and analog inputs, digital outputs, and system features such as setting the date and time
- Three system features—**Backup and Upload Configuration File**, **Firmware Update** and **Initiate Remote Alarm Test**—are unique to the Service Terminal Interface.
- Override automatic control of outputs to force an output ON or OFF
 - Clear active alarms and delete all records in the alarm, event and trend logs

A.4 View Status Menus

The View Status menu allows any user to view currently active alarms, monitoring data stored in the alarm, event and trend logs, the status of all inputs and outputs, and the four pager numbers.

Main Menu

After connecting to the Service Terminal Interface, the Main Menu appears, as shown below. This section presents Service Terminal Interface screens for options 1 through 7:

Main Menu	
LIEBERT AC8 VX.XXX.X VERTIV CORPORATION COPYRIGHT 2005 ALL RIGHTS RESERVED MAIN MENU	For sample screens, see:
1=VIEW ACTIVE ALARMS	View Active Alarms below
2=VIEW ALARM LOG	View Alarm Log on the facing page
3=VIEW EVENT LOG	View Event Log on the facing page
4=VIEW TREND LOG	View Trend Log on page 115
5=VIEW INPUT & SENSOR STATUS	View Input Status on page 117
6=VIEW OUTPUT STATUS	View Output Status on page 118
7=VIEW PAGER NUMBERS	View Pager Numbers on page 118
8=SILENCE ALARM	
9=BACKUP LOG FILES	
A=VIEW OPERATION STATUS	View Operation on page 119
B=VIEW CONTROL RELAYS STATUS	View Control Status on page 120
0=SETUP SYSTEM - LOGIN REQUIRED	
SELECT A NUMBER:1	

View Active Alarms

For details on this feature, see [View Active Alarms](#) on page 37.

View Active Alarms

<p>ACTIVE ALARMS</p> <p>Input points/hardware presently in an alarm state</p> <p>SENSOR_1 101.1 DEG HIGH SETPOINT ALARM SENSOR_2 ----- DEG SENSOR PROBLEM DEVICE_7 ALARM CONTACT OPEN BATTERY CHECK BATTERY</p> <p><ENTER>=MORE <ESC>=EXIT <A>=ALL 1=REFRESH ACTIVE ALARMS 2=RETURN TO MAIN MENU SELECT A NUMBER:</p>

View Alarm Log

For details on this feature, see [View Alarm Log](#) on page 38.

View Alarm Log

ALARM LOG

Alarm history

SENSOR_2 80.0 DEG

HIGH SETPOINT ALARM

29-AUG-05 09:29:10

MODEM

INTERNAL FAULT

29-AUG-05 09:20:10

DEVICE_8 ALARM

CONTACT CLOSED

29-AUG-05 09:19:10

SENSOR_2 79.0 DEG

RETURN TO NORMAL

28-AUG-05 19:29:10

<ENTER>=MORE <ESC>=EXIT <A>=ALL

SENSOR_2 ----- DEG

SENSOR PROBLEM

28-AUG-05 15:08:10

SYSTEM

LOSS OF POWER

19-AUG-05 02:50:10

BATTERY

LOW BATTERY

18-AUG-05 05:23:10

BATTERY

BATTERY UNPLUGGED

12-AUG-05 22:47:10

1=REFRESH ALARM LOG

2=RETURN TO MAIN MENU

SELECT A NUMBER:

View Event Log

For details on this feature, see [View Event Log](#) on page 39.

View Event Log

EVENT LOG

Event history

PAGER

UNSUCCESSFUL PAGE

23-OCT-05 18:05:26

DEVICE_3 STARTED

23-OCT-05 18:03:17

DEVICE_3 ON

CONTACT CLOSED

23-OCT-05 18:03:17

DEVICE_2 STARTED

23-OCT-05 18:03:11

<ENTER>=MORE <ESC>=EXIT <A>=ALL

SENSOR_2 ----- DEG

SENSOR PROBLEM

22-OCT-05 07:10:10

SYSTEM

USER LOGIN

22-OCT-05 02:50:10

LIEBERT GLOBAL SERV

DIAL OUT TEST FAILED

20-OCT-05 05:23:10

MODEM

MODEM RESET

18-OCT-05 22:47:10

LIEBERT GLOBAL SERV

DIAL OUT TEST PASSED

18-OCT-05 05:23:10

<ENTER>=MORE <ESC>=EXIT <A>=ALL

1=REFRESH EVENT LOG

2=RETURN TO MAIN MENU

SELECT A NUMBER:

View Trend Log

For details on this feature, see [View Trend Log](#) on page 41.

View Trend Log

TREND LOG

Trend history
for each sensor

Select sensor for trend
you want to view.

1=SENSOR_1
2=SENSOR_2
3=SENSOR_3
4=SENSOR_4
5=RETURN TO MAIN MENU

SELECT A NUMBER:1

TREND LOG
Trend history

SENSOR_1 75.4 DEG
NORMAL
28-AUG-05 15:45:10

SENSOR_1 70.5 DEG
LOW SETPOINT EVENT
28-AUG-05 15:15:10

SENSOR_1 79.9 DEG
RETURN TO NORMAL
28-AUG-05 14:45:10

SENSOR_1 ----- DEG
SENSOR PROBLEM
28-AUG-05 14:15:10

<ENTER>=MORE <ESC>=EXIT <A>=ALL

SENSOR_1 65.9 DEG
LOW SETPOINT ALARM
28-AUG-05 13:45:10
SENSOR_1 69.9 DEG
LOW SETPOINT EVENT
28-AUG-05 13:15:10

SENSOR_1 80.7 DEG
HIGH SETPOINT EVENT
28-AUG-05 12:45:10

1=REFRESH TREND LOG
2=VIEW A DIFFERENT SENSOR
3=RETURN TO MAIN MENU

SELECT A NUMBER:

View Input Status

For details on this feature, see [View Input Status](#) on page 42.

View Input & Sensor Status
INPUT & SENSOR STATUS

Sensor values & discrete inputs status

INPUT STATUS

SENSOR_1 80.0 DEG
SENSOR_2 ----- DEG
SENSOR_3 80.0 DEG
SENSOR_4 79.5 RH
DEVICE_1 NORMAL
DEVICE_2 ALARM
DEVICE_3 EVENT
DEVICE_4 ALARM
DEVICE_5 ALARM
DEVICE_6 EVENT
DEVICE_7 NORMAL
DEVICE_8 NORMAL

<ENTER>=MORE <ESC>=EXIT <A>=ALL

1=VIEW SENSOR_1 DYNAMICALLY
2=VIEW SENSOR_2 DYNAMICALLY
3=VIEW SENSOR_3 DYNAMICALLY
4=VIEW SENSOR_4 DYNAMICALLY
5=REFRESH INPUT & SENSOR STATUS
6=RETURN TO MAIN MENU

SELECT A NUMBER: 1

VIEW SENSOR_1 DYNAMICALLY
SENSOR_1 80.0 DEG

PRESS <ESC> KEY TO EXIT

View Output Status

For details on this feature, see [View Output Status](#) on page 43.

```

View Output Status

OUTPUT STATUS

Output status to device

OUTPUT STATE MODE ZONE
*****
OPERATING = OPERATING/ON
DEVICE_1 ON OPERATING 1 STANDBY = IN STANDBY MODE
DEVICE_2 ON OPERATING 1 ALARM = IN ALARM
DEVICE_3 ON OPERATING 1 FORCE ON = FORCE ON BY OPERATOR
DEVICE_4 OFF STANDBY 1 FORCE OFF = FORCE OFF BY OPERATOR
DEVICE_5 OFF NOT USED 0 HW FORCE ON = FORCE ON BY HARDWARE SWITCH
DEVICE_6 OFF NOT USED 0 PENDING = PENDING DELAY TIMER
DEVICE_7 OFF NOT USED 0 NOT USED = DEVICE NOT USED
DEVICE_8 OFF NOT USED 0
*****

1=REFRESH OUTPUT STATUS
2=RETURN TO MAIN MENU

SELECT A NUMBER:
  
```

View Pager Numbers

For details on this feature, see [View Pager Numbers](#) on page 44.

