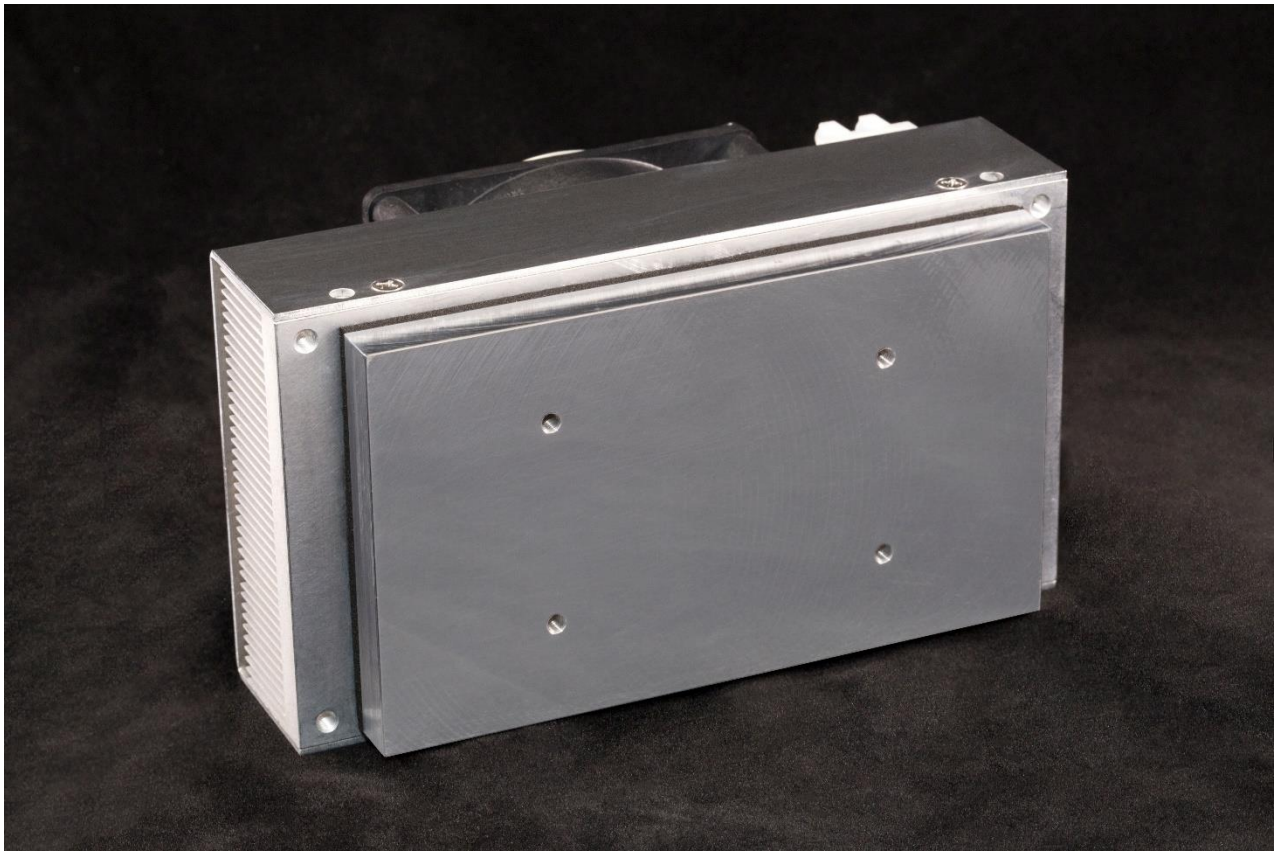
CP-130HT Peltier-Thermoelectric Cold Plate Cooler



- **Exceptional capacity in a small size.**
- **Fan speed can be externally controlled to reduce fan noise in low heat load conditions. (Requires TC-720 temperature controller, sold separately).**
- **Versatile mounting options.**
- **Useful for medium heat loads in medical products, laser diode coolers, laboratory instruments, etc.**
- **Provides effective direct-contact cooling which is ideal for precision temperature control.**
- **Threaded holes are located in the cold plate for easy attachment of a temperature sensor, interface plates, and other cooled plates.**
- **Can cool to -20 °C (no load) as well as heat to 100 °C. Heating and cooling can be automatically managed with a bipolar / heat & cool temperature controller.**
- **CE marked, RoHS compliant.**

