

# HEATIZON SYSTEMS

RADIANT HEATING AND SNOW MELTING SYSTEMS

## GUTTER MELT<sup>®</sup>

**MINERAL INSULATED  
Roof, Gutter and  
Downspout Products**

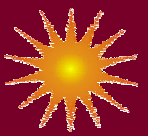
# GutterMelt<sup>®</sup> MI Design & Installation Manual

GutterMelt<sup>®</sup> MI is a Registered Trademark of Heatizon Systems

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[www.heatizon.com](http://www.heatizon.com)





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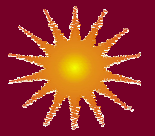
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## • Gutters • Downspouts • Roof Eaves



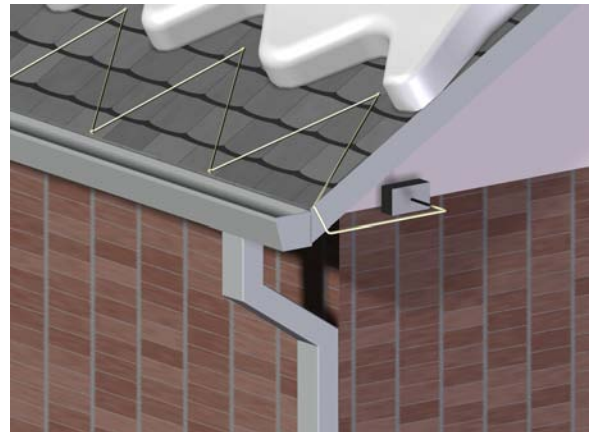
Heatizon Systems' GutterMelt® MI rain gutter, downspout, and eave deicing systems provide heat to maintain water flow paths on eaves, and in gutters and downspouts. This heating cable is placed directly on top of the shingles or roofing material and/or in the rain gutter and downspouts of a building. Heatizon Systems products can be activated by a large variety of activation devices ranging from a simple switch to an automatic temperature moisture sensor.

### ADVANTAGES

- Prevents costly damage to roofs, gutters and downspout drains caused by snow
- May be applied anywhere melted snow or ice can penetrate and refreeze
- Eliminates lifting shingles, pull away gutters and broken gutters and downspouts
- Industry leading warranty—designed for reliability
- GutterMelt® MI delivers up to 20 Watts per foot
- 480VAC Available by special order
- Available in lengths to fit any project

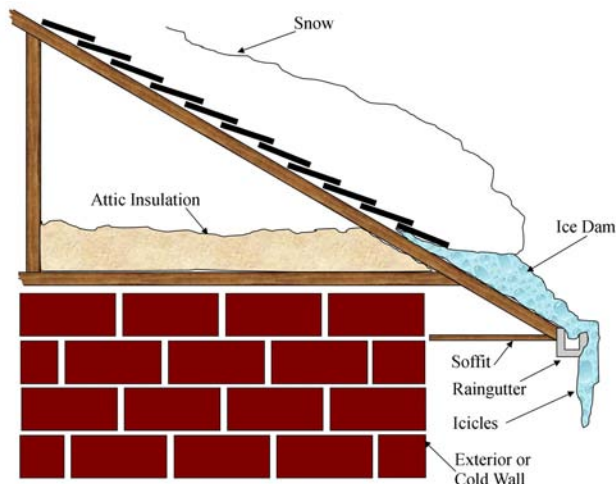
### FAST & EASY INSTALLATION

Heatizon Systems GutterMelt® MI system utilizes easy to install MI heating cable to provide reliable freeze protection of roofs, gutters, downspouts and roof drains. Simply run the cable in gutters using Heatizon foil tape with pressure sensitive adhesive to secure cable. The cable can also be inserted in downspouts using downspout hangers to support the heating cable. Roof clips attach the cable to standard roofing material. GutterMelt® MI Cable is a fixed length.



### ENERGY EFFICIENT AND COST EFFECTIVE

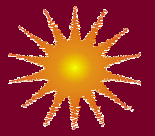
Want a constant temperature? Heatizon Systems GutterMelt® MI products deliver. This copper colored cable can be shaped to conform with any surface. Combine GutterMelt® MI Cable with a temperature moisture sensor and it is activated only when needed.