View Pager Numbers

PAGER & PIN NUMBERS

Numbers to dial
for an alarm

PAGER 1 NUMBER
A1,8005551212

PAGER 1 PIN
01234567891011121314

PAGER 2 NUMBER
A9W1,8005551212

PAGER 2 PIN
01234567891011121314

<ENTER>=MORE <ESC>=EXIT <A>=ALL

PAGER 3 NUMBER
N18005551212,,,,1234567#

PAGER 3 PIN
PAGER 4 NUMBER

M1,8005551212

PAGER 4 PIN

1=REFRESH PAGER & PIN NUMBERS

2=RETURN TO MAIN MENU

SELECT A NUMBER:

View Operation

For details on this feature, see [View Operation](#) on page 46.

View Operation

OPERATION STATUS

Autosequencing and Standby Testing

1=ZONE 1

2=ZONE 2

3=ZONE 3

4=ZONE 4

5=RETURN TO MAIN MENU

SELECT A NUMBER: 1

ZONE 1

AUTO SEQUENCING ON

DAY 01 OF 02 (08:55)

STANDBY TESTING ON

DAY 00 OF 03 (00:00)

STAGING ON

CURRENT VALUE 73.8 DEG

SET VALUE +0070.0 DEG

SENSITIVITY +005.0 DEG

1=VIEW A DIFFERENT ZONE

2=RETURN TO MAIN MENU

SELECT A NUMBER:

View Control Status

For details on this feature, see [View Control Status](#) on page 47.

View Control Status

CONTROL STATUS

RELAY STATUS

RELAY 1 OFF

RELAY 2 OFF

1=REFRESH CONTROL STATUS

2=RETURN TO MAIN MENU

SELECT A NUMBER:

A.5 Silence Alarm & Back Up Log Files (*Service Terminal Interface only*)

This section presents two options from the Main Menu that are available via the Service Terminal Interface only.

Main Menu

After connecting to the Service Terminal Interface, the Main Menu appears, as shown below. This section presents Service Terminal Interface screens for options 8 and 9:

Main Menu	
LIEBERT AC8	
VX.XXX.X	
VERTIV CORPORATION COPYRIGHT 2005	
ALL RIGHTS RESERVED	
MAIN MENU	
1=VIEW ACTIVE ALARMS	
2=VIEW ALARM LOG	
3=VIEW EVENT LOG	
4=VIEW TREND LOG	
5=VIEW INPUT & SENSOR STATUS	
6=VIEW OUTPUT STATUS	
7=VIEW PAGER NUMBERS	For sample screens, see:
8=SILENCE ALARM	Silence Alarm (Service Terminal Interface only) below
9=BACKUP LOG FILES	Back Up Log Files (Service Terminal Interface only) on the next page
A=VIEW OPERATION STATUS	
B=VIEW CONTROL RELAYS STATUS	
0=SETUP SYSTEM - LOGIN REQUIRED	
SELECT A NUMBER:1	

Silence Alarm (*Service Terminal Interface only*)

For details on this feature, see [Silence Alarm \(Service Terminal Interface\)](#) on page 49.

Silence Alarm
SILENCE ALARM

Silence alarm and reset
common alarm relay if
common alarm relay is
configured to reset with
silence alarm

1=SILENCE ALARM
2=RETURN TO MAIN MENU

SELECT A NUMBER: 1

>ALARM HAS BEEN SILENCED

Back Up Log Files (*Service Terminal Interface only*)

For details on this feature, see [Back Up Log Files \(Service Terminal Interface only\)](#) on page 49.

Back Up Alarm Log File

Backup Log Files - Alarm Log File
BACKUP LOG FILES

Backup alarm, event and trend log files

1=BACKUP ALARM LOG FILE
2=BACKUP EVENT LOG FILE
3=BACKUP TREND LOG FILE-SENSOR_1
4=BACKUP TREND LOG FILE-SENSOR_2
5=BACKUP TREND LOG FILE-SENSOR_3
6=BACKUP TREND LOG FILE-SENSOR_4
7=RETURN TO MAIN MENU

SELECT A NUMBER:1

>INITIATE A BACKUP OF ALARM LOG-YES(Y) OR NO(N)?

>[N]

>[

INSTRUCTIONS TO PERFORM BACKUP:

ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION

- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME, E.G., ALARM.LOG

>BACKUP SUCCESSFUL

Back Up Event Log File

Backup Log Files - Event Log File

BACKUP LOG FILES

Backup alarm, event and trend log files

- 1=BACKUP ALARM LOG FILE
- 2=BACKUP EVENT LOG FILE
- 3=BACKUP TREND LOG FILE-SENSOR_1
- 4=BACKUP TREND LOG FILE-SENSOR_2
- 5=BACKUP TREND LOG FILE-SENSOR_3
- 6=BACKUP TREND LOG FILE-SENSOR_4
- 7=RETURN TO MAIN MENU

SELECT A NUMBER:2

>INITIATE A BACKUP OF EVENT LOG-YES(Y) OR NO(N)?

>[N]

>[

INSTRUCTIONS TO PERFORM BACKUP:

ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION

- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME, E.G., EVENT.LOG

>BACKUP SUCCESSFUL

Back Up Trend Log Files

Backup Log Files - Trend Log Files

BACKUP LOG FILES

Backup alarm, event and trend log files

- 1=BACKUP ALARM LOG FILE
- 2=BACKUP EVENT LOG FILE
- 3=BACKUP TREND LOG FILE-SENSOR_1
- 4=BACKUP TREND LOG FILE-SENSOR_2
- 5=BACKUP TREND LOG FILE-SENSOR_3
- 6=BACKUP TREND LOG FILE-SENSOR_4
- 7=RETURN TO MAIN MENU

SELECT A NUMBER:3

>INITIATE A BACKUP OF TREND LOG-YES(Y) OR NO(N)?

>[N]

>[

INSTRUCTIONS TO PERFORM BACKUP:

ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION

- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME, E.G., SENSOR_1.LOG

>BACKUP SUCCESSFUL

A.6 Setup Menu

The Setup menu allows the user to configure the Liebert AC8—setting up inputs and outputs and an input/output matrix to trigger actions, and system features such as date and time. This menu also provides a vehicle for manually changing the state of an output to ON or OFF, clearing active alarms and deleting records from the Liebert AC8's alarm log, event log and trend logs.

