Product Information Packet

Model AHP-1259HC

NEMA-12, Solid State Air Conditioner

with PWM Temperature Control

Part #0-30L5-1-000

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 # SK170819

Wiring Drawing # SK170818

Installation Drawing # 1200-A-F57

Temperature Control Information

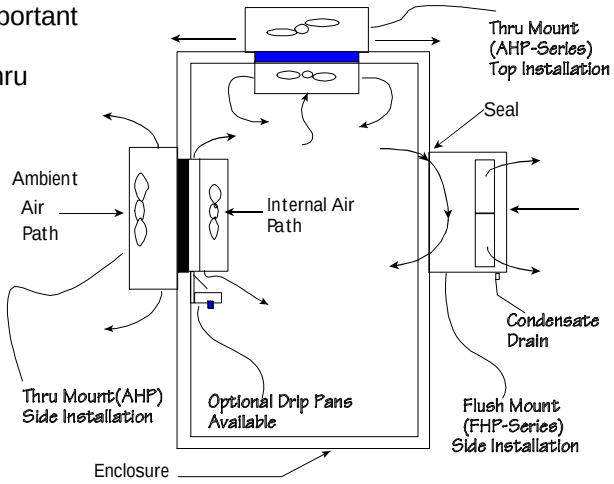
Warranty Information

teca

ThermoElectric Cooling America Corporation
4048 W. Schubert Avenue • Chicago, IL (U.S.A.) 60639
Ph: 773/342-4900 Fx: 773/342-0191
sales@thermoelectric.com www.thermoelectric.com

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.

AHP-1200 Air Conditioner

Air Cooled
Through Mounted
NEMA-12, 4,4X

24 VDC Input
High Efficiency
530 BTU/HR

FEATURES

- High capacity thermoelectric design
- Lower profile intrusion into enclosure
- Closed loop design
- Condensate control and evaporation system
- Compact
- Increased efficiency at higher ambients by as much as 12%
- Virtually maintenance free
- No compressor
- Environmentaly friendly and safe
- Stainless Steel exterior housing
- Mounts and operates in any orientation
- Integral temperature controller
- Oprerating ambient temperature range -40/+70 °C
- Oprerating enclosure temperature range -10/+60 °C
- Easy to use Pivot Clean feature
- Weight 18 LBS.

POWER INPUTS

Voltage	24 VDC
Current, Active	9.0 AMPS
Current , ECO-Mode	0.9 AMPS

PERFORMANCE RATINGS

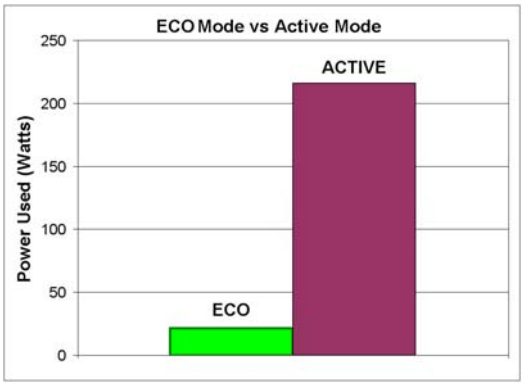
Cooling (Traditional)	530 BTU/HR
Cooling (Din 3168)	154 WATTS
Cooling COP (at L35 L35)	0.71
Heating (Traditional)	> 736 BTU/HR
Heating (Din 3168)	> 216 WATTS
Heating COP	> 1.0

INCLUDES

- Temperature controller
- Mounting gasket
- Mounting hardware
- Power input leads

CONTROL TEMPERATURES

Temp. Control	Active Heat °C	ECO-Mode °C	Active Cool °C
TC-1F	-	-	35
TC-6F	-	-	25 or 35
TC-3F	10	-	35
TC-7F	10	25	35



CONFIGURATIONS

MODEL	PART NUMBER	NOTES	TEMPERATURE CONTROL	ENVIRONMENT
AHP-1200	0-3095-0-000	Cool only	None	NEMA-12, IP 52
AHP-1200	0-3085-0-000	Cool only	TC-6F	NEMA-12, IP 52
AHP-1200	0-30F5-0-000	Cool only	TC-1F	NEMA-12, IP 52
AHP-1200	0-3055-0-000	Cool only	EXT*	NEMA-12, IP 52
AHP-1200HC	0-3035-1-000	Heat/Cool	TC-3F	NEMA-12, IP 52
AHP-1200HC	0-30I5-1-000	Heat/Cool	TC-7F	NEMA-12, IP 52
AHP-1200HC	0-3055-1-000	Heat/Cool	EXT*	NEMA-12, IP 52
AHP-1200XE	0-3095-4-000	Cool only	None	NEMA-4, IP 56
AHP-1200XE	0-3085-4-000	Cool only	TC-6F	NEMA-4, IP 56
AHP-1200XE	0-30F5-4-000	Cool only	TC-1F	NEMA-4, IP 56
AHP-1200XE	0-3055-4-000	Cool only	EXT*	NEMA-4, IP 56
AHP-1200XEHC	0-3035-5-000	Heat/Cool	TC-3F	NEMA-4, IP 56
AHP-1200XEHC	0-30I5-5-000	Heat/Cool	TC-7F	NEMA-4, IP 56
AHP-1200XEHC	0-3055-5-000	Heat/Cool	EXT*	NEMA-4, IP 56
AHP-1200XEHC†	0-30L5-5-000	Heat/Cool	TC-5300D	NEMA-4, IP 56

