

# Product Information Packet

## Model FHP-2850

Nema-12 Flush Mount Air Conditioner

with TC-6F Temperature Control

Part #7-D580-0-000

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

Wiring Drawing # 2000-463

Installation Drawing # 2000-435

Mounting Cut out Drawing # SK960309

Temperature Control Information

Warranty Information



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# Important Installation Notes for 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. 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.

# FHP-2850

Air Cooled  
Flush Mounted  
Nema-12

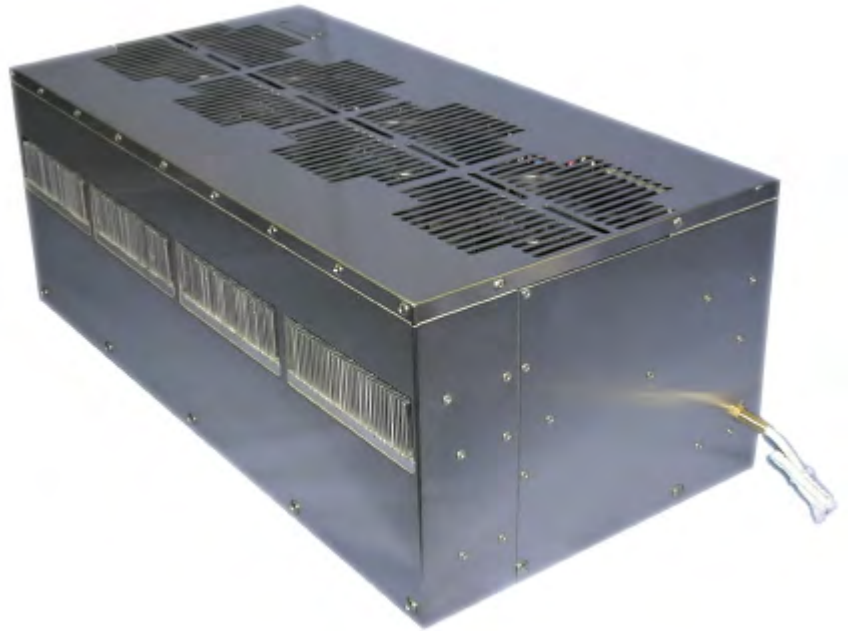
# Thermoelectric Air Conditioner

## FEATURES

- Externally mounted, no intrusion
- Ambient range -10°C to +70°C
- No compressor, fluorocarbons or filters
- Virtually maintenance-free operation
- Stainless steel exterior housing
- Mounts in any orientation
- No moving parts except fans
- Environmentally safe

## INCLUDES

- Integral power supply
- Condensate removal system
- TC-6F thermostat
- Mounting hardware
- Gasket for NEMA-12 seal



## APPLICATIONS

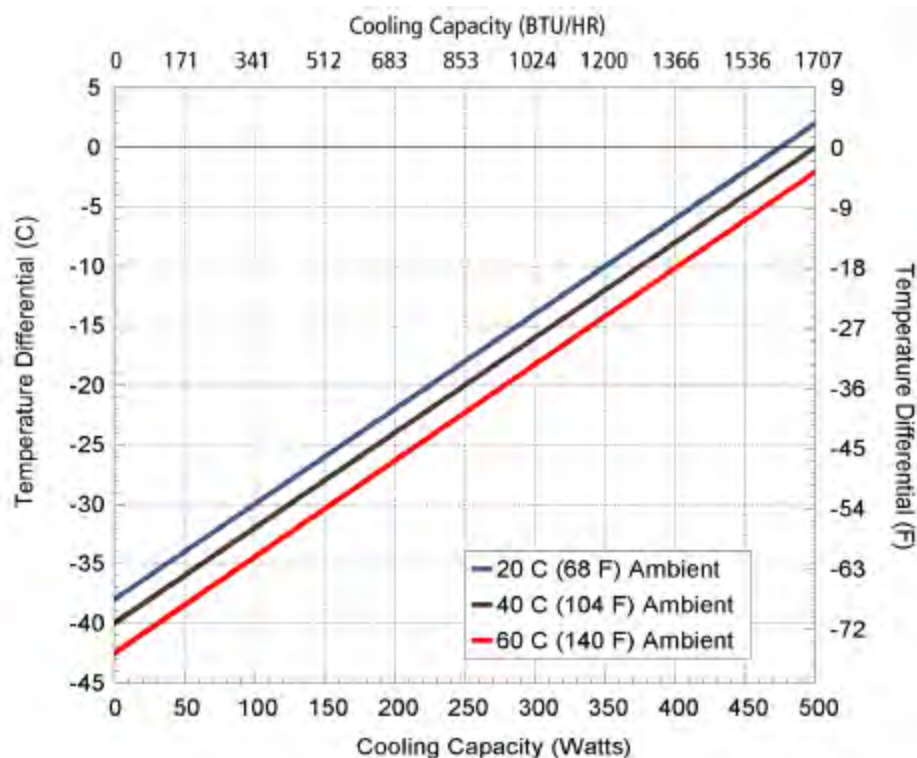
This unit has been employed for larger cooling loads such as overhead cranes in rolling mills and in mobile applications for military camera cooling.

