

# Product Information Packet

## Model LHP-1200XE

NEMA-4 Liquid Cooled Solid State Air Conditioner

with TC-6F Temperature Control

Part #2-3080-4-000

Thank you for your purchase. Information has been enclosed regarding the installation, specifications, and wiring of your solid-state assembly. Please read and follow all instructions carefully before installation. Only qualified technicians should install this equipment.

If you have any questions regarding your equipment, please do not hesitate to call us at 773-342-4900, and we will be happy to assist you. We are open from 8:00 am-4:30 pm Central Time.

Included in this packet you will find:

Installation Notes for Air Conditioners

Product Literature and Specifications

Assembly Drawing # SK060328

Wiring Drawing # SK070832

Installation Drawing # 1200-A-F57

Temperature Control Information

Warranty Information

The logo for Teca, featuring the word "teca" in a bold, lowercase, sans-serif font. The letter "t" is stylized with a vertical line extending upwards from its stem. The logo is positioned on the left side of the page, above a horizontal line.

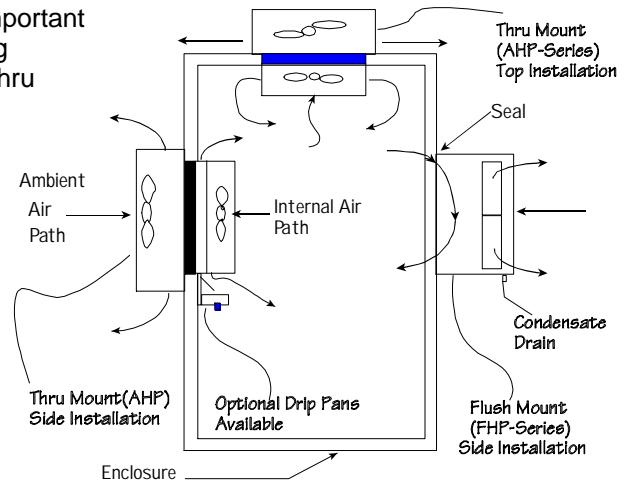
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Ph: 773/342-4900 Fx: 773/342-0191  
sales@thermoelectric.com www.thermoelectric.com

# Important Installation Notes for Air

**Mounting Styles:** Both 'thru mount' and 'flush mount' units can be positioned in any orientation and on any enclosure surface. It is important to consider interior air flow patterns when determining the mounting location. Also of importance is an unrestricted flow of ambient air thru the hot side heat exchanger. Ease of access and inspection must be considered for those applications in particularly severe environments which may require occasional maintenance.

## Vertical (Side/Front/Back) Mounting:

Vertical mounting refers to the vertical direction of the cold side or interior fins and is recommended for applications with high humidity, poor and incomplete cabinet seals or any condition which may cause the cold side fins to be maintained at temperatures below the dew point for long periods of time allowing for the formation of condensation. The vertical fin direction provides a drip path whereupon condensation can be collected via a moisture removal system (standard on FHP-units) or a drip pan positioned below the cold side fins. Drip pans are optional for thru mount units.



## Condensate Removal System:

All FHP-Series and AHP-1400 air conditioners contain a built-in condensate removal system. The condensate kit consists of a antifungal sponge with a condensate wick. PVC tubing is also provided for drainage. Drip pans are optional for thru mount units which must be evaluated on an individual basis. Equations defining a relationship between the cold side fin and enclosure temperatures are provided to assist in the evaluation.

## Top Mounting:

Though often the easiest location to mount it is often the most difficult to protect from condensation in this orientation due to the fin orientation, gravity and any susceptible components below. If a drip pan is employed by the end user use caution to place the pan far enough away from the internal fan to minimize the restriction of air flow. The pan should cover the fin ends as well as the fan area. When there is a choice, the vertical orientation is preferred by most users.

## Maintenance:

Since the technology is solid-state, there are no filters, compressors, or fluorocarbons to maintain. The only moving parts are the fans. It is recommended for harsh or dirty environments that the heat sinks be cleaned from time to time. This can be accomplished by directing compressed air over the external fins or on NEMA 4 versions by hosing the unit down. This will increase the overall life and performance of the system.

