



The AA-480 Outdoor Thermoelectric Cooler 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-480 has whopping 480 Watts of cooling power and a COP = 1 at  $\Delta T = 0^{\circ}\text{C}$ . 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 for outdoor environments. This is due to the selection of world class components such as brand name fans with the highest degree of environmental protection and lifetime guaranteed waterproof connectors, heavy duty anodization on the high-density heat exchangers, overheat protection, and double environmental seals for the thermoelectric modules.

#### FEATURES

- 480W capacity rated at  $\Delta T = 0^{\circ}\text{C}$ ,  $T_{\text{ambient}} = 35^{\circ}\text{C}$
- Wide operating temperature range of  $-40^{\circ}\text{C}$  to  $+55^{\circ}\text{C}$
- Power cycle tested up to 100K cycles
- 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

#### TECHNICAL SPECIFICATIONS

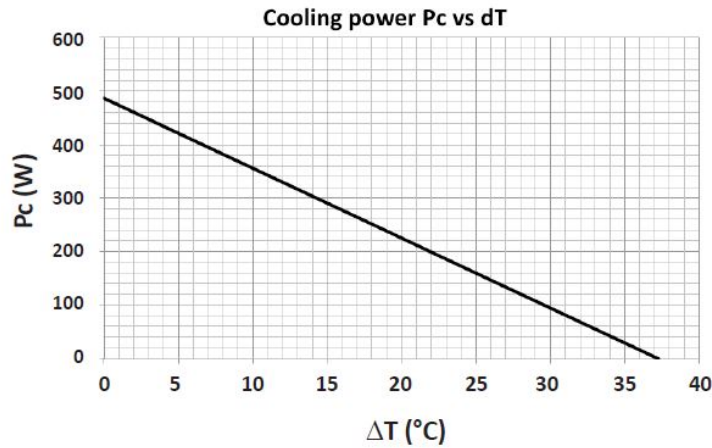
Technology	Thermoelectric modules, forced air, closed loop (non-mixing), filter less, non-refrigerant
Cooling at $dT = 0^{\circ}\text{C}$ , and nominal / float voltage <sup>1</sup> - W	480/529 (1638/1805 Btu/h)
Heating (calculated) <sup>2</sup> - W	450 (1535 Btu/h)
Voltage, nominal / maximum <sup>4</sup> , -VDC	24/28
COP (Coefficient of Performance) - %	105
Grounding (all voltages)	Positive or negative
Current draw, nominal / start-up $\pm 10\%$ - A	19.3/26.1
Weight - kg (lbs)	13.2 (29.1)
Panel mounting	Through (from external side)
Fan life cold side (L10 at $+40^{\circ}\text{C}$ ) – hours	57,500
Fan life hot side (L10 at $+40^{\circ}\text{C}$ ) – hours	75,000
Number of connectors	1
Connector type (on unit / mating side)	Terminal block with cage clamps (AWG 28-12)
Hi-pot testing - VDC	707

## ENVIRONMENTAL

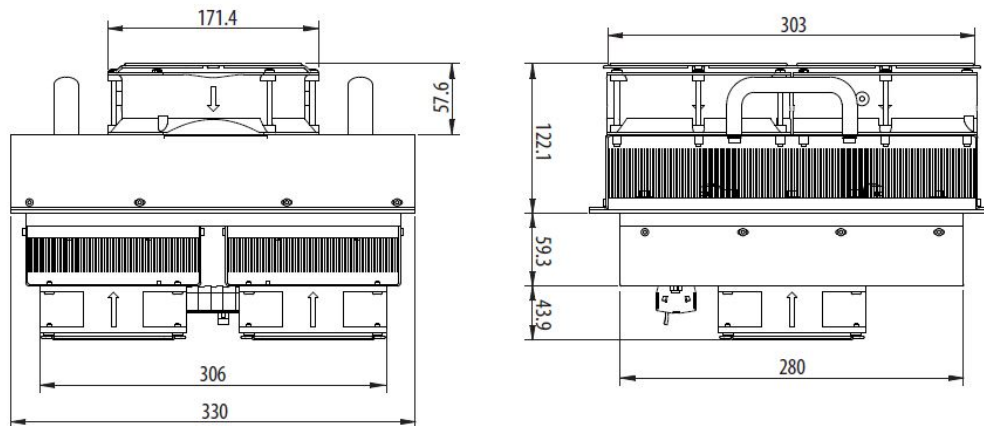
Temperature range <sup>3</sup> , external ambient - °C (°F)	-40 to +55 (-40 to +131)
Temperature range, internal enclosure - °C (°F)	-20 to +55 (-4 to +131)
Degree of protection, unit int. side <sup>5</sup>	IP55
Degree of protection, unit ext. side <sup>5</sup>	IP68
Sound level, 1 m distance, dB(A)	65
Over-Temp Thermostat	optional

1. Cooling capacities at nominal / float voltage are rated at external temperatures of +35°C and +50°C respectively. Float voltage is defined at 54 VDC.
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. Max ripple 5%.
5. Rating for unit without protective shroud. A higher degree of protection can be obtained with external shroud.

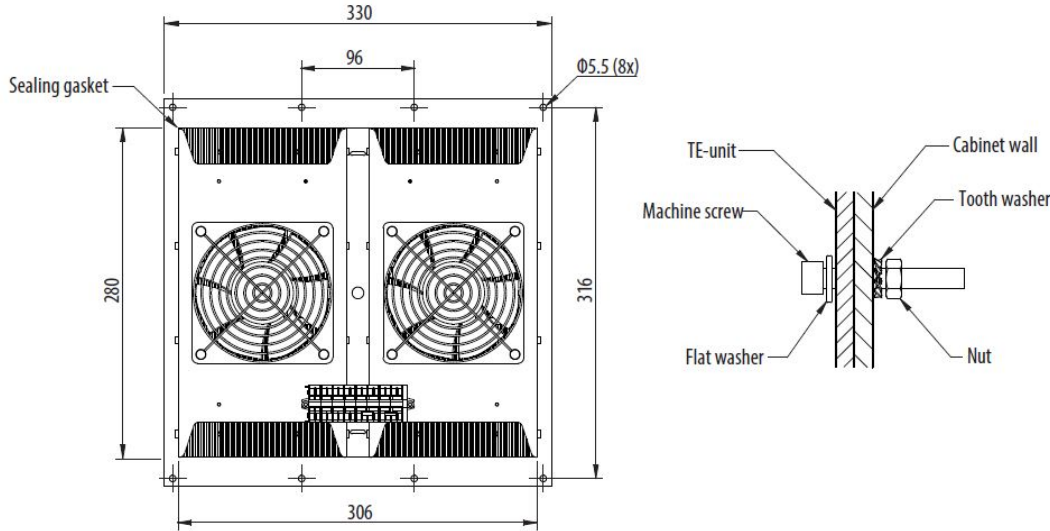
## PERFORMANCE QC VS $\Delta T$



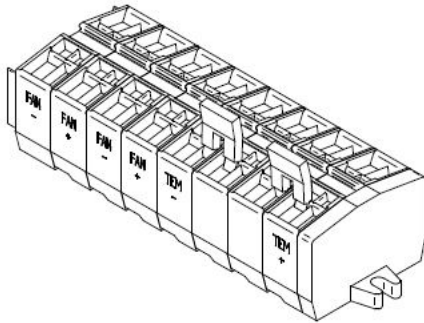
## ISOMETRIC DRAWINGS



### MOUNTING HOLE LOCATION & HANDWARE



### ELECTRICAL CONNECTIONS 24VDC (CAGE CLAMP)



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