

LIQUI-TECT MONITORING SYSTEM



TABLE OF CONTENTS

| | | |
|------------|--|----|
| 1.0 | INTRODUCTION | |
| 1.1 | Equipment Inspection | 1 |
| 1.2 | Outside Enclosure Overview | 2 |
| 1.3 | Typical Sequence | 3 |
| 1.4 | Controller Board Overview | 4 |
| 1.5 | LED Indicators | 6 |
| 2.0 | INSTALLATION | |
| 2.1 | Installation Considerations | 7 |
| 2.1.1 | Unpacking and Preliminary Inspection | 7 |
| 2.2 | Surface-Mounting the Liqui-TECT Panel | 8 |
| 2.2.1 | Mounting the Panel | 8 |
| 2.3 | Flush-Mounting the Liqui-TECT Panel | 9 |
| 2.3.1 | Mounting the Panel | 9 |
| 2.4 | Connect Power to the Liqui-TECT Panel | 10 |
| 2.4.1 | Input Power Connections - Small Enclosure | 10 |
| 2.4.2 | Input and Output Power Connections - Large Enclosure | 11 |
| 3.0 | CONNECTIONS AND CONFIGURATION | |
| 3.1 | Connecting Leak Detection Cable Inputs | 13 |
| 3.1.1 | Attaching Leak Detection Connection Cable to the Panel | 13 |
| 3.1.2 | Connecting Leak Detection Cable to the Connection Cable | 14 |
| 3.2 | Connecting Alarm Outputs | 16 |
| 3.3 | Connecting to a Building Maintenance System or External Alarm System | 16 |
| 3.4 | RS422 SiteScan Web Connector | 17 |
| 3.5 | Disable the Audible Horn | 17 |
| 4.0 | OVERVIEW OF MENUS | |
| 4.1 | View Status Overview | 18 |
| 4.2 | System and Control Overview | 18 |
| 5.0 | VIEW STATUS OPTIONS | |
| 5.1 | View Cable Status | 20 |
| 5.1.1 | Cable Status Screens | 20 |
| 5.2 | View Alarm History | 21 |
| 5.2.1 | Alarm History Log | 21 |
| 5.3 | View Zone Trend | 22 |
| 5.3.1 | Zone Trend Log | 22 |
| 6.0 | SYSTEM AND CONTROL OPTIONS | |
| 6.1 | Login | 23 |
| 6.2 | Setup System - Overview | 25 |
| 6.3 | Setup System - Setup ZN1 Zone 1 | 25 |
| 6.3.1 | Identify the Zone as Connected | 26 |
| 6.3.2 | Change Zone Label | 26 |
| 6.3.3 | Change Units Label | 26 |
| 6.3.4 | Auto Calibration | 27 |
| 6.3.5 | Set Up Sensitivity for Water Detection | 27 |
| 6.3.6 | Set Up Sensitivity for Contamination Detection | 28 |

| | | |
|------------|---|----|
| 6.4 | Setup System - Setup ZN2 Zone 2 | 29 |
| 6.5 | Setup System - Setup Alarm Outputs | 30 |
| 6.5.1 | Specify Longest Cable Length | 31 |
| 6.5.2 | Define Relays as Normally Open or Normally Closed | 31 |
| 6.5.3 | Define Alarms as Latched or Unlatched | 31 |
| 6.6 | Setup System - Setup Re-Alarm Delay | 32 |
| 6.7 | Setup System - Setup Mapmode | 33 |
| 6.7.1 | View Last Map | 34 |
| 6.8 | Setup System - Setup System Info | 35 |
| 6.8.1 | Change Password | 35 |
| 6.8.2 | Change Date & Time/Automatic Daylight Saving Time | 36 |
| 6.8.3 | Factory Defaults | 36 |
| 6.9 | Reset Latched Alarms | 37 |
| 6.10 | Clear Alarm History | 38 |
| 6.11 | Clear Zone Trend | 39 |
| 7.0 | SPECIFICATIONS | |
| 7.1 | Liqui-TECT Panel Specifications | 40 |

FIGURES

| | | |
|-----------|--|----|
| Figure 1 | Small enclosure—external features | 2 |
| Figure 2 | Large enclosure—internal features | 2 |
| Figure 3 | Example of typical sequence: Analog input reaches high setpoint | 3 |
| Figure 4 | Mounting dimensions | 8 |
| Figure 5 | Electrical connections to panel | 10 |
| Figure 6 | Power wiring to TM115 | 11 |
| Figure 7 | Power wiring to TM230 | 11 |
| Figure 8 | Fittings on leak detection cable (LT500Y) and connection cable (CONNECT10) | 14 |
| Figure 9 | Typical leak detection cable layout | 14 |
| Figure 10 | Installation of hold-down clips in pairs | 15 |
| Figure 11 | Cable laid in straight patterns | 15 |
| Figure 12 | Cable laid in circular patterns | 15 |
| Figure 13 | 90° turn in cable | 15 |
| Figure 14 | Menu overview | 18 |
| Figure 15 | Menu overview - View Status menu | 19 |
| Figure 16 | Menu overview - System and Control menu | 24 |

TABLES

| | | |
|----------|--|----|
| Table 1 | Controller board components | 4 |
| Table 2 | LED indicators summary | 6 |
| Table 3 | Packing manifest | 7 |
| Table 4 | Wiring specifications | 12 |
| Table 5 | Overall cable conditions | 20 |
| Table 6 | Alarm History Log conditions | 21 |
| Table 7 | Valid characters for data entry | 23 |
| Table 8 | Default settings - Zone 1 | 25 |
| Table 9 | Default settings - alarm outputs | 30 |
| Table 10 | Operation of 4-20mA outputs | 31 |
| Table 11 | Default mapping values | 33 |
| Table 12 | Factory default settings | 36 |

1.0 INTRODUCTION

The Liebert Liqui-tect Monitoring System is the ultimate in leak detection and retrofitting capabilities for computer rooms and other large areas. The Liqui-tect Monitoring System provides direct-read at the control unit location, as well as the ability to communicate with the Liebert SiteScan Web enterprise monitoring system or a building management system.

The Liqui-tect Monitoring System features an easy-to-use liquid crystal display (LCD) panel with readout of normal and alarm conditions, as well as leak location. Display and measurement modules are contained in a single compact package.

The Liqui-tect Monitoring System can monitor up to 10,000 ft. (3048m) of Liebert LT500Y leak detection cable. Points along the cable may be mapped by one person, making it easy to configure within the critical space and pinpoint the location of leaks when they occur. The system determines the location of the water on the detection cable and reports the distance from the Liqui-tect panel in feet or meters. To ensure proper protection, the system continuously monitors operation, signaling system normal, leak detected and cable fault.

The Liqui-tect panel offers these and other features to protect your installation from leak damage:

- audible and visual alarms
- adjustable sensitivity setpoints for leaks and contamination
- continuous scrolling of data
- history logs
- connection to a building management system
- automatic detection of broken cables and contaminated cables
- password protection
- retention of configuration after a power failure

Two interfaces permit easy access and configuration of the Liqui-tect panel:

- LCD on the front of the enclosure
- Liebert's SiteScan Web enterprise monitoring system through a dedicated connection port

1.1 Equipment Inspection

Upon arrival of the unit, inspect all items for visible and concealed damage. Damage should be immediately reported to the carrier and a damage claim filed with a copy sent to Liebert or to your sales representative.

1.2 Outside Enclosure Overview

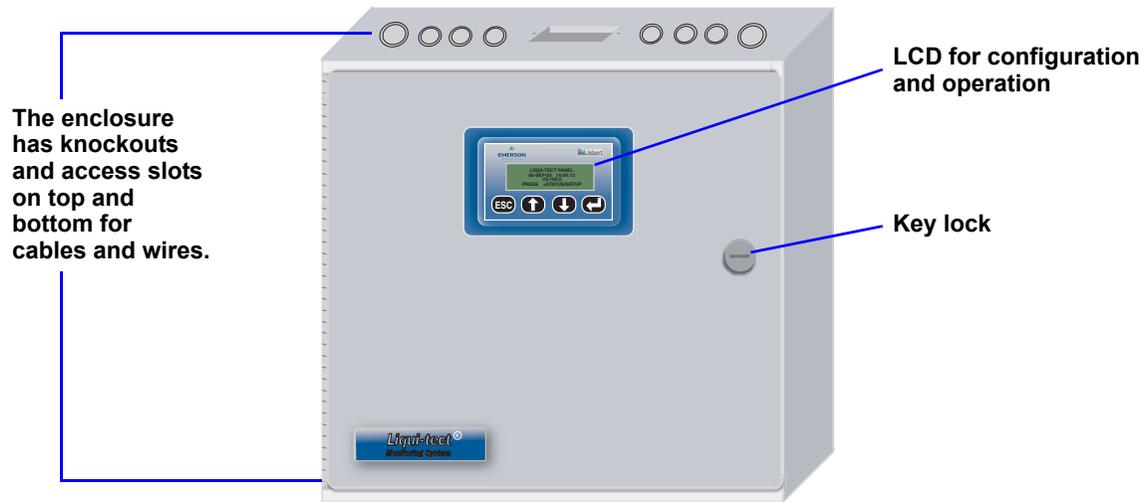
The enclosure for the Liqui-TECT panel's controller board comes in two sizes:

- The **large enclosure** is designed to accommodate the Transformer Module and future components, in addition to the controller board.
- The **small enclosure** is built to hold the controller board only.

Both enclosures are 2-3/4" deep.

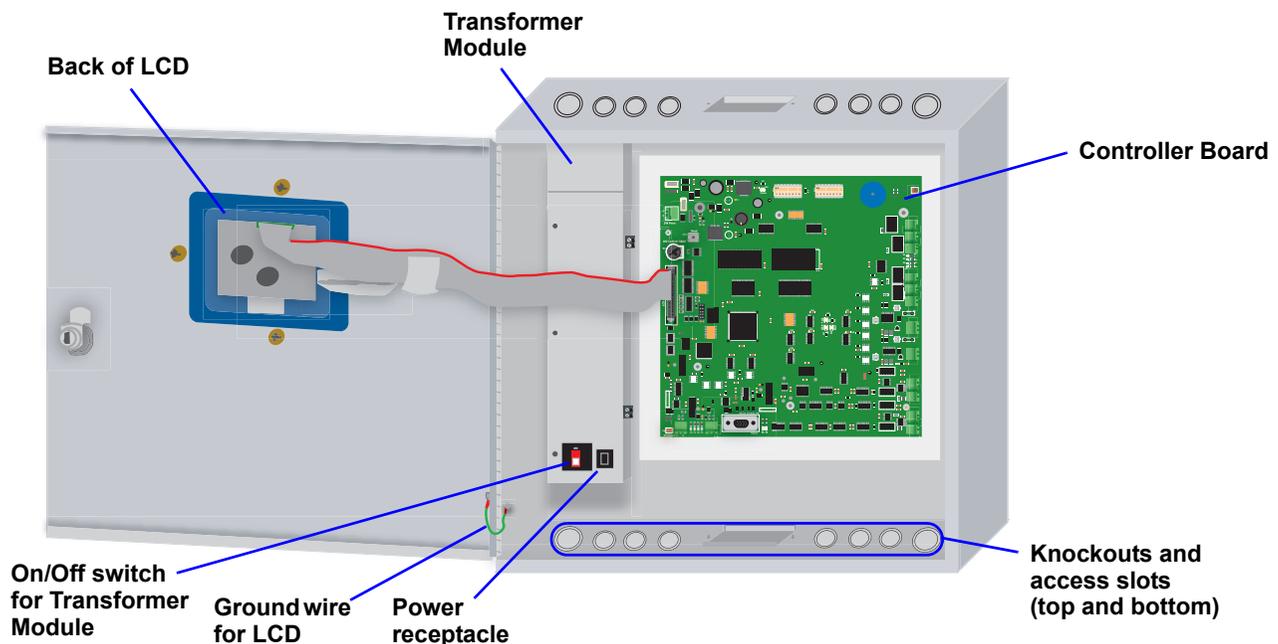
Both enclosures have a built-in liquid crystal display (LCD) and a key lock, as shown in the example below. The metal enclosures accommodate secure conduit fittings and protect components against external forces and debris.

Figure 1 Small 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 - Connections and Configuration**) with either mounting type.

