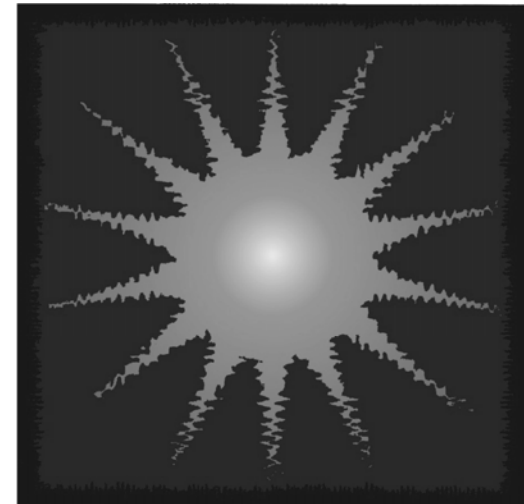


Owners Manual

Heatizon Systems Low Voltage Products

Radiant 8 System



HEATIZON
S Y S T E M S



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Owner's Manual

Heatizon Systems Low Voltage Products

RADIANT 8

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

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.



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.



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

FROM: _____ **TO:** **Attention: Return Materials**
Heatizon Systems
4137 South 500 West
Murray, UT 84123-1399

RMA
NUMBER _____

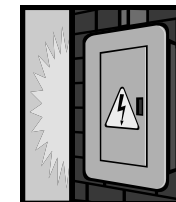
CAUTION NOTICES

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.
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) 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.

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.

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/m²) 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.

TROUBLESHOOTING PROCEDURES FOR RADIANT 8

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 of the problems that can be encountered when installing or servicing Heatizon Radiant 8 system.

Problem: Display is not lit

- Solution:**
1. Check that the input circuit breaker is on.
 2. Check that the input terminals are tightly connected.

Problem: Control Unit has power but will not activate

- Solution:**
1. Check that the input power terminals and the terminals to the Transformer are tightly connected. Pushing the timer switch once will activate the Control Unit for 4 hours; each additional push of the timer switch will add 2 additional hours. The Control Unit may be activated by any of Heatizon's activation devices that can be connected to the activation terminals.
 2. If the timer switch will not activate the Radiant 8, confirm that the wire running from the switch to the timer terminal block (TB1) is connected. The Radiant 8 can be tested by shorting the two terminals on the timer terminal blocks together (T1).
 3. If Heatizon's activation device will not activate the Radiant 8, confirm that the wires at the activation terminal are marked "activation" on the display board. The activation device and wiring can be tested with a ohmmeter which is connected to the red and white wires on the t-stat cable. When the activation device is calling for heat there will be continuity between the red and white wires; when the device is off or the wire has been damaged or severed there will be no continuity between the red and white wires.

TROUBLESHOOTING PROCEDURES FOR RADIANT 8

Problem: Power is turned on and the display indicates a fault

- Solution:
1. Open/Shorted T Sensor 1: Thermister to the transformer is not connected or broken or severed.
 2. Open T Sensor 2: Thermister to the load is not connected or the wire is damaged or severed.

Problem: System starts but turns off and indicates a fault

- Solution:
1. Turn the power back on if a fault shut down the system. The fault will then be displayed until the Control Unit is reset. A red LED would also be activated and the green LED would be disabled to indicate a fault. Turn the power off and back on to reset the Radiant 8 Control Unit.

Fault indication

Problem: Shorting and arcing

- Solution:
1. Shorting and arcing will occur when the incoming electrical current increases more than 20%. Check for an intermittent short on the element or at the transformer connection, or for a lost connection on the Transformer terminal connectors.

Problem: Over Current Fault occurs at the first set up

- Solution:
1. Over current occurs when the current increases 5% on ZMesh for interior applications and 10% on Tuff Cable and ZMesh exterior applications. Check, that all data was entered correctly into the program. Make sure the Heating Element and Cold Lead lengths are entered correctly and that the Transformer is set for the correct input voltage. Check the load temperature that appears on the display and calibrate it to the temperature of the load.

TROUBLESHOOTING PROCEDURES FOR RADIANT 8

Problem: Over Current Fault occurs after the system has been setup and run for some time

- Solution:
1. Check for shorts between elements runs or across the element, shorts between Transformer and ground, or an increase in the Transformer voltage.

Problem: Under Current Fault

- Solution:
1. Under current occurs when the current decreases more than 10% on ZMesh interior applications, or 20% on Tuff Cable and ZMesh exterior applications. If an under current fault occurs on the first set up: Check that all data has been entered correctly into the program. Make sure the Heating Element and Cold Lead lengths are entered correctly and that the transformer is set for the correct input voltage. Check the load temperature that appears on the display and calibrate it to the temperature of the load.
 2. An Under Current Fault indicates an increase in resistance on the Heating Element or a drop in Transformer voltage. This usually means the Heating Element has been damaged, cut or broken and has developed an excessively hot spot. Check for a hot spot on the Heating Element, bad connections from the Cold Leads and the transformer or from the Cold Lead to the Heating Element.

Problem: SCR Fault

- Solution:
1. The SCR self-tests periodically by the Radiant 8 programming. If the SCR fails and will not turn off, the SCR fault will occur. If an SCR fault occurs try resetting the Radiant 8 by turning the power off and back on. If the SCR fault occurs again contact Heatizon Systems.

Problem: Ground Fault

- Solution:
1. Use of the Ground Fault feature is optional. If selected and a fault occurs, check resistance between ground and the Transformer secondary. The resistance should be greater than 7000 ohms.