

Liebert[®] AC4[™]
User Manual



TABLE OF CONTENTS

1.0	INTRODUCTION	
1.1	Methods of Viewing and Configuring the Liebert AC4	1
1.2	Data Logs	1
1.3	Available Alarms	1
1.4	Outside Enclosure Overview	2
1.5	Typical Configuration	3
1.6	Controller Board Overview	4
1.7	LED Indicators	6
1.8	Typical Sequence	7
2.0	INSTALLATION	
2.1	Installation Considerations	8
2.1.1	Unpacking and Preliminary Inspection	8
2.2	Surface-Mounting the Liebert AC4	9
2.2.1	Mounting the Panel	9
2.3	Flush-Mounting the Liebert AC4	10
2.3.1	Mounting the Panel	10
2.4	Connect Power to the Liebert AC4	11
3.0	WIRING AND CONNECTIONS	
3.1	Wiring Specifications	12
3.2	Connecting Digital Inputs and Outputs	13
3.2.1	Connecting Digital Inputs	13
3.2.2	Connecting Digital Outputs	14
3.2.3	Setting the Digital Output Jumpers	14
3.3	Connecting Common Alarm Outputs	15
3.4	RS232 Connector	15
4.0	OVERVIEW OF MENUS	
4.1	Opening Screen Overview	17
4.2	Main Menu Overview	17
4.3	LCD Menu Overview	17
5.0	VIEW STATUS OPTIONS	
5.1	View Active Alarms	19
5.1.1	Active Alarms	19
5.2	View Alarm Log	20
5.2.1	Alarm Log	20
5.2.2	Backing Up the Alarm Log (<i>Service Terminal Interface only</i>)	20
5.3	View Event Log	21
5.3.1	Event Log	21
5.3.2	Backing Up the Event Log (<i>Service Terminal Interface only</i>)	21
5.4	View Input Status	22
5.4.1	Input Status	22
5.5	View Output Status	23
5.5.1	Output Status	23

6.0	SILENCE ALARM & BACKUP LOG FILES (SERVICE TERMINAL INTERFACE)	
6.1	Silence Alarm (<i>Service Terminal Interface</i>)	24
6.2	Back Up Log Files (<i>Service Terminal Interface only</i>)	25
7.0	SYSTEM AND CONTROL OPTIONS	
7.1	Login	27
7.2	Setup System - Overview	29
7.3	Setup System - Setup Inputs	29
	7.3.1 Change Label (Name of Input)	30
	7.3.2 Define Input as Normally Open or Normally Closed	30
	7.3.3 Define Input as Alarmable or Event	30
	7.3.4 Set Up Alarmable Inputs in Latched or Unlatched Mode	31
	7.3.5 Set Up Delay Time	31
7.4	Setup System - Setup Common Alarm	32
7.5	Setup System - Setup Zones	33
	7.5.1 Set Up a Zone	33
7.6	Setup System - Setup Outputs	34
	7.6.1 Define Output as Normally Open or Normally Closed	34
	7.6.2 Define Operating or Standby Mode	35
	7.6.3 Enable or Disable an Output Device in Alarm Status	35
	7.6.4 Configure Output for Loss of Power (“Fail-Safe”)	35
7.7	Setup System - Setup System Info	36
	7.7.1 Change Password	36
	7.7.2 Set Date & Time/Automatic Daylight Saving Time	37
	7.7.3 Setup Site ID	37
	7.7.4 Backup and Upload Configuration File (<i>Service Terminal Interface only</i>)	38
	7.7.5 Factory Defaults	41
	7.7.6 Perform Firmware Update (<i>Service Terminal Interface only</i>)	41
7.8	Setup Operation	43
	7.8.1 Turn Automatic Sequencing On or Off	44
	7.8.2 Turn Standby Testing On or Off	45
	7.8.3 Specify Failed Standby Response	45
	7.8.4 Specify Hold Delay Time	46
	7.8.5 Specify Restart Time	46
7.9	Override Output	47
7.10	Clear Alarms & Logs	48
	7.10.1 Clear Active Alarms	48
	7.10.2 Clear the Alarm Log	48
	7.10.3 Clear the Event Log	48
8.0	SPECIFICATIONS	
8.1	Liebert AC4 Specifications	49

APPENDIX A - SERVICE TERMINAL INTERFACE	51
A.1 Comparison of Functions: LCD and Service Terminal Interface.	51
A.2 Connecting to the Service Terminal Interface	52
A.2.1 Create a Connection	53
A.2.2 Connect to the Service Terminal Interface	55
A.3 Overview of Menus	56
A.3.1 View Status Overview	56
A.3.2 Silence Alarm and Backup Log Files.	56
A.3.3 Setup Menu Overview	56
A.4 View Status Menus.	57
A.4.1 View Active Alarms	57
A.4.2 View Alarm Log	58
A.4.3 View Event Log.	59
A.4.4 View Input Status.	59
A.4.5 View Output Status	60
A.5 Silence Alarm & Back Up Log Files (<i>Service Terminal Interface only</i>).	61
A.5.1 Silence Alarm (<i>Service Terminal Interface only</i>)	61
A.5.2 Back Up Log Files (<i>Service Terminal Interface only</i>).	62
A.6 Setup Menu.	63
A.6.1 Setup Inputs	65
A.6.2 Setup Common Alarm	66
A.6.3 Setup Zones.	66
A.6.4 Setup Outputs.	67
A.6.5 Setup System Info.	68
A.6.6 Setup Operation	73
A.6.7 Override Output	76
A.6.8 Clear Alarms & Logs	77

FIGURES

Figure 1	Liebert AC4 enclosure—external features	2
Figure 2	Liebert AC4 enclosure—internal features	2
Figure 3	Typical Configuration	3
Figure 4	Example of typical sequence	7
Figure 5	Mounting dimensions	9
Figure 6	Electrical connections to panel	11
Figure 7	LCD Menu overview	17
Figure 8	Menu overview - View Status menu	18
Figure 9	Menu overview - System and Control menu	28

TABLES

Table 1	Controller board components	4
Table 2	LED indicators summary	6
Table 3	Packing manifest	8
Table 4	Wiring specifications	12
Table 5	Digital output jumper settings	14
Table 6	Guide to Liebert AC4 functions	16
Table 7	Primary Functions Overview	17
Table 8	Alarm log conditions	20
Table 9	Event log conditions	21
Table 10	Digital input states	22
Table 11	Digital output states	23
Table 12	Valid characters for data entry	27
Table 13	Default settings - digital inputs	29
Table 14	Input and output labels	30
Table 15	Default zones	33
Table 16	Possible combinations - outputs per zone	33
Table 17	Default settings - digital outputs	34
Table 18	Default settings - operation features	43
Table 19	Failed Standby response	45
Table 20	Automatic / manual control - output points	47
Table 21	Guide to Liebert AC4 functions	51

1.0 INTRODUCTION

The Liebert AC4 is ideal for coordinated control of systems with redundant equipment, such as multiple environmental units or pumps. When the Liebert AC4 controller detects an alarm in an operating device, the Liebert AC4 enables a standby device and controls the device in alarm as configured, either leaving that device operating or disabling it.

The Liebert AC4 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 AC4 can perform routine testing of standby devices and alert personnel if a standby device fails an operating test and requires attention.

Another capability of the Liebert AC4 is monitoring the status of connected devices and keeping personnel apprised through local alarming.

The Liebert AC4 controller can interface with anything that closes an electrical contact. To improve process efficiency and troubleshooting, the controller tracks data in two types of logs: alarm and event. The Liebert AC4 has a local LCD interface and an RS232 interface.

When an alarm condition arises, the Liebert AC4 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. See **1.5 Typical Configuration** for a more detailed example.

1.1 Methods of Viewing and Configuring the Liebert AC4

The Liebert AC4 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 a computer connected directly to an RS232 port

These interfaces permit easy access and configuration of the Liebert AC4, allowing users to view data, silence alarms and have full access to information stored in the controller, including logs of alarms and events.

1.2 Data Logs

The two types of data logs—alarm history and event history—can be viewed on the LCD on the front of the Liebert AC4 or the Service Terminal Interface. The logs may also be downloaded to a computer through the Service Terminal Interface.

1.3 Available Alarms

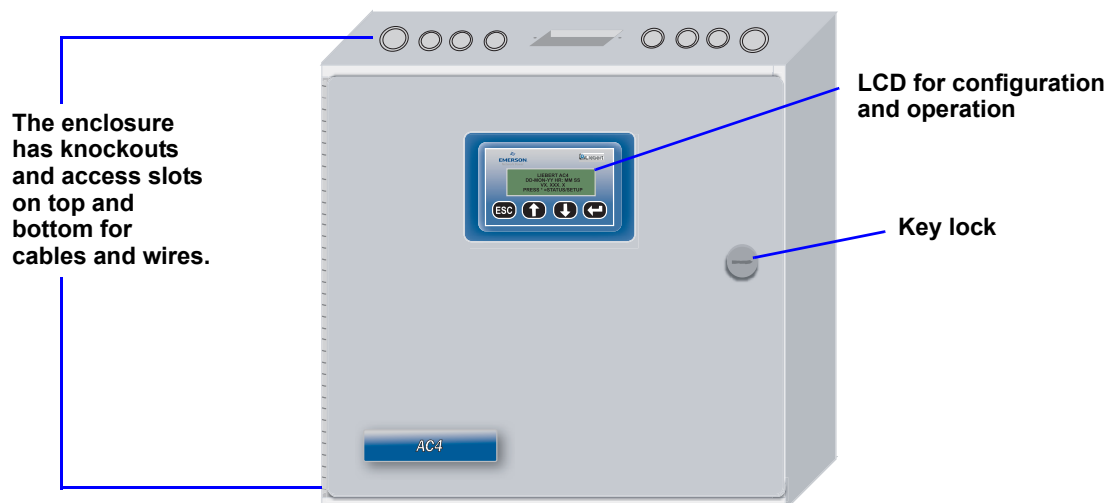
The alarms available with the Liebert AC4 are:

- Discrete input alarm (for each digital input)
- Loss of power
- No standby available
- Standby device failed
- No restart available

1.4 Outside Enclosure Overview

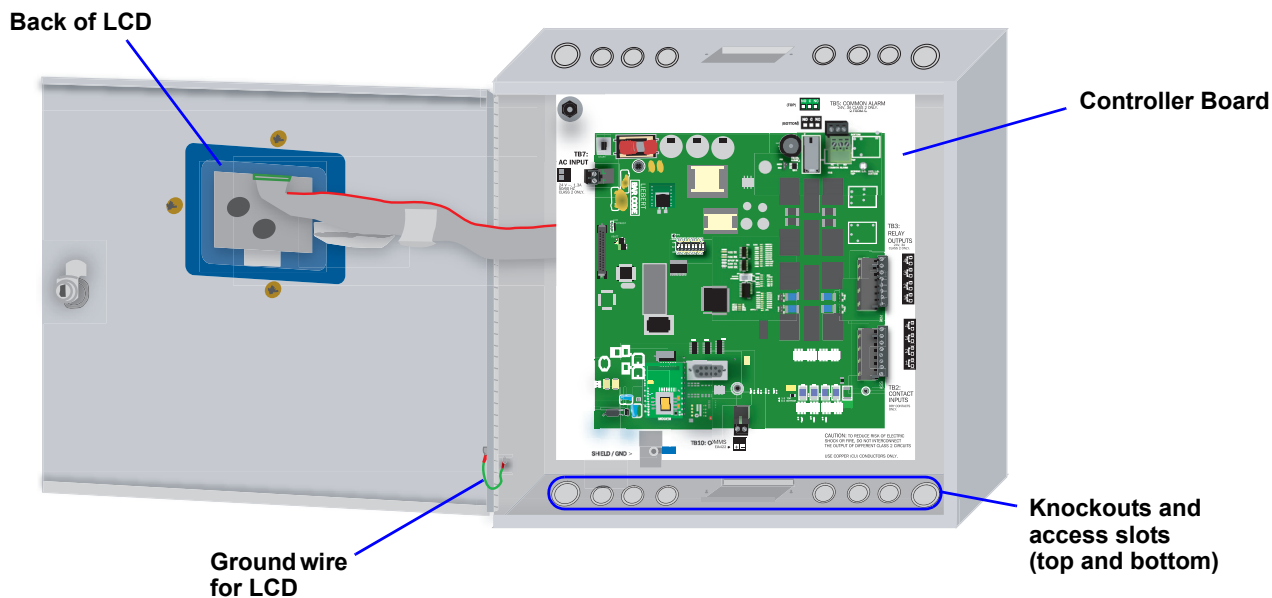
The Liebert AC4 controller board comes in an enclosure that is 2-3/4" deep and has a built-in liquid crystal display (LCD) and a key lock, as shown in **Figure 1**. The enclosure is made of metal to accommodate secure conduit fittings and protect components against environmental debris.

Figure 1 Liebert AC4 enclosure—external features



The enclosure must be secured to a wall, either flush-mounted or recessed in the wall, as described in **2.0 Installation**. 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.

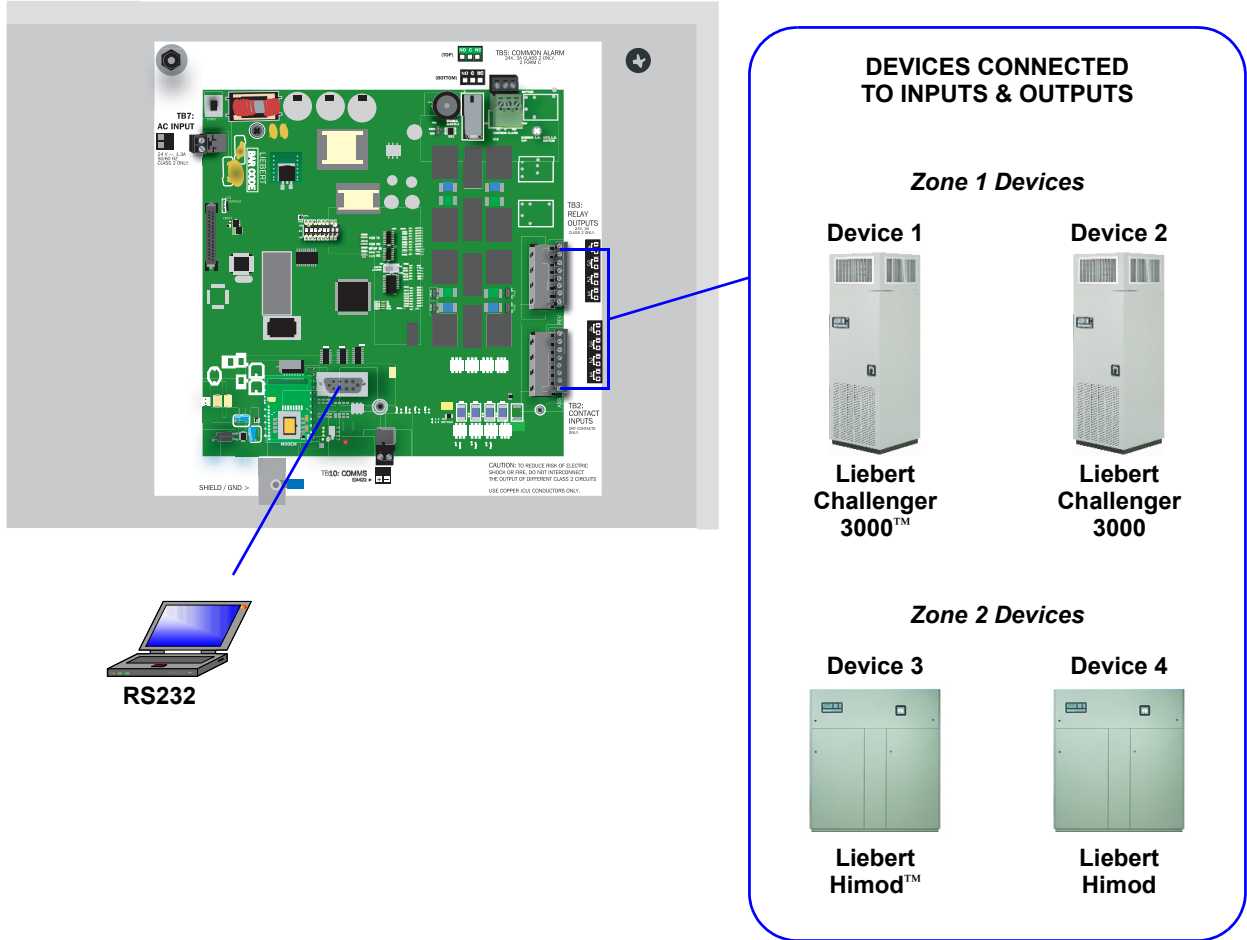
Figure 2 Liebert AC4 enclosure—internal features



1.5 Typical Configuration

Figure 3 shows an example of external devices connected to the Liebert AC4 controller board. There may be up to four devices connected to the four digital inputs and four digital outputs. Remote access is available through the Service Terminal Interface.