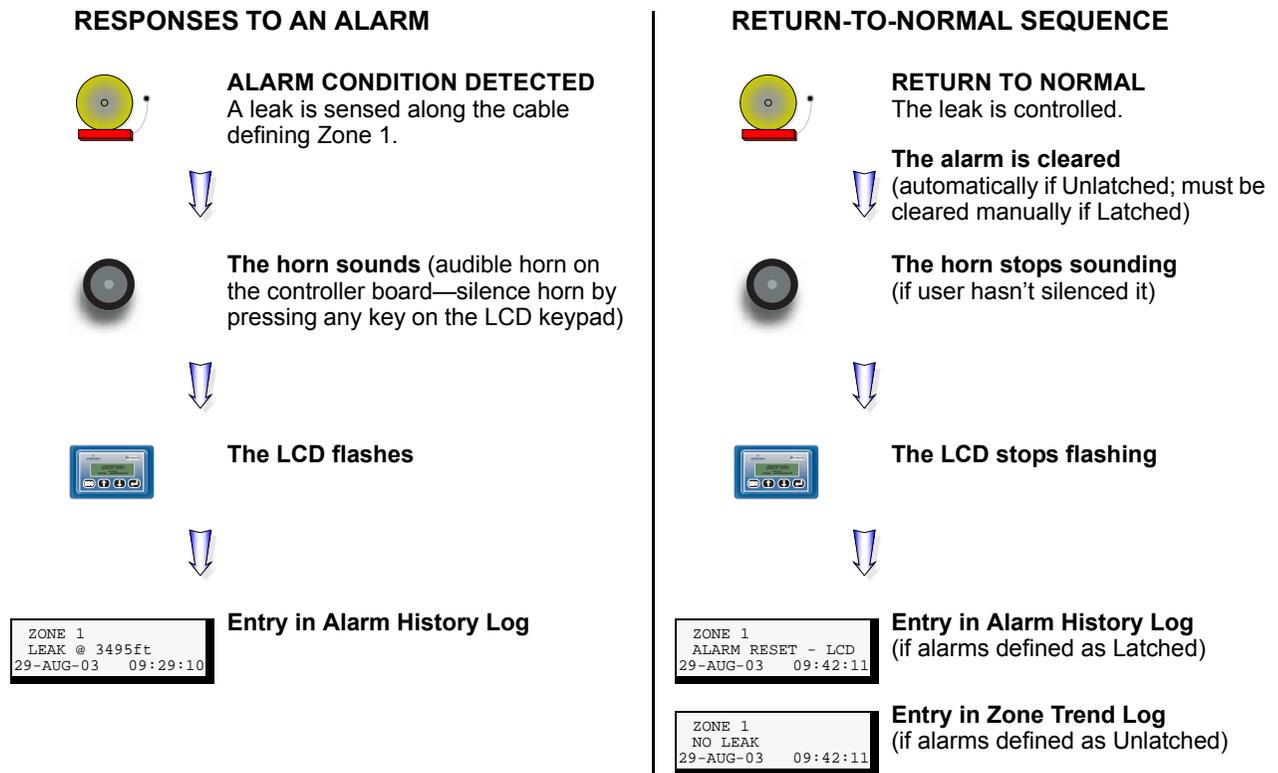
Figure 2 Large enclosure—internal features



1.3 Typical Sequence

Figure 3 shows a typical sequence of how the Liqui-TECT Monitoring System functions after detecting a leak, contamination or cable break in either Zone 1 or Zone 2. Responses depend on configuration settings. This example shows what happens when a leak is detected.

Figure 3 Example of typical sequence: Analog input reaches high setpoint



1.4 Controller Board Overview

The Liqui-TECT panel's controller board, as shown below, has connectors for two digital outputs for leak detection alarms, two digital outputs for cable break alarms, two inputs for leak detection cables and two analog outputs for connecting to a building management system. The board comes complete with light-emitting diodes (LEDs) to display the status of monitored zones, power connections and other features necessary to monitor and protect your operation.

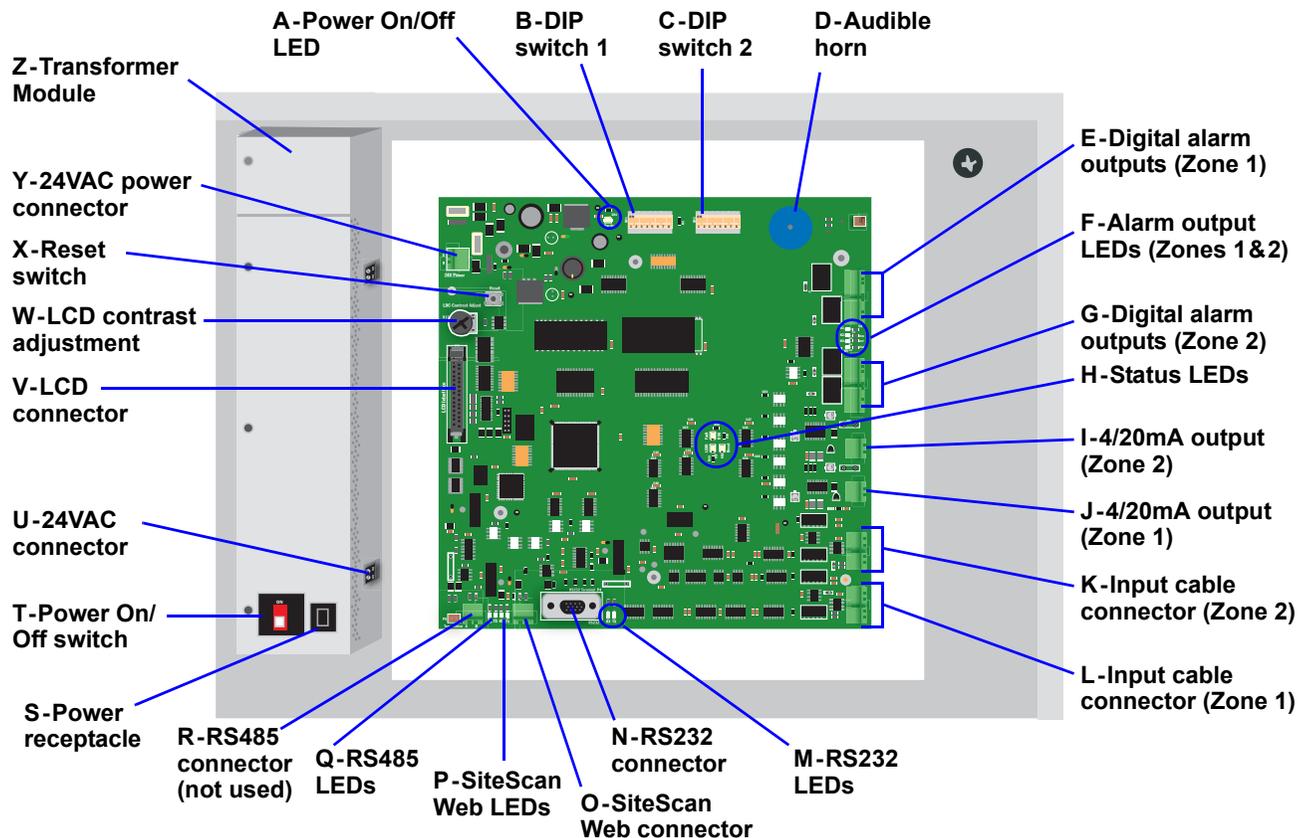


Table 1 Controller board components

| Item | Description | More Information |
|--|---|--|
| A-Power On/Off LED | Indicates when power is supplied to the panel. | 2.4: Connect Power to the Liqui-TECT Panel 1.5: LED Indicators |
| B-DIP switch 1 | DIP switch used for resetting password to default and disabling the audible alarm. | 3.5: Disable the Audible Horn 6.8.1: Change Password |
| C-DIP switch 2 | Not used. | N/A |
| D-Audible horn | Provides audible notification when an alarm occurs. | 3.5: Disable the Audible Horn |
| E-Digital alarm outputs (Zone 1) and G-Digital alarm outputs (Zone 2) | The Cable Break output connection is a two-state point (ON/OFF, energized/de-energized). When the cable is broken or becomes contaminated, an alarm is created and the contact is energized. The Leak Detected output connection is a two-state point (ON/OFF, energized/de-energized). When water is detected, an alarm is created and the contact is energized. Each output can be used to connect to a secondary warning device such as a horn, light or building management system. | 3.0: Connections and Configuration 3.2: Connecting Alarm Outputs 5.1: View Cable Status 6.5: Setup System - Setup Alarm Outputs |
| F-Alarm output LEDs (Zones 1 & 2) | Indicates the status of the alarm outputs. | 1.5: LED Indicators |
| G-Digital alarm outputs (Zone 2) | <i>(See description and references for E-Digital alarm outputs (Zone 1) above)</i> | |

Table 1 Controller board components

| Item | Description | More Information |
|---|--|--|
| H-Status LEDs | Indicates the operational status of the panel. | 1.5: LED Indicators |
| I-4/20mA output (Zone 2) | Provides the distance liquid is detected, normal status and cable fault. Used to provide status to a building management system or remote monitoring system. | 3.0: Connections and Configuration 3.3: Connecting to a Building Maintenance System or External Alarm System 5.1: View Cable Status 6.5: Setup System - Setup Alarm Outputs |
| J-4/20mA output (Zone 1) | Provides the distance liquid is detected, normal status and cable fault. Used to provide status to a building management system or remote monitoring system. | 3.0: Connections and Configuration 3.3: Connecting to a Building Maintenance System or External Alarm System 5.1: View Cable Status 6.5: Setup System - Setup Alarm Outputs |
| K-Input cable connector (Zone 2) | Connection to Liebert leak detection cable. | 3.0: Connections and Configuration 3.1: Connecting Leak Detection Cable Inputs 5.1: View Cable Status 6.4: Setup System - Setup ZN2 Zone 2 |
| L-Input cable connector (Zone 1) | Connection to Liebert leak detection cable. | 3.0: Connections and Configuration 3.1: Connecting Leak Detection Cable Inputs 5.1: View Cable Status 6.3: Setup System - Setup ZN1 Zone 1 |
| M-RS232 LEDs | Indicates the connection status between the Liqui-TECT panel and an RS232 device. | 1.5: LED Indicators |
| N-RS232 connector | Connection for a laptop. Used by factory personnel. Requires a null modem cable for connectivity (P/N 201258P1). | N/A |
| O-SiteScan Web connector | Connection to monitor Liqui-TECT panel from Liebert's SiteScan Web enterprise monitoring system. | 3.0: Connections and Configuration 3.4: RS422 SiteScan Web Connector |
| P-SiteScan Web LEDs | Indicates the connection status between the Liqui-TECT panel and SiteScan Web. | 1.5: LED Indicators |
| Q-RS485 LEDs | Not presently used. | N/A |
| R-RS485 connector | Not presently used. | N/A |
| S-Power receptacle (Transformer Module) | 115VAC power receptacle to power laptop during configuration and diagnostics. Receptacle not available on 230VAC Transformer Module. | 2.4.2: Input and Output Power Connections - Large Enclosure 3.0: Connections and Configuration |
| T-Power On/Off switch (Transformer Module) | Power switch to turn power On/Off to both Transformer Module 24VAC connectors and power receptacle. | 2.4.2: Input and Output Power Connections - Large Enclosure 3.0: Connections and Configuration |
| U-24VAC connector (Transformer Module) | One of the two 24VAC connectors for power (the second is also on the right side of the Transformer Module near the top). Each connector is rated for 40VA. | 2.4.2: Input and Output Power Connections - Large Enclosure 3.0: Connections and Configuration |
| V-LCD connector | Connection for the LCD located on the front door. | N/A |
| W-LCD contrast adjustment | Adjustment contrast for the LCD located on the front door. | N/A |
| X-Reset switch | Reset switch to reset the panel. Same as re-powering the panel. | N/A |
| Y-24VAC power connector | Power connection for the controller. Requires 24VAC. | 2.4: Connect Power to the Liqui-TECT Panel |
| Z-Transformer Module | Transformer Module used to convert 115VAC or 230VAC to 24VAC. Available only in the large enclosure. | 2.4.2: Input and Output Power Connections - Large Enclosure |

1.5 LED Indicators

The Liqui-tect panel's controller board has LED indicators that show the status of inputs, outputs and other board components.

