MSA-1 Aerial Moisture Sensor for Connection to MSC-1 Panel for Snow & Ice Melting Installations Installation & Operation Instructions

GENERAL

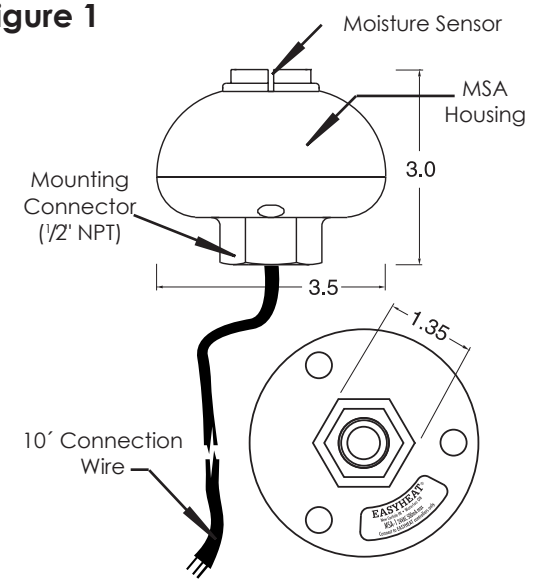
The MSA-1 sensor detects falling or blowing snow coming in contact with the sensor grid, then sends a signal to the MSC-1 to energize heating equipment (snow melting or de-icing cables, etc.).

The sensor operates on low voltage supplied by the MSC-1 control unit and has a built in 1/2" NPT conduit connection and includes 10´ of wire for connection back to the MSC-1.

The MSA-1 is well suited for mast mounting and custom positioning. Rounded features and neutral colour allows the sensor to discreetly blend into almost any environment. The MSA-1 connection wire may be extended up to 500´ with an appropriately rated 18-20 AWG 3 wire unshielded stranded cable