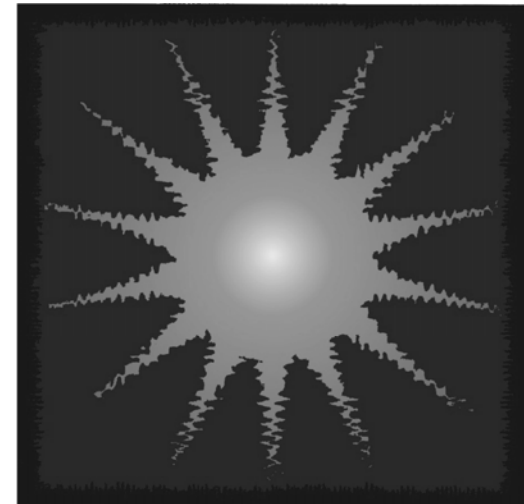


# Owners Manual

Heatizon Systems Low Voltage Products

## CBX7 System



**HEATIZON**  
S Y S T E M S



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# **Owner's Manual**

## **Heatizon Systems Low Voltage Products**

### **CBX7**

Congratulations on your decision to purchase the finest floor warming, space heating, roof snow and ice melting and/or snow melting products available today. We are so confident that your decision to purchase our products will provide you with many years of satisfaction that we have backed them up with the longest warranty in the industry. In the event you ever have questions regarding the Heatizon Systems products please do not hesitate to contact us.

**Heatizon Systems**  
**4137 South 500 West**  
**Murray, Utah 84123**  
**(801) 293-1232 Phone**  
**(801) 293-3077 Fax**  
[www.Heatizon.com](http://www.Heatizon.com)

## **Heatizon Systems Products**

Utilizing state of the art components and low-voltage electricity, Heatizon's products are unprecedented in ease of operation. They are virtually maintenance free and efficient in operation. ZMesh and Tuff Cable have a limited 25 year warranty and are engineered to provide simple and problem-free solutions to your floor warming, in floor space heating, snow melting and roof snow and ice melting needs. Heatizon's ZMesh and Tuff Cable are tried and proven, and have been Warming American's Cold Spots since 1979.

Heatizon Systems products do not use chemicals or potentially explosive gases. The secondary side of all of our low voltage products operates at 65 volt AC or less.

## PRODUCTS

Heatizon Systems carries a full line of Radiant Heating, Snow Melting, Roof Deicing and Pipe Freeze protection products. Contact Heatizon Systems or your local distributor for more product information.



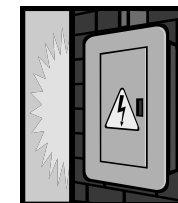
## CAUTION NOTICES

**IMPORTANT!** A plastic “STOP! DANGER!” sign and an “Electric Shock Or Fire Hazard” sticker indicating the presence of electric deicing, snow melting or warming equipment has been included with your Heatizon product packaging. These caution notices must be affixed at the fuse or circuit breaker panel and be clearly visible.

Never cut or in any other way damage the Tuff Cable or ZMesh. Never short the ZMesh or Tuff Cable to anything electronically conductive.



It is not recommend that you ever remove any of the covers on the Control Unit. Never open your Heatizon Systems Control Unit without first turning the power to the Control Unit completely off by turning both the Control Unit Switch, if so equipped, and the Circuit Breaker in the Electric Distribution Panel to the off position.



## SYSTEM INFORMATION

### Before Starting Your System:

1. Review all “Warnings” and “Start-Up Procedures” in both this manual and the Design and Installation manual which is available online at [www.heatizon.com](http://www.heatizon.com).
2. Make sure the “Warranty Card” has been sent to Heatizon Systems.
3. Start a file which includes a copy of the “After Element Installation Tests”, this owners manual, the “Design and Installation Manual” and “Activation Device instructions.”

### Operating Your System:

**Operation.** Other than setting the activators and turning the breaker to the “On” position, Heatizon Systems products have nothing else that require your attention. In the event your Heatizon Systems products are not operating correctly, call a qualified electrical contractor or Heatizon certified installation professional to make any necessary adjustments or repairs.

