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DELUXE SYSTEM/3
Chilled Water Models

Job Name	CALTECH - IPAC 2ND FLOOR
Model	FH248C-AAEI
Quantity	1
Date	Oct 24, 2008
Invoice #	
Purchaser	42U Data Center Efficiency
P.O. #	
Tag #	
Submitted By	Ray Faridnia

DELUXE SYSTEM/3
ENGINEERING SPECIFICATION SHEET
CHILLED WATER SYSTEMS

Project Name: CALTECH - IPAC 2ND FLOOR
Date: Oct 24, 2008
Reference No.: Q00309868
Submitted By: Ray Faridnia

Model Number: FH248C-AAEI Qty: 1

ELECTRICAL SUPPLY REQUIREMENTS

Liebert Room Unit: 460 Volt, 3 Phase, 60 Hertz, 33.1 Full Load Amps, 41.4 Wire Sizing Amps, 40.0 OPD

CABINET SECTION
- Downflow

Colors: Main: Z-0430 **(IBM Off White)** Accent: Z-0430

CAPACITY DATA
- 72°F DB 60°F WB
- 50% RH
- Total: 146000 BTU/hr
- Sensible: 122000 BTU/hr
- Flow Rate:30.7 GPM
- Pressure Drop:5.7psig

EVAPORATOR FAN SECTION
- Fan Motor Horsepower: 5
- Air Volume: STD. - 5,900 CFM
- External Static Pressure: 0.3 Inches of Water

FILTER SECTION
** Efficiency based on ASHRAE Standard 52.1
- 4" (102 mm) 30% **

HUMIDIFIER SECTION
- Infrared with Autoflush
  Capacity: 11 lbs/hr (5 kg/hr) 4.8 kW

REHEAT SECTION
Includes Fan Motor
- Electric – 3 Stage
  Capacity: 58800 BTU/hr (15 kW)#

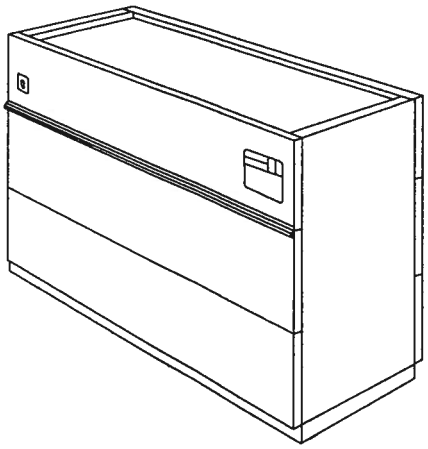
CHILLED WATER COIL SECTION
- Coil Face Area: 11.7 sq. ft. (1.08 m²)
- Rows of Coil: 6
- Control Valve Cv: 28.9
- Control Valve Size: 1.5 inches
- **2-Way Control Valve with Spring Return Mod-Motor**
- **400 psig (2758 kPa)**

CONTROL SECTION
- Advanced Microprocessor
- Display Language is English

OPTIONAL EQUIPMENT
- Locking Disconnect
- Dual Float Condensate Pump
- Smoke Detector
- 18" Seismic Floor Stand with Turning Vane
- One LT460-Z25 Leak Detection System

MONITORING OPTIONS
- Intellislot Web/485 Card w/ Adapter (for connection to SNMP/Modbus)

LIEBERT CHILLED WATER MODELS



STANDARD FEATURES

COOLING COIL A-Frame design with **full face circuiting** constructed of copper tubes and aluminum **fins manufactured by Liebert.** A stainless steel condensate drain pan is provided.

CHILLED WATER CONTROL VALVE Is a 2/~~3~~-way modulating type that provides **proportional control** in response to room temperature and humidity as sensed by the microprocessor control. Using electronic motor and operating linkage, cooling capacity will be controlled by bypassing chilled water around the coil.

FANS Centrifugal type, double width, double inlet, dynamically balanced to a vibration tolerance of two mils in any plane with lifetime lubricated self-aligning ball bearings rated at a **minimum life of 100,000 hours.** The fan motor operates at 1750 RPM for 60 HZ and 1450 RPM for 50 HZ. The drive package is two belt, variable speed, **sized for 200%** of the fan motor horsepower.

FILTERS Deep pleated with a minimum efficiency rating of 20% (based on ASHRAE 52.1) located within the cabinet and serviceable from either end of the unit (or top on downflow models). FH599C/FH600C and FH739C/FH740C filters are removable from the front only.

ADVANCED MICROPROCESSOR CONTROL (AM) The advanced control system includes the following control, monitor and alarm features: BACKLIT 4x20 LCD, SELECTABLE CONTROL LOGIC (Proportional, PID, INTELLIGENT*, PROGRAMMABLE ANALOG INPUTS, COMPONENT RUN HOUR DATA, TEMPERATURE ANTICIPATION, SELECTABLE HUMIDITY CONTROL, AUTOMATIC REHEAT SEQUENCING, SEQUENTIAL LOAD ACTIVATION, SEQUENTIAL AUTO RESTART, PROGRAMMED HUMIDIFIER WATER CYCLE, SENSOR CALIBRATION, MANUAL COOLING OVERRIDE SWITCHES, PROGRAMMABLE COMMON ALARM, ALARM HISTORY LOG, PROGRAMMABLE COIL FLUSH CYCLE, UNIT AND CONTROL DIAGNOSTICS, BATTERY BACKUP.

CABINET AND FRAME Custom powder painted steel panels with 1"(25mm), 1 1/2 lbs. (.68 kg) insulation. A hinged control access panel opens to a second front panel which is a protection enclosure for all high voltage components. Frame is constructed of 14 gauge heliarc welded steel and painted using an autodeposition coating system.

HUMIDIFIER High intensity infrared quartz lamps over a **stainless steel humidifier pan.** An automatic water supply system continuously maintains water level and an **automated flush system** greatly reduces mineral precipitation. A flow control valve permits operation at water pressure between 15 and 150 PSIG (103 and 1034 kPa).

REHEAT Electric low watt density reheat elements of **rugged stainless steel finned tubular construction** provides three stages of nonionizing reheat with maximum sheath temperatures below 420°F (215.5°C).

UNIT WATER CIRCUITS (COIL PIPING AND VALVES) are designed for a maximum system water pressure of ~~150~~ 400 psig (~~1034 kPa~~).

LIEBERT CHILLED WATER MODELS

OPTIONAL FEATURES (Refer to specification sheet for options supplied)

UNIT DISCONNECT SWITCH Two types of switches are available. The "Non-Locking Type" consists of a non-automatic molded case switch operational from the outside of the unit. Access to the high voltage electric panel compartment can be obtained with the switch in either the "on" or "off" position. The "Locking Type" is identical except access to the high voltage electric panel compartment can be obtained only with the switch in the "off" position.

FIRESTAT Is mounted in the electric panel compartment with the sensing element in the return air flow. Upon activation the Firestat will immediately shut down the entire unit.

SMOKE DETECTOR The smoke detector senses the return air, shuts down the unit upon detection, and sends visual and audible alarm. Dry contacts are available for a remote customer alarm. This smoke detector is not intended to function as or replace any room smoke detection system that may be required by local or national codes.

