

Outdoor Cooler Series Thermoelectric Cooler Assembly

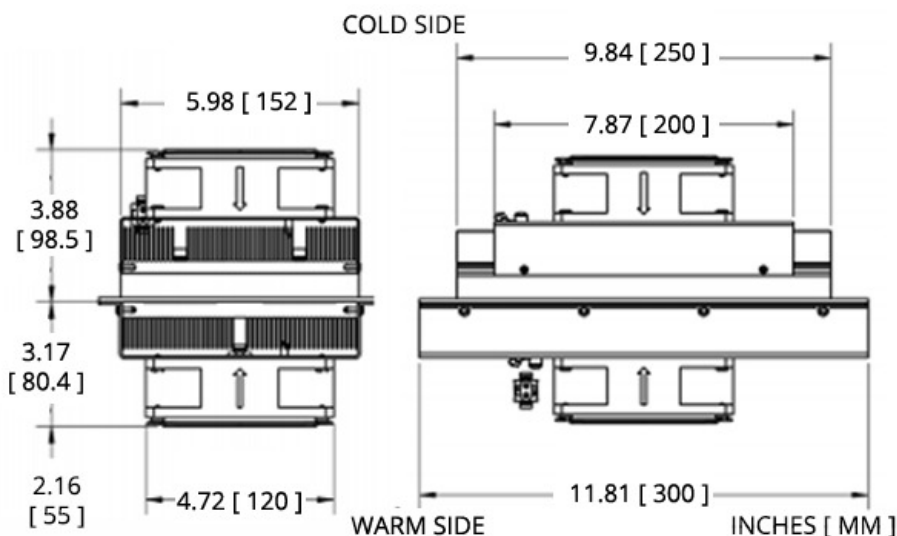
The AA-150-48-44 is an Air-to-Air thermoelectric cooler assembly that uses impingement flow to transfer heat. It offers dependable compact performance by cooling objects via convection. Heat is absorbed and dissipated through high density heat exchangers equipped with air ducted shrouds and brand name fans. The heat pumping action occurs from custom designed thermoelectric modules that achieve a high coefficient of performance (COP) to minimize power consumption. This model has been designed to pass rigorous Telcordia test requirements conducted by our customers such as earthquake resistance, salt, fog, wind-driven rain, high temperature exposure, and dust contaminants. This is due to the selection of world class components such as brand fans with the highest degree of environmental protection and lifetime guaranteed waterproof connectors heavy duty anodization on the high-density heat sinks overheat protection and double environmental seals for the thermoelectric modules.

Features

- Wide operating temperature range from -40°C to +55°C
- Meets Telcordia requirements
- Environmentally friendly solid-state operation
- No compressor or CFC refrigerants
- Optional bi-polar thermostatic control

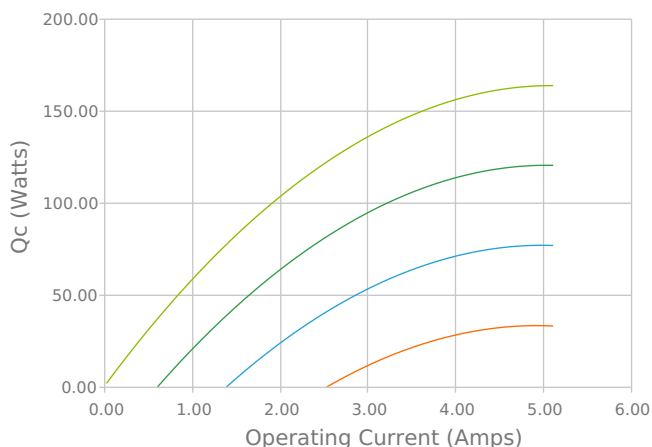
Applications

- Enclosure Cooling
- Cooling for Mobile Base Stations and Cell Towers
- Thermoelectric Cooling for Outdoor Kiosks
- Thermal Management Solutions for Beverage Cooling
- Energy Storage Systems

