IHP-2259 Series

Internal Mount Kiosk & Enclosure Temperature Control System

B-H4JB-0-100

Product Manual

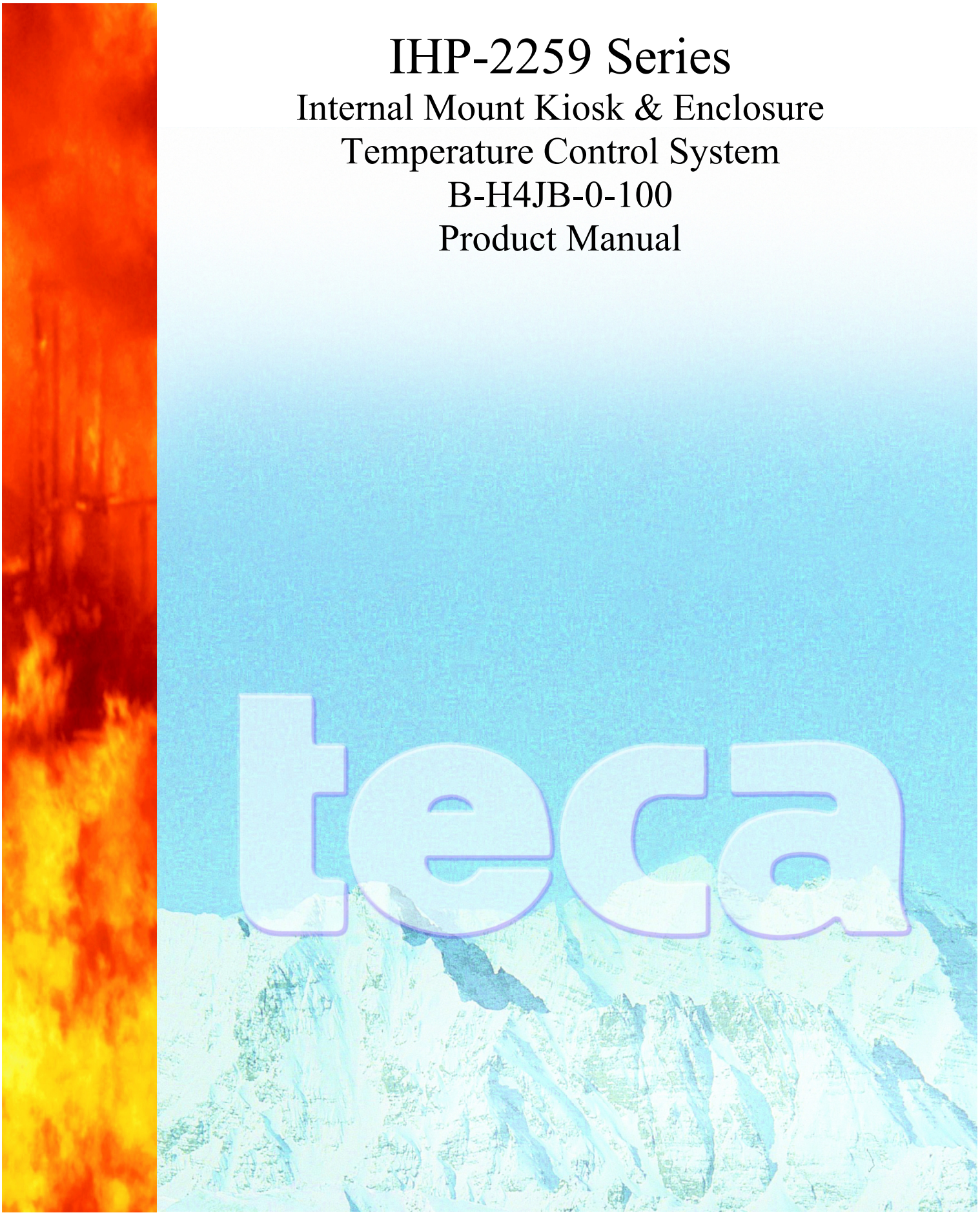
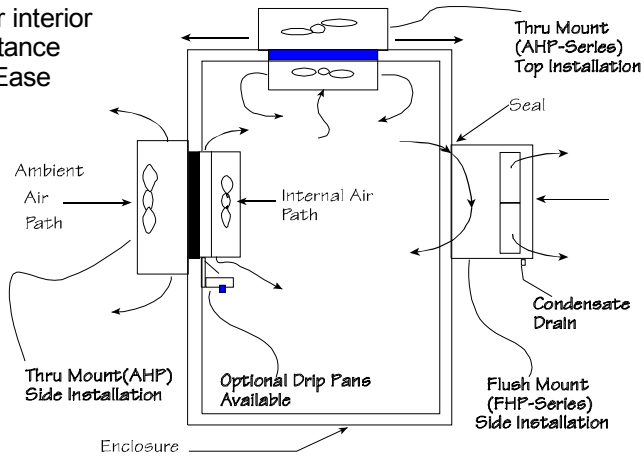


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Important Installation Notes for Air Conditioners

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.