Figure 3 Typical Configuration



1.6 Controller Board Overview

The Liebert AC4 controller board has connectors for four digital inputs and four digital outputs, as shown below. The board comes complete with light emitting diodes (LEDs) to display the status of connected devices, a serial communications port, a power connection and other features necessary to control your operation.

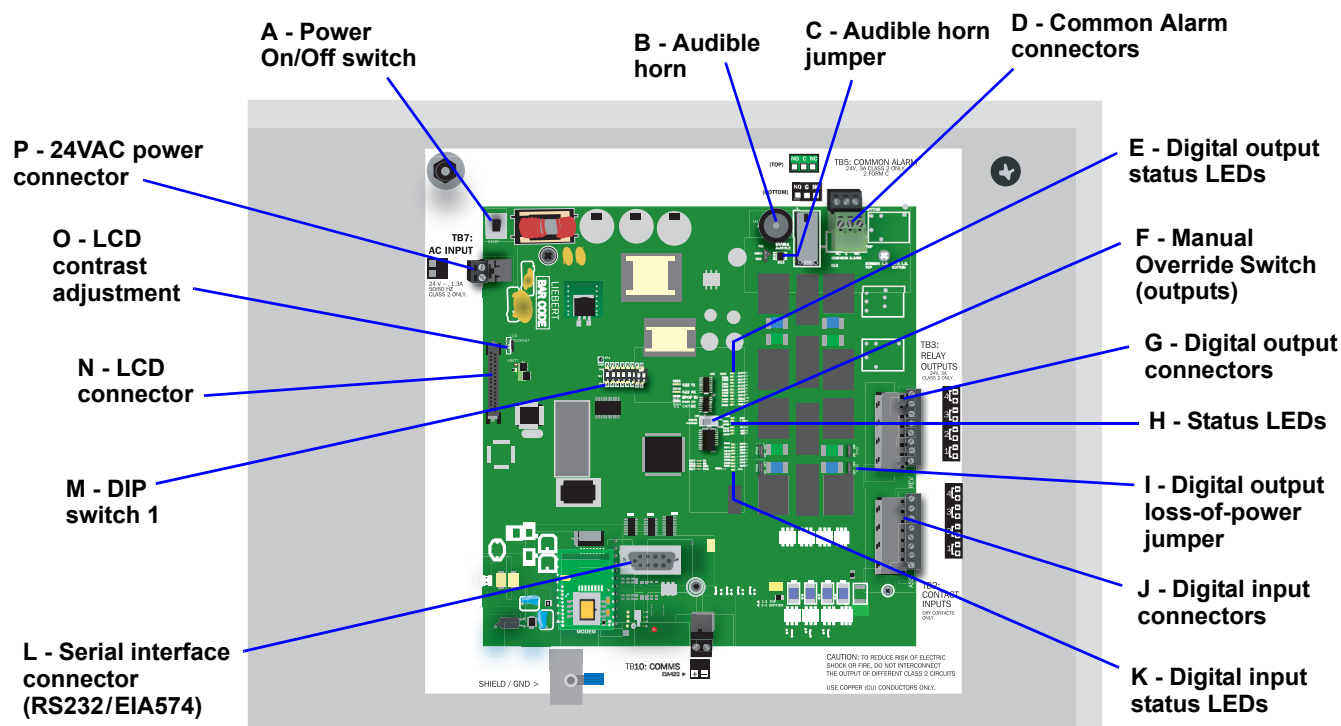


Table 1 Controller board components

Item	Description	For more information, see:
A - Power On/Off switch	Power switch for the controller board.	2.4: Connect Power to the Liebert AC4
B - Audible horn	Provides audible notification when an alarm occurs.	N/A
C - Audible horn jumper	Jumper to disable the audible horn (factory default is enabled).	N/A
D - 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 3.3: Connecting Common Alarm Outputs 7.4: Setup System - Setup Common Alarm
E - Digital output status LEDs	Each output has an LED to indicate its status: ON/OFF (energized/de-energized).	1.7: LED Indicators
F - Manual Override Switch (outputs)	Placing the switch in the ON position will turn ON, or energize, all four outputs simultaneously. This switch removes all automatic output control from the Liebert AC4.	7.9: Override Output
G - Digital output connectors	Each of the four output connections is a two-state point: ON/OFF (energized/de-energized). An example of a field digital output is a Liebert Environmental unit's remote shutdown input.	3.0: Wiring and Connections 3.2.2: Connecting Digital Outputs 5.5: View Output Status 7.6: Setup System - Setup Outputs
H - Status LEDs	Indicates the operational status of the controller board.	1.7: LED Indicators

Table 1 Controller board components (continued)

Item	Description	For more information, see:
I - Digital output loss-of-power jumper	One of four 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 AC4 has power.	3.2.3: Setting the Digital Output Jumpers 7.6.4: Configure Output for Loss of Power ("Fail-Safe")
J - Digital input connectors	Each of the four input connections is a two-state point: ON/OFF (energized/de-energized). An example of a field digital input is a Liebert Environmental unit's common alarm relay output.	3.0: Wiring and Connections 3.2.1: Connecting Digital Inputs 5.4: View Input Status 7.3: Setup System - Setup Inputs
K - Digital input status LEDs	Each input has an LED to indicate its status: ON/OFF (energized/de-energized).	1.7: LED Indicators
L - 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).	3.4: RS232 Connector A.2: Connecting to the Service Terminal Interface
M - DIP switch 1	DIP switch used for resetting password to default.	7.7.1: Change Password
N - LCD connector	Connection for the LCD on the enclosure door.	N/A
O - LCD contrast adjustment	Adjustment contrast for the LCD on the enclosure door.	N/A
P - 24VAC power connector	Power connection for the controller. Requires 24VAC.	2.4: Connect Power to the Liebert AC4

1.7 LED Indicators

The Liebert AC4 controller board has LED indicators that show the status of inputs, outputs and the common alarm

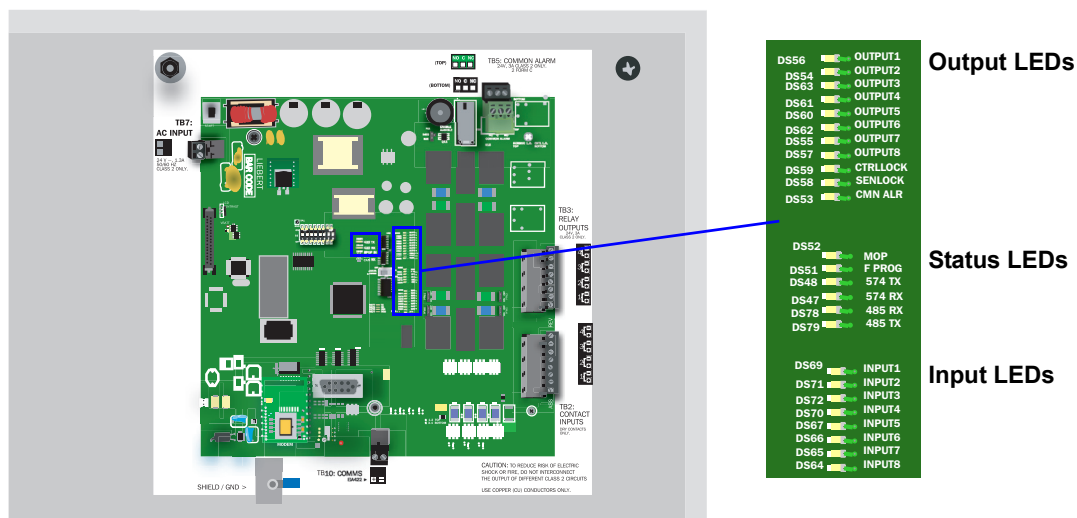


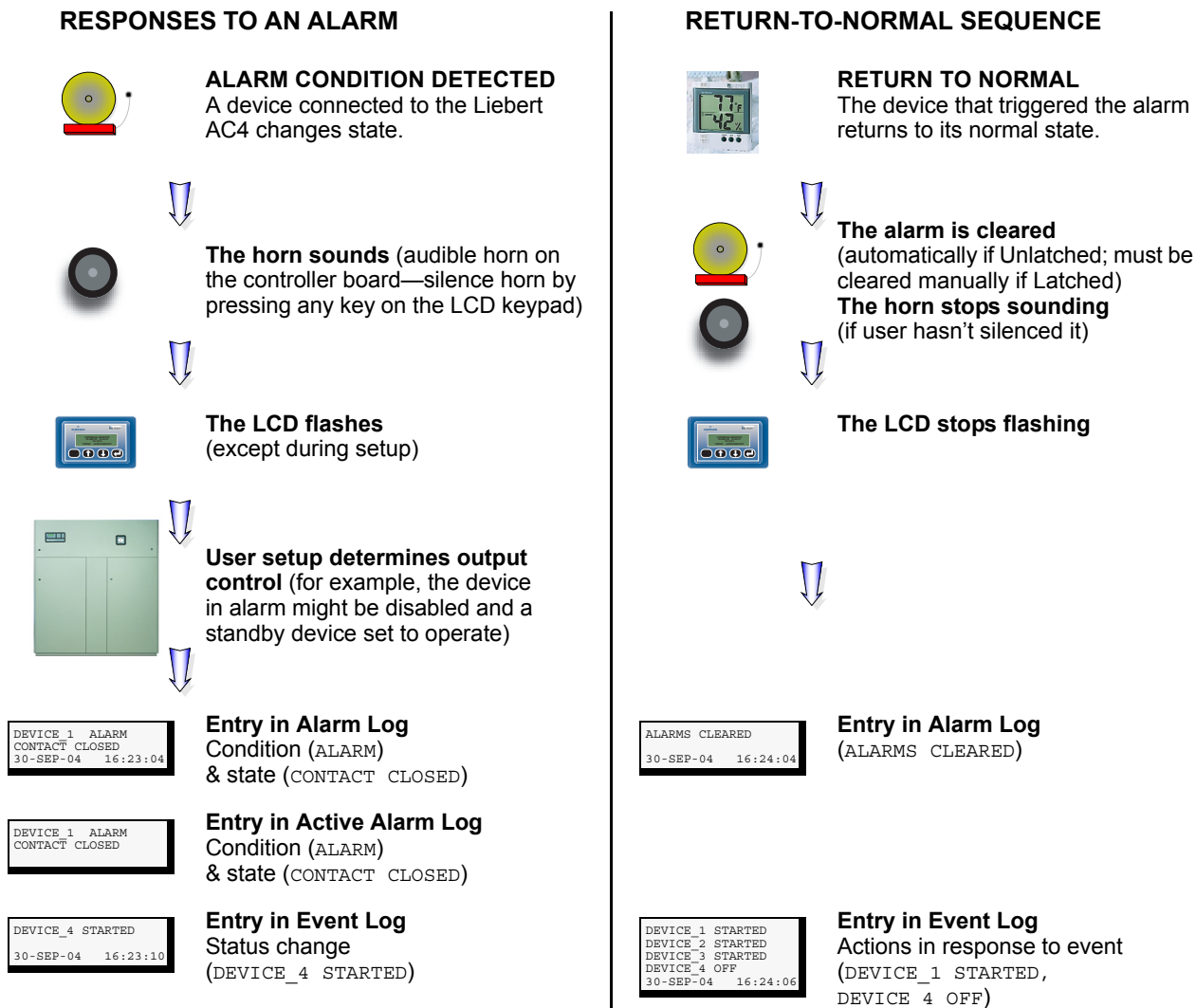
Table 2 LED indicators summary

LED Type	LED	Color	Description
EIA422 LEDs	422 TX	Green	Liebert AC4 is transmitting information over the EIA422 port
	422 RX	Green	Liebert AC4 is receiving information over the EIA422 port
Output LEDs	OUTPUT1	Green	Not used
	OUTPUT2	Green	Not used
	OUTPUT3	Green	Not used
	OUTPUT4	Green	Not used
	OUTPUT5	Green	Indicates output 1 is ON or energized
	OUTPUT6	Green	Indicates output 2 is ON or energized
	OUTPUT7	Green	Indicates output 3 is ON or energized
	OUTPUT8	Green	Indicates output 4 is ON or energized
	CTRLLOCK	N/A	Not used
	SENLOCK	N/A	Not used
	CMN ALR	Green	Indicates output is ON or energized
Status LEDs	MOP	Green	Indicates the microprocessor is operating properly (MOP)—must be on before Liebert AC4 will function
	FPROG	Green	Indicates firmware is being upgraded—lights up during upgrade process
	574 TX or 232 TX	Green	Liebert AC4 is transmitting information via the RS232 port
	574 RX or 232 RX	Green	Liebert AC4 is receiving information via the RS232 port
	485 RX	Green	Not used
	485 TX	Green	Not used
Input LEDs	INPUT1	Red	Not used
	INPUT2	Red	Not used
	INPUT3	Red	Not used
	INPUT4	Red	Not used
	INPUT5	Red	Indicates input 1 is ON or energized
	INPUT6	Red	Indicates input 2 is ON or energized
	INPUT7	Red	Indicates input 3 is ON or energized
	INPUT8	Red	Indicates input 4 is ON or energized

1.8 Typical Sequence

Figure 4 shows a typical sequence of how the Liebert AC4 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 4 Example of typical sequence



2.0 INSTALLATION

2.1 Installation Considerations

The Liebert AC4 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 to be connected and the type of wall the unit will be mounted on.

The Liebert AC4 should be mounted where it can be easily accessed. On-site personnel would access the unit through the LCD on its front cover or the service terminal connected to the RS232 port.

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

The wall material must be capable of supporting the weight of the Liebert AC4: see **8.0 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 AC4, 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 AC4 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:

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

Packing Contents

Table 3 Packing manifest

Standard Components
Liebert AC4 controller board in enclosure
User Manual
Keys (2) to panel door lock
RS232 Configuration Cable

2.2 Surface-Mounting the Liebert AC4



NOTE

Removing the conduit knockouts before mounting the Liebert AC4 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



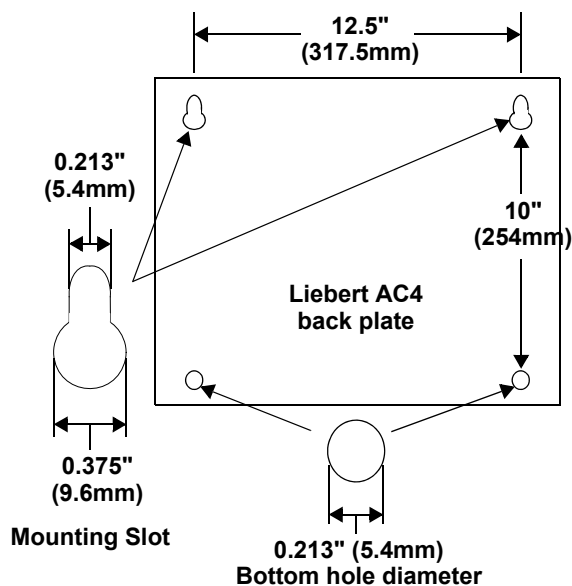
WARNING

Risk of electric shock. Can cause property damage, injury and death.

Check building plans and other relevant documents to determine whether mounting the Liebert AC4 at the selected location might cause cutting or otherwise damaging electrical or communication wiring or pipes.

1. Mark the wall for mounting holes, using the back of the unit as a template (see **Figure 5**).
2. Drill holes, if required, to install the four #10 screws that will secure the Liebert AC4 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 AC4 (see inset in **Figure 5**). The screws must also be large enough to extend over the edges of the top of the mounting slot.
5. Hang the Liebert AC4 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 5 Mounting dimensions



2.3 Flush-Mounting the Liebert AC4



NOTE

Removing the conduit knockouts before mounting the Liebert AC4 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 AC4 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 AC4 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 AC4
- Trim ring and associated hardware
- Mounting hardware

2.3.1 Mounting the Panel



WARNING

Risk of electric shock. Can cause property damage, injury and death.