### VALUE

Snow and ice causes millions of dollars of damage to roofs, gutters, and downspouts every year. As winter progresses through cycles of freezing and thawing, buildings experience ice buildup which can lead to roof damage, or damage caused by snow and ice falling from the roof. These cycles can cause ice to accumulate and back up under shingles, resulting in ice dams. In some cases, damage appears in the form of soaked insulation, stained, cracked and damaged sheet rock, damp, smelly, rotting wall cavities and stained, blistered and peeling paint. Heatizon Systems has the products and expertise to effectively solve potential winter issues and protect your investment by eliminating ice dams, preventing icicles, and keeping ice from accumulating in gutters and downspouts.

# GutterMelt MI Cable



## GutterMelt® MI Cable Specifications

Heating cable	GutterMelt® MI
Voltage	120, 208, 240, 277 or 480V
Watts at 32°F (0°C)	Up to 20W per lin. ft.
Length	Refer to product label
Diameter/Height	5mm (Approx. 3/16")
Bending Radius	Not tighter than 1" inside diameter
Cable Type	Mineral Insulated 1 or 2 Conductor
Insulation	Fiberglass
Outer Jacket	HDPE 120°C (248°F)
Temperature Max	120°C (248°F)
Minimum Spacing	2"
Thermal Resistance	482°F (250°C)
Explosion Proof	Class I Div I & Div II Class II Div I & Div II

Note: It is important that GutterMelt® MI be installed only by qualified persons who are familiar with the proper sizing, installation, construction and operation of roof, gutter and downspout snow melting systems and the hazards involved.

Note: GutterMelt® MI must be installed in accordance with the manufacturer's installation instructions, as well as with the National Electric Code (NEC) and Canadian Electrical Code (CEC), part 1, and local codes and regulations.

Note: Consult the NEC or CEC for any applicable ground fault requirements.

Note: Do not bend GutterMelt® MI within 3" of a termination or connection between the GutterMelt® MI Heating Element and the Cold Lead.

Required Tools:  
500VDC Megohmmeter  
Digital Multimeter (DMM)  
Screwdrivers  
Wire Stripper  
Utility Knife

Note: Store GutterMelt® MI Heating Cable in a cool, dry place.

## Electrical Connection Wiring

120V and 277V Connection		208V, 240V and 480V Connection	
Phase	Cold Lead	Phase	Cold Lead
Neutral	Cold Lead	Phase	Cold Lead
Ground	<b>Copper Shield</b>	Ground	<b>Copper Shield</b>

## Example Labeling Information

Sample 1. **S / 0.02 H / 220V / 308Ft / 7,849W**  
 S: GutterMelt® MI Cable S = Single Conductor  
 0.02: GutterMelt® MI Cable Reference (see table)  
 220V: GutterMelt® MI Cable Voltage  
 308Ft: GutterMelt® MI Cable Length (ft)  
 7,849W: GutterMelt® MI Cable Wattage

Sample 2. **D / 0.1 / 220V / 230Ft / 2,108W**  
 D: GutterMelt® MI Cable D = Double Conductor  
 0.1: GutterMelt® MI Cable Ohms/ft (see table)  
 220V: GutterMelt® MI Cable Input Voltage  
 230Ft: GutterMelt® MI Cable Length (ft)  
 2,108W: GutterMelt® MI Cable Total Wattage

## Warnings

- Failure to follow this Design and Installation manual may cause electrical shock, injury, damage or fire.
- Disconnect all power to GutterMelt® MI and its activators prior to handling, replacing or servicing.
- Read this entire Design and Installation Manual prior to installing GutterMelt® MI.
- Do not overlay, twist, kink, or spiral the GutterMelt® MI heating element.
- Always test GutterMelt® MI with a Megohmmeter Tester prior to installing, once installation is complete, and prior to energizing. All Megger tests must be performed at the power termination of the GutterMelt® MI cable, between the braided shield and the core wire(s).
- The minimum installation temperature is 40°F (5°C).
- Use only copper wire from the distribution panel to the GutterMelt® MI cold leads.
- Do not allow the GutterMelt® MI Heating Element to touch or cross its cold leads or other electrical conductors or gas lines.
- GutterMelt's® MI copper tube must be grounded to a suitable earth ground.
- Do not exceed the maximum circuit lengths listed in this Design and Installation Manual.