FILTERS Five optional filters are available. A 20% prefilter, and 30%, 40-45%, 60-65%,80-85% or 90-95% main filter may be specified (efficiency based on ASHRAE 52.1).

LIQUI-TECT SENSOR Is a solid state water sensor that has no moving parts and is hermetically sealed to keep out dust and dirt. When the sensor detects the presence of moisture the alarm system is activated.

REMOTE TEMPERATURE AND HUMIDITY SENSORS Are provided in a vented case for mounting in the room to be conditioned. Includes 30 ft. (9m) of cable supplied for connecting sensors to unit.

FLOORSTAND Is constructed of heliarc welded tubular steel and available in heights from 9" to 24" (229mm to 610mm) with vibration isolation pads provided on the adjustable legs. An optional factory supplied turning vane is available for field installation if desired.

PLENUM Constructed of steel panels with 1" (25mm), 1 1/2 lb. (.68kg) insulation custom painted in unit matching colors. Available in nominal heights of 20" (508mm), 24" (610mm) and 36" (914mm) in several standard configurations.

ADVANCED MICROPROCESSOR CONTROL W/ GRAPHICS (AG) Includes all the features of the Advanced Microprocessor Control above, except the 4x20 LCD is replaced with a backlit 240x128 dot matrix graphics display. In addition, the AG includes a larger alarm history file, graphical plots of temperature, humidity, and the analog inputs, bar graph plots of component run history, and a graphical floor plan layout for an optional water detection cable system.

INTELLISLOT WEB/485 CARD W/ADAPTER Provides 10/100 baseT Ethernet and RS-485 Modbus network connectivity for unit monitoring and management. The supported management interfaces include: SNMP for Network Management Systems (exp. HP OpenView), web pages, and RS-485 Modbus for Building Management Systems.

INTELLISLOT 485 CARD W/ADAPTER Provides RS-485 Modbus network connectivity to Building Management Systems for unit monitoring and management.

ENVIRONMENTAL DISCRETE OUTPUTS CARD (ENV-DO) provides 16 discrete outputs, corresponding to status and major alarm conditions of the unit.

FLOW SWITCH Is available to be factory mounted in the chilled water piping and wired to an alarm light to indicate a "loss of flow" condition.

BALANCING VALVE A manually operated balancing valve is available to be factory piped in the chilled water bypass line.

HIGH PRESSURE CIRCUIT Consists of chilled water coil, modulating valve, and piping to be designed for a maximum system water pressure of 400 PSIG (2758 kPa).

STEAM GENERATING CANISTER HUMIDIFIER This system is housed in a steel enclosure and includes a replaceable canister with integral fill cup, fill and drain valves, and high water indicator. System automatically fills and drains as well as maintains the required water level based on conductivity. Water conductivity of 200-500 micro-ohms required for optimum operation.

STEAM GRID HUMIDIFICATION "Armstrong" steam separator type with an internal drying chamber and steam jacketed stainless steel distribution manifold. The complete system includes a prepiped solenoid control valve, inverted bucket steam trap and cleanable Y-strainer.

STEAM REHEAT System is factory piped with a two-way modulating control valve and cleanable Y-strainer. A F & T steam trap is factory supplied for field installation. Reheat coil is of copper tube and aluminum fin construction.

HOT WATER REHEAT System is factory piped with a two-way modulating control valve and cleanable Y-strainer. Reheat coil is of copper tube and aluminum fin construction.

CONDENSATE PUMP Has capacity of 100 GPH (379 l/h) at 20 ft. head (58 kPa). (Consult factory for 200V or 230V, 50Hz applications). Pump is complete with integral float switch, pump, motor assembly, and reservoir. Shipped loose for field installation on Chilled Water units that are Upflow and have bottom return.

VARIABLE SPEED DRIVE (VSD) The VSD is available on the FH/UH599C, FH/UH600C, FH/UH739C, FH/UH740C. This drive is controlled by the advanced microprocessor control to match the speed of the blower with the chilled water valve position and consequently the load in the room. This option eliminates excessive energy use to oversized equipment.

HIGH VOLTAGE CIRCUIT BREAKERS Are available on all downflow models and UH599C/UH600C and UH739C/UH740C models. These breakers and IEC contactors provide another option for high voltage circuit protection.

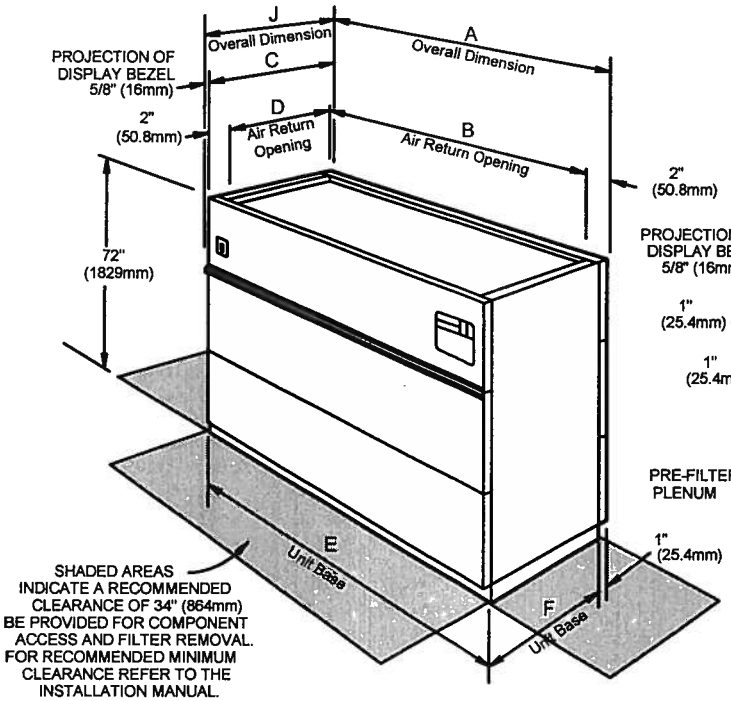
HIGH STATIC PRESSURE BLOWER/MOTOR PACKAGES Deliver selected airflow at static pressures above the standard 0.5 inches wg.(125 Pa).

HEAVY GAUGE INDUSTRIAL PANELS are 16ga. outside panels and have heavy duty gaskets which replace the standard 20ga. panels and gaskets.

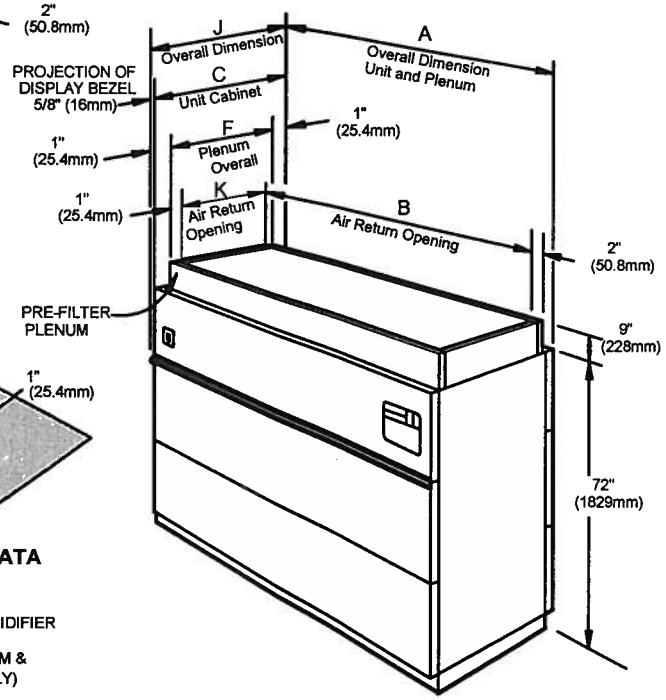
MAIN FAN AUXILIARY SWITCH provides the unit with one normally open set of contacts to indicate that the motor/ unit is on.

