

# Product Information Packet

Model FHP-1501HC

Flush Mount, Solid State, NEMA-12, Air Conditioner

Heat/Cool With TC-3F Temperature Control

Part #7-2131-1-000

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 # SK050521

Wiring Drawing # SK120205

Installation Drawing # SK050520

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.

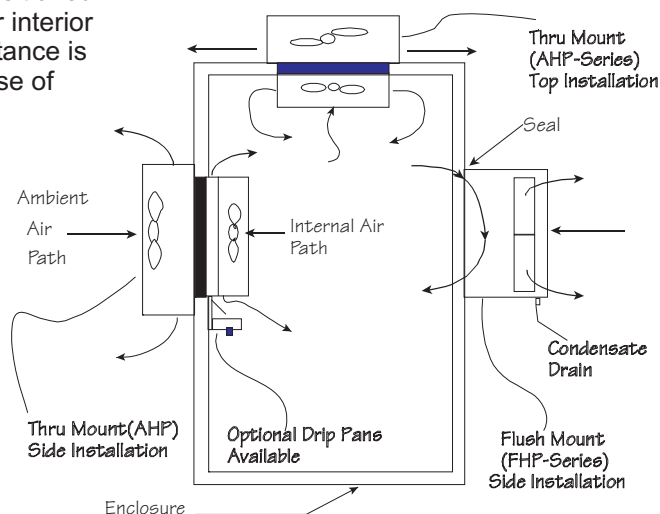
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sales@thermoelectric.com www.thermoelectric.com

# Installation Notes for 1501XE Series Air Conditioners

**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. Moisture is absorbed into the wick at the cold side heat exchanger and "wicked" to the hot side heat exchanger to be evaporated.

## 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.

## Mounting:

- Thread 10-32 mounting hardware (included) into 10-32 mounting holes on the air conditioner.
- Apply a thin bead of Dow RTV 737 Clear Silicone Adhesive or equivalent on the interface surface of the air conditioner and gasket when the mounting surface can flex.
- Install gasket on the air conditioner using 10-32 studs and clearance holes on the gasket as guide.
- Apply a thin bead of Dow RTV 737 Clear Silicone Adhesive or equivalent on the interface of gasket and enclosure when the mounting surface can flex.
- Install the air conditioner on the enclosure, use 10-32 Hex Nut (included), 10-32 Star Washers (included) and 6-32 screws (for AHP-1501 only) to secure the air conditioner on the enclosure.
- To seal the air conditioner/enclosure interface gradually increase the torque to the screws in an alternating pattern to 10-15 in-lb [1.13-1.70 N.m] or until the gasket is compressed by 1/2 it's thickness..

## 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.

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

# FHP-1501 Air Conditioner

Air Cooled  
Flush Mounted  
NEMA-12, NEMA-4

120/240 VAC Input

## FEATURES

- Externally mounted (no intrusion)
- Mounts in multi-unit array for incremental capacity
- Compact (only 15" L X 12" W X 9" D)
- Weighs only 55 lbs. (25 kg)
- Ambient range -10°C to +70°C
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Dual voltage (120/240 VAC)
- No moving parts except fans
- Environmentally safe
- Mounts and operates in any orientation (condensate removal system may not work properly in all orientations)



## INCLUDES

- Integral power supply
- Condensate removal system
- Adjustable temperature control
- Mounting gasket for NEMA-12, NEMA-4 seal
- Mounting hardware