Main Menu

After you connect to the Service Terminal Interface, the Main Menu appears, as shown below.

Main Menu

```
LIEBERT AC8
VX.XXX.X
VERTIV CORPORATION COPYRIGHT 2005
ALL RIGHTS RESERVED
```

```
MAIN MENU
1=VIEW ACTIVE ALARMS
2=VIEW ALARM LOG
3=VIEW EVENT LOG
4=VIEW TREND LOG
5=VIEW INPUT & SENSOR STATUS
6=VIEW OUTPUT STATUS
7=VIEW PAGER NUMBERS
8=SILENCE ALARM
9=BACKUP LOG FILES
```

```
A=VIEW OPERATION STATUS
B=VIEW CONTROL RELAYS STATUS
0=SETUP SYSTEM - LOGIN REQUIRED
```

```
SELECT A NUMBER:0
```

- Choose 0 to access the features illustrated in this section.

Login Menu

The System and Control options require a password to prevent unauthorized users from making changes to the system. After you enter 0 in the Main Menu above, the Login Menu appears:

```
Login

YOU MUST LOGIN TO PERFORM
SETUP OR TO MAKE CHANGES

LOGIN WITH 4 CHARACTER
PASSWORD
>****
>INVALID PASSWORD, ENTER AGAIN
>PRESS <ESC> TO EXIT

>
```

- Enter the password, and the Setup Menu appears, as shown in the following section.

Setup Menu

This section presents Service Terminal Interface screens for each of the following:

Setup Menu		
SETUP MENU	See:	Description
1=SETUP INPUT	Setup Inputs	Configure digital inputs
2=SETUP COMMON ALARM	Setup Common Alarm	Set up the common alarm to reset with silence
3=SETUP SENSOR	Setup Sensor	Configure analog inputs
4=SETUP ZONES	Setup Zones	Assign devices to separate areas
5=SETUP OUTPUTS	Setup Output	Configure digital outputs
6=SETUP MODEM&PAGERS	Setup Modem & Pagers	Configure modem and up to four pager numbers NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.
7=SETUP SYSTEM INFORMATION*	Setup System Info	Set up features such as password and date & time*
8=SETUP OPERATION	Setup Operation	Specify rotation sequence, standby testing, staging
9=OVERRIDE OUTPUT	Override Output	Manually override automatic control of outputs
0=CLEAR ALARMS&LOGS	Clear Alarms & Logs	Clear active alarms; clear alarm, event & trend logs
A=SETUP I/O MATRIX	Setup I/O Matrix	Specify inputs to trigger actions in control relays
I=RETURN TO MAIN MENU		
SELECT A NUMBER: _		

* Setup System Information features are:

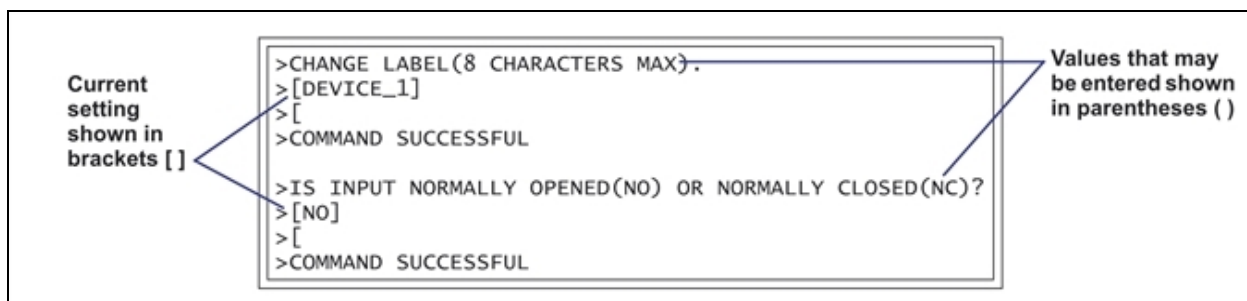
- **Change Password**
- **Set Date & Time/Automatic Daylight Saving Time**
- **Setup Site ID**
- **Connect Battery**
- **Backup and Upload Configuration File (Service Terminal Interface only)**
- **Setup Service Phone Number**
- **Factory Defaults**
- **Firmware Update (Service Terminal Interface only)**
- **Initiate Remote Alarm Test (Service Terminal Interface only)**

Note that three of these system features—Backup and Upload Configuration File, Firmware Update and Initiate Remote Alarm Test—are unique to the Service Terminal Interface.

Tips on Using the Service Terminal Interface

Use the following tips when making changes in the Service Terminal Interface:

- Data that can be entered is shown in parentheses () in prompt line.
- The current setting is shown in brackets [] in the line below the prompt
 - To accept the current setting, press the Enter key.
 - To change the current setting, enter the value and then press Enter.
- Pressing Escape will exit the current setup function or take you to the previous menu screen.



Setup Inputs

For details on this feature, see [Setup System - Setup Inputs](#) on page 55.

SETUP INPUTS

Setup input of device

Select input to edit

INPUT DEFINITION

1=DEVICE_1 NO-EV-NL-00:01
2=DEVICE_2 NO-AL-L -00:01
3=DEVICE_3 NC-EV-NL-00:01
4=DEVICE_4 NO-AL-L -00:01
5=DEVICE_5 NC-AL-L -00:01
6=DEVICE_6 NO-EV-NL-00:01
7=DEVICE_7 NO-AL-L -00:01
8=DEVICE_8 NC-EV-NL-00:01
9=RETURN TO SETUP MENU
0=RETURN TO MAIN MENU

SELECT A NUMBER: 1

NO=NORMALLY OPENED

NC=NORMALLY CLOSED

EV=EVENT

AL=ALARMABLE

NL=NOT LATCHED

L=LATCHED

MIN:SEC=DELAY TIME BEFORE

INPUT WILL TRIGGER

NOTE:EVENT CANNOT BE LATCHED

>CHANGE LABEL(8 CHARACTERS MAX).

>[DEVICE_1]

>[]

>IS INPUT NORMALLY OPENED(NO) OR NORMALLY CLOSED(NC)?

>[NO]

>[]

>IS INPUT AN ALARM(AL) OR EVENT(EV)?

>[EV]

>[]

>IS ALARM LATCHED-YES(Y) OR NO(N)?

>[N]

>[]

>DELAY TIME BEFORE TRIGGER (MM:SS)?

>[00:01]

>[]

Setup Common Alarm

For details on this feature, see [Setup System - Setup Common Alarm](#) on page 59.

```
Setup Common Alarm
SETUP COMMON ALARM
```

```
Select if the common
alarm relay contact
is to reset with
silence alarm
```

```
CURRENT SETTING
```

```
1=SETUP COMMON ALARM      N
```

```
2=RETURN TO SETUP MENU
```

```
3=RETURN TO MAIN MENU
```

```
SELECT A NUMBER: 1
```

```
>RESET COMMON ALARM WITH SILENCE-YES(Y) OR NO(N)?
```

```
>[N]
```

```
>[
```

Setup Sensor

For details on this feature, see [Setup System - Setup Sensor](#) on page 59.

