

MSG-1

Gutter Moisture Sensor for Connection to MSC-1 Panel for Roof De-icing Installation & Operation Instructions

GENERAL

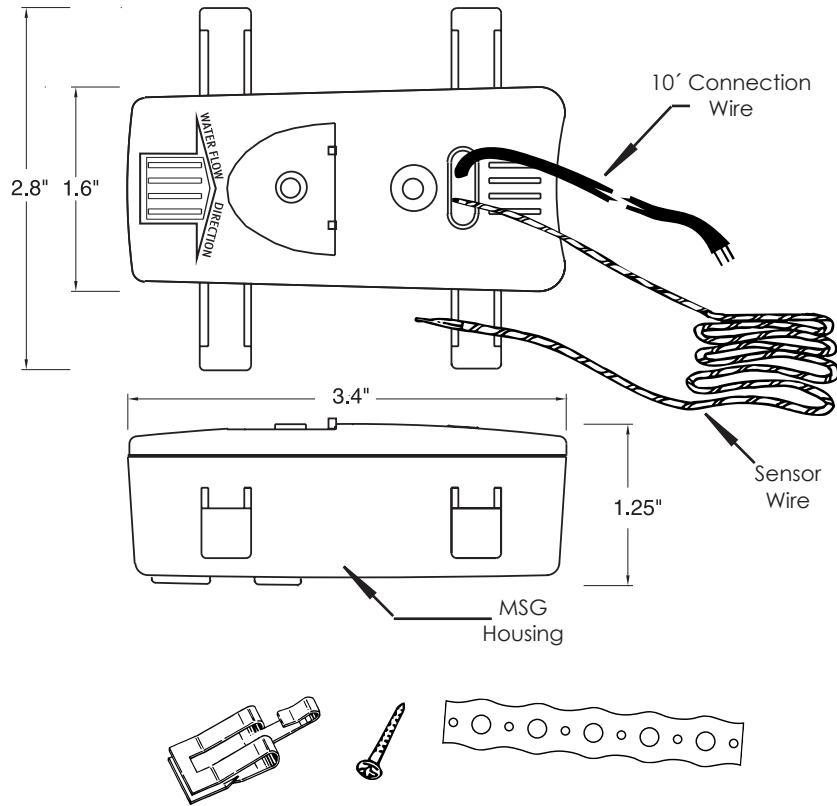
The MSG-1 detects moisture on roofs and in gutters. Roof moisture detection is made with the unique sensor wire design, gutter moisture detection is made by the sensing grid on the bottom on the MSG-1 housing. The MSG housing sits directly in the gutter and the sensor wire is secured to the roof. The combination roof and gutter detection system provides quick detection of potentially damaging roof and gutter icing conditions. As soon as moisture is detected, the MSG-1 sends a signal to the MSC-1 to energize de-icing cables.

The sensor operates on low voltage provided by the MSC-1 control unit and includes 10' of wire for connection back to the MSC-1 as well as mounting hardware. The MSG-1 connection wire may be extended up to 500' with an appropriately rated 18-20AWG 3 wire unshielded stranded cable.

The main components of the MSG-1 are shown in Fig.1. Kit also includes:

- (6) coated clips
- (1) mounting screw
- (1) coated strapping

Figure 1



WARNINGS

1. This is not a "do-it-yourself" product. A qualified electrician must install the MSG-1.
2. If after carefully reading these instructions you still have questions regarding installation, operation or maintenance of this product, call the numbers listed for assistance.
3. Prior to installation, check the MSG-1 body enclosure or wires for possible shipping damage. Do not install a damaged MSG-1 sensor.
4. All heating equipment, controls & associated systems must be installed in compliance with the latest editions of all applicable electrical codes and ordinances.
5. The MSG-1 has been designed for the sole purpose of connection to an EasyHeat MSC-1 Control Panel. The risk of fire or electric shock exists if the MSG-1 is connected to any device other than an MSC-1 Control Panel.
6. These instructions must be saved and made available to owners or users of this product and/or transferred to future owners.
7. Secure the MSG-1 housing within the gutter in an area where drainage is unimpeded and that is free of debris accumulation such as leaves, etc.. to prevent any damage to the sensor housing.
8. Secure the MSG-1 sensor wire to the roof in an area where run-off is unimpeded and that is free of debris accumulation such as leaves, etc.. to prevent any damage to the sensor wire.
9. Avoid excessive shock or vibration.
10. Do not install an MSG-1 Sensor when the ambient temperature is colder than 32°F (0°C). Installing the sensor below this temperature will damage the connection wire and result in the risk of fire or electrical shock.

