

## SuperCool X Series Thermoelectric Cooler Assembly

The SLAX-145-24-02 Liquid-to-Air thermoelectric cooler assembly is a high performance thermoelectric based liquid cooler. It is designed to temperature control small chambers used in medical diagnostics, lasers, imaging systems or sample storage compartments in analytical instrumentation. This unique, **patented** design offers a high performance hot side heat dissipation mechanism that convects heat more efficiently than conventional heat exchanger technologies. The design utilizes custom next-generation high-performance thermoelectric modules to maximize cooling capacity and premium grade fans to keep the noise down. Moisture resistant insulation is used to keep condensation from penetrating into the thermoelectric module cavity. This unit operates at 24 VDC and is designed for indoor lab use environment. It has a maximum  $Q_c$  of 142 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 38 °C at  $Q_c = 0$ .

**Pending U.S. Patent Publication No. US2020/0240717**

### Granted Patents:

China: ZL2016800175855

Japan: 6549721

Switzerland: 3262909

Germany: 6020160449986

United Kingdom: 3262909

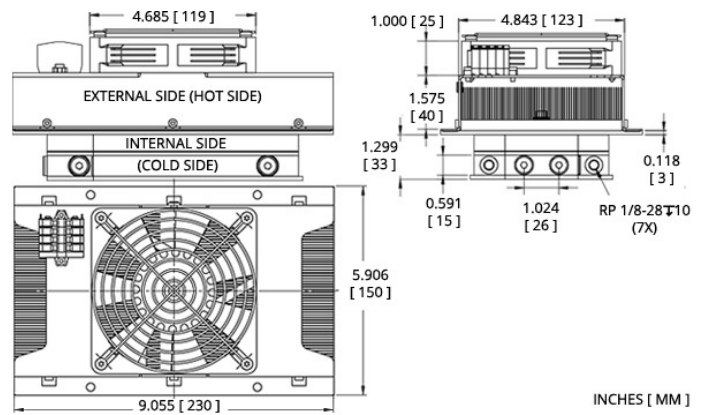


## Features

- High performance
- Compact form factor
- Reliable solid-state operation
- RoHS-compliant

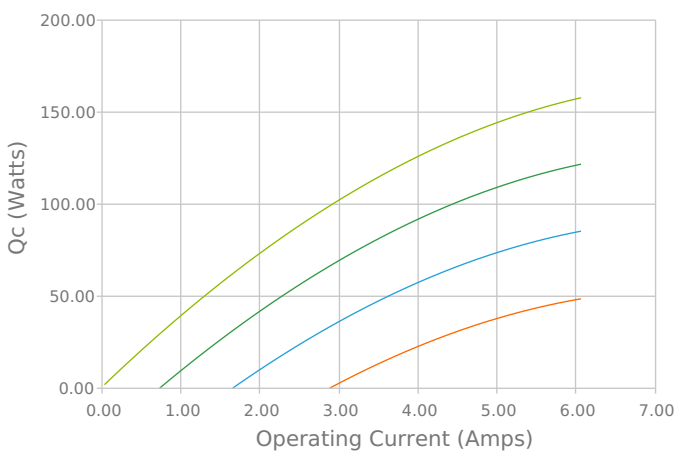
## Applications

- Liquid Cooling Options for PET and SPECT Scanners
- Peltier Cooling for Refrigerated Centrifuges
- Heating and Cooling of Incubator Chambers
- Thermal Management Solutions for Beverage Cooling