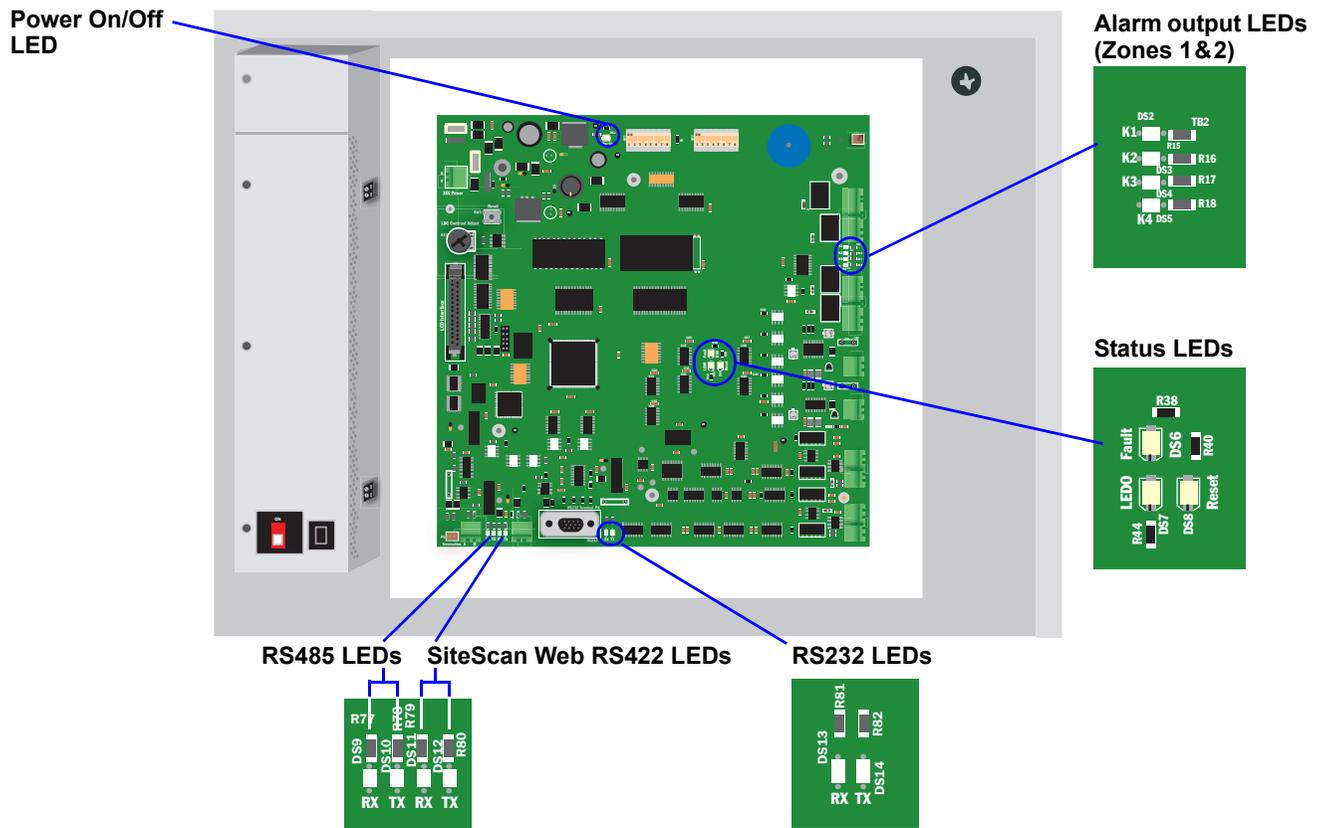


Table 2 LED indicators summary

| LED | Color | Description |
|--|-------|--|
| Power On/Off LED | | |
| Pwr On | Green | Indicates whether power is connected |
| Zone 1 & 2 Alarm Outputs LEDs | | |
| K1 – Zone 1 Leak Detected | Green | Indicates leak detected for Zone 1 |
| K2 – Zone 1 Cable Break | Green | Indicates cable problem for Zone 1 |
| K3 – Zone 2 Leak Detected | Green | Indicates leak detected for Zone 2 |
| K4 – Zone 2 Cable Break | Green | Indicates cable problem for Zone 2 |
| Status LEDs | | |
| LED0 | Green | Indicates the panel is working properly – will flash slowly when working |
| Fault | Red | Indicates an alarm is present |
| Reset | Red | Indicates the panel is being reset |
| RS232 LEDs | | |
| RS232 TX | Green | Liqui-tect panel is transmitting information via the RS232 port |
| RS232 RX | Green | Liqui-tect panel is receiving information via the RS232 port |
| RS422 LEDs | | |
| RS422 TX | Green | Liqui-tect panel is transmitting information over the RS422 port |
| RS422 RX | Green | Liqui-tect panel is receiving information over the RS422 port |
| RS485 LEDs | | |
| RS485 TX | Green | Not presently used |
| RS485 RS | Green | Not presently used |

2.0 INSTALLATION

2.1 Installation Considerations

The Liqui-TECT panel must be installed indoors and may be mounted on the surface of a wall or flush-mounted, depending on the user's application and the type of wall the unit will be mounted on. The unit's location must meet the following criteria:

- The panel must be placed close enough to the areas to be monitored to permit proper connection of the leak detection cable. The panel will monitor two zones; each zone can accommodate up to 5,000 ft. (1524m) of leak detection cable.
- The Liqui-TECT panel should be mounted where it can be easily accessed. Personnel would access the unit through the LCD on its front cover or through SiteScan.
- The site also must have electrical service and must permit connection of the panel's four digital outputs, two inputs for leak detection cables and two analog outputs for connecting to a building management system or external alarm.
- The wall material must be capable of supporting the weight of the Liqui-TECT panel: see **7.0 - 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 Liqui-TECT panel, 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 container carefully. Use care to avoid puncturing the container with sharp objects that might damage the contents.
- Inspect the Liqui-TECT panel 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 |
|---|
| Liqui-TECT panel - large or small enclosure |
| User Manual |
| Keys (2) to panel door lock |
| Connection cables (2) (CONNECT10) |
| End terminators (2) (LT500-ET) |

2.2 Surface-Mounting the Liqui-TECT Panel



NOTE

Removing the conduit knockouts before mounting the Liqui-TECT panel on the wall will ease installation and prevent strain on the mounting hardware and wall. It is imperative to remove the knockouts if the unit is to be flush-mounted.

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

Required tools

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

2.2.1 Mounting the Panel

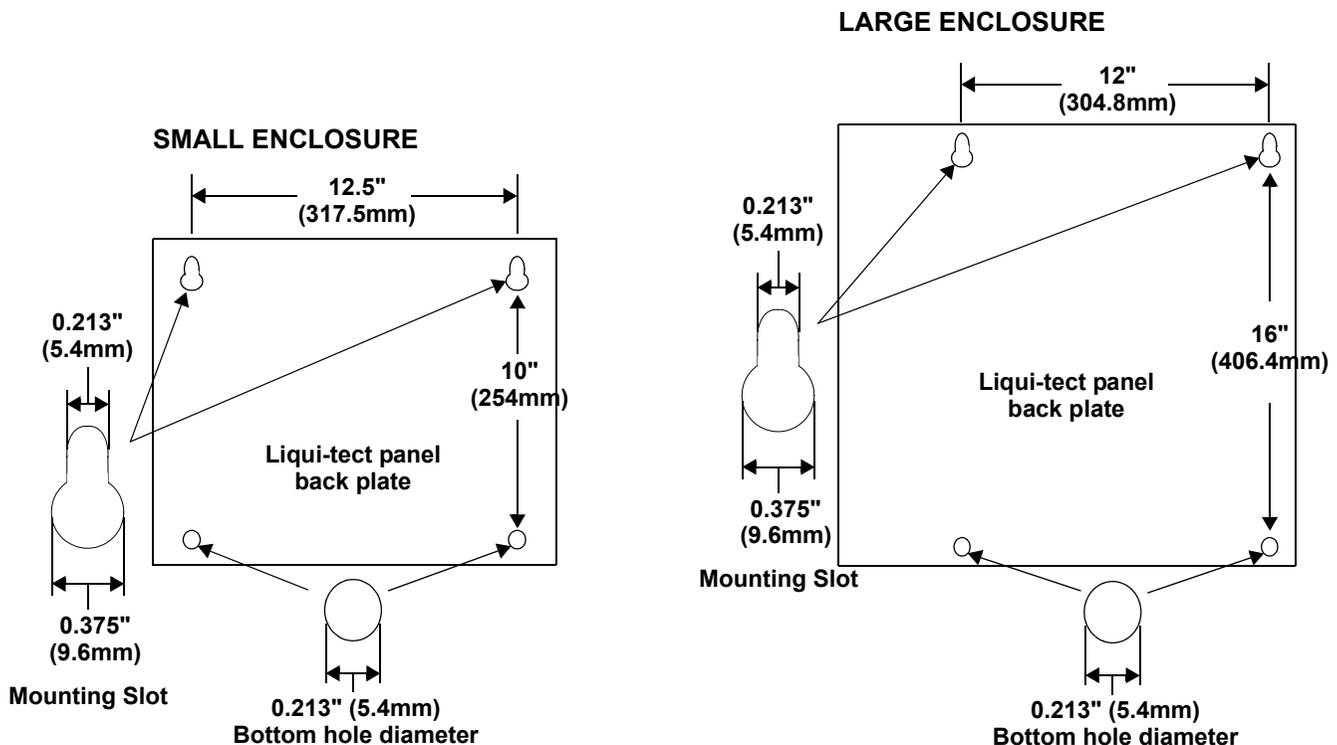


CAUTION

Check building plans and other relevant documents to determine whether mounting the Liqui-TECT panel 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 4**).
2. Drill holes, if required, to install the four #10 screws that will secure the Liqui-TECT panel 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 Liqui-TECT panel (see inset in illustration at right). The screws must also be large enough to extend over the edges of the top of the mounting slot.
5. Hang the Liqui-TECT panel 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 4 Mounting dimensions



2.3 Flush-Mounting the Liqui-tect Panel



NOTE

Removing the conduit knockouts before mounting the Liqui-tect panel 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 Liqui-tect panel must be removed from the outside of the panel and reinstalled on the inside of the panel. Leaving the doors as shipped from the factory prevents them from being opened when the panel is flush mounted in a wall.

The Liqui-tect panel 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 Liqui-tect panel
- Trim ring and associated hardware
- Mounting hardware

2.3.1 Mounting the Panel



CAUTION

Check building plans and other relevant documents to determine whether mounting the Liqui-tect panel 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 Liqui-tect panel 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 Liqui-tect panel. Leaving the access 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 Liqui-TECT Panel

The Liqui-TECT panel 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, Liebert representative or the Liebert Worldwide Support Group.



WARNING

Check that power is removed from wires prior to installation.



CAUTION

The Liqui-TECT panel 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

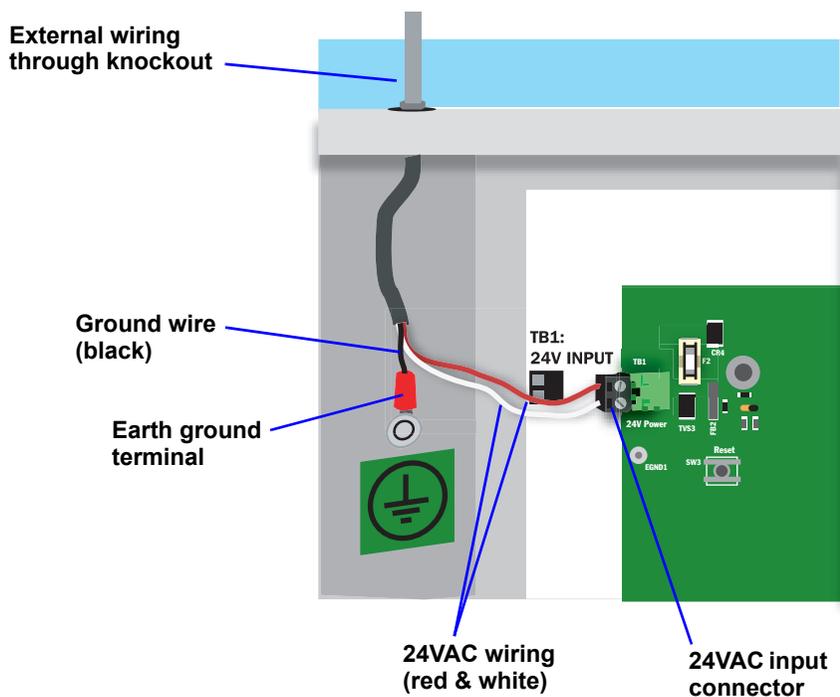
Be sure that the power wiring is disconnected from the Liqui-TECT panel before installing any wiring to this unit.

2.4.1 Input Power Connections - Small Enclosure

To connect electrical power:

1. Run conduit and electrical wiring from building to the Liqui-TECT panel.
2. Use copper wires only; proper wiring to use for 24VAC power is 18-22 AWG stranded and shielded (18 AWG is recommended—see **Table 4**). Strip wires 1/2".

Figure 5 Electrical connections to panel



3. Secure the incoming electrical service wires to the Liqui-TECT panel's 24VAC input by sliding the wires into TB1, the 24VAC input terminal block. There is no polarity requirement when connecting to TB1. The ground wire must be connected to the earth ground terminal located on the side of the panel (see **Figure 5**).

2.4.2 Input and Output Power Connections - Large Enclosure



CAUTION

The 115VAC/230VAC Transformer Module must be connected to a branch circuit with 15A branch circuit protection.

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 connections to ensure compliance with the technical standards and national and local electrical codes.

The Transformer Module shall be used only as indicated by the manufacturer.



WARNING

Be sure that the power wiring is disconnected from the Liqui-TECT panel before installing any wiring to this unit.

Input Power Connections

To connect electrical power to the Transformer Module:

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

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

4. Connect the wiring as follows:

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

5. Secure the incoming electrical service wires to the TM115 input wires with wire nuts as shown in **Figure 6** or to the TM230 connectors as shown in **Figure 7**.

24 VAC Output Power Connections

To connect to the 24VAC outputs:

1. Install electrical wiring from device requiring 24VAC power to the Transformer Module.
2. Use copper wire only; proper wiring to use for power is 18, 20 or 22 AWG copper wire. Strip wire 1/4".
3. There are two 24 VAC output connectors (TB1 and TB2). Terminate wires to the connector as shown in **Figures 6** and **7**. TB1 and TB2 are NOT polarity sensitive.
4. Secure the wires to the connector.