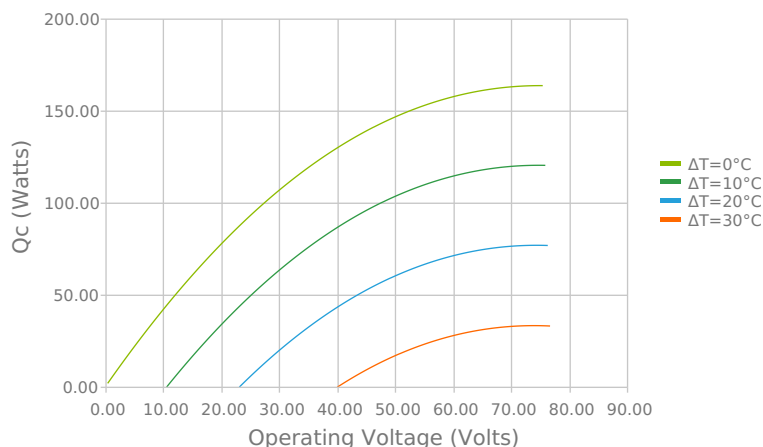


ELECTRICAL AND THERMAL PERFORMANCE

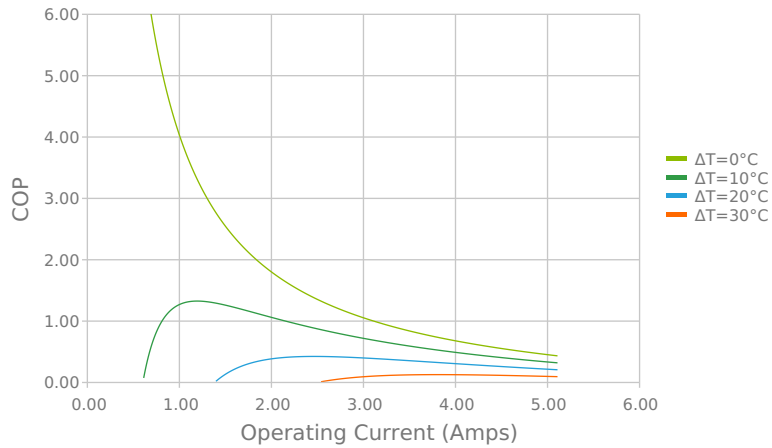
Heat Pumped at Cold Side (Q_c)
 $T_{\text{ambient}} = 35^\circ\text{C}$ | $T_{\text{control}} = 20^\circ\text{C}$



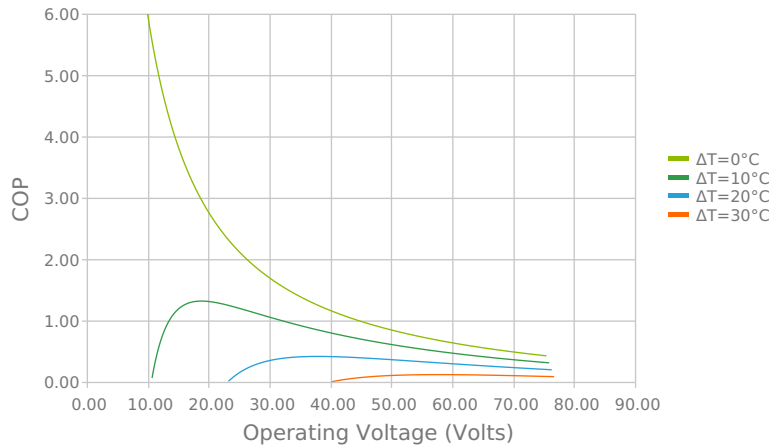
Heat Pumped at Cold Side (Q_c)
 $T_{\text{ambient}} = 35^\circ\text{C}$ | $T_{\text{control}} = 20^\circ\text{C}$