## INCLUDES

- Other temperature settings for single set point controls
- Custom finishes



## SPECIFICATIONS

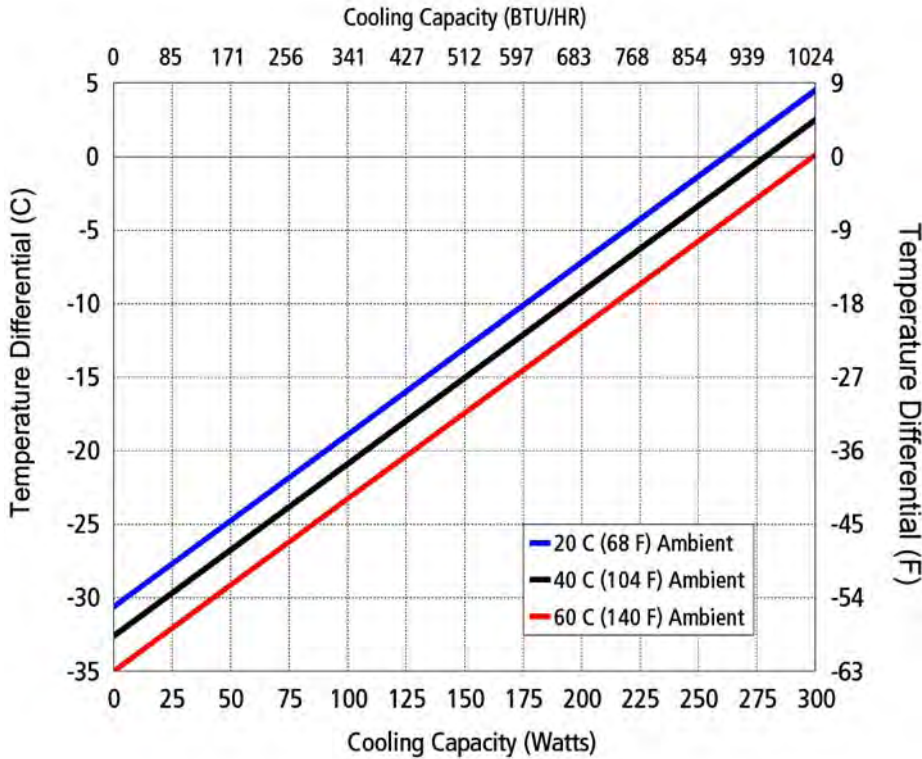
	MODEL	PART NUMBER	NOTES	PERFORMANCE RATING BTU/HR	VOLTAGE VAC 50/60 HZ	CURRENT AMPS.	TEMP. CONTROL	OPERATING AMBIENT TEMPERATURE RANGE °C	OPERATING ENCLOSURE TEMPERATURE RANGE °C	AGENCY APPROVALS
NEMA 12	FHP-1501	7-2181-0-000	Cool only	1000-1100	120/240	8.0/5.5	TC-6F†	-40/+65	-10/+60	UL1995/CSA22.2
	FHP-1501	7-2151-0-000	Cool only	1000-1100	120/240	8.0/5.5	EXT*	-40/+65	-10/+60	UL1995/CSA22.2
	FHP-1501	7-21F1-0-000	Cool only	1000-1100	120/240	8.0/5.5	85°F (30°C)	-40/+65	-10/+60	UL1995/CSA22.2
	FHP-1501HC	7-2131-1-000	Heat/Cool	1000-1100	120/240	8.0/5.5	TC-3F	-40/+65	-10/+60	UL1995/CSA22.2
NEMA 4	FHP-1501HC	7-2151-1-000	Heat/Cool	1000-1100	120/240	8.0/5.5	EXT*	-40/+65	-10/+60	UL1995/CSA22.2
	FHP-1501XE	7-2181-4-000	Cool only	1000-1100	120/240	8.0/5.5	TC-6F†	-40/+60	-10/+60	UL1995/CSA22.2
	FHP-1501XE	7-2151-4-000	Cool only	1000-1100	120/240	8.0/5.5	EXT*	-40/+60	-10/+60	UL1995/CSA22.2
	FHP-1501XE	7-21F1-4-000	Cool only	1000-1100	120/240	8.0/5.5	85°F (30°C)	-40/+65	-10/+60	UL1995/CSA22.2
	FHP-1501XEHC	7-2131-5-000	Heat/Cool	1000-1100	120/240	8.0/5.5	TC-3F	-40/+65	-10/+60	UL1995/CSA22.2
	FHP-1501XEHC	7-2151-5-000	Heat/Cool	1000-1100	120/240	8.0/5.5	EXT*	-40/+65	-10/+60	UL1995/CSA22.2

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

† Unit evaluated by ETL

# FHP-1501

## PERFORMANCE CURVE



Equation of line: $y = \Delta T(^{\circ}C)$ $x = \text{Capacity (Watts)}$			
Ambient Temp	20°C	40°C	60°C
Enclosure Air	$y = .117x - 30.6$	$y = .117x - 32.6$	$y = .117x - 35.0$
Cold Sink	$y = .093x - 30.6$	$y = .093x - 32.6$	$y = .093x - 35.0$