Figure 6 Power wiring to TM115

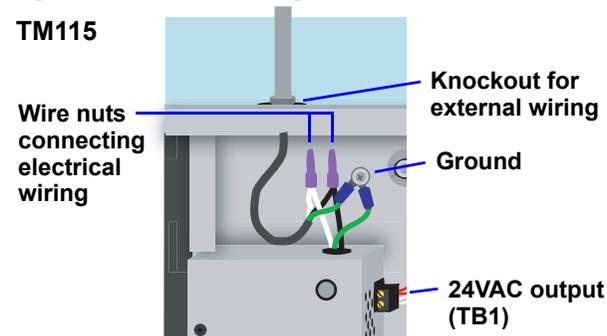
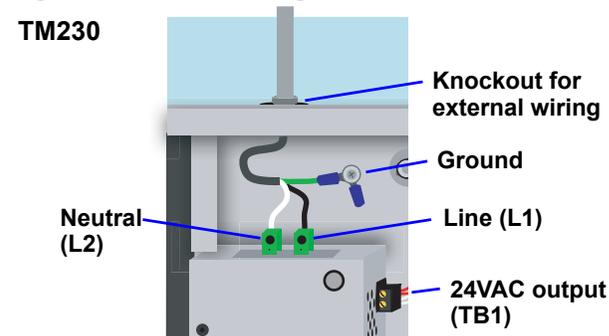


Figure 7 Power wiring to TM230



Troubleshooting - Transformer Module

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

| Problem | Possible Solution | Replacement Fuse Part Numbers |
|---|--|--|
| 24VAC power not available from TB1 or TB2 | Check fuse for respective output (TB1 or TB2). | <ul style="list-style-type: none"> • LITTLEFUSE 218002 • BUSSMANN GDC-2A |

3.0 CONNECTIONS AND CONFIGURATION



CAUTION

Be sure that the power wiring is disconnected from the Liqui-TECT panel before installing any wiring to this unit or changing input or output connections.

Input and output connections to the Liqui-TECT panel 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 |
|--------------------------------------|--|---|---------------------------|----------------------------|
| Cable Input | 4 wire Liebert Connection Cable (CONNECT10) - furnished with Liqui-TECT panel | Connection cable - 10 ft. (3m) Leak detection cable - 5000 ft. (1524m) | | N/A |
| Alarm Output | 18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 9740 Plenum - Belden 89740 | 18 AWG* | @ 1A 200 ft. (60m) | 24VAC @ 1A |
| | | 20 AWG | @ 1A 100 ft. (30m) | |
| | | 22 AWG | @ 1A 75 ft. (23m) | |
| Analog Output | 18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 9740 Plenum - Belden 89740 | 750 ft. (225m) | | 4-20mA Signal Output |
| Communication RS232 | Null Modem Cable | 50 ft. (15m) | | N/A |
| Communication IGM422 SiteScan | 18-22 AWG Stranded & Shielded 22 AWG* (recommended) Non Plenum - Belden 9461 Plenum - Belden 88761 | 1000 ft. (300m) | | N/A |
| 24VAC Power Connection (TB7) | 18-22 AWG Stranded & Unshielded 18 AWG* (recommended) Non Plenum - Belden 8770 Plenum - Belden 88770 | 150 ft. (45m) | | 24VAC @ 1A |

* Recommended

3.1 Connecting Leak Detection Cable Inputs

The leak detection cable inputs are found on the lower right side of the Liqui-TECT panel's printed wiring assembly board. There are two terminal blocks for the inputs; the lower terminal block is for the Zone 1 cable and the terminal block above it is for a second leak detection cable, Zone 2.

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



NOTE

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

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

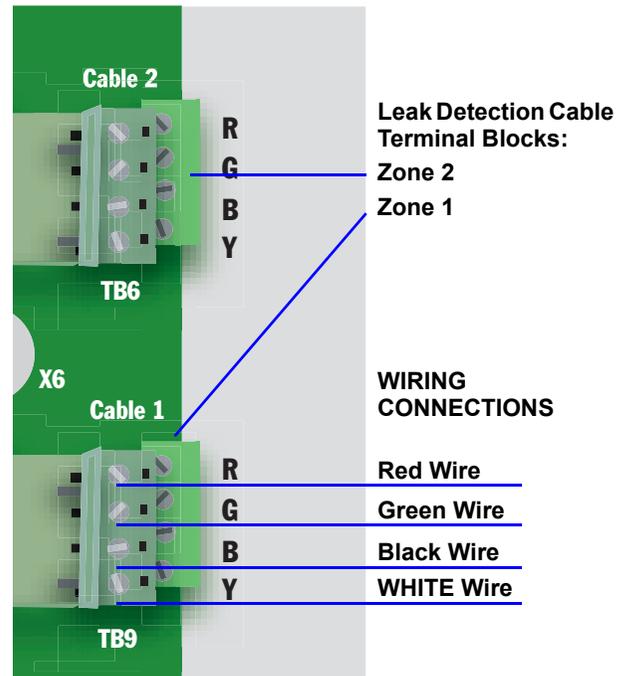
3.1.1 Attaching Leak Detection Connection Cable to the Panel

To attach a leak detection connection cable:

1. Disconnect electrical power to the Liqui-TECT panel.
2. Locate the Zone 1 and Zone 2 cable connectors on the controller board. They can be found on the lower right corner of the board (see 1.4 - **Controller Board Overview**). The Zone 1 connector is Cable 1 or TB9. The Zone 2 connector (Cable 2 or TB6) is just above it.
3. If necessary, remove a conduit knockout to permit wire entry into the Liqui-TECT panel enclosure.
4. Bring the white connection cable (CONNECT10) into the Liqui-TECT panel enclosure through a conduit knockout or access slot.
5. Loosen a screw on the terminal block and slip the stripped end of the appropriate wire into the terminal block according to the color-coded wiring key (see illustration at right).

Note that the **WHITE** wire connects to the “Y” slot. The red wire connects to the “R” slot, the green wire connects to the “G” slot and the black wire to the “B” slot.

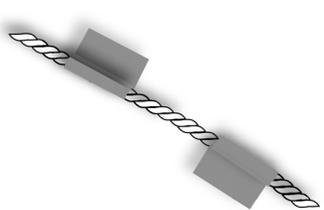
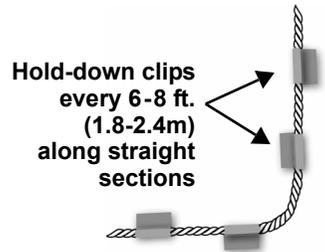
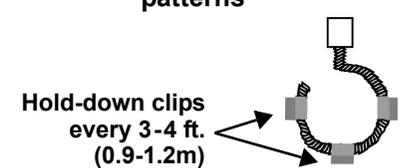
6. Tighten the screw until it holds the wire snugly.
7. Repeat for each of the four wire strands in the connection cable.



3. Once the cable passes the test, lay it in the pattern desired. Pay special attention to the following cable placement precautions.

| DETECTION CABLE PLACEMENT PRECAUTIONS |
|--|
| <ul style="list-style-type: none"> • Do not use detection cable that is damaged or dirty—for example, from plaster, spackle or debris. • Detection cable should not be dragged through contaminants (dirty or greasy areas). Floor must be clean for the detection cable to function properly and for the hold-down clips to adhere to the floor surface. • Careful consideration should be taken to place detection cable out of the direct discharge airflow path of environmental equipment. This type of equipment can discharge moisture into the airflow. Place cable 6 ft. (1.8m) from discharge to avoid nuisance alarms during humidification. • Tools or heavy objects can do permanent damage when dropped, rolled, or set on the detection cable. Avoid foot traffic on the detection cable as well. • Do not use any type of adhesive tape to secure the detection cable. • Do not allow soldering or welding near the detection cable without providing protection from heat and contaminants. (Also avoid installing the detection cable in or near these type of areas.) • Mild dishwashing liquid can be used to clean the detection cable of many contaminants. |

4. Install the hold-down clips in pairs, as shown in **Figure 10**, with the following considerations:
 - a. The adhesive used to install the hold-down clips must NOT come in contact with the detection cable.
 - b. One pair every 6 to 8 ft. (1.8-2.4m) in straight patterns (see **Figure 11**).
 - c. One pair every 3 to 4 ft. (0.9-1.2m) in circular patterns (see **Figure 12**).
 - d. One pair at the beginning and end of the arc when turning 90 degrees (see **Figure 13**).
 - e. One pair as needed to maintain consistent uniform contact between the floor and detection cable.

| | | |
|--|---|---|
| <p>Figure 10 Installation of hold-down clips in pairs</p>  | <p>Figure 11 Cable laid in straight patterns</p>  <p>Hold-down clips every 6-8 ft. (1.8-2.4m) along straight sections</p> | <p>Figure 12 Cable laid in circular patterns</p>  <p>Hold-down clips every 3-4 ft. (0.9-1.2m)</p> |
| <p>Figure 13 90° turn in cable</p>  <p>Hold-down clips at beginning & end of arc</p> | | |

5. Once adhesive is completely dry, snap the cable into each hold-down clip.
6. Check that there are no gaps between the floor and detection cable. (Add clips as required.)
7. Be certain there are no alarms present on the module.
8. Do final testing as per instruction in **Step 2**.

3.2 Connecting Alarm Outputs

The Zone 1 and Zone 2 alarm outputs, found in the top right corner of the Liqui-tect panel, provide a contact output for a leak and a cable break for each zone. As an example, the outputs may provide alarms to an auxiliary alarm panel or building management system. To determine the proper wire size, see **Table 4 - Wiring specifications**.

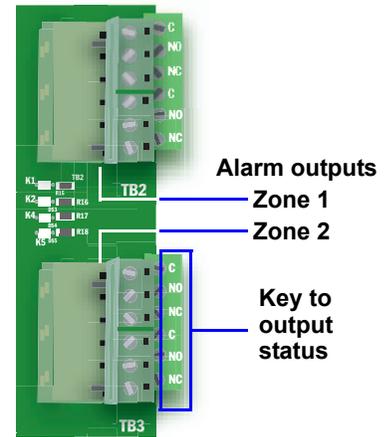
A wiring key beside each terminal block indicates whether the connected output is wired for Normally Open (NO) or Normally Closed (NC).

An alarm relay wired as an unsupervised point (energized for alarm) must be wired to the Normally Open (NO) and Common (C) contacts.

An alarm relay wired as a supervised point (de-energized for alarm) must be wired to the Normally Closed (NC) and Common (C) contacts.

To connect an output:

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

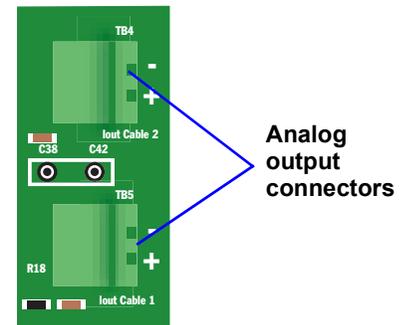


3.3 Connecting to a Building Maintenance System or External Alarm System

Two analog output connector blocks permit the user to connect auxiliary notification equipment to monitor the distance of the leak and cable fault alarms. The terminal blocks are on the right side of the Liqui-tect panel printed circuit board, just above the leak detection cable connectors. To determine the proper wire size, see **Table 4 - Wiring specifications**.

To connect an input:

1. Disconnect electrical power to the Liqui-tect panel.
2. If necessary, remove a conduit knockout to permit wire entry into the Liqui-tect panel enclosure.
3. Bring the wire(s) into the Liqui-tect panel 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.

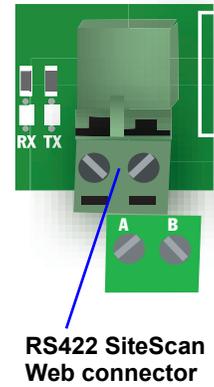


3.4 RS422 SiteScan Web Connector

The Liqui-tec panel will interface with Liebert's SiteScan Web enterprise monitoring system. SiteScan can be used to monitor the Liqui-tec panel from a host computer and silence the audible alarm. The terminal block connector, TB8, is on the bottom edge of the board, near the left corner.

To connect the SiteScan Web to the Liqui-tec panel:

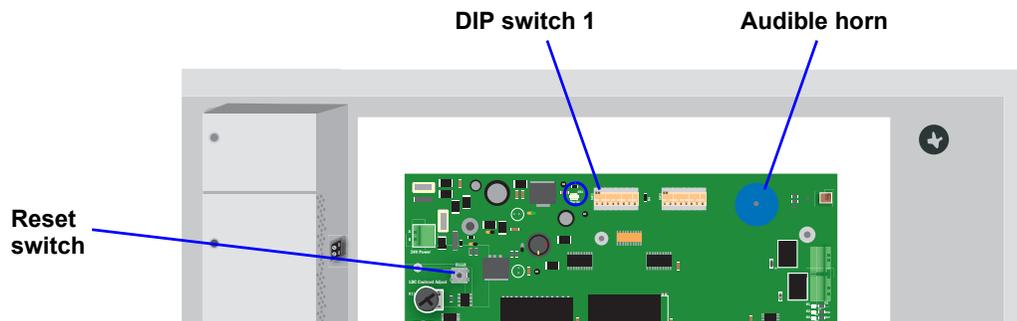
1. Disconnect electrical power to the Liqui-tec panel.
2. If necessary, remove a conduit knockout to permit wire entry into the Liqui-tec panel enclosure.
3. Bring the wire(s) into the Liqui-tec panel enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block. Note that the wires are polarity sensitive.
5. Tighten the screw until it holds the wire snugly.