## SPECIFICATIONS

| MODEL    | PART NUMBER  | NOTES     | PERFORMANCE<br>RATING<br>BTU/HR | VOLTAGE<br>VAC<br>50/60 HZ | CURRENT<br>AMPS. | WEIGHT<br>LBS. (kg) | TEMP.<br>CONTROL<br>* | CONDENSATE<br>REMOVAL | OPERATING<br>AMBIENT °C |
|----------|--------------|-----------|---------------------------------|----------------------------|------------------|---------------------|-----------------------|-----------------------|-------------------------|
| FHP-2850 | 7-D580-0-000 | Cool only | 1600-1800                       | 120                        | 12.5             | 68(31)              | TC-6F                 | Included              | -10/+70                 |
| FHP-2850 | 7-D550-0-000 | Cool only | 1600-1800                       | 120                        | 12.5             | 68(31)              | OPT*                  | Included              | -10/+70                 |
| FHP-2852 | 7-D582-0-000 | Cool only | 1600-1800                       | 240                        | 7.5              | 68(31)              | TC-6F                 | Included              | -10/+70                 |
| FHP-2852 | 7-D552-0-000 | Cool only | 1600-1800                       | 240                        | 7.5              | 68(31)              | OPT*                  | Included              | -10/+70                 |

\*OPT; Unit is set up for TC-3300 Controller (or similar)

## PERFORMANCE CURVE



| Equation of line: $y = \Delta T(^{\circ}\text{C})$ $x = \text{Capacity (Watts)}$ |                   |                   |                   |
|--|-------------------|-------------------|-------------------|
| Ambient Temp   | 20°C              | 40°C              | 60°C              |
| Enclosure Air  | $y = .08x - 38.0$ | $y = .08x - 40.0$ | $y = .08x - 42.0$ |
| Cold Sink  | $y = .05x - 38.0$ | $y = .05x - 40.0$ | $y = .05x - 42.0$ |

## FHP-2850

## MOUNTING STYLE

Flush Mounted

## ENVIRONMENTS

Nema-12 IP 40 (maintains IP 52)

## RATING (TRADITIONAL)

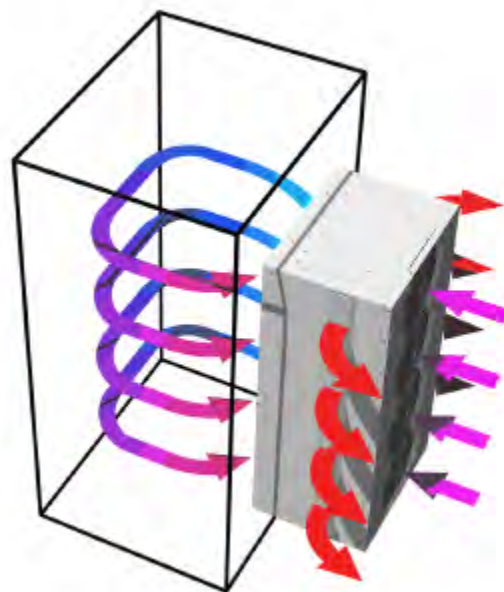
1700 BTU/hr @ 0 °F  $\Delta T$ 2200 BTU/hr @ +20 °F  $\Delta T$  \*