CABINET AND FLOOR PLANNING DIMENSIONAL DATA

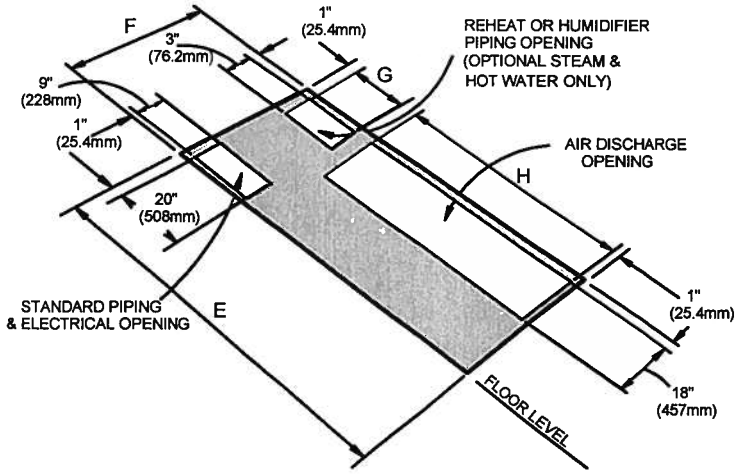
DOWNFLOW (FH) MODELS



UNIT DIMENSIONAL DATA



MODELS WITH PRE-FILTERS

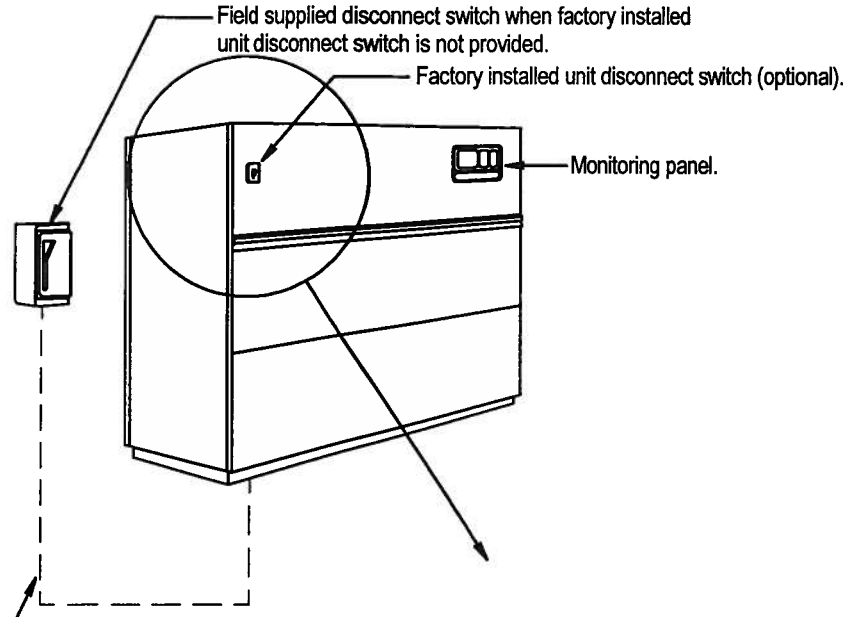


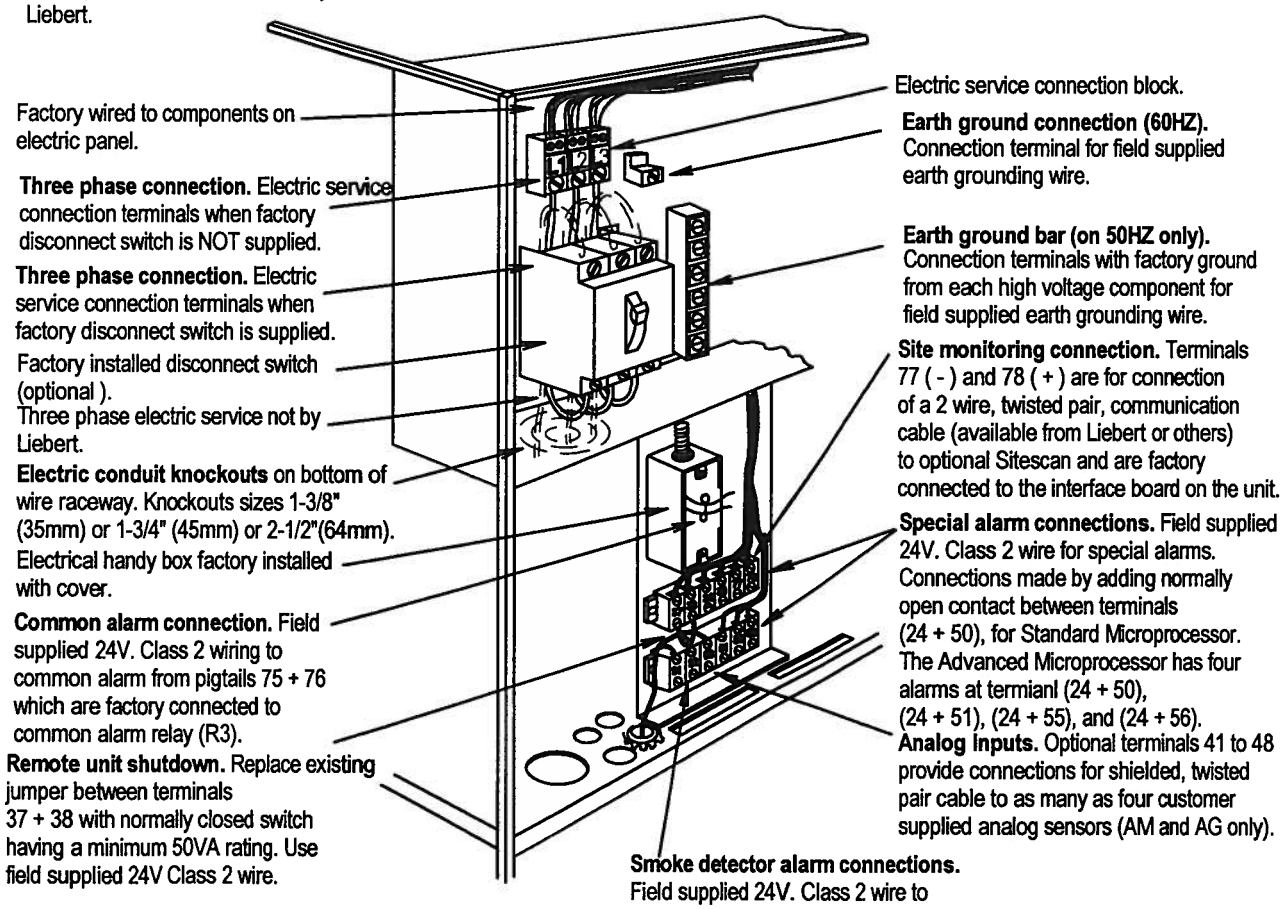
FLOOR CUTOUT DIMENSIONS

	CHILLED WATER MODEL	DIMENSIONAL DATA inches (mm)										NET WEIGHT lbs (kg)
		A	B	C	D	E	F	G	H	J	K	
	FH-147C	50 (1270)	46 (1168)	35 (889)	32 (813)	48 (1219)	33 (883)	8 (203)	37 (940)	35 5/8 (905)	31 (787)	760 (345)
	FH-200C	50 (1270)	46 (1168)	35 (889)	32 (813)	48 (1219)	33 (883)	8 (203)	37 (940)	35 5/8 (905)	31 (787)	795 (361)
X	FH-248C	50 (1270)	46 (1168)	35 (889)	32 (813)	48 (1219)	33 (883)	8 (203)	37 (940)	35 5/8 (905)	31 (787)	855 (388)
	FH-302C	74 (1880)	70 (1778)	35 (889)	32 (813)	72 (1829)	33 (883)	8 (203)	61 (1549)	35 5/8 (905)	31 (787)	1090(494)