CP-130HT
Specifications

Thermoelectric (TE) Power (typical)[1] :	24 VDC at 8.1 A
Thermoelectric (TE) Power (maximum)[2] :	24 VDC at 10.5 A
External (ambient) Fan Power:	24 VDC at 0.21 A
External (ambient) Fan Noise:	43 dBA

NEMA Rating: NA

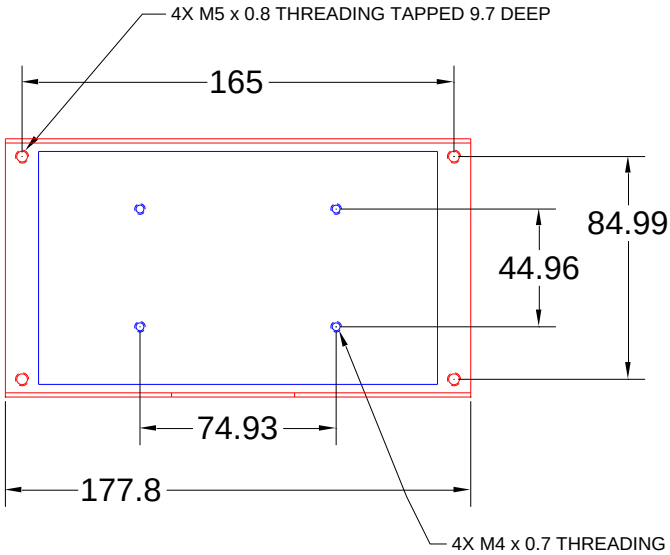
Weight (kg): 1.56

⚠ Please review the *Thermoelectric Cooling Assembly (TCA) Instruction Manual* (or manual in other languages), ordering information, and FAQ's for related technical information before purchasing or using this product.

Performance is based on unrestricted air flow to fan and from air-flow outlets. Do not operate if the ambient exceeds 70 °C, or if the heat sink or cold-plate temperature exceeds 100 °C. Do not operate at air temperatures below -20 °C.

[1]Current, at steady state, is rated at +25 °C ambient, +25 °C cold plate, maximum heat removal. At -19.8 °C cold plate, the typical steady-state current is 7.7 A.

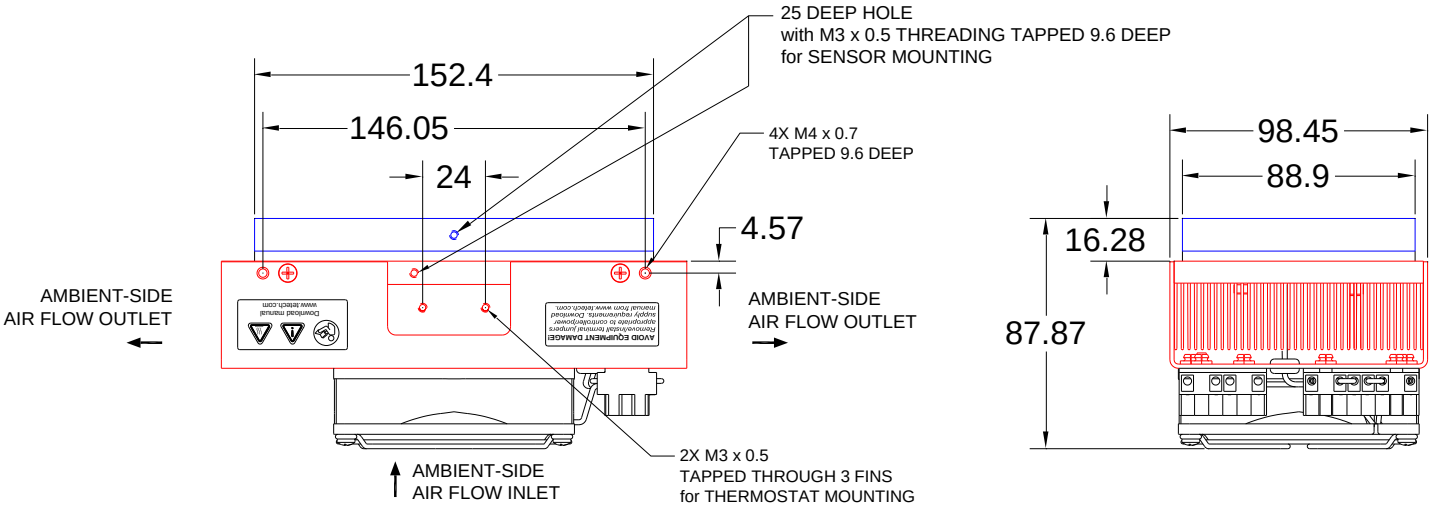
[2]Current, at steady-state operation under-worst case conditions, is rated at -20 °C ambient, +100 °C cold plate, maximum heat removal.