## RATING (DIN 3168)

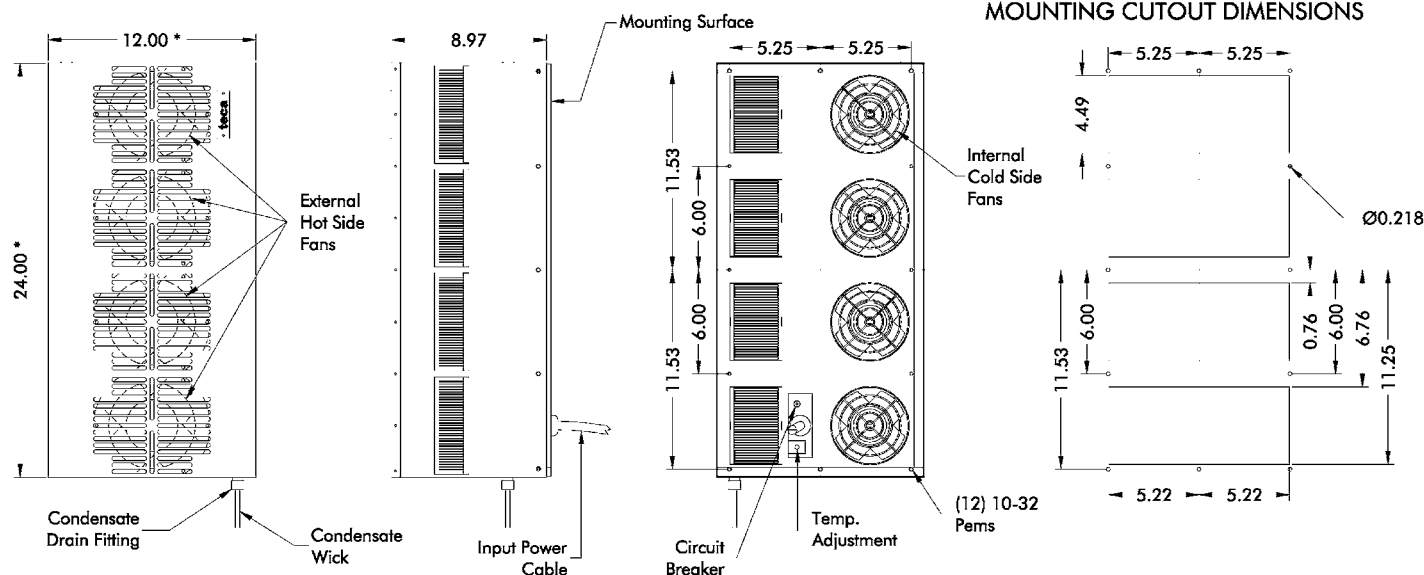
500 Watts L35 L35

325 Watts L35 L50

\* See page 6

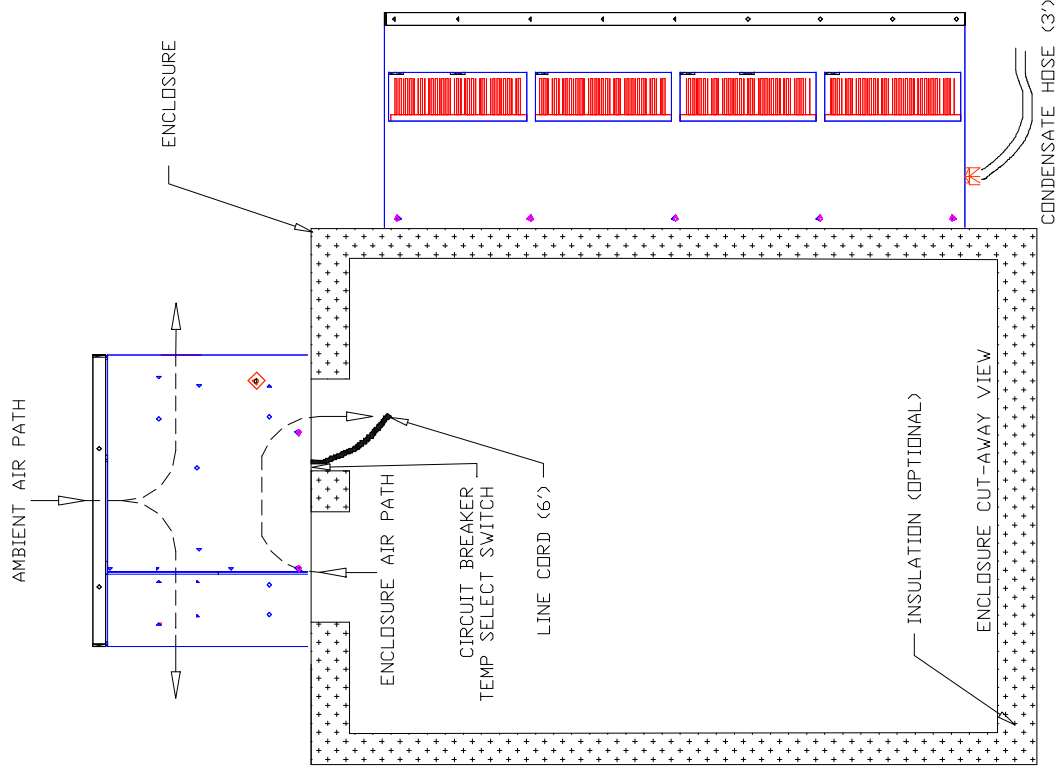


## DIMENSIONS

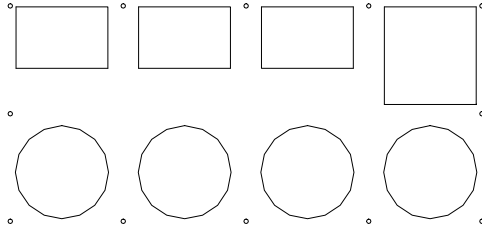


\* Dimension does not include hardware. Dimensions: inches. Mounting hardware and gasket included but not shown.





PANEL CUTOUT  
REFERENCE SK960309



MOUNTING HARDWARE

- (12) 10-32 X 3/8" TRUSS HEAD SCREW
- (12) #10 LOCK WASHER

## MOUNTING INSTRUCTIONS

DETERMINE DESIRED LOCATION AND ORIENTATION AN EASY WAY TO DO THIS IS TO REMOVE THE MOUNTING PANEL AND HOLD IT IN PLACE. THIS ALLOWS YOU TO POSITION THE UNIT AND AVOID ANY INTERFERENCES.

PREPARE THE PROPER CUTOUTS AND MOUNTING HOLES IN THE ENCLOSURE. SEVERAL CUTOUT VARIATIONS ARE SHOWN IN THE DWG # SK960309. CHOOSE THE ONE WHICH BEST MEETS YOUR NEEDS.