IHP-2259 Air Conditioner/Heat Exchanger

Air Cooled
Internal Mounted
Nema-12, 4

100 - 240 VAC Universal Input
High Efficiency
1040 BTU/HR



FEATURES

- High efficiency thermoelectric design
- Power saving air to air heat exchanger mode (ECO-Mode)
- Heavy duty full perimeter mounting
- Easy installation from exterior of the enclosure
- Closed loop design
- Condensate control and evaporation system
- Increased efficiency at higher ambients by as much as 10%
- Temperature driven fan speed for quieter operations
- Virtually maintenance free
- No compressor
- Environmentally friendly and safe
- Stainless Steel exterior housing
- Mounts flush with no protrusion outside of the enclosure
- Integral or remote temperature controller
- Weight 66 LBS.

CONTROL TEMPERATURES

Active Cooling	35 °C
Heat Exchanger (ECO-Mode)	25 °C
Active Heating	10 °C
Typical Hysteresis	5 °C
Operating Ambient	-40/+65 °C
Operating Enclosure	-10/+60 °C

POWER INPUTS

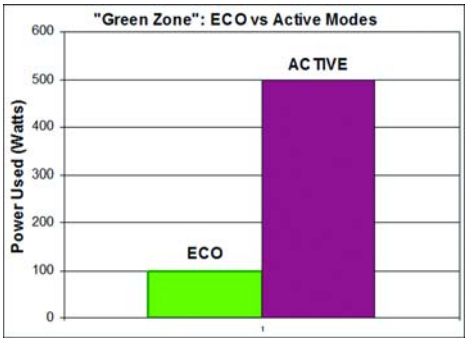
Input Voltage	100 - 240 VAC
Current, Active	4.5 - 1.8 AMPS
Alternate Input voltage	127 - 374 VDC
Current , ECO-Mode (120 VAC)	1 AMP
Frequency	47 - 63 / 440 Hz
Nominal Power Consumption	500 Watts

PERFORMANCE RATINGS

Cooling (Traditional)	1040 BTU/HR
Cooling (Din 3168)	305 WATTS
Cooling COP (at L35 L35)	0.68
Heating (Traditional)	> 1530 BTU/HR
Heating (Din 3168)	> 450 WATTS
Heating COP	> 1.0
Heat Exchanger (ECO-Mode)	12.5 W/°C

INCLUDES

- Power supply
- Temperature controller
- Power saving heat exchanger mode (ECO-Mode)
- Mounting gasket
- Mounting hardware
- Power input cord



200 - 277 VAC (254 - 420 VDC) Versions available

CONFIGURATIONS

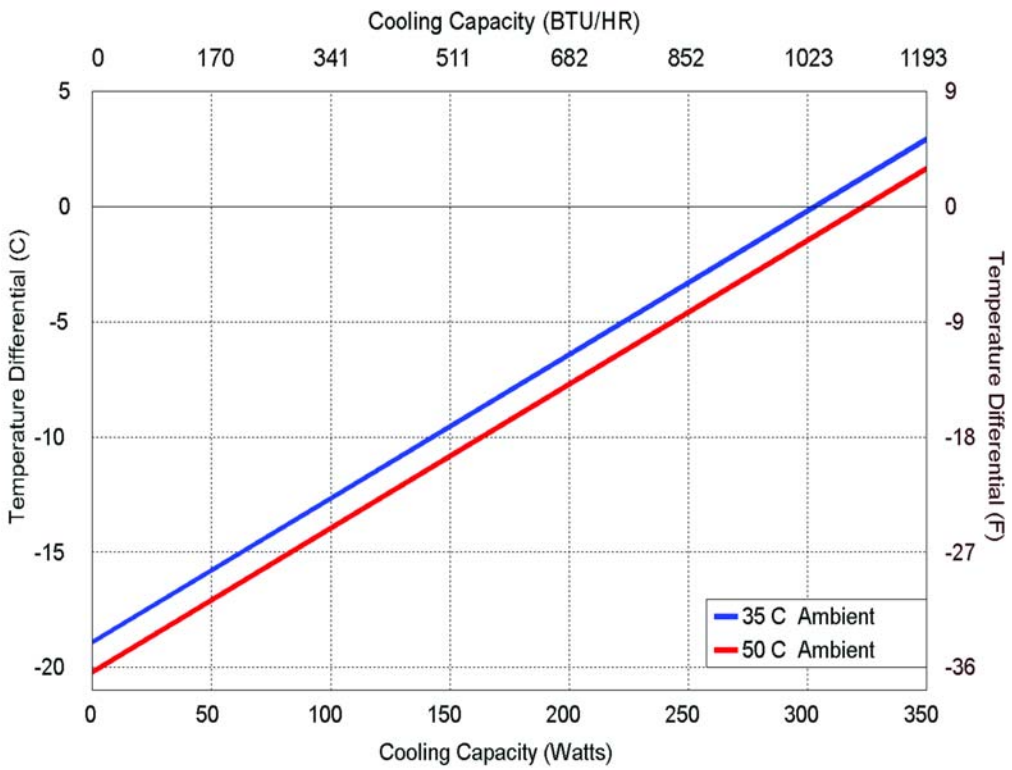
MODEL	PART NUMBER	NOTES	TEMPERATURE CONTROL	ENVIRONMENT
IHP-2259	B-H4JB-0-100	Cool only, industrial fans	TC-4F	NEMA-12, IP 52
IHP-2259	B-H45B-0-100	Cool only, industrial fans	EXT*	NEMA-12, IP 52
IHP-2259HC	B-H4IB-1-100	Heat/Cool, industrial fans	TC-7F	NEMA-12, IP 52
IHP-2259HC	B-H45B-1-100	Heat/Cool, industrial fans	EXT*	NEMA-12, IP 52
IHP-2259XE	B-H4JB-4-100	Cool only, sealed hot side fans	TC-4F	NEMA-4, IP 56
IHP-2259XE	B-H45B-4-100	Cool only, sealed hot side fans	EXT*	NEMA-4, IP 56
IHP-2259XEHC	B-H4IB-5-100	Heat/Cool, sealed hot side fans	TC-7F	NEMA-4, IP 56
IHP-2259XEHC	B-H45B-5-100	Heat/Cool, sealed hot side fans	EXT*	NEMA-4, IP 56
IHP-2259XEHC†	B-H4LB-5-100	Heat/Cool, sealed hot side fans	TC-5300D	NEMA-4, IP 56
IHP-2259HC†	B-H4LB-1-100	Heat/Cool, industrial fans	TC-5300D	NEMA-12, IP 52