### MOUNTING STYLE

Flush Mounted

### ENVIRONMENTS SERVED

NEMA-12 IP 52

NEMA-4 IP 56

### RATING (TRADITIONAL)

950 BTU/hr @ 0 °F ΔT

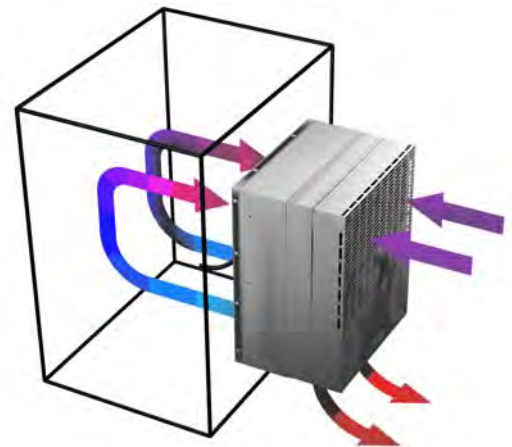
1270 BTU/hr @ +20 °F ΔT \*

### RATING (DIN 3168)

278 Watts L35 L35

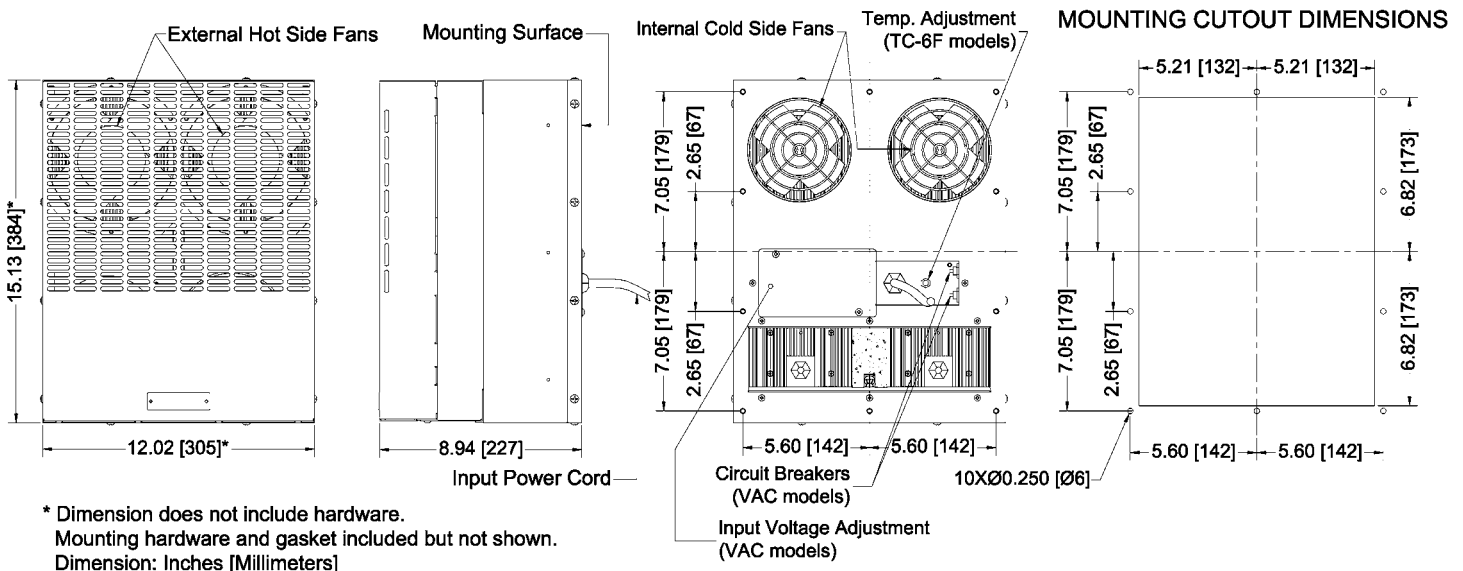
162 Watts L35 L50

\* See page 10



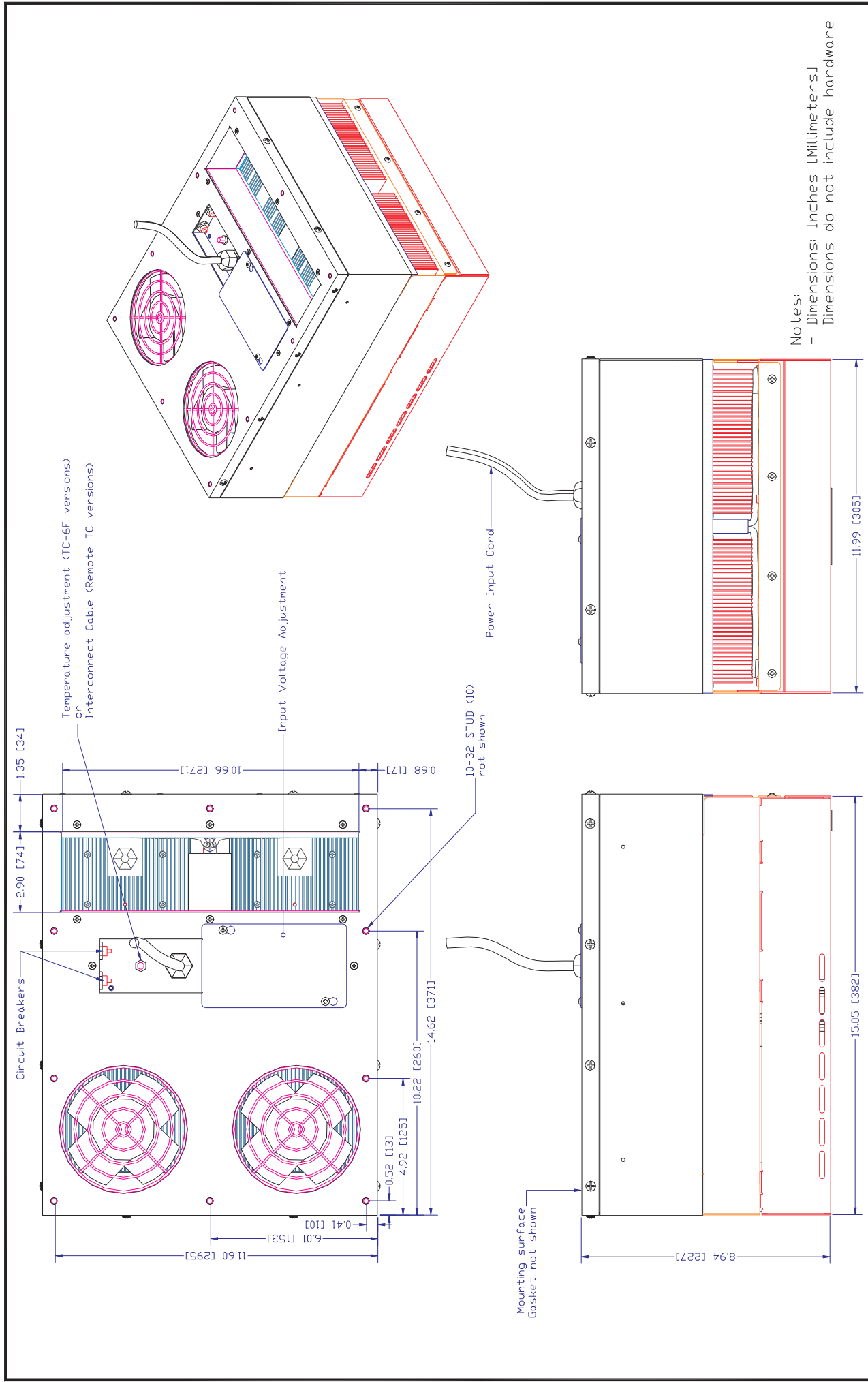