INSTALLATION INSTRUCTIONS

1. Select a location in the gutter for the MSG-1 housing, ensure it is in an area where drainage is unimpeded and that is free of debris accumulation such as leaves. An area closer to the low end of the gutter slope is preferable. Secure the MSG-1 housing within the gutter using the mounting strap and screw provided, note the water flow direction arrow on the top of the housing. The screw provided is sized to fit into the hole on top of the MSG-1 housing. The wings on the side of the housing are designed to fit over heating cables in the gutter. The housing will sit at a slight angle off horizontal when installed, this is normal, the unit is designed to sit in such a manner. The unit is water-resistant and may be submerged or immersed in water in the normal course of operation See Fig.2a,b.
2. Route the MSG-1 sensor wire along one triangular weave of the heating cable on the roof. At the peak of the second triangle, attach the sensor wire up the roof, at least 2 feet past the heater wire. Use the clips provided to secure the sensor wire to the roof. Gently squeeze the coated end of the clip around the sensor wire. See Fig. 3.
3. If the MSG-1 is located farther than 10' from the MSC-1, then the MSG-1 connection wire must be routed to a junction box and additional connection wire (up to 500' of 20 AWG 3 Wire unshielded cable) must be routed from the junction box to the MSC-1.
4. Ensure that any connections into a junction box are water-tight as appropriate.
5. The MSG-1 is wired directly to the appropriate zone sensor terminal block on the MSC-1 control panel.

Figure 2a— MSG-1 housing installation

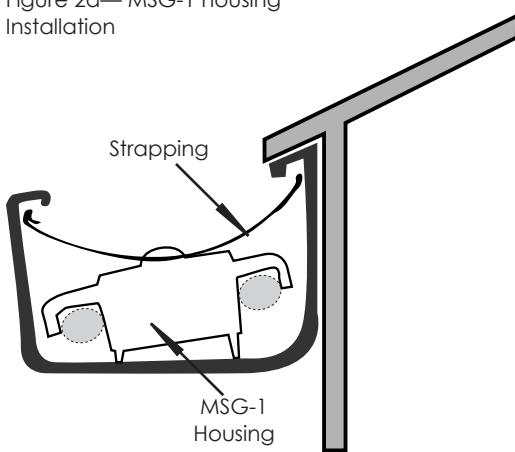


Figure 2b— MSG-1 housing installation

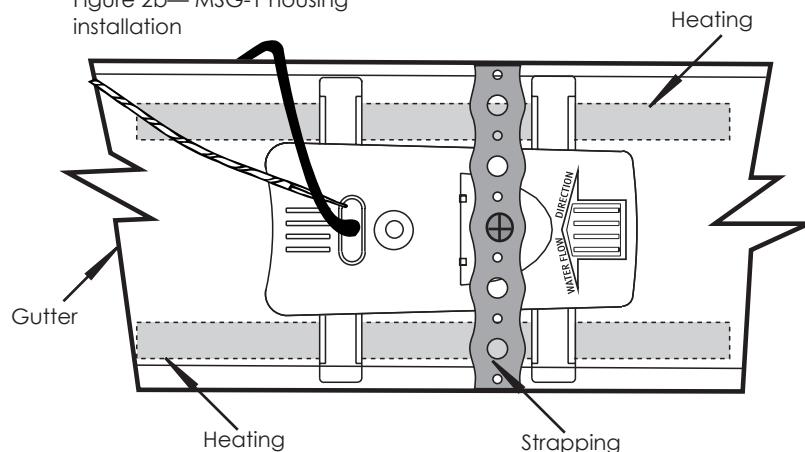
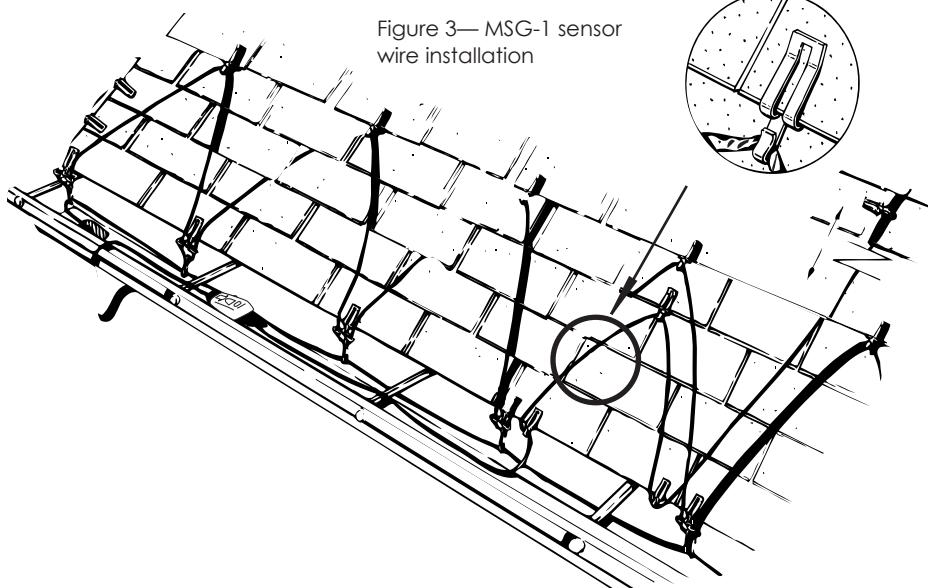