## Reminders

Always remember to measure, verify and record the actual resistance at specific points throughout the installation process. A resistance recording page is included in this manual for this purpose. Compare each reading to the ratings on the product table. If the taken readings differ from those expected on the product table, do not energize the GutterMelt® MI, and call Heatizon Systems @ 801-293-1232.

Always roll the GutterMelt® MI spool or uncoil the coil to unreel the heating element. Do not pull GutterMelt® MI from the spool.

Verify that the supply voltage matches the design voltage of the GutterMelt® MI product you have purchased.

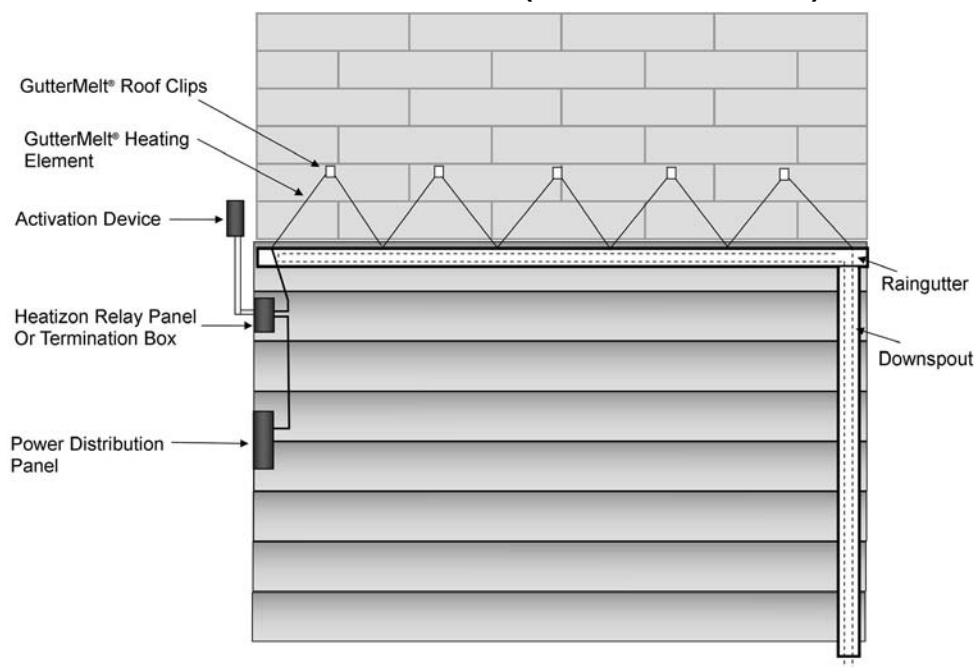
Install GutterMelt® MI in outdoor locations only .

To avoid the hazard of electric shock, disconnect all power prior to beginning installation of GutterMelt® MI. Effectively ground all installations prior to installing the GutterMelt® MI Heating Element in accordance with CSA Standard C22.1, Section 10, and with the NEC.

Contact Heatizon Systems at 888-239-1232 with any additional questions you may have.



## Sample Application: GutterMelt® MI On a Roof (Double Conductor)

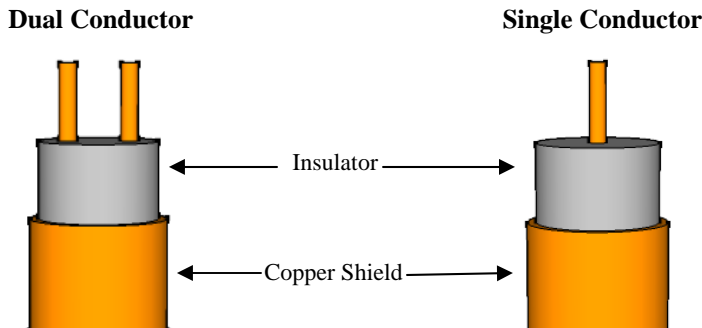


## Annual Maintenance

Warning: Always disconnect power to GutterMelt® MI and its activators prior to handling, replacing and/or servicing.