	FH-376C	74 (1880)	70 (1778)	35 (889)	32 (813)	72 (1829)	33 (883)	8 (203)	61 (1549)	35 5/8 (905)	31 (787)	1115 (524)
	FH-422C	99 (2515)	95 (2413)	35 (889)	32 (813)	97 (2464)	33 (883)	15 1/4 (387)	78 3/4 (2000)	35 5/8 (905)	31 (787)	1320 (599)
	FH-529C	99(2515)	95 (2413)	35 (889)	32 (813)	97 (2464)	33 (883)	15 1/4 (387)	78 3/4 (2000)	35 5/8 (905)	31 (787)	1420 (644)

ELECTRICAL FIELD CONNECTIONS

DOWNFLOW (FH) CHILLED WATER MODELS
EXCEPT MODELS FH599C/FH600C,FH739C/FH740C

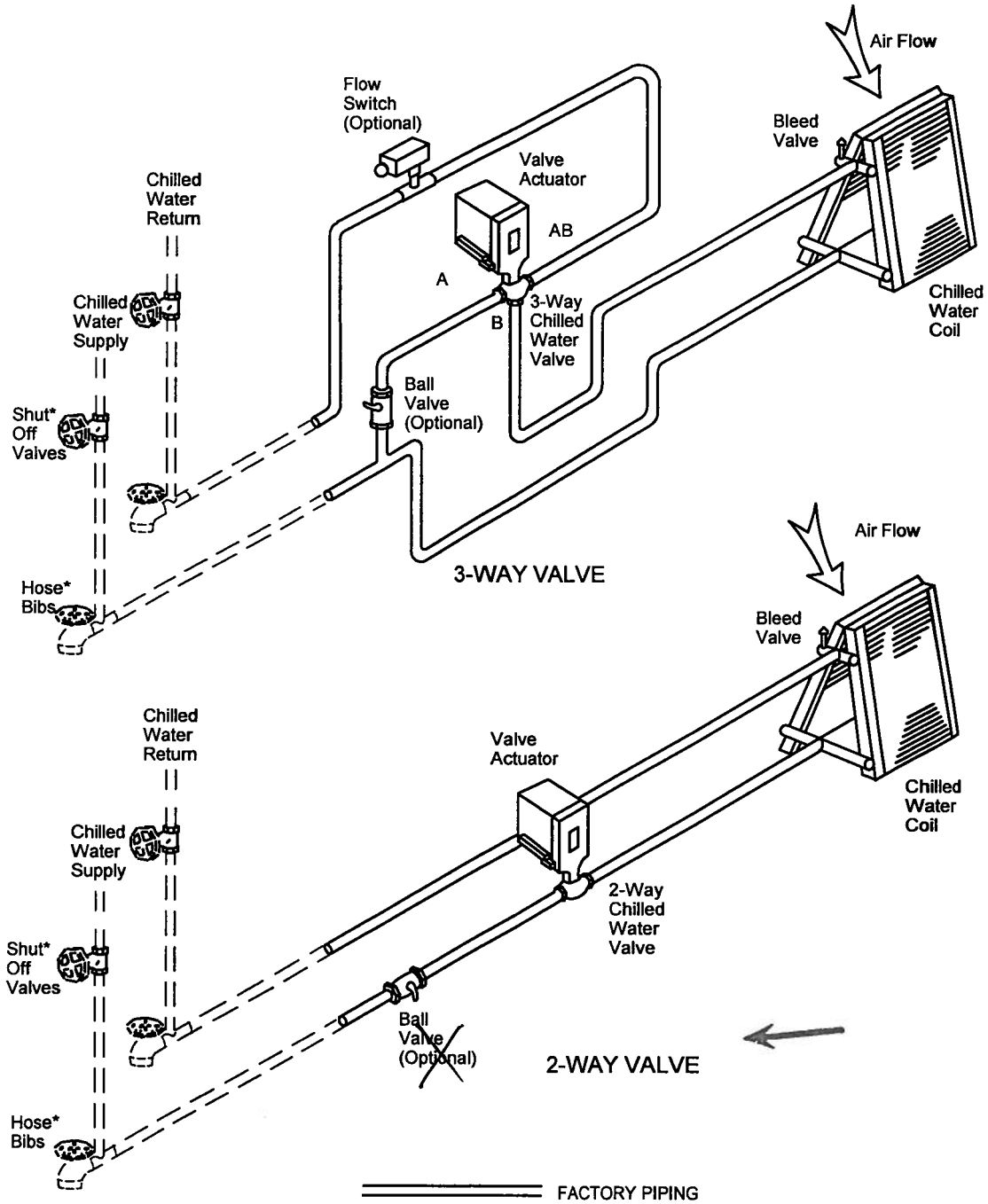




NOTE: Refer to specification sheet for full load amp. and wire size amp. ratings.

TYPICAL GENERAL ARRANGEMENT DIAGRAM

DOWNFLOW (FH) CHILLED WATER MODELS



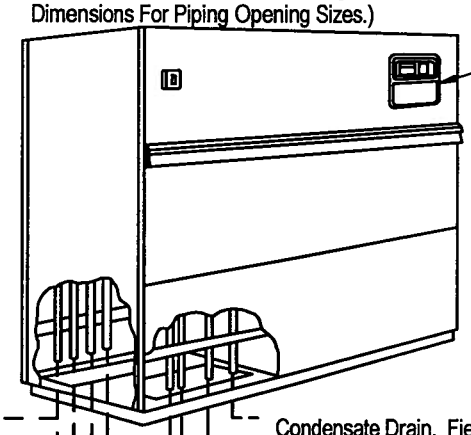
*Components are not supplied by Liebert but are recommended for proper circuit operation and maintenance.