Air Flow Pattern

## DIMENSIONS



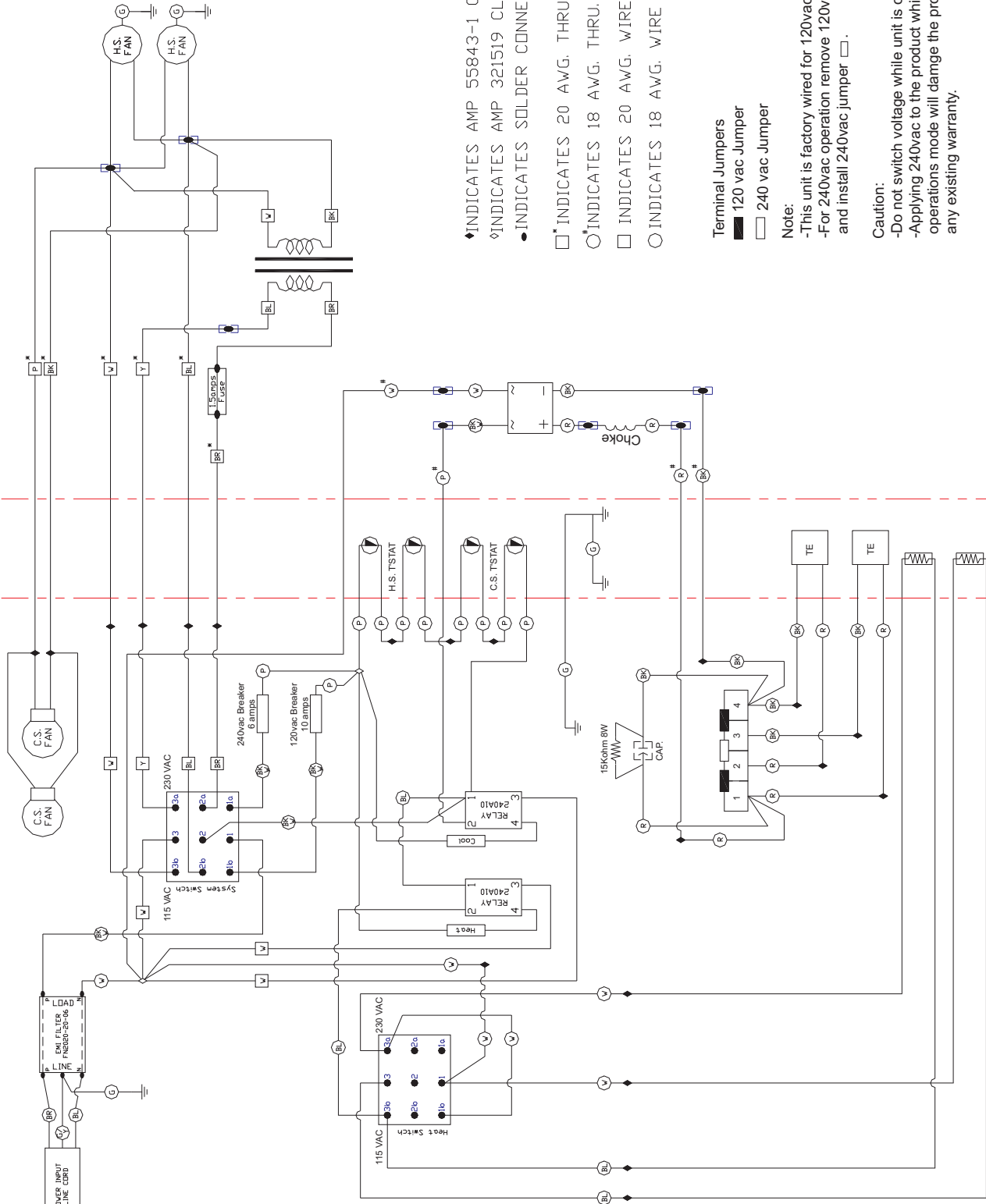
\* Dimension does not include hardware.  
Mounting hardware and gasket included but not shown.  
Dimension: Inches [Millimeters]





Notes:  
 - Dimensions: Inches [Millimeters]  
 - Dimensions do not include hardware

REV	DESCRIPTION	Date	APPROVED	DRAWING #		REV LEVEL
				AA	SK050521	
				DATE: 05/20/05	SCALE	SHEET
				D6448	MASTER: SK050106	
INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER. FINISH:				UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE: DECIMALS: .XX +/- .015 FRACTION: XXX +/- .005 ANGLE: +/- 1° MATERIAL:		
<b>THERMOELECTRIC COOLING AMERICA CORP.</b> FHP-1501 / FHP-1501XE ASSEMBLY						



