

# ICEcube

TM

Cooling Solutions



## IQ200TE and IQ300TE Thermoelectric Coolers

### OPERATION AND INSTALLATION MANUAL

\*\*\* IMPORTANT \*\*\*

PLEASE READ this manual and follow the instructions for safe and satisfactory installation and operation of this system. Keep this manual for future reference. Some information may not apply to all systems.



## Thermoelectric Thermal Management System

Thank you for purchasing an Ice Qube thermoelectric thermal management system. These devices have been designed for cooling and heating of electrical, electronic and telecommunications equipment enclosures. Systems may be installed either horizontally or vertically. These closed-loop systems have been designed for both indoor and outdoor use.

### Pre-installation Inspection

When unpacking the thermoelectric system, check for damage that may have occurred during shipping. Any damage of the package is a reason for concern. Inspect the heat sink fins to make sure they have not been bent or broken. Check the fans to make sure the blades or fan guards have not been damaged. Check that terminal blocks are secure and not damaged. Also inspect wiring for cuts or abrasions. Any evidence of damage will need to be recorded on the freight bill and reported to the carrier. The freight carrier will provide instructions on filing a claim. *Ice Qube cannot accept responsibility for damages that occur during shipping.*

### Installation and Operation

***\*Please read complete instructions thoroughly before beginning installation.\****

**The IQ200TEC and IQ300TEC ship completely assembled and includes mounting hardware, gasket kit, and wire harness.**

1. Visually inspect the enclosure to determine the best location. Choose a location that will not restrict air flow on either the conditioned air stream inside of the enclosure, or the ambient air stream outside of the enclosure. Choose a location that will not cause a balance issue with the enclosure. See model specifications for unit weight. If mounting on a door, check the enclosure manufacturer specification to determine if the hinges will support the weight of the thermoelectric system.

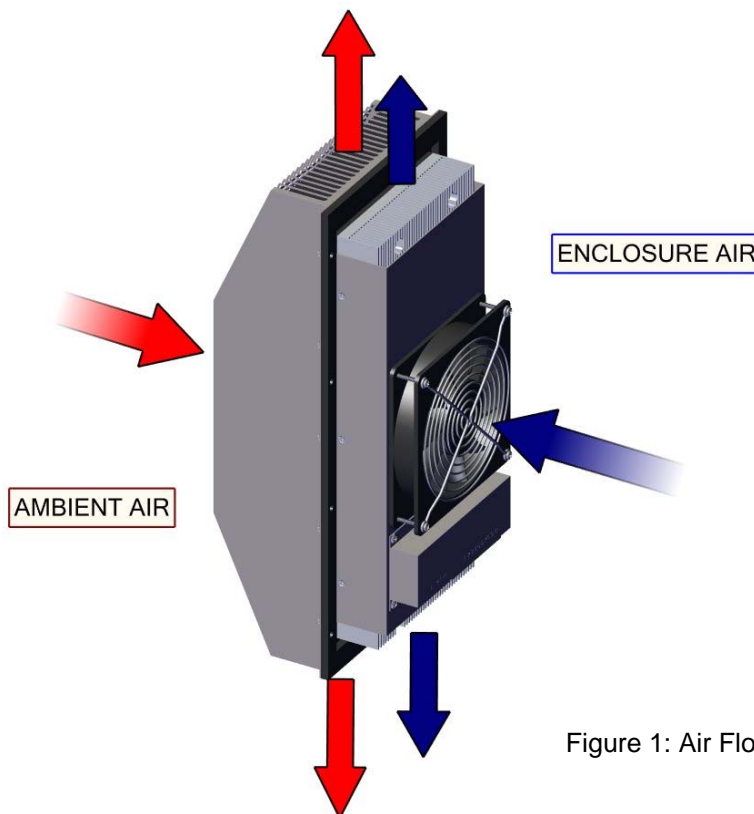


Figure 1: Air Flow Diagram

*NOTE: Condensate may be formed on the internal heat sink inside of the enclosure when operating in the cooling mode. Mounting location should take into consideration dripping condensate or condensate being entrained with the air circulated inside the enclosure that would possibly damage equipment.*

2. Prepare the enclosure by cutting a rectangle and drilling required number of holes for mounting the thermoelectric cooler to the enclosure. See cutout diagram for rectangle size and mounting hole locations. Be careful to protect any equipment inside of the enclosure from cuttings or shavings. If required, file the openings to remove any burrs or sharp edges.