PIPING: CHILLED WATER MODELS

DOWNFLOW (FH) MODELS

UNIT CONNECTION LOCATIONS

(See Cabinet And Floor Planning Dimensions For Piping Opening Sizes.)



NOTE: Install all piping per local codes.

C - Steam Reheat Supply Line

D - Hot Water Reheat Supply Line.

E - Steam Reheat Return Line (Field install factory supplied steam trap with vacuum breaker).

F - Hot Water Reheat Return Line.

1/2" NPT Male Steam Humidifier Supply Line.

1/2" NPT Male Steam Humidifier Return Line.

Condensate Drain. Field pitch a min. of 1/8" (3mm) per ft. (305mm). 3/4" NPT for units without factory installed condensate pump. Do not install an external trap. 1/2" OD CU for units with factory installed condensate pump.

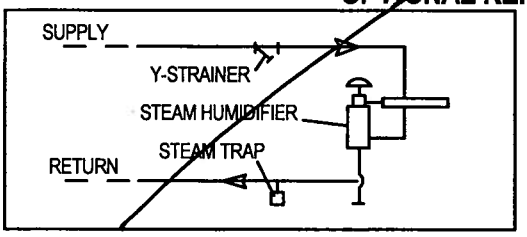
1/4" OD CU Humidifier Supply Line (Steam Gen./Infrared)

B - Chilled Water Return Line.
- Chilled Water SUPPLY LINE on units with HIGH PRESSURE 2 WAY VALVE ONLY.

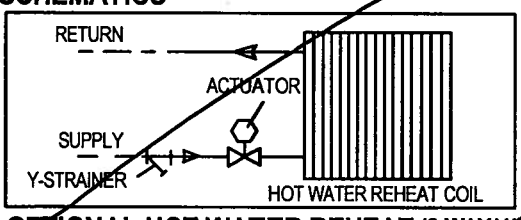
A - Chilled Water Supply Line.
- Chilled Water RETURN LINE on units with HIGH PRESSURE 2 WAY VALVE ONLY.

PIPING CONNECTION SIZES, inches							
	MODEL NUMBERS	A OD CU	B OD CU	C NPT MALE	D OD CU	E NPT MALE	F OD CU
	FH-147C	1 1/8	1 1/8	1/2	5/8	1/2	5/8
	FH-200C	1 3/8	1 3/8	1/2	5/8	1/2	5/8
X	FH-248C	1 5/8	1 5/8	1/2	5/8	1/2	5/8
	FH-302C	1 5/8	1 5/8	1/2	7/8	1/2	7/8
	FH-376C	2 1/8	2 1/8	3/4	7/8	3/4	7/8
	FH-422C	2 1/8	2 1/8	3/4	7/8	3/4	7/8
	FH-529C	2 1/8	2 1/8	3/4	7/8	3/4	7/8

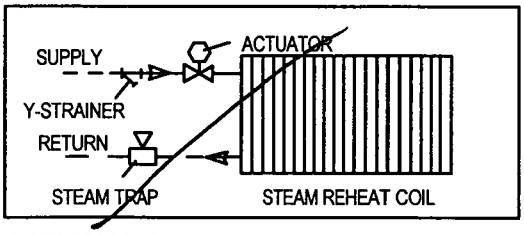
OPTIONAL REHEAT SCHEMATICS



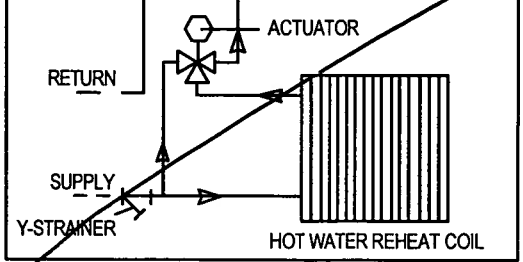
OPTIONAL STEAM HUMIDIFIER



OPTIONAL HOT WATER REHEAT (2-WAY VALVE)



OPTIONAL STEAM REHEAT

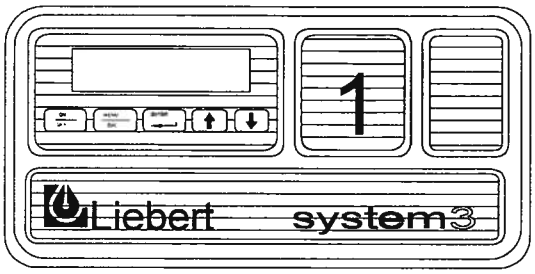


OPTIONAL HOT WATER REHEAT (3-WAY VALVE)

MONITORING PANEL AND UNIT ALARMS

ADVANCED MICROPROCESSOR CONTROL

(AM)



GENERAL

DISPLAY A 4 x 20 backlit LCD which displays all monitoring, control, alarm and diagnostic information.

KEYPAD 5 membrane keys for easy movement through the menu-driven control.

STANDARD ALARMS

TEMPERATURE The high and low temperature thresholds are programmable between 35°F and 90°F (1.6°C and 32.2°C). The alarm indicates excessive high or low return air temperature.

HUMIDITY The high and low humidity thresholds are programmable between 15% and 85% R.H. The alarm indicates excessive high or low return air humidity.

HUMIDIFIER PROBLEM Indicates excessive high or low water levels in the humidifier pan or full canister.

HIGH HEAD Indicates a head pressure above a factory preset point. Unit is equipped with a factory preset compressor safety cutout switch. (Provided on DX units only.)

CHANGE FILTERS Indicates the pressure drop across the filters has exceeded the customer-set level.

LOSS OF AIR Indicates a loss of airflow in the unit based on mechanical sensing switches.

LOW SUCTION PRESSURE Indicates a suction pressure below the preset cutout point.

SHORT CYCLE ALARM Indicates the compressor has turned off-on-off at least 10 times in a one-hour period.

LOSS OF POWER Indicates that a power interruption has occurred.

OPTIONAL ALARMS

The following alarms are available when the appropriate options are included with the unit.

Main Fan Overload

Compressor Overload 1& 2

(4) Local Alarms from below

Standby Glycol Pump On	Special Message 1
Water Under Floor	Special Message 2
Smoke Detected	
Loss of Water Flow	
Stand-by Unit On	

FEATURES OF THE MONITOR

MONITOR Room conditions, user analog sensors, run hours, alarm history, unit-operating status.

SET-UP Password protected programming of various time delays and unit configurations.

SETPOINT Password protected programming of operational setpoints/alarms.

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EMERSON. Network Power

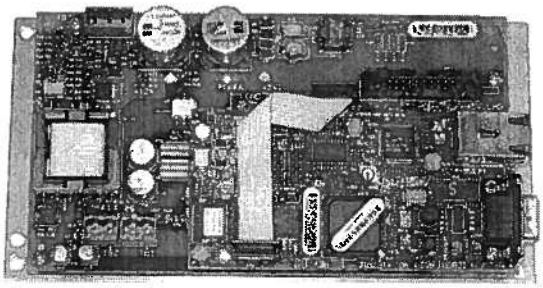
LIEBERT INTELLISLOT® WEB/485 CARD WITH ADAPTER

Product Specification/Installation Sheet

Description

The IntelliSlot Web/485 Card with Adapter provides 10/100baseT Ethernet Network and Modbus connectivity for your Emerson Network Power equipment.