## Cautions:

Take care when mounting not to damage the seal between the hot and cold side sinks. Do not attempt to mount a unit to a warped surface or try to make the units mounting surface conform to an unflat surface. Do not pinch or damage any leads when mounting. Do not over tighten any installation screw, use reasonable force. Always mount with any condensate drain down. Do not compress the cold side between the hot side and any other surface. Do not obstruct the airflow on either side. When mounting consider the natural air flows of the enclosure. Connect power only after the installation is complete.

## Notes on condensation:

Condensation occurs at the cold side fins when the surface temperature goes below the dew point. To reduce or remove condensate, consider the following:

- Regulate the Fin Temperature above the Dewpoint.
- Keep Enclosure Closed and Sealed from Outside Humidity.
- Use Desiccant (Moisture absorbing Granules.)
- Employ Condensate Removal System/Drip Pans.

If you have any questions regarding your installation, Please feel free to contact our technical department for assistance at 773-342-4900.

# LHP-1200

# Liquid Cooled Air Conditioner

Liquid Cooled  
Thru Mount

120 VAC Input

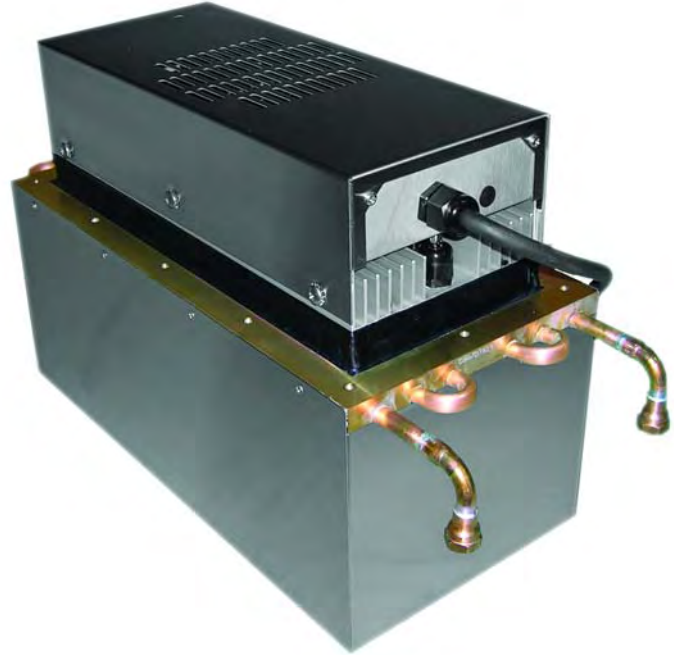
NEMA-4, 4X, C1 D2, C1 D1 & ATEX Zone 1

## FEATURES

- Compact, (only 15" L X 8" W X 7.3" D)
- Weighs only 21 lbs. (9.5 kg)
- Ambient range 0°C to +70°C
- Can be mounted entirely inside purged enclosure or maintain purge when wall mounted
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Mounts and operates in any orientation

## INCLUDES

- Integral power supply
- In/Out 1/4-18 NPT connectors for coolant
- Power cord
- Gasket and mounting hardware
- Adjustable temperature control