CE RoHS Compliant Directive 2011/65/EU

A 3D PDF, STEP, and Parasolid solid models are also available from the website.

All dimensions in millimeters.
Cold plate shown in blue;
External (ambient) side shown in red.



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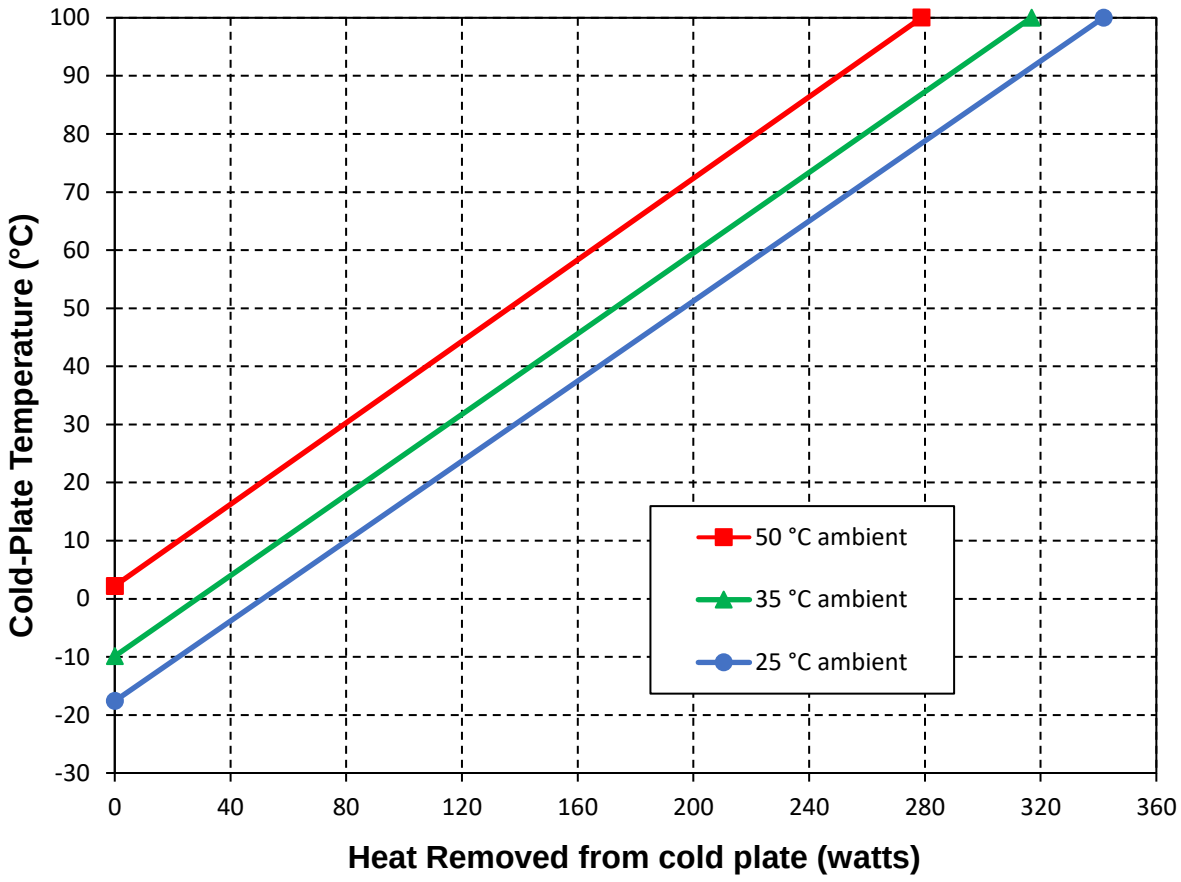
CP-130HT Cooling Performance Graph