Check building plans and other relevant documents to determine whether mounting the Liebert AC4 at the selected location might cause cutting or otherwise damaging electrical or communication wiring or pipes.

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 AC4 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 AC4. 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 AC4

The Liebert AC4 requires 24VAC for proper operation. Liebert recommends using the optional Transformer Module manufactured by Liebert or another UL-approved class 2 power unit to obtain proper voltage. If the power unit is not a class 2 circuit, it must be protected with an IEC 5 x 20mm time lag 2A fuse. For information, consult your local dealer, Emerson representative or the Emerson Network Power Liebert Worldwide Support Group.

! WARNING

Risk of electric shock. Can cause property damage, injury and death.

Check that power is removed from wires prior to installation. This unit should be installed only by properly trained and qualified personnel.

! CAUTION

Risk of electric shock. Can cause property damage, injury and death.

The Liebert AC4 is designed for use on properly grounded (earthed) 24VAC power, 50Hz or 60Hz. 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

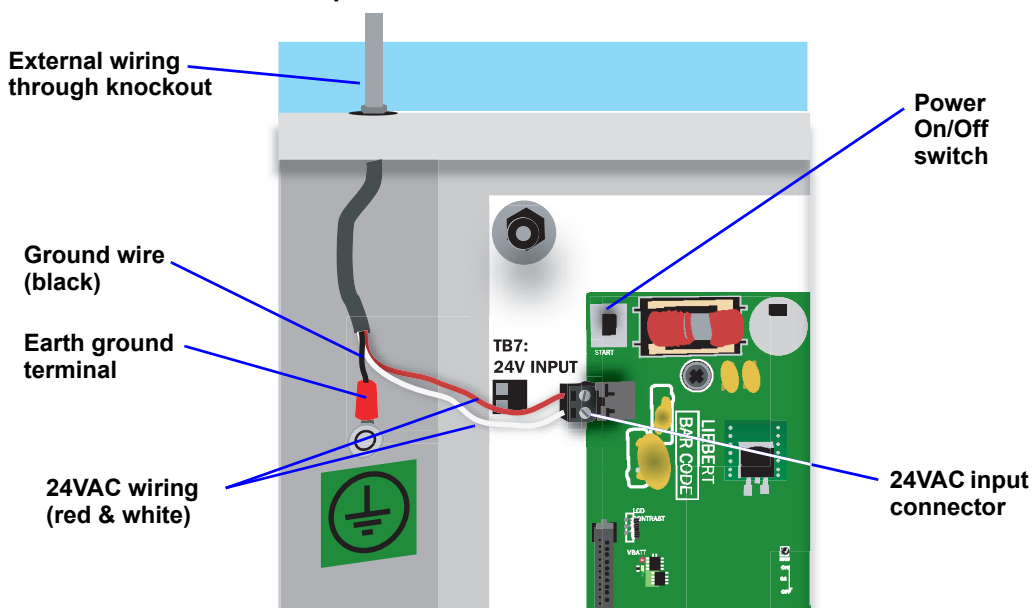
Risk of electric shock. Can cause property damage, injury and death.

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.

To connect electrical power:

1. Run conduit and electrical wiring from building to the Liebert AC4.
2. Use copper wires only; proper wiring to use for power is 18-22 AWG stranded and shielded (18 AWG is recommended—see **Table 4**). Strip wires 1/2".

Figure 6 Electrical connections to panel



3. Secure the incoming electrical service wires to the Liebert AC4's 24VAC input by sliding the wires into TB7, the 24VAC input terminal block. There is no polarity requirement when connecting to TB7. The ground wire must be connected to the earth ground terminal located on the side of the panel (see **Figure 6**).

3.0 WIRING AND CONNECTIONS



WARNING

Risk of electric shock. Can cause property damage, injury and death.

Switch Off electric power to the Liebert AC4 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.

3.1 Wiring Specifications

Input and output connections to the Liebert AC4 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 4 Wiring specifications

Connection	Supported Wire Type	Maximum Wire Length			Rating
Digital Input	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	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)	
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	50 ft. (15m)			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

* Recommended

3.2 Connecting Digital Inputs and Outputs

The digital inputs and outputs are on the lower right side of the Liebert AC4 printed wiring assembly board. This section describes how to connect devices to the Liebert AC4's inputs and outputs.

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 4 is tied to Output 4 (default name: Device_4)

Up to four devices may be connected to the Liebert AC4. Each device must be connected to an input and an output with the same number.

To determine the proper wire size, see **Table 4 Wiring specifications**.



NOTE

Each terminal block is a removable assembly to permit easier connection of more than one input or output at a time. If making multiple connections, grasp the upper portion of a block and pull firmly 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 Precision Cooling Units

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

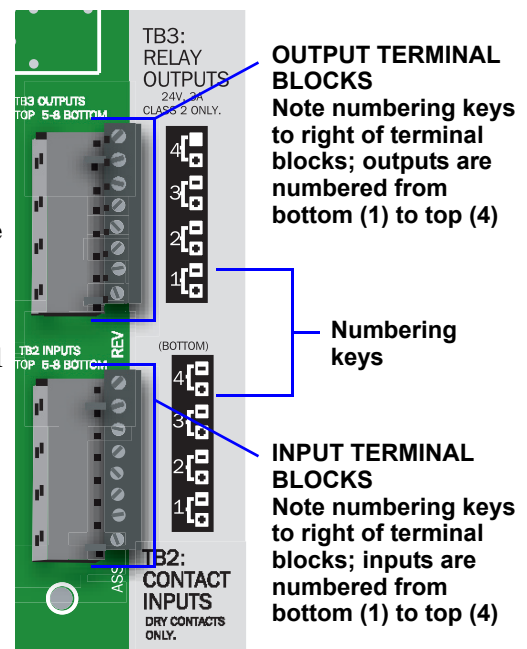
- Connect a digital input from the Liebert AC4 to the Common Alarm Relay of the environmental unit: terminals 75/76 or TB1-6, TB1-7.
- Connect a digital output (numbered the same as the input) from the Liebert AC4 to the Remote Shutdown (Power Control) of the environmental unit: terminal 37/38 or TB1-4, TB1-5.

3.2.1 Connecting Digital Inputs

The four digital inputs are on the lower right side of the Liebert AC4, just below the output terminal blocks, as shown at right. These inputs are numbered 1 through 4.

To connect an input:

1. Turn Off electrical power to the Liebert AC4.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC4 enclosure.
3. Bring the wire(s) into the Liebert AC4 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.



3.2.2 Connecting Digital Outputs

The four digital outputs are found on the lower right side of the Liebert AC4 just above the input terminal blocks, as shown at right. These outputs are numbered 1 through 4.

To connect an output:

1. Turn OFF electrical power to the Liebert AC4.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC4 enclosure.
3. Bring the wire(s) into the Liebert AC4 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. This puts the Liebert AC4 in a *fail-safe mode* and ensures proper functioning when the board has no power.

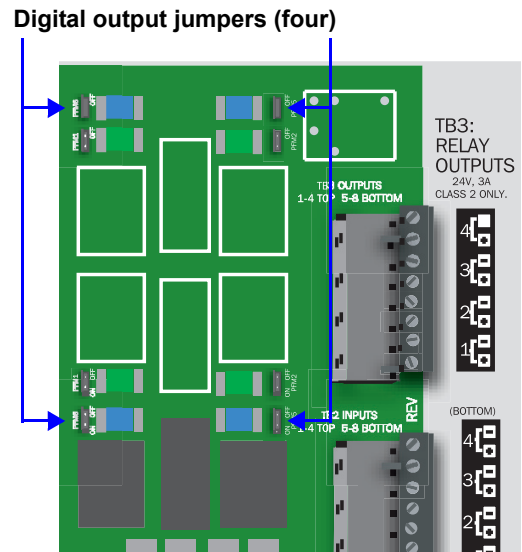
The Liebert AC4 comes from the factory with all digital output jumpers in the OFF position (normally open). The jumper setting for each digital output can be changed to ON (normally closed). The settings are shown in **Table 5**.

Table 5 Digital output jumper settings

Setting	Output status (power loss)
OFF	Normally open
ON	Normally closed

To change the output jumper setting:

1. Find the respective loss-of-power jumper on the circuit board, as shown above. See **Table 1 Controller board components** for more information.
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 loss-of-power jumper on the middle and top pins.
 - Set the jumper to ON by placing the black jumper on the middle and bottom pins.



3.3 Connecting Common Alarm Outputs

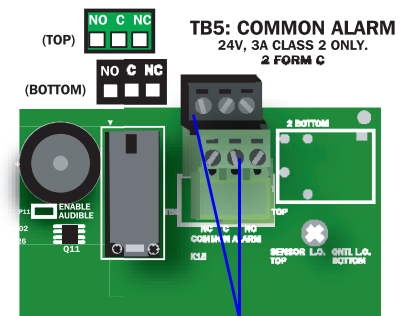
The common alarm relay, found in the top right corner of the Liebert AC4, permits the user to connect auxiliary notification equipment, such as lights, horns and sirens, to the Liebert AC4. To determine the proper wire size, see **Table 4 Wiring specifications**.

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 AC4.
2. If necessary, remove a conduit knockout to permit wire entry into the Liebert AC4 enclosure.
3. Bring the wire(s) into the Liebert AC4 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.



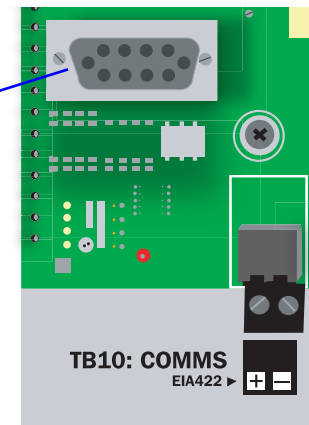
Common alarm outputs

3.4 RS232 Connector

The Liebert AC4's Service Terminal Interface offers full configuration and monitoring capability via the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).

The RS232 port requires a null modem cable. Connect one end of the cable to the Liebert AC4's RS232 port, shown at right, and the other end to the COM1 port of a laptop computer or video terminal.

Serial interface connector (RS232/EIA574)



4.0 OVERVIEW OF MENUS

There are two ways to access the Liebert AC4: 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 **Sections 5.0 through 7.0**. 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 **Appendix A - Service Terminal Interface**, along with instructions on how to connect to the Service Terminal Interface.

Table 6 lists all Liebert AC4 functions and shows whether they can be performed through the LCD interface and where to find information.

Table 6 Guide to Liebert AC4 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	4	4	page 19	page 57
View Alarm Log	4	4	page 20	page 58
View Event Log	4	4	page 21	page 59
View Input Status	4	4	page 22	page 59
View Output Status	4	4	page 23	page 60
SILENCE ALARM & BACK UP LOGS FUNCTIONS				
Silence Alarm (On the LCD, press any key to silence an alarm)	4	4	page 24	page 61
Back Up Log Files	—	4	page 25	page 62
SYSTEM & CONTROL FUNCTIONS				
Login	4	4	page 27	page 63
Setup System	4	4	page 29	page 64
Setup Inputs	4	4	page 29	page 65
Setup Common Alarm	4	4	page 32	page 66
Setup Zones	4	4	page 33	page 66
Setup Outputs	4	4	page 34	page 67
Setup System Info	4	4	page 36	page 68
Change Password	4	4	page 36	page 68
Set Date & Time/Automatic Daylight Saving Time	4	4	page 37	page 69
Setup Site ID	4	4	page 37	page 69
Backup and Upload Configuration File	—	4	page 38	page 70
Factory Defaults	4	4	page 41	page 71
Perform Firmware Update	—	4	page 41	page 72
Setup Operation	4	4	page 43	page 73
Override Output	4	4	page 47	page 76
Clear Alarms & Logs	4	4	page 48	page 77
Clear Active Alarms	4	4	page 48	page 77
Clear the Alarm Log	4	4	page 48	page 77
Clear the Event Log	4	4	page 48	page 78

4.1 Opening Screen Overview

The Liebert AC4 displays the Opening Screen at startup, as shown in **Figure 7**.

- If any alarms are active, the Current Alarm screen appears. (Pressing any key on the LCD keypad will silence the audible alarm.)

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 7**, the functions are organized into three sections with step-by-step instructions.

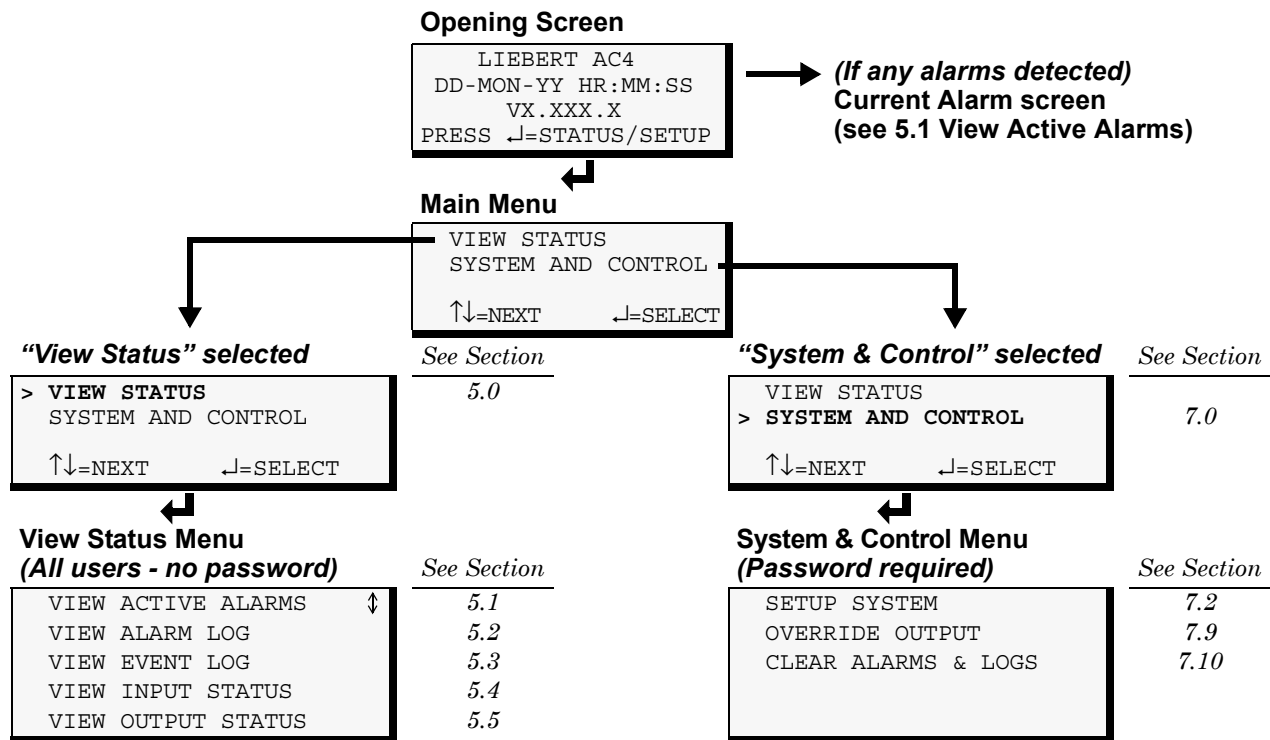
Table 7 Primary Functions Overview

Section	Description
5.0 - 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 active alarms • View the current status of digital inputs and outputs • View data stored in the alarm and event logs
6.0 - 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 and event logs
7.0 - 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 AC4 • Override automatic control of outputs to force an output ON or OFF • Clear active alarms and delete all records in the alarm and event logs

4.3 LCD Menu Overview

Figure 7 shows an overview of the initial screens available through the LCD interface. For comparable information about the Service Terminal Interface screens, see **A.3 - Overview of Menus**.

Figure 7 LCD Menu overview



5.0 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 **Appendix A - Service Terminal Interface**.