SETUP SENSOR

Setup for analog
input points
Select sensor to edit

SENSOR VALUE

1=SENSOR_1 80.0 DEG
2=SENSOR_2 ----- DEG
3=SENSOR_3 80.0 DEG
4=SENSOR_4 79.5 RH
5=RETURN TO SETUP MENU
6=RETURN TO MAIN MENU

SELECT A NUMBER: 1

>IS THE SENSOR CONNECTED-YES(Y) OR NO(N)?

>[N]

>[]

>CHANGE SENSOR LABEL(8 CHARACTERS MAX).

>[SENSOR_1]

>[]

>CHANGE UNITS LABEL(3 CHARACTERS MAX).

>[DEG]

>[]

>CHANGE 4 mA VALUE(+045.0 TO +096.0).

>[+045.0]

>[]

>CHANGE 20 mA VALUE(+045.0 TO +096.0).

>[+096.0]

>[]

>CHANGE OFFSET VALUE(-999.9 TO +999.9).

>[+000.0]

>[]

>IS SENSOR AN ALARM(AL) OR EVENT(EV)?

>[AL]

>[]

>IS SENSOR ALARM LATCHED-YES(Y) OR NO(N)?

>[Y]

>[]

>CHANGE LOW SETPOINT.

```

>[-0015.0]
>[]

>CHANGE HIGH SETPOINT.
>[+0015.0]
>[]

>DELAY TIME BEFORE TRIGGER (MM:SS)?
>[00:01]
>[]

```

Setup Zones

For details on this feature, see [Setup System - Setup Zones](#) on page 66.

```

SETUP ZONES

Select zones and number
of devices in the zone

ZONES # DEVICES

1=ZONE 1    4
2=ZONE 2    0
3=ZONE 3    0
4=ZONE 4    0
5=RETURN TO SETUP MENU
6=RETURN TO MAIN MENU

SELECT A NUMBER:

># DEVICES IN ZONE 1
>[4]
>[

```

Setup Output

For details on this feature, see [Setup System - Setup Outputs](#) on page 68.

```

SETUP OUTPUTS

Setup output of device

Select output to edit

OUTPUT DEFINITION
*****
NO=NORMALLY OPENED
1=DEVICE_1 NO-OP-E-E      NC=NORMALLY CLOSED
2=DEVICE_2 NO-OP-E-E
3=DEVICE_3 NO-OP-E-E      OP=OPERATING/ON
4=DEVICE_4 NO-ST-E-E      ST=STANDBY MODE
5=DEVICE_5 NO-NU-E-E      NU=NOT USED
6=DEVICE_6 NO-NU-E-E
7=DEVICE_7 NO-NU-E-E      D=DISABLE DEVICE ON ALARM CONDITION
8=DEVICE_8 NO-NU-E-E      E=LEAVE DEVICE OPERATING ON ALARM CONDITION
9=RETURN TO SETUP MENU
0=RETURN TO MAIN MENU    D=DISABLE DEVICE IN EMERGENCY POWER OP
E=LEAVE DEVICE OPERATING (EMERGENCY POWER OP)
*****

SELECT A NUMBER: 1
>SET TO NORMALLY OPENED(NO) OR NORMALLY CLOSED(NC)
>[NO]
>[]
>DEVICE_1 TO OPERATING/ON(OP), STANDBY MODE(ST), NOT USED(NU)
>[OP]
>[]
>DEVICE_1 TO ENABLE(E) OR DISABLE(D) DEVICE ON ALARM
>[E]
>[]

>DEVICE_1 TO ENABLE(E) OR DISABLE(D) DEVICE IN EMERGENCY POWER OP
>[E]
>[

```

Setup Modem & Pagers

For details on this topic, see [Setup System - Setup Modem & Pagers](#) on page 70.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

Pager Setup

For details on this feature, see [Pager Setup - Pager Number and PIN](#) on page 75 and [Pager Setup - Communications Check \(Service Terminal Interface only\)](#) on page 77.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

SETUP MODEM&PAGERS

Input pager and
modem information

Select pager or modem

CURRENT NUMBER

1=PAGER NUMBER 1

2=PAGER NUMBER 2

3=PAGER NUMBER 3

4=PAGER NUMBER 4

5=MODEM CONFIGURATION

6=RETURN TO SETUP MENU

7=RETURN TO MAIN MENU

An "A" is required
as 1st character
for an alpha pager,
an "N" for a numeric
pager, and an "M"
for a remote modem.

SELECT A NUMBER: 1

>ENTER PAGER NUMBER(40 CHARACTERS MAX).

>[]

>[

>COMMAND SUCCESSFUL

>ENTER PAGER PIN NUMBER (20 CHARACTERS MAX).

>[]

>[

>COMMAND SUCCESSFUL

>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)? (Service Terminal Interface only)

>[N]

>[

>COMMAND SUCCESSFUL

>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM). (Service Terminal Interface only)

>[00:00]

>[

>COMMAND SUCCESSFUL

Modem Setup

For details on this feature, see [Modem Setup - Initialization String](#) on page 70 and [Modem Setup - Additional Features \(Service Terminal Interface only\)](#) on page 73.

NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.

Setup Modem & Pagers - Modem Setup

SETUP MODEM&PAGERS

Input pager and
modem information

Select pager or modem

CURRENT NUMBER

1=PAGER NUMBER 1

2=PAGER NUMBER 2

3=PAGER NUMBER 3

4=PAGER NUMBER 4

5=MODEM CONFIGURATION

6=RETURN TO SETUP MENU

7=RETURN TO MAIN MENU

An "A" is required
as 1st character
for an alpha pager,
an "N" for a numeric
pager, and an "M"
for a remote modem.

SELECT A NUMBER:5

>CHANGE MODEM INITIALIZATION STRING(40 CHARACTERS MAX).

>[ATS0=1]

>[

>COMMAND SUCCESSFUL

>ENTER AC8 PHONE NUMBER(40 CHARACTERS MAX). (Service Terminal Interface only)

>[]

>[

>COMMAND SUCCESSFUL

>ENABLE MODEM DIAGNOSTIC MESSAGES-YES(Y) OR NO(N)? (Service Terminal Interface only)

>[N]

>[

>COMMAND SUCCESSFUL

>CHANGE MODEM DIAL PREFIX. (Service Terminal Interface only)

>[ATE0X4DT]

>[

>COMMAND SUCCESSFUL

>CHANGE MODEM HANG UP DELAY AFTER A CALL(99 SEC MAX). (Service Terminal Interface only)

>[10]

>[

>COMMAND SUCCESSFUL

Setup System Info

This section presents Service Terminal Interface screens for choices 1 through 9 in the Setup System Information menu shown below. For details on this topic, see [Setup System - Setup System Info](#) on page 79.

