

# 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

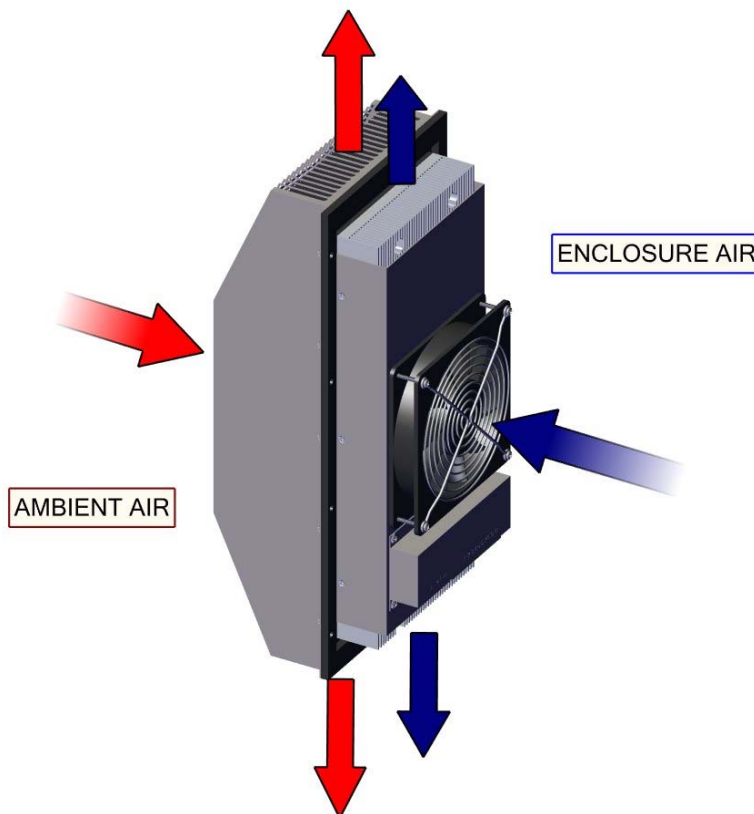
When unpacking the thermoelectric system, check for damage that may have occurred during shipping. Any damage of the package is a reason for concern. Inspect the heat sink fins to make sure they have not been bent or broken. Check the fans to make sure the blades or fan guards have not been damaged. 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, wire harness and cutout diagram.**

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.



*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 account 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.

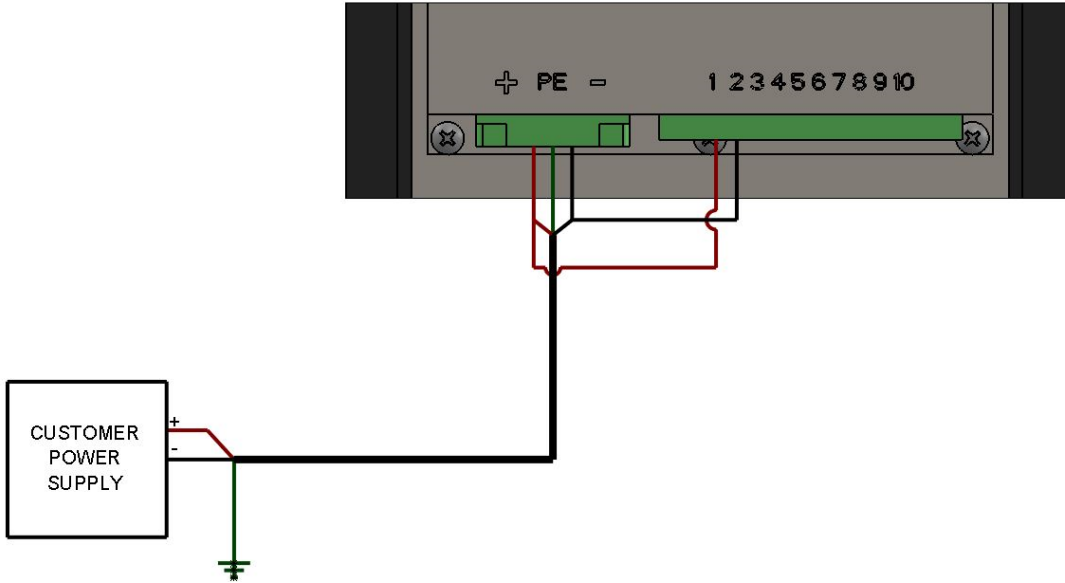
***If there are any unusual noises or vibration, remove power and contact Ice Qube at 724-837-7600 or 888-867-8234.***