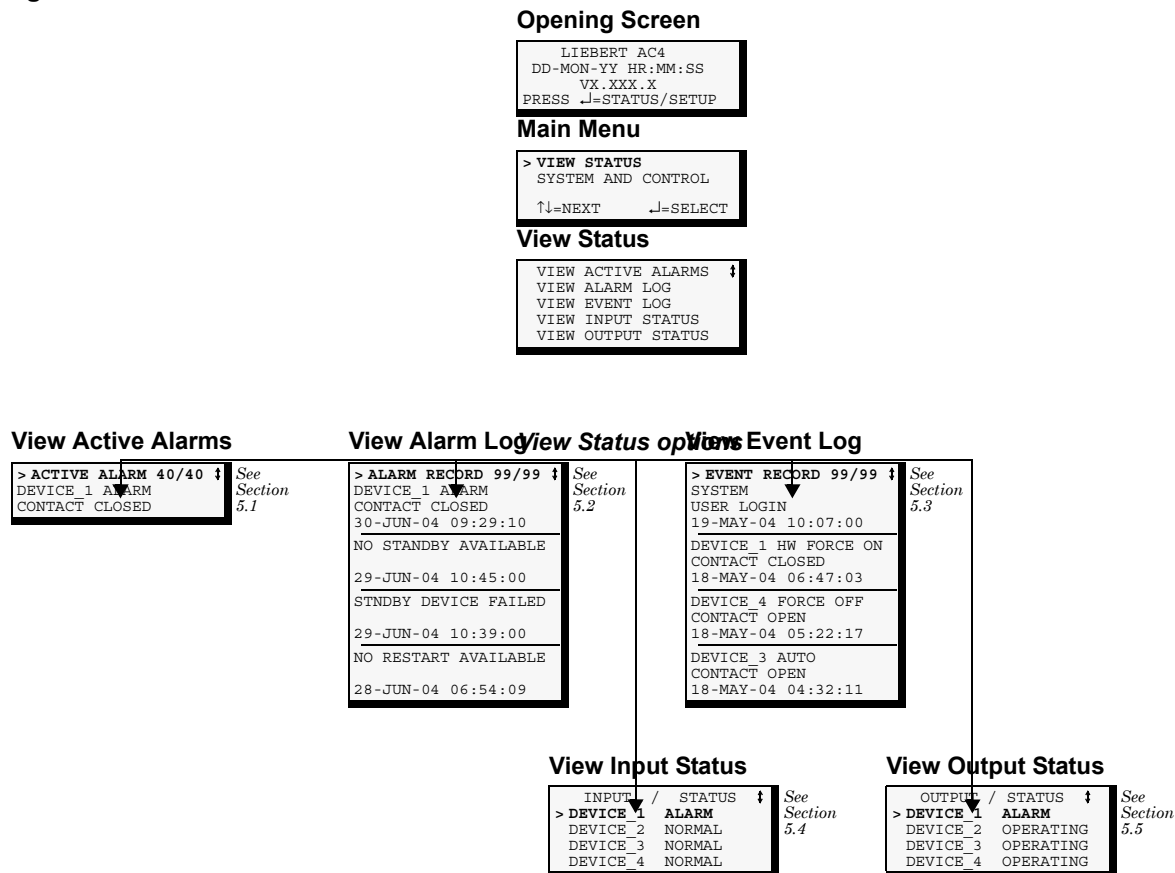
The View Status menu allows any user to view currently active alarms, data stored in the alarm and event logs and the status of all inputs and outputs. The arrows \updownarrow are used to scroll through the menu. The Enter \downarrow key is used to select the menu item.

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

- View Active Alarms
- View Alarm Log
- View Event Log
- View Input Status
- View Output Status

Figure 8 shows the main options available from the View Status menu.

Figure 8 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 40.

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

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL
  ↑↓=NEXT      ↵=SELECT
```

View Status Menu

```
> VIEW ACTIVE ALARMS  ↕
  VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
```

Active Alarms

```
> ACTIVE ALARM 01/40  ↕
  DEVICE_1 ALARM
  CONTACT CLOSED
```

5.1.1 Active Alarms

The Active Alarms screen displays up to 40 records; it shows any active alarm and any Latched alarm that has not been cleared. Examples of alarms include inputs in alarm status and failure of a standby device. When any alarms are present, the Active Alarms screen shows descriptive details for each alarm:

- the source of the alarm (for example, `DEVICE_1`)
- the status of an input (`CONTACT CLOSED`)

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

NO ALARMS PRESENT

Viewing Additional Screens

There may be up to 40 records of alarm data.

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

Clearing Active Alarms

To clear all active alarms, see **7.10 Clear Alarms & Logs**. 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 $\uparrow\downarrow$ to choose **View Status**, then press Enter \downarrow .
- From the View Status Menu, use the arrows $\uparrow\downarrow$ to choose **View Alarm Log**, then press Enter \downarrow .

5.2.1 Alarm Log

The Alarm Log screen displays up to 99 records showing alarm data, including inputs and outputs in alarm status and failure of a standby device. If the log contains any alarm records, the Alarm Log screen displays details for each alarm:

- the source of the alarm (for example, DEVICE_1)
- the status of an input or output (CONTACT CLOSED) or a brief description of the problem (STNDBY DEVICE FAILED)
- the date and time the alarm occurred

Table 8 shows conditions that the alarm log records for digital inputs and in the panel itself.

Table 8 Alarm log conditions

SOURCE	Digital Input	Panel
CONDITIONS RECORDED	ALARM NORMAL	LOSS OF POWER ALARM SILENCED ALARMS CLEARED STNDBY DEVICE FAILED NO STANDBY AVAILABLE NO RESTART AVAILABLE

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 $\uparrow\downarrow$.
- 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 AC4; 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 **6.2 Back Up Log Files (Service Terminal Interface only)**.

To delete all records in the alarm log, see **7.10 Clear Alarms & Logs**.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL
  ↑↓=NEXT      ↓=SELECT
```

View Status Menu

```
VIEW ACTIVE ALARMS  ↑
> VIEW ALARM LOG
VIEW EVENT LOG
VIEW INPUT STATUS
VIEW OUTPUT STATUS
```

Alarm Log

```
> ALARM RECORD 99/99  ↑
DEVICE_1 ALARM
CONTACT CLOSED
30-JUN-04 09:29:10
NO STANDBY AVAILABLE

29-JUN-04 10:45:00
STNDBY DEVICE FAILED

29-JUN-04 10:39:00
NO RESTART AVAILABLE

28-JUN-04 06:54:09
```

5.3 View Event Log

In addition to alarms, the Liebert AC4 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. 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 $\uparrow\downarrow$ to choose **View Status**, then press Enter \downarrow .
- From the View Status Menu, use the arrows $\uparrow\downarrow$ to choose **View Event Log**, then press Enter \downarrow .

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, DEVICE_1)
- the status of an input or output (CONTACT CLOSED) or a brief description of the event (USER LOGIN)
- the date and time the event occurred

Table 9 shows conditions that the event log records for inputs and outputs and in the panel itself.

Table 9 Event log conditions

SOURCE	Digital Input	Digital Output	Panel
CONDITIONS RECORDED	EVENT NORMAL	STARTED ON OFF HW FORCE ON AUTO FORCE ON FORCE OFF RESTORED	ALARMS CLEARED ALARM SILENCED NO STANDBY OUTPUTS AVAILABLE NO STANDBY TESTING DEVICE AVAILABLE TIME & DATE SET USER LOGIN

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 $\uparrow\downarrow$.
- 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 AC4; 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 **6.2 Back Up Log Files (Service Terminal Interface only)**.

To delete all records in the event log, see **7.10 Clear Alarms & Logs**.

Main Menu

```
> VIEW STATUS
SYSTEM AND CONTROL

↑↓=NEXT      ↵=SELECT
```

View Status Menu

```
VIEW ACTIVE ALARMS  ↑↓
VIEW ALARM LOG
> VIEW EVENT LOG
VIEW INPUT STATUS
VIEW OUTPUT STATUS
```

Event Log

```
> EVENT RECORD 99/99  ↑↓
SYSTEM
USER LOGIN
19-MAY-04 10:07:00
-----
DEVICE_1 HW FORCE ON
CONTACT CLOSED
18-MAY-04 06:47:03
-----
DEVICE_4 FORCE OFF
CONTACT OPEN
18-MAY-04 05:22:17
-----
DEVICE_3 AUTO
CONTACT OPEN
18-MAY-04 04:32:11
-----
DATE AND TIME SET
18-MAY-04 03:11:43
-----
DEVICE_4 FORCE ON
CONTACT CLOSED
18-MAY-04 02:34:00
```

5.4 View Input Status

The Input Status option allows you to view the current status of all four digital inputs.

To view the Input Status:

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **View Status**, then press Enter \downarrow .
- From the View Status Menu, use the arrows $\uparrow\downarrow$ to choose **View Input Status**, then press Enter \downarrow .

5.4.1 Input Status

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

The following details appear for digital inputs:

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

There are three possible states for a digital input, as shown in **Table 10**.

Table 10 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 $\uparrow\downarrow$.
- To return to the previous screen, press the ESC key.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL
  ↑↓=NEXT      ↵=SELECT
```

View Status Menu

```
VIEW ACTIVE ALARMS  ↑↓
VIEW ALARM LOG
VIEW EVENT LOG
> VIEW INPUT STATUS
  VIEW OUTPUT STATUS
```

Input Status

```
INPUT / STATUS  ↑↓
> DEVICE_1 ALARM
  DEVICE_2 NORMAL
  DEVICE_3 NORMAL
  DEVICE_4 NORMAL
```

5.5 View Output Status

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

To view the Output Status:

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **View Status**, then press Enter \downarrow .
- From the View Status Menu, use the arrows $\uparrow\downarrow$ to choose **View Output Status**, then press Enter \downarrow .

5.5.1 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 11.

Table 11 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
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 $\uparrow\downarrow$.
- To return to the previous screen, press the ESC key.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL
  ↑↓=NEXT      ↵=SELECT
```

View Status Menu

```
VIEW ACTIVE ALARMS  ↑↓
VIEW ALARM LOG
VIEW EVENT LOG
VIEW INPUT STATUS
> VIEW OUTPUT STATUS
```

Output Status

```
OUTPUT / STATUS  ↑↓
> DEVICE_1 ALARM
  DEVICE_2 OPERATING
  DEVICE_3 OPERATING
  DEVICE_4 OPERATING
```

6.0 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.



NOTE

An alarm may also be silenced by pressing any key on the LCD keypad on the front of the Liebert AC4. 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 AC4 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **6** (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

(Service Terminal Interface only)

```

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.”

6.2 Back Up Log Files (Service Terminal Interface only)

The Liebert AC4 maintains two types of logs—alarm and event—that may be backed up to a remote computer.

This feature is available only through the Service Terminal Interface.

To back up the alarm or event log:

1. Connect to the Liebert AC4 through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
2. At the Main Menu, enter **7** (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

Backup Log Files - Event Log File

(Service Terminal Interface only)

```

BACKUP LOG FILES

Backup alarm and event log files

1=BACKUP ALARM LOG FILE
2=BACKUP EVENT LOG FILE
3=RETURN TO MAIN MENU

SELECT A NUMBER:2

```

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

```

>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

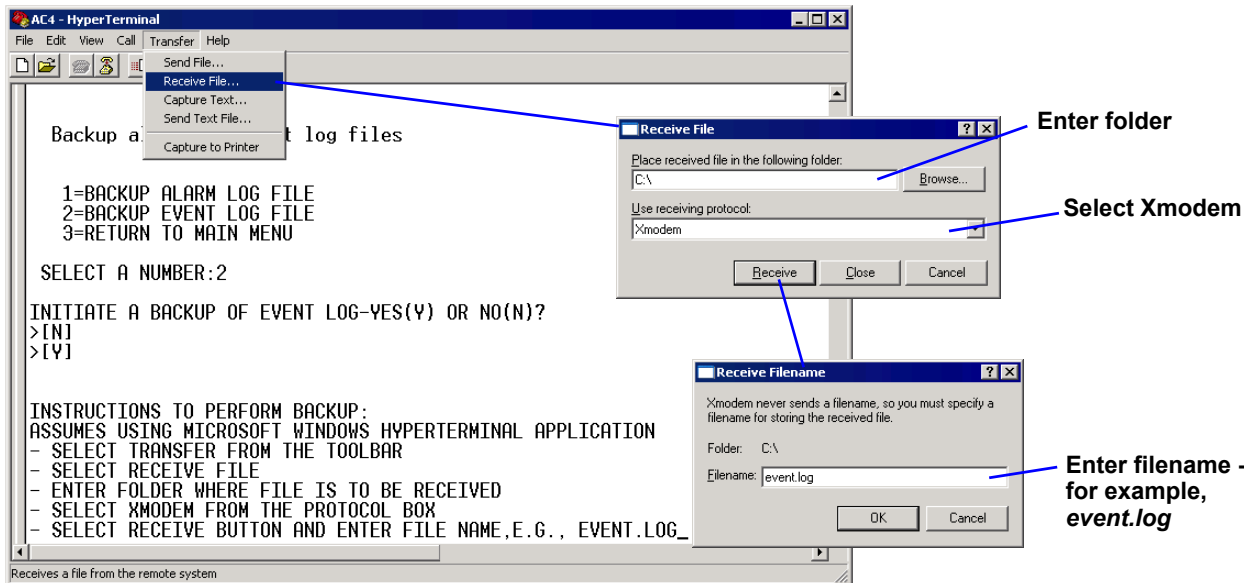
```



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:\downloads**—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—**Event.log** in the example above.

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

```

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
    
```

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**) or press **3** (or Escape) to return to the Main Menu.

After backing up a log file, you may want to delete all records in the Liebert AC4 log of that type. See **7.10 Clear Alarms & Logs** for details.

7.0 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 **Appendix A - Service Terminal Interface**.

The System and Control menu allows you to configure the Liebert AC4—setting up inputs and outputs 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 AC4's alarm and event logs.

The arrows $\uparrow\downarrow$ are used to scroll through the menu. The Enter \downarrow key is used to select the menu item and enter new information. **Table 12** shows characters that may be entered in labels and values.

Table 12 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 and event 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 **5.1 View Active Alarms**) or the Alarm Log (see **5.2 View Alarm Log**).

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 12** for valid characters). (To set up or change the password, see **7.7.1 Change Password**.) The default password is AAAA.

To log in:

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

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

- Setup System (**Section 7.2 - Section 7.7**)
- Override Output (**Section 7.9**)
- Clear Alarms & Logs (**Section 7.10**)



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.

Main Menu

```
VIEW STATUS
> SYSTEM AND CONTROL
↑↓=NEXT      ↵=SELECT
```



Login

```
LOGIN
      AAAA
↑↓=SELECT  ↵=NEXT/END
```

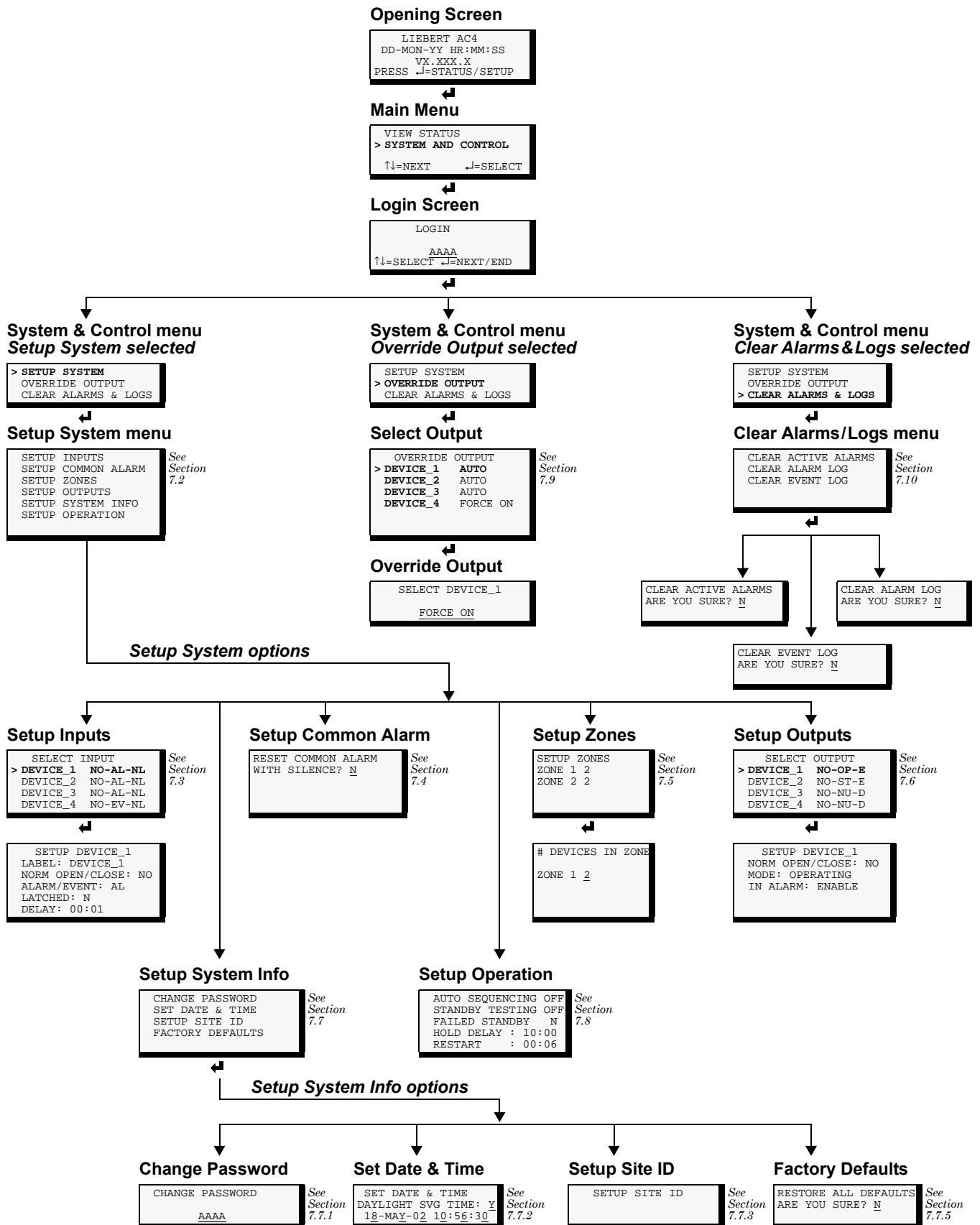


System & Control Menu