**Danger.** Do not cut, short, or damage the Heatizon ZMesh or Tuff Cable heating elements once they have been installed. If you are performing work in the area where the heating element is located:

1. Turn the power off
2. Identify the exact location of the heating element
3. Contact Heatizon Systems (801-293-1232 or [www.heatizon.com](http://www.heatizon.com)) if the heating element is damaged in any way

### Maintaining Your System:

**Maintenance.** Other than keeping the airflow vents on the Control Unit clean and unobstructed, Heatizon Systems products do not require any routine maintenance. In the event your Heatizon Systems products are not operating correctly please call a qualified electrical contractor to make any necessary adjustments or repairs.

**Summer Shut-down.** Heatizon Systems recommends that the switch on the Heatizon Systems Control Unit, if so equipped, and the Circuit Breaker (located in your Electrical Distribution Panel) that services your Heatizon Systems product(s) be turned to the “off” position during the summer time and other extended periods of time when it will not be used.

**Longevity and Reliability.** There are no moving parts in your Heatizon Systems product. All controls are 100% solid-state for long term life and reliability.

## RETURN MATERIALS

If it becomes necessary to return any purchased materials to Heatizon Systems, they need to be accompanied by a Return Materials Authorization (RMA) form and number. Please call Heatizon Systems to get an RMA number and form, or use the RMA form below. RMA Forms also available online or by Fax. Complete all information on the form, package products in their original shipping materials, and return them as directed. Products being returned for repair or warranty will be evaluated by our engineers prior to determining if repairs can be made and/or if warranty applies to returned materials. Please be aware of shipping, restocking, and other charges that may apply to your returned materials.



### RETURN MATERIALS AUTHORIZATION

4137 South 500 West • Murray, UT 84123  
Phone (801) 293-1232 • Fax (801) 293-3077

#### HOW TO RETURN MERCHANDISE

- Call Customer Service (1-888-239-1232) for a Return Materials Authorization number. Write your RMA number here.
- Complete steps 1 through 4 on this form **and return it with your shipment.**
- Pack and tape your shipment carefully in the original packaging, or in a strong cardboard carton to avoid damage in shipment. Heatizon reserves the right not to issue a refund if return merchandise is damaged due to poor packaging. Be particularly careful with electronic items and heavy items, such as transformers.
- Complete and detach the label below, and affix the return shipping label to your package. Be sure to write your RMA number on the shipping label.
- Ship your package prepaid and insured via UPS Ground or FedEx Ground (Sorry, we can not accept COD's). Return shipping charges are the customer's responsibility.
- A restocking fee will apply to all materials being returned to inventory. Special order items are not returnable.

RMA #

→

#### RETURN CODES

- |    |                                  |
|----|----------------------------------|
| 20 | Ordered wrong materials          |
| 21 | Ordered wrong quantity           |
| 22 | Project changed after order      |
| 23 | Decided didn't want              |
| 24 | Shipped wrong materials          |
| 25 | Item labeled incorrectly         |
| 26 | Parts shipped do not match order |
| 27 | Defective material               |
| 28 | Parts missing from product       |
| 29 | Does not work (Explain on back)  |
| 30 | Damaged in shipping              |
| 31 | Repair and return                |

#### HEATIZON RETURN POLICY

Heatizon will provide an exchange or refund for new products returned within 30 days, less restocking fee and shipping and handling. All products must be in new, unused condition and in the original packaging to receive a refund or credit. Merchandise returned not in the original condition in which it was shipped will be subject to a restocking fee, a repair fee, or may be ineligible for refund. Beyond 30 days, items are returnable for exchange only after inspection. Items being returned for repair require credit card pre-authorization of up to \$100 to assess and repair the item. The customer will be contacted for authorization to proceed if repairs exceed \$100. Any item that is shipped without completed RMA form, or any item left unclaimed for 30 days becomes the property of Heatizon Systems.

**STEP 1:** Name \_\_\_\_\_ Purchased From (Distributor Name) \_\_\_\_\_

Phone \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Cell \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Fax \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

E-Mail Address \_\_\_\_\_ Date of Purchase \_\_\_\_\_ Invoice Number \_\_\_\_\_

Comments \_\_\_\_\_

**STEP 2:** Please indicate the action you would like us to take: ☐ Exchange ☐ Refund ☐ Repair ☐ Other  
(Any credit or reimbursement is made to the distributor that the product was purchased from. Contact your Heatizon Distributor to advise them of this return and arrange for credit, if any, to your account.)