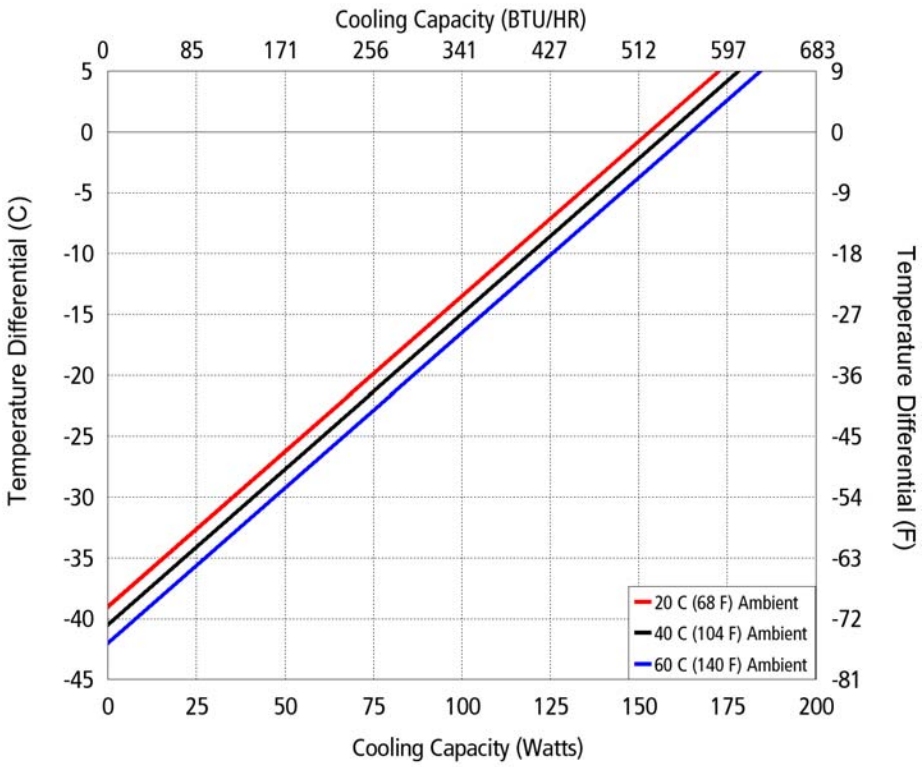
† Precise temperature control model

MODEL	PART NUMBER	NOTES	TEMPERATURE CONTROL	ENVIRONMENT
AHP-1200X	0-3095-2-000	Cool only	None	NEMA-4X, IP 56
AHP-1200X	0-3085-2-000	Cool only	TC-6F	NEMA-4X, IP 56
AHP-1200X	0-30F5-2-000	Cool only	TC-1F	NEMA-4X, IP 56
AHP-1200X	0-3055-2-000	Cool only	EXT*	NEMA-4X, IP 56
AHP-1200XHC	0-3035-3-000	Heat/Cool	TC-3F	NEMA-4X, IP 56
AHP-1200XHC	0-30I5-3-000	Heat/Cool	TC-7F	NEMA-4X, IP 56
AHP-1200XHC	0-3055-3-000	Heat/Cool	EXT*	NEMA-4X, IP 56
AHP-1200XM	0-3095-2-041	Cool only	None	NEMA-4X, IP 56
AHP-1200XM	0-3085-2-034	Cool only	TC-6F	NEMA-4X, IP 56
AHP-1200XM	0-30F5-2-035	Cool only	TC-1F	NEMA-4X, IP 56
AHP-1200XM	0-3055-2-036	Cool only	EXT*	NEMA-4X, IP 56
AHP-1200XMHC	0-3035-3-037	Heat/Cool	TC-3F	NEMA-4X, IP 56
AHP-1200XMHC	0-30I5-3-040	Heat/Cool	TC-7F	NEMA-4X, IP 56
AHP-1200XMHC	0-3055-3-038	Heat/Cool	EXT*	NEMA-4X, IP 56

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

AHP-1200

PERFORMANCE CURVE



Equation of line: y=ΔT(°C) x=Capacity (Watts)			
Ambient Temp	**20°C**	**40°C**	**60°C**
Enclosure Air	y=.255x-39.0	y=.255x-41.0	y=.255x-42.0
Cold Sink	y=.166x-39.0	y=.166x-41.0	y=.166x-42.0

MOUNTING STYLE

Through Mounted

ENVIRONMENTS SERVED

NEMA-12 IP 52

NEMA-4,4X IP 56

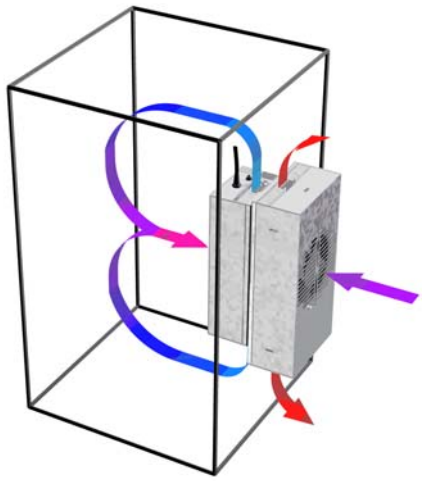
RATING (TRADITIONAL)

530 BTU/hr @ 0 °F ΔT

RATING (DIN 3168)