## SPECIFICATIONS

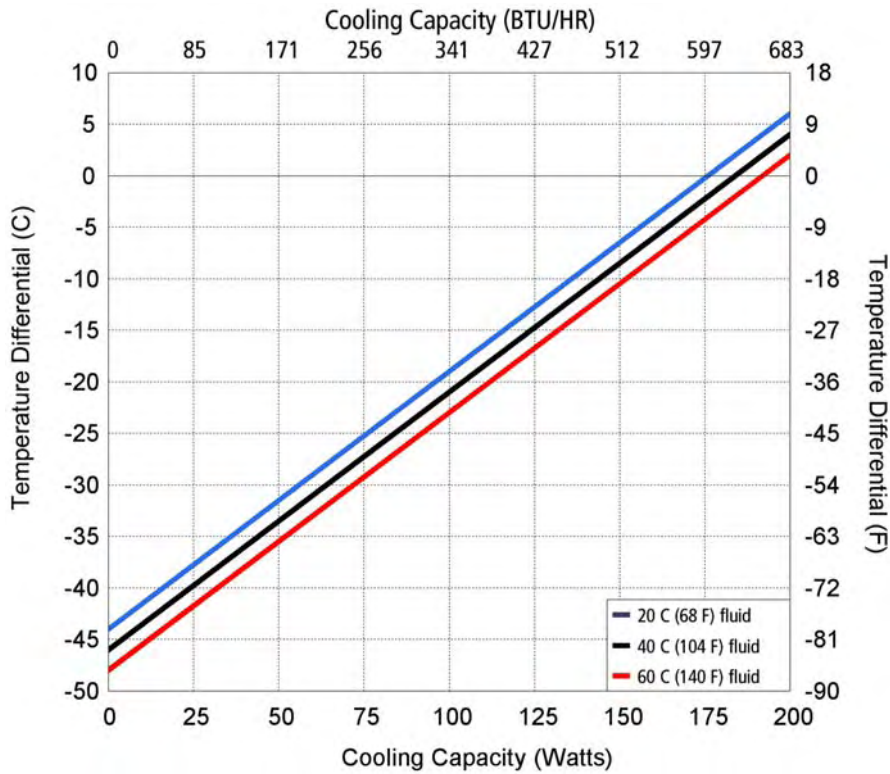
	MODEL	PART NUMBER	NOTES	PERFORMANCE RATING BTU/HR	VOLTAGE VAC 50/60 HZ	CURRENT AMPS.	Min Flow GPM	WEIGHT LBS. (kg)	TEMP. CONTROL	OPERATING AMBIENT °C	AGENCY APPROVALS
NEMA 4X	LHP-1200XE	2-3090-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	none	0/+70	Pending
	LHP-1200XE	2-3080-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	TC-6F	0/+70	Pending
	LHP-1200XE	2-30F0-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	85°F (30°)	0/+70	Pending
	LHP-1200XE	2-3050-4-000	Cool only	590-640	120	3.7	0.3	21(9.5)	EXT*	0/+70	Pending
	LHP-1200XEHC	2-3030-5-000	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	TC-3F	0/+70	Pending
	LHP-1200XEHC	2-3050-5-000	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	EXT*	0/+70	Pending
C1 D2	LHP-1200XP **	2-3090-2-027	Cool only	590-640	120	3.7	0.3	21(9.5)	none	0/+50	Pending
	LHP-1200XP **	2-3080-2-028	Cool only	590-640	120	3.7	0.3	21(9.5)	TC-6F	0/+50	Pending
	LHP-1200XP **	2-30F0-2-029	Cool only	590-640	120	3.7	0.3	21(9.5)	85°F (30°)	0/+50	Pending
	LHP-1200XP **	2-3050-2-030	Cool only	590-640	120	3.7	0.3	21(9.5)	SSR drive	0/+50	Pending
	LHP-1200XPHC **	2-3030-3-031	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	TC-3F	0/+50	Pending
	LHP-1200XPHC **	2-3050-3-032	Heat/Cool	590-640	120	3.7	0.3	21(9.5)	SSR drive	0/+50	Pending
C1 D1	LHP-1200XP **	2-3090-2-021	Cool only	590-640	120	3.7	0.3	30(13.6)	none	0/+50	Pending
	LHP-1200XP **	2-3080-2-022	Cool only	590-640	120	3.7	0.3	30(13.6)	TC-6F	0/+50	Pending
	LHP-1200XP **	2-30F0-2-023	Cool only	590-640	120	3.7	0.3	30(13.6)	85°F (30°)	0/+50	Pending
	LHP-1200XP **	2-3050-2-024	Cool only	590-640	120	3.7	0.3	30(13.6)	SSR drive	0/+50	Pending
	LHP-1200XPHC **	2-3030-3-025	Heat/Cool	590-640	120	3.7	0.3	30(13.6)	TC-3F	0/+50	Pending
	LHP-1200XPHC **	2-3050-3-026	Heat/Cool	590-640	120	3.7	0.3	30(13.6)	SSR drive	0/+50	Pending

\* Unit is set for 5-32 VDC external signal, relay(s) included

\*\* Agency approvals pending; ATEX certification will require full system approval; All specifications subject to change without notice

# LHP-1200

## PERFORMANCE CURVE



Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$			
Fluid Temp	20°C	40°C	60°C
Enclosure Air	$y = .25x - 44.0$	$y = .25x - 46.0$	$y = .25x - 48.0$
Cold Sink	$y = .19x - 44.0$	$y = .19x - 46.0$	$y = .19x - 48.0$