```
> SETUP SYSTEM
  OVERRIDE OUTPUT
  CLEAR ALARMS & LOGS
↑↓=NEXT  ↵=SELECT
```

Figure 9 shows the main options available from the System & Control menu.

Figure 9 Menu overview - System and Control menu



7.2 Setup System - Overview

The **Setup System** screen displays six options that allow you to configure input and output devices, the common alarm, and a variety of system details, such as login password and system date and time:

- Setup Inputs
- Setup Common Alarm
- Setup Zones
- Setup Outputs
- Setup System Info
- Setup Operation

7.3 Setup System - Setup Inputs

The Liebert AC4 has four digital input points that may be configured individually. These inputs may have a wide variety of Liebert or other manufacturers' equipment connected.

To configure a digital input:

Log In and Choose Setup System

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **7.1 Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Setup System**, then press Enter \downarrow .

Select a Digital Input to Configure

- From the Setup System Menu, shown at right, use the arrows $\uparrow\downarrow$ to choose **Setup Inputs** and press Enter \downarrow .
- From the Select Input Menu, choose an input—for example, **Device_1**—and press Enter \downarrow .

Table 13 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 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 AC4 responds to an alarm or event.

Use the steps following **Table 13** to change the default settings for any digital input.

Table 13 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 Section 7.3)	When configuring an input (see Section 7.3.4)
Unlatched	NL (Not Latched)	N (No, not latched)
Latched	L (Latched)	Y (Yes, latched)

Setup System Menu

```

> SETUP INPUTS
  SETUP COMMON ALARM
  SETUP ZONES
  ↑↓=NEXT  ↓=SELECT
-----
  SETUP OUTPUTS
  SETUP SYSTEM INFO
  SETUP OPERATION
    
```



Select Input Menu

```

                SELECT INPUT
> DEVICE_1  NO-AL-NL
  DEVICE_2  NO-AL-NL
  ↑↓=NEXT  ↓=SELECT
-----
  DEVICE_3  NO-AL-NL
  DEVICE_4  NO-AL-NL
    
```

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 12** for valid characters).

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

Table 14 Input and output labels

Label	Applies to:	
Device_1	Input 1	Output 1
Device_2	Input 2	Output 2
Device_3	Input 3	Output 3
Device_3	Input 3	Output 3

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 at 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.

Setup Inputs Menu

```

SETUP DEVICE_1
> LABEL: DEVICE_1
NORM OPEN/CLOSE: NO
ALARM/EVENT: AL
↑↓=NEXT   ↵=SELECT
-----
LATCHED: N
DELAY: 00:01

```



Change Label

```

CHANGE LABEL

DEVICE_1
↑↓=SELECT ↵=NEXT/END

```

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 ↵.

Setup Inputs Menu

```

SETUP DEVICE_1
LABEL: DEVICE_1
> NORM OPEN/CLOSE: NO
ALARM/EVENT: AL
↑↓=NEXT   ↵=SELECT
-----
LATCHED: N
DELAY: 00:01

```



Normally Open / Closed

```

IS INPUT NORMALLY
OPEN OR CLOSED? NO
↑↓=NO/NC   ↵=END

```

7.3.3 Define Input as Alarmable or Event

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

- For an input defined as **alarmable**, a change in the status of the device triggers these actions: the LCD flashes, the audible horn sounds, a record is entered in the Alarm Log and the common alarm relay is energized.
- For an input defined as an **event**, a change in the status of the device 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 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 input, use the arrows ↑↓ to choose **AL** (Alarmable) or **EV** (Event), then press Enter ↵.

Setup Inputs Menu

```

SETUP DEVICE_1
LABEL: DEVICE_1
NORM OPEN/CLOSE: NO
> ALARM/EVENT: AL
↑↓=NEXT   ↵=SELECT
-----
LATCHED: N
DELAY: 00:01

```



Alarmable / Event

```

IS INPUT AN ALARM
OR EVENT? AL
↑↓=AL/EV   ↵=END

```

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 AC4 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 Y (Latched). Any input defined as an event is automatically Unlatched.

An 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 **7.10.1 Clear Active Alarms**. This also means that any outputs linked to a Latched digital input will *remain* triggered until the input is manually reset.

An 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. 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 **7.10.1 Clear Active Alarms**.

Setup Inputs Menu

```

SETUP DEVICE_1
LABEL: DEVICE_1
NORM OPEN/CLOSE: NO
ALARM/EVENT: AL
↑↓=NEXT   ↵=SELECT
-----
> LATCHED: N
DELAY: 00:01
  
```

Latched / Unlatched

```

IS ALARM
LATCHED? N
↑↓=Y/N   ↵=END
  
```

Message (if input has been defined as an event)

```

LATCH NOT ALLOWED
WHEN IN EVENT MODE

ESC=BACK
  
```

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 AC4. This feature can prevent needless responses to transient conditions.

This delay is the amount of time that must elapse before the Liebert AC4 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 AC4 detects a closed contact that is defined as Normally Open.

When the monitored device *returns* to its normal state, the Liebert AC4 acknowledges the change of state after the delay timer ends its countdown.

- 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.

Setup Inputs Menu

```

SETUP DEVICE_1
LABEL: DEVICE_1
NORM OPEN/CLOSE: NO
ALARM/EVENT: AL
↑↓=NEXT   ↵=SELECT
-----
LATCHED: N
DELAY: 00:01
  
```

Delay Time

```

DELAY TIME BEFORE
TRIGGER?
    00 MIN : 01 SEC
↑↓=SELECT ↵=NEXT/END
  
```

7.4 Setup System - Setup Common Alarm

The audible alarm sounds after the Liebert AC4 detects an alarm condition in any input that has been defined as alarmable. Once the alarm is silenced, there are two options:

- By default, the common alarm remains energized until all input alarms are 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 $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **7.1 Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Setup System**, then press Enter \downarrow .

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

- From the Setup System Menu, shown at right, use the arrows $\uparrow\downarrow$ to choose **Setup Common Alarm** and press Enter \downarrow .
- 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 $\uparrow\downarrow$ to choose **Y** (Yes - reset with silence) or **N** (No - not reset), then press Enter \downarrow .

Setup System Menu

```

SETUP INPUTS
> SETUP COMMON ALARM
  SETUP ZONES
  ↑↓=NEXT   ↓=SELECT
-----
SETUP OUTPUTS
SETUP SYSTEM INFO
SETUP OPERATION
  
```



Reset Common Alarm

```

RESET COMMON ALARM
WITH SILENCE?  N
↑↓=Y/N         ↓=END
  
```

7.5 Setup System - Setup Zones

The Liebert AC4 has two zones that may be used to define different areas—rooms or sections of a room. The Liebert AC4 effectively performs as two separate units, controlling each zone separately, for example, using a different rotation sequence for devices in each zone.

Each zone may have two to four outputs associated with it. By default, Zone 1 has four associated outputs and Zone 2 has none.

To set up zones:

Log In and Choose Setup System

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **7.1 Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Setup System**, then press Enter \downarrow .

Select Setup Zones

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

Setup System Menu

```

SETUP INPUTS
SETUP COMMON ALARM
> SETUP ZONES
  ↑↓=NEXT  ↓=SELECT
-----
SETUP OUTPUTS
SETUP SYSTEM INFO
SETUP OPERATION
    
```

7.5.1 Set Up a Zone

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

Table 15 shows the default number of outputs for each zone.

Table 15 Default zones

Zone	Default number of outputs
Zone 1	4
Zone 2	0

NOTE: Each zone that is used must have at least two outputs, and the total for the two zones cannot exceed four.

A message appears if you enter too few or too many devices, as shown at right. Press Escape to return to the Setup Zones menu.

Table 16 shows the possible combinations of outputs for each zone. For example, if **Zone 1** has four outputs, then **Zone 2** may not be used (0 outputs).

Table 16 Possible combinations - outputs per zone

If Zone 1 has:	Zone 2 must have:
4 or 3 outputs	0 (not used)
2 outputs	0 (not used) or 2 outputs
0 (not used)	2 or 3 or 4 outputs

Setup Zones

```

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



Number of Devices

```

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

Message (if too few devices entered)

```

MINIMUM OF 2 DEVICES
ESC BACK
    
```

Message (if too many devices entered)

```

TOO MANY DEVICES
ESC BACK
    
```

7.6 Setup System - Setup Outputs

The Liebert AC4 has four outputs that may be configured individually. These outputs correspond to the four 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 **7.3.1 Change Label (Name of Input)**.

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 **7.1 Login** 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 ↵.

Setup System Menu

```

SETUP INPUTS
SETUP COMMON ALARM
SETUP ZONES
↑↓=NEXT  ↵=SELECT
-----
> SETUP OUTPUTS
  SETUP SYSTEM INFO
  SETUP OPERATION
    
```



Select Output Menu

```

          SELECT OUTPUT
-----
> DEVICE_1  NO-OP-E
  DEVICE_2  NO-ST-E
↑↓=NEXT    ↵=SELECT
-----
  DEVICE_3  NO-NU-D
  DEVICE_4  NO-NU-D
    
```

Table 17 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 when an alarm occurs.

Use the steps following **Table 17** to change the default settings for any digital output.

Table 17 Default settings - digital outputs

Feature	Default	Other Options
NORM OPEN/CLOSE	NO (Normally open)	NC (Normally closed)
MODE	Outputs 1-3: OP (Operating) Output 4: ST (Standby)	OP (Operating) ST (Standby) NU (Not Used)
IN ALARM	E (Enable)	D (Disable)

7.6.1 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 ↵.

Setup Outputs Menu

```

SETUP DEVICE 1
> NORM OPEN/CLOSE: NO
  MODE: OPERATING
↑↓=NEXT    ↵=SELECT
-----
  IN ALARM: ENABLE
    
```



Change State

```

SET TO NORMAL OPEN
OR NORMAL CLOSE? NO
↑↓=NO/NC    ↵=END
    
```


7.6.2 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 **7.9 Override Output**).

Default settings are:

- Outputs 1, 2 and 3 are in Operating (OP) mode
- Output 4 is in Standby (ST) mode

To change the mode:

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

Setup Outputs Menu

```

SETUP DEVICE_1
NORM OPEN/CLOSE: NO
> MODE: OPERATING
  ↑↓=NEXT   ↓=SELECT
-----
IN ALARM: ENABLE
  
```



Set Mode

```

SET MODE: OP
↑↓=OP/ST/NU   ↓=EDIT
  
```

7.6.3 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.

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

Setup Outputs Menu

```

SETUP DEVICE_1
NORM OPEN/CLOSE: NO
MODE: OPERATING
  ↑↓=NEXT   ↓=SELECT
-----
> IN ALARM: ENABLE
  
```



Change State in Alarm

```

STATE OF DEVICE
IN ALARM: DISABLE
↑↓=E/D   ↓=EDIT
  
```

7.6.4 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 **7.6.1 Define Output as Normally Open or Normally Closed**.

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 **3.2.3 Setting the Digital Output Jumpers**.

7.7 Setup System - Setup System Info

The Setup System Info options allow users to:

- **Change Password**—used for access to system setup functions
- **Set Date & Time/Automatic Daylight Saving Time**—used to set the Liebert AC4 date and time and to enable automatic time change for Daylight Saving Time
- **Setup Site ID**—the Liebert AC4’s location to differentiate among sites if more than one Liebert AC4 is in use
- **Backup and Upload Configuration File (Service Terminal Interface only)**—permits the user to copy the Liebert AC4’s configuration settings and to upload the file to the Liebert AC4
- **Factory Defaults**—returns the Liebert AC4 to its factory settings
- **Perform Firmware Update (Service Terminal Interface only)**—changes the Liebert AC4’s firmware to newest version

To change any Setup System Info features:

Log In and Choose Setup System

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **7.1 Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Setup System**, then press Enter \downarrow .

Select Setup System Info

- From the Setup System Menu, shown at right, use the arrows $\uparrow\downarrow$ to choose **Setup System Info** and press Enter \downarrow .
- Use the following steps to access any of the Setup System Info options.

Setup System Menu

```

SETUP INPUTS
SETUP COMMON ALARM
SETUP ZONES
↑↓=NEXT  ↓=SELECT
-----
SETUP OUTPUTS
> SETUP SYSTEM INFO
SETUP OPERATION

```

7.7.1 Change Password

A password is required to access the Liebert AC4’s system and control options, as described in **7.1 Login**. The password consists of four characters (see **Table 12** for valid characters). The default password is AAAA.

Change the Password

To change the password:

- From the Setup System Info Menu, use the arrows $\uparrow\downarrow$ to choose **Change Password**, then press Enter \downarrow .
- To change your password:
 - Use the arrows $\uparrow\downarrow$ to choose a character.
 - Press Enter \downarrow to advance to the next character position.
 - When finished, press Enter \downarrow 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 **1.6 Controller Board Overview**) 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.

Setup System Info Menu

```

SETUP SYSTEM INFO
> CHANGE PASSWORD
SET DATE & TIME
↑↓=NEXT  ↓=SELECT
-----
SETUP SITE ID
FACTORY DEFAULTS

```



Change Password

```

CHANGE PASSWORD

          AAAA
↑↓=SELECT  ↓=NEXT/END

```

7.7.2 Set Date & Time/Automatic Daylight Saving Time

The Liebert AC4 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 set the current date or time or change the automatic adjustment at any time.

To change the daylight saving time setting or to set the current date or time:

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

Setup System Info Menu

```

SETUP SYSTEM INFO
CHANGE PASSWORD
> SET DATE & TIME
  ↑↓=NEXT  ↓=SELECT
-----
SETUP SITE ID
FACTORY DEFAULTS
  
```



Set Date & Time

```

SET DATE & TIME
DAYLIGHT SVG TIME:  Y
18-MAY-04 10:56:30
↑↓=SELECT  ↓=NEXT/END
  
```

7.7.3 Setup Site ID

You may enter a Site ID to identify the Liebert AC4's location, using a name that may consist of up to 40 characters (see **Table 12** 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 $\uparrow\downarrow$ to choose **Setup Site ID**, then press Enter \downarrow .
- To enter a Site ID:
 - Use the arrows $\uparrow\downarrow$ to choose a character.
 - Press Enter \downarrow 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 \downarrow again.

Setup System Info Menu

```

SETUP SYSTEM INFO
CHANGE PASSWORD
SET DATE & TIME
  ↑↓=NEXT  ↓=SELECT
-----
> SETUP SITE ID
FACTORY DEFAULTS
  
```



Setup Site ID

```

SETUP SITE ID

↑↓=SELECT  ↓=NEXT/END
  
```

7.7.4 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 AC4 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 AC4, instead of re-entering the settings manually.

To access these options:

1. Connect to the Liebert AC4 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
2. At the Main Menu, enter **0** (zero—Setup System-Login Required).
3. At the Login Menu, enter your password.
4. At the Setup Menu, enter **5** (Setup System Information).
5. At the Setup System Information Menu, enter **4** (Backup & Upload Configuration File). The Backup & Upload Configuration File menu appears, shown below:

Backup & Upload Configuration File - Backup

(Service Terminal Interface only)

```

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 AC4 to the computer and proceed to **Step 8**,
OR
7. Enter **2** to upload the configuration file from the computer to the Liebert AC4 and proceed to **Step 13**. **NOTE:** This will replace the current configuration settings in the Liebert AC4 with the most recent backup.