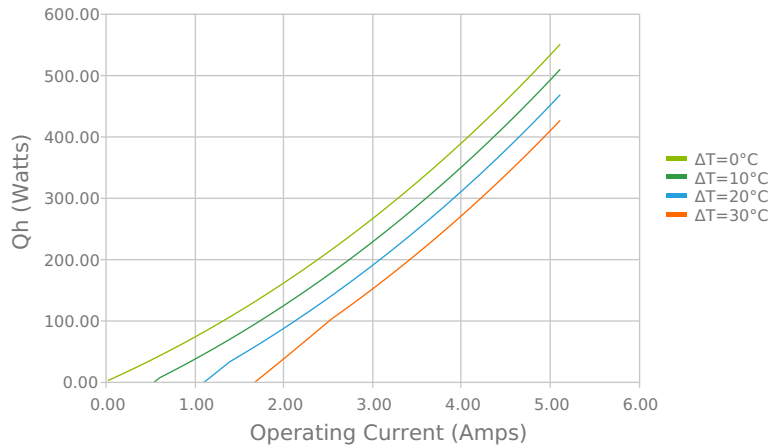
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{ambient} = 35^\circ\text{C}$ | $T_{control} = 20^\circ\text{C}$



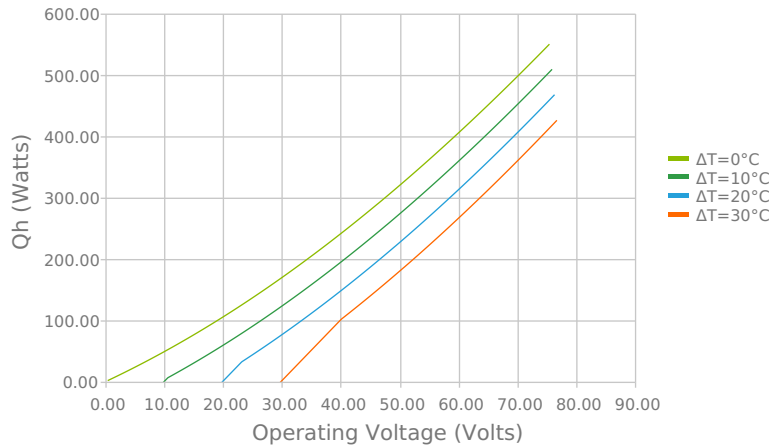
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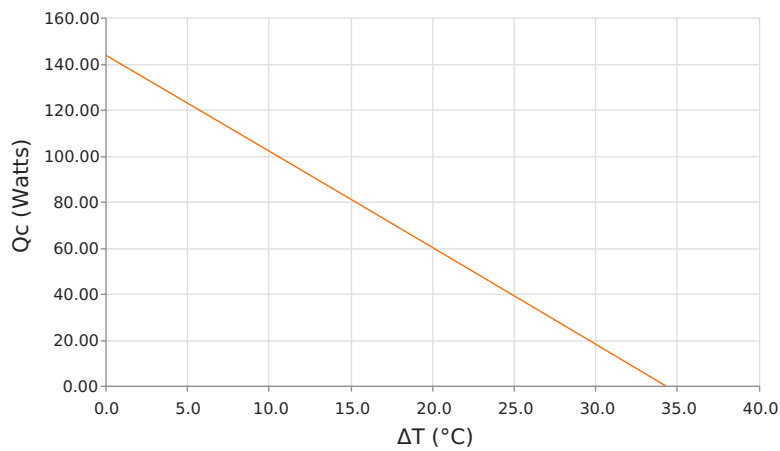
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{ambient} = 35^\circ\text{C}$ | $T_{control} = 20^\circ\text{C}$