### MOUNTING STYLE

Thru Mount

### ENVIRONMENTS

NEMA-4/4X IP 56

Class 1 Div 2 and NEMA-4X IP 56

Class 1 Div 1 and ATEX Zone 1

### RATING (TRADITIONAL)

613 BTU/hr @ 0 °F ΔT

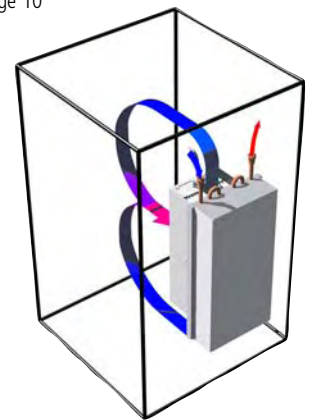
770 BTU/hr @ +20 °F ΔT \*

### RATING (DIN 3168)

180 Watts L35 L35

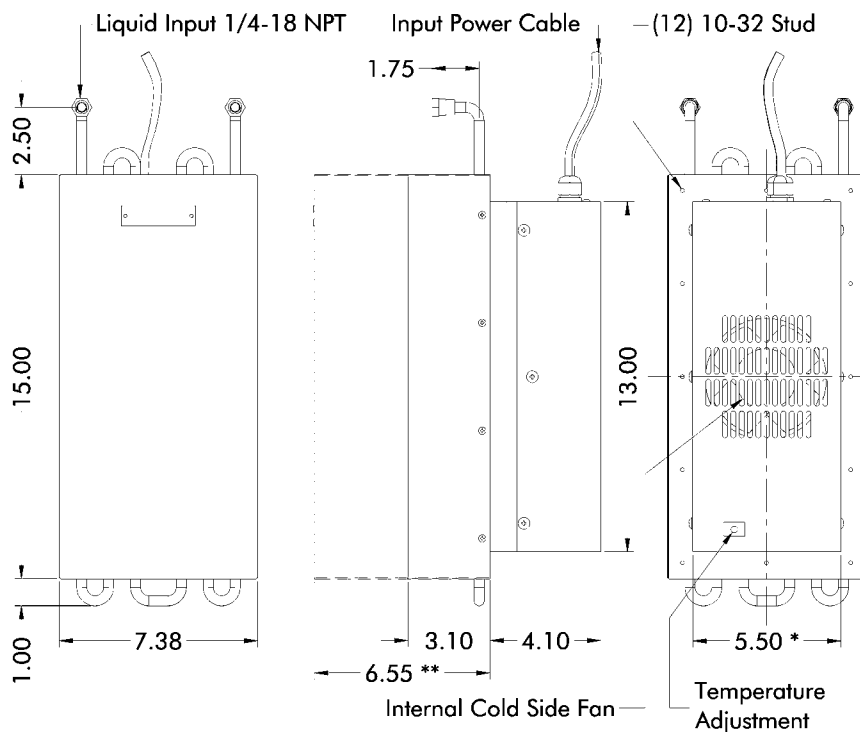
125 Watts L35 L50

\* See page 10