### **Maintenance**

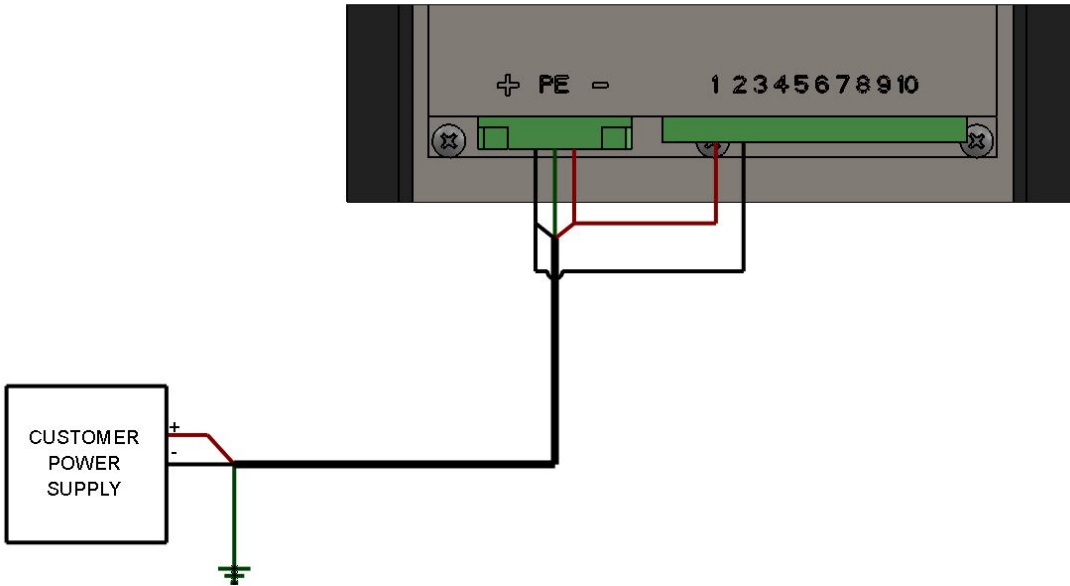
Ice Qube thermoelectric systems are virtually maintenance free unless installed in an industrial environment or areas with air-borne particulates. On models mounted on sealed enclosures, the external heat sink should be inspected regularly, frequency will depend on the environment. Accumulation of debris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

