• Ideal for small enclosure refrigeration containing items that can not be cooled through direct contact.

• External heat sink air flow is directed along the length of the heat sink fins (in one end, out opposite end) providing a different option for routing air flow as compared to TE Technology’s other standard air coolers.

• One of the two cold-side (internal) air exit paths can be blocked with only a minimal impact on cooling performance, providing more mounting options in tight spaces.

• Low external fan noise (39 dBA) is beneficial in laboratory instrumentation.

• Threaded holes are located in the bases of the heat sink plates for easy attachment of a temperature sensor.

• High-temperature versions and other customizations are available for production volumes.

• CE marked, RoHS compliant.
AC-053 Specifications

Thermoelectric (TE) Power (typical)1,3:
- 24 VDC at 4.6 A
Thermoelectric (TE) Power (maximum)2,3:
- 24 VDC at 5.6 A
External (ambient) Fan Power:
- 24 VDC at 0.15 A
Internal (enclosure) Fan Power:
- 24 VDC at 0.16 A
Internal (enclosure) Fan Noise:
- 39 dBA each fan 33 dBA

NEMA Rating: 12
Weight (kg): 2.9

Please review the Thermoelectric Cooling Assembly (TCA) Instruction Manual (or manual in other languages), ordering information, and FAQ’s for related technical information before purchasing or using this product.

Performance is based on unrestricted air flow to fans and from air-flow outlets. Do not operate if the ambient, enclosure air, heat sink, or cold sink temperatures exceed 70 °C. Do not operate fan at air temperatures below -10 °C or above 70 °C.

1Current, at steady-state, is rated at +25 °C ambient, +25 °C internal, maximum heat removal. At -10 °C internal, the typical steady-state current is 4.5 A.
2Current, at steady-state operation under worst case conditions, is rated at -10 °C ambient, +70 °C internal, maximum heat removal.
3Total current consumption is sum of TE current and Fan current.

A 3D PDF, .stp, and .sldprt solid models are also available from the website. Contact TE Technology for 3D solid models in other formats.

All dimensions in millimeters.
Internal (enclosure) side shown in blue; External (ambient) side shown in red.

NOTE: All specifications are subject to change without notice. © 2018 TE Technology, Inc.
Cooler can be mounted using the four M5 x 0.8 PEM nuts located as shown in the base of the shroud.
How to use the Performance Graph:

1. **Select Performance Line**
   The diagonal lines represent cooling performance at the indicated ambient air temperature (intake temperature on the ambient-side fan). If the cooler is to operate at a different ambient, then you must sketch in a new performance line. This can be drawn parallel to one of the existing lines, using the distance between the existing lines as a scale to properly locate the new line.

2. **Select Enclosure Temperature**
   Draw a horizontal line on the graph corresponding to the desired internal air temperature of the enclosure. Make the line intersect with the performance line corresponding to the ambient temperature at which the cooler is to operate.

3. **Determine Cooling Capacity**
   The maximum amount of heat that the cooler can remove from the enclosure is determined by the intersection point (determined in the previous step). The cooler will be able to maintain the desired enclosure temperature if the cooling capacity exceeds the heat load. If the heat load exceeds the cooling capacity then a higher capacity cooler will be needed.

Example: You need to maintain the enclosure at 15 °C while in a 25 °C ambient. The cooler can remove a maximum of approximately 39 W of heat from the enclosure. If the heat load (internally generated heat plus the heat gain through insulation, solar, vapor condensation, etc.) in the enclosure exceeds this, you would need more coolers and/or a larger cooler.
How to use the Performance Graph:

1. Select Performance Line
   The diagonal lines represent heating performance at the indicated ambient air temperature (intake temperature on the ambient-side fan). If the cooler is to operate at a different ambient, then you must sketch in a new performance line. This can be drawn parallel to one of the existing lines, using the distance between the existing lines as a scale to properly locate the new line.

2. Select Enclosure Temperature
   Draw a horizontal line on the graph corresponding to the desired internal air temperature of the enclosure. Make the line intersect with the performance line corresponding to the ambient temperature at which the cooler is to operate.

3. Determine Heating Capacity
   The maximum amount of heat that the cooler can add to the enclosure is determined by the intersection point (determined in previous step). If the heat added to the enclosure (including heat generated by equipment inside) is greater than the enclosure's heat loss, then the cooler will be able to heat to the desired temperature. A higher capacity cooler will be needed if the total heat added is less than the enclosure's heat loss.

Example: You need to maintain the enclosure at 30 °C while in a -10 °C ambient. The cooler can add a maximum of approximately 115 W of heat to the enclosure. If the heat dissipation from the enclosure exceeds this (plus anything else generating heat), you would need more coolers and/or a larger cooler.
Terminal Block Configuration for Continuous Operation at Full Power

As-Shipped Configuration 1 of 2

1. REMOVE TERMINAL BLOCK COVER

2. FOUR ELECTRICAL JUMPERS INSTALLED (ORIGINAL CONFIGURATION)

2. LOOSEN TWO SCREWS KEEP JUMPERS INSTALLED
3

Power supply (+) Red Wire to POSITION 6

Power supply (-) Black Wire to POSITION 1

4

INSTALL WIRES, TIGHTEN SCREWS TO 1.0 N-M, AND REPLACE COVER

Terminal Block Configuration for Continuous Operation at Full Power
2 of 2
Terminal Block Configuration for Operation with Temperature Controller

1. REMOVE TERMINAL BLOCK COVER

2. LOOSEN SIX SCREWS

- REMOVE TWO ELECTRICAL JUMPERS FROM 2-3 AND 4-5

- FOUR ELECTRICAL JUMPERS INSTALLED (ORIGINAL CONFIGURATION)
Terminal Block Configuration for Operation with Temperature Controller

3

- Internal (enclosure) Fan Power (+)
- External (ambient) Fan Power (+)
- Thermoelectric (TE) Device (+)
- External (ambient) Fan Power (-)
- Internal (enclosure) Fan Power (-)
- Power supply (+) Red Wire to POSITION 6
- Temperature Controller (+) Red Wire to POSITION 4
- Temperature Controller (-) Black Wire to POSITION 3
- Power supply (-) Black Wire to POSITION 1

4

INSTALL WIRES, TIGHTEN SCREWS TO 1.0 N-M, AND REPLACE COVER

TE TECHNOLOGY, INC.

Expert Engineering, Precision Manufacturing:
Quality Thermal Solutions Delivered

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