(removing heat from cold plate)



(Fan at maximum speed)

How to use the Performance Graph:

1. Select Performance Line

The diagonal lines represent cooling performance at the indicated ambient air temperature (cold-plate temperature versus ambient-side heat sink). 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 cold-plate temperature 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 is determined by the intersection point (determined in the previous step). *The cooler will be able to maintain the desired plate temperature if the cooling capacity exceeds the heat load. If the heat load exceeds the cooling capacity then a higher capacity cooler will be needed.*

Example: You need to maintain the cold plate at 15 °C while in a 25 °C ambient. The cooler can remove a maximum of approximately 100 W of heat from the cold plate. If the heat load (actively generated heat plus the heat gain through insulation, solar, vapor condensation, etc.) in the system exceeds this, you would need more coolers and/or a larger cooler.

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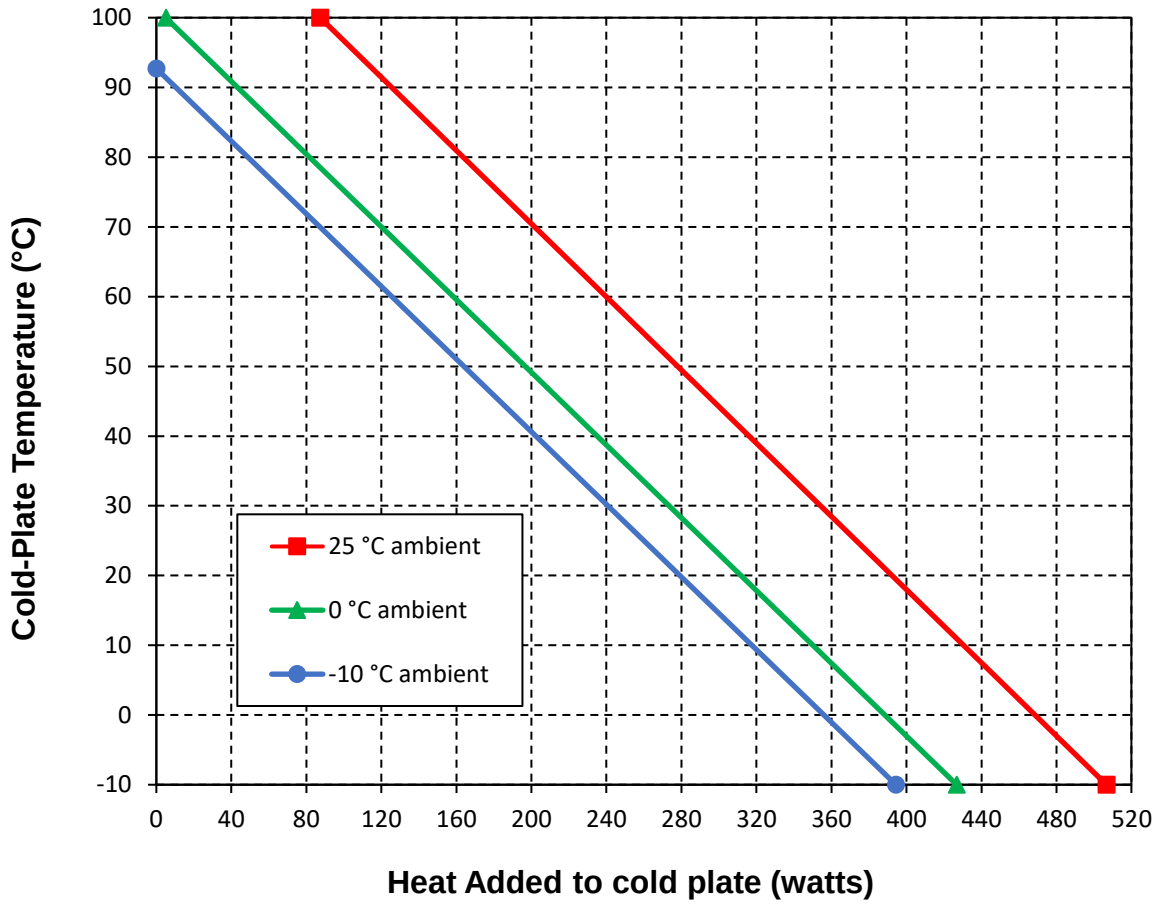
CP-130HT Heating Performance Graph