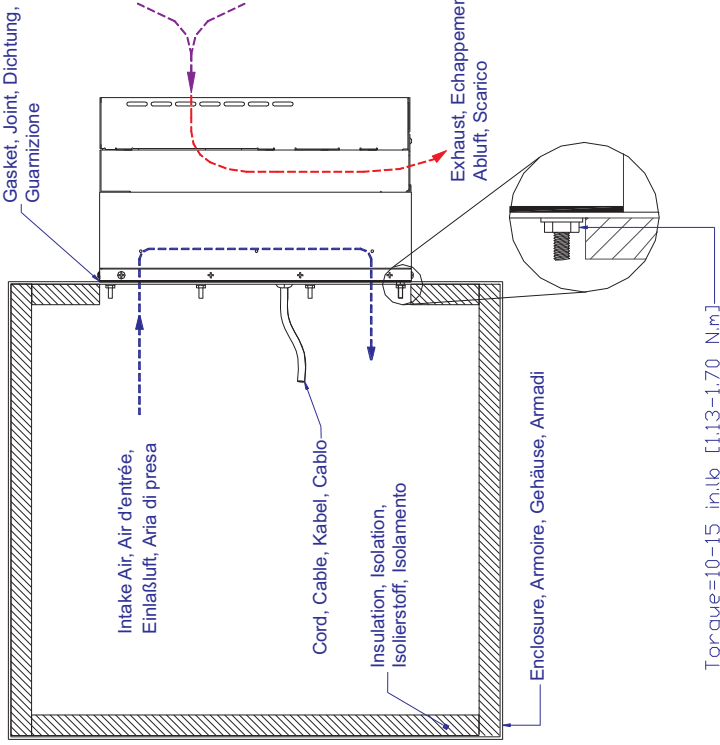
- ◆ INDICATES AMP 55843-1 CLOSED END SPLICE
- ◇ INDICATES AMP 321519 CLOSED END SPLICE
- INDICATES SOLDER CONNECTION
- \* INDICATES 20 AWG. THRU. RIBBON CABLE WIRE
- \* INDICATES 18 AWG. THRU. RIBBON CABLE WIRE
- INDICATES 20 AWG. WIRE
- INDICATES 18 AWG. WIRE

Terminal Jumpers  
 ■ 120 vac Jumper  
 □ 240 vac Jumper

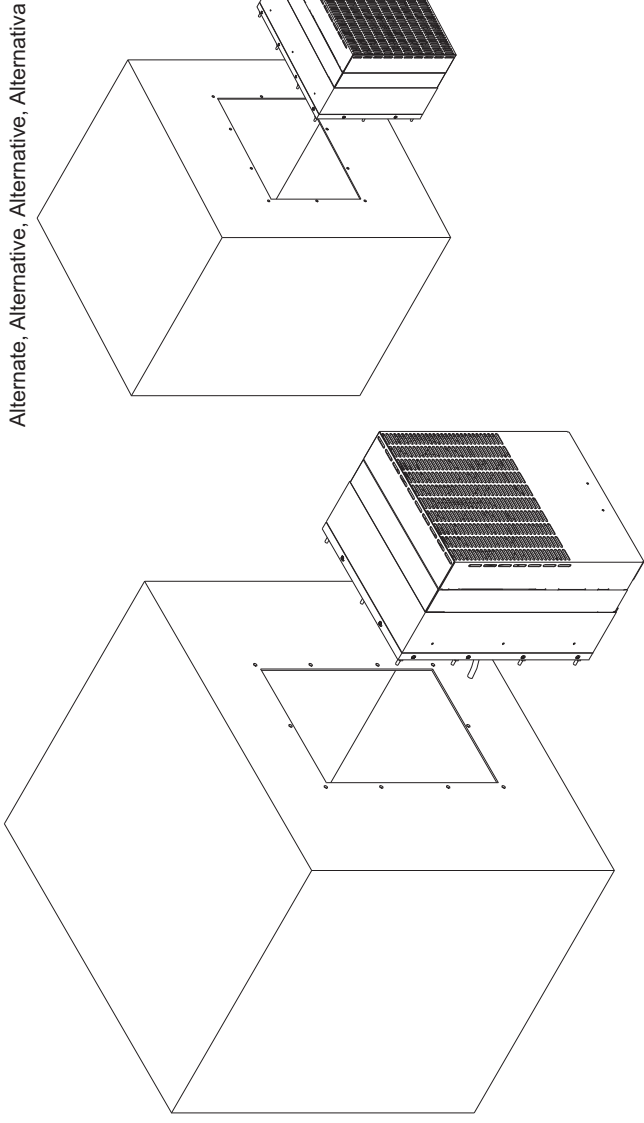
Note:  
 -This unit is factory wired for 120vac operation.  
 -For 240vac operation remove 120vac jumpers and install 240vac jumper □.