Operating status is monitored and alarms are communicated via the network, using SNMP and/or HTTP protocols and over RS-485 using the Modbus protocol.



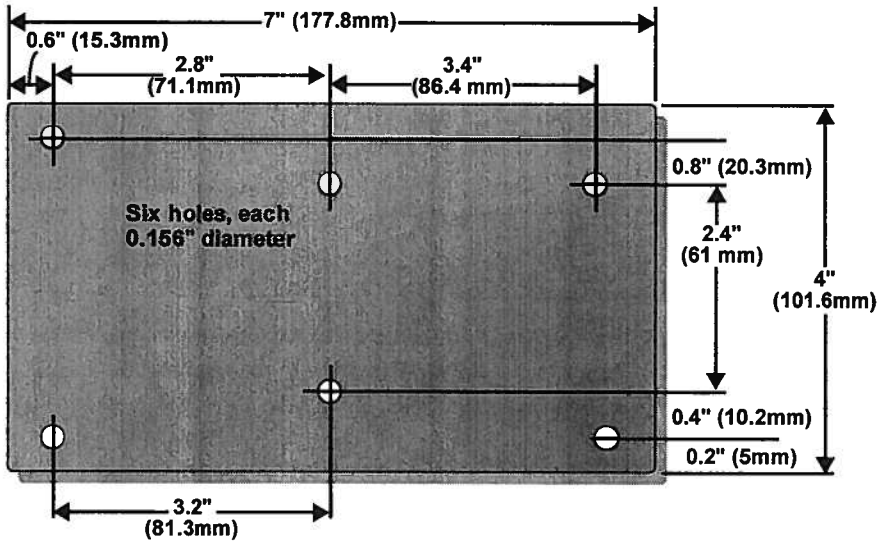
Additional Features

- SNMP v1, v2c with MIB-II support
- HTTP/HTTPS 1.1
- Telnet
- BootP, DHCP per RFC2131
- Secure Sockets (SSL)
- Remote firmware updates via HTTP

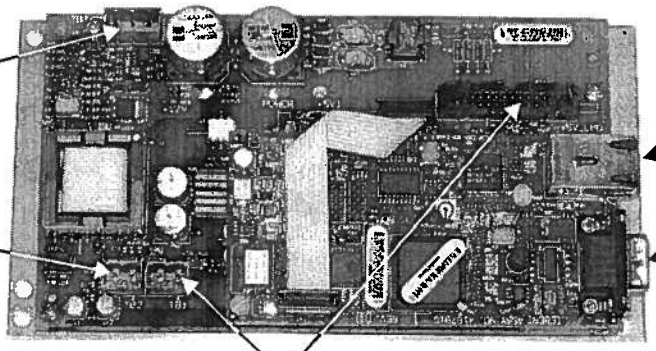
Compatibility With Other Emerson Network Power Products

Precision Cooling (With These Controllers)		Large UPS
• Challenger 3000 (L00, LSM, LAM) • DataMate (MM2, L0B) • Deluxe System/3 (L10, LSM, LAM) • Himod (LAM) • Hiross Microface IGMnet • Industrial Cooling Series (L10, LSM, LAM) • Mini-Mate (L0B) • Mini-Mate2 (MM2) • Mini-Mate2 8 Ton (L8T) • PEC/Atlas (CEMS100/LECS15)	**Controller Key** L00: Level 00 L0B: Level 0B L10: Level 10 L15: Level 15 LSM: Standard Microprocessor LAM: Advanced Microprocessor	• Npower • Hiross 7200 (EMEA) • Hiross HiPulse (EMEA) • Series 300 • Series 600/610 (Single Module) **Power Management** • Static Transfer Switches: STS, STS2-3 pole, STS2/PDU • Liebert FPC • Precision Power Center • DataWave

Overall and Mounting Dimensions



Customer Wiring



Specifications

Power Requirements	AC Inputs	18 - 24 VAC; 50/60 Hz
	DC Inputs	12 - 36VDC
	Power Consumption	6VA maximum
Dimensions - W x D x H: in. (mm)		7 x 4 x 1.5 (178 x 102 x 38)
Weight	Net - oz. (kg)	7 (0.2)
	Shipping - lb. (kg)	1.3 (0.6)
Ambient Operating Environment, °F (°C)		32 to 104 (0 to 40); 10% to 90% RH (non-condensing)
Ambient Storage Temperature, °F (°C)		-4 to 140 (-20 to 60)
Protection		SELV Isolated User Connections, Watchdog Timer Circuitry
Communication Ports	Service Terminal (RS-232)	DB9F, DTE
	Unit Input Communications	TB1, 2-Position Terminal Block P1, 20-PIN Vertical Header with Ejection Latches (for some UPS models)
	Modbus (RS-485)	TB2, 2-Position Terminal Block
	Ethernet Communications	RJ45

Wiring Specifications

Connection	Supported Wire Types	Maximum Wire Length
TB1 (RS-422)	18-22 AWG Stranded & Shielded; **18 AWG* recommended** Non Plenum - Belden 9461; Plenum - Belden 88761	1000 ft. (300m)
TB2 (RS-485)	18-22 AWG Stranded & Shielded; **18 AWG* recommended** Non Plenum - Belden 9461; Plenum - Belden 88761	3000 ft. (915m)
TB3 (Power Input)	18-22 AWG Stranded & Shielded; **18 AWG* recommended** Non Plenum - Belden 8770; Plenum - Belden 88770	20 ft. (6m)
DB9F Connector	DTE Null Modem Cable	50 ft. (15m)
RJ45 Connector	Standard Category 5 Cable	328 ft. (100m)

Liebert.

Liebert Corporation

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P.O. Box 29186
Columbus, OH 43229

Telephone: 1-800-877-9222
Facsimile: 1-614-841-6022
www.liebert.com

EMERSON. Network Power

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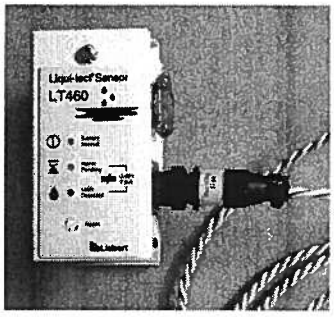
LIEBERT LIQUI-TECT® 460 KITS

Zone Leak Detection Module With Cable

Product Specification Sheet

Description

The Liebert Liqui-tect 460 (LT460) provides zone detection of leaks, protecting equipment by constantly monitoring the area for leaking liquids. The LT460 is the ideal solution for perimeter sensing or serpentine coverage of areas requiring up to 100 feet of cable.



Selectable modes of operation provide flexible alarming options and protection for the cable. The LT460 constantly monitors a zone for leaks, internal faults and power failures and warns of any abnormal conditions. Top cover LEDs provide status indication and also ensure the cable is properly installed and operational under raised floors.

Two independent outputs provide a signal to a local alarm panel, Liebert environmental unit, remote building management system or external equipment, such as motorized water shut-off valves.