† Precise temperature control model

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

IHP-2259

PERFORMANCE CURVE



Equation of line: y=ΔT(°C) x=Capacity (Watts)		
Ambient Temp	**35°C**	**50°C**
Enclosure Air	y=.062x-18.9	y=.062x-20.2
Cold Sink	y=.046x-18.9	y=.046x-20.2

MOUNTING STYLE

Internal Mounted

ENVIRONMENTS SERVED

NEMA-12 IP 52

NEMA-4 IP 56

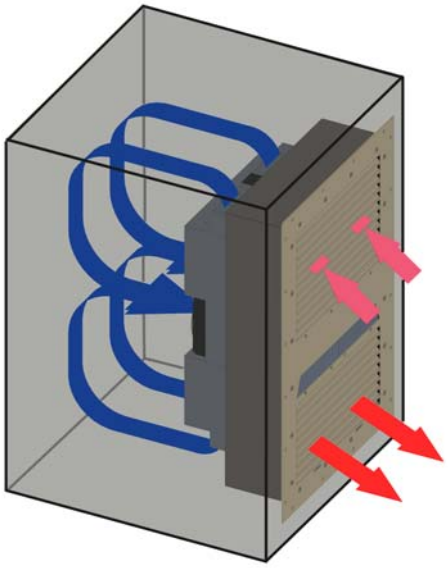
RATING (TRADITIONAL)

1040 BTU/hr @ 0 °F ΔT

RATING (DIN 3168)