Setup System Info

```
SETUP SYSTEM INFORMATION

1=CHANGE PASSWORD
2=SET DATE & TIME
3=SETUP SITE ID
4=CONNECT BATTERY
5=BACKUP & UPLOAD CONFIGURATION FILE
6=SETUP SERVICE PHONE NUMBER
7=SET PANEL TO FACTORY DEFAULTS
8=PERFORM FIRMWARE UPDATE
9=INITIATE REMOTE ALARM TEST
0=RETURN TO SETUP MENU
I=RETURN TO MAIN MENU
SELECT A NUMBER: _
```

Change Password

For details on this feature, see [Change Password](#) on page 80.

Change Password

```
CHANGE PASSWORD

1=CHANGE PASSWORD
2=RETURN TO SETUP SYSTEM INFO MENU
3=RETURN TO SETUP MENU
4=RETURN TO MAIN MENU

SELECT A NUMBER:1

>ENTER ORIGINAL PASSWORD(MUST BE 4 CHARACTERS).
>[****]

>ENTER NEW PASSWORD(MUST BE 4 CHARACTERS).
>[****]

>ENTER NEW PASSWORD AGAIN FOR CONFIRMATION.
>[****]

>PASSWORD CHANGE SUCCESSFUL
```

Set Date & Time/Automatic Daylight Saving Time

For details on this feature, see [Change Date & Time/Automatic Daylight Saving Time](#) on page 81.

Set Date & Time

```
SET DATE & TIME
```

```
CURRENT DATE & TIME  DST  
28-AUG-05  14:45:10  Y
```

```
1=SET DATE & TIME  
2=RETURN TO SETUP SYSTEM INFO MENU  
3=RETURN TO SETUP MENU  
4=RETURN TO MAIN MENU
```

```
SELECT A NUMBER: 1  
>SET DATE & TIME(DD-MON-YY HR:MM:SS).  
>[28-AUG-05 14:45:10]
```

```
>[
```

```
>COMMAND SUCCESSFUL
```

```
>ENABLE DAYLIGHT SAVINGS TIME-YES(Y) OR NO(N)?
```

```
>[Y]
```

```
>[
```

```
>COMMAND SUCCESSFUL
```

Setup Site ID

For details on this feature, see [Setup Site ID](#) on page 82.

Setup Site ID

SETUP SITE ID

Define name to
reference panel

CURRENT SITE ID

1=SETUP SITE ID

2=RETURN TO SETUP SYSTEM INFO MENU

3=RETURN TO SETUP MENU

4=RETURN TO MAIN MENU

SELECT A NUMBER:1

>ENTER SITE ID NAME(40 CHARACTERS MAX).

>[]

>[

>COMMAND SUCCESSFUL

Connect Battery

For details on this feature, see [Connect Battery](#) on page 82.

Connect Battery

CONNECT BATTERY

CURRENT SETTING

Y

1=CONNECT BATTERY

2=RETURN TO SETUP SYSTEM INFO MENU

3=RETURN TO SETUP MENU

4=RETURN TO MAIN MENU

SELECT A NUMBER:1

>IS THE BATTERY CONNECTED-YES(Y) OR NO(N)?

>[Y]

>[

>COMMAND SUCCESSFUL

Backup and Upload Configuration File (*Service Terminal Interface only*)

For details on this feature, see [Backup and Upload Configuration File \(Service Terminal Interface only\)](#) on page 83.

Backup & Upload Configuration File - Backup

BACKUP & UPLOAD CONFIGURATION FILE

Backup from panel saves panel configurations
Upload to panel restores panel configurations

Select to backup or upload file

1=BACKUP CONFIGURATION FILE
2=UPLOAD CONFIGURATION FILE
3=RETURN TO SETUP SYSTEM INFO MENU
4=RETURN TO SETUP MENU
5=RETURN TO MAIN MENU
SELECT A NUMBER: 1

>INITIATE A BACKUP OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[

INSTRUCTIONS TO PERFORM BACKUP:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME,E.G., AC8_CONF.SAV

>BACKUP SUCCESSFUL

Backup & Upload Configuration File - Upload

BACKUP & UPLOAD CONFIGURATION FILE

Backup from panel saves panel configurations

Upload to panel restores panel configurations

Select to backup or upload file

1=BACKUP CONFIGURATION FILE

2=UPLOAD CONFIGURATION FILE

3=RETURN TO SETUP SYSTEM INFO MENU

4=RETURN TO SETUP MENU

5=RETURN TO MAIN MENU

SELECT A NUMBER:2

>INITIATE AN UPLOAD OF CONFIGURATION FILE-YES(Y) OR NO(N)?

>[N]

>[

INSTRUCTIONS TO PERFORM UPLOAD:

ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION

- SELECT TRANSFER FROM THE TOOLBAR

- SELECT SEND FILE

- ENTER FILE NAME-CONFIGURATION FILE LOCATION & NAME,E.G., AC8_CONF.SAV

- SELECT XMODEM FROM THE PROTOCOL BOX

- SELECT SEND BUTTON

>UPLOAD SUCCESSFUL

Setup Service Phone Number

For details on this feature, see [Setup Serv Ph Num - Enter Phone Number](#) on page 85 and [Setup Serv Ph Num - Communications Check \(Service Terminal Interface only\)](#) on page 86.

Setup Service Phone Number
 SETUP SERVICE PHONE NUMBER

This number receives all alarms
 in addition to the 4 pagers

CURRENT NUMBER

1=SETUP SERVICE PHONE NUMBER
 2=RETURN TO SETUP SYSTEM INFO MENU
 3=RETURN TO SETUP MENU
 4=RETURN TO MAIN MENU

An "M" is required
 as 1st character.

SELECT A NUMBER: 1

>ENTER SERVICE PHONE NUMBER(40 CHARACTERS MAX).

>[]

>[

>COMMAND SUCCESSFUL

>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)? (Service Terminal Interface only)

>[N]

>

>COMMAND SUCCESSFUL

>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM). (Service Terminal Interface only)

>[00:00]

>[

>COMMAND SUCCESSFUL

Factory Defaults

For details on this feature, see [Factory Defaults](#) on page 88.

Factory Defaults
RESTORE FACTORY DEFAULTS

This command restores all panel
information to factory settings

1=RESTORE FACTORY DEFAULTS
2=RETURN TO SETUP SYSTEM INFO MENU
3=RETURN TO SETUP MENU
4=RETURN TO MAIN MENU

SELECT A NUMBER:1

>RESTORE THE PANEL TO FACTORY SETTINGS-YES(Y) OR NO(N)?
>[N]
[[
>COMMAND SUCCESSFUL

Initiate Remote Alarm Test (*Service Terminal Interface only*)

For details on this feature, see [Initiate Remote Alarm Test \(Service Terminal Interface only\)](#) on page 90.

Initiate Remote Alarm Test
INITIATE REMOTE ALARM TEST

This command simulates an alarm
to test alarm notification
for the service phone number

1=INITIATE REMOTE ALARM TEST
2=RETURN TO SETUP SYSTEM INFO MENU
3=RETURN TO SETUP MENU
4=RETURN TO MAIN MENU

SELECT A NUMBER:1

>SIMULATE AN ALARM CONDITION-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL

Setup Operation

For details on this feature, see [Setup Operation](#) on page 91.

Auto Sequencing

For details on this feature, see [Turn Automatic Sequencing On or Off](#) on page 92.