(adding heat to cold plate)



How to use the Performance Graph:

1. Select Performance Line

The diagonal lines represent heating performance at the indicated ambient air temperature (inlet temperature to the ambient-side heat sink). 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 plate temperature. Make the line intersect 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 plate is determined by the intersection point (determined in previous step). *If the heat added to the plate is greater than the system's heat loss, then the cooler will be able to heat to the desired temperature. A higher capacity cooler will be needed if the total heat added is less than the system's heat loss.*

Example: You need to maintain the water at 30 °C while in a -10 °C ambient. The cooler can add a maximum of approximately 240 W of heat to the water. If the heat dissipation from the system exceeds this, you would need more coolers and/or a larger cooler.

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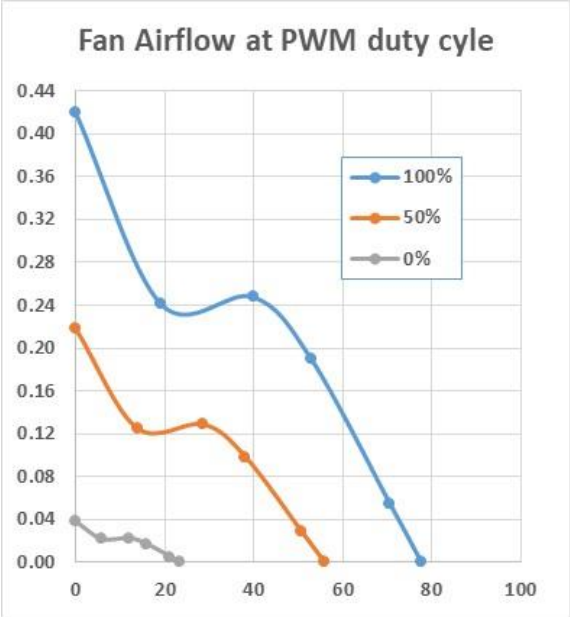
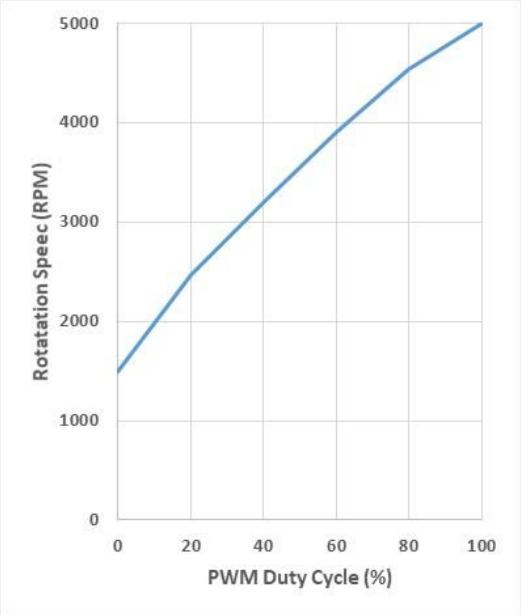
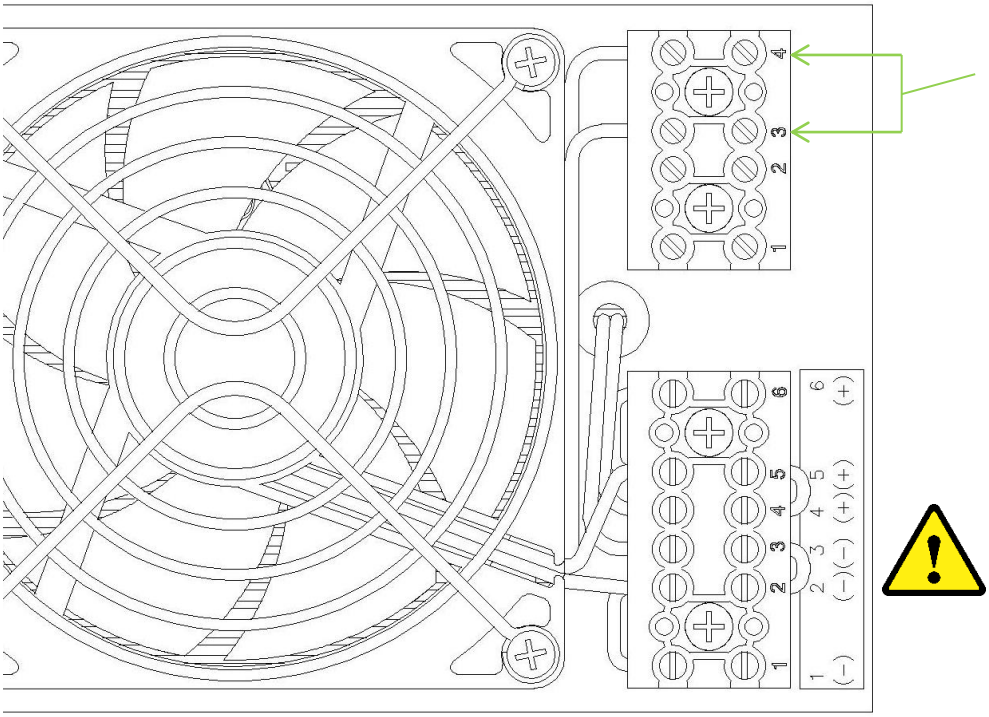
CP-130HT External Fan Connections