Remove all debris from gutters and downspouts

Verify the integrity of the GutterMelt® MI by conducting a visual inspection and checking the insulation between the heating elements and the ground shield with a Megohmmeter. Record the value if it exceeds 20 megohms for GutterMelt® MI Cable. If damage to GutterMelt® MI Heating Cable is discovered, and/or the Megohmmeter test yields a megohms reading less than 20, then replace the GutterMelt® MI with new cable.



## Design and Installation

### STEP 1 PLAN THE LAYOUT

Necessary Information:

- Length of eaves, gutters, and downspout drains to be heated
- Voltage Available
- Type of Roof covering material

Draw a sketch of the area where GutterMelt® MI snow melt will be installed. The sketch should show all measurements and dimensions in order to determine the area to be snow melted. Determine the location for the GutterMelt® MI temperature/moisture sensor or other activation device.

Note: Make certain to provide for the movement of the water created when GutterMelt® MI melts snow and/or ice from the roof, gutters and/or downspouts to an acceptable location.

Note: The GutterMelt® MI Heating Element is designed for snow melt applications on roof, in gutter, in downspout and drain pipe applications only.



## Design and Installation

### STEP 3 CONTACT YOUR GUTTERMELT® MI SUPPLIER



Contact your GutterMelt® MI supplier for assistance in ordering the material needed. When materials arrive, examine the GutterMelt® MI roof deicing system design, and compare the list of materials ordered to those received. Also examine the GutterMelt® MI products for damage at this time.

Note: Visually check GutterMelt® MI Heating Cable for breaks, cuts, nicks, etc. If damage has been done to GutterMelt® MI Heating Cable or any of its components, please file a claim with the delivery service and call Heatizon Systems , 888-239-1232.

### STEP 4 PREPARE AREA

Ensure that the roofing material, gutters and/or downspout drains have been properly installed, and that drainage has been satisfactorily addressed.

Eliminate any nails, staples, or any other objects that may damage the GutterMelt® MI Heating Element prior to installation.

Clean and dry the rain gutters so that the provided foil tape will adhere to the bottom and hold the GutterMelt® MI cable in place.

### STEP 5 MEASURE & RECORD RESISTANCE

Remove the GutterMelt® MI Heating Element from the box. Using a Megohmmeter Tester set at 500 VDC, check the insulation resistance of the Heating Element to make certain it is greater than 20MΩ. Confirm the Megohmmeter result by measuring the resistance with a Digital Multimeter and record the value measured on *Resistance Recording Table* at the back of this manual. Resistance measurement must be taken several times during the installation process: Immediately upon removal from the packaging, after installation of the heating element and immediately prior to energizing. GutterMelt® MI should also be checked for electrical continuity.



### STEP 6 LOCATION SELECTION

Install the GutterMelt® MI Heating Element so that the starting and ending connection points and the temperature sensor are in their desired locations. Make certain that two ends of the Cold Lead cables for one conductor GutterMelt® MI Cable , and one end of the Cold Lead cable for two conductor GutterMelt® MI Cable, extend to the junction/termination box, heatizon relay panel or appropriate activation device.

Next, determine the location of the activation device.

Remember, an automated activator is the “eyes and ears” of the roof, gutter, and downspout system. It is important that it be installed in a location that will allow it to turn the roof deicing system “on” when it is needed and “off” when it is not needed.

Manual activators require human action—as a result they should be placed in a location that is convenient and easily accessible.

## Design and Installation



### STEP 7 INSTALL THE ACTIVATOR

Install the selected activator by carefully following the specific set of instructions that were included in the packaging.

Warning: Do not allow the sensor conduit to cross the GutterMelt® MI Heating Element. Do not allow any part of the activator to touch the GutterMelt® MI Heating Element.

### STEP 8 INSTALL GUTTERMELT® MI HEATING ELEMENT

Note: Always roll or uncoil the GutterMelt® MI to unreel the heating element. Do not pull GutterMelt® MI from the spool or coil. Never energize GutterMelt® MI Heating Cable while it is rolled or coiled on the spool.

Note: Visually check GutterMelt® MI Heating Cable for breaks, cuts, nicks, etc. If damage has been done to GutterMelt® MI Heating Cable or any of its components, please file a claim with the delivery service and call Heatizon Systems , 888-239-1232.