Setup Operation - Auto Sequencing

SETUP OPERATION BY ZONE

Select the zone for which
operation is to change

ZONE

1=ZONE 1

2=ZONE 2

3=ZONE 3

4=ZONE 4

5=RETURN TO SETUP MENU

6=RETURN TO MAIN MENU

SELECT A NUMBER:1

SETUP OPERATION

Select operation to edit
for zone 1

OPERATION STATE

1=AUTO SEQUENCING OFF

2=STANDBY TESTING OFF

3=FAILED STANDBY N

4=HOLD DELAY 10:00

5=RESTART DELAY 00:06

6=STAGING OFF

7=RETURN TO SETUP MENU

8=RETURN TO MAIN MENU

SELECT A NUMBER:1

>AUTO SEQUENCING-TYPE N FOR ON, F FOR OFF

>[N]

>[N]

>COMMAND SUCCESSFUL

>EVERY ## DAYS (.5 FOR 12 HOUR)

>[03] DAYS

>[03]

>COMMAND SUCCESSFUL

>AT

>[00:00]

>[00:00]

>COMMAND SUCCESSFUL

Standby Testing

For details on this feature, see [Turn Standby Testing On or Off](#) on page 93.

Setup Operation - Standby Testing

SETUP OPERATION BY ZONE

Select the zone for which
operation is to change

ZONE

1=ZONE 1

2=ZONE 2

3=ZONE 3

4=ZONE 4

5=RETURN TO SETUP MENU

6=RETURN TO MAIN MENU

SELECT A NUMBER:1

SETUP OPERATION

Select operation to edit
for zone 1

OPERATION STATE

1=AUTO SEQUENCING OFF

2=STANDBY TESTING OFF

3=FAILED STANDBY N

4=HOLD DELAY 10:00

5=RESTART DELAY 00:06

6=STAGING OFF

7=RETURN TO SETUP MENU

8=RETURN TO MAIN MENU

SELECT A NUMBER:2

>STANDBY TESTING-TYPE N FOR ON, F FOR OFF

>[N]

>[N]

>COMMAND SUCCESSFUL

>EVERY ## DAYS

>[03] DAYS

>[03]

>COMMAND SUCCESSFUL

>AT

>[00:00]

>[00:00]

>COMMAND SUCCESSFUL

>FOR

>[10] MIN

>[10]

```
>COMMAND SUCCESSFUL
```

Failed Standby

For details on this feature, see [Specify Failed Standby Response](#) on page 94.

Setup Operation - Failed Standby

```
SETUP OPERATION BY ZONE
```

```
Select the zone for which  
operation is to change
```

```
ZONE
```

```
1=ZONE 1
```

```
2=ZONE 2
```

```
3=ZONE 3
```

```
4=ZONE 4
```

```
5=RETURN TO SETUP MENU
```

```
6=RETURN TO MAIN MENU
```

```
SELECT A NUMBER:1
```

```
SETUP OPERATION
```

```
Select operation to edit  
for zone 1
```

```
OPERATION      STATE
```

```
1=AUTO SEQUENCING OFF
```

```
2=STANDBY TESTING OFF
```

```
3=FAILED STANDBY  N
```

```
4=HOLD DELAY    10:00
```

```
5=RESTART DELAY 00:06
```

```
6=STAGING      OFF
```

```
7=RETURN TO SETUP MENU
```

```
8=RETURN TO MAIN MENU
```

```
SELECT A NUMBER:3
```

```
>IF FAILED STANDBY,IN SAME FAILED ZONE, ENABLE A DISABLED UNIT-YES(Y) OR NO(N)?
```

```
>[N]
```

```
>[Y]
```

```
>COMMAND SUCCESSFUL
```


Hold Delay

For details on this feature, see [Specify Hold Delay Time](#) on page 95.

Setup Operation - Hold Delay

SETUP OPERATION BY ZONE

Select the zone for which
operation is to change

ZONE

1=ZONE 1

2=ZONE 2

3=ZONE 3

4=ZONE 4

5=RETURN TO SETUP MENU

6=RETURN TO MAIN MENU

SELECT A NUMBER:1

SETUP OPERATION

Select operation to edit
for zone 1

OPERATION STATE

1=AUTO SEQUENCING OFF

2=STANDBY TESTING OFF

3=FAILED STANDBY N

4=HOLD DELAY 10:00

5=RESTART DELAY 00:06

6=STAGING OFF

7=RETURN TO SETUP MENU

8=RETURN TO MAIN MENU

SELECT A NUMBER:4

>HOLD DELAY (MM:SS)

>[10:00]

>[10:00]

>COMMAND SUCCESSFUL

Staging

For details on this feature, see [Specify Staging](#) on page 96.

Setup Operation - Staging

SETUP OPERATION BY ZONE

Select the zone for which
operation is to change

ZONE

1=ZONE 1

2=ZONE 2

3=ZONE 3

4=ZONE 4

5=RETURN TO SETUP MENU

6=RETURN TO MAIN MENU

SELECT A NUMBER:1

SETUP OPERATION

Select operation to edit
for zone 1

OPERATION STATE

1=AUTO SEQUENCING OFF

2=STANDBY TESTING OFF

3=FAILED STANDBY N

4=HOLD DELAY 10:00

5=RESTART DELAY 00:06

6=STAGING OFF

7=RETURN TO SETUP MENU

8=RETURN TO MAIN MENU

SELECT A NUMBER:6

>STAGING FOR ZONE 1-TYPE N FOR ON, F FOR OFF

>[F]

>[N]

>TARGET VALUE(+045.0 TO +096.0).

>[+0070.0]

>[]

>SENSITIVITY.

>[+005.0]

>[]

>COMMAND SUCCESSFUL

Override Output

For details on this feature, see [Override Output](#) on page 99.

Override Output

OVERRIDE OUTPUT

Manually override
an output

Select output to override

OUTPUT CONTROL

1=DEVICE_1 AUTO

2=DEVICE_2 AUTO AUTO = CONTROL BY PANEL

3=DEVICE_3 AUTO FORCE ON = FORCE ON BY OPERATOR

4=DEVICE_4 AUTO FORCE OFF= FORCE OFF BY OPERATOR

5=DEVICE_5 AUTO

6=DEVICE_6 AUTO

7=DEVICE_7 AUTO

8=DEVICE_8 AUTO

9=RETURN TO SETUP MENU

0=RETURN TO MAIN MENU

SELECT A NUMBER: 1

>OVERRIDE OUTPUT DEVICE_1-AUTO(2),FORCE ON(1),FORCE OFF(0).

>[2]

>[

>COMMAND SUCCESSFUL

Clear Alarms & Logs

For details on this topic, see [Clear Alarms & Logs](#) on page 101.

Clear Active Alarms

For details on this feature, see [Clear Active Alarms](#) on page 101.

Clear Alarms & Logs - Clear Active Alarms

CLEAR ALARMS&LOGS

Clear active alarms
or log records

Select the log to clear

1=CLEAR ACTIVE ALARMS
2=CLEAR ALARM LOG
3=CLEAR EVENT LOG
4=CLEAR TREND LOGS
5=RETURN TO SETUP MENU
6=RETURN TO MAIN MENU

SELECT A NUMBER:1

>CLEAR ALL THE ACTIVE ALARMS-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL

Clear the Alarm Log

For details on this feature, see [Clear the Alarm Log](#) on page 101.