The LT460 kit is ideally suited for the following:

Applications

- Glycol, Condenser Water and Chilled Water Cooling Piping Leak
- Humidification Feed Water Piping
- Condensate Pumps and Drains
- Unit and Ceiling Auxiliary Drip Pans
- Overhead Piping Troughs

Locations

- Large-Scale Network Control Centers
- Data Centers
- MRI, CAT Scan Rooms
- Server Rooms - Closets
- Unattended Remote Shelters
- Sensitive Areas With Overhead Piping
- Mechanical Equipment Rooms
- Industrial Process Control Rooms

Components

Liqui-tect 460 Module

The LT460 consists of a metal enclosure with a hinged top door providing access to the internal circuit board for wiring termination and configuration of DIP switches. The LT460 will monitor up to 100 feet of connected LT500Y leak detection cable.

LT500Y Leak Detection Cable

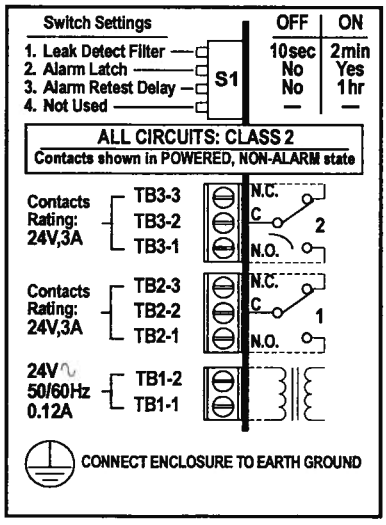
The cable material and construction allow the cable to lie flat when used with hold-down clips. The LT500Y is plenum-rated and UL-listed for safe operation.

- **If obtained separately,** cables are available in lengths of 15, 35 and 50 feet. These cables can be connected incrementally to monitor from 15 feet up to 100 feet. An end terminator and hold-down clips (two clips required for each 6-8 ft. of cable) must be ordered separately.
- **If obtained in a kit,** cables are available in lengths of 20, 25, 30, 35 and 45 feet. Cables in kits cannot be lengthened. Hold-down clips are provided.

  Refer to the matrix on page 2 (**Prepackaged Sizes for Liebert Units**) to select a preconfigured kit sized to specific lengths for Liebert environmental units.

Configuration Switch Settings

A four-position DIP switch is used to select two alarm (filter) delays and three mutually exclusive alarm modes. The switches are located next to the wiring termination blocks.

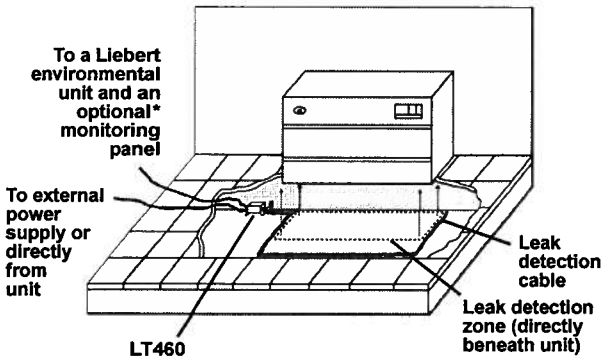


Specifications

Liqui-tect 460 Module	
Power requirements	24 VAC 120 mA, 50/60 Hz 3 VA (max.)
Enclosure dimensions W x D x H	5.35" x 3.23" x 3.5" (135.9mm x 82mm x 88.9mm)
Mounting hole dimensions	See diagrams at right
Weight (assembled)	2.0 lb. (0.9 kg)
Sensing cable compatibility	All Liebert LT500 sensing cables
Maximum length of sensing cable	100ft (30.5m)
Metal enclosure	NEMA 1, IP 30
Environmental Conditions	
Operating temperature	50°F to 104°F (10°C to 40°C)
Operating humidity	10% to 95% relative humidity (non-condensing)
Operating altitude	0 to 10,000 ft. (0 to 3,048m)
Output Relays	
Contact rating	2 Form-C, 3 A rating at 24 VAC
Agency Listings	
UL	UL916
C-UL	C22.2, No. 205-M1983
CE	Yes
FCC Compliance	47 CFR, Part 15

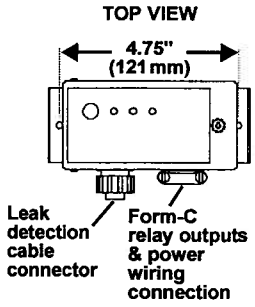
Placement on Subfloor

Under Cooling Support Equipment

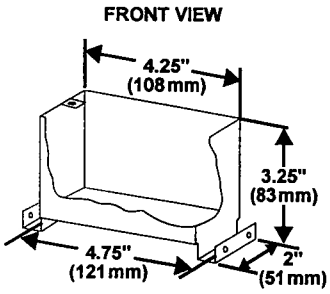


* Output connections to external alarm monitoring panels such as the Liebert contact closure alarm panels

Dimensions - Top & Front Views



Shipping weight: 2 lbs (0.9 kg)
Mounting holes: #8 screws



Prepackaged Sizes for Liebert Units

Leak Detection Kit Installation Suggestions

	Scenarios			
	Upflow Unit Detection around entire unit	**Upflow Unit** Detection on sides and in front of unit	**Downflow Unit** Detection around entire unit	**Downflow Unit** Detection on sides and in front of unit
Note: ▯ indicates placement of LT460 module	2' clearance in front	2' clearance in front	6' clearance in front	6' clearance in front
Distance:	Distance From Unit			
In back On sides In front	2 ft 2 ft 2 ft	(No cable) 2 ft 2 ft	1 ft 1 ft 6 ft	(No cable) 1 ft 6 ft
Unit (footprint-in.)	PART NUMBER			
Challenger (32.5 x 32.5)	LT460-Z30	LT460-Z20	LT460-Z30	LT460-Z25
Himod (69 x 35)	LT460-Z35	LT460-Z20	LT460-Z35	LT460-Z25
Deluxe System/3				
(50 x 35)	LT460-Z30	LT460-Z20	LT460-Z35	LT460-Z25
(74 x 35)	LT460-Z35	LT460-Z20	LT460-Z35	LT460-Z25
(99 x 35)	LT460-Z45	LT460-Z25	LT460-Z45	LT460-Z30
(122 x 35)	LT460-Z45	LT460-Z25	LT460-Z45	LT460-Z30
DS				
(73 x 35)	LT460-Z35	LT460-Z20	LT460-Z45	LT460-Z30
(86 x 35)	LT460-Z35	LT460-Z20	LT460-Z45	LT460-Z30
(98 x 35)	LT460-Z45	LT460-Z25	LT460-Z45	LT460-Z30
(109 x 35)	LT460-Z45	LT460-Z25	LT460-Z45	LT460-Z30
(132 x 35)	LT460-Z45	LT460-Z25	LT460-Z45	LT460-Z30

Ordering Information

Packaging	Quantity	Product Number	Description	
Prepackaged Kits		LT460-Z20	Zone Leak Detection Kit With Cable and Hold-Down Clips	20-Foot Cable
		LT460-Z25	Zone Leak Detection Kit With Cable and Hold-Down Clips	25-Foot Cable
		LT460-Z30	Zone Leak Detection Kit With Cable and Hold-Down Clips	30-Foot Cable
		LT460-Z35	Zone Leak Detection Kit With Cable and Hold-Down Clips	35-Foot Cable
		LT460-Z45	Zone Leak Detection Kit With Cable and Hold-Down Clips	45-Foot Cable
Available Separately		LT460	Zone Leak Detection Module	
		LT500-15Y	Leak Detection Cable	15-Foot Cable
		LT500-35Y	Leak Detection Cable	35-Foot Cable
		LT500-50Y	Leak Detection Cable	50-Foot Cable
		LT500-ET	End Terminator for LT500Y Cable	
		HDC	Hold-Down Clips	

Power Wiring

The LT460 is rated for 24 VAC, 50/60 Hz and 0.12 amp.

