

Smart Technology. Delivered.

AA-150-24-44-LK-XX

Outdoor Thermoelectric Cooler Assemblies With Bi-Polar Thermostatic Control



THERMOELECTRIC COOLING UNITS FOR OUTDOOR ENCLOSURES AND KIOSKS

The AA Outdoor Cooler Series is an Air-Air Thermoelectric Assembly (TEA) that uses impingement flow to transfer heat. It offers dependable, compact performance by cooling or heating enclosures via convection. A bi-polar thermostatic controller with predetermined set points is integrated into the TEA. The unit is programmed to cool when the temperature inside the enclosure exceeds 25°C, and heat when the internal temperature drops below 10°C.

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 name 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 (TEMs).

FEATURES AND BENEFITS

- 150W capacity rated at $\Delta T = 0$ °C, ambient = 32°C
- Wide operating temperature range of -40°C to +55°C
- Telcordia GR-487-CORE tested and verified by customers when integrated in telecom outdoor enclosures
- Gaskets, connectors, and fans provide a NEMA 4 seal for the enclosure
- UL 60950 and UL 50 approval obtained by customers when integrated in telecom outdoor enclosures
- Environmentally friendly solid-state operation no compressor or CFC refrigerants
- Bi-polar thermostatic control (cooling mode > 25°C / heating mode < 10°C)

APPLICATIONS

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

global solutions: local support ™

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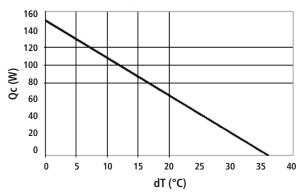
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Technical Technology Thermoelectric modules, forced air, closed loop (non-mixing), filterless, non-refrigerant Cooling at dT = 0°C, and nominal / float voltage.¹ 143/159W (488/543 Btu/h) Woltage (nominal / maximum) 24/28 VDC Grounding (all voltages) Positive or negative Current draw, ±10% (nominal / startup) 7,9/10.0 A (24V version) Weight 5,1 kg (11,2 lbs) Panel mounting Through Fan life (1 ₁₀ at +40°C) Number of connectors 1 1 Connector type On unit: AMP part number: 350777-1, 794269, 350547-6, 794270-1 Mating side: AMP part number: 350778-1, 350550-6, 794270-1 Hi-pot testing 707 VDC Environmental Temperature range *(external ambient) 1-40°C to +55°C (-40°F to +131°F) Temperature range (internal enclosure) Overheating thermostat 80°C ± 3°C (Hot and cold side heat sink surfaces) Degree of protection, enclosure 4 NEMA 4 (IP55) Degree of protection, unit 5 Sound level (1m distance) S 8 dB(A) Over-Temp Thermostat (hot and cold side heat sink) 80°C ± 3°C LK-81 Bi-Polar Controller Regulation On / Off Thermostatic control set point	SPECIFICATIONS	AA-150-24-44-LK-XX
Cooling at dT = 0°C, and nominal / float voltage.¹ 143/159W (488/543 Btu/h) Heating² 150W (512 Btu/h) Voltage (nominal / maximum) 24/28 VDC Grounding (all voltages) Positive or negative Current draw, ±10% (nominal / startup) 7.9/10.0 A (24V version) Weight 5.1 kg (11.2 lbs) Panel mounting Through Fan life (L ₁₀ at +40°C) ≥70,000 hours Number of connectors 1 Connector type On unit: AMP part number: 350777-1, 794269, 350547-6, 794270-1 fon unit / mating side) Mating side: AMP part number: 350778-1, 350550-6, 794270-1 Hi-jot testing 707 VDC Environmental Temperature range 3 (external ambient) -40°C to +55°C (-40°F to +131°F) Temperature range (internal enclosure) -20°C to +55°C (-40°F to +131°F) Overheating thermostat 80°C ± 3°C (Hot and cold side heat sink surfaces) Degree of protection, enclosure 4 NEMA 4 (IP55) Degree of protection, unit 3 IP54 Sound level (1m distance) 58 dB(A) Over-Temp Thermostat (hot and cold side heat sink) 80°C ± 3°C UK-81 Bi-Polar Controller	Technical	
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Voltage (nominal / maximum) 24/28 VDC Grounding (all voltages) Positive or negative Current draw, ±10% (nominal / startup) 7.9/10.0 A (24V version) Weight 5.1 kg (11.2 lbs) Panel mounting Through Fan life (L ₁₀ at +40°C) ≥70,000 hours Number of connectors 1 Connector type On unit: AMP part number: 350777-1, 794269, 350547-6, 794270-1 (on unit / mating side) Mating side: AMP part number: 350778-1, 350550-6, 794270-1 Hi-pot testing 707 VDC Environmental 1 Temperature range ³ (external ambient) -40°C to +55°C (-40°F to +131°F) Temperature range (Internal enclosure) -20°C to +55°C (-49°F to +131°F) Overheating thermostat 80°C ± 3°C (Hot and cold side heat sink surfaces) Degree of protection, enclosure ⁴ NEMA 4 (IP55) Degree of protection, unit ⁵ IP54 Sound level (1m distance) 58 dB(A) Over-Temp Thermostat (hot and cold side heat sink) 80°C ± 3°C LK-81 Bi-Polar Controller On / Off	Cooling at $dT = 0$ °C, and nominal / float voltage. ¹	143/159W (488/543 Btu/h)
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Weight 5.1 kg (11.2 lbs) Panel mounting Through Fan life (L₁₀ at +40°C) ≥70,000 hours Number of connectors 1 Connector type (on unit / mating side) On unit: AMP part number: 350778-1, 794269, 350547-6, 794270-1 (on unit / mating side) Hi-pot testing 707 VDC Environmental -40°C to +55°C (-40°F to +131°F) Temperature range ³ (external ambient) -20°C to +55°C (-40°F to +131°F) Temperature range (internal enclosure) -20°C to +55°C (-40°F to +131°F) Overheating thermostat 80°C ± 3°C (Hot and cold side heat sink surfaces) Degree of protection, enclosure ⁴ NEMA 4 (IP55) Degree of protection, unit ⁵ IP54 Sound level (1m distance) 58 dB(A) Over-Temp Thermostat (hot and cold side heat sink) 80°C ± 3°C LK-81 Bi-Polar Controller On / Off	Grounding (all voltages)	Positive or negative
Panel mounting Fan life (L₁ at +40°C) Fan life (L1 at +40°C) Number of connectors Connector type (on unit / mating side) Hi-pot testing Environmental Temperature range ³ (external ambient) Temperature range (internal enclosure) Overheating thermostat Degree of protection, enclosure ⁴ Sound level (1m distance) Deverage of protection, unit ⁵ Sound level (1m distance) Over-Temp Thermostat (hot and cold side heat sink) Regulation Through Through ≥70,000 hours Number ≤70,000 hours Nating side: AMP part number: 350777-1, 794269, 350547-6, 794270-1 Mating side: AMP part number: 350778-1, 350550-6, 794270-1 Mating side: AMP part number: 350778-	Current draw, ±10% (nominal / startup)	7.9/10.0 A (24V version)
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Environmental Temperature range ³ (external ambient) Temperature range (internal enclosure) Overheating thermostat Degree of protection, enclosure ⁴ Sound level (1m distance) Over-Temp Thermostat (hot and cold side heat sink) Environmental -40°C to +55°C (-40°F to +131°F) -20°C to +55°C (-4°F to +131°F) 80°C ± 3°C (Hot and cold side heat sink surfaces) NEMA 4 (IP55) Pegree of protection, unit ⁵ IP54 Sound level (1m distance) 58 dB(A) Over-Temp Thermostat (hot and cold side heat sink) 80°C ± 3°C LK-81 Bi-Polar Controller Regulation On / Off		
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Overheating thermostat 80°C ± 3°C (Hot and cold side heat sink surfaces) Degree of protection, enclosure 4 NEMA 4 (IP55) Degree of protection, unit 5 IP54 Sound level (1m distance) 58 dB(A) Over-Temp Thermostat (hot and cold side heat sink) 80°C ± 3°C LK-81 Bi-Polar Controller On / Off Regulation On / Off	Temperature range ³ (external ambient)	-40°C to +55°C (-40°F to +131°F)
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Sound level (1m distance) 58 dB(A) Over-Temp Thermostat (hot and cold side heat sink) EK-81 Bi-Polar Controller Regulation On / Off	Degree of protection, enclosure 4	NEMA 4 (IP55)
Over-Temp Thermostat (hot and cold side heat sink) $80^{\circ}\text{C} \pm 3^{\circ}\text{C}$ LK-81 Bi-Polar Controller Regulation On / Off	Degree of protection, unit ⁵	IP54
LK-81 Bi-Polar Controller Regulation On / Off	Sound level (1m distance)	58 dB(A)
Regulation On / Off	Over-Temp Thermostat (hot and cold side heat sink)	80°C ± 3°C
	LK-81 Bi-Polar Controller	
Thermostatic control set point Cooling 25°C +/- 2°C, Heating 10°C +/-2°C	Regulation	On / Off
	Thermostatic control set point	Cooling 25°C +/- 2°C, Heating 10°C +/-2°C
Hysteresis 3°C	Hysteresis	3°C
Low voltage disconnect/reconnect (LVD/LVD-R) 22.5/24.8V +/- 0.5V	Low voltage disconnect/reconnect (LVD/LVD-R)	22.5/24.8V +/- 0.5V