Clear Alarms & Logs - Clear the Alarm Log

CLEAR ALARMS&LOGS

Clear active alarms
or log records

Select the log to clear

1=CLEAR ACTIVE ALARMS
2=CLEAR ALARM LOG
3=CLEAR EVENT LOG
4=CLEAR TREND LOGS
5=RETURN TO SETUP MENU
6=RETURN TO MAIN MENU

SELECT A NUMBER:2

>CLEAR ALL RECORDS IN THE ALARM LOG-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL

Clear the Event Log

For details on this feature, see [Clear the Event Log](#) on page 102.

Clear Alarms & Logs - Clear the Event Log

CLEAR ALARMS&LOGS

Clear active alarms
or log records
Select the log to clear

1=CLEAR ACTIVE ALARMS
2=CLEAR ALARM LOG
3=CLEAR EVENT LOG
4=CLEAR TREND LOGS
5=RETURN TO SETUP MENU
6=RETURN TO MAIN MENU

SELECT A NUMBER:3

>CLEAR ALL RECORDS IN THE EVENT LOG-YES(Y) OR NO(N)?

>[N]

>[

>COMMAND SUCCESSFUL

Clear the Trend Logs

For details on this feature, see [Clear the Trend Logs](#) on page 102.

Clear Alarms & Logs - Clear the Trend Logs

CLEAR ALARMS&LOGS

Clear active alarms
or log records
Select the log to clear

1=CLEAR ACTIVE ALARMS
2=CLEAR ALARM LOG
3=CLEAR EVENT LOG
4=CLEAR TREND LOGS
5=RETURN TO SETUP MENU
6=RETURN TO MAIN MENU

SELECT A NUMBER:4

>CLEAR ALL RECORDS IN THE TREND LOGS-YES(Y) OR NO(N)?

>[N]

>[

>COMMAND SUCCESSFUL

Setup I/O Matrix

For details on this feature, see [Setup System - Setup I/O Matrix](#) on page 97.

Setup I-O Matrix - Map Input to Control Relay	Setup I-O Matrix - Map Sensor to Control Relay																																																
SETUP I/O MATRIX Program input & sensors to control relays Select to map inputs or sensors 1=MAP INPUT TO CONTROL RELAY 2=MAP SENSOR TO CONTROL RELAY 3=RETURN TO SETUP MENU 4=RETURN TO MAIN MENU SELECT A NUMBER:1	SETUP I/O MATRIX Program input & sensors to control relays Select to map inputs or sensors 1=MAP INPUT TO CONTROL RELAY 2=MAP SENSOR TO CONTROL RELAY 3=RETURN TO SETUP MENU 4=RETURN TO MAIN MENU SELECT A NUMBER:1																																																
MAP INPUT TO CONTROL RELAY Program input to control relays Select input to map <table border="0"> <thead> <tr> <th>INPUT</th> <th>CONTROL RELAY</th> </tr> </thead> <tbody> <tr> <td></td> <td>1 2</td> </tr> <tr> <td>1=DEVICE_1</td> <td>N N</td> </tr> <tr> <td>2=DEVICE_2</td> <td>N N</td> </tr> <tr> <td>3=DEVICE_3</td> <td>N N</td> </tr> <tr> <td>4=DEVICE_4</td> <td>N N</td> </tr> <tr> <td>5=DEVICE_5</td> <td>N N</td> </tr> <tr> <td>6=DEVICE_6</td> <td>N N</td> </tr> <tr> <td>7=DEVICE_7</td> <td>N N</td> </tr> <tr> <td>8=DEVICE_8</td> <td>N N</td> </tr> <tr> <td>0=RETURN TO SETUP I/O MATRIX</td> <td></td> </tr> <tr> <td>I=RETURN TO SETUP MENU</td> <td></td> </tr> </tbody> </table> SELECT A NUMBER:1	INPUT	CONTROL RELAY		1 2	1=DEVICE_1	N N	2=DEVICE_2	N N	3=DEVICE_3	N N	4=DEVICE_4	N N	5=DEVICE_5	N N	6=DEVICE_6	N N	7=DEVICE_7	N N	8=DEVICE_8	N N	0=RETURN TO SETUP I/O MATRIX		I=RETURN TO SETUP MENU		MAP SENSOR TO CONTROL RELAY Program sensor to control relays Select sensor to map <table border="0"> <thead> <tr> <th>SENSOR</th> <th>CONTROL RELAY</th> </tr> </thead> <tbody> <tr> <td></td> <td>1 2</td> </tr> <tr> <td>1=SENSOR_1 HIGH STPT</td> <td>N N</td> </tr> <tr> <td>2=SENSOR_1 LOW STPT</td> <td>N N</td> </tr> <tr> <td>3=SENSOR_2 HIGH STPT</td> <td>N N</td> </tr> <tr> <td>4=SENSOR_2 LOW STPT</td> <td>N N</td> </tr> <tr> <td>5=SENSOR_3 HIGH STPT</td> <td>N N</td> </tr> <tr> <td>6=SENSOR_3 LOW STPT</td> <td>N N</td> </tr> <tr> <td>7=SENSOR_4 HIGH STPT</td> <td>N N</td> </tr> <tr> <td>8=SENSOR_4 LOW STPT</td> <td>N N</td> </tr> <tr> <td>9=RETURN TO SETUP I/O MATRIX</td> <td></td> </tr> <tr> <td>0=RETURN TO SETUP MENU</td> <td></td> </tr> </tbody> </table> SELECT A NUMBER:1	SENSOR	CONTROL RELAY		1 2	1=SENSOR_1 HIGH STPT	N N	2=SENSOR_1 LOW STPT	N N	3=SENSOR_2 HIGH STPT	N N	4=SENSOR_2 LOW STPT	N N	5=SENSOR_3 HIGH STPT	N N	6=SENSOR_3 LOW STPT	N N	7=SENSOR_4 HIGH STPT	N N	8=SENSOR_4 LOW STPT	N N	9=RETURN TO SETUP I/O MATRIX		0=RETURN TO SETUP MENU	
INPUT	CONTROL RELAY																																																
	1 2																																																
1=DEVICE_1	N N																																																
2=DEVICE_2	N N																																																
3=DEVICE_3	N N																																																
4=DEVICE_4	N N																																																
5=DEVICE_5	N N																																																
6=DEVICE_6	N N																																																
7=DEVICE_7	N N																																																
8=DEVICE_8	N N																																																
0=RETURN TO SETUP I/O MATRIX																																																	
I=RETURN TO SETUP MENU																																																	
SENSOR	CONTROL RELAY																																																
	1 2																																																
1=SENSOR_1 HIGH STPT	N N																																																
2=SENSOR_1 LOW STPT	N N																																																
3=SENSOR_2 HIGH STPT	N N																																																
4=SENSOR_2 LOW STPT	N N																																																
5=SENSOR_3 HIGH STPT	N N																																																
6=SENSOR_3 LOW STPT	N N																																																
7=SENSOR_4 HIGH STPT	N N																																																
8=SENSOR_4 LOW STPT	N N																																																
9=RETURN TO SETUP I/O MATRIX																																																	
0=RETURN TO SETUP MENU																																																	