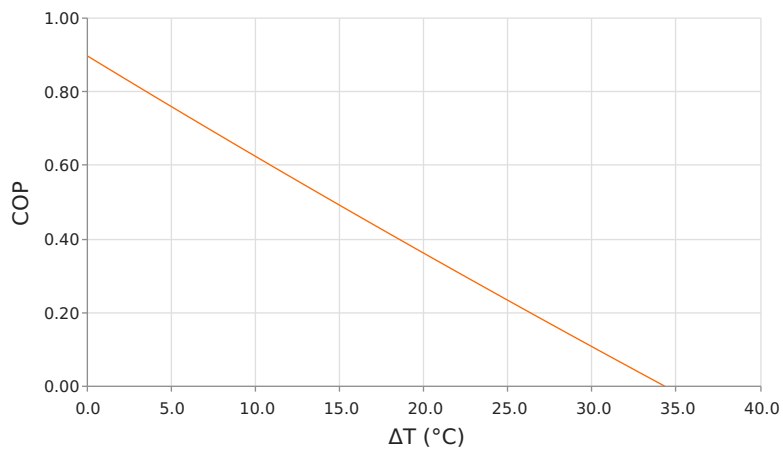
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{ambient} = 35^\circ\text{C}$ | $T_{control} = 20^\circ\text{C}$



Heat Pumped at Cold Side (Q_c)
 $V_{operating} = 48.04 \text{ Volts}$ | $I_{operating} = 3.34 \text{ Amps}$



Coefficient of Performance (COP = Q_c/P_{in})
 $V_{operating} = 48.04 \text{ Volts}$ | $I_{operating} = 3.34 \text{ Amps}$



SPECIFICATIONS

Temperature Range (External Ambient)¹

Temperature Range (Internal Enclosure)

Supply Voltage

Current Draw

Power Supply

Performance Tolerance

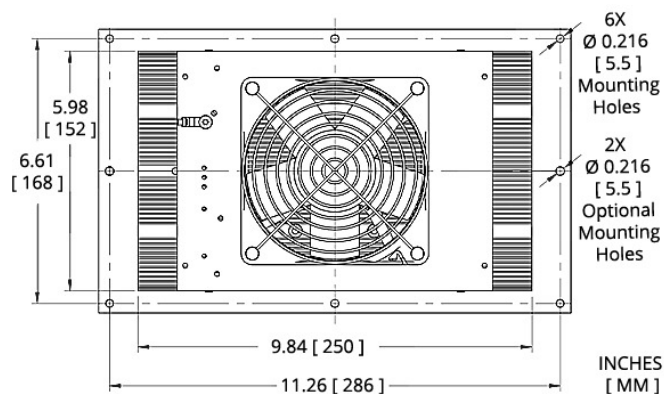
Fan MTBF

Sound Level (1 m distance)

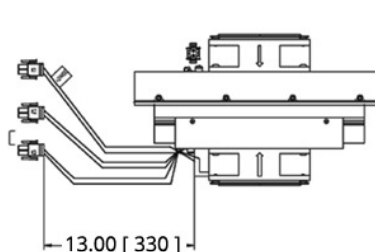
Weight

-40°C to 55°C
-20°C to 55°C
48.0 VDC nominal / 56.0 VDC maximum
3.9 A running / 5.0 A startup
190.0 Watts
10%
70,000 hours
58 dBA
5.10 kg

MOUNTING HOLE LOCATION



WIRING SCHEMATIC



Electrical Connections:

K1: Power to TEM Array (Cooling Mode)

P1: Positive (Red) Marked +24 VDC

P2 Negative (Black)

K2: Power to Exterior Fan (Warm Side)

P1: Positive (Orange) +24 VDC

P2 Negative (White)

K3: Power to Interior Fan (Cold Side)

P1: Positive (Green) +24 VDC

P2 Negative (White)

INCHES [MM]

NOTES

¹Controller function shall not operate the external fan during heating mode.

²Rating for unit without protective shroud. A higher degree of protection can be obtained with external shroud.

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Date: 06/04/2021