Decoling capacities at nominal / float voltage are rated at external temperatures of 32°C and 46°C respectively. Float voltage is defined at 27 VDC.

Note: The specified performance of any Laird Technologies cooling unit is dependent on how it is handled and incorporated into the final product. This includes elements such as the system design, insulation design, and assembly method. While Laird Technologies is able to provide general guidelines based upon our experience, it is ultimately the responsibility of the device manufacturer to validate each product and its performance for its intended use.

 $^{^{2)}}$ Heating capacity is rated at external temperature of -40°C, nominal voltage, and dT = -45°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.

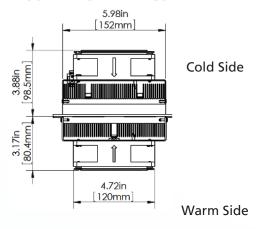
 $^{^{\}rm 5)}$ Rating for unit without protective shroud.

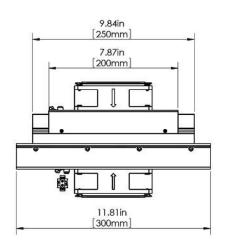


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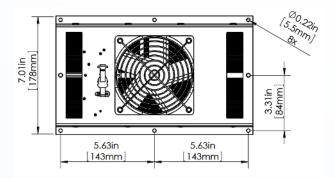
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ISOMETRIC DRAWINGS

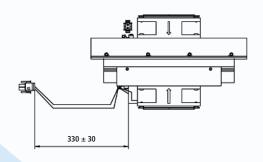




MOUNTING HOLE LOCATION



WIRING SCHEMATIC



Electrical connections

- K1 Power to Bi-Polar Controller
- P1 Positive (Red)
- P2 Negative (Black) Marked -24VDC

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