Setup I-O Matrix - Map Input to Control Relay	Setup I-O Matrix - Map Sensor to Control Relay
<p>>MAP DEVICE_1 TO RELAY 1-YES(Y) OR NO (N)?</p> <p>>[Y]</p> <p>>[</p> <p>>COMMAND SUCCESSFUL</p>	<p>>MAP SENSOR_1 HIGH STPT TO RELAY 1-YES(Y) OR NO(N)?</p> <p>>[N]</p> <p>>[</p> <p>>COMMAND SUCCESSFUL</p>
<p>>MAP DEVICE_1 TO RELAY 2-YES(Y) OR NO (N)?</p> <p>>[N]</p> <p>>[</p> <p>>COMMAND SUCCESSFUL</p>	<p>>MAP SENSOR_1 HIGH STPT TO RELAY 2-YES(Y) OR NO(N)?</p> <p>>[N]</p> <p>>[</p> <p>>COMMAND SUCCESSFUL</p>

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Appendix B: Default Settings Quick Reference Guide

This appendix provides a quick reference to default settings for the Liebert AC8. These settings also appear throughout the manual.

Table B.1

Liebert AC8 - default settings for inputs and outputs

DEFAULT SETTINGS - DIGITAL INPUTS (FROM Table 7.2 on page 56)			
Feature	Default	Other Options	
LABEL	DEVICE_1 - DEVICE_8	Any name (up to eight characters)	
NORM OPEN/CLOSE	NO (Normally open)	NC (Normally closed)	
ALARM/EVENT	AL (Alarmable)	EV (Event)	
LATCHED	L (Latched) / Y (Yes)*	NL (Unlatched) / N (No)*	
DELAY	00:01 (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59	
* NOTE: Different abbreviations are used to designate a digital input as Latched (L/Y) or Unlatched (NL/N) in Select Input/Set Inputs screens.			
DEFAULT SETTINGS - ANALOG SENSOR INPUTS (FROM TABLE 7.4 ON PAGE 60)			
Feature	Default	Other Options	
CONNECTED*	N (Not connected)*	Y (Connected)**	
LABEL	SENSOR_1 - SENSOR_4	Any name (up to eight characters)	
UNITS	DEG	Any units (up to three characters)	
4 mA	+045.0	Can define up to two decimal places—e.g., -99.99	
20 mA	+096.0	Can define up to two decimal places—e.g., +99.99	
OFFSET	+000.0	Can define up to two decimal places—e.g., +00.00	
ALARM/EVENT	AL (Alarmable)	EV (Event)	
LATCHED	N (Unlatched)	Y (Latched)	
LOW SETPT	+0050.0	Can define up to two decimal places—e.g., -999.99	
HIGH SETPT	+0090.0	Can define up to two decimal places—e.g., +999.99	
SENSOR DELAY	00:01 (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59	
* If a sensor is configured as N (Not connected), the display will show an empty reading (blank spaces).			
** If a sensor is configured as Y (Connected) and is functioning properly, the display will show a reading.			
If the connected sensor is not functioning properly, the display will show dashes (-----) indicating a problem.			
DEFAULT MAPPINGS - DIGITAL INPUTS TO CONTROL RELAYS (FROM TABLE 7.17 ON PAGE 98)			
Digital input	Mapping to control relay:	Digital input	Mapping to control relay:
Device_1	(none)	Device_5	(none)
Device_2	(none)	Device_6	(none)
Device_3	(none)	Device_7	(none)
Device_4	(none)	Device_8	(none)

Table B.1 Liebert AC8 - default settings for inputs and outputs (continued)

DEFAULT MAPPINGS - ANALOG INPUTS TO CONTROL RELAYS (FROM TABLE 7.18 ON PAGE 99)			
Analog input	Mapping to control relay:		Analog input
Sensor_1	(none)		Sensor_3
Sensor_2	(none)		Sensor_4
DEFAULT SETTINGS - DIGITAL OUTPUTS (FROM Table 7.6 on page 69)			
Feature	Default		Other Options
NORM OPEN/CLOSE	NO (Normally open)		NC (Normally closed)
MODE*	Outputs 1-2: Outputs 3-4: Outputs 5-8:	OP (Operating) ST (Standby) NU (Not Used)	OP (Operating) ST (Standby) NU (Not Used)
IN ALARM	E (Enable)		D (Disable)
EMERG OP	E (Enable)		D (Disable)

Table B.2
Liebert AC8 - other default settings

DEFAULT SETTINGS - operation features (FROM Table 7.15 on page 92)		
Feature	Default	Other Options
AUTO SEQUENCING	OFF (Deactivated)	ON (Activated), 12h (Activated for 12-hour intervals)
STANDBY TESTING	OFF (Deactivated)	ON (Activated)
FAILED STANDBY	N (Deactivated)	Y (Activated)
HOLD DELAY	10:00 (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
RESTART	00:06 (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
STAGING	OFF (Deactivated)	ON (Activated)
JUMPER SETTINGS		
Feature	Default	Other Options
Digital output loss-of-power jumpers	OFF - Normally Open	ON - Normally Closed
NOTE: The jumper position has no effect on the contact when the Liebert AC8 has power.		
12VDC/24VDC analog input jumper	24VDC	Acceptable voltage for all four two-wire analog sensors
422 TERM jumper	Default: jumpered (connected)	None—do NOT change factory default
485 TERM jumper	Default: jumpered (connected)	None—do NOT change factory default
EPOP jumper	Disabled	Enable to use the EPOP input
Audible horn	Enabled	May be disabled via the audible horn jumper
Manual Override switch	Off (outputs controlled by programming)	On (Turn on all output relays)
DEFAULT SETTINGS - MODEM (FROM Table 7.8 on page 71)		
NOTE: If the first 5 digits of the serial number on your AC8 are greater than "18283," then modem and pager function is not supported.		
Feature	Default	Other Options

Table B.2 Liebert AC8 - other default settings (continued)

Initialization String (InitString)	ATS0=1	Any string (up to 40 characters); for international dialing, add +GCI=xx, where xx is the country code (except B5 countries—see Table 7.9 on page 72)
Enable Modem Diagnostic Messages	N (disable)	Y (enable)
Modem Dial Prefix	ATEOX4DT	Any string
Modem Hang Up Delay After a Call	10 seconds	Any number (up to 99 seconds)
DIP SWITCH SETTINGS		
Feature	Default	Other Options
8-position DIP switch	All are OFF (down)	May be used to reset password to factory default (see 9.9.1- Change Password)
OTHER SETTINGS		
Feature	Default	Other Options
Change state of outputs - automatic or manual control	AUTO (automatic control)	Force an output ON / OFF via Manual Output Ctrl menu Force all outputs ON via hardware switch
Password	AAAA	Any 4 characters (see Table 7.1 on page 53 for valid characters)
Reset common alarm with silence	N (not reset)	Y (reset with silence)
Battery connected	Y (connected)	N (not connected)

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