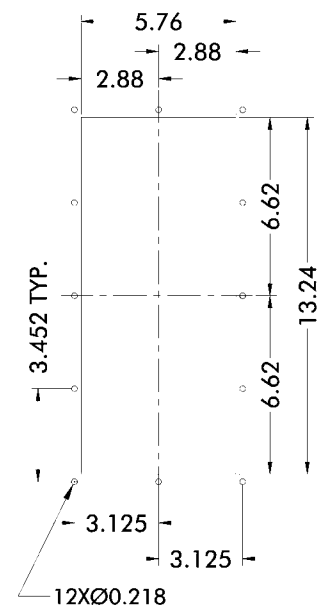


Air Flow Pattern

## DIMENSIONS

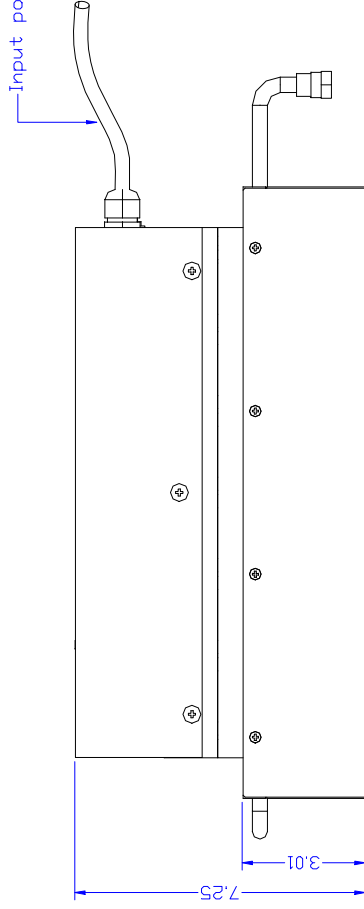
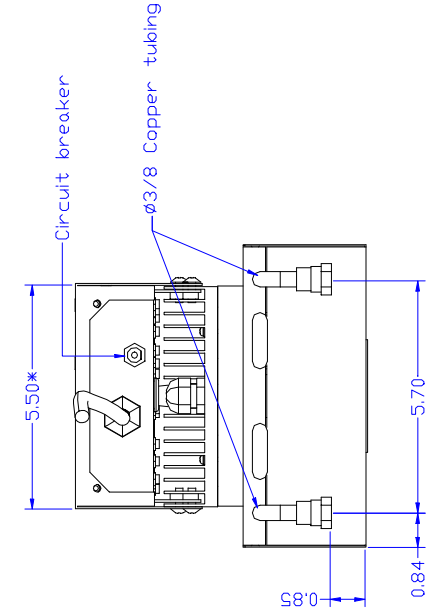
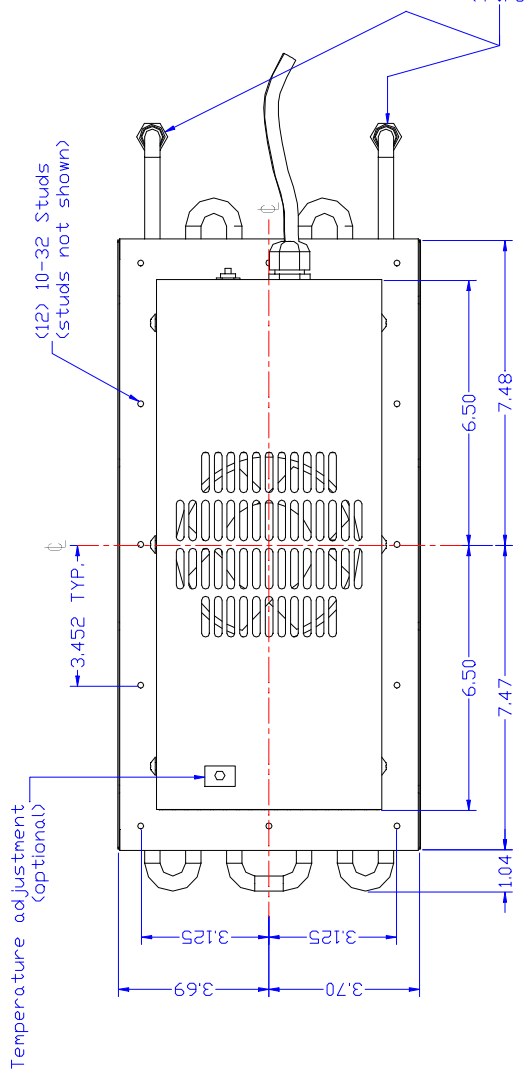
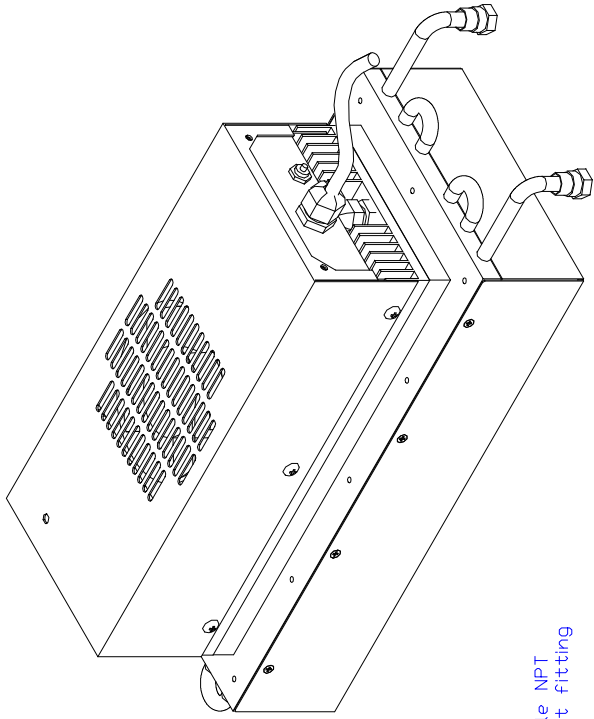


### MOUNTING CUTOUT DIMENSIONS



\* Dimension does not include hardware. Dimension: Inches; Mounting hardware and gasket included but not shown.