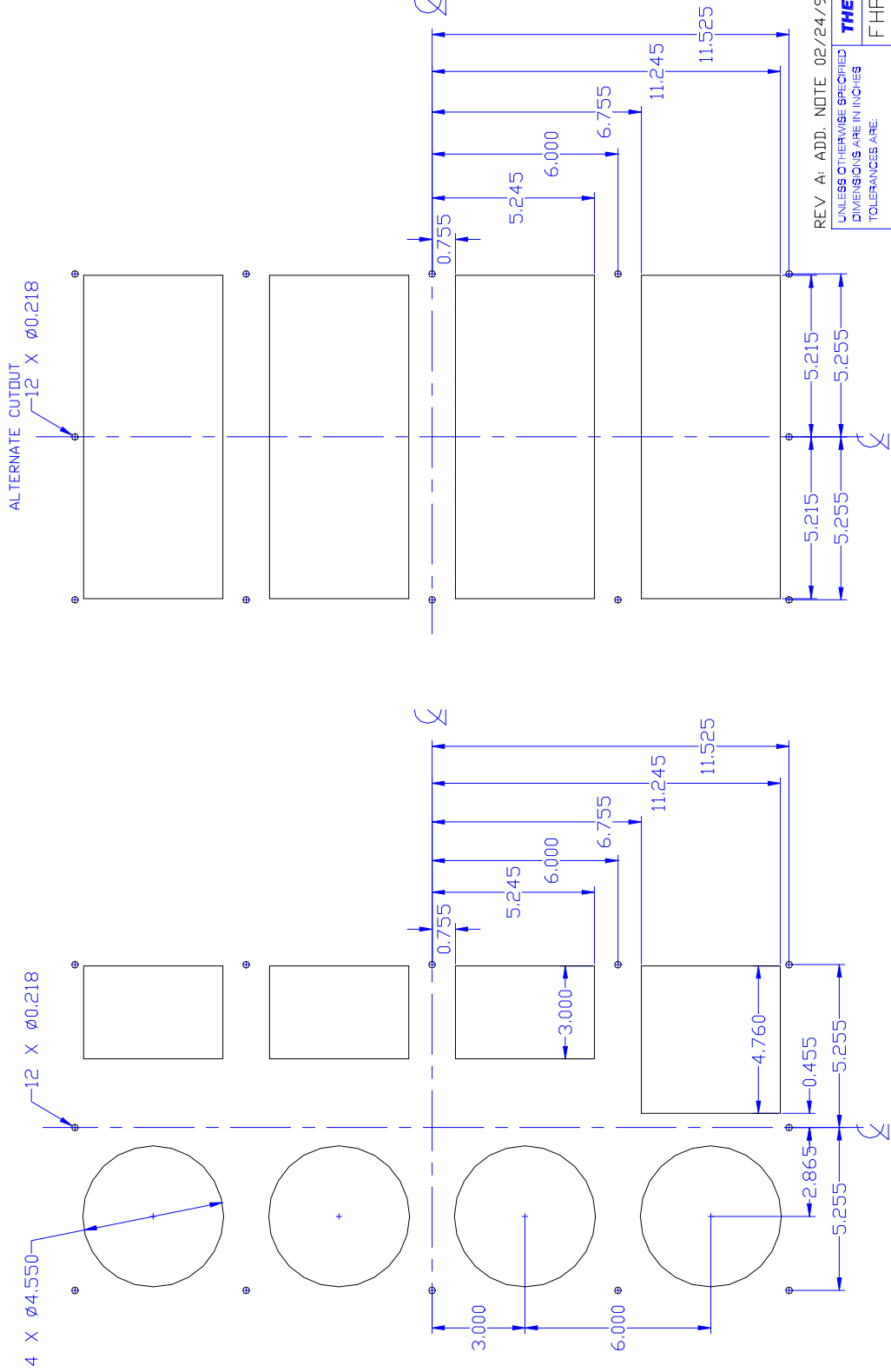
INSTALL MOUNTING PANEL ON THE ENCLOSURE VIA (12) ADDITIONAL 10-32X3/8 TRUSS HEAD SCREWS AND (12) # 10 LOCK WASHERS

INSTALL T.E UNIT ON THE MOUNTING PANEL BY LIFTING IT SLIGHTLY ABOVE THE MOUNTING PANEL AND PLACING THE UPPER EDGE OF THE UNIT ON THE MOUNTING PANEL AND SWINGING THE UNIT ALL THE WAY INTO PLACE AND SECURE IT VIA (14) 10-32X1/4 TRUSS HEAD SCREWS WHICH WERE REMOVED EARLIER

DURING INSTALLATION OF THE T.E. UNIT ON THE MOUNTING PANEL BE SURE TO FIT THE LINE CORD THROUGH THE OPENING

|  |   |                       |              |
|--|---|-----------------------|--------------|
| UNLESS OTHERWISE SPECIFIED<br>DIMENSIONS ARE IN INCHES<br><br>TOLERANCES ARE:<br><br>DECIMALS<br>XX +/- .015<br>XXX +/- .005 | THERMOELECTRIC COOLING AMERICA CORP.  |                       |              |
|  | FHP-2800<br>FIELD MOUNTING  |                       |              |
| MATERIAL:  | DRAWN BY:<br>AA   | DRAWING #<br>2000-435 | REV<br>LEVEL |
|  | DATE:<br>11/05/96   | MASTER:<br>D4123      | MASTER       |
| FINISH:  | INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. ALL RIGHTS ARE RESERVED BY TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER. |                       |              |





NOTE: FOR FHP-2850 USE ALTERNATE CUTOUT METHOD ONLY.

|   |          |           |          |
|---|----------|-----------|----------|
| THERMOELECTRIC COOLING AMERICA CORP.  |          |           |          |
| FHP-2800<br>FIELD MOUNTING CUTOUT   |          |           |          |
| DRAWN BY:   | AA       | DRAWING # | SK960309 |
| DATE:   | 03/15/96 | MASTER    | SK960216 |
| REVISION  |          |           |          |
| A   |          |           |          |
| INFORMATION DISCLOSED HEREIN IS THE CONFIDENTIAL PROPERTY OF TECA CORP. ALL RIGHTS ARE RESERVED BY TECA CORP. RECIPIENT SHALL NOT USE THE INFORMATION IN ANY UNAUTHORIZED MANNER. |          |           |          |

# 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.