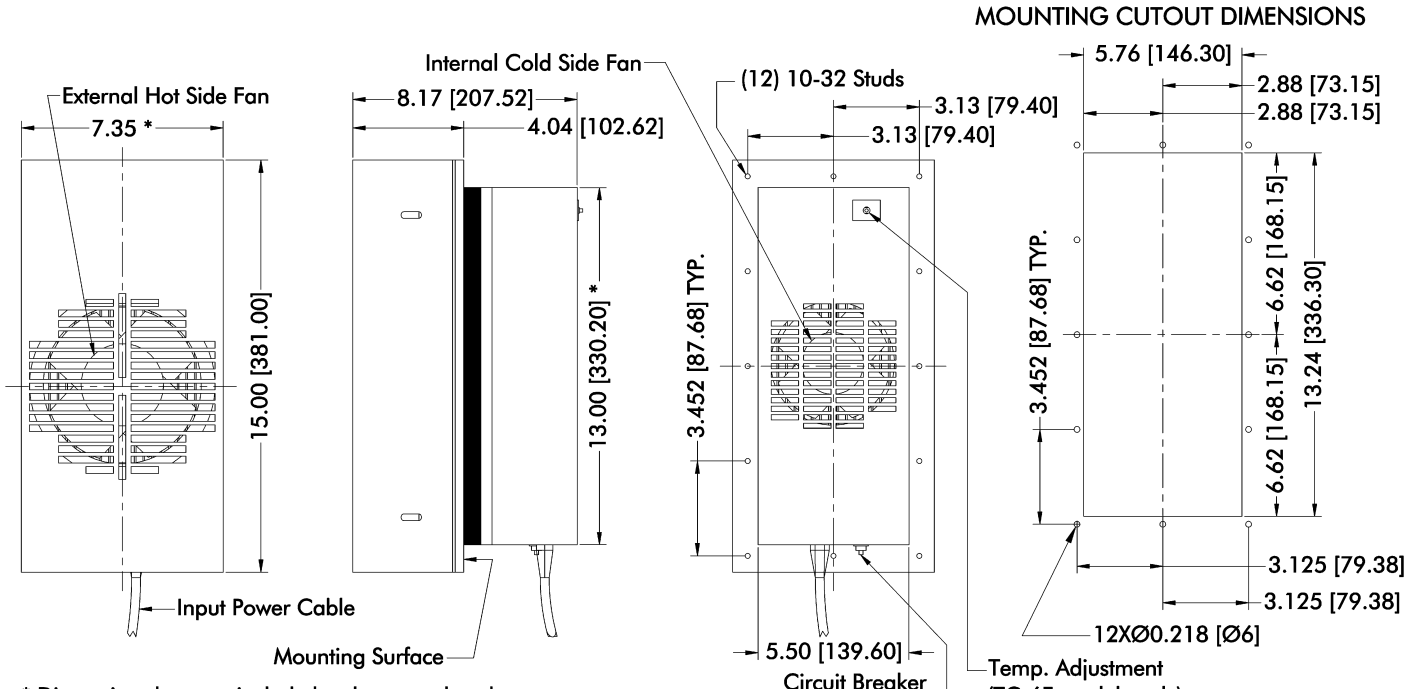
154 Watts L35 L35

100 Watts L35 L50

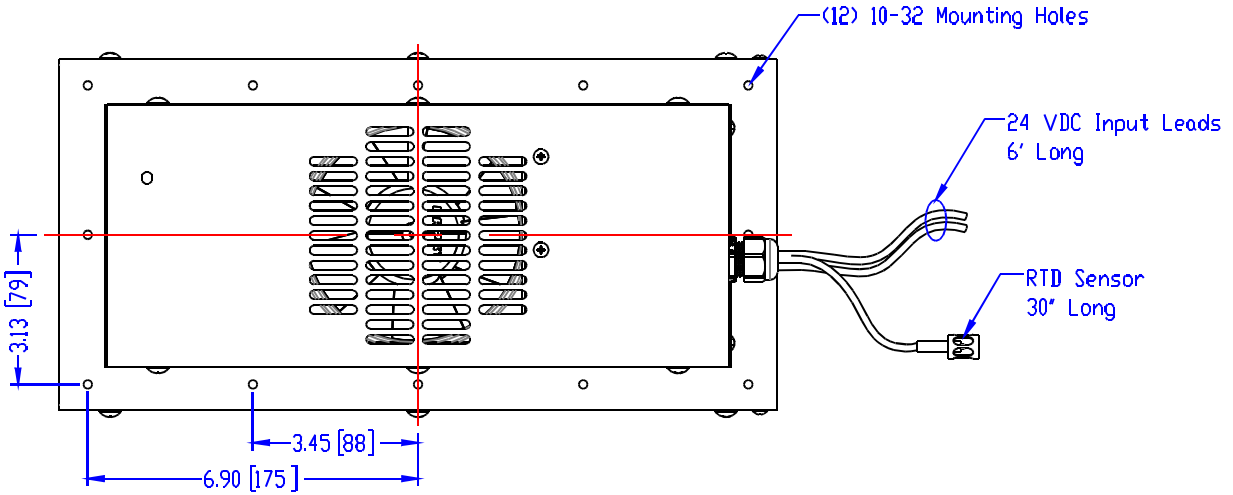


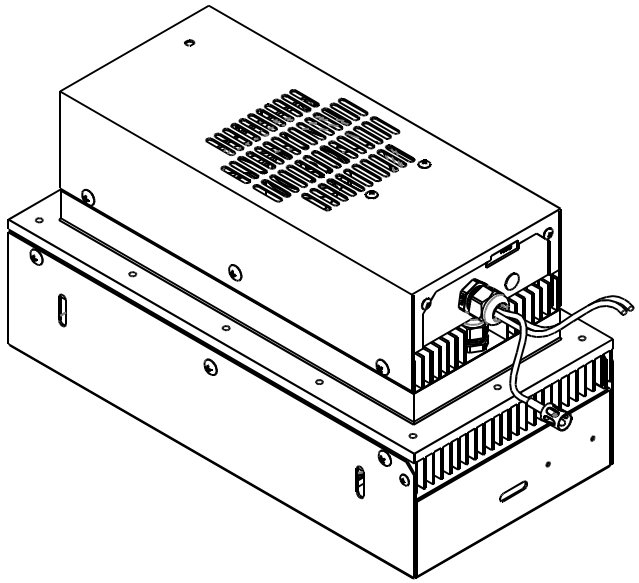
Air Flow Pattern

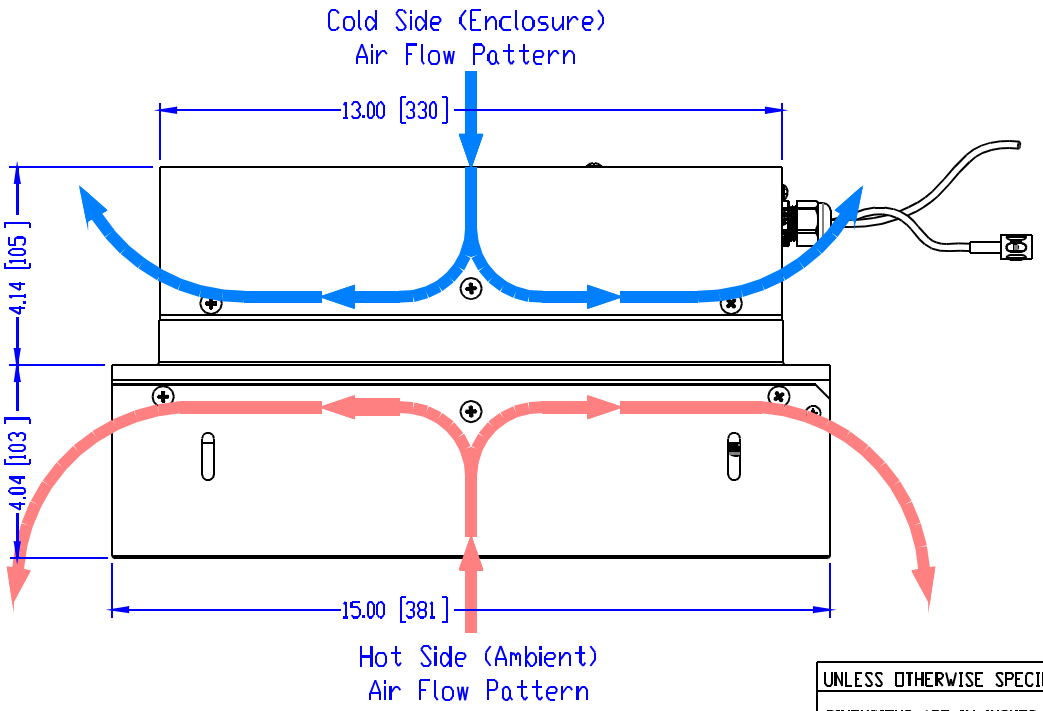
DIMENSIONS

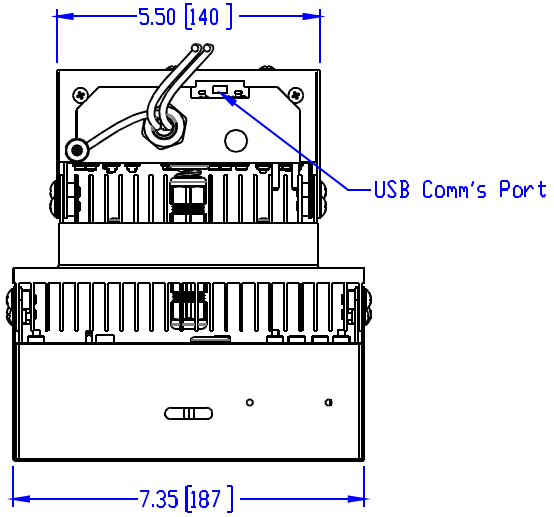


* Dimension does not include hardware and sealant.
Mounting hardware and gasket included but not shown.
Dimensions: Inches [Millimeters]