Back Up the Configuration File

8. 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.

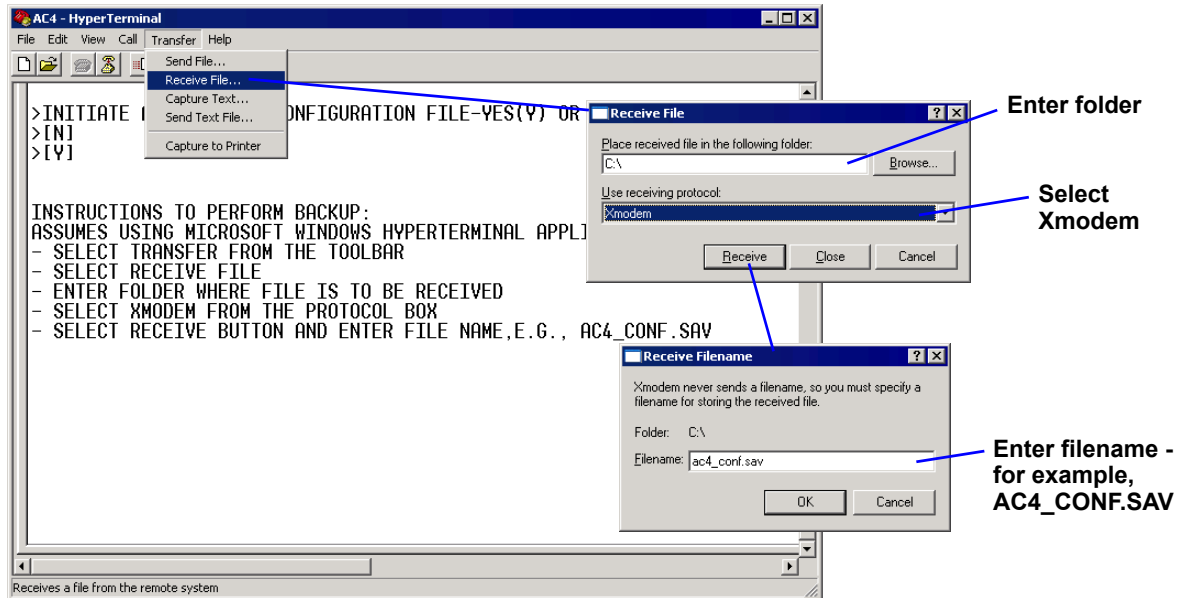
```
>INITIATE A BACKUP OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[
```



NOTE

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

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



10. 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:\downloads**—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**.)
11. In the Receive Filename window, enter a name for the file—for example, **AC4_CONF.SAV**.
12. When the transfer is complete, a confirmation message appears in the Service Terminal Interface window: “Backup Successful.”

Upload the Configuration File

13. 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.

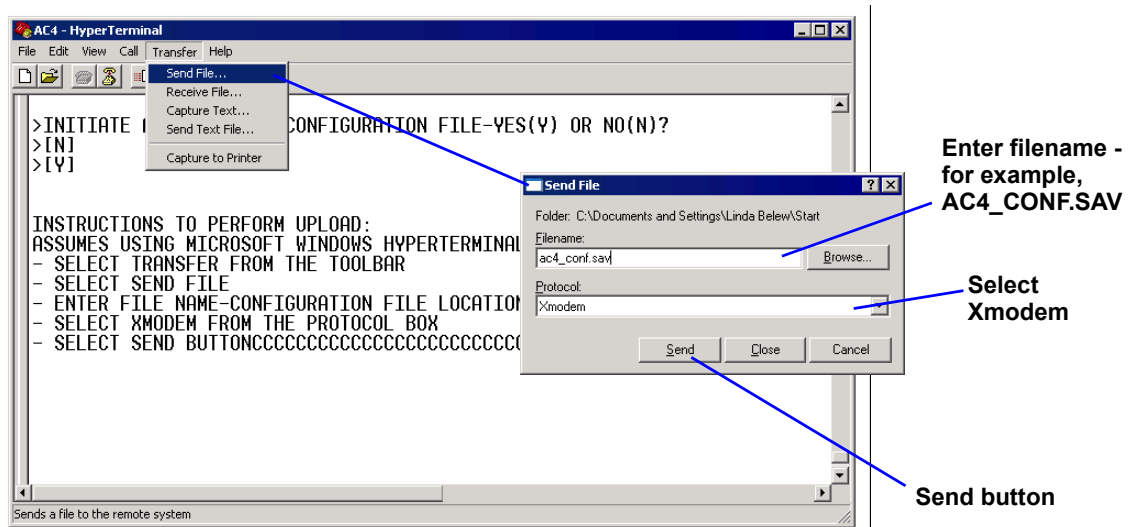
```
>INITIATE AN UPLOAD OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[
```



NOTE

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

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



15. In the Send File window, as shown above:

- In the Filename box, enter the full path of the file to be uploaded—for example, AC4_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**.)

16. When the transfer is complete, a confirmation message—“Upload Successful”—appears in the Service Terminal Interface window and the Liebert AC4 reboots with the new configuration.

7.7.5 Factory Defaults

At any time, you may restore all default values for settings in the Liebert AC4 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 A.6.5 - 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 through the DIP switches. For details, see **Change Password on page 36**.

Setup System Info Menu

```

SETUP SYSTEM INFO
CHANGE PASSWORD
SET DATE & TIME
↑↓=NEXT  ↵=SELECT
-----
SETUP SITE ID
> FACTORY DEFAULTS
  
```



Factory Defaults

```

RESTORE ALL DEFAULTS
ARE YOU SURE?  N
↑↓=Y/N          ↵=END
  
```

7.7.6 Perform Firmware Update (Service Terminal Interface only)

This function, which may be performed only through the Service Terminal Interface, upgrades the Liebert AC4'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 A.6.5 - Setup System Info for details on backing up settings using the Service Terminal Interface.*

- Connect to the Liebert AC4 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **0** (zero—Setup System-Login Required).
- At the Login Menu, enter your password.
- At the Setup Menu, enter **5** (Setup System Information).
- At the Setup System Info menu, enter **6** (Perform Firmware Update).
- At the Perform Firmware Update menu, shown below, enter **1** to proceed with an update.

Firmware Update

(Service Terminal Interface only)

```

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:

- 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.

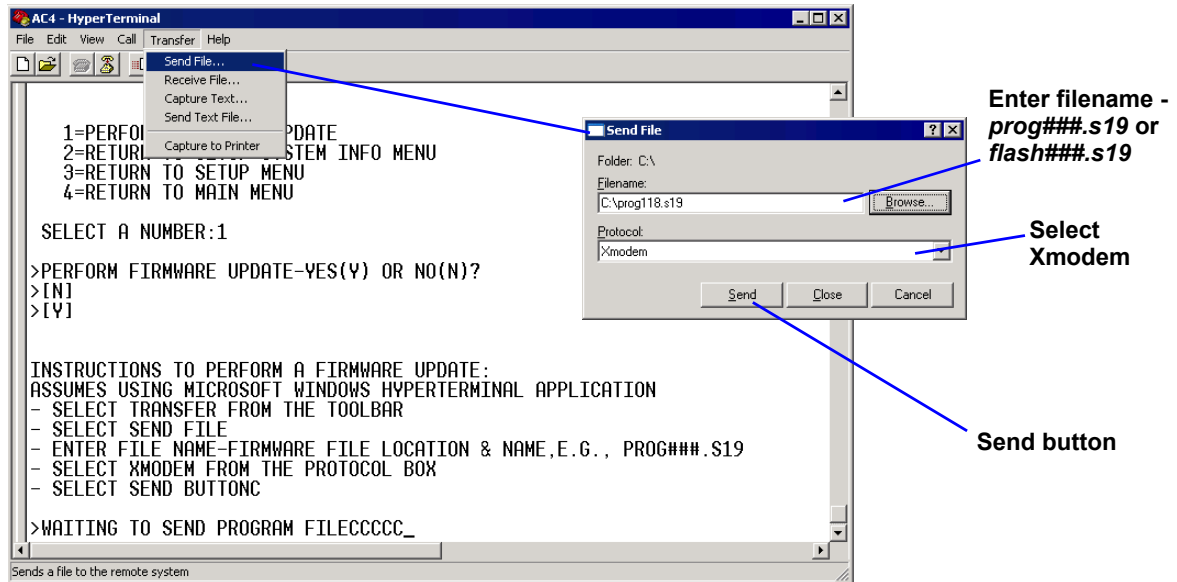
```
>PERFORM FIRMWARE UPDATE-YES(Y) OR NO(N)?
>[N]
>[
```



NOTE

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

- 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 AC4:
 - At the top of the HyperTerminal window, shown below, click on **Transfer**, then on **Send File**.



- 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.
- Next, follow these steps to upload the file **flash###.s19** (where ### is a number—for example, flash512.s19) to the Liebert AC4:
 - At the top of the HyperTerminal window, shown above, click on **Transfer**, then on **Send File**.
 - 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 AC4 reboots with the new firmware update.

7.8 Setup Operation

The Liebert AC4 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 also specify delay times after an output changes state, directing the Liebert AC4 to wait before acknowledging inputs or turning an output on or off.

To change any operation features:

Log In and Choose Setup System

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **7.1 Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Setup System**, then press Enter \downarrow .

Select Setup Operation

- From the Setup System Menu, shown at right, use the arrows $\uparrow\downarrow$ to choose **Setup Operation** and press Enter \downarrow .
- Use the steps following **Table 18** to access any of the Setup Operation options.

Table 18 shows the default settings for operation options: automatic sequencing, standby testing, failed standby, hold delay and restart.

Table 18 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

Setup System Menu

```

SETUP INPUTS
SETUP COMMON ALARM
SETUP ZONES
↑↓=NEXT  ↓=SELECT
-----
SETUP OUTPUTS
SETUP SYSTEM INFO
> SETUP OPERATION
  
```



Setup Operation Menu

```

> AUTO SEQUENCING OFF
STANDBY TESTING OFF
FAILED STANDBY  N
↑↓=NEXT  ↓=SELECT
-----
HOLD DELAY : 10:00
RESTART    : 00:06
  
```

7.8.1 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 AC4 returns the standby device to operating mode and places one of the operating devices on standby.

When zones are used, the Liebert AC4 manages the rotation sequence for each zone separately, so each zone might have one device in operating mode and one in standby mode.

Auto sequencing is OFF (deactivated) by default. When auto sequencing is activated (ON or 12h, for a 12-hour interval), the Liebert AC4 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 AC4 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 AC4 will not cycle outputs that have been manually forced On or Off through the Override Output Menu or the hardware switch (see 7.9 Override Output).

To change the auto sequencing settings:

1. From the Setup System Operation Menu, use the arrows $\uparrow\downarrow$ to choose **Auto Sequencing**, then press Enter \downarrow .
2. In the Activate / Deactivate screen, use the arrows $\uparrow\downarrow$ to choose one of three options:
 - a. **ON** for intervals of every 1 to 99 days, then press Enter \downarrow and proceed to **Step 3**.
 - b. **12h** for an interval of every 12 hours, then press Enter \downarrow and proceed to **Step 4**.
 - c. **OFF** to deactivate auto sequencing, then press Enter \downarrow to return to the previous menu.
3. 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 $\uparrow\downarrow$ to choose a number from 0 to 9, then press Enter \downarrow to advance to the next digit.
 - When finished, press Enter \downarrow to set the time of day.
4. 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 $\uparrow\downarrow$ to choose from available entries for hours (00-23), then press Enter \downarrow to advance to minutes.
 - Use the arrows $\uparrow\downarrow$ to select minutes (00-59).
 - When finished, press Enter \downarrow again.

Setup Operation Menu

```
> AUTO SEQUENCING OFF
STANDBY TESTING OFF
FAILED STANDBY N
↑↓=NEXT ↓=SELECT
-----
HOLD DELAY : 10:00
RESTART : 00:06
```



Activate / Deactivate

```
> AUTO SEQUENCING OFF
↑↓=NEXT ↓=EDIT
```



Set Interval & Start Time (1- to 99-Day Interval)

```
> AUTO SEQUENCING ON
EVERY 03 DAYS
AT 00:00
↑↓=NEXT ↓=EDIT
```

Set Start Time (12-Hour Interval)

```
> AUTO SEQUENCING 12h
AT 00:00
↑↓=NEXT ↓=EDIT
```

7.8.2 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 AC4 tests all devices in Standby mode by putting each device in operating mode for a designated time. 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:

- From the Setup System Operation Menu, use the arrows ↑↓ to choose **Standby Testing**, then press Enter ↵.
- In the Change Standby Testing screen, press Enter ↵ to edit **Standby Testing**, then use the arrows ↑↓ to choose **ON** to activate or **OFF** to deactivate the standby testing feature. Press Enter ↵.
- Select the desired interval for how frequently the 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.
- 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.
- 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.
 - When finished, press Enter ↵.

Setup Operation Menu

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



Change Standby Testing

```
> STANDBY TESTING ON
EVERY 03 DAYS
AT 00:00 FOR 10 MIN
↑↓=NEXT  ↵=EDIT
```

7.8.3 Specify Failed Standby Response

The Liebert AC4'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 19** shows: the newly enabled Standby device is disabled and the previously operating device is returned 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 19 Failed Standby response

Failed Standby Setting	Previous Standby Device (alarm after being enabled)	Previously Operating Device
Activated (Y)	Disabled	Returned 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 ↵.

Setup Operation Menu

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



Change Failed Standby

```
> FAILED STANDBY N
↑↓=NEXT  ↵=END
```

7.8.4 Specify Hold Delay Time

After an output changes state, the hold delay timer directs the Liebert AC4 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 AC4 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 AC4 detects a closed contact that is defined as Normally Open.

When the output device *returns* to its normal state, the Liebert AC4 acknowledges any input change of state immediately.

The hold delay timer also takes effect when the Liebert AC4 is powered up. All alarms are ignored until the hold delay time expires.

- 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 ↑↓ 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.

Setup Operation Menu

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



Hold Delay Time

```
HOLD DELAY
10 MIN : 00 SEC
↑↓=NEXT  ↵=EDIT
```

7.8.5 Specify Restart Time

The restart delay timer directs the Liebert AC4 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 AC4 begins a new countdown between each output change of state.

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

- 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 ↑↓ 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.

Setup Operation Menu

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



Restart Delay Time

```
RESTART DELAY
00 MIN : 06 SEC
↑↓=NEXT  ↵=EDIT
```

7.9 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 AC4 (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 circuit board to force all four outputs ON at the same time (see **Item F - Manual Override Switch (outputs)** in **1.6 Controller Board Overview**).

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

Table 20 summarizes the four types of control, including the abbreviated message that appears on the LCD and in log reports.

Table 20 Automatic / manual control - output points

Message	Description	
AUTO	Automatic	Controlled by Liebert AC4 (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 Item F - Manual Override Switch (outputs) in 1.6 Controller Board Overview)

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 $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **7.1 Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Override Output**, then press Enter \downarrow .

Select an Output

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

- Use the arrows $\uparrow\downarrow$ to choose the output you want—for example, **Device_1**—and press Enter \downarrow .

Turn Output ON or OFF / Return to Automatic

- From the Override Output menu, use the arrows $\uparrow\downarrow$ 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 \downarrow .

Main Menu

```
VIEW STATUS
> SYSTEM AND CONTROL
↑↓=NEXT  ↵=SELECT
```



Login

```
LOGIN
AAAA
↑↓=SELECT  ↵=NEXT/END
```



System & Control Menu

```
SETUP SYSTEM
> OVERRIDE OUTPUT
CLEAR ALARMS & LOGS
↑↓=NEXT  ↵=SELECT
```



Select Output

```
OVERRIDE OUTPUT
> DEVICE_1  AUTO
  DEVICE_2  AUTO
  ↑↓=NEXT  ↵=SELECT
-----
  DEVICE_3  AUTO
  DEVICE_4  FORCE ON
```



Override Output