3.5 Disable the Audible Horn

The panel's audible horn is enabled by default. You may disable it as follows:

1. Set DIP switch 1, the first switch, to the ON position (up) to disable the audible horn.
2. Press the reset button to initiate the change.



To re-enable the horn, set DIP switch 1, the first switch, to the OFF position (down) and press the reset button.

4.0 OVERVIEW OF MENUS

The Liqui-TECT panel displays the Opening Screen at startup, as shown in **Figure 14**.

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 LCD screen will alternately display the Opening Screen and a screen showing NO ALARMS PRESENT.

If no alarms are present and the Enter ↵ (Return) key is pressed, the Main Menu appears and presents two choices that lead to all functions within the panel:

- View Status (see **5.0 - View Status Options** for step-by-step instructions)
- System and Control (see **6.0 - System and Control Options** for detailed instructions)

4.1 View Status Overview

The View Status features are available to all users—no password is required. This permits all personnel to check on the status of any equipment or location being monitored. From this menu, any user may:

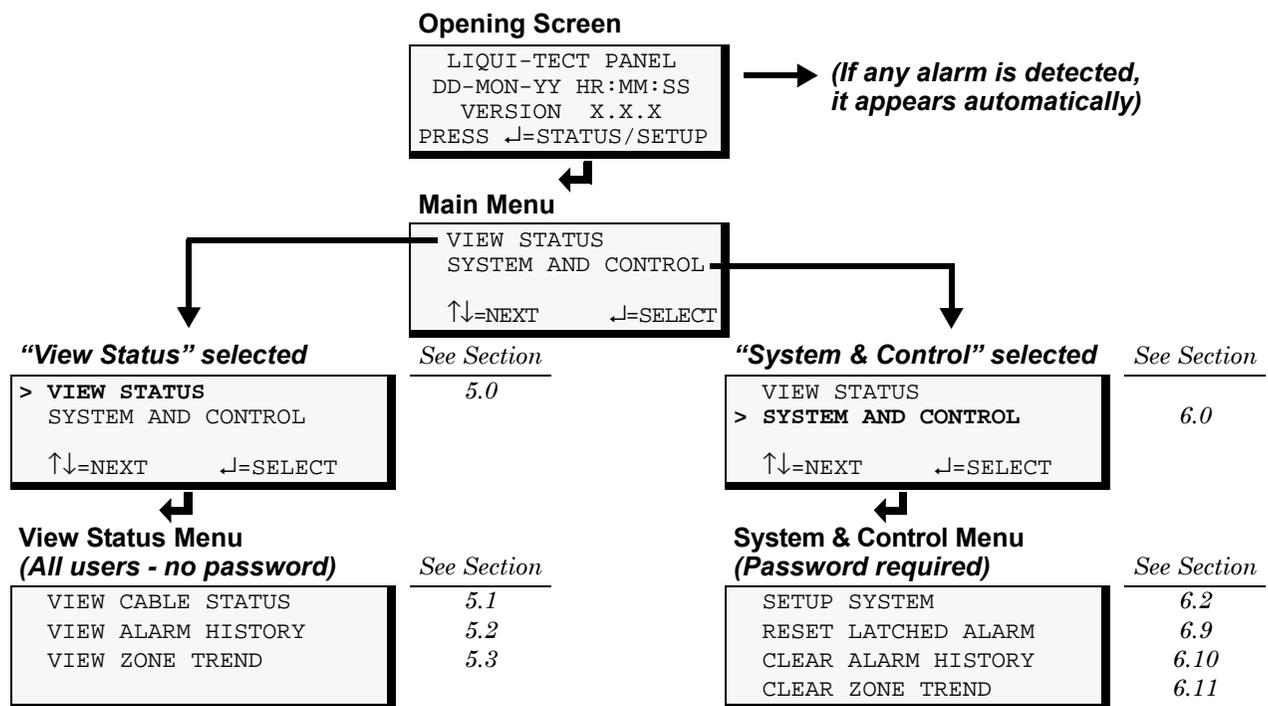
- View cable status, the monitored cable length and the amount of current present (both zones)
- View data stored in the Alarm History Log
- View data stored in the Zone Trend Log

4.2 System and Control Overview

The System and Control options require a password. Authorized users may:

- Configure the Liqui-TECT panel
- Reset any latched alarms
- Delete all records from the Alarm History Log
- Delete all records from the Zone Trend Log

Figure 14 Menu overview



5.0 VIEW STATUS OPTIONS

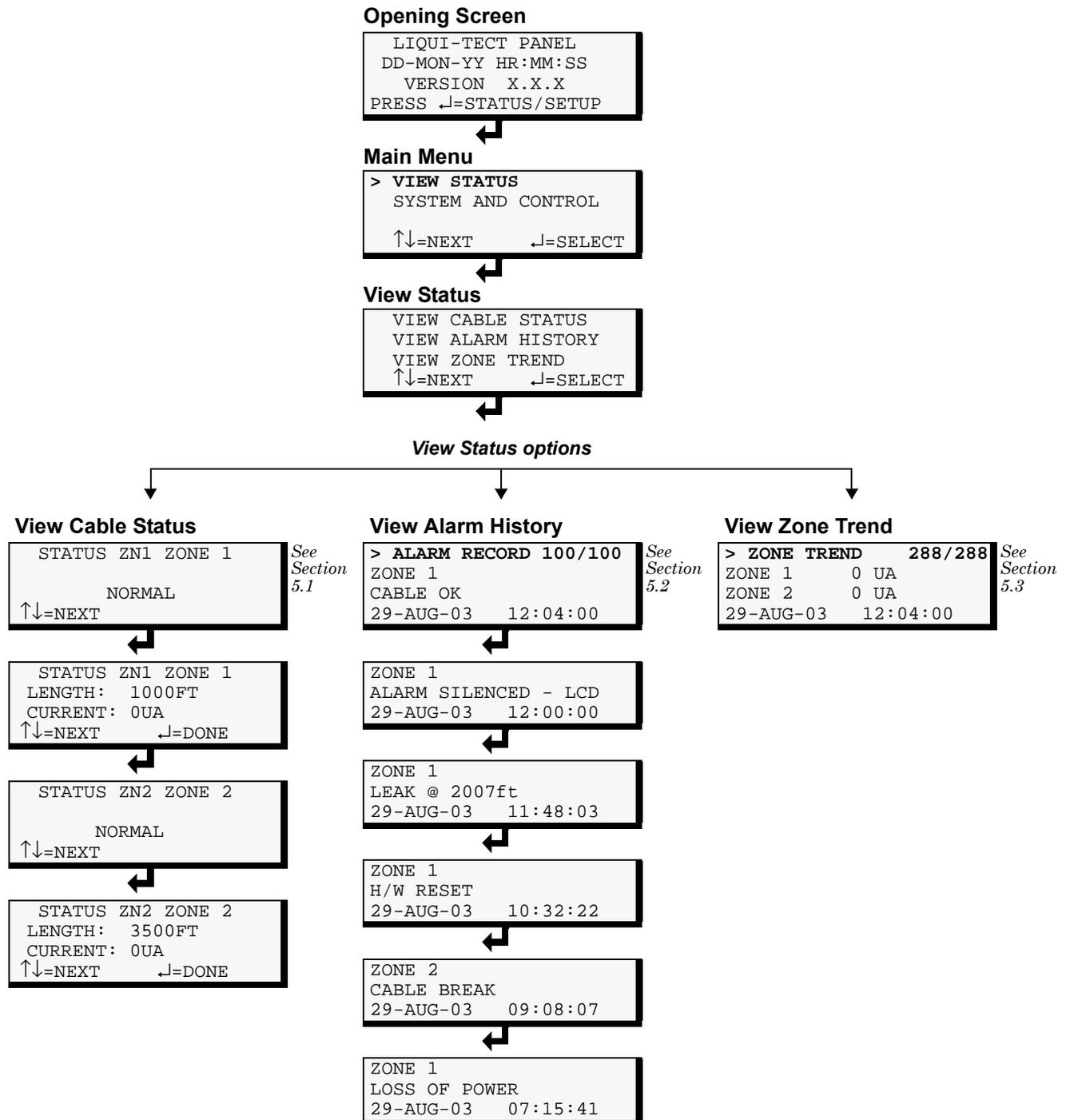
The View Status menu allows any user to view the status of cables in both zones, an alarm history log and a trend log for both zones. The arrows $\uparrow\downarrow$ are used to scroll through the menu. The Enter \downarrow key is used to select the menu item.

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

- View Cable Status
- View Alarm History
- View Zone Trend

Figure 15 shows the main options available from the View Status menu.

Figure 15 Menu overview - View Status menu



5.1 View Cable Status

The Cable Status screens display the overall status of the cable connected to each of the two zones monitored by the Liqui-tect panel, as well as the length of the cable being monitored and the amount of current present in each cable.

To view the status of the cable:

- 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 Cable Status** and press Enter \downarrow .

5.1.1 Cable Status Screens

Each Cable Status screen displays the zone name (ZN1 or ZN2) and its label (for example, ZONE 1 or ZONE 2) at the top.

Viewing Additional Screens

There are four Cable Status screens—two for each zone.

- To view additional screens, use the arrows $\uparrow\downarrow$.
- To return to the previous screen, press the ESC key.
- When finished viewing the last screen, press Enter \downarrow .

Overall Condition

The first screen for each zone shows:

- the zone name (ZN1 or ZN2) and its label (for example, ZONE 1 or ZONE 2)
- the current overall condition of the cable (for example, NORMAL)

The cable conditions tracked by the Liqui-tect panel appear in **Table 5**.

Table 5 Overall cable conditions

| SOURCE | Cable |
|----------------------------|---|
| CONDITIONS RECORDED | NORMAL CABLE BREAK LEAK DETECTED (& location, e.g., LEAK @ 99 FT) CONTAMINATED (& location, e.g., CONTAM @ 44 FT) NOT INSTALLED |

Cable Length & Current Value

The second screen for each zone shows:

- the zone name (ZN1 or ZN2) and its label (for example, ZONE 1 or ZONE 2)
- the length of cable being monitored (for example, 1000FT)—this value may change dynamically by up to 0.5% as the panel is continuously calculating the distance of the connected cable
- the current reading (0UA, where UA represents μA or microAmps)

Main Menu

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

View Status Menu

```
> VIEW CABLE STATUS
  VIEW ALARM HISTORY
  VIEW ZONE TREND
  ↑↓=NEXT      ↵=SELECT
```

Overall Condition (ZN1)

```
STATUS ZN1 ZONE 1
          NORMAL
  ↑↓=NEXT
```

Length & Current (ZN1)

```
STATUS ZN1 ZONE 1
LENGTH:  1000FT
CURRENT: 0UA
  ↑↓=NEXT      ↵=DONE
```

Overall Condition (ZN2)

```
STATUS ZN2 ZONE 2
          NORMAL
  ↑↓=NEXT
```

Length & Current (ZN2)

```
STATUS ZN2 ZONE 2
LENGTH:   3500FT
CURRENT: 0UA
  ↑↓=NEXT      ↵=DONE
```

5.2 View Alarm History

The Alarm History Log contains up to 100 records of alarms that have occurred. Records are added to this log as alarms occur.

To view the Alarm History 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 History**, then press Enter \downarrow .

5.2.1 Alarm History Log

The Alarm History Log screen displays up to 100 records showing alarms generated from the cable, panel operations, return from alarm and loss of power. If the log contains any alarm records, the Alarm History Log screen displays details for each alarm:

- the source of the alarm (for example, ZONE 1 or ZONE 2)
- a brief description of the problem (CABLE OK)
- the date and time the alarm occurred

Table 6 shows conditions that the alarm history log records for analog inputs and the panel itself.

Table 6 Alarm History Log conditions

| Source | Cable Input | Panel |
|----------------------------|---|---|
| CONDITIONS RECORDED | CABLE BREAK LEAK DETECTED (& location, e.g., LEAK @ 99 FT) CONTAMINATED (& location, e.g., CONTAM @ 44 FT) NO LEAK CABLE OK | LOSS OF POWER ALARM SILENCED H/W RESET ALARM RESET |

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

HISTORY LOG EMPTY

Viewing Additional Screens

There may be up to 100 records of alarm data.