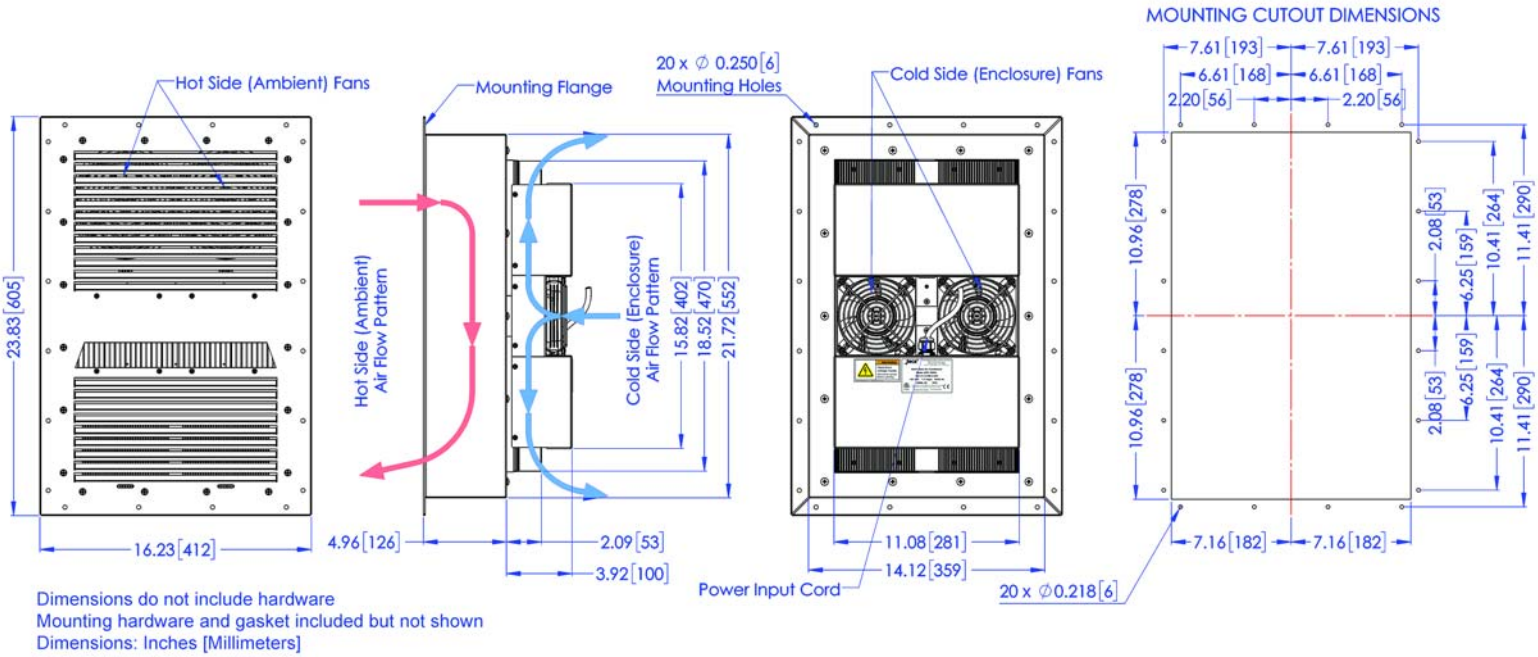
305 Watts L35 L35

84 Watts L35 L50

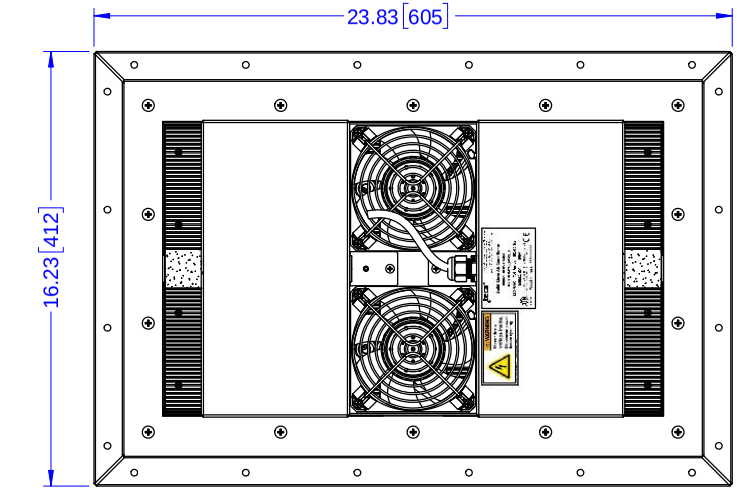


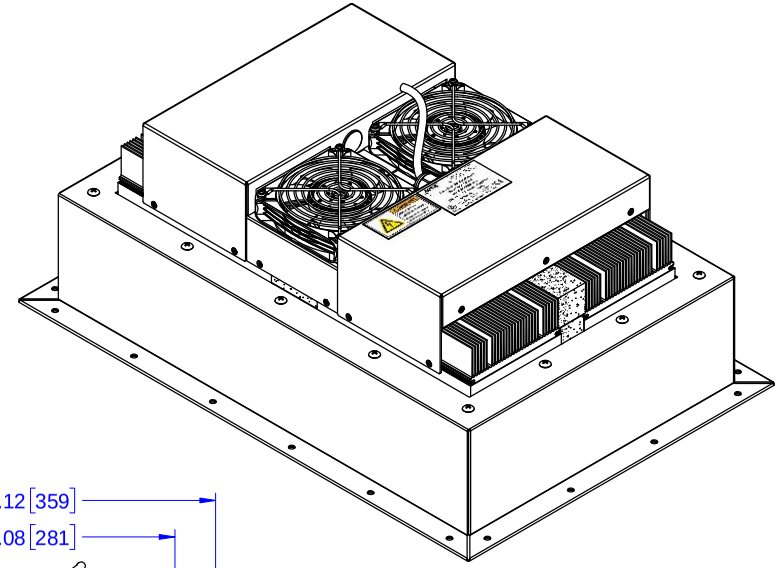
Air Flow Pattern

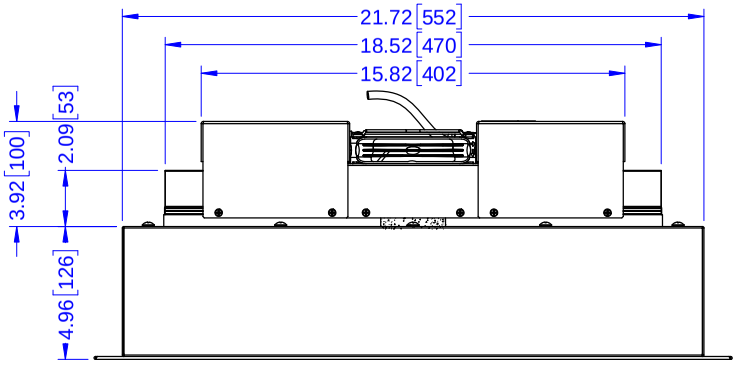
DIMENSIONS

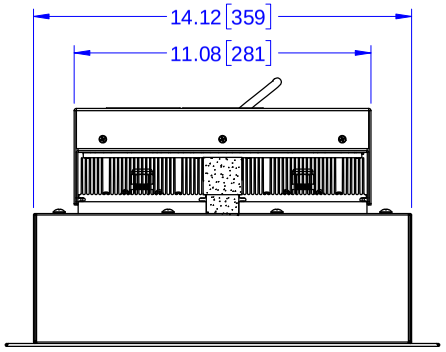


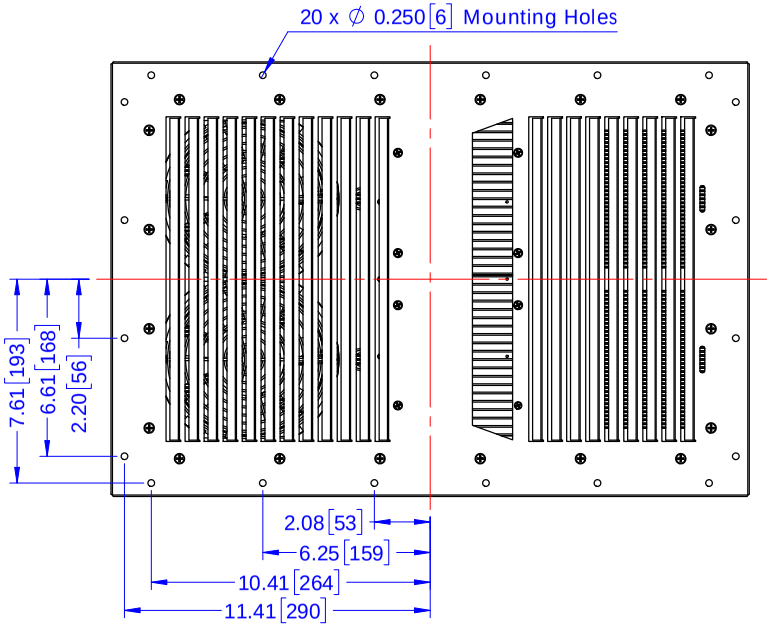
Dimensions do not include hardware
Mounting hardware and gasket included but not shown
Dimensions: Inches [Millimeters]









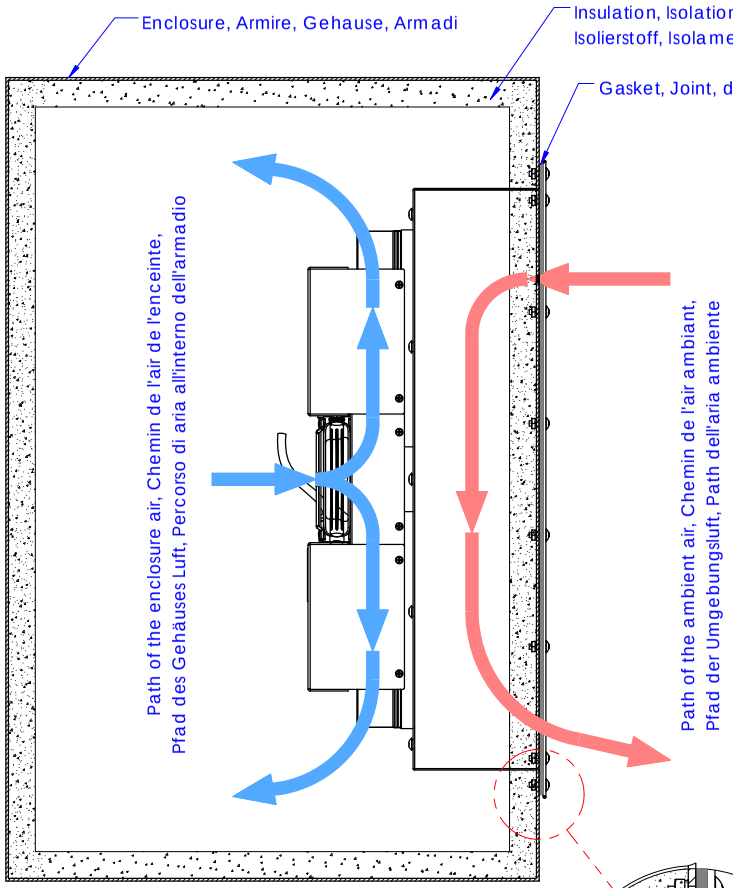


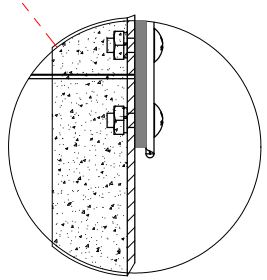
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DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AA	08/10/16
	CHECKED		
INTERPRET GEOMETRIC TOLERANCING PER:	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF TECA CORPORATION. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF TECA CORPORATION IS PROHIBITED.		
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FINISH			
DO NOT SCALE DRAWING			