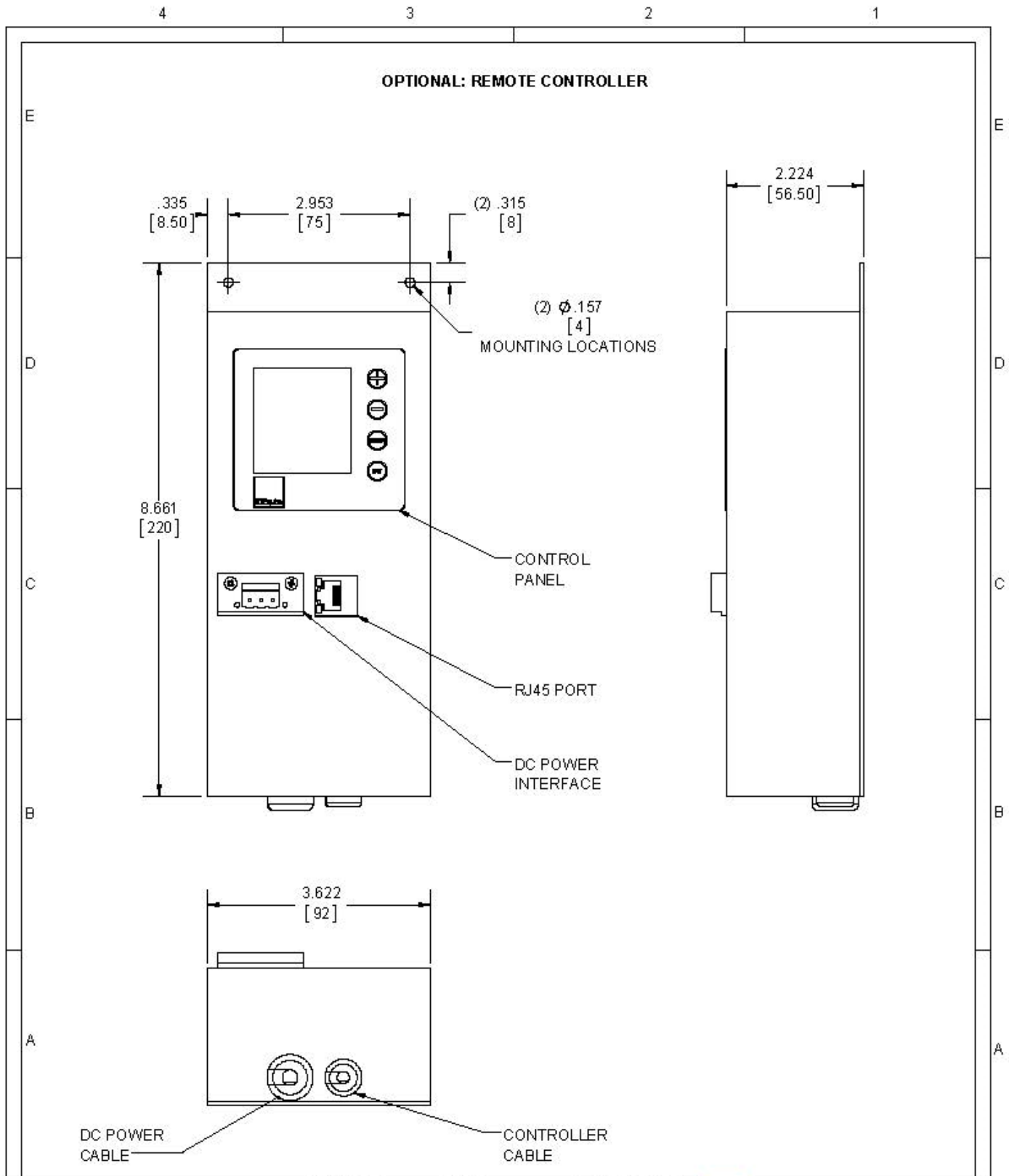
1. Remove power from the thermoelectric system.
2. If necessary, remove the cover over the external heat sink.
3. Use canned or compressed air to move the debris from the heat sink. To prevent damage, do not direct high pressure air at the fans.
4. Re-assemble if required and re-connect power.

### Wiring Schematic \*COOLING\*



### Wiring Schematic \*HEATING\*





PART NUMBER <i>N/A</i>		USED ON <i>IQ200 TEC</i>		UNLESS OTHERWISE SPECIFIED TO LEADING EDGE: X ±.002 XX ±.003 XXX ±.015 FRACTIONAL ±1/16 ANGULAR ±12°		<b>ICE QUBE, INC.</b> <small>THIS IS A PROPRIETARY DOCUMENT. DO NOT REPRODUCE OR DISCLOSE WITHOUT THE EXPRESS WRITTEN PERMISSION OF ICE QUBE, INC.</small> <b>DESCRIPTION</b> <i>SPEC DRAWING, IQ200TEC</i>	
MATERIAL <i>N/A</i>				SURFACE FINISH $\checkmark$ 63			
ESTIMT. DRAWN BY <i>ART</i>	DATE <i>12/11/2015</i>	SCALE <i>1:2</i>		DO NOT SCALE DRAWING DIMENSIONS ARE INCHES		DRAWING NUMBER <b><i>IQ350869</i></b>	
							REV <i>A</i>

QD-ENG-68 REV D

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## 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.

### **Standard Warranty Policy**

Ice Qube, Inc. ("**Ice Qube**") warrants that the products manufactured by Ice Qube (the "**Products**") are free of defects in material and workmanship which impair the operation of the Products, under normal and proper use and service, for a period of one (1) year from the date of shipment FCA from Ice Qube's facility located in Greensburg, Pennsylvania (the "**Standard Warranty**").