#### STEP 3: ITEMS BEING RETURNED

ITEM # AND DESCRIPTION	QTY	REASON CODE

#### ITEMS EXCHANGING FOR

ITEM # AND DESCRIPTION	QTY	PRICE

**STEP 4:** Please check the form of payment for additional items or difference in price of the exchange items. Items being returned for repairs will be examined and repaired if cost to repair does not exceed \$100. Customer will be contacted for prior approval if repairs exceed \$100. Failure to complete this section may cause delays in the processing of your return.

☐ Visa ☐ MasterCard ☐ Discover ☐ American Express ☐ Check is Enclosed

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_ / \_\_\_\_\_

Signature \_\_\_\_\_  
Cardholder agrees to pay the total amount owing according to the card issuer agreement.

#### SHIPPING LABEL

<b>FROM:</b> _____ _____ _____  <b>RMA NUMBER</b> _____	<b>TO:</b> <b>Attention: Return Materials</b> <b>Heatizon Systems</b> <b>4137 South 500 West</b> <b>Murray, UT 84123-1399</b>
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**Twenty-five Year Limited Warranty for  
Heatizon Systems  
“Tuff Cable” Element (E101), “Z Mesh” Screen Element (E102) and  
Specified Radiant Panel Heating Components**

Heatizon Systems warrants to the original purchaser/end user of the following products that for the periods noted such products shall be free from defects in material and workmanship: Tuff Cable (E101) Heating Element and ZMesh (E102) Heating Element for a period of twenty-five (25) years, the Control Unit for a period of one (1) year, power Transformer for a period of five (5) years, and Activation Device(s) for a period of one (1) year. Such warranty periods shall commence on the date of shipment by Heatizon Systems. If any parts are found to be defective in manufacture during such time period, Heatizon Systems will, at its sole option, replace or repair defective parts.

This Limited Warranty applies only if articles sold hereunder (a) are selected, designed, and installed according to instruction and operation manuals furnished by Heatizon Systems and installed in a “workmanlike manner” according to the building association standards adopted by Heatizon Systems, (b) remain in their originally installed location, (c) are connected to proper power supplies, (d) are not misused or abused, (e) show no evidence of tampering, mishandling, neglect, damage (accidental or otherwise), modifications or repair without the approval of Heatizon Systems, or damage done to the product by anyone other than Heatizon Systems, and (f) are installed in accordance with applicable code requirements. Any warranty claims must be made in writing, no later than one (1) month following expiration of the warranty period, and must be accompanied by the warranted part or component. Any claim not made in such manner shall not be honored by Heatizon Systems.

This Limited Warranty does not cover:

1. The workmanship of any installer of Heatizon Systems radiant panel heating products.
2. Any Heatizon Systems radiant heating products that have a failure or malfunction resulting from improper or negligent operation, accident, abuse, misuse, unauthorized alteration or improper repair or maintenance.
3. Any Heatizon Systems radiant heating products that have had components not purchased from Heatizon Systems integrated into or connected to them.
4. Any labor costs for removal of alleged defective part(s) and/or reinstallation of replacement part(s), transportation to and from Heatizon Systems (if necessary) and any other material necessary to perform the exchange or repair.
5. Any Heatizon Systems heating products that have not been properly registered by completion and return of the Warranty Registration Card attached hereto.

**DISCLAIMER OF WARRANTIES:**

This warranty described above is in lieu of all other warranties, express or implied, including but not limited to any implied warranties of fitness for a particular purpose and merchantability. Heatizon Systems expressly disclaims and excludes any liability for losses, expenses, inconveniences, consequential, incidental, indirect, or punitive damages for breach of any express or implied warranty. By installing and/or purchasing Heatizon Systems products, you accept the terms of this limited warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you. This Limited Warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

## TROUBLE SHOOTING PROCEDURES

NOTE: Always turn power off prior to removing or reinstalling covers.