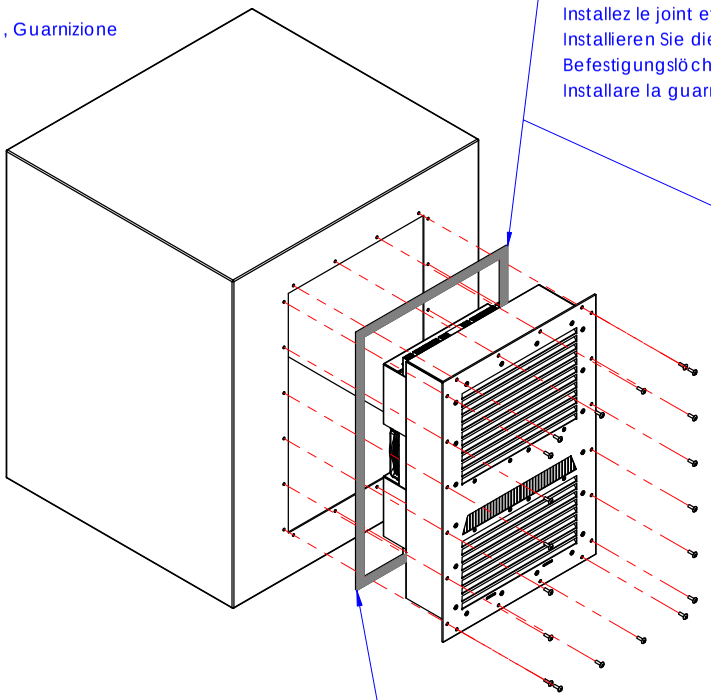
teca®
ThermoElectric Cooling America Corporation
Chicago, Illinois U.S.A.

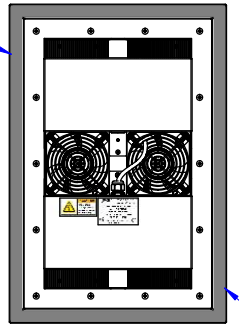
IHP-2259 SERIES
ASSEMBLY

SIZE	DWG. NO.	REV
A	SK160821	
	S0683	SHEET 1 OF 1









Use Butyl caulking or RTV caulking in place of the gasket for a better seal,
Utilisez Butyl calfeutrage ou RTV en place du joint d'étanchéité pour une meilleure étanchéité,
Utilisez Butyl calfeutrage ou RTV calfeutrage en place du joint d'étanchéité pour une meilleure étanchéité,
Verwenden Butyl abdichten oder RTV Abdichten anstelle der Dichtung für einen besseren Dichtung,
Utilizzare butile mastice o RTV calafataggio al posto della guarnizione per una migliore tenuta

English, Francais, Deutsch, Italiano
Dimensions: Inches [Millimeters]
Typical field mounting IHP series installation style A (installation from inside the enclosure),
Montage typique IHP série Style A Installation (installation à partir de l'intérieur de l'enceinte),
Typische montage IHP-Serie Installations Style A (montage von der Innenseite des Gehäuses),
Tipico di montaggio IHP Serie Stile Installazione A (installazione all'interno dell'armadio)

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AA	08/12/16
	CHECKED		
INTERPRET GEOMETRIC TOLERANCING PER:	**PROPRIETARY AND CONFIDENTIAL** THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF TECA CORPORATION. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF TECA CORPORATION IS PROHIBITED.		
MATERIAL			
FINISH			
DO NOT SCALE DRAWING			