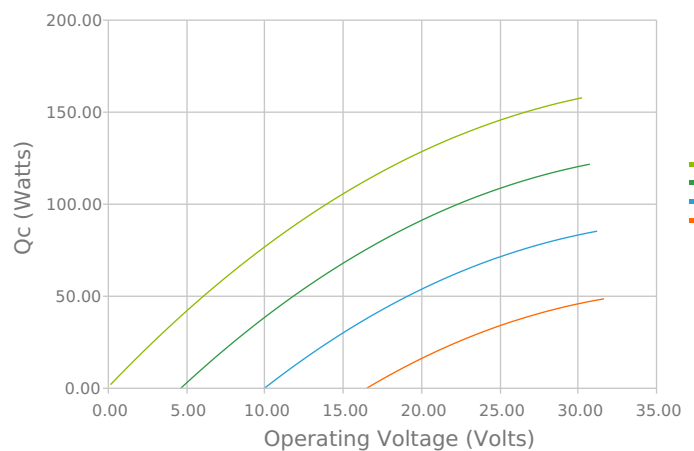


## Electrical and Thermal Performance

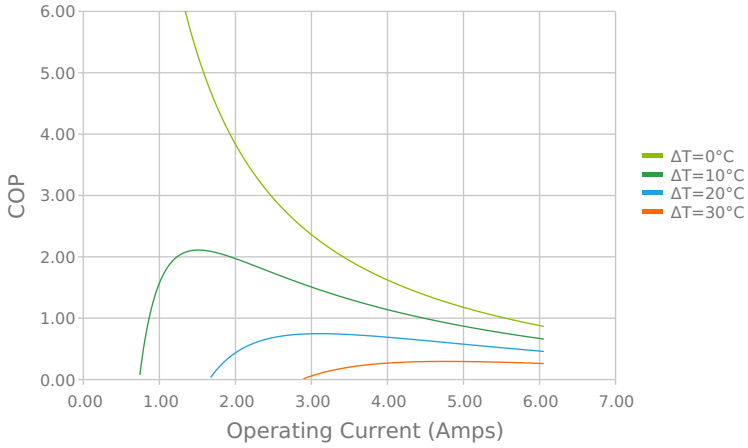
Heat Pumped at Cold Side ( $Q_c$ )  
Tambient = 35°C



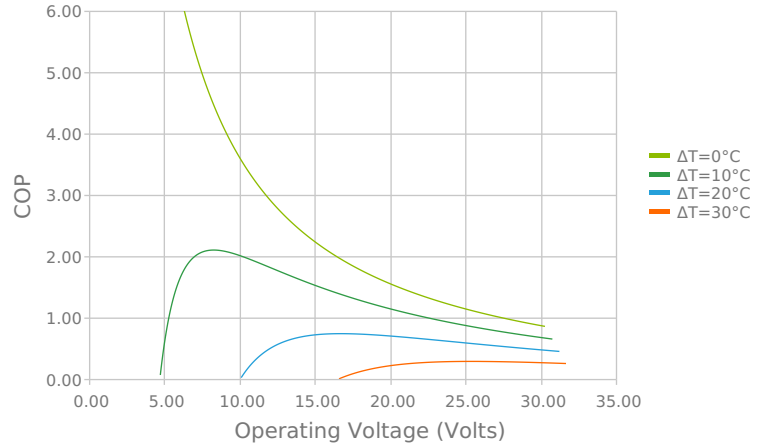
Heat Pumped at Cold Side ( $Q_c$ )  
Tambient = 35°C



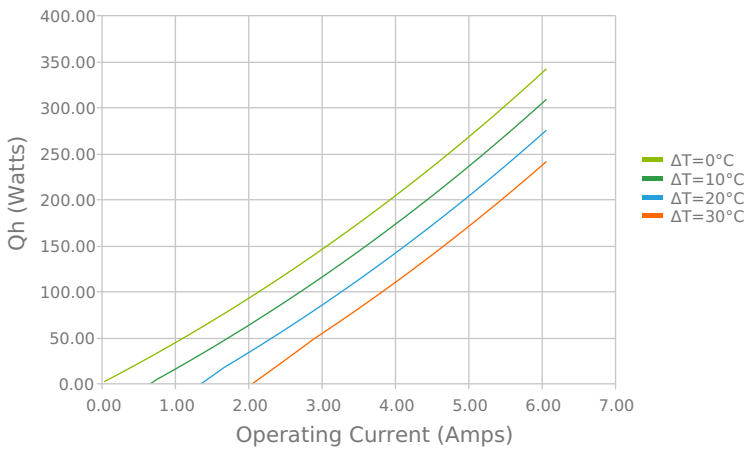
Coefficient of Performance ( $COP = Q_c/P_{in}$ )  
 $T_{ambient} = 35^{\circ}C$