3. Check that the gasket is in place. Carefully insert the thermoelectric system into the rectangular opening. Note that the smaller side is the enclosure conditioned air side. Align the drilled enclosure mounting holes with the holes on the thermoelectric cooler. Insert the provided hardware and hand tighten. Check to be sure that the enclosure and thermoelectric system are in alignment to provide a seal. Use a wrench to secure the hardware. Check the gasket perimeter for seal. Gasket should be compressed to approximately 1/8" thickness.

*\*Some cabinets may experience oil canning and require a bead of silicone to form a seal.\**

4. Check the model data tag for electrical requirements. Connect a properly grounded power supply of sufficient volts and watts to the electrical terminal block. Make sure that all connections are of the correct polarity and are secure. See following wiring diagrams for models without the controller option. The controller option provides temperature and alarm settings, along with automatic changeover from cooling to heating mode. See the controller manual for details on controller operation and settings.

5. Apply electrical power to the unit. If you are not using the controller, the fans should start immediately. Within a few minutes a temperature difference (approximately 5°F) should be noticed in regards to the air entering the fans and the air temperature near the ends of the heat sink both on the conditioned air inside the enclosure and the ambient air outside of the enclosure. This indicates that the unit is functional and has begun the thermal process.

*Note: When using the controller, the sensed temperature must be at a temperature higher or lower than the controller set points for the thermal process to operate.*

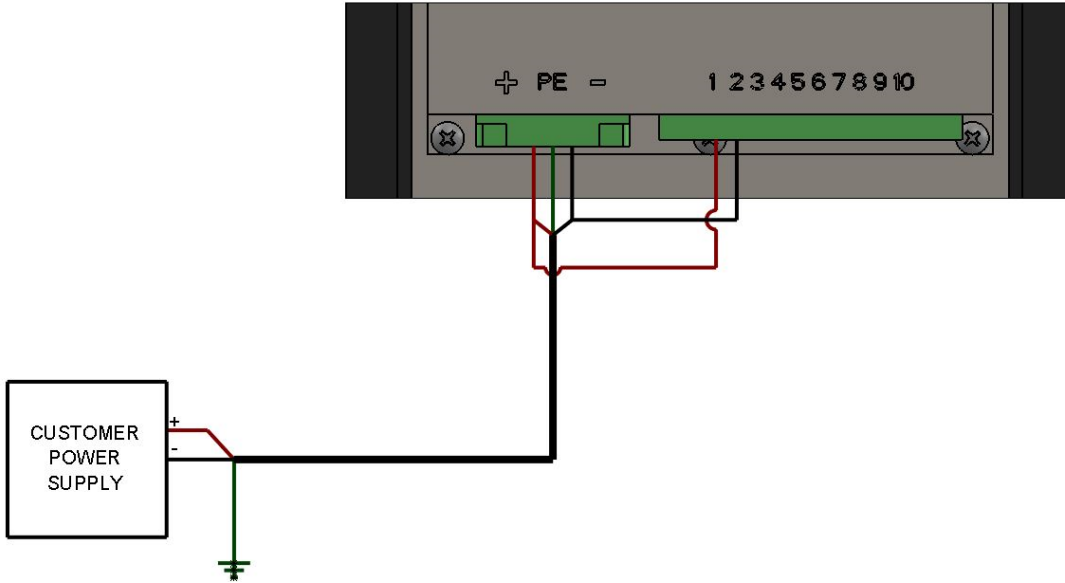
***If there are any unusual noises or vibration, remove power and contact Ice Qube at 724-837-7600 or 888-867-8234.***