Figure 3— MSG-1 sensor wire installation



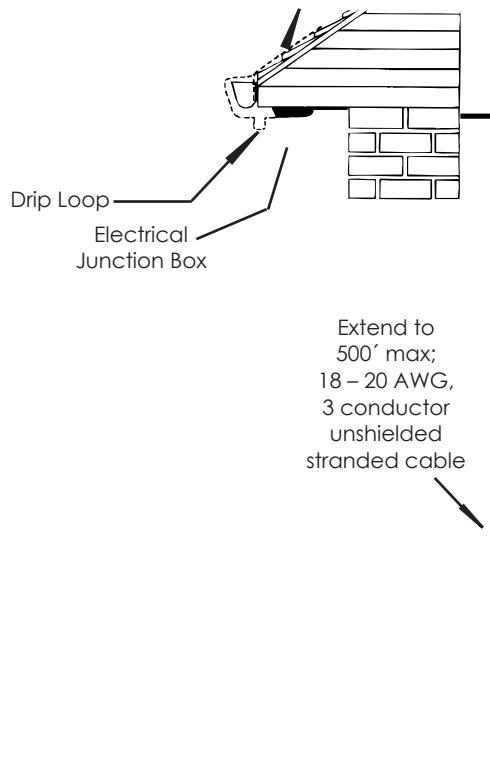
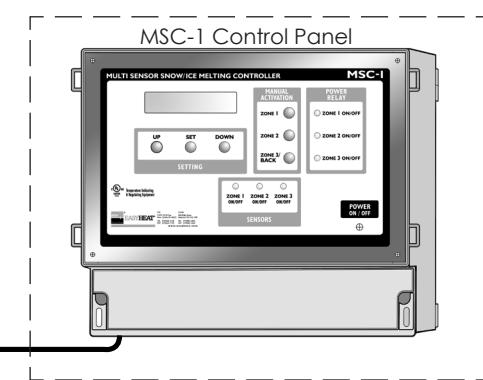


Figure 4—MSG-1 connection to MSC-1 control panel

*Electrical code may require use of conduit



OPERATION INSTRUCTIONS

The MSG-1 snow melting control is designed to send a signal to the MSC-1 control panel indicating when melting snow or ice conditions exist. The MSC-1 control panel uses this information, along with temperature data from the TS-1 to determine when de-icing equipment should be energized.

The MSG-1 may be tested for functionality if outside temperature is below 3°C (37°F). Apply a small amount of moisture onto the surface of the sensor wire, the MSC-1 should energise the heating equipment in the associated zone. After this test, dry the sensor, the heating equipment in the associated zone should de-energize after the pre-set hold time.

At the beginning of the heating season and monthly during operation inspect for and remove all leaves and combustible debris from roofs gutters and downspouts. At the beginning of the heating season the MSG-1 must be inspected for physical damage and the snow sensor surface cleaned. To clean the snow sensor surface:

1. Disconnect MSG-1 from the power supply.
2. Remove the MSG-1 sensor housing from the gutter.
3. With a clean wet swab clean up the surface of the snow sensor.
4. Replace the MSG-1 sensor housing in the gutter.
5. Reconnect MSG-1 to the power supply.