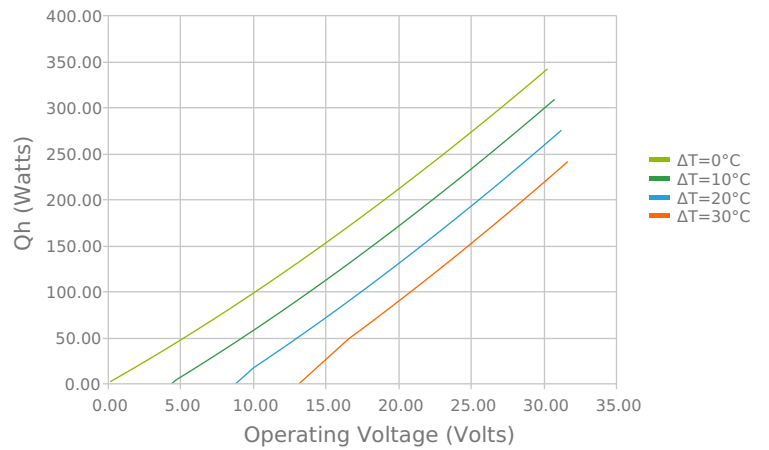
Coefficient of Performance ( $COP = Q_c/P_{in}$ )  
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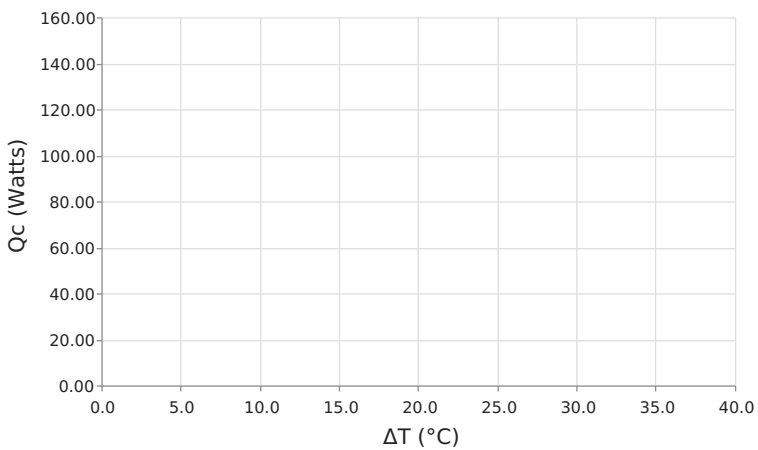
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
 $T_{ambient} = 35^{\circ}C$



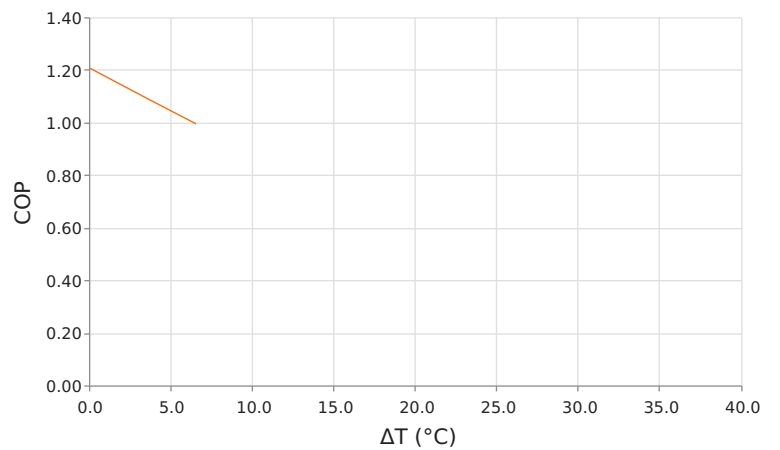
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
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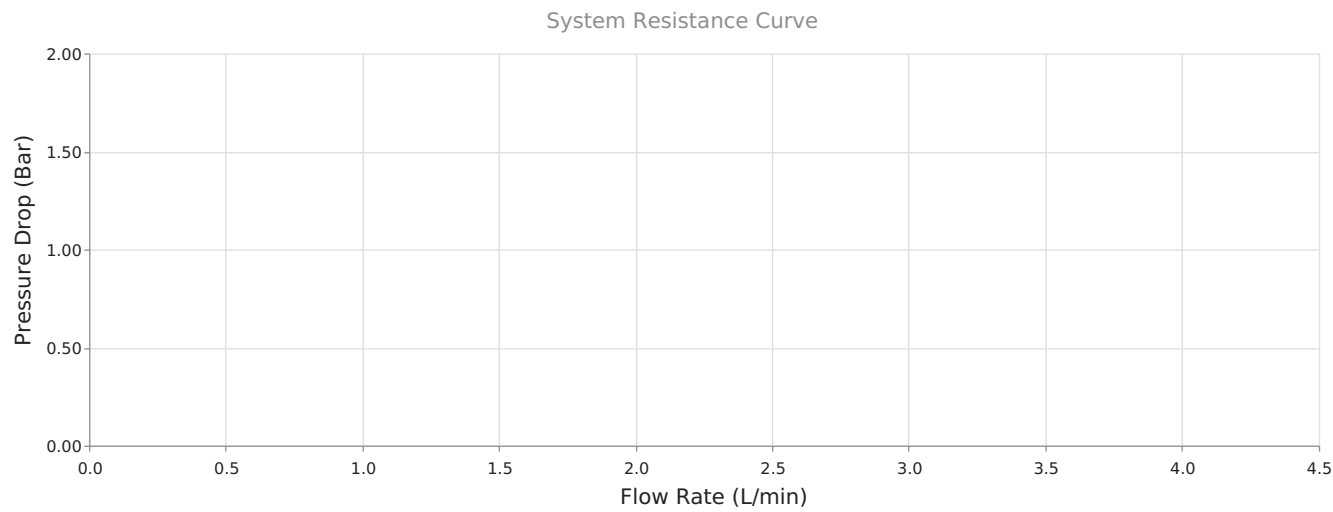


