Outdoor Cooler Series AA-100-48-44
MFG Part Number: AA-100-48-44-00-XX

Outdoor Cooler Series Thermoelectric Cooler Assembly

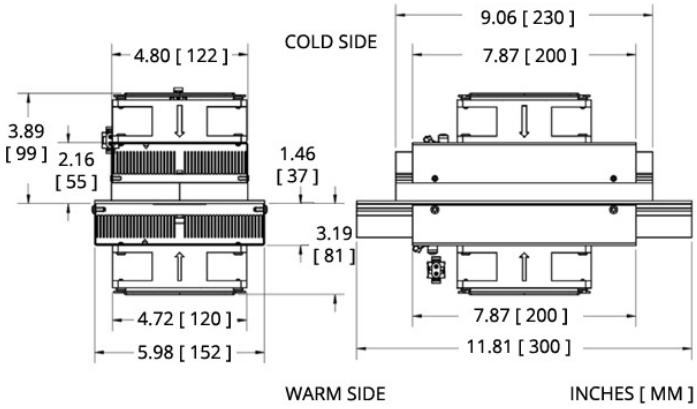
The AA-100-48-44 is an Air-to-Air thermoelectric cooler assembly that uses impingement flow to transfer heat. It offers dependable compact performance by cooling objects via convection. Heat is absorbed and dissipated through high density heat exchangers equipped with air ducted shrouds and brand name 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

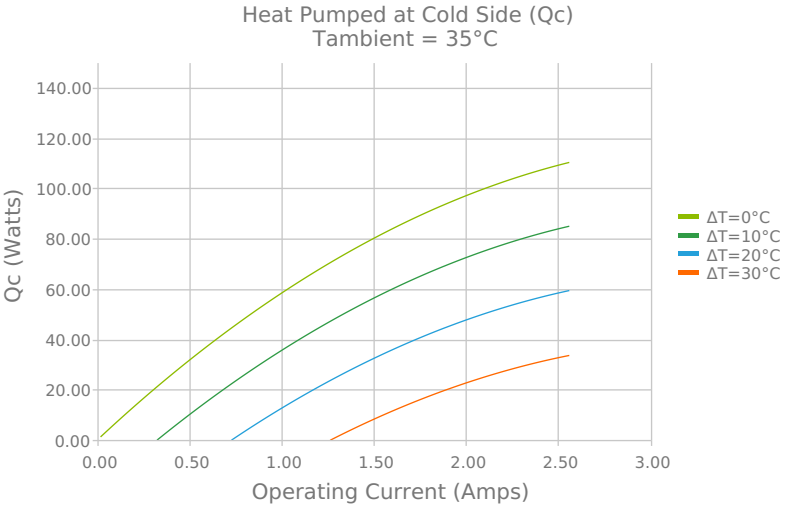
- Wide operating temperature range from -40°C to +55°C
- Telcordia GR-487-CORE tested and verified by customers when integrated in telecom outdoor enclosures.
- Environmentally friendly solid-state operation
- No compressor or CFC refrigerants
- Optional bi-polar thermostatic control