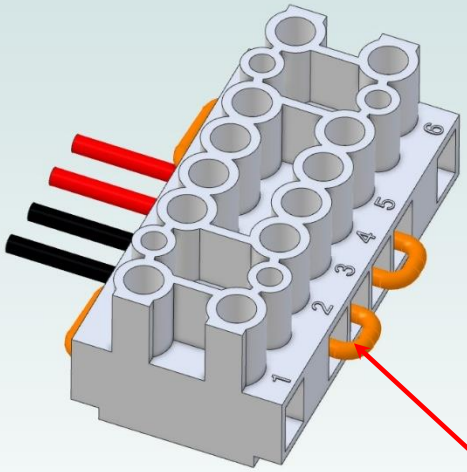
The external fan speed can be optionally controlled using pulse width modulation at a recommended 5 kHz to 25 kHz frequency applied at terminal position 4 (SPD CTRL, brown wire). The TC-720 temperature controller can be used to provide this PWM signal to reduce the audible noise at low cooling demands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

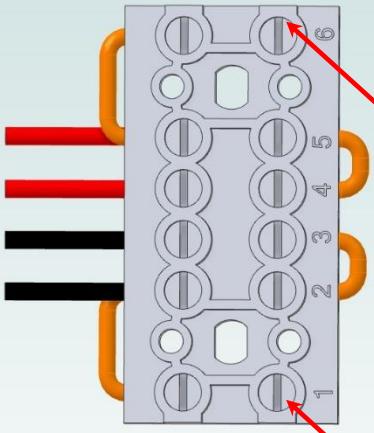
Reducing the fan speed will result in a loss of cooling performance and an increase in the heat sink operating temperature.

NOTE: Do not apply solder (tin) to the ends of the wires before inserting them into the connector. This will generate excessive heat at the terminal resulting in latent failures. Use copper wire only.

Terminal Block Configuration for Continuous Operation at Full Power
As-Shipped Configuration 1 of 2