- To view additional records, 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 CABLE STATUS
> VIEW ALARM HISTORY
  VIEW ZONE TREND
  ↑↓=NEXT      ↵=SELECT
```



Alarm History Log

```
> ALARM RECORD 01/100
  ZONE 1
  CABLE OK
  29-AUG-03  12:04:00
```

5.3 View Zone Trend

The Zone Trend Log contains up to 288 records that are recorded at regular intervals (every 24 hours) to assist users with verifying operational and troubleshooting problems. Records are added the beginning of the log as they occur.

To view the Zone Trend 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 Zone Trend**, then press Enter \downarrow .

5.3.1 Zone Trend Log

The Zone Trend Log screen displays up to 288 recent readings for each zone. If the log contains any records, the Zone Trend Log screen displays details for each zone:

- the name of the zone (for example, ZONE 1 or ZONE 2)
- the value for the amount of current present on each cable (for example, 0UA, where UA represents μA or microAmps)
- the date and time of the reading

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

TREND DATA EMPTY

Viewing Additional Screens

There may be up to 288 records of trend data for each zone.

- To view additional records, 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 CABLE STATUS
VIEW ALARM HISTORY
> VIEW ZONE TREND
  ↑↓=NEXT      ↵=SELECT
```



Zone Trend Log

```
> ZONE TREND 01/288
  ZONE 1      0UA
  ZONE 2      0UA
29-AUG-03    12:04:00
```

6.0 SYSTEM AND CONTROL OPTIONS

The System and Control menu allows you to configure the Liqui-tect panel—setting up inputs and outputs and system features such as date and time. This menu also provides a vehicle for mapping points, clearing latched alarms and deleting records from the Liqui-tect panel’s alarm and trend 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 7** shows characters that may be entered in labels and values.

Table 7 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 the Liqui-tect panel, system features
- **Reset Latched Alarm** - clear and reset any latched alarms
- **Clear Alarm History** - delete all records from the Alarm History Log
- **Clear Zone Trend** - delete all records from the Zone Trend Log

6.1 Login

Users must enter a password to access any of the system and control options. The password consists of four characters (see **Table 7** for valid characters).

The default password is AAAA. Changing the password to “0000” eliminates the login requirement and prevents the login screen from appearing. (To set up or change the password, see **6.8.1 - Change Password**.)

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.

Main Menu

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



Login

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



System & Control Menu

```
> SETUP SYSTEM
  RESET LATCHED ALARM
  CLEAR ALARM HISTORY
  ↑↓=NEXT      ↓=SELECT
  CLEAR ZONE TREND
```

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

- Setup System (**Section 6.2 - Section 6.8**)
- Reset Latched Alarm (**Section 6.9**)
- Clear Alarm History (**Section 6.10**)
- Clear Zone Trend (**Section 6.11**)

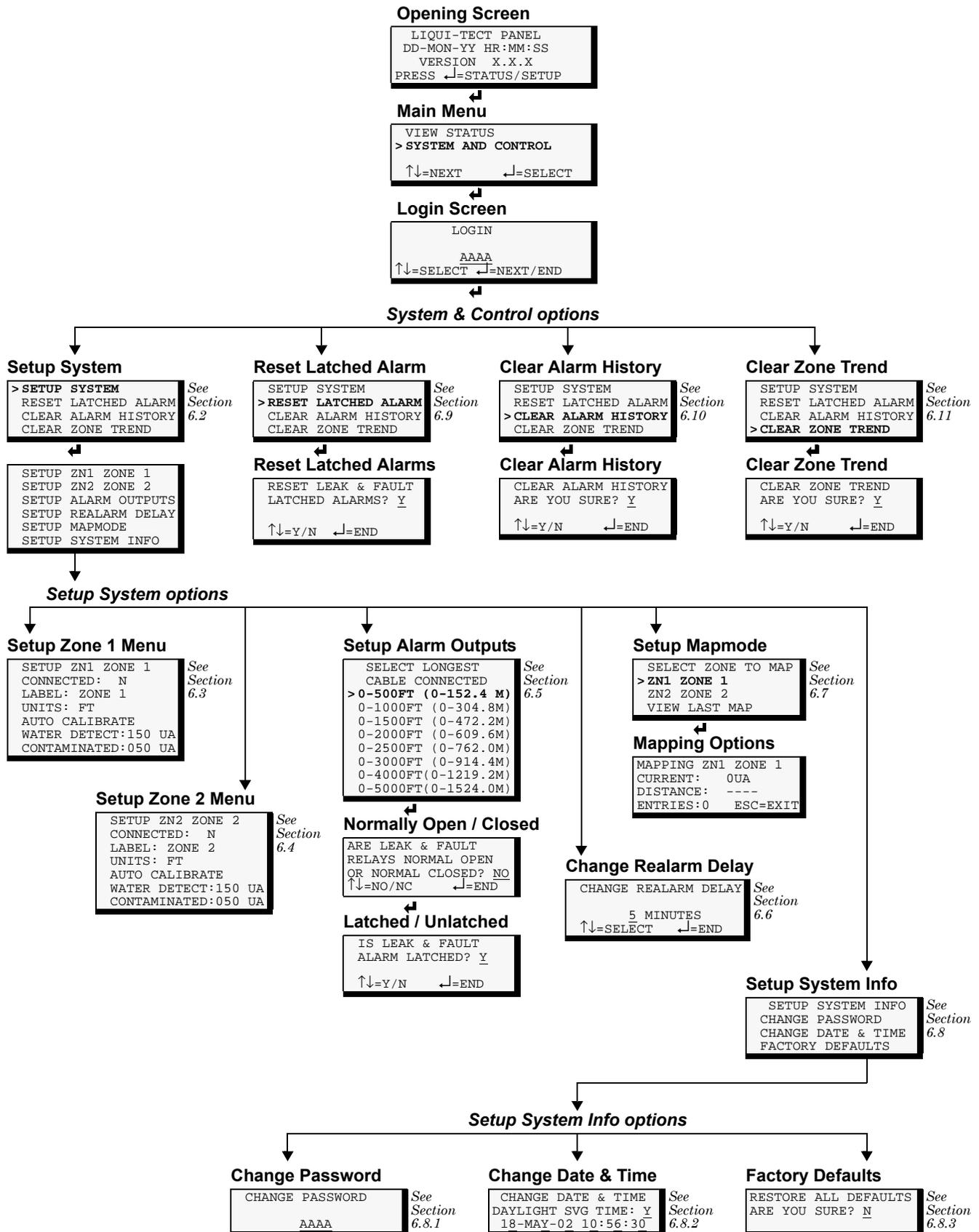


NOTE

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.

Figure 16 shows the main options available from the System & Control menu.

Figure 16 Menu overview - System and Control menu



6.2 Setup System - Overview

The **Setup System** screen displays six options that allow you to configure zones with cable, alarm outputs, the re-alarm delay time, log points to create a map and system details, such as changing the login password or the system date and time:

- Setup ZN1 Zone 1
- Setup ZN2 Zone 2
- Setup Alarm Outputs
- Setup Re-Alarm Delay
- Setup Mapmode
- Setup System Info

6.3 Setup System - Setup ZN1 Zone 1

The Liqui-TECT panel has two independent zones—ZN1 and ZN2—that may be configured individually. Each zone can monitor up to 5,000 ft. (1524m) of cable.

If neither zone is configured as connected, the screen displays the message:

WARNING! NO ZONES ARE INSTALLED

To configure the first zone:

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see 6.1 - 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 Zone 1 to Configure

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup ZN1 Zone 1** and press Enter ↵.
- Use the steps following **Table 8** to change the default settings for Zone 1.

Table 8 shows the features you may change for Zone 1, along with the default settings. By default, Zone 1 is not connected.

To activate Zone 1, you must specify it as connected. Other features that may be altered include the name of the zone, the measurement units, and the sensitivity for detection of water and of contamination. You may also initiate automatic calibration, during which the Liqui-TECT panel determines the length of cable and parameters.

Table 8 Default settings - Zone 1

| Feature | Default | Other Options |
|------------------------------|---------------------------------------|---|
| CONNECTED | N (Not connected) | Y (Connected) |
| LABEL | ZONE 1 | Any name (up to eight characters) |
| UNITS | FT (feet) | M (meters) |
| AUTO CALIBRATE | Automatically calculates cable length | Allows adjustment to calculated length of cable |
| SENSITIVITY FOR WATER DETECT | 150 UA | Can define between 25µA and 300µA |
| SENSITIVITY FOR CONTAMINATED | 50 UA | Can define between 20µA and 300µA |

Setup System Menu

```
> SETUP ZN1 ZONE 1
  SETUP ZN2 ZONE 2
  SETUP ALARM OUTPUTS
  ↑↓=NEXT  ↵=SELECT
-----
  SETUP REALARM DELAY
  SETUP MAPMODE
  SETUP SYSTEM INFO
```



Setup Zone 1 Menu

```
SETUP ZN1 ZONE 1
> CONNECTED:  N
  LABEL: ZONE 1
  ↑↓=NEXT  ↵=SELECT
-----
  UNITS: FT
  AUTO CALIBRATE
  WATER DETECT:150 UA
  CONTAMINATED:050 UA
```

6.3.1 Identify the Zone as Connected

To make use of the zone ZN1, you must specify it as Connected (Y). By default, ZN1 is Not connected (N). See **3.1 - Connecting Leak Detection Cable Inputs** for instructions on connecting the cable to this zone.

- From the Setup Zone 1 Menu, choose **Connected**, as shown at right, and press Enter ↵.
- To change this feature, use the arrows ↑↓ to choose **Y** (Yes - Connected) or **N** (No - Not connected), then press Enter ↵.

Setup Zone 1 Menu

```

SETUP ZN1 ZONE 1
> CONNECTED: N
  LABEL: ZONE 1
  ↑↓=NEXT  ↵=SELECT
-----
UNITS: FT
AUTO CALIBRATE
WATER DETECT:150 UA
CONTAMINATED:050 UA
    
```



Zone Connected

```

IS CABLE CONNECTED
TO THIS ZONE? Y
↑↓=Y/N      ↵=END
    
```

6.3.2 Change Zone Label

ZN1 has a default label (**Zone 1**) that you may change to a more descriptive name, such as “SRVR RM1.” The label may consist of up to eight characters (see **Table 7** for valid characters).

- From the Setup Zone 1 Menu, choose **Label**, then press Enter ↵.
- To change the 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 Zone 1 Menu

```

SETUP ZN1 ZONE 1
CONNECTED: Y
> LABEL: ZONE 1
  ↑↓=NEXT  ↵=SELECT
-----
UNITS: FT
AUTO CALIBRATE
WATER DETECT:150 UA
CONTAMINATED:050 UA
    
```



Change Zone Label

```

CHANGE ZONE LABEL
LABEL: ZONE 1
↑↓=SELECT  ↵=NEXT/END
    
```

6.3.3 Change Units Label

You may specify measurement units as feet (FT) or meters (M). The default designation is FT (feet). The same measurement unit will apply to both zones. For example, if you choose FT for Zone 1, Zone 2 will display in FT also.

- From the Setup Zone 1 Menu, choose **Units**, then press Enter ↵.
- To change the units label:
 - Use the arrows ↑↓ to choose **FT** (feet) or **M** (meters).
 - Press Enter ↵.

Setup Zone 1 Menu

```

SETUP ZN1 ZONE 1
CONNECTED: Y
LABEL: ZONE 1
↑↓=NEXT  ↵=SELECT
-----
> UNITS: FT
  AUTO CALIBRATE
  WATER DETECT:150 UA
  CONTAMINATED:050 UA
    
```



Change Units Label

```

CHANGE UNITS
UNITS: FT
↑↓=FT/M  ↵=END
    
```

6.3.4 Auto Calibration

The auto calibration feature is designed to allow compensation for the resistance tolerances in the two legs of the sensing wires.

As soon as cable is connected, the panel begins calculating the cable length. Initiating the auto calibration feature allows the user to modify the distance to account for any discrepancies. Once the new distance is entered, the panel adjusts for the required offset between the calculated value and the user value.

To initiate automatic calibration for ZN1:

- From the Setup Zone 1 Menu, choose **Auto Calibrate**, as shown at right, and press Enter ↵.
- At the Change Maximum Length screen, you may change the maximum length of cable protecting this zone:
 - To begin calibration without changing this value, press Enter ↵.
 - To change the value, press and hold one of the arrow keys ↑↓ to scroll through the numbers, then press Enter ↵.
- The next screen displays the progress of calibration.

6.3.5 Set Up Sensitivity for Water Detection

Each zone may be set up with a sensitivity level at which water is detected.

- The most sensitive setting is 25 μ A—minimal water is required to trigger an alarm.
- The least sensitive setting is 300 μ A. At this setting, the cable will be submerged in water for a longer period before an alarm is triggered.

To change the setting:

- From the Setup Zone 1 Menu, choose **Water Detect**, as shown at right, and press Enter ↵.
- The Water Detection Sensitivity screen displays the value for detection of water (in the example at right, 150 UA, where UA represents μ A or microAmps):
 - To change the value, press and hold one of the arrow keys ↑↓ to scroll through the numbers 25-300.
 - Press Enter ↵.