**WARNING: HIGH VOLTAGE PRESENT! TROUBLE- SHOOTING PROCEDURES AND MEASUREMENTS MUST BE PERFORMED WITH THE SYSTEM ENERGIZED AND THE COVERS REMOVED. ALWAYS MAKE CERTAIN THAT THE PERSON PERFORMING THESE PROCEDURES IS FAMILIAR WITH SAFE PRACTICES REQUIRED FOR WORKING WITH HIGH VOLTAGE EQUIPMENT. A QUALIFIED TECHNICIAN OR ELECTRICIAN SHOULD PERFORM THE FOLLOWING PROCEDURES!**

The following procedures cover most problems that can be encountered when installing or servicing Heatizon Systems products with CBX7 Series Control Units. If your Heatizon Systems product cannot be repaired using the following procedures, contact Heatizon Systems for further assistance.

**Problem: There is no power to the Control Unit (no LED indication on Control Board)**

- Solution:
1. Test for input power.
  2. Check circuit breaker, reset or turn on as necessary.
  3. If equipped, verify that the power disconnect is in the ON position.
  4. If power is measured at the input of the CBX7 and unit will not turn on, Contact Heatizon Systems at 801-293-1232 for technical assistance

**Problem: The system is “hard starting” or a breaker trips when the thermostat is activated**  
The CBX7 has a soft start that will ramp the current on and off from zero to full current in about two seconds. The soft start eliminates high inrush current or power surge.

- Solution:
1. Check for proper wiring of the transformer primary for the supply voltage you are using. Improper wiring of the primary may trip circuit breaker. Improper wiring of the primary can damage the transformer if allowed to run for any length of time.
  2. If the activator is in the ON position when the power is applied to the CBX7 Control Unit, the unit will turn on with a hard start. Always have the activator in the OFF position before powering the unit.

**Problem: The Control Unit has power, but the system will not activate**

- Solution:
1. If the activation device is ON, but the green LED is OFF and there are no amps present in element, check activator wiring from the activation device to the Control Unit for continuity.
  2. If the activation device is ON, the green LED is ON, the red LED fault indicator is ON, but there are no amps present in element, system has an SCR short or current over 100 amps. To reset a fault, turn the activation device OFF and the power OFF at the distribution panel or disconnect, if one is installed, and then turn the power back ON and then turn the activation device ON. If the fault recurs, either the secondary Amps are greater than 100, or the SCR has shorted and failed.
  3. If the green LED is ON, red LED is OFF, and there are no amps present in the element and Cold Lead, check Cold Leads connected to the Transformer, check for open element and loose connections.

**Problem: System is ON, but unable to adjust Amps to an acceptable operating range**

- Solution:
- Check the Transformer/Cold Lead connections. Make certain that the Cold Leads are connected to the highest voltage Transformer tap that does not result in secondary amperage in excess of 96 Amps. Transformer should be set at the highest tap.

**Problem: System is ON, but the green LED on cover will not light**

- Solution:
- Check the interconnecting cable from the Power Board to the cover.

## WARNINGS

Check contents of all boxes immediately upon receipt of your Heatizon shipment and notify Heatizon within 24 hours of any discrepancy or missing part.  
Read this Installation Manual in its entirety before attempting to install any Heatizon Systems Products.

Installation of Heatizon Systems products and associated work must be performed by qualified persons and conform to local building codes, ordinances, trade practices, and in accordance with all applicable sections of the National Electric Code (NEC) or the Canadian Electrical Code (CEC).

**Risk of fire!** Risk of fire possible if installation of system is not completed according to all of the installation instructions contained within this Installation Manual, including but not limited to the warnings and notes throughout. Risk of fire possible if metal or any other conductive material is allowed to come into contact with the Cold Leads and Tuff Cable or ZMesh Heating Element. Risk of fire possible if connections/joints between Cold Leads and Tuff Cable, Colds Leads and ZMesh, Tuff Cable and Tuff Cable, and or ZMesh and ZMesh are not crimped and/or soldered correctly. Risk of fire possible if loose strands of ZMesh or Tuff Cable Heating Element or cuts or other damage to ZMesh or Tuff Cable are not repaired correctly. Note: The safety features incorporated into Heatizon Systems products cannot detect cuts in Cold Leads and ZMesh or Tuff Cable Heating Elements. Do not allow ZMesh to cross itself—maintain a minimum of 2" distance between adjacent runs of ZMesh Heating Element. Do not allow Tuff Cable to touch or cross itself.