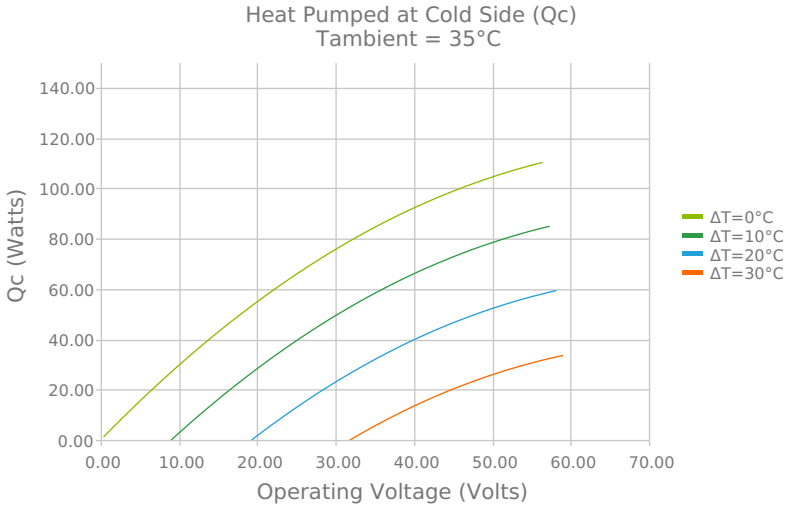
Applications

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

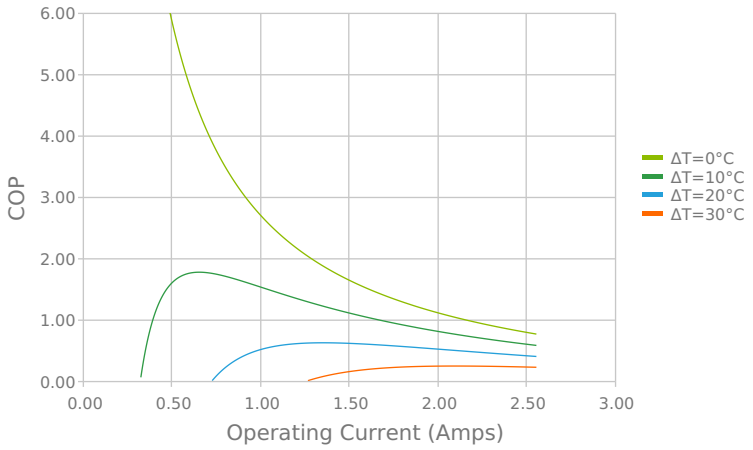


Electrical and Thermal Performance





Coefficient of Performance (COP = Qc/Pin)
Tambient = 35°C



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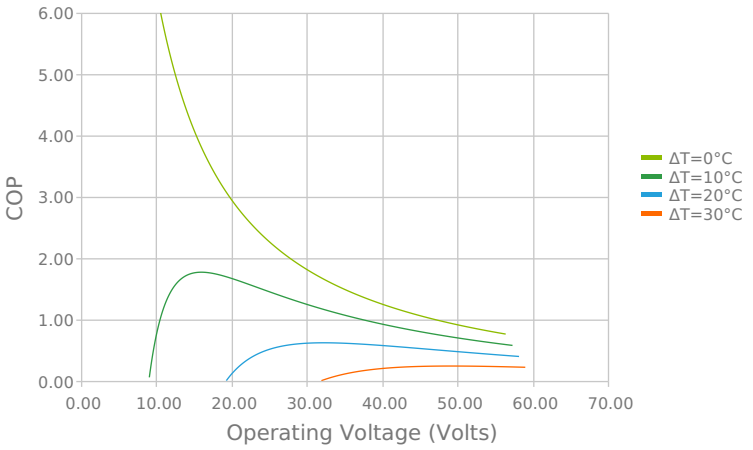
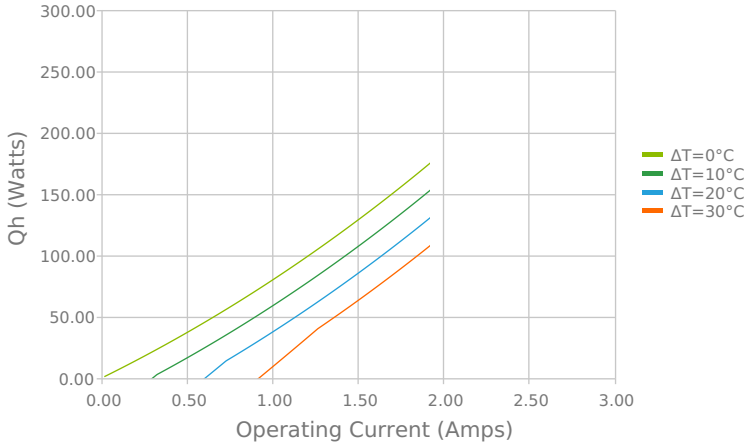


Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Tambient = 35°C



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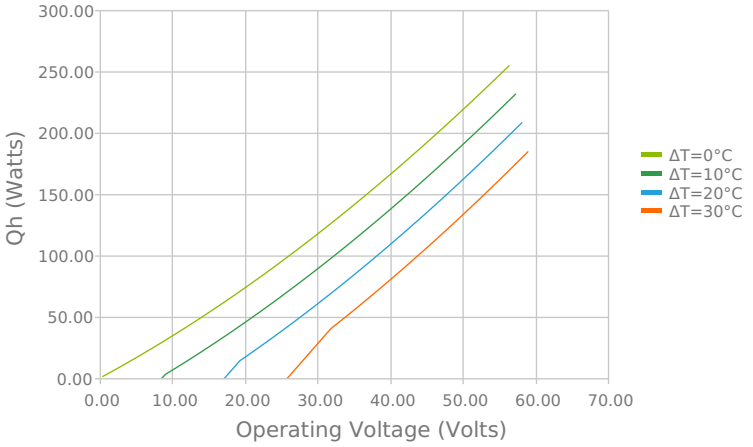
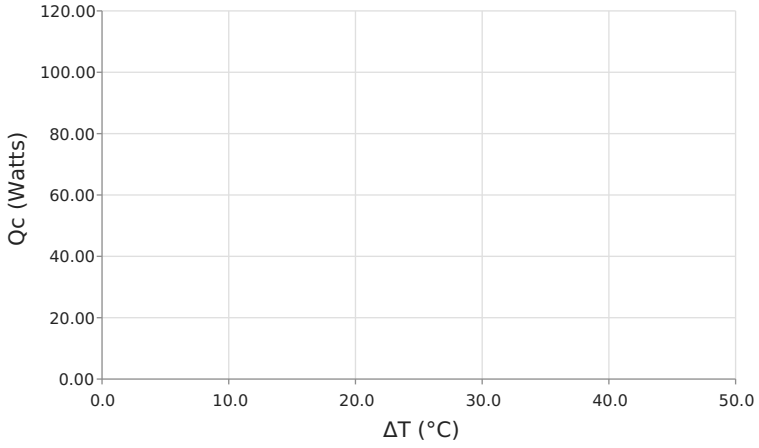