Using the determined spacing of GutterMelt® MI Heating Element, and the calculated length of GutterMelt® MI Heating Element, begin the installation. Heatizon Systems recommends a maximum 2 foot spacing along the eave edge for roof applications, and two runs of GutterMelt® MI for gutter and downspout applications. Note that the minimum distance between the GutterMelt® MI Heating Element runs should not be less than 2 inches.



Install the GutterMelt® MI Heating Element so that the starting and ending connection points and the temperature sensor are in their desired locations. Make certain that two ends of the Cold Lead cables for one conductor GutterMelt® MI, and one end of the Cold Lead cable for two conductor GutterMelt® MI, return back to the thermostat, termination box or relay panel.

Begin laying the GutterMelt® MI Heating Element in and across the area to be melted in evenly spaced runs.

Use **Roof Clips** purchased from your Heatizon Systems Distributor to attach GutterMelt® MI to the roof covering material.

Use **Foil Tape** purchased from your Heatizon Systems Distributor to attached GutterMelt® MI to the rain gutter.

Use **Downspout Spacers** purchased from your Heatizon Systems Distributor to install GutterMelt® MI into the downspouts or drains.

Warning: Do not damage or subject the GutterMelt® MI Heating Element to mechanical or shear stress. Never cut or damage the insulator or copper shield on GutterMelt® MI Heating Element. Do not allow GutterMelt® MI to cross or touch itself, other electrical wires, or gas pipes.

## Design and Installation

### STEP 9 GUTTERMELT® MI COLD LEAD CONNECTION

The Cold Lead(s) attached to GutterMelt® MI Cable may be connected to a Heatizon relay panel (M330), appropriate activation device ( see your Heatizon dealer for alternatives), or to an appropriately sized conductor in a manner consistent with the National Electric Code (NEC) or Canadian Electric Code (CEC).



Prior to connecting the Power Supply and Activation to GutterMelt® MI, conduct the second Megohmmeter test and record the results on page 13.

### STEP 10 CONNECT POWER SUPPLY & ACTIVATION

The connection of an appropriate ground fault protection device power supply and the activation device must be done in accordance with the National Electrical Code (NEC) and the Canadian Electrical Code (CEC).

The wire in the center of each Cold Lead for GutterMelt® MI Cable is to be wired as follows:

120VAC and 277VAC — One to phase and one to neutral

208VAC, 240VAC and 480VAC— Both to phase

The ground shield from the Cold Lead(s) for GutterMelt® MI Cable must be wired to Ground for all primary power installations.

**Caution:** Never energize GutterMelt® MI until:

1. The GutterMelt® MI Cable has been verified to be free of damage.
2. A Megohmmeter Test has been used to verify a minimum of 20 megaOhms between the heating element and the copper shield. Ohms per foot are verified with the ohms per foot( $\Omega$ /ft) shown in the table for GutterMelt® MI cable.

# Design and Installation



## STEP 11 TROUBLESHOOTING

Problem: GutterMelt® MI Cable fails the Megohmmeter Test  
 Potential Causes:

- Inspect the GutterMelt® MI Cable for damage to the insulator or copper shield, and/or contact between the copper shield and the core wire(s). Replace entire length of damaged GutterMelt® MI Cable.
- Call Heatizon Systems technical support @ 801-293-1232

Note: In the event the GutterMelt® MI Cable has not been damaged in any way, remove and replace the entire length of GutterMelt® MI. For Warranty claims, please return the entire length of GutterMelt® MI to Heatizon Systems, with the end termination and power termination connections intact, for evaluation prior to replacement.

## STEP 12 COMPLETE AND ATTACH LABELS

Place the included labels in the following locations:

- Electrical Panel Label — Inside door at electrical service panel. This label matches the label that is attached to the non-heating Cold Lead in the factory.



- Stop Sign Warning Label — on or near the area to be heated by GutterMelt® MI Cable



Note: Make certain to record information from the Product Identification Label, which can be found on the Cold Lead portion of each heating cable.