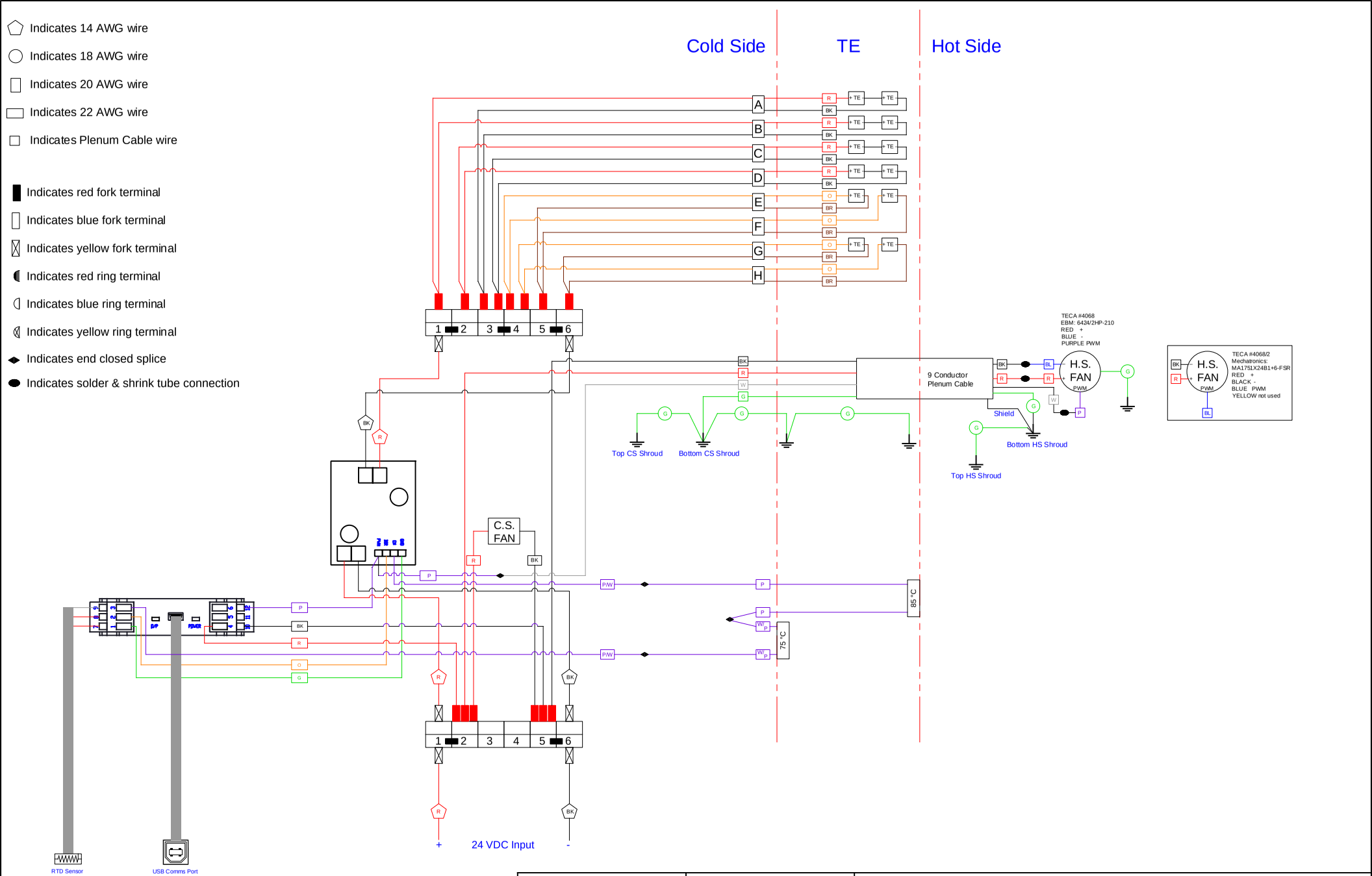








UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AA	08/15/17
	CHECKED		
INTERPRET GEOMETRIC TOLERANCING PER:	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF TECA CORPORATION. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF TECA CORPORATION IS PROHIBITED.		
MATERIAL	AHP-1259 SERIES ASSEMBLY		
FINISH	SIZE: A	DWG. NO.: SK170819	REV:
DO NOT SCALE DRAWING		S1144	SHEET 1 OF 1



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TOLERANCES ARE:

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

FINISH:

MATERIAL:

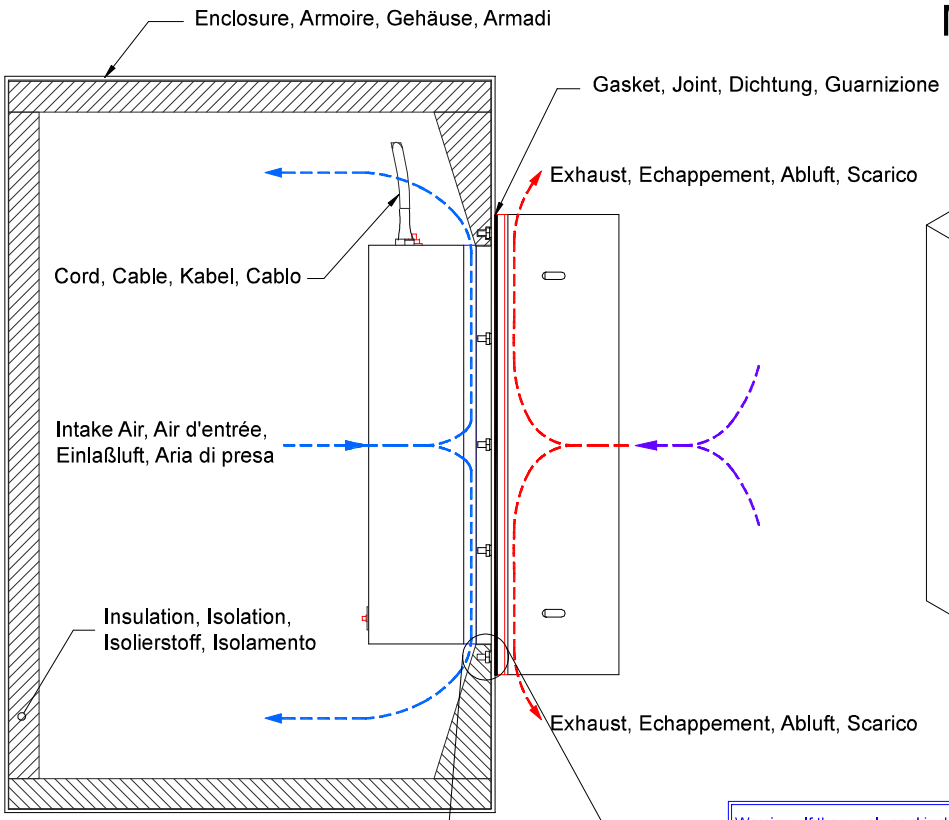
THERMOELECTRIC COOLING AMERICA CORP.