ELECTRICAL SPECIFICATIONS

Environmental

Working / Storage temperature	24VAC
-40°C (-40°F) to 70°C (160°F)	500mA
Humidity environment	0 to 100 %

Supply requirements

Power supply voltage	24VAC
Maximum amperage	500mA
Mounting connector	Screws, coated strapping, coated clips
Connection Leads length	10 feet

LIMITED WARRANTY

Easy Heat warrants that if there are any defects in material or workmanship in any heating cable or accessory during the first year after the date of purchase. We will provide new products to replace any defective items, or we will refund the purchase price paid for the accessory or cable, not including any labor or other installation costs. As an alternate, we may elect to repair the cable or accessory at our factory with all shipping and other removal costs borne by the purchaser.

We further warrant that for a period of twelve (12) months after the date of performance any services performed hereunder will be in a good and skillful manner, based on our understanding of pertinent technical data as of the date of performance of such services. Easy Heat's sole responsibility and liability in the event of any defect, error, omission, or failure in the services rendered hereunder shall be to provide corrected services of the type provided for herein, designed to correct such defect, error, omissions, or failure, and in no event shall Easy Heat's liability with respect to such warranty exceed the amount received by it from the Buyer on account of such services.

Our obligation to provide corrected services, new products, refund the purchase price, or perform the repair described above is conditioned upon (a) the installation of the accessory or cable conforming to the specifications set forth in our installation instructions and (b) the accessory or cable not having been damaged by mechanical or electrical activities unrelated to the operation of the accessory or cable.

A refund of your purchase price, provision of replacement products, repair of the accessory or cable or provision of corrected services as described above, shall be your sole and exclusive remedy for a breach of this warranty. THESE ARE THE SOLE AND EXCLUSIVE WARRANTIES GIVEN BY EASY HEAT WITH RESPECT TO THE GOODS AND SERVICES AND ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHETHER OR NOT THE PURPOSE OR USE HAS BEEN DISCLOSED TO EASY HEAT IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT EASY HEAT'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY EASY HEAT FOR YOUR USE OR PURPOSE.

This warranty does not extend to any losses or damages due to misuse, accident, abuse, neglect, normal wear and tear, negligence, unauthorized modification or alteration, use beyond rate capacity, or improper installation, maintenance or application. To the extent that you or your agents have supplied specifications, information, representation of operating conditions or other data to Easy Heat in the selection or design of the Goods and the preparation of Easy Heat's quotation, and in the event that actual operating conditions or other conditions differ from those represented by you, any warranties or other provisions contained herein which are affected by such conditions shall be null and void.

If within thirty (30) days after your discovery of any warranty defects within the warranty period, you notify Easy Heat thereof in writing, Easy Heat shall, at its option, repair, correct or replace F.O.B. point of manufacture, or refund the purchase price for, that portion of the Goods found by Easy Heat to be defective. Failure by you to give such written notice within the applicable time period shall be deemed an absolute and unconditional waiver of your claim for such defects. Goods repaired or replaced during the warranty period shall be covered by the foregoing warranty for the remainder of the original warranty period or ninety (90) days from the date of shipment of the repaired or replaced goods, whichever is longer.

This limited warranty does not cover any costs relating to the repair or replacement of any accessory or cable at the installation site. Our accessories and cables are not easily accessible. A failed accessory or cable usually cannot be easily repaired. Replacement of a failed accessory or cable will require that the materials under which it is installed be removed to permit replacement of the accessory or cable. We will not reimburse any costs relating to the repair or replacement of any accessory or cable at the installation site.

IN NO EVENT, REGARDLESS OF THE FORM OF THE CLAIM OR CAUSE OF ACTION (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), SHALL EASY HEAT'S LIABILITY TO YOU AND/OR YOUR CUSTOMERS EXCEED THE PRICE PAID BY YOU FOR THE SPECIFIC GOODS PROVIDED BY EASY HEAT GIVING RISE TO THE CLAIM OR CAUSE OF ACTION. YOU AGREE THAT WE SHALL NOT BE LIABLE TO YOU OR YOUR CUSTOMERS FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL OR PUNITIVE DAMAGES. No agent, employee or representative of ours has authority to bind us to any affirmation, representation or warranty concerning the goods sold unless such affirmation, representation or warranty is specifically incorporated by written agreement.

To obtain new products, arrange repair of existing product, or a refund under this warranty, please contact Easy Heat with a description of the defect and proof of purchase at the address noted herein.

DISCLAIMER

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