```
SELECT DEVICE_1
FORCE ON
↑↓=SELECT  ↵=END
```

7.10 Clear Alarms & Logs

The Clear Alarms & Logs menu allows you to clear active alarms or delete all records from either of the Liebert AC4 alarm and event logs.

To clear alarms or logs:

Log In and Choose Clear Alarms & Logs

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see 7.1 Login for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Clear Alarms & Logs**, then press Enter \downarrow .
- Use the following steps to clear alarms or delete log records.

7.10.1 Clear Active Alarms

To clear all active alarms:

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



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. To set up a digital input as latched, see 7.3.4 Set Up Alarmable Inputs in Latched or Unlatched Mode.

7.10.2 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 computer, as described in 6.2 Back Up Log Files (Service Terminal Interface only).

To delete all records from the alarm log:

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

7.10.3 Clear the Event Log

The event log contains up to 99 records of events detected by the Liebert AC4. 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 computer, as described in 6.2 Back Up Log Files (Service Terminal Interface only).

To delete all records from the event log:

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

Main Menu

```
VIEW STATUS
> SYSTEM AND CONTROL
↑↓=NEXT    ↓=SELECT
```



Login

```
LOGIN
AAAA
↑↓=SELECT  ↓=NEXT/END
```



System & Control Menu

```
SETUP SYSTEM
OVERRIDE OUTPUT
> CLEAR ALARMS & LOGS
↑↓=NEXT    ↓=SELECT
```

Clear Alarms/Logs Menu

```
> CLEAR ACTIVE ALARMS
CLEAR ALARM LOG
CLEAR EVENT LOG
↑↓=NEXT    ↓=SELECT
```



Clear Active Alarms

```
CLEAR ACTIVE ALARMS
ARE YOU SURE? N
↑↓=Y/N     ↓=END
```

Clear Alarms/Logs Menu

```
CLEAR ACTIVE ALARMS
> CLEAR ALARM LOG
CLEAR EVENT LOG
↑↓=NEXT    ↓=SELECT
```



Clear Alarm Log

```
CLEAR ALARM LOG
ARE YOU SURE? N
↑↓=Y/N     ↓=END
```

Clear Alarms/Logs Menu

```
CLEAR ACTIVE ALARMS
CLEAR ALARM LOG
> CLEAR EVENT LOG
↑↓=NEXT    ↓=SELECT
```



Clear Event Log

```
CLEAR EVENT LOG
ARE YOU SURE? N
↑↓=Y/N     ↓=END
```

8.0 SPECIFICATIONS

8.1 Liebert AC4 Specifications

Power Requirements	24VAC \pm 10% of nominal 50/60 Hz 1.3A, 30VA
Dimensions W x D x H, in. (mm)	14-1/4 x 2-3/4 x 12 (361.95 x 69.85 x 304.8)
Weight (Assembled)	7.68 lbs (3.48 kg)
Enclosure Type	NEMA 1
Liquid Crystal Display (LCD)	Four line, 20 character, backlit
Mounting Surface	Building Wall or Structural Member
Ambient Operating Environment	32°F to 104°F (0°C to 40°C) 0% RH to 95% RH (non-condensing)
Processor Specifics	
Model	Motorola XC68HC812A4
Clock speed	16MHz
Total RAM	32Kb
Total FLASH	4M
Total EEPROM	4K
A/D Resolution (Analog IN)	12 Bit
Clock Type	Real-Time Clock
Clock battery backup type	Lithium Cell (non-replaceable)
Clock battery life	7 years, constant, no power
Communications	
Local Communications	RS232
Agency Listings	
UL	UL3121
CE	Yes
FCC Compliance	CFR 47 Part 15
Inputs & Outputs (Quantity)	
Digital Inputs (4)	Dry Contact Closure 24VDC, 10 mA
Digital Outputs (4)	24VAC, 3A
Common Alarm Outputs (2)	24VAC, 3A

NOTE

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

APPENDIX A - SERVICE TERMINAL INTERFACE

The Service Terminal Interface allows access to all functions of the Liebert AC4, 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 21 lists all functions for viewing and configuring the Liebert AC4 and shows whether they can be performed through the LCD interface and where to find information.

Table 21 Guide to Liebert AC4 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	✓	✓	page 19	page 57
View Alarm Log	✓	✓	page 20	page 58
View Event Log	✓	✓	page 21	page 59
View Input Status	✓	✓	page 22	page 59
View Output Status	✓	✓	page 23	page 60
SILENCE ALARM & BACK UP LOGS FUNCTIONS				
Silence Alarm (On the LCD, press any key to silence an alarm)	✓	✓	page 24	page 61
Back Up Log Files	—	✓	page 25	page 62
SYSTEM & CONTROL FUNCTIONS				
Login	✓	✓	page 27	page 63
Setup System	✓	✓	page 29	page 64
Setup Inputs	✓	✓	page 29	page 65
Setup Common Alarm	✓	✓	page 32	page 66
Setup Zones	✓	✓	page 33	page 66
Setup Outputs	✓	✓	page 34	page 67
Setup System Info	✓	✓	page 36	page 68
Change Password	✓	✓	page 36	page 68
Set Date & Time/Automatic Daylight Saving Time	✓	✓	page 37	page 69
Setup Site ID	✓	✓	page 37	page 69
Backup and Upload Configuration File	—	✓	page 38	page 70
Factory Defaults	✓	✓	page 41	page 71
Perform Firmware Update	—	✓	page 41	page 72
Setup Operation	✓	✓	page 43	page 73
Override Output	✓	✓	page 47	page 76
Clear Alarms & Logs	✓	✓	page 48	page 77
Clear Active Alarms	✓	✓	page 48	page 77
Clear the Alarm Log	✓	✓	page 48	page 77
Clear the Event Log	✓	✓	page 48	page 78

A.2 CONNECTING TO THE SERVICE TERMINAL INTERFACE

This section describes how to set up and connect to the Service Terminal Interface. To access the Service Terminal Interface, you will need:

- A null modem cable to connect a computer's COM1 port to the Liebert AC4's RS232 port.
- A communications program, such as HyperTerminal, to connect to the Service Terminal Interface.

Refer to following sections for step-by-step instructions to set up a connection (one time) and use that connection to access the Service Terminal Interface:

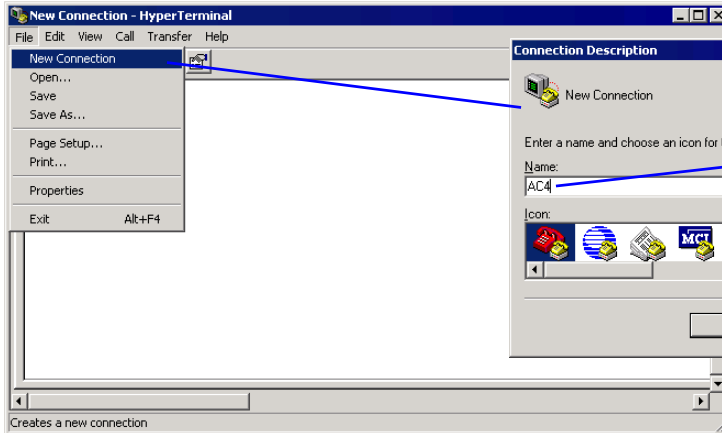
- **A.2.1 - Create a Connection**
- **A.2.2 - Connect to the Service Terminal Interface**

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

A.2.1 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.

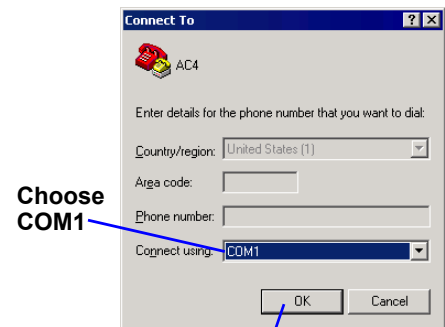


Enter a name for the connection - for example, **AC4**

3. In the Connection Description window, shown above right, enter a name for the connection—for example, **AC4**. This becomes the file name (with the extension “.ht”).
4. Click **OK** to close the window. The Connect To window opens, as shown at right.

Specify COM Port Connection

5. In the Connect To window, select **COM1** from the Connect Using drop-down list.
6. Click **OK**. This opens the COM1 Properties window.

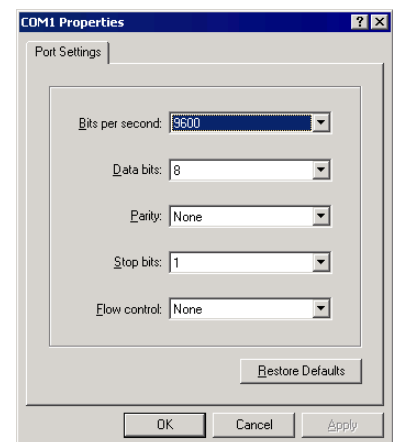


Choose **COM1**

COM1 Port Setup

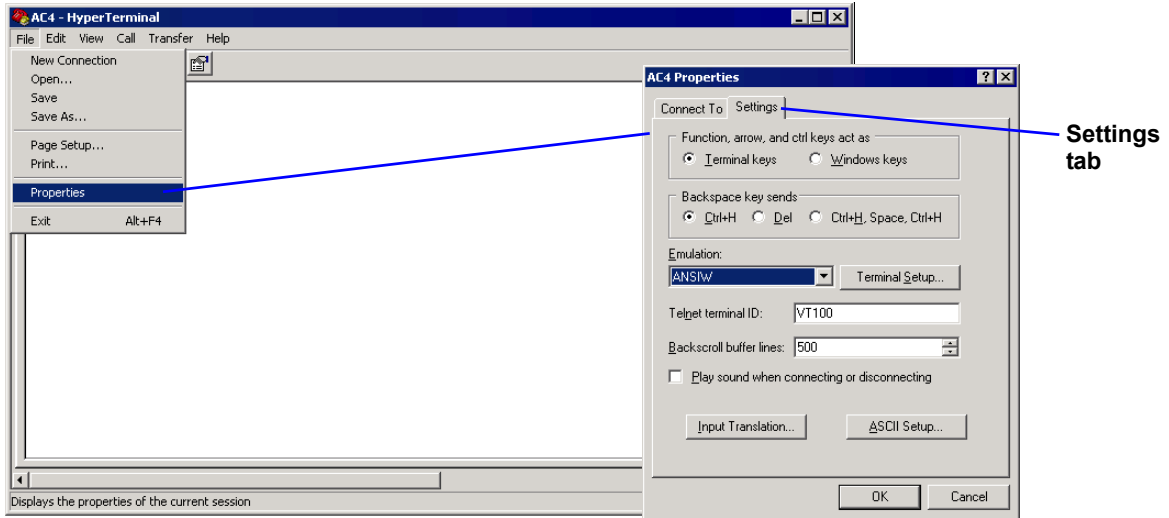
7. In the COM1 Properties window, shown at right, make the following selections:
 - Bits per second: **9600**
 - Data bits: **8**
 - Parity: **None**
 - Stop bits: **1**
 - Flow control: **None**
8. Click **OK**. When the connection is open, the connection name appears in the title bar of the HyperTerminal window. To complete the setup, continue with **Step 9** (next section).

COM1 Properties



Properties Setup

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

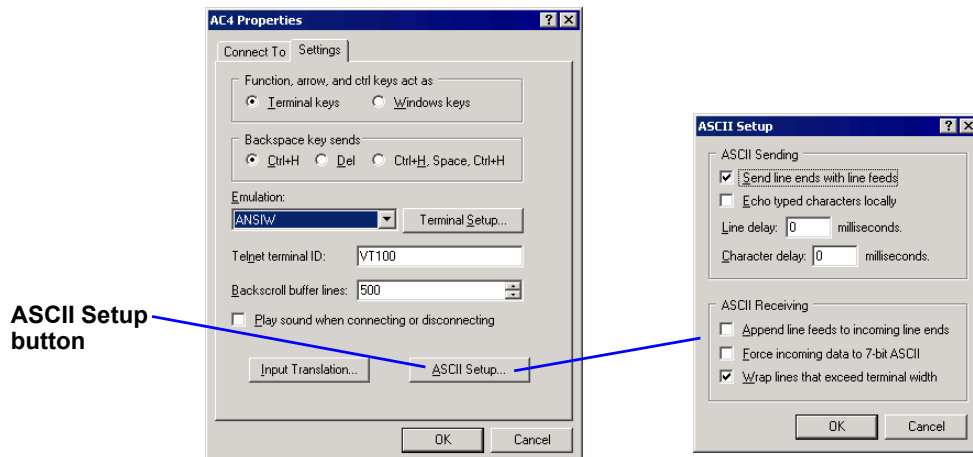


10. In the Properties window, above right, click on the **Settings** tab and choose the following settings:

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

ASCII Setup

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



12. In the ASCII Setup window, shown above right, choose the following settings:

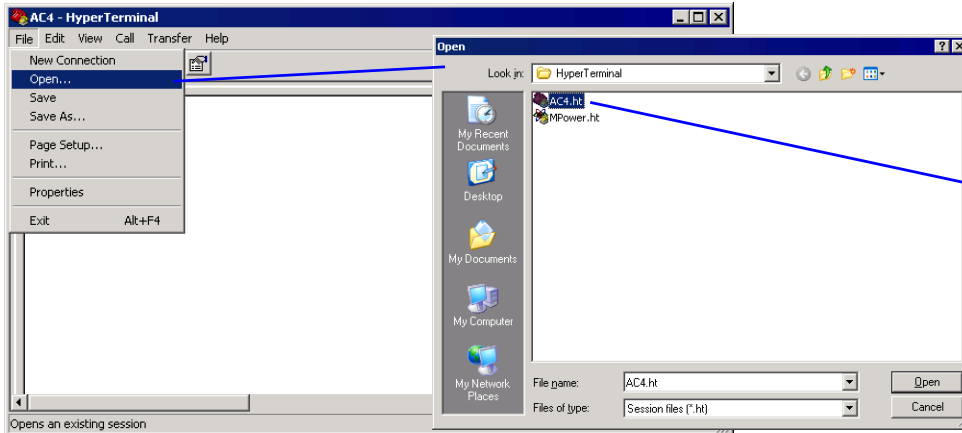
- ASCII Sending: place a check mark (✓) in the **Send Line Ends With Line Feeds** box.
- ASCII Receiving: place a check mark (✓) in the **Wrap Lines That Exceed Terminal Width** box.
- Click **OK**.

The setup is now complete. To use the new connection, proceed to the next section, **A.2.2 - Connect to the Service Terminal Interface**.

A.2.2 Connect to the Service Terminal Interface

After creating and setting up a connection, use a communications program such as HyperTerminal to access the Liebert AC4's Service Terminal Interface.

1. Verify communications connections between the remote computer and the Liebert AC4. Connect a null modem cable from the computer's COM1 port to the Liebert AC4's RS232 port (for location, see **3.4 - RS232 Connector**).
2. Start the HyperTerminal program—click on the **Start** button, then on **Programs**, then **Accessories**, then **Communications**, and finally **HyperTerminal**.
3. Open the Liebert AC4 connection created in **A.2.1 - Create a Connection**. To do this, click on **File**, then on **Open**, as shown below.



4. In the Open window, shown above right, select the file name—**AC4.ht** in this example—and then click on the **Open** button.
5. Press Enter (or Escape) to initiate communication and bring up the Main Menu.

For more information on the Liebert AC4's options:

- See **A.3 - Overview of Menus** for examples of the Service Terminal Interface screens.
- See **Table 21** to locate step-by-step instructions for each Liebert AC4 function.

A.3 OVERVIEW OF MENUS

The Main Menu offers choices for viewing the status of the Liebert AC4, 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	A.4 - View Status Menus
2=VIEW ALARM LOG	
3=VIEW EVENT LOG	
4=VIEW INPUT STATUS	
5=VIEW OUTPUT STATUS	
6=SILENCE ALARM	A.5 - Silence Alarm & Back Up Log Files (Service Terminal Interface only)
7=BACKUP LOG FILES	
0=SETUP SYSTEM—LOGIN REQUIRED	A.6 - Setup Menu

A.3.1 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 active alarms
- View the current status of all inputs and outputs
- View data stored in alarm and event logs

A.3.2 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 AC4's audible alarm and reset the Common Alarm Relay output.
- **Backup Log Files**—make backup copies of the Liebert AC4's Alarm Log and Event Log and save the copies to a computer.

A.3.3 Setup Menu Overview

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

- Configure the Liebert AC4—this includes setting up digital inputs and outputs and system features such as setting the date and time
- Two system features—**Backup and Upload Configuration File** and **Firmware Update**—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 and event logs

A.4 VIEW STATUS MENUS

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

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 5:

Main Menu