Heat Pumped at Cold Side ( $Q_c$ )  
 $V_{operating} = 24 \text{ Volts}$  |  $I_{operating} = 4.9 \text{ Amps}$



Coefficient of Performance ( $COP = Q_c/P_{in}$ )  
 $V_{operating} = 24 \text{ Volts}$  |  $I_{operating} = 4.9 \text{ Amps}$

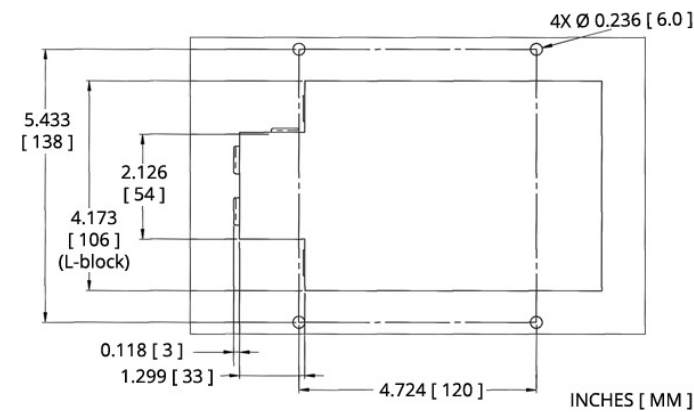




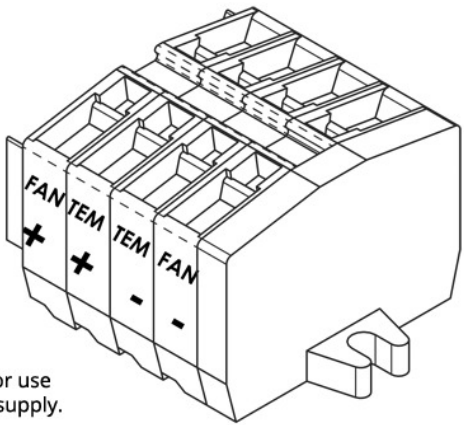
Specifications

|  |                                     |
|--|-------------------------------------|
| Heat Transfer Mechanism, Cold Side                 | Liquid - Forced Convection          |
| Heat Transfer Mechanism, Hot Side                  | Air - Forced Convection             |
| Operating Temperature Range                        | -20°C to 60°C                       |
| Supply Voltage                                     | 24.0 VDC nominal / 30.0 VDC maximum |
| Current Draw                                       | 4.8 A running / 6.4 A startup       |
| Power Supply                                       | 118.0 Watts                         |
| Performance Tolerance                              | 10%                                 |
| Hi-Pot Testing                                     | 750 VDC                             |
| Fan MTBF   | 60000 hours                         |
| Over-Temp Thermostat (Hot and Cold Side Heat Sink) | without thermostat                  |
| Sound Level (1 m distance)                         | 61 dBA                              |
| Weight   | 2.33 kg                             |
| Panel Mounting                                     | Through                             |

# Mounting Hole Location



# Wiring Schematic



**Warning:**  
Do not reverse current or use PWM-regulation on fan supply.

## Notes

|  |
|--|
| <sup>1</sup> For indoor use only   |
| <sup>2</sup> Turbulators are mounted inside liquid channels to create turbulent flow                 |
| <sup>3</sup> Cold block requires insulation to minimize moisture buildup under dew point conditions. |

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