Setup Zone 1 Menu

```

SETUP ZN1 ZONE 1
CONNECTED: Y
LABEL: ZONE 1
↑↓=NEXT  ↵=SELECT
-----
UNITS: FT
> AUTO CALIBRATE
WATER DETECT:150 UA
CONTAMINATED:050 UA
  
```



Change Maximum Length

```

CHANGE MAX LENGTH

          1000 FT
↑↓=SELECT  ↵=ACCEPT
  
```



Auto Calibration Progress

```

THIS SCREEN WILL SHOW
AUTO CALIBRATION
TAKING PLACE
  
```

Setup Zone 1 Menu

```

SETUP ZN1 ZONE 1
CONNECTED: Y
LABEL: ZONE 1
↑↓=NEXT  ↵=SELECT
-----
UNITS: FT
AUTO CALIBRATE
> WATER DETECT:150 UA
CONTAMINATED:050 UA
  
```



Water Detection Sensitivity

```

CHANGE SENSITIVITY
FOR WATER DETECT

          150 UA
↑↓=SELECT  ↵=END
  
```

6.3.6 Set Up Sensitivity for Contamination Detection

Each zone may be set up with a sensitivity level at which contamination on the cable is detected. Examples are construction debris and dust.

- The most sensitive setting is 20 μA —light contamination will trigger an alarm.
- The least sensitive setting is 300 μA . This setting requires heavy contamination to activate an alarm.

Increase the setting if nuisance alarms occur.



NOTE

Do not set this setting greater than the sensitivity for water detection setting—for example, if the water detection setting is 50 μA , do NOT set the contamination sensitivity level at 60 μA , or any value greater than 50 μA . If the contamination setting is greater than the water detection setting, contamination alarms will never occur.

- From the Setup Zone 1 Menu, choose **Contaminated**, as shown above right, and press Enter ↵.
- The Contaminated Detection Sensitivity screen displays the value for detection of contamination (in the example at right, 50 UA, where UA represents μA or microAmps):
 - To change the value, press and hold one of the arrow keys $\uparrow\downarrow$ to scroll through the numbers 20-300.
 - Press Enter ↵.

Setup Zone 1 Menu

```

SETUP ZN1 ZONE 1
CONNECTED:  Y
LABEL: ZONE 1
↑↓=NEXT  ↵=SELECT
-----
UNITS: FT
AUTO CALIBRATE
WATER DETECT:150 UA
> CONTAMINATED:050 UA

```



Contamination Detection Sensitivity

```

CHANGE SENSITIVITY
FOR CONTAMINATED
          50 UA
↑↓=SELECT  ↵=END

```

6.4 Setup System - Setup ZN2 Zone 2



NOTE

The setup options are identical for both zones, except the name of the zone differs.

The Liqui-tect panel has two independent zones—ZN1 and ZN2—that may be configured individually. Each zone can monitor up to 5,000 ft. (1524m) of leak detection cable.

To configure the second zone:

- In the Setup System Menu, choose **Setup ZN2 Zone 2** (see above right).
- Follow the same procedures used in setting up Zone 1, as described in the previous section, **6.3 - Setup System - Setup ZN1 Zone 1**.

Setup System Menu

```

SETUP ZN1 ZONE 1
> SETUP ZN2 ZONE 2
SETUP ALARM OUTPUTS
↑↓=NEXT   ↵=SELECT
-----
SETUP REALARM DELAY
SETUP MAPMODE
SETUP SYSTEM INFO
    
```



Setup Zone 2 Menu

```

SETUP ZN2 ZONE 2
> CONNECTED: N
LABEL: ZONE 2
↑↓=NEXT   ↵=SELECT
-----
UNITS: FT
AUTO CALIBRATE
WATER DETECT:150 UA
CONTAMINATED:050 UA
    
```

6.5 Setup System - Setup Alarm Outputs

The Liqui-tect panel has six alarm outputs—three types for each zone:

- Digital alarm output for cable break detection - a change in state indicates a broken cable or contamination on the cable
- Digital alarm output for leak detection - a change in state indicates a leak on the cable
- Analog alarm output for 4-20mA - the signal may indicate normal operation, the location of a leak, a cable break or contamination

These outputs may have a wide variety of Liebert or other manufacturers' equipment connected to receive alarm notification.

To configure all alarm outputs:

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 **6.1 - 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 Alarm Outputs

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

Table 9 shows alarm output features and their default settings: you may specify the maximum cable length of analog alarm outputs, define digital alarm output relays as Normally Open or Closed, and set up alarms as Latched or Unlatched.

To change the default settings, use the steps following **Table 9**.

Table 9 Default settings - alarm outputs

| Feature | Default | Other Options |
|--|------------------------------|------------------------|
| LONGEST CABLE LENGTH | 0-1000 ft. (0-304.8m) | Up to 5000 ft. (1524m) |
| LEAK & FAULT RELAYS: NORMALLY OPEN/CLOSED | NO (Normally Open) | NC (Normally Closed) |
| LEAK & FAULT ALARM: LATCHED/UNLATCHED | Y (Latched) | N (Unlatched) |

Setup System Menu

```

SETUP ZN1 ZONE 1
SETUP ZN2 ZONE 2
> SETUP ALARM OUTPUTS
  ↑↓=NEXT  ↓=SELECT
-----
SETUP REALARM DELAY
SETUP MAPMODE
SETUP SYSTEM INFO
    
```



Maximum Cable Length

```

SELECT LONGEST
CABLE CONNECTED
> 0-500FT (0-152.4 M)
  ↑↓=NEXT  ↓=SELECT
-----
0-1000FT (0-304.8M)
0-1500FT (0-472.2M)
0-2000FT (0-609.6M)
0-2500FT (0-762.0M)
0-3000FT (0-914.4M)
0-4000FT (0-1219.2M)
0-5000FT (0-1524.0M)
    
```



Normally Open / Closed

```

ARE LEAK & FAULT
RELAYS NORMAL OPEN
OR NORMAL CLOSED? NO
  ↑↓=NO/NC  ↓=END
    
```



Latched / Unlatched

```

IS LEAK & FAULT
ALARM LATCHED? Y
  ↑↓=Y/N  ↓=END
    
```

6.5.1 Specify Longest Cable Length

You may specify the length of the longest cable connected to either of the 4-20mA alarm outputs. The default value is 0-1000 ft. (0-304.8m). Valid entries range from 0-500 ft. (0-152.4m) to 0-5000 ft. (0-1524m), as shown in the Maximum Cable Length screen, below right.

Select the longer cable length installed on either zone. For example, if Zone 1 has 2000 ft. (609.6m) of cable and Zone 2 has 3500 ft. (1066.8m), select 0-4000 ft. (0-1219.2m).

The chosen setting applies to both zones and is correlated to the 4-20mA output of each zone to provide the distance of the leak. Once the range is selected, the following correlation will be applied:

- 5mA = 0 ft. (0m)
- 19mA = 4000 ft. (1219.2m)

Table 10 shows the operation of the 4-20mA outputs.

Table 10 Operation of 4-20mA outputs

| Signal | Operation |
|--------|--|
| 0mA | Indicates cable cannot be monitored |
| 4mA | Indicates normal operation |
| 5mA | 0 ft. (0m) |
| 19mA | Longest cable length (ft.)—for example, 4000 ft. (1219.2m) |
| 20mA | Indicates cable fault / contamination |

To specify the maximum cable length:

- From the Maximum Cable Length screen, below right, use the arrows $\uparrow\downarrow$ to choose the correct range—for example, **0-4000FT(0-1219.2M)**.
- Press Enter \downarrow .

6.5.2 Define Relays as Normally Open or Normally Closed

All four digital alarm outputs may be set up as Normally Open (NO) or Normally Closed (NC). The default setting is NO (Normally Open). The chosen setting applies to all cable fault/contamination and leak relays for both zones.

To change the normal state:

- From the Normally Open / Closed screen, below right, use the arrows $\uparrow\downarrow$ to choose **NO** (Normally Open) or **NC** (Normally Closed).
 - **For a non-supervised mode**, select Normally Open. The relays energize for an alarm condition.
 - **For a supervised mode**, select Normally Closed. The relays de-energize for an alarm condition or loss of power.
- Press Enter \downarrow .

6.5.3 Define Alarms as Latched or Unlatched

All four digital alarm outputs may be set up as Latched (Y) or Unlatched (N). When configured as Latched, alarms must be manually reset by an operator after they are cleared, as described in **6.9 - Reset Latched Alarms**. The default setting is Latched (Y). The chosen setting applies to cable fault and leak relays for both zones.

To change this setting:

- From the Latched / Unlatched screen, shown at right, use the arrows $\uparrow\downarrow$ to choose **Y** (Latched) or **N** (Unlatched).
- Press Enter \downarrow .

Setup System Menu

```

SETUP ZN1 ZONE 1
SETUP ZN2 ZONE 2
> SETUP ALARM OUTPUTS
  ↑↓=NEXT   ↓=SELECT
-----
SETUP REALARM DELAY
SETUP MAPMODE
SETUP SYSTEM INFO
    
```



Maximum Cable Length

```

SELECT LONGEST
CABLE CONNECTED
> 0-500FT (0-152.4 M)
  ↑↓=NEXT   ↓=SELECT
-----
0-1000FT (0-304.8M)
0-1500FT (0-472.2M)
0-2000FT (0-609.6M)
0-2500FT (0-762.0M)
0-3000FT (0-914.4M)
0-4000FT(0-1219.2M)
0-5000FT(0-1524.0M)
    
```



Normally Open / Closed

```

ARE LEAK & FAULT
RELAYS NORMAL OPEN
OR NORMAL CLOSED? NO
  ↑↓=NO/NC   ↓=END
    
```



Latched / Unlatched

```

IS LEAK & FAULT
ALARM LATCHED? Y
  ↑↓=Y/N     ↓=END
    
```

Following are some similarities and differences between Latched and Unlatched alarms.

Liqui-TECT System's Response to Alarms - Both Latched and Unlatched

When a leak or cable break is detected:

- An alarm occurs,
- A record is created in the Alarm History Log and
- The leak-detected or cable-break alarm output contact changes state.

Latched Alarms Only

The user must reset latched alarms before another leak or cable break alarm can occur.



NOTE

A contaminated cable alarm will never latch. Because this type of alarm serves only as a warning, it allows leak or cable break alarms to occur.

Unlatched Alarms Only

When an alarm output returns to its normal state, the alarms automatically clear and the system returns to normal.

If two leaks occur simultaneously on the same cable, the system creates a record with the distance of the first leak and displays an average distance for the two leaks. Always check the Alarm History Log (see 5.2 - View Alarm History) when leak detected alarms occur in unlatched mode.

6.6 Setup System - Setup Re-Alarm Delay

The re-alarm delay may be set to provide an audible, reminder alarm notification after an alarm has been silenced. The timer begins when the original alarm is silenced; the reminder alarm will occur after the specified delay time has expired. The default setting is 5 minutes. The delay time ranges from 0 to 999 minutes.

To set up the re-alarm delay:

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 6.1 - 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 Re-Alarm Delay

- From the Setup System Menu, shown at right, use the arrows $\uparrow\downarrow$ to choose **Setup Realarm Delay** and press Enter \downarrow .
- From the Change Realarm Delay screen, shown at right, press and hold one of the arrow keys $\uparrow\downarrow$ to scroll through the numbers, then press Enter \downarrow .

Setup System Menu

```

SETUP ZN1 ZONE 1
SETUP ZN2 ZONE 2
SETUP ALARM OUTPUTS
 $\uparrow\downarrow$ =NEXT  $\downarrow$ =SELECT
-----
> SETUP REALARM DELAY
SETUP MAPMODE
SETUP SYSTEM INFO
  
```



Change Realarm Delay

```

CHANGE REALARM DELAY

          5 MINUTES
 $\uparrow\downarrow$ =SELECT  $\downarrow$ =END
  
```

6.7 Setup System - Setup Mapmode

Mapping involves measuring the exact location of various points along the leak detection cable. This greatly simplifies the use of the Liqui-TECT Monitoring System to quickly pinpoint the location of a leak. The Liqui-TECT Monitoring System determines the location of a leak by computing its distance along the leak detection cable. By setting off alarms with a damp paper towel or sponge and marking each reading on a map of the floor, you can define various points along the cable for later reference in finding a leak. Up to 254 points can be mapped.



NOTE

You must perform the automatic calibration steps in 6.3.4 - Auto Calibration before mapping can commence. The leak detection cable is 12 in. (30.48cm) to 18 in. (45.72cm) longer than the nominal length, which allows a service loop should the cable need to be replaced. Automatic calibration enables the Liqui-TECT system to determine the cable's exact length.

After the leak detection cable has been laid and properly connected, as described in 3.1 - Connecting Leak Detection Cable Inputs, follow these steps to map the system:

1. Draw a floor plan that shows the routing of the leak detection cable, including any jumpers used (non-sensing cable).
2. Using the LCD on the front panel of the Liqui-TECT Monitoring System:

Log In and Choose Setup System

- a. From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see 6.1 - Login for help).
- b. Enter your password at the Login screen.
- c. From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Setup System**, then press Enter \downarrow .

Select Setup Mapmode

- d. From the Setup System Menu, shown at right, use the arrows $\uparrow\downarrow$ to choose **Setup Mapmode** and press Enter \downarrow .
- e. Use the following instructions to set up the mapping of each zone.