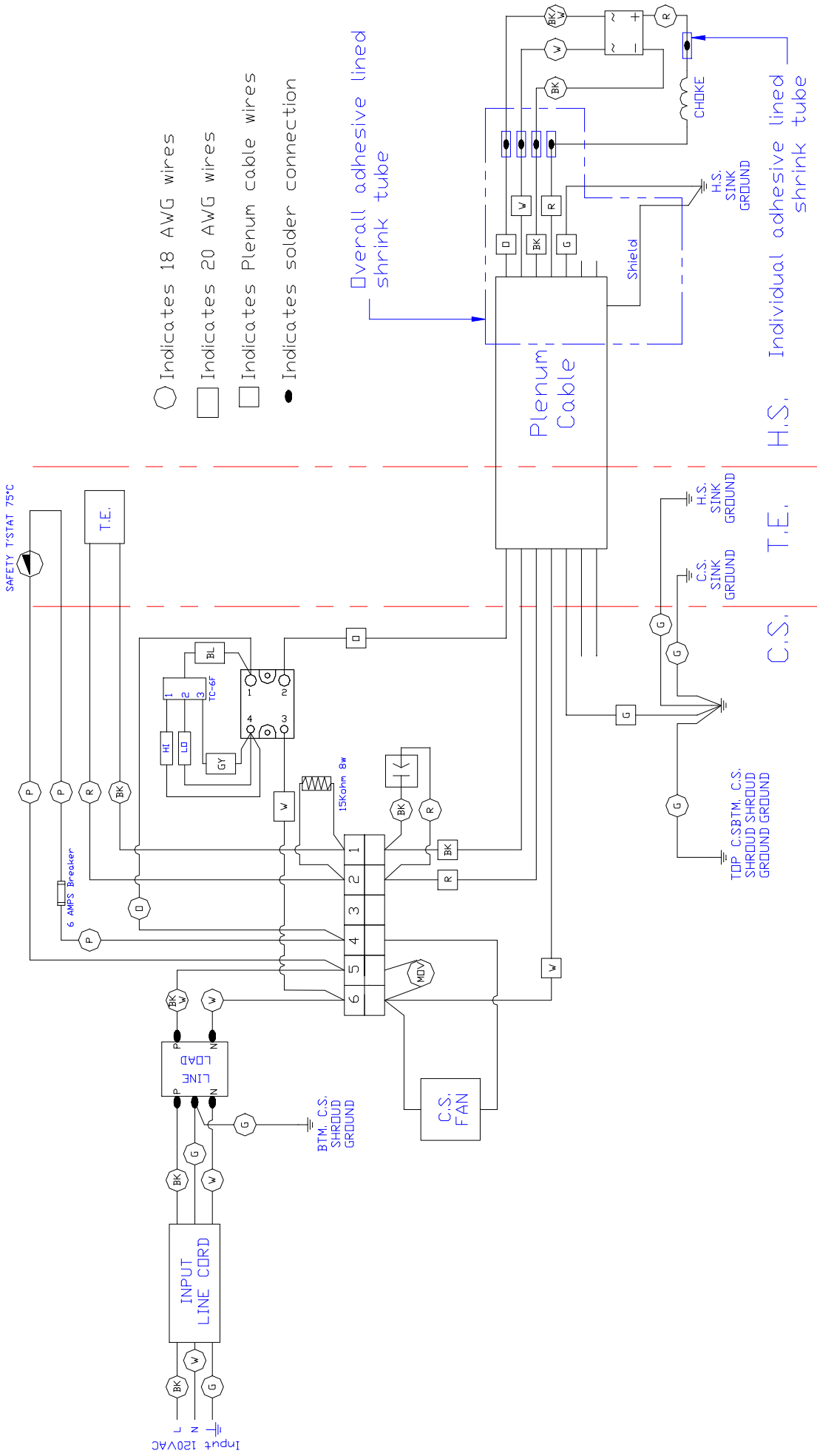
\*\* Dimension applies to XP versions.



**Caution: Do not operate this air conditioner without running coolant fluid.**

Note:  
\* Dimension does not include hardware.