## STEP 13 COMPLETE WARRANTY CERTIFICATE

Mail in the warranty certificate immediately after installing the GutterMelt® MI system. Failure to complete the warranty card could void the manufacturer's warranty. The warranty is subject to the guarantee conditions listed on the warranty certificate, and upon documentation that the required resistance readings were completed. You may wish to keep a copy of the warranty card for your reference.





## Resistance Recording Page

Use a Digital Multi Meter to measure the resistance of the GutterMelt® MI Heating Element, and compare it to the expected resistance for the product purchased. Expected Ohms/ft are shown on the label information. Record all test results below. Check GutterMelt® MI Heating Element and Cold Leads for electrical continuity. GutterMelt® MI Cable should be tested using a Megohmmeter, set at 500 VDC. The measured value should not be less than 20 Megohms.



Prior to Installation (When removed from Package)		After Installation of Gutter-Melt® MI Heating Element on Substraight	
MΩ/FT	MΩ	MΩ/FT	MΩ
Date	Time	Date	Time

## Product & Accessory Information

GutterMelt® MI Heating Cable, 120VAC GutterMelt® MI Heating Cable, 208, 240, or 277VAC GutterMelt® MI Power Kit GutterMelt® MI End Kit GutterMelt® MI Cold Lead	GutterMelt® MI Roof Clips GutterMelt® MI Foil Tape GutterMelt® MI Downspout Spacers Temperature/Moisture Sensor M330 Heatizon Relay Panel Many Different Activation Alternatives
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## Customer Warranty Information

<b>Name</b>			
<b>Address</b>			
<b>City</b>		<b>State</b>	<b>Zip</b>
<b>Phone</b>		<b>Email</b>	

## Purchased Product Details

<b>Model</b>		<b>Size</b>		Sq. Ft.
<b>Manufacture Date</b>		<b>Serial Number</b>		
<b>Watts &amp; Volts</b>	Watts	Volts	<b>Ohms</b>	Ω
<b>Surface</b>	Concrete <input type="checkbox"/>	Asphalt <input type="checkbox"/>	Sand Bed <input type="checkbox"/>	Other <input type="checkbox"/>
				Retrofit <input type="checkbox"/>



## Heatizon Systems GutterMelt® MI Warranty

Heatizon Systems warrants GutterMelt® MI Heating Element to be free from defects in material and workmanship for a period of ten (10) years. 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 within ninety (90) days of the date of sale..

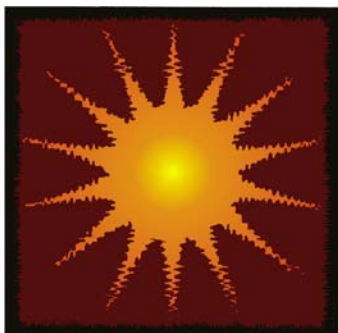
### DISCLAIMER OF WARRANTIES:

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.

## How to make a Warranty Claim

1. Gather the following information:
  - Date of purchase
  - Who product was purchased from
  - Date of installation, if installed
  - Names and phone numbers of electrician/installer
  - Completed resistance recording page from installation
  - Serial number from product label
2. Contact Heatizon Systems for a Return Materials Authorization number, and information on the next required steps to complete your warranty claim.



**HEATIZON**  
SYSTEMS

**Mail:** Heatizon Systems  
4137 South 500 West  
Murray, UT 84123  
USA

**Phone:** (801) 293-1232

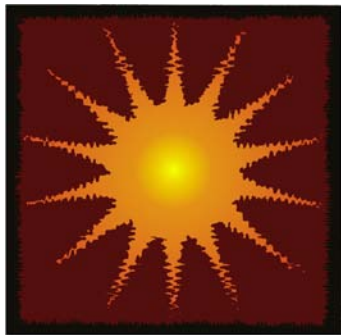
**Toll Free:** (888) 239-1232

**Fax:** (801) 293-3077

**Email:** info@heatizon.com

**Website:** www.heatizon.com





**HEATIZON**  
SYSTEMS

**Mail:** Heatizon Systems  
4137 South 500 West  
Murray, UT 84123  
USA

**Phone:** (801) 293-1232

**Toll Free:** (888) 239-1232

**Fax:** (801) 293-3077

**Email:** [info@heatizon.com](mailto:info@heatizon.com)

**Website:** [www.heatizon.com](http://www.heatizon.com)