In order for this Standard Warranty to apply, the Product(s) must be installed and operated according to and consistent with the following conditions:

- Voltage variation no greater than +/- 10% from the rated voltage on the label of the Product;
- Frequency variation no greater than +/- 3 HZ from rated frequency on the label of the Product;
- Ambient temperature must not exceed maximum operating temperature on the label of the Product;
- Maximum cooling capacity not to exceed rating (BTU/HR) as rated on the label of the Product; and
- The Product must be installed, maintained and operated consistent with the terms and conditions set forth in the operation manual.

#### **THIS STANDARD WARRANTY DOES NOT COVER THE FOLLOWING:**

- Ice Qube assumes no liability beyond the repair or replacement of its own Products. In no event shall Ice Qube be liable for any incidental, special, indirect, consequential or similar damages incurred by any purchaser, owner, possessor, assignee or successor in interest or any other third party having any interest in any Product as the result of any breach of this Standard Warranty, including but not limited to loss of profit or revenues, damages for loss of use of the Products, damage to property, both real and personal, claims of third parties, including personal injury or death on account of use of the Products or failure of Ice Qube to warn against or instruct on or adequately warn against or instruct on, the dangers of the Products or the safe and proper use of the Products, whether or not customer has been advised of the potential for such damages.
- Ice Qube's total liability for customer's claims from any cause whatsoever, whether arising under contract, warranty, tort (including negligence), strict liability, products liability or any other theory of liability, will be limited to the lesser of customer's actual damages or the price paid by customer to Ice Qube for the Products (not including applicable taxes, duties and freight charges) that are the subject of customer's claim.

THE WARRANTY SET FORTH HEREIN IS STRICTLY LIMITED TO ITS TERMS AND IS IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, USAGE OF TRADE OR OTHERWISE, SPECIFICALLY EXCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE.

1. The warranty and remedies for breach of warranty provided for in this Standard Warranty extend only to the original installation and do not cover, and Ice Qube will neither assume responsibility, nor be liable, for the following:
  - misapplication of its Products or the erroneous selection of an inappropriate Product by a non-authorized Ice Qube representative;
  - use of the Product for other than its designed purpose or operating conditions;
  - operation or storage in harsh, oily, corrosive or other abnormal environments without the proper filtration, sealing, protective coatings and/or weather protection;
  - damage to the hermetic system resulting from continuous operation with dirty or clogged air filters or improper or negligent maintenance;
  - use of refrigerant other than designated on the label of the Product;
  - customer modification or abuse;
  - shipping damage or other accidental damage (It is Ice Qube's standard policy that freight claims are the responsibility of the customer if the Product is not refused at delivery);
  - repair, damage or service of the Product caused by anyone except personnel authorized by Ice Qube;
  - cracked or broken hermetic tubing, brazed joints or other internal damage caused by shipping or mishandling;
  - damage caused by shipping units attached to an enclosure;
  - any and all damage, breakage, malfunction or other like conditions or defects resulting from noncompliance with the standard operation, care, installation, maintenance and use of the Product as set forth in the operation manual for such Product;
  - any cause beyond the control of Ice Qube, including without limitation conditions caused by movement, settlement or structural defects of the environment in which the Products are installed;
  - fire, wind, hail, flood, lightning or other acts of God;
  - any damage to the finish of the Products after they leave Ice Qube's facility;
  - any discoloration or spotty appearance of the Products;
  - return freight and shipping charges, along with applicable duties and other like fees and charges, for the return of the Product to Ice Qube (such amounts are the sole responsibility of the customer);

- failure to process or inaccurate processing of time-sensitive information and/or mechanisms; or
  - exposure to harmful chemicals, pollutants or other foreign matter or energy.
2. All returns must have a RMA number and must be marked with the RMA number on the bill of lading and on the packaging.
  3. Upon resale, customer agrees to extend to its customers no greater warranties, and limit its liability and remedies to the same extent, as those set forth herein.
  4. All Product literature is for illustrative purposes only and does not contain a warranty of any kind.
  5. Ice Qube's advice relating to the technical usage of the Products or the intellectual property rights of others, whether provided orally or in writing or through the provision of test results, is given in accordance with Ice Qube's best knowledge at that time, but shall at all times be deemed to be non-binding. Such advice does not relieve customer from the obligation, and customer accepts full responsibility, to confirm for itself the suitability of the Products for their intended purpose(s).