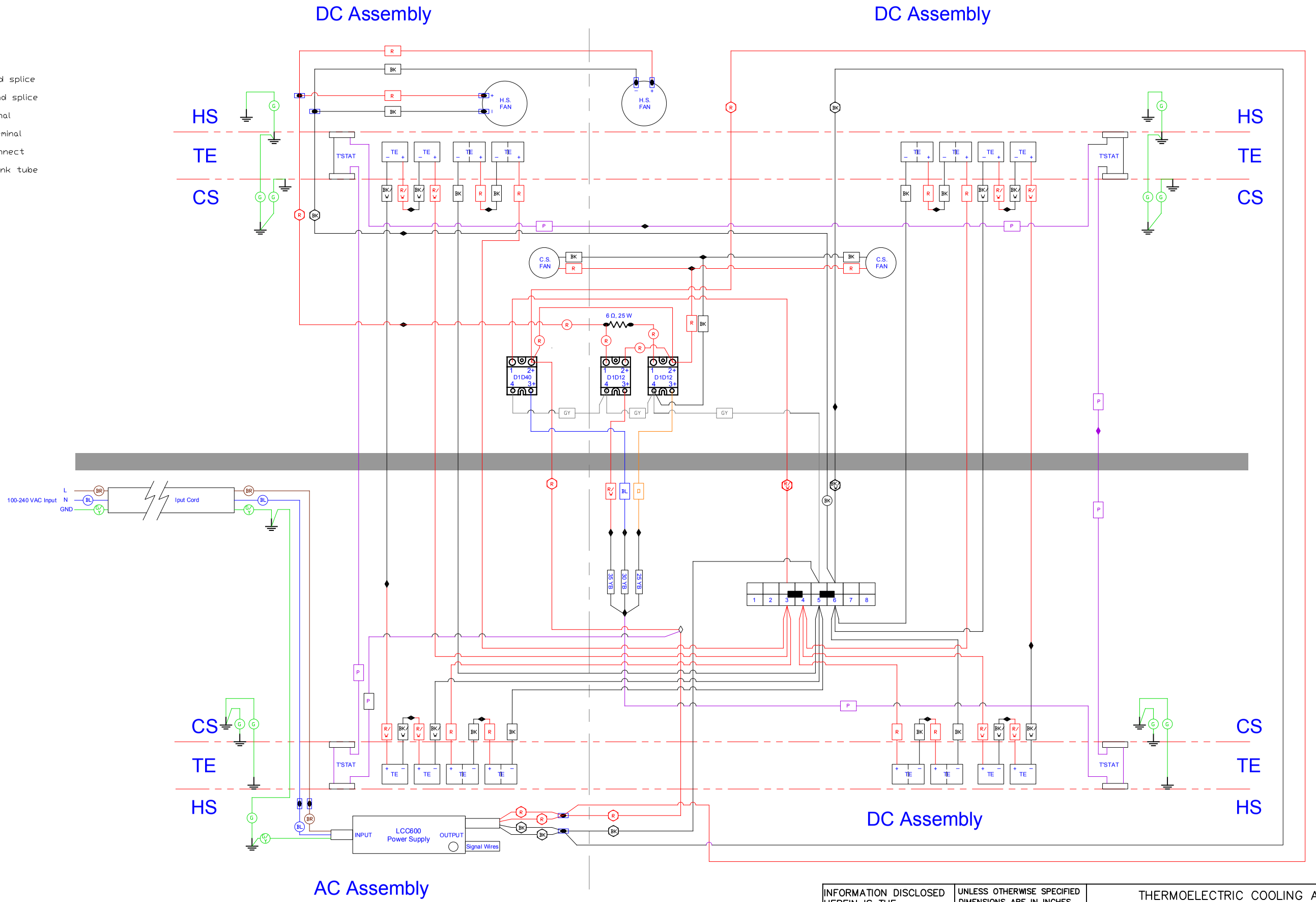
teca®
ThermoElectric Cooling America Corporation
Chicago, Illinois U.S.A.

IHP-2259 SERIES (MOUNTING STYLE B) TYPICAL INSTALLATION

SIZE	DWG. NO.	REV
A	SK160822	

S0684 SHEET 1 OF 1

- Indicates 16 AWG wire
- Indicates 18 AWG wire
- Indicates 20 AWG wire
- Indicates 22 AWG wire
- Indicates small closed end splice
- Indicates large closed end splice
- Indicates Red Fork terminal
- Indicates Yellow Fork terminal
- Indicates Yellow Quick Connect
- Indicates solder and shrink tube connection



REV	DESCRIPTION	Date	APPROVED

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

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

FINISH:

MATERIAL:

THERMOELECTRIC COOLING AMERICA CORP.

IHP-2259 W/TC-4Q
WIRING DIAGRAM

DRAWN BY:	DRAWING #	REV LEVEL
AA	SK171210	
DATE: 12/06/2017		
S1285	SCALE	MASTER: MASTER

SHEET

TC-1F POWER TEMPERATURE SWITCHES

Models TC-1F power temperature controller, with small tolerance and reset differential, are the simplest and most cost effective way to control a cooling or heating device (VAC or VDC) without a need for a relay. For circuits that have higher current draw simply use them in conjunction with a solid state relay.

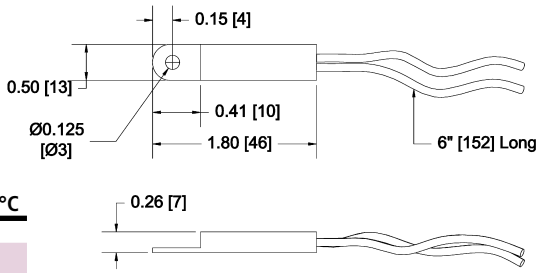
Part Numbers:

Mode	Part Number	Note
Cool	TC-1C-**XX**	switch closes on temperature rise
Heat	TC-1H-**XX**	switch closes on temperature drop

XX: Specify temperatures 20 °C, 25 °C, 30 °C, 35 °C for cool mode and 10°C, 15 °C for heat mode

Example: TC-1C-20 and TC-1H-10

VOLTAGE	CURRENT AMPS	SET POINT T OLERANCE °C	RESET DIFFERENTIAL °C
125 VAC	2	+/- 3	3 - 6
250 VAC	1.3	+/- 3	3 - 6
12 VDC	2	+/- 3	3 - 6
24 VDC	1.3	+/- 3	3 - 6



Dimensions: Inches [Millimeters]

TC-4F COOL ONLY WITH ECO-MODE

Model TC-4F is simillar to TC-1F plus it has a 2nd power switch for heat exchanger mode (ECO-Mode). The active cool set point for TC-4F is 35 °C and for heat exchanger mode (ECO-Mode) is 25 °C.