**Risk of shock!** Make sure all power to your Heatizon Systems product and thermostat is shut off at the electric distribution panel before installing, removing covers, servicing, or working on any of the components of any Heatizon System product.

All connections/joints between Colds Leads and Tuff Cable heating element must be embedded into mortar, asphalt, or other acceptable cementitious Heatsink.

Knockout openings shall not be used except with devices that are designed to fill such openings.

Obtain written approval from Heatizon Systems for applications and installations that are different from those described herein.

In order for your Heatizon Systems product to operate correctly, the transformer portion of the Control Unit must be installed so that it can dissipate the heat that it generates

Like all electric products, Heatizon Systems products create a magnetic field that may interfere with certain brands of televisions, computer monitors, etc. Unlike Cathode Ray Tubes ("CRT"), Plasma Display Panels ("PDP") and Liquid Crystal Displays ("LCD") do not seem to be affected by magnetic fields. In the event magnetic field interference is a concern for you please consult Heatizon Systems or your sales representative prior to making your purchase.

Mattresses, Bean Bag Chairs, LoveSacs, Futons, and all other items which have high insulating values should never be placed directly on any surface which has a radiant heating product under it.

Never install Heatizon Systems products in space heating or floor warming applications to deliver more than the 15 watts per square foot (or 160 watts/m<sup>2</sup>) recommended by the Radiant Panel Association.

"Field installed wiring is to be in compliance with the National Electrical Code (NFPA-70) and/or ordinances," or the Canadian Electrical Code, or equivalent, as applicable to installation location.

Never install heating element near a wax toilet ring.

## ROOF INFORMATION FOR ROOFING CONTRACTOR AND OTHER TRADES

Please communicate this information directly to anyone who will come into contact with the Tuff Cable heating element after it has been installed. Prior to beginning the installation of any Heatizon Systems product, read the applicable sections of the installation manual in their entirety. In order for Heatizon Systems installation instructions to be followed completely, **Heatizon Systems requires that a copy of this page be given to the Roofing Contractor**, and additional copies be stapled near the Tuff Cable immediately after its installation. The copies and staples should be removed prior to installing the roof covering.

**A Heatizon roof deicing system has been installed on this project. Here are the steps you need to take to insure that the system is installed correctly and is not damaged:**

**Ice and Water Shield.** Heatizon Tuff Cable Heating Element is to be installed on top of the sub-roof and must have Ice and Water Shield installed over them. As an installer option, they may also have Ice and Water Shield installed under them as well. Do not apply roofing material directly on top of either heating element.

**Electrically Conductive Materials.** Heatizon Tuff Cable Heating Element must not come in contact with any other electrically conductive materials on the roof structure. The roofing contractor is responsible for insuring the element is not cut, or damaged in any way and does not come into contact with any conductive material.

- Drip edge, flashing or any other conductive material on the roof structure must not connect to or come in contact with Tuff Cable Heating Element.
- Screws, nails, attachments or any other connectors securing the conductive shingles, drip edge, flashing, valley metal, skylights, etc or any other conductive material must not penetrate, connect to, or come in contact with Tuff Cable Heating Element.
- Do not cut, fold, twist, or alter the Tuff Cable Heating Element.

**Continuity Check.** Tuff Cable Heating Element should have a continuous continuity check performed during the installation of all conductive roofing materials. A Roof Alarm is available for rental or purchase from Heatizon Systems to assist the roofing contractor in performing this continuity check. The circuit must always be open. See Roof Alarm instructions for more detail.

**After the Installation.** Immediately following installation, the Tuff Cable Heating Element is to be tested for continuity and the correct readings recorded in the installation manual. The Roofing Contractor is responsible for any penetration, cutting, or other damage done to the Tuff Cable Heating Element.

**Electrical Codes.** The Cold Leads of the Heatizon Roof Deicing System is considered part of a listed snow melt/deicing system. However, local electrical codes may require Cold Leads to be run in conduit between the Control Unit and the heated section. Consult with a local electrical inspector or other relevant authority prior to installation.

**Warnings.** Heed all warnings in the Heatizon Systems Installation Manual, the product packaging, and attached to or affixed to the product.