Figure 1 24V from Liebert environmental units to LT460

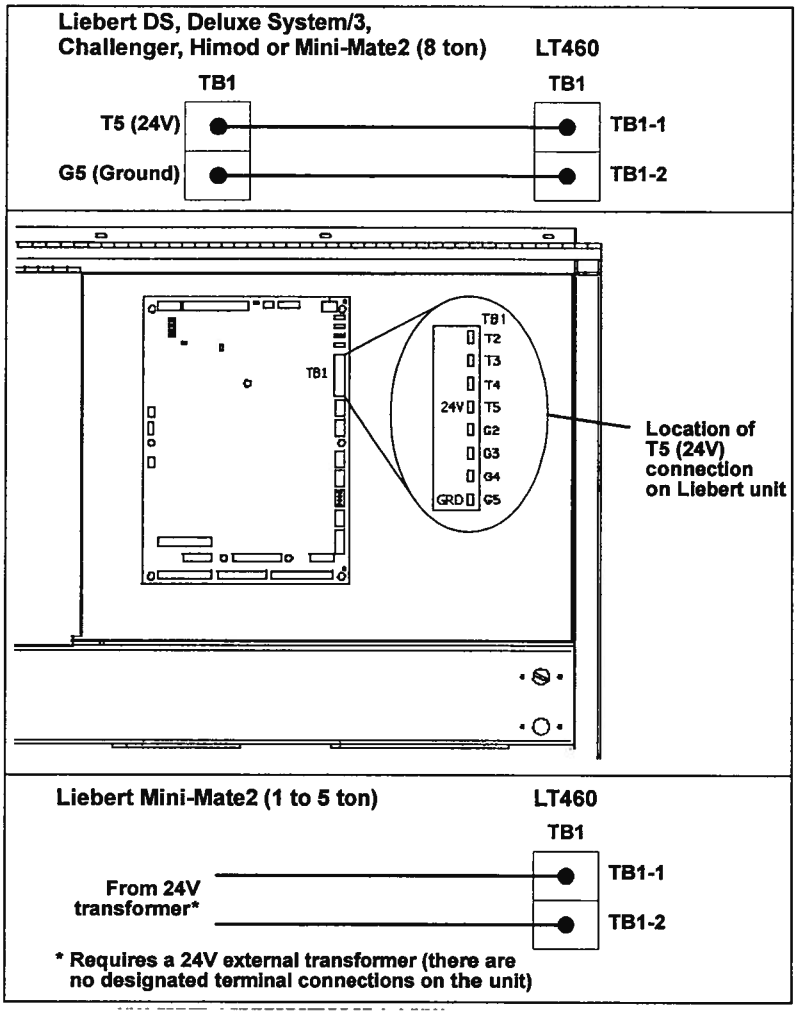
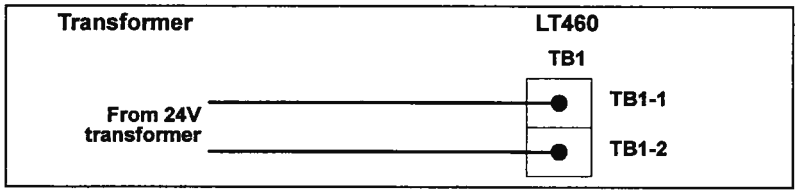


Figure 2 24V from transformer to LT460



Wiring to Auxiliary Alarm Panels

The LT460 has two Form-C dry contact alarm output contacts (TB2 & TB3). Each contact is rated for 24 VAC at 3 amp.

Figure 3 LT460 to Liebert environmental units

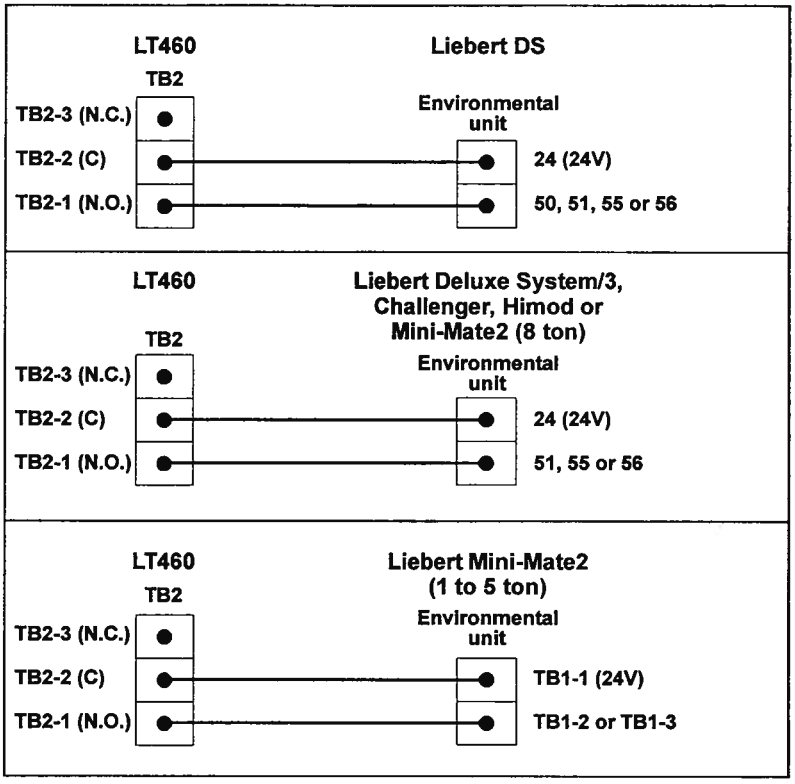
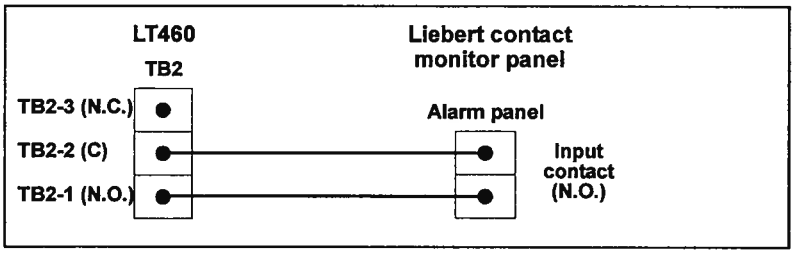


Figure 4 LT460 to Liebert contact monitor panel



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