MODEL NUMBER	PART NUMBER	NOTES	HX TEMP. °C	COOL TEMP. °C	RESET (MAX) °C	RESET (TYP) °C	OPERATING VOLTAGE	SWITCHING VOLTAGE	ACTIVE MODE SWITCHING CURRENT MAX.	ECO-MODE SWITCHING CURRENT
TC-4F-DC	4F-24C-00-000	12/24/48 VDC	25 +/- 3	35 +/- 3	6.5	3	12/24/24 VDC	0-100 VDC	12 ADC	1.3 ADC
TC-4F-DC	4F-24D-00-000	12/24/48 VDC	25 +/- 3	35 +/- 3	6.5	3	12/24/48 VDC	0-100 VDC	20 ADC	1.3 ADC
TC-4F-DC	4F-24E-00-000	12/24/48 VDC	25 +/- 3	35 +/- 3	6.5	3	12/24/48 VDC	0-100 VDC	40 ADC	1.3 ADC

TC-6F COOL ONLY

Model TC-6F (Cool Only) thermostat is designed using two temperature power switches in conjunction with a solid state relay. A three position switch is provided to adjust temperature settings.

MODEL NUMBER	PART NUMBER	NOTES	TEMP @ T1 °C	TEMP @ T2 °C	T1-T2 (MAX) °C	RESET (TYP) °C	RESET °C	TEMP @ T3	OPERATING VOLTAGE	SWITCHING VOLTAGE	SWITCHING CURRENT MAX.
TC-6F	6F-00A-00-000	No Relay	35 +/- 5	25 +/- 5	10 +/- 3	6.5	3	Continuous On	NA	NA	NA
TC-6F-AC	6F-03T-00-000	VAC Version	35 +/- 5	25 +/- 5	10 +/- 3	6.5	3	Continuous On	85-250 VAC	24-280 VAC	10
TC-6F-DC	6F-43D-00-000	12/24 VDC	35 +/- 5	25 +/- 5	10 +/- 3	6.5	3	Continuous On	12/24 VDC	0-100 VDC	20 ADC
TC-6F-DC	6F-33D-00-000	48 VDC	35 +/- 5	25 +/- 5	10 +/- 3	6.5	3	Continuous On	48 VDC	0-100 VDC	20 ADC

TC-3F HEAT AND COOL

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:

MODEL NUMBER	PART NUMBER	NOTES	COOL TEMP. °C	HEAT TEMP. °C	RESET (MAX) °C	RESET (TYP) °C	OPERATING VOLTAGE	SWITCHING VOLTAGE	SWITCHING CURRENT MAX.	H-BRIDGE RELAYS
TC-3F-AC	3F-04R-00-000	VAC Version	35 +/- 5	15 +/- 5	6.5	3	85-280 VAC	24-280 VAC	10 AMPS	N/A
TC-3F-DC	3F-44G-00-000	12/24 VDC	35 +/- 5	15 +/- 5	6.5	3	3.5-32 VDC	0-100 VDC	20 ADC	N/A
TC-3F-DC	3F-44P-00-000	12/24 VDC	35 +/- 5	15 +/- 5	6.5	3	3.5-32 VDC	0-100 VDC	20 ADC	Solid State

TC-7F HEAT/COOL WITH ECO-MODE

Model TC-7F (Heat/Cool) thermostat incorporates the same technology as the TC-3F. It contains a single setting each for both heating and cooling and a heat exchanger mode (ECO-Mode).

MODEL NUMBER	PART NUMBER	NOTES	COOL TEMP. °C	HX TEMP. °C	HEAT TEMP. °C	RESET (MAX) °C	RESET (TYP) °C	OPERATING VOLTAGE	SWITCHING VOLTAGE	SWITCHING CURRENT MAX.	H-BRIDGE RELAYS
TC-7F-DC	7F-24G-00-000	24 VDC	35 +/- 3	25 +/- 3	10 +/- 3	6.5	3	24 VDC	24 VDC	20 ADC	N/A
TC-7F-DC	7F-24O-00-001	24 VDC	35 +/-3	25 +/-3	10 +/-3	6.5	3	24 VDC	24 VDC	12 ADC	Solid State
TC-7F-DC	7F-24S-00-000	12 VDC	35 +/-3	25 +/-3	10 +/-3	6.5	3	12 VDC	12 VDC	20 ADC	Solid State/Mechanical
TC-7F-DC	7F-24T-00-000	24 VDC	35 +/-3	25 +/-3	10 +/-3	6.5	3	24 VDC	24 VDC	20 ADC	Solid State/Mechanical
TC-7F-DC	7F-24U-00-000	48 VDC	35 +/-3	25 +/-3	10 +/-3	6.5	3	48 VDC	48 VDC	20 ADC	Solid State/Mechanical

For custom variations of any of the controls, contact TECA.

Notes