Set Up Mapping for Zone 1 or Zone 2

- f. Use the arrows $\uparrow\downarrow$ to choose a zone—either **ZN1 Zone 1** or **ZN2 Zone 2**—from the Select Zone to Map Menu, and press Enter \downarrow .

The Liqui-TECT Monitoring System is now ready for you to short the cable, as described in steps 3 through 6.

3. Select the first point to be mapped and mark it on the floor map as point "X" (where X represents 1 for the first point, 2 for the second, and so on, up to 254). Determine the exact location of the point by measuring the distance from the panel to the point or otherwise describing its location (for example, "at front of chiller").
4. Wrap a damp paper towel or sponge around the selected point on the cable to cause a short in the cable and trigger an alarm.
5. After about 30 seconds, the Liqui-TECT panel annunciates a short beep. The LCD displays the computed distance to the leak.
6. Remove the paper towel and dry the cable. In approximately 20 seconds, the Liqui-TECT panel annunciates a long beep indicating the short has been removed.
7. Go to the next point and repeat this process (steps 3 through 6) until the entire cable has been mapped. Up to 254 points can be mapped.

When complete, press the ESC key on the LCD to exit mapping mode and return to the previous screen.

Table 11 shows the default mapping settings for each zone.

Table 11 Default mapping values

| Option | Default setting |
|----------|---|
| Current | 0UA, where UA represents μ A or microAmps |
| Distance | (none) |

Setup System Menu

```

SETUP ZN1 ZONE 1
SETUP ZN2 ZONE 2
SETUP ALARM OUTPUTS
 $\uparrow\downarrow$ =NEXT  $\downarrow$ =SELECT
-----
SETUP REALARM DELAY
> SETUP MAPMODE
SETUP SYSTEM INFO
    
```



Select Zone to Map

```

SELECT ZONE TO MAP
> ZN1 ZONE 1
  ZN2 ZONE 2
 $\uparrow\downarrow$ =NEXT  $\downarrow$ =SELECT
-----
VIEW LAST MAP
    
```



Mapping Options

```

MAPPING ZN1 ZONE 1
CURRENT: 0UA
DISTANCE: ----
ENTRIES: 0 ESC=EXIT
    
```

6.7.1 View Last Map

The View Last Map option allows you to review the mapped points from the last mapping of a zone. This feature is the data logger for the mapmode process described in the previous section, **6.7 - Setup System - Setup Mapmode**.

In the View Last Map mode, the Liqui-TECT panel shows the mapped distance to a particular point along the leak detection cable, identifying each point with an entry number that corresponds to point "X" (where X represents 1 for the first point, 2 for the second, and so on).

The user may view the entry number for point "X" and see the corresponding distance to that point. This may be used either to record that distance on the floor map or to verify the distance already recorded on the map.

When a leak occurs, the Liqui-TECT Monitoring System displays the distance of the leak. By referring to the final floor map, you can easily determine the location of the leak.

To view the last map:

- From the Setup System Menu, shown at right, use the arrows $\uparrow\downarrow$ to choose **Setup Mapmode** and press Enter \downarrow .
- Use the arrows $\uparrow\downarrow$ to choose **View Last Map** from the Select Zone to Map Menu, and press Enter \downarrow .
(If no points have been mapped, the screen displays a message, as shown below right.)
- If you haven't already done so, record the distance for each point on the final floor map next to the respective positions of each short labeled "X" (for points 1, 2, 3 and so on as described in step 3 in the previous section).
- Use the arrows $\uparrow\downarrow$ to display the mapping data for the next point.
- When finished, press Enter \downarrow .

Setup System Menu

```

SETUP ZN1 ZONE 1
SETUP ZN2 ZONE 2
SETUP ALARM OUTPUTS
 $\uparrow\downarrow$ =NEXT  $\downarrow$ =SELECT
-----
SETUP REALARM DELAY
> SETUP MAPMODE
SETUP SYSTEM INFO

```



Select Zone to Map

```

SELECT ZONE TO MAP
ZN1 ZONE 1
ZN2 ZONE 2
 $\uparrow\downarrow$ =NEXT  $\downarrow$ =SELECT
-----
> VIEW LAST MAP

```



Mapping for Last Map

```

MAPPING FOR LAST MAP
CURRENT: 0UA
DISTANCE: ----
ENTRIES: 0 ESC=EXIT

```

Message if No Mapping

```

THERE ARE NO
MAPPED POINTS
LOGGED
-----
ESC=EXIT

```

6.8 Setup System - Setup System Info

The Setup System Info options allow users to:

- **Change Password**—used for access to system setup functions
- **Change Date & Time/Automatic Daylight Saving Time**—used to set the Liqui-TECT panel's date and time and to enable automatic time change for Daylight Saving Time
- **Restore Defaults**—returns the Liqui-TECT panel to its factory settings

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 **6.1 - 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

- 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 ZN1 ZONE 1
SETUP ZN2 ZONE 2
SETUP ALARM OUTPUTS
 $\uparrow\downarrow$ =NEXT  $\downarrow$ =SELECT
-----
SETUP REALARM DELAY
SETUP MAPMODE
> SETUP SYSTEM INFO
  
```

6.8.1 Change Password

A password is required to access the Liqui-TECT panel's system and control options, as described in **6.1 - Login**. The password consists of four characters (see **Table 7** for valid characters). The default password is AAAA.

Changing the password to "0000" eliminates the login requirement and prevents the login screen from appearing.

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 **1.4 - Controller Board Overview**) and move switches 2, 7 and 8 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
CHANGE DATE & TIME
 $\uparrow\downarrow$ =NEXT  $\downarrow$ =SELECT
-----
FACTORY DEFAULTS
  
```



Change Password

```

CHANGE PASSWORD

          AAAA
 $\uparrow\downarrow$ =SELECT  $\downarrow$ =NEXT/END
  
```

6.8.2 Change Date & Time/Automatic Daylight Saving Time

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

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

- From the Setup System Info Menu, use the arrows $\uparrow\downarrow$ to choose **Change 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 change the 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
> CHANGE DATE & TIME
  ↑↓=NEXT  ↓=SELECT
-----
FACTORY DEFAULTS
    
```



Change Date & Time

```

CHANGE DATE & TIME
DAYLIGHT SVG TIME? Y
30-APR-03 10:56:30
↑↓=SELECT  ↓=NEXT/END
    
```

6.8.3 Factory Defaults

At any time, you may restore all default values for settings in the Liqui-TECT panel as it was shipped, as shown in **Table 12**.

The password is the sole exception when reverting to the factory default settings. The password can be reset to the factory default of AAAA only through the DIP switches. For details, see **Change Password on page 35**.

Table 12 Factory default settings

| Feature | | Default |
|------------------------|---|---|
| Zones 1 & 2 | CONNECTED | N (Not connected) |
| | LABEL | ZONE 1 |
| | UNITS | FT (feet) |
| | AUTO CALIBRATE | Automatic |
| | SENSITIVITY FOR WATER DETECT | 150 UA |
| | SENSITIVITY FOR CONTAMINATED | 50 UA |
| Alarm outputs | LONGEST CABLE LENGTH | 0-1000 ft. (0-304.8m) |
| | LEAK & FAULT RELAYS: NORMALLY OPEN/CLOSED | NO (Normally Open) |
| | LEAK & FAULT ALARM: LATCHED/UNLATCHED | Y (Latched) |
| Mapping values | Current | 0UA , where UA represents μ A or microAmps |
| | Distance | (none) |
| Re-alarm delay | Delay in minutes | 5 minutes |

Setup System Info Menu

```

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



Factory Defaults

```

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

6.9 Reset Latched Alarms

The Reset Latched Alarms menu allows you to clear any leak or fault alarms that have been defined as latched.

To clear latched alarms:

Log In and Choose Reset Latched Alarm

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **6.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Reset Latched Alarm**, then press Enter \downarrow .

Choose Y to Reset Alarms

- From the Reset Latched Alarms Menu, use the arrows $\uparrow\downarrow$ to choose **Y** (Yes - reset all latched alarms) or **N** (No - do not reset alarms).
(If no alarms have been set up as latched, the screen displays a message, as shown below right.)
- Press Enter \downarrow .

This is the only way to reset latched alarms. This step is required to return latched points to their normal state. (To set up digital alarm outputs as latched, see **6.5.3 - Define Alarms as Latched or Unlatched**.)

Main Menu

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



Login

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



System & Control Menu

```
SETUP SYSTEM
> RESET LATCHED ALARM
CLEAR ALARM HISTORY
↑↓=NEXT    ↓=SELECT
-----
CLEAR ZONE TREND
```



Reset Latched Alarms

```
RESET LEAK & FAULT
LATCHED ALARMS? Y
↑↓=Y/N      ↓=END
```

Message if No Latched Alarms

```
ALARMS ARE NOT SET
FOR LATCHING

      ESC=EXIT
```

6.10 Clear Alarm History

The Clear Alarm History menu allows you to delete all records from the Alarm History Log, which contains up to 100 records of alarms that have occurred.

To delete all records from the Alarm History Log:

Log In and Choose Clear Alarm History

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see 6.1 - Login for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Clear Alarm History**, then press Enter \downarrow .

Choose Y to Clear the Log

- From the Clear Alarm History Menu, use the arrows $\uparrow\downarrow$ to choose **Y** (Yes - clear the Alarm History Log) or **N** (No - do not clear the log).
(If there are no alarms or trends, the screen displays a message, as shown below right.)
- Press Enter \downarrow .

Main Menu

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



Login

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



System & Control Menu

```
SETUP SYSTEM
RESET LATCHED ALARM
> CLEAR ALARM HISTORY
↑↓=NEXT  ↓=SELECT
-----
CLEAR ZONE TREND
```



Clear Alarm History

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

Message if No Alarms

```
THERE ARE NO ALARMS
                        ESC=EXIT
```

Message if No Trends

```
THERE ARE NO TRENDS
                        ESC=EXIT
```

6.11 Clear Zone Trend

The Clear Zone Trend menu allows you to delete all records from the Zone Trend Log, which contains up to 288 records. These records are created every 24 hours to assist in troubleshooting.

To delete all records from the Zone Trend Log:

Log In and Choose Clear Zone Trend

- From the Main Menu, use the arrows $\uparrow\downarrow$ to choose **System and Control**, then press Enter \downarrow (see **6.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows $\uparrow\downarrow$ to choose **Clear Zone Trend**, then press Enter \downarrow .

Choose Y to Clear the Log

- From the Clear Zone Trend Menu, use the arrows $\uparrow\downarrow$ to choose **Y** (Yes - clear the Zone Trend Log) or **N** (No - do not clear the log).
- Press Enter \downarrow .

Main Menu

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



Login

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



System & Control Menu

```
SETUP SYSTEM
RESET LATCHED ALARM
CLEAR ALARM HISTORY
↑↓=NEXT  ↓=SELECT
> CLEAR ZONE TREND
```



Clear Zone Trend

```
CLEAR ZONE TREND
ARE YOU SURE? Y
↑↓=Y/N      ↓=END
```

7.0 SPECIFICATIONS

7.1 Liqui-TECT Panel Specifications

| Power Requirements | Small Enclosure | Large Enclosure | |
|---|---|---|---|
| | LPS0240 | 115VAC LPL1150 | 230VAC LPL2300 |
| | 24VAC ±10% of nominal; 50/60 Hz, 0.3A, 8VA | 115VAC ±10% of nominal; 60 Hz, 4A, 460VA | 230VAC ±10% of nominal; 50 Hz, 0.5A, 115VA |
| 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) | 18 x 2-3/4 x 18 (457.2 x 69.85 x 457.2) | |
| Weight (Assembled) | 7.68 lb. (3.48 kg) | 20.56 lb. (9.33 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 | MC68HC16Z1 | | |
| Clock speed | 20MHz | | |
| Total RAM | 128Kb | | |
| Total FLASH | 256Kb | | |
| Total NVRam | 32Kb | | |
| A/D Resolution (Analog IN) | 14 bits | | |
| Clock Type | Real-Time Clock | | |
| Clock battery backup type | Internal | | |
| Clock battery life | 10 years, constant, no power | | |
| Communications | | | |
| SiteScan Web | IGM Protocol, 422 | | |
| Agency Listings | No Transformer Module | With Transformer Module | |
| UL | UL3121 | UL3121, UL1012 | UL3121, UL1585 |
| CSA | C22.2 No. 1010 | C22.2 No. 1010, C22.2 No. 66 | C22.2 No. 1010, C22.2 No. 107.1 |
| CE | Yes | Yes | |
| FCC Compliance | CFR 47 Part 15 | | |
| Inputs & Outputs (Quantity) | | | |
| Cable Input (2) | N/A | | |
| Analog Output (2) | 4-20mA signal output | | |
| Alarm Output (4) | 24VAC, 1A | | |



NOTE

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

NOTES

LIQUI-TECT MONITORING SYSTEM

USER MANUAL

The Company Behind the Products

With over a million installations around the globe, Liebert is the world leader in computer protection systems. Since its founding in 1965, Liebert has developed a complete range of support and protection systems for sensitive electronics:

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While every precaution has been taken to ensure the accuracy and completeness of this literature, Liebert Corporation assumes no responsibility and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

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