Heat Pumped at Cold Side (Qc)
Voperating = 48 Volts | Ioperating = 2.2 Amps



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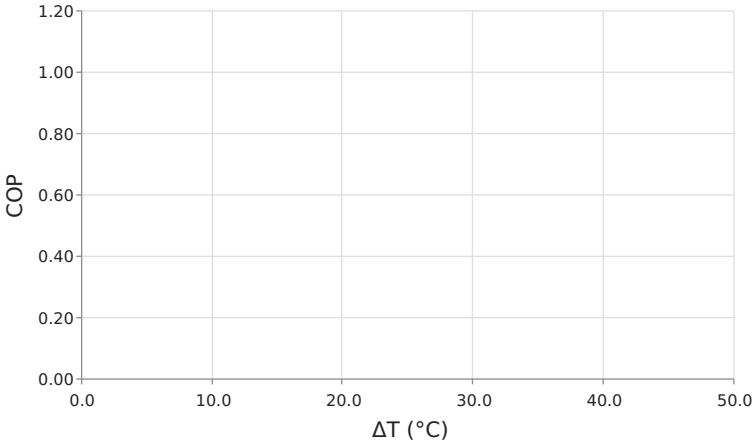
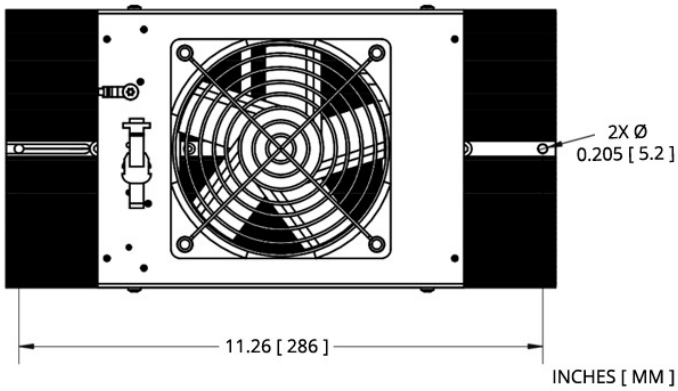


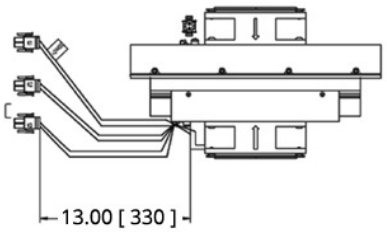
Specifications

Heat Transfer Mechanism, Cold Side	Air - Forced Convection
Heat Transfer Mechanism, Hot Side	Air - Forced Convection
Temperature Range (External Ambient)[1]	-40°C to 55°C
Temperature Range (Internal Enclosure)	-20°C to 55°C
Supply Voltage	48.0 VDC nominal / 56.0 VDC maximum
Current Draw	2.8 A running / 3.6 A startup
Power Supply	134.0 Watts
Performance Tolerance	10%
Hi-Pot Testing	707 VDC
Fan MTBF	70000 hours
Heating[2]	125 W
Over-Temp Thermostat (Hot and Cold Side Heat Sink)	80°C ± 3°C
Sound Level (1 m distance)	58 dBA
Degree of Protection (Unit Internal Side)	IP54
Degree of Protection (Unit External Side)[3]	IP54
Connector Type (On Unit)	AMP part number: 350777-1, 794269, 350547-6, 794270-1
Connector Type (Mating Side)	AMP part number: 350778-1, 350550-6, 794270-1
Weight	4.10 kg
Panel Mounting	Through

Mounting Hole Location



Wiring Schematic



Electrical Connections:
K1: Power to TEM Array (Cooling Mode)
P1: Positive (Red) Marked +48 VDC
P2 Negative (Black)

K2: Power to Exterior Fan (Warm Side)
P1: Positive (Orange) +48 VDC
P2 Negative (White)

K3: Power to Interior Fan (Cold Side)
P1: Positive (Green) +48 VDC
P2 Negative (White)

INCHES [MM]

Notes

[1]Controller function shall not operate the external fan during heating mode.
[2]Heating capacity is rated at external temperature of -40°C, nominal voltage, and dT = -45°C.
[3]The highest environmental protection level NEMA 4 (IP55) requires an external shroud and is defined as the protection level for the enclosure.

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