

Dual Cold Side Outdoor Thermoelectric Cooler



Thermoelectric Cooling Units for outdoor enclosures and kiosks

The Outdoor Cooler Series is an Air-to-Air thermoelectric assembly (TEA) that uses impingement flow to transfer heat. It offers dependable, compact performance by cooling objects via convection. The AA-230 has 230 Watts of cooling capacity and can be mounted in a horizontal direction to save space. Heat is absorbed and dissipated thru custom designed heat exchangers with high aspect ratio, air ducted shrouds and high performance fans. The heat pumping action occurs from custom designed thermoelectric modules that achieve a high coefficient of performance (COP) to minimize power consumption.

This product series 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 AND BENEFITS

- Horizontal mount configuration
- 230W capacity rated at $\Delta T = 0^{\circ}\text{C}$, $T_{\text{ambient}} = 35^{\circ}\text{C}$
- Wide operating temperature range of -40°C to $+55^{\circ}\text{C}$
- Gaskets, connectors, and fans provide a NEMA 4 seal for the enclosure
- Environmentally friendly solid state operation – no compressor or CFC refrigerants
- Cooling and heating in the same unit; optional temperature controller reverses the polarity of current to generate heating

APPLICATIONS

- Outdoor telecom enclosures
- Outdoor kiosks and displays
- Harsh condition electronic cabinets
- Battery cabinets

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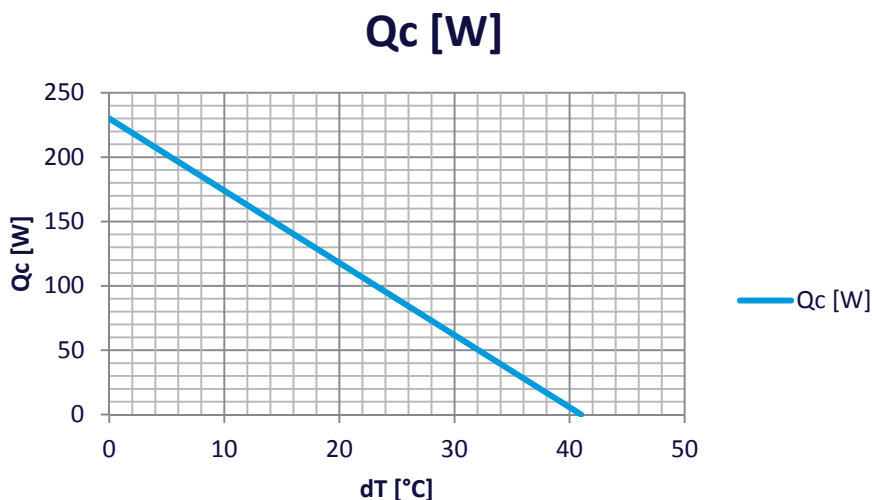
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SPECIFICATIONS

TECHNICAL

Technology	Thermoelectric modules, forced air, closed loop (non-mixing), filterless, non-refrigerant
Cooling at $\Delta T = 0^{\circ}\text{C}$, and nominal / float voltage ¹	230/246W (785/840 Btu/h)
Heating (calculated) ²	250W (853 Btu/h)
Voltage (nominal / maximum) ⁶	48/56 VDC
COP (Coefficient of Performance)	80%
Grounding (all voltages)	Positive or negative
Current draw, $\pm 10\%$ (nominal / startup)	6.1/7.8 A
Weight	6.5 kg (14.3 lbs)
Panel mounting	Through (from external side)
Fan life (L_{10} at $+40^{\circ}\text{C}$)	$\geq 70,000$ hours
Connector type (on unit / mating side)	Terminal block with cage clamps (AWG 28-12)
Hi-pot testing	707 VDC

ENVIRONMENTAL

Temperature range ³ (external ambient)	-40°C to $+55^{\circ}\text{C}$ (-40°F to $+131^{\circ}\text{F}$)
Temperature range (internal enclosure)	-20°C to $+55^{\circ}\text{C}$ (-4°F to $+131^{\circ}\text{F}$)
Degree of protection, enclosure ⁴	NEMA 4 (IP55)
Degree of protection, unit int. side	IP54
Degree of protection, unit ext. side ⁵	IP54
Sound level (1m distance)	65 dB(A)
Over temp Thermostat	(optional)

1) Cooling capacities at nominal / float voltage are rated at external temperatures of $+35^{\circ}\text{C}$ and $+50^{\circ}\text{C}$ respectively. Float voltage is defined at 54VDC.

2) Calculated heating capacity is rated at external temperature of -40°C , nominal voltage, and $\Delta T = -45^{\circ}\text{C}$.

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

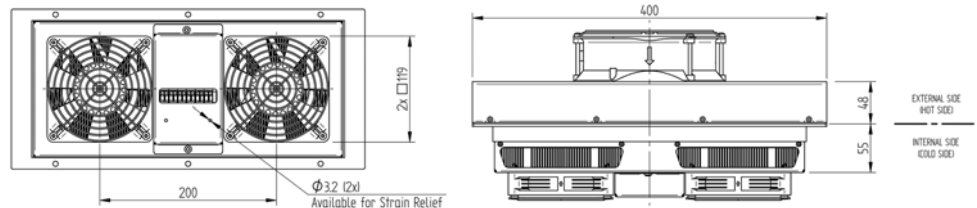
4) The highest environmental protection level requires an external shroud and is defined as the protection level for the enclosure.

5) Rating for unit without protective shroud.

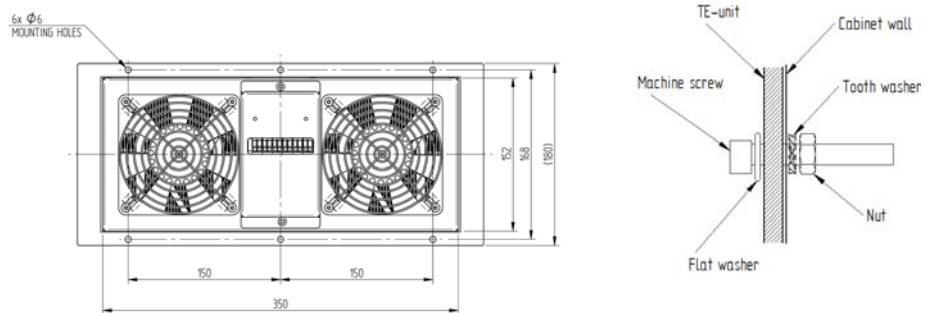
6) Max ripple 5%

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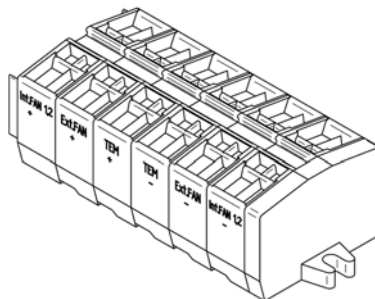
MECHANICAL DRAWING



MOUNTING HOLE LOCATION & HARDWARE



ELECTRICAL CONNECTIONS 48VDC (cage clamp)



Electrical connections cold side:

Ext. FAN +
Int. FAN +
TEM +
TEM -
Int. FAN -
Ext. Fan -

Warning:

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

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