Caution:  
 -Do not switch voltage while unit is operational.  
 -Applying 240vac to the product while in 120vac operations mode will damage the product & void any existing warranty.

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		DECIMALS    .XX +/- FRACTION    .XXX +/- ANGLE       +/- MATERIAL:	DRAWING # SK120205
REV	DESCRIPTION	Date	APPROVED
THERMOELECTRIC COOLING AMERICA CORP. FHP-1501HC WITH TC-3F WIRING DIAGRAM		DRAWN BY: AA DATE: 02/01/12	SCALE D8339
		REV LEVEL SK040939	SHEET



# Mounting, Monture, Montage, Montaggio



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

**Warning** - If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.  
 - UL 489 defines branch circuit protection of no more than 4X the rating of the supplemental protector to be used upstream. We suggest a slow reacting, 10-15 Amps circuit breaker been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

**Attention** - Si le cordon d'alimentation est endommagé, il doit être remplacé par le fabricant, son agent de service ou de personnes de qualification similaire afin d'éviter un danger.  
 - UL 489 définit la protection du circuit de pas plus de 4X la cote du protecteur supplémentaire pour être utilisé en amont. Nous suggérons une lente réaction, 10-15 disjoncteurs Amps. Cet appareil n'est pas destiné à être utilisé par des personnes (enfants compris) dont les capacités physiques, sensorielles ou mentales, ou le manque d'expérience et de connaissances, a moins qu'ils aient été donnés de surveillance ou d'instructions concernant l'utilisation de l'appareil par une personne responsable de leur sécurité. Les enfants doivent être surveillés afin de s'assurer qu'ils ne jouent pas avec l'appareil.

**Achtung** - Wenn das Netzkabel beschädigt ist, muss es durch den Hersteller, seinen Kundendienst oder eine ähnlich qualifizierte Person, um eine Gefahr zu vermeiden ersetzt werden.  
 - UL 489 definiert den Schutz der Stromzweige nicht mehr als 4X das Rating der Beschützer weiter flussaufwärts genutzt werden. Wir empfehlen eine langsame Reaktion, 10-15 Amperesicherung.

**Attenzione** - Se il cavo di alimentazione è danneggiato, esso deve essere sostituito dal produttore, dal suo agente di servizio o da un professionista al fine di evitare rischi.  
 - UL 489 definisce il circuito di protezione filare di non più di 4X il rating del protettore supplementare da utilizzare a monte. Vi suggeriamo una lenta reazione, 10-15 interruttore Amp. Questo apparecchio non è destinato all'uso da parte di persone (bambini compresi) con ridotte capacità fisiche, sensoriali o mentali, o mancanza di esperienza e conoscenza, a meno che non siano sorvegliati o istruzioni per l'uso dell'apparecchio da una persona responsabile della loro sicurezza. I bambini devono essere supervisionati per assicurarsi che non giochino con l'apparecchio.

INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER. FINISH:	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMALS      ANGLE +/- XX +/-      FRACTION XXX +/-     +/-	
	<b>THERMOELECTRIC COOLING AMERICA CORP.</b>  <b>FHP-1501 SERIES          FIELD MOUNTING</b>	
DRAWN BY: AA DATE: 05/19/05 SCALE: D6447	DRAWING # <b>SK050520</b>	REV LEVEL <b>B</b> SHEET
12/13/2005 12/16/2011	Date APPROVED	AA AA
A Added torque value. B Added UL489 branch circuit protection note and added unqualified operator and supervision note.	DESCRIPTION	MASTER: MASTER

# 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.