```

LIEBERT AC4

VX.XXX.X
LIEBERT CORPORATION COPYRIGHT 2004
ALL RIGHTS RESERVED

MAIN MENU

1=VIEW ACTIVE ALARMS
2=VIEW ALARM LOG
3=VIEW EVENT LOG
4=VIEW INPUT STATUS
5=VIEW OUTPUT STATUS
6=SILENCE ALARM
7=BACKUP LOG FILES
0=SETUP SYSTEM-LOGIN REQUIRED

SELECT A NUMBER:1

```

For sample screens, see:

Section A.4.1

Section A.4.2

Section A.4.3

Section A.4.4

Section A.4.5

A.4.1 View Active Alarms

For details on this feature, see **5.1 - View Active Alarms**.

View Active Alarms

```

ACTIVE ALARMS

Input points/hardware
presently in an alarm state

DEVICE_1 ALARM
CONTACT CLOSED

1=REFRESH ACTIVE ALARMS
2=RETURN TO MAIN MENU

SELECT A NUMBER:_

```

A.4.2 View Alarm Log

For details on this feature, see 5.2 - View Alarm Log.

View Alarm Log

```
ALARM LOG

Alarm history

DEVICE_1 ALARM
CONTACT CLOSED
29-AUG-02 09:29:10

NO STANDBY AVAILABLE
29-AUG-02 09:20:10

STANDBY DEVICE FAILED
29-AUG-02 09:19:10

NO RESTART AVAILABLE
29-AUG-02 09:19:10

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

-----

DEVICE_2 ALARM
CONTACT CLOSED
28-AUG-02 09:29:10

1=REFRESH ALARM LOG
2=RETURN TO MAIN MENU

SELECT A NUMBER:_
```


A.4.3 View Event Log

For details on this feature, see 5.3 - View Event Log.

View Event Log

```

EVENT LOG

Event history

SYSTEM
USER LOGIN
07-MAY-02  10:29:10

DEVICE_1 HW FORCE ON
CONTACT CLOSED
07-MAY-02  09:50:10

DEVICE_4 FORCE OFF
CONTACT OPEN
07-MAY-02  09:20:10

DEVICE_3 AUTO
CONTACT OPEN
07-MAY-02  06:20:10

<ENTER>=MORE <ESC>=EXIT <A>=ALL
-----
DATE AND TIME SET
06-MAY-02  07:10:10

DEVICE_4 FORCE OFF
CONTACT CLOSED
07-MAY-02  06:20:10

1=REFRESH EVENT LOG
2=RETURN TO MAIN MENU

SELECT A NUMBER:_

```

A.4.4 View Input Status

For details on this feature, see 5.4 - View Input Status.

View Input Status

```

INPUT STATUS

Input status from device

INPUT    STATUS

DEVICE_1 NORMAL
DEVICE_2 ALARM
DEVICE_3 EVENT
DEVICE_4 ALARM

1=REFRESH INPUT
2=RETURN TO MAIN MENU

SELECT A NUMBER:1

```

A.4.5 View Output Status

For details on this feature, see 5.5 - View Output Status.

View Output Status

OUTPUT STATUS			
Output status to device			
OUTPUT	STATE	MODE	ZONE
DEVICE_1	ON	ALARM	1
DEVICE_2	ON	OPERATING	1
DEVICE_3	OFF	STANDBY	1
DEVICE_4	OFF	ALARM	1
1=REFRESH OUTPUT STATUS			
2=RETURN TO MAIN MENU			
SELECT A NUMBER: _			

OPERATING = OPERATING/ON
STANDBY = IN STANDBY MODE
ALARM = IN ALARM
FORCE ON = FORCE ON BY OPERATOR
FORCE OFF = FORCE OFF BY OPERATOR
HW FORCE ON = FORCE ON BY HARDWARE SWITCH
PENDING = PENDING DELAY TIMER
NOT USED = DEVICE NOT USED

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 6 and 7:

Main Menu

```

LIEBERT AC4
      V5.300.2
LIEBERT CORPORATION COPYRIGHT 2004
  ALL RIGHTS RESERVED

      MAIN MENU

1=VIEW ACTIVE ALARMS
2=VIEW ALARM LOG
3=VIEW EVENT LOG
4=VIEW INPUT STATUS
5=VIEW OUTPUT STATUS
6=SILENCE ALARM
7=BACKUP LOG FILES
0=SETUP SYSTEM-LOGIN REQUIRED
SELECT A NUMBER:1
    
```

For sample screens, see:

Section A.5.1

Section A.5.2

A.5.1 Silence Alarm (Service Terminal Interface only)

For details on this feature, see **6.1 - Silence Alarm (Service Terminal Interface)**.

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
    
```

A.5.2 Back Up Log Files (Service Terminal Interface only)

For details on this feature, see 6.2 - Back Up Log Files (Service Terminal Interface only).

Back Up Alarm Log File

Backup Log Files - Alarm Log File

```
BACKUP LOG FILES

Backup alarm and event log files

1=BACKUP ALARM LOG FILE
2=BACKUP EVENT LOG FILE
3=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 and event log files

1=BACKUP ALARM LOG FILE
2=BACKUP EVENT LOG FILE
3=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
```

A.6 SETUP MENU

The Setup menu allows the user to configure the Liebert AC4—setting up inputs, outputs and system features such as date and time, as well as operation options such as a rotation sequence and standby testing. 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 AC4's alarm and event logs.

Main Menu

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

Main Menu

```

LIEBERT AC4

    VX.XXX.X
LIEBERT CORPORATION COPYRIGHT 2004
ALL RIGHTS RESERVED

    MAIN MENU

1=VIEW ACTIVE ALARMS
2=VIEW ALARM LOG
3=VIEW EVENT LOG
4=VIEW INPUT STATUS
5=VIEW OUTPUT STATUS
6=SILENCE ALARM
7=BACKUP LOG FILES
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 choosing 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

1=SETUP INPUTS
2=SETUP COMMON ALARM
3=SETUP ZONES
4=SETUP OUTPUTS
5=SETUP SYSTEM INFORMATION*
6=SETUP OPERATION
7=OVERRIDE OUTPUT
8=CLEAR ALARMS&LOGS
9=RETURN TO MAIN MENU

SELECT A NUMBER:_

```

See:	Description
Section A.6.1	Configure digital inputs
Section A.6.2	Set up the common alarm to reset with silence
Section A.6.3	Define areas with 2-4 devices each
Section A.6.4	Configure digital outputs
Section A.6.5	Set up features such as password and date & time*
Section A.6.6	Set up rotation sequence, standby testing
Section A.6.7	Manually override automatic control of outputs
Section A.6.8	Clear active alarms; clear alarm and event logs

* Setup System Information features are:

- **Change Password**
- **Set Date & Time/Automatic Daylight Saving Time**
- **Setup Site ID**
- **Backup and Upload Configuration File (Service Terminal Interface only)**
- **Factory Defaults**
- **Firmware Update (Service Terminal Interface only)**

Note that two of these system features—**Backup and Upload Configuration File** and **Firmware Update**—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.

```

>CHANGE LABEL(8 CHARACTERS MAX)_.
>[DEVICE_1]
>[
>COMMAND SUCCESSFUL

>IS INPUT NORMALLY OPENED(NO) OR NORMALLY CLOSED(NC)?
>[NO]
>[
>COMMAND SUCCESSFUL

```

Current setting shown in brackets []

Values that may be entered shown in parentheses ()

A.6.1 Setup Inputs

For details on this feature, see 7.3 - Setup System - Setup Inputs.

Setup Inputs

```

SETUP INPUTS

Setup input of device

Select input to edit

INPUT      DEFINITION      *****
1=DEVICE_1 NO-EV-NL-00:01      NO=NORMALLY OPENED
2=DEVICE_2 NO-AL-L -00:01      NC=NORMALLY CLOSED
3=DEVICE_3 NC-EV-NL-00:01      EV=EVENT
4=DEVICE_4 NO-AL-L -00:01      AL=ALARMABLE
5=RETURN TO SETUP MENU
6=RETURN TO MAIN MENU      NL=NOT LATCHED
                               L =LATCHED

SELECT A NUMBER:1

MIN:SEC=DELAY TIME BEFORE
INPUT WILL TRIGGER

NOTE:EVENT CANNOT BE LATCHED
*****

>CHANGE LABEL(8 CHARACTERS MAX).
>[DEVICE_1]
>[
>COMMAND SUCCESSFUL

>IS INPUT NORMALLY OPENED(NO) OR NORMALLY CLOSED(NC)?
>[NO]
>[
>COMMAND SUCCESSFUL

>IS INPUT AN ALARM(AL) OR EVENT(EV)?
>[AL]
>[
>COMMAND SUCCESSFUL

>IS ALARM LATCHED-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL

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

```

A.6.2 Setup Common Alarm

For details on this feature, see [7.4 - Setup System - Setup Common Alarm](#).

Setup Common Alarm

```

SETUP COMMON ALARM

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

                               N

1=SETUP COMMON ALARM
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]
>[
>COMMAND SUCCESSFUL

```

A.6.3 Setup Zones

For details on this feature, see [7.5 - Setup System - Setup Zones](#).

Setup Zones

```

SETUP ZONES

Select zones and number
of devices in the zone

ZONE    # DEVICES

1=ZONE 1    2
2=ZONE 2    2
3=RETURN TO SETUP MENU
4=RETURN TO MAIN MENU

SELECT A NUMBER: 1
-----
># DEVICES IN ZONE 1
>[2]
>[
>COMMAND SUCCESSFUL

```


A.6.4 Setup Outputs

For details on this feature, see **7.6 - Setup System - Setup Outputs**.

Setup Outputs

```

SETUP OUTPUTS

Setup output of device

Select output to edit

  OUTPUT      DEFINITION      *****
1=DEVICE_1   NO-OP-E           NO=NORMALLY OPENED
2=DEVICE_2   NO-ST-E           NC=NORMALLY CLOSED
3=DEVICE_3   NO-NU-D           OP=OPERATING/ON
4=DEVICE_4   NO-NU-D           ST=STANDBY MODE
5=RETURN TO  SETUP MENU      NU=NOT USED
6=RETURN TO  MAIN MENU

D=DISABLE DEVICE ON AN ALARM CONDITION
E=LEAVE DEVICE OPERATING ON ALARM CONDITION
*****

SELECT A NUMBER: 1

>SET TO NORMALLY OPENED(NO) OR NORMALLY CLOSED(NC)
>[NO]
>[
>COMMAND SUCCESSFUL

>DEVICE_1 TO OPERATING/ON(OP), STANDBY MODE(ST), NOT USED(NU)
>[OP]
>[
>COMMAND SUCCESSFUL

>DEVICE_1 TO ENABLE(E) OR DISABLE(D) DEVICE ON ALARM
>[E]
>[
>COMMAND SUCCESSFUL

```

A.6.5 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 **7.7 - Setup System - Setup System Info**.

Setup System Info

```
SETUP SYSTEM INFORMATION

1=CHANGE PASSWORD
2=SET DATE & TIME
3=SETUP SITE ID
4=BACKUP & UPLOAD CONFIGURATION FILE
5=RESTORE PANEL TO FACTORY DEFAULTS
6=PERFORM FIRMWARE UPDATE
7=RETURN TO SETUP MENU
8=RETURN TO MAIN MENU

SELECT A NUMBER: _
```

Change Password

For details on this feature, see **7.7.1 - Change Password**.

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 **7.7.2 - Set Date & Time/Automatic Daylight Saving Time**.

Set Date & Time

```

SET DATE & TIME

                                CURRENT DATE & TIME   DST
                                28-AUG-04   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-02 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 **7.7.3 - Setup Site ID**.

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

```

Backup and Upload Configuration File (Service Terminal Interface only)

For details on this feature, see 7.7.4 - Backup and Upload Configuration File (Service Terminal Interface only).

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

>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., AC4_CONF.SAV

>BACKUP SUCCESSFUL
```

Backup & Upload Configuration File - Upload

```

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: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., AC4_CONF.SAV
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT SEND BUTTON

>UPLOAD SUCCESSFUL

```

Factory Defaults

For details on this feature, see **7.7.5 - Factory Defaults**.

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

```

Firmware Update (Service Terminal Interface only)

For details on this feature, see 7.7.6 - Perform Firmware Update (Service Terminal Interface only).

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

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

INSTRUCTIONS TO PERFORM FIRMWARE UPDATE:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT SEND FILE
- ENTER FILE NAME-FIRMWARE FILE LOCATION & NAME,E.G., PROG####.S19
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT SEND BUTTON

>WAITING TO SEND PROGRAM FILE
>DONE

>CHECKSUM IS....
>PROGRAM VERSION....
>WAITING TO SEND FLASH FILE
>DONE

>FIRMWARE UPDATE SUCCESSFUL
```

A.6.6 Setup Operation

For details on this feature, see 7.8 - Setup Operation.

Auto Sequencing

For details on this feature, see 7.8.1 - Turn Automatic Sequencing On or Off.

Setup Operation - Auto Sequencing

```
SETUP OPERATION
Select operation to edit

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=RETURN TO SETUP MENU
7=RETURN TO MAIN MENU

SELECT A NUMBER: 1
-----
>AUTO SEQUENCING- N FOR ON, F FOR OFF
>[N]
>[N]
>COMMAND SUCCESSFUL

>EVERY ## DAYS (.5 FOR 12 HOUR)
>[03] DAYS
>[
>COMMAND SUCCESSFUL

>AT
>[00:00]
>[
>COMMAND SUCCESSFUL
```

Standby Testing

For details on this feature, see **7.8.2 - Turn Standby Testing On or Off**.

Setup Operation - Standby Testing

```
SETUP OPERATION

select operation to edit

      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=RETURN TO SETUP MENU
7=RETURN TO MAIN MENU

SELECT A NUMBER:2

>STANDBY TESTING- N FOR ON, F FOR OFF
>[N]
>[N]
>COMMAND SUCCESSFUL

>EVERY ## DAYS
>[03] DAYS
>[
>COMMAND SUCCESSFUL

>AT
>[00:00]
>[
>COMMAND SUCCESSFUL

>FOR
>[10] MIN
>[
>COMMAND SUCCESSFUL
```


Failed Standby

For details on this feature, see **7.8.3 - Specify Failed Standby Response**.

Setup Operation - Failed Standby

```

SETUP OPERATION

Select operation to edit

      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=RETURN TO SETUP MENU
7=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 **7.8.4 - Specify Hold Delay Time**.

Setup Operation - Hold Delay

```

SETUP OPERATION

Select operation to edit

      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=RETURN TO SETUP MENU
7=RETURN TO MAIN MENU

SELECT A NUMBER:4
-----
>HOLD DELAY (MM:SS)
>[10:00]
>[
>COMMAND SUCCESSFUL

```

Restart Delay

For details on this feature, see **7.8.5 - Specify Restart Time**.

Setup Operation - Restart Delay

```

SETUP OPERATION

Select operation to edit

      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=RETURN TO SETUP MENU
7=RETURN TO MAIN MENU

SELECT A NUMBER: 5

>DELAY BEFORE STARTUP UNIT(MM:SS)?
>[00:06]
>[
>COMMAND SUCCESSFUL

```

A.6.7 Override Output

For details on this feature, see **7.9 - Override Output**.

Override Output

```

OVERRIDE OUTPUT

Manually override
an output point

select output to override

      OUTPUT          CONTROL

1=DEVICE_1          AUTO          *****
2=DEVICE_2          AUTO          AUTO      = CONTROL BY PANEL
3=DEVICE_3          FORCE ON      FORCE ON = FORCE ON BY OPERATOR
4=DEVICE_4          FORCE ON      FORCE OFF= FORCE OFF BY OPERATOR
5=RETURN TO SETUP MENU *****
6=RETURN TO MAIN MENU

SELECT A NUMBER: 1

>OVERRIDE OUTPUT DEVICE_1-AUTO(2),FORCE ON(1),FORCE OFF(0).
>[2]
>[
>COMMAND SUCCESSFUL

```

A.6.8 Clear Alarms & Logs

For details on this topic, see 7.10 - Clear Alarms & Logs.

Clear Active Alarms

For details on this feature, see 7.10.1 - Clear Active Alarms.

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=RETURN TO SETUP MENU
5=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 7.10.2 - Clear the Alarm Log.

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=RETURN TO SETUP MENU
5=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 7.10.3 - Clear the Event Log.

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=RETURN TO SETUP MENU
5=RETURN TO MAIN MENU

SELECT A NUMBER:3
-----
>CLEAR ALL RECORDS IN THE EVENT LOG-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

NOTES

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