AC-220 Peltier-Thermoelectric Air Cooler

- **Ideal for medium to large electronics enclosures or refrigeration applications where a large temperature difference is not required.**
- **Weatherized protection: anodized external fins, environmentally-sealed external fan, and stainless steel finger guards.**
- **Large cooling capacity in a compact size: 350 mm length x 150 mm width x 185 mm thickness.**
- **Maintains enclosure at NEMA 4 rating / IP68 external fan.**
- **Removes 229 W of heat in a 32 °C ambient at a 0 °C temperature difference.**
- **Internal fan blows air into the center of the enclosure so you can aim cooled air at components that need the most cooling.**
- **Heats as well as cools (when used with heat & cool / bipolar controller).**
- **High quality dual ball bearing fans for long life; external fan is speed controllable and has tachometer output.**
- **Can easily be customized for production-sized orders to meet your exact requirements.**
- **Includes integral thermostats (signal level) for over-temperature protection using power supply inhibit lines or temperature controller interlock features.**
- **CE marked, RoHS compliant.**

TE TECHNOLOGY, INC.®

1590 Keane Drive
Traverse City, MI 49696-8257
www.tetech.com

TEL: 231-929-3966
FAX: 231-929-4163
email: cool@tetech.com

Expert Engineering, Precision Manufacturing: *Quality Thermal Solutions Delivered*

AC-220 Specifications

TE Power (typical)[1]:	24 VDC at 14.0 A	NEMA Rating:	4
TE Power (maximum)[2]:	24 VDC at 18.8 A		
Cold-side Fan Power:	24 VDC at 0.21 A	Weight (kg):	6.3
Hot-side Fan Power:	24 VDC at 1.5 A		

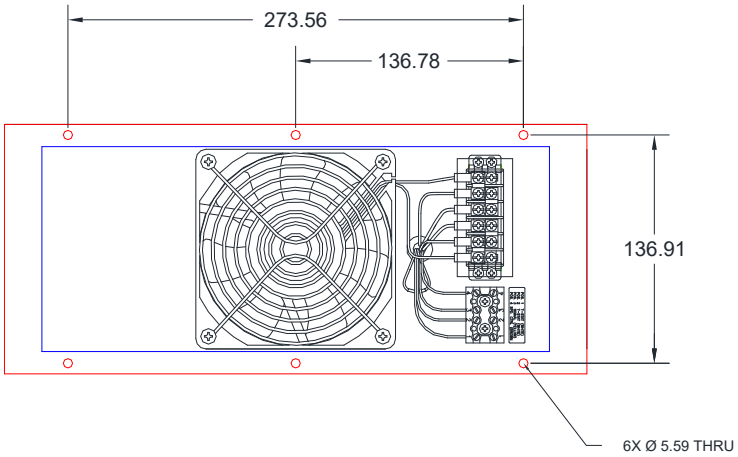
Cold-side fan noise: 44 dBA Hot-side fan noise: 64 dBA max., 33 dBA min

Please review the product manual: *Thermoelectric Cooling Assembly (TCA) Instruction Manual*, FAQ's and related technical information, and ordering information posted on our web site before purchasing or using this product.

Performance is based on unrestricted air flow to fans and from air-flow outlets. Do not operate if the ambient, enclosure air, heat sink, or cold sink temperatures exceed 70 °C. Do not operate fans at air temperatures below -20 °C.

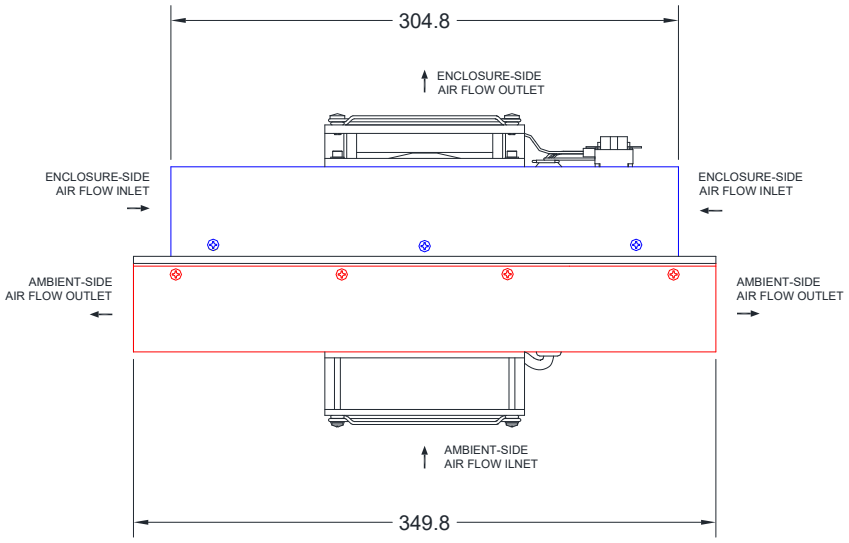
[1]Current, at steady-state, is rated at +25 °C ambient, +25 °C internal, maximum heat removal. At 10 °C internal, the typical steady-state current is 14.1 A.

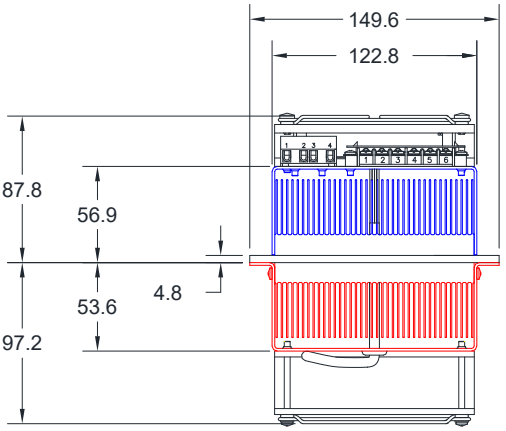
[2]Current, at steady-state operation under-worst case conditions, is rated at -20 °C ambient, +70 °C internal, maximum heat removal.



A 3D PDF, .stp, and .sldprt solid models are also available from the website. Contact TE Technology for other formats.

NOTE: 1. ALL DIMENSIONS IN MILLIMETERS
2. COLD SIDE SHOWN IN BLUE; HOT SIDE SHOWN IN RED



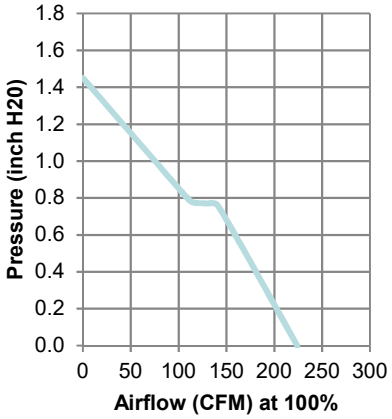


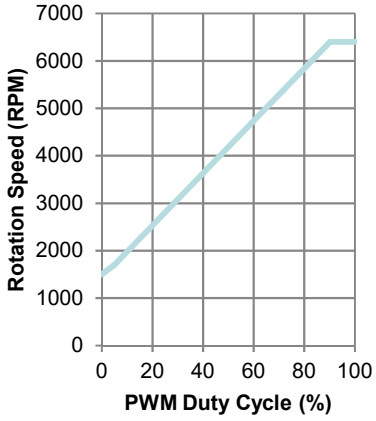
RoHS Compliant Directive 2011/65/EU

TE TECHNOLOGY, INC.®
1590 Keane Drive
Traverse City, MI 49696-8257
www.tetech.com
TEL: 231-929-3966
FAX: 231-929-4163
email: cool@tetech.com

Expert Engineering, Precision Manufacturing: *Quality Thermal Solutions Delivered*

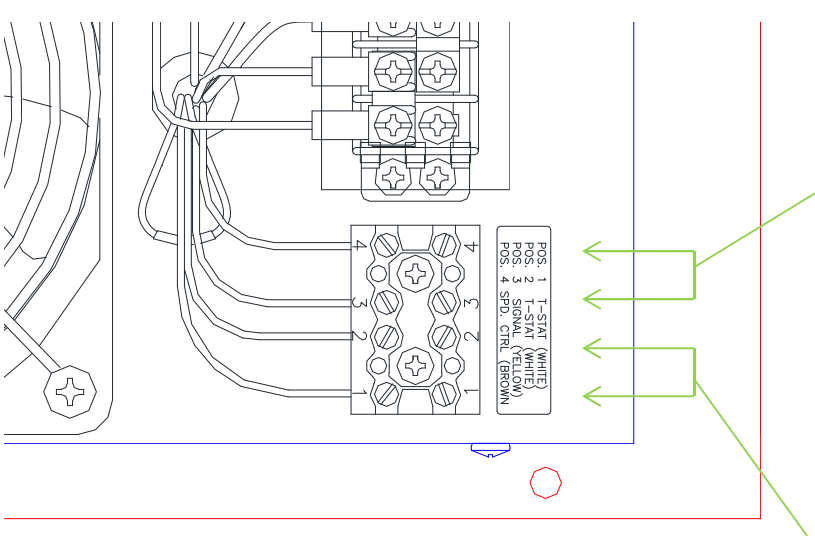
AC-220 External Fan and Thermostat Connections





The external fan speed can be controlled using pulse width modulation at a recommended 5KHz to 25 kHz frequency applied at terminal position 4 (SPD CTRL, brown wire). The TC-720 temperature controller can be used to provide this PWM signal to reduce the audible noise at low cooling demands (use 5400Hz frequency setting). Electrical ground to terminal position 4 will reduce fan speed.

Terminal position 3 provides for a fan-speed sensor, sending two pulses per revolution. Consult with TE Technology if you wish to use this feature.



Two thermostats are wired in series and terminated at positions 1 and 2. One is mounted mounted internally on the heat sink and one externally on the cold sink. The thermostats are normally closed, open at 75 °C +/-5 °C, and automatically reclose at 60 °C +/-7 °C. These can be wired to a power supply's remote switch or the TC-720 temperature controller's interlock to shut off output power in the event of an over-temperature condition. The electrical contacts are rated for SIGNAL LEVEL ONLY. Contacts are gold-plated silver. DO NOT USE AS A TEMPERATURE CONTROL FOR THE COOLER.

Thermostat Contact Electrical Ratings:

- 48VDC, 1 Amp, Resistive, 30,000 Cycles
- 120VAC, 1 Amp, Resistive, 30,000 Cycles
- 5VDC, 20mA, Resistive, 100,000 Cycles

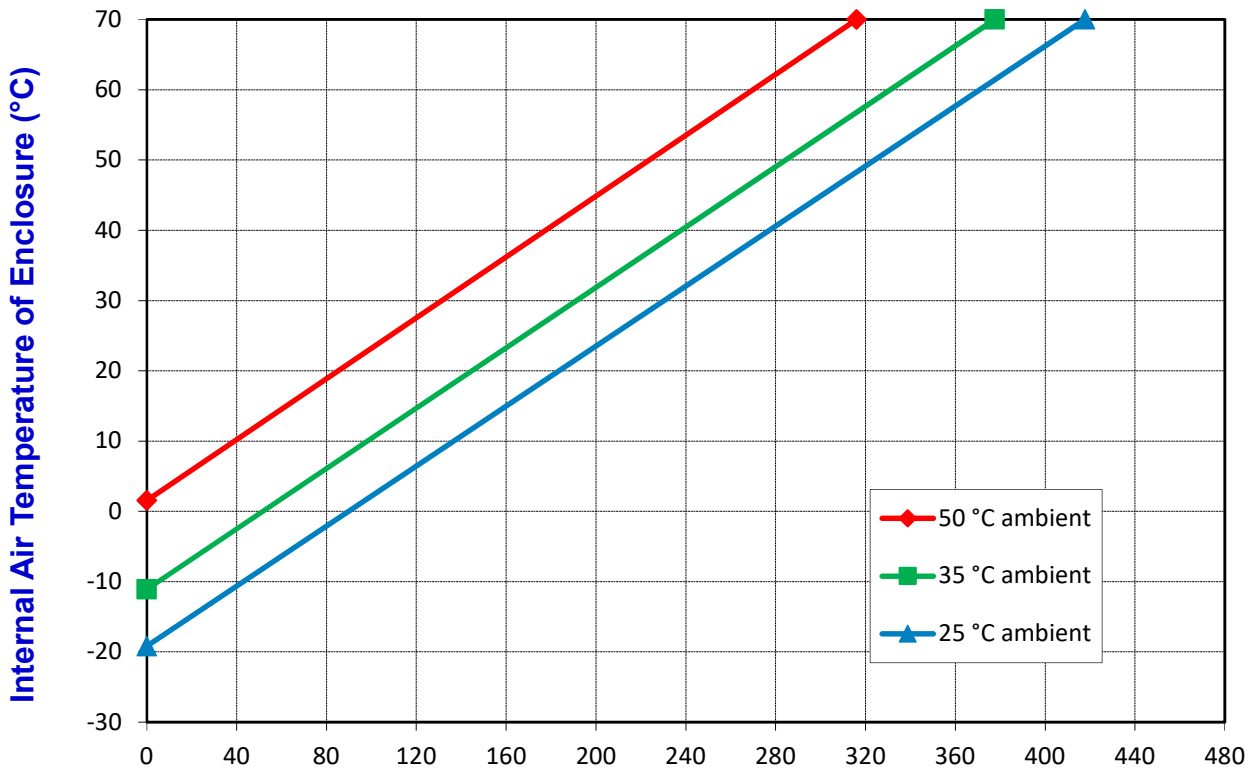
CE RoHS Compliant Directive 2011/65/EU

TE TECHNOLOGY, INC.®
1590 Keane Drive
Traverse City, MI 49696-8257
www.tetech.com
TEL: 231-929-3966
FAX: 231-929-4163
email: cool@tetech.com

Expert Engineering, Precision Manufacturing: *Quality Thermal Solutions Delivered*

AC-220 Cooling Performance Graph

(removing heat from enclosure)



Heat Removed from Enclosure (watts)

How to use the Performance Graph:

1. Select Performance Line.

The diagonal lines shown represent cooling performance at the indicated ambient air temperature (inlet to ambient-side fan). If the cooler is to operate at a different ambient, then you must sketch in a new performance line. This can be drawn parallel to one of the existing lines, using the distance between the existing lines as a scale to properly locate the new line.

2. Select Enclosure Temperature.

Draw a horizontal line on the graph corresponding to the desired internal air temperature of the enclosure until it intersects with the performance line corresponding to the ambient temperature at which the cooler is to operate.

3. Determine Cooling Capacity.

The maximum amount of heat that the cooler can remove from the enclosure is determined by the intersection point (determined in the previous step). *If the heat load exceeds the cooling capacity, then the cooler will not be able to maintain the desired enclosure temperature. If the heat load is less, then the cooler can operate with less input power.*

Example: You need to maintain the enclosure at 40 °C while in a 50 °C ambient. The cooler can remove a maximum of approximately 180 W of heat from the enclosure. If the heat load (internally generated heat plus the heat gain through insulation, solar, vapor condensation, etc.) in the enclosure exceeds this, you would need more coolers and/or a larger cooler.

TE TECHNOLOGY, INC.®

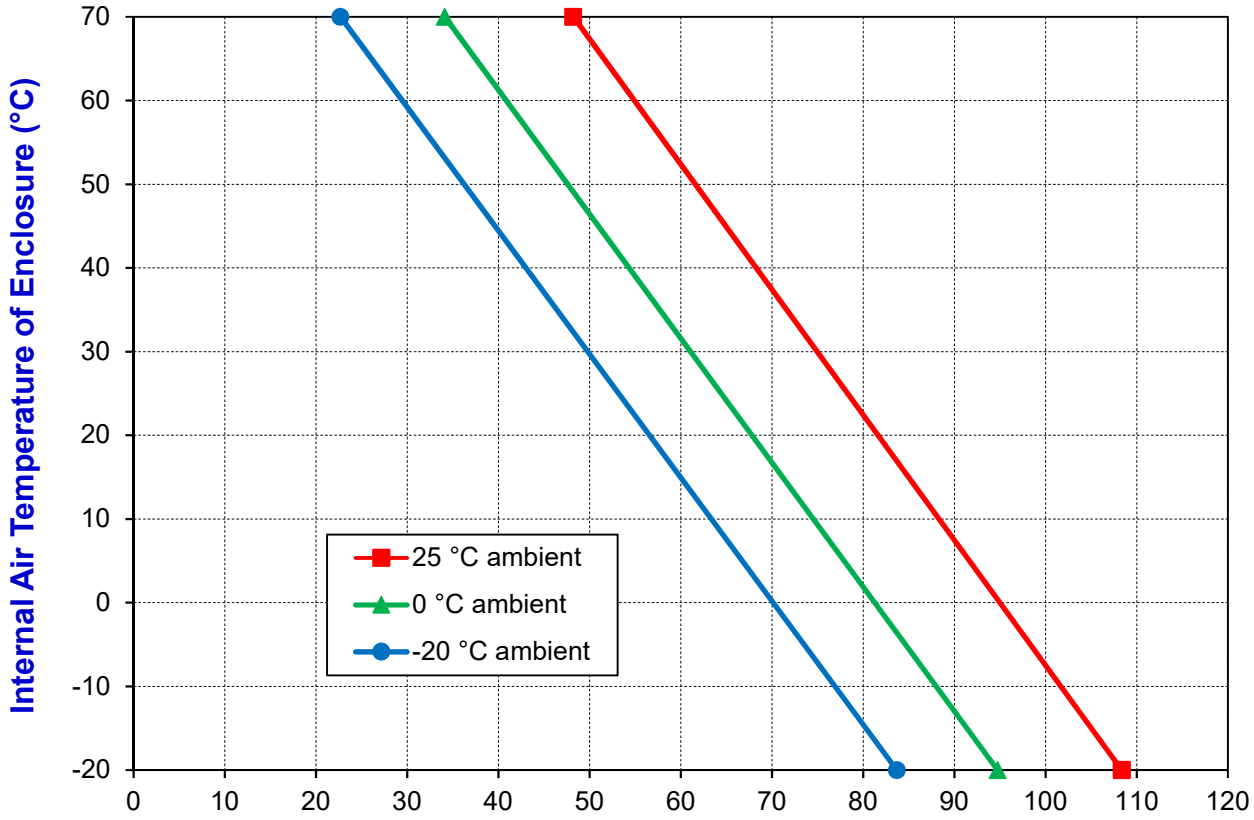
1590 Keane Drive
Traverse City, MI 49696-8257
www.tetech.com

TEL: 231-929-3966
FAX: 231-929-4163
email: cool@tetech.com

Expert Engineering, Precision Manufacturing: *Quality Thermal Solutions Delivered*

AC-220 Heating Performance Graph

(adding heat to enclosure)



How to use the Performance Graph:

1. Select Performance Line.

The diagonal lines shown represent heating performance at the indicated ambient air temperature (inlet to ambient-side fan). If the cooler is to operate at a different ambient, then you must sketch in a new performance line. This can be drawn parallel to one of the existing lines, using the distance between the existing lines as a scale to properly locate the new line.

2. Select Enclosure Temperature.

Draw a horizontal line on the graph corresponding to the desired internal air temperature of the enclosure until it intersects with the performance line corresponding to the ambient temperature at which the cooler is to operate.

3. Determine Heating Capacity.

The maximum amount of heat that the cooler can add to the enclosure is determined by the intersection point (determined in the previous step). *If the heat added (plus any heat generated by electoral equipment inside the enclosure) equals how quickly the enclosure dissipates heat to the ambient, then the cooler will be able to maintain the desired enclosure temperature. If the heat added exceeds this, then the cooler can operate with less input power.*

Example: You need to maintain the enclosure at 30 °C while in a -20 °C ambient. The cooler can add up to approximately 240 W of heat to the enclosure. If the heat dissipation from the enclosure to the ambient exceeds this (plus anything else generating heat), you would need more coolers and/or a larger cooler.

TE TECHNOLOGY, INC.®

1590 Keane Drive
Traverse City, MI 49696-8257
www.tetech.com

TEL: 231-929-3966
FAX: 231-929-4163
email: cool@tetech.com

Expert Engineering, Precision Manufacturing: *Quality Thermal Solutions Delivered*