#### **Remedies**

Customer's sole and exclusive remedy, and Ice Qube's only obligation for breach of warranty hereunder shall be, at Ice Qube's option, in its sole discretion, to (i) repair or replace the defective Product which fails within the one (1) year warranty period, free of charge, provided that customer promptly notifies Ice Qube of such failure and, after receipt of prior written authorization and return authorization number from Ice Qube, which will be given or withheld at Ice Qube's sole discretion, returns such Product to Ice Qube, Inc., 141 Wilson Avenue, Greensburg, PA 15601, or such other place as requested by Ice Qube, freight prepaid, and thereupon Ice Qube finds such to be defective or (ii) issue a credit equal to the price of the defective Product which fails within the one (1) year warranty period. Customer must pay all related costs of repair or replacement, including removal, installation or reinstallation costs. Ice Qube's personnel must be granted access to inspect the Products claimed to be defective at the site of their installation or use. Products repaired or replaced and designs corrected under this Standard Warranty are warranted only for the remainder of the original warranty period.

#### **In-Field Service for Continental United States<sup>1</sup>**

All standard duty air conditioners manufactured by Ice Qube are eligible for in-field service, where available, at no charge to customer, for a period of one (1) year from the date of shipment FCA from Ice Qube's facility in Greensburg, Pennsylvania. However, such in-field service is only available at the sole discretion of Ice Qube. In-field service may not be available in all service areas and the provision of in-field service is subject to change at any time by Ice Qube without notice. The location of the Product otherwise eligible for in-field service must be within One Hundred (100) miles of the service center selected by Ice Qube in its sole discretion. In-field service is only available in the Continental United States.

All in-field services must be initiated by Ice Qube. Customers must call Ice Qube support service at (724) 837-7600 and work with the Ice Qube support personnel so that Ice Qube can determine the necessity of in-field service for such Product in its sole discretion.

Ice Qube will not assume any liability for any in-field service not initiated by Ice Qube. In no event shall Ice Qube be liable for any incidental, special, indirect, consequential or similar damages incurred by any purchaser, owner, possessor, assignee or successor in interest or any third party having any interest in any Product as the result of the provision of any in-field services to such Product, including but not limited to loss of profit or revenues, damages for loss of use of the Products, damage to property, both real and personal, claims of third parties, including personal injury or death on account of use of the Products or failure of Ice Qube to warn against or instruct on or adequately warn against or instruct on, the dangers of the Products or the safe and proper use of the Products, whether or not customer has been advised of the potential for such damages.

Ice Qube's total liability in connection with in-field services from any cause whatsoever, whether arising under contract, warranty, tort (including negligence), strict liability, products liability or any other theory of liability, will be limited to the lesser of customer's actual damages or the price paid to Ice Qube for the Products (not including applicable taxes, duties and freight charges) for which in-field services are sought.

ALL HAZARDOUS DUTY AIR CONDITIONERS ARE EXCLUDED FROM IN-FIELD SERVICE DUE TO CERTIFICATION. TO THE EXTENT APPLICABLE, SPECIFICALLY EXCLUDED FROM IN-FIELD SERVICES INITIATED BY ICE QUBE ARE ANY AND ALL OTHER WARRANTIES, GUARANTEES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, USAGE OF TRADE OR OTHERWISE, SPECIFICALLY EXCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE.

ALL THERMOELECTRIC, QUBE, AND BLADE SERIES UNITS ARE EXCLUDED FROM IN-FIELD SERVICE. THESE UNITS WILL EITHER BE RETURNED TO THE FACTORY FOR REPAIR OR MAY BE ELIGIBLE FOR A REPLACEMENT UNIT. THIS WILL BE AT THE SOLE DISCRETION OF ICE QUBE, INC.

#### **Extended Warranty Options**

Ice Qube offers extended warranty options on a per Product basis. Please contact Ice Qube at (724) 837-7600 for further information. All extended warranties must comply with all applicable provisions of the Standard Warranty listed above.

All Products with extended warranties must be registered with Ice Qube and must be installed and maintained according to the operation manual and according to the terms and conditions set forth in the Extended Warranty for such Product.

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<sup>1</sup> In-field service outside the Continental United States is only offered on a case by case basis in Ice Qube's sole discretion. Customers outside the Continental United States must call Ice Qube support service at (724) 837-7600 and consult with the Ice Qube support personnel so that Ice Qube can determine the availability of in-field service at such location.