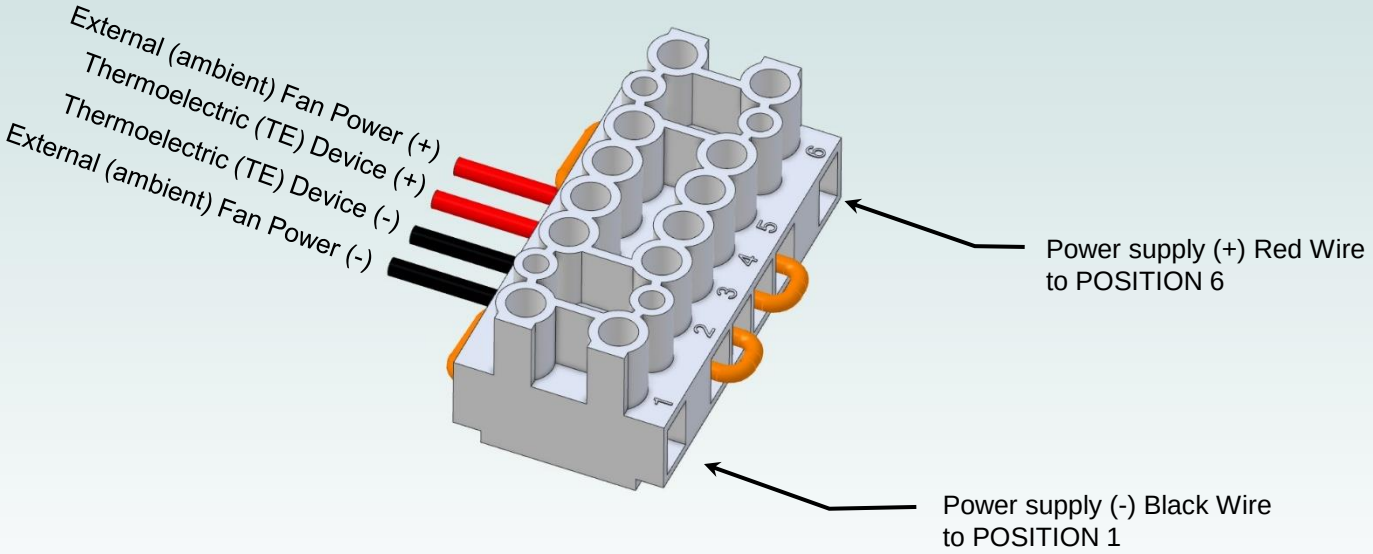
ELECTRICAL JUMPERS, SHOWN IN ORANGE, INSTALLED (ORIGINAL CONFIGURATION)

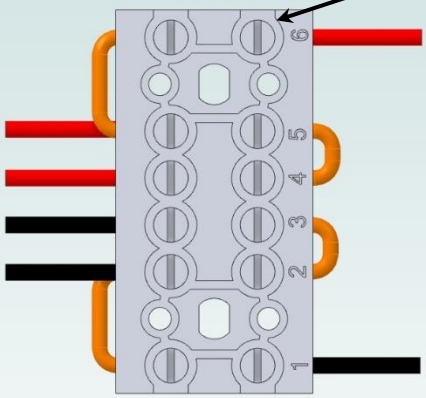


LOOSEN SCREW BUT DO NOT REMOVE

LOOSEN SCREW BUT DO NOT REMOVE

Terminal Block Configuration for Continuous Operation at Full Power
As-Shipped Configuration 2 of 2

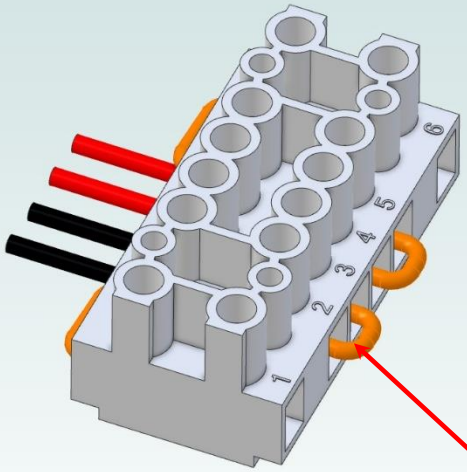




STRIP WIRE ENDS 5.5 mm, INSTALL WIRES (22-12 AWG), TIGHTEN SCREWS TO 0.56 N-m (5 lbs-in)

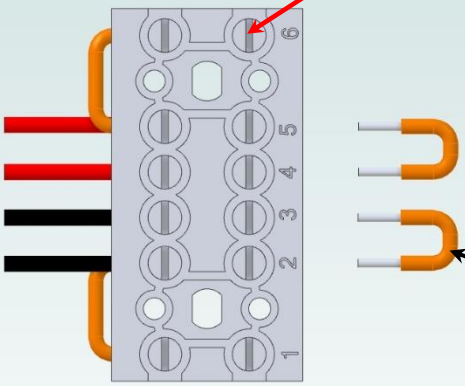
NOTE: Do not apply solder (tin) to the ends of the wires before inserting them into the connector. This will generate excessive heat at the terminal resulting in latent failures. Use stranded copper wire only.