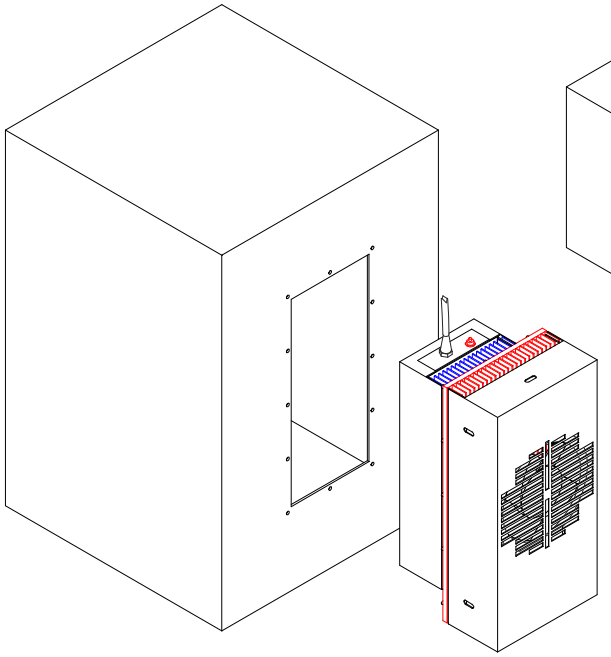
AHP-1259 WITH TC-5300D WIRING DIAGRAM

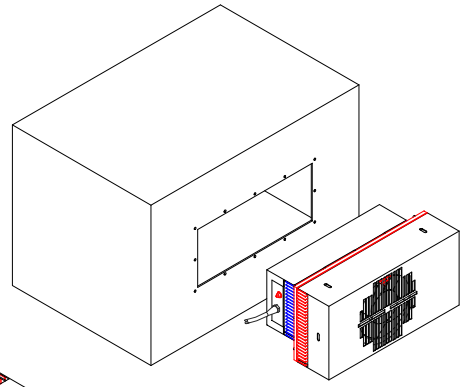
DRAWN BY:	DRAWING #	REV LEVEL
AA	SK170818	
DATE: 08/14/2017		
S1143	SCALE	MASTER: MASTER / SHEET

REV	DESCRIPTION	Date	APPROVED

Mounting, Monture, Montage, Montaggio



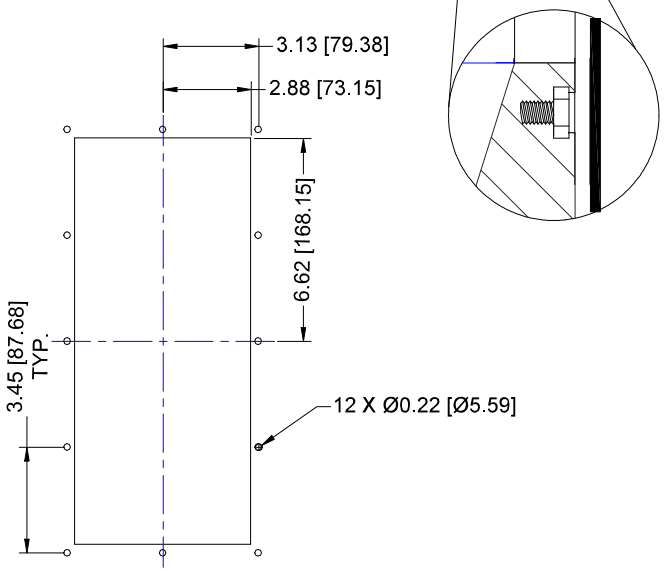




Alternate, Alternative, Alternative, Alternativa

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.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have 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.

Avertissement - Si le cordon d'alimentation est endommagé, il doit être remplacé par le fabricant, son agent de service ou de personne 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, à 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 Ampere-Sicherung.
- Dieses Gerät ist nicht für die Verwendung durch Personen (einschließlich Kinder) mit eingeschränkten physischen, sensorischen oder geistigen Fähigkeiten oder Mangel an Erfahrung und Wissen, bestimmt, sofern sie eine angemessene Aufsicht oder ausführliche Anleitung zur Benutzung des Geräts durch eine verantwortliche Person für ihre Sicherheit.
Kinder sollten beaufsichtigt werden, um sicherzustellen, dass sie nicht mit dem Gerät spielen.

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 filiale 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.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

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

FINISH:

MATERIAL:

THERMOELECTRIC COOLING AMERICA CORP.

AHP-1200 SERIES
TYPICAL FIELD MOUTING

REV	DESCRIPTION	Date	APPROVED
A	Added warning text box.	08/09/2011	AA
B	Added UL489 branch circuit protection note and added unqualified operator and supervision note.	11/07/2011	AA

DRAWN BY: AA	DRAWING # 1200-A-F57		REV LEVEL B
DATE: 05/21/03			
D6033	SCALE	MASTER: MASTER	SHEET

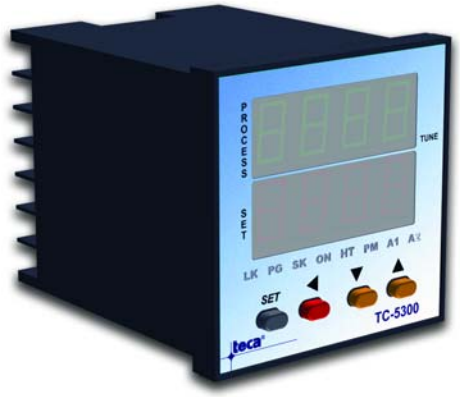
TC-5300 | PWM Temperature Controller

PWM Temperature Control | Pulse Width Modulating Temperature Controller

OVERVIEW

The **TC-5300** PWM temperature controller is an innovative new thermal control platform for precision temperature control applications. Designed specifically for thermoelectric temperature control, the TC-5300 controller incorporates features like PWM, bi-directional power, 4 temperature-zone auto-tune PID, broad sensor support, and a USB interface with software for managing the controller using a computer.

The TC-5300 controller is available in panel and din rail mount versions.



TC-5300 Panel Mount

TC-5300 Din Rail Mount

FEATURES

Control Modes: Up to Four Temperature Zones P, PI, PD, PID, Autotune Open-loop Control

Output: PWM 1KHz, duty cycle resolution=1000 steps Hot / Cold direction (logic 0/1)

Input: Thermocouple: J, K, T; RTD: PT100 (DIN); Thermistor: 2252 ohm or 10K ohm

Resolution: 0.1°C

Communications: USB, interface cable included

H-Bridge: Use with one or multiple **HA-5300** 700 watts H-Bridge Amplifier

Software: tecaLOG Windows based real time plotting, logging, programming and tuning software

LabView: Write your own LabView program (VI examples available)

Includes: wiring harness, USB cable and driver, tecaLOG software

Ingress Protection: IP65 front panel (applies to panel mount only)

SPECIFICATIONS

General

Rated Voltage: 9~36 VDC
Power Consumption: Less than 3VA (100mA@24VDC)
Memory Backup: EEPROM and non-volatile memory (Approx. 10 years)
Operation Condition Temperature: 0 ~ 50°C, Humidity 0 ~ 90% RH (Non-condensing)

Input

Thermocouple: J, K, T
RTD: DIN PT-100 (2 or 3 wire)
Thermistor: 2252 ohm, 10k ohm
Range: -50°C ~200°C (*sensor type dependable)
Accuracy: ±0.2°C (3 wire RTD)
Cold Junction Compensation: 0.1°C/°C ambient
Normal Mode Rejection: 60 dB
Common Mode Rejection: 120 dB

Control Function

Proportional Band: 0.0 ~ 100.0 %
Integral Time: 0 ~ 3600
Derivative Time: 0 ~ 900
Sampling Rate: 10Hz
Temperature Control Res.: 0.1°C / 0.1°F
Programmable Profile: 8 Steps, ramp/soak time, loop-in-loop, complex loop profile
Control Software: Full function Windows Program, plot, chart, log data, sensor select, set temperature, monitor process

Output

Display Resolution: 0.1°C / 0.1°F or 1°C / 1°F
Alarm Relay Output: Logic 5VDC Level (on:1 /off:0) 0.5 mA Max.
PWM Output: Logic 5VDC Level, Freq: 1K Hz
Enable: Logic 5VDC Level
H/C Control Action: Logic 5VDC Level, Direct or Reverse (for cooling or heating direction)
Communications: USB (RS-485 or RS-232 available with special request)

HA-5300 H-Bridge Amplifier

Voltage Rating: 5~36V DC
Maximum Current: 30 Amps
Maximum Power Output: 700W (for loads above 350 watts use forced air or other methods to cool the base of the H-Bridge)

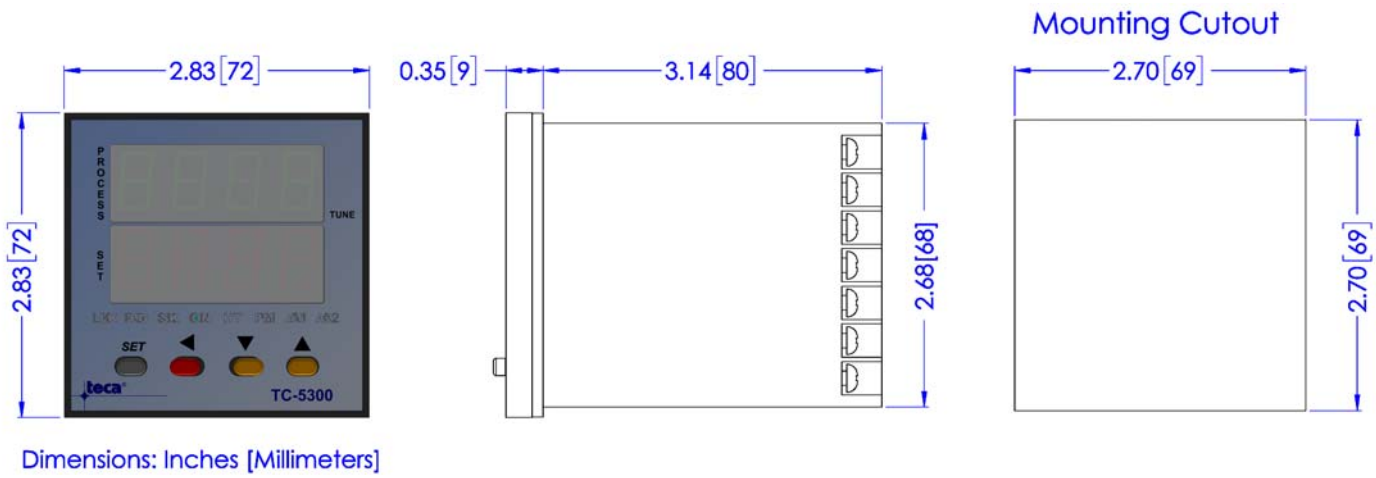
TC-5300

PART NUMBER AND ORDERING

MODEL NUMBER	DESCRIPTION	VOLTAGE VDC	SWITCHING CURRENT AMPS (MAX.)	COMMUNICATIONS
TC-5300	Panel Mount Controller	9 - 36	N/A	USB
TC-5300D	Din Rail Mount Controller	9 - 36	N/A	USB
HA-5300	H-Bridge Amplifier	5 - 36	30*	N/A

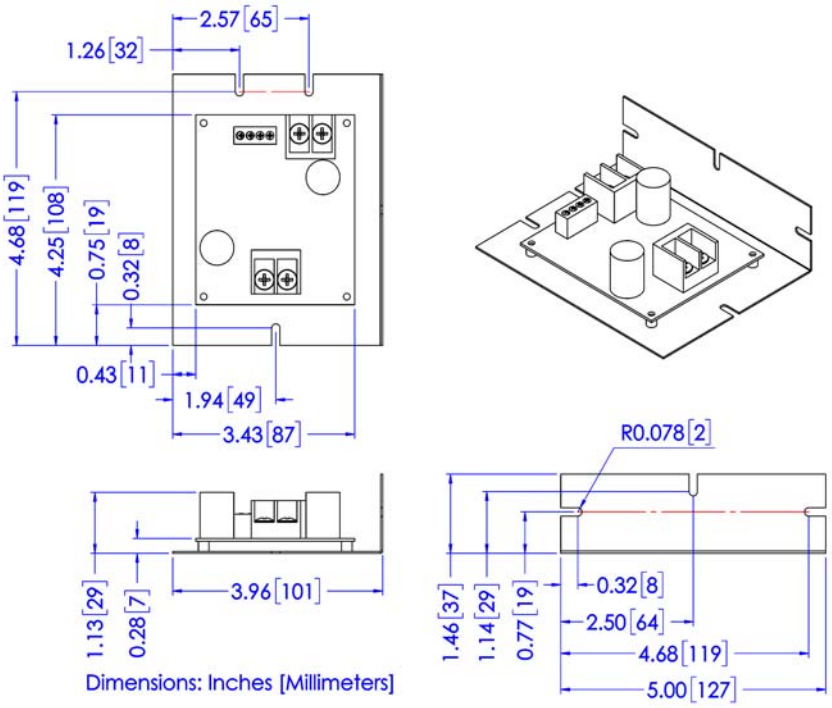
* For loads above 350 watts use forced air or other methods to cool the base.
Maximum rated power is 700 watts, for larger loads use multiple HA-5300 H-Bridge amplifiers.

PANEL MOUNT DIMENSIONS



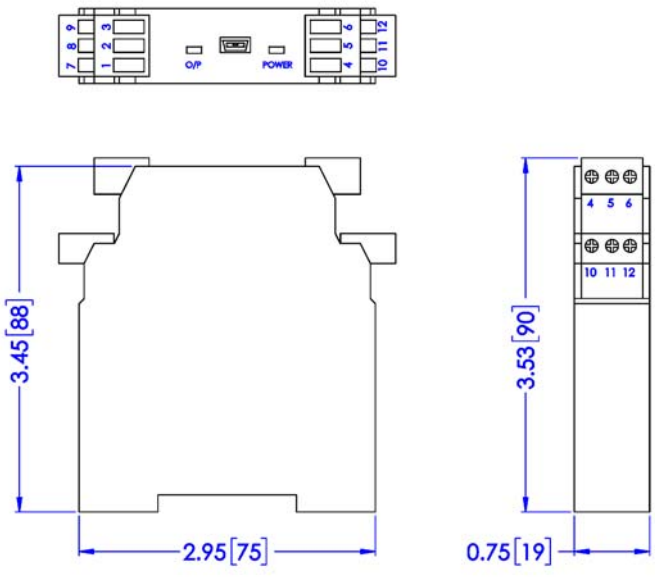
Dimensions: Inches [Millimeters]

HA-5300 DIMENSIONS



Dimensions: Inches [Millimeters]

DIN RAIL MOUNT DIMENSIONS



Dimensions: Inches [Millimeters]

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.