## **Maintenance**

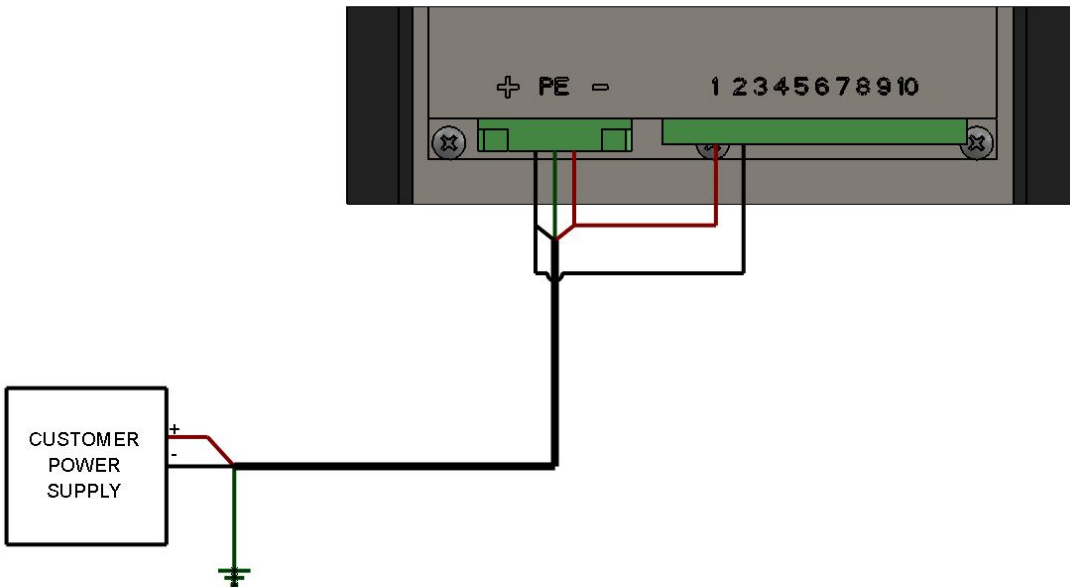
Ice Qube thermoelectric systems are virtually maintenance free unless installed in an industrial environment or areas with air-borne particulates. On models mounted on sealed enclosures, the external heat sink should be inspected regularly, frequency will depend on the environment. Accumulation of debris will reduce the efficiency of the system. A dry dust or dirt accumulated on the heat sink can be easily removed by:

1. Remove power from the thermoelectric system.
2. If necessary, remove the cover over the external heat sink.
3. Use canned or compressed air to move the debris from the heat sink. To prevent damage, do not direct high pressure air at the fans.
4. Re-assemble if required and re-connect power.

### Wiring Schematic \*COOLING\*



### Wiring Schematic \*HEATING\*



## TROUBLESHOOTING:

Contact Ice Qube if the thermoelectric system should fail to operate satisfactorily during the first year of operation. **DO NOT** remove the cover without first notifying the factory. **Removal of the cover will immediately void the warranty.**

If an operating problem should occur, please review the items outlined in the following “Trouble Shooting Check List”. If the problem persists, obtain model and serial number before contacting Ice Qube for technical assistance.

## TROUBLESHOOTING CHECK LIST

|   |       |                              |                             |  |
|---|-------|------------------------------|-----------------------------|--|
| <b>Model No:</b>  |       | <b>S/N Number:</b>           |                             |  |
| Voltage Rating:   | Amps: | Phase:                       | Hz:                         |  |
| Is proper electrical power available at the supply?                               |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Is the power cord connected to the electrical supply?                             |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Is the controller set point temperature above or below the enclosure temperature? |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Is the internal air stream fan operating?   |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Is the external air stream fan operating?   |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Is the enclosure door closed tightly?   |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Are all of the gaskets in place?  |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Has the external heat sink and fan been cleaned recently?                         |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Is there adequate space within the enclosure for air flow?                        |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Is there adequate space around the enclosure for air flow?                        |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |
| Have you recently added electronic equipment to the enclosure?                    |       | YES <input type="checkbox"/> | NO <input type="checkbox"/> |  |

**Still experiencing problems? Please Call Ice Qube at 724-837-7600 or 1-888-867-8234**  
 Make sure you have your model and serial number ready before you call.