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FINISH:	MATERIAL:	DECIMALS .XX +/-	ANGLE +/-
AA	AA	FRACTION .XXX +/-	FRACTION +/-
A Chg'd tube extension from 6" to 2", Added 1/4 NPT female hex fitting.	05/09/06	DRAWING # AA	REV LEVEL C
B Revised drawing title.	08/27/07	DATE 03/23/06	SHEET C
C Revised views to reflect change L.J.	09/17/08	SK060328	MASTER: MASTER
REV	DESCRIPTION	DATE	APPROVED
AA	LHP-1200XE LIQUID COOLED AIR CONDITIONER ASSEMBLY	D6593	SCALE
<b>THERMOELECTRIC COOLING AMERICA CORP.</b>			



- Indicates 18 AWG wires
- Indicates 20 AWG wires
- Indicates Plenum cable wires
- Indicates solder connection

Overall adhesive lined shrink tube

Shield

Plenum Cable

H.S. SINK GROUND

CHOKER

C.S. T.E.

H.S. T.E.

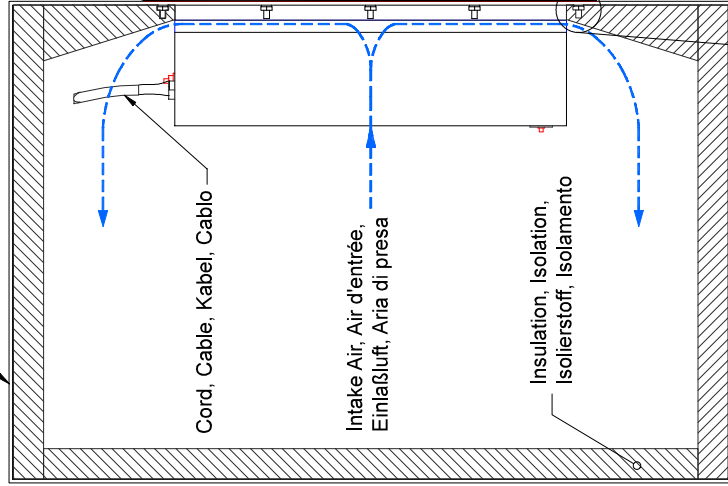
Individual adhesive lined shrink tube

Note: Do not operate this unit without coolant, failure to do so will result in irreversible damage to the thermoelectric modules.

<b>INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER.</b> FINISH:		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMALS    ANGLE    +/- .XX +/-    FRACTION    +/- .XXX +/-    +/-	
<b>THERMOELECTRIC COOLING AMERICA CORP.</b> LHP-1200XE W/TC-6F WIRING DIAGRAM		DRAWN BY: AA DATE: 08/27/07	DRAWING # SK070832 SCALE D6944
REV	DESCRIPTION	Date	APPROVED
			MASTER: MASTER
			REV LEVEL
			SHEET

# Mounting, Monture, Montage, Montaggio

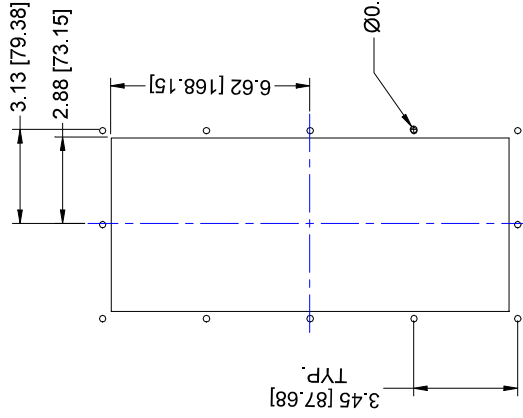
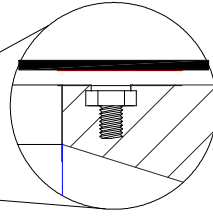
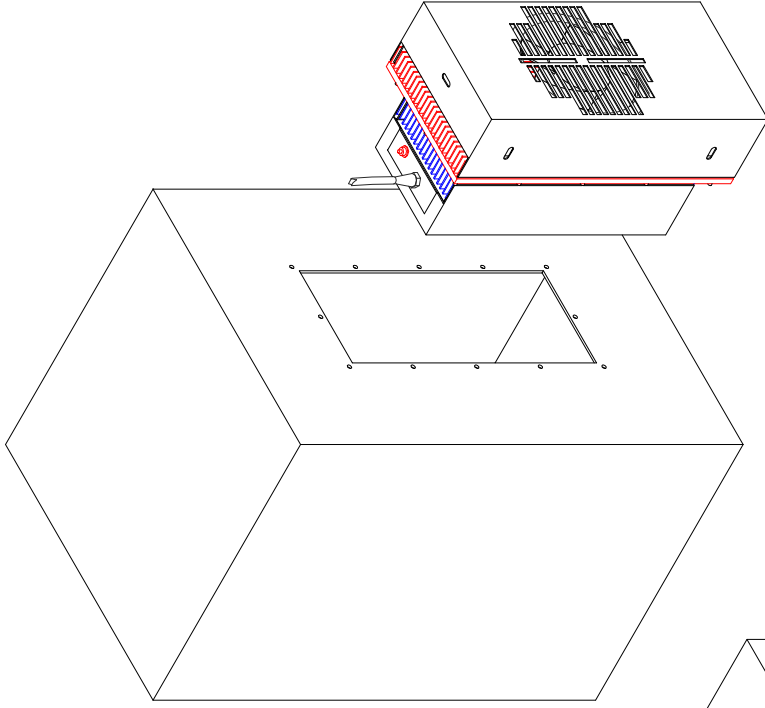
Enclosure, Armoire, Gehäuse, Armadi



Gasket, Joint, Dichtung, Guarnizione

Exhaust, Echappement, Abluft, Scarico

Exhaust, Echappement, Abluft, Scarico



3.45 [87.68]  
TYP.

English, Français, Deutsch, Italiano  
Dimensions: Inches [Millimeters]

Alternate, Alternative, Alternativa

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FINISH:

UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN INCHES  
TOLERANCES ARE:

DECIMALS	ANGLE	FRACTION
.XX +/-	+/-	+/-
.XXX +/-	+/-	+/-

MATERIAL:

**THERMOELECTRIC COOLING AMERICA CORP.**

**AHP-1200 SERIES  
TYPICAL FIELD MOUNTING**

DRAWN BY: AA

DATE: 05/21/03

D6033

SCALE: MASTER: MASTER

REV LEVEL

SHEET

REV	DESCRIPTION	Date	APPROVED

# Control/Thermostats

The model **TC-6F** (Cool Only) thermostat is designed using two magnetic reed switches in conjunction with a solid state relay. A three position switch is provided to adjust between the following settings:

Position	Control Temp.	Tolerance	Reset Differential
1	35°C	+/-5°C	10°C Maximum
2	25°C	+/-5°C	10°C Maximum
3	Constant On		

The model **TC-3F** (Heat/Cool) thermostat incorporates the same technology as the TC-6F. It contains a single setting each for both heating and cooling as referenced below:

Mode	Control Temp.	Tolerance	Reset Differential
Cooling	35°C	+/-5°C	-10°C Maximum
Heating	15 °C	+/-5°C	+10°C Maximum

## LIMITED WARRANTY

In the event a defect in material or workmanship is discovered in any of TECA's products within one year after the date they are delivered to Buyer, and if: (a) TECA is notified of the defect in writing by certified mail within 14 days of the date of discovery; (b) TECA may then either, at its sole discretion, inspect the product at Buyer's location, or require that the product be made available at Buyer's expense at TECA's premises for TECA's inspection within 14 days of the date of notification; and (c ) the products are defective and the defects result from faulty materials and/or workmanship and not in any way from accident, misuse, misapplication, mishandling, modification, or alteration by the Buyer or the shipper, then TECA shall, at its sole option, repair or exchange defective products free of charge to Buyer, or credit to buyer the price of the defective products. ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE EXCLUDED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL TECA BE LIABLE FOR ANY CLAIM BASED UPON BREACH OF EXPRESS OR IMPLIED WARRANTY OR ANY OTHER DAMAGES WHETHER SPECIAL, INDIRECT, INCIDENTAL, CONSEQUENTIAL, LOST PROFITS, BUSINESS INTERRUPTION, OR LOSS OF BUSINESS OR CUSTOMER RELATIONSHIPS.

## RETURNED GOODS, RESTOCKING CHARGES

In order to return merchandise for any reason ( repair, replacement, or credit) a return authorization number must be issued by TECA. New merchandise may not be returned for credit beyond 60 days from shipment. Charges for incidental or other damages may also be made. All returned goods must be sent freight prepaid. A restocking charge of 15% will apply. On special equipment and custom modified equipment orders, additional incremental cancellation charges may be made.