Terminal Block Configuration for Operation with Temperature Controller
1 of 2



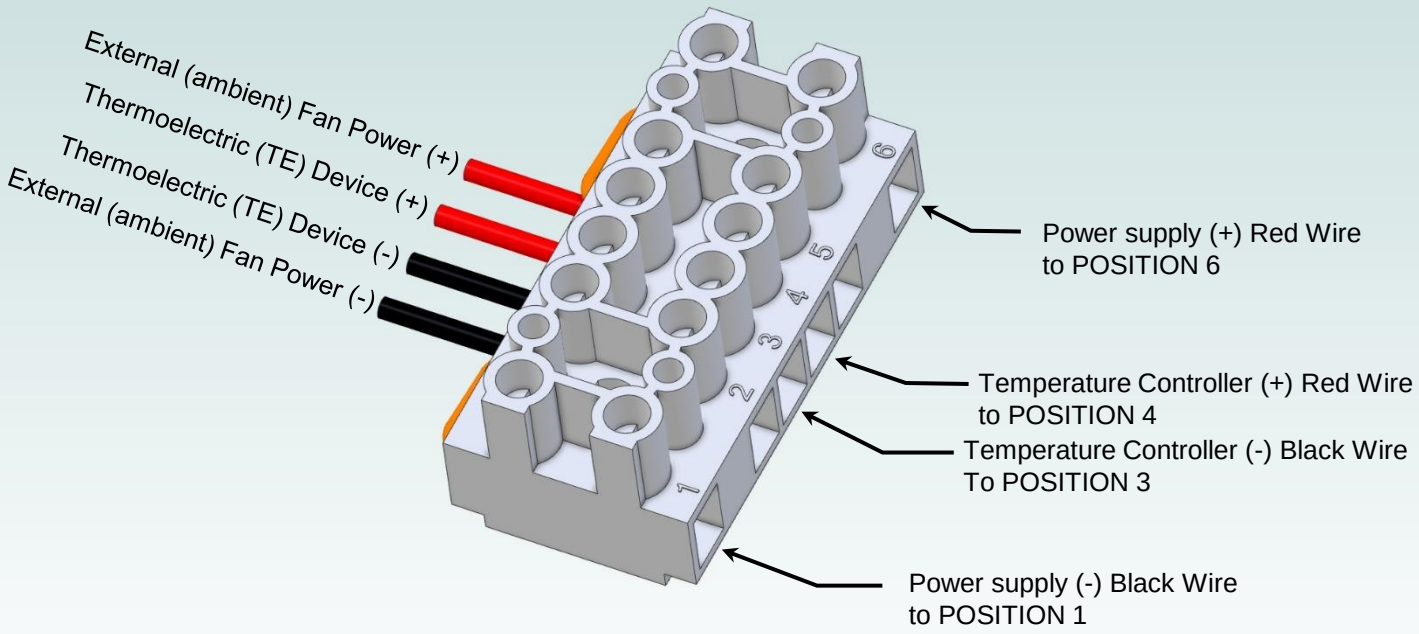
ELECTRICAL JUMPERS, SHOWN IN ORANGE, INSTALLED (ORIGINAL CONFIGURATION)

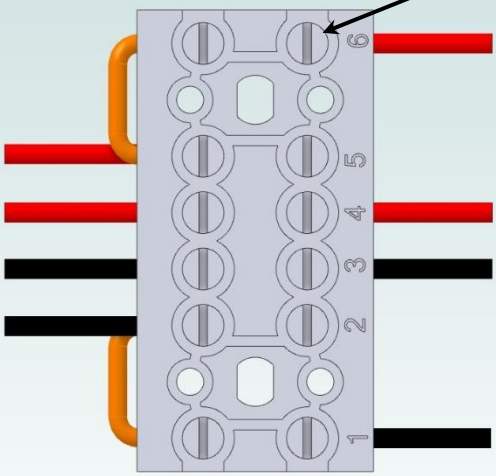
LOOSEN SCREWS BUT DO NOT REMOVE



REMOVE TWO ELECTRICAL JUMPERS FROM 2-3 AND 4-5

Terminal Block Configuration for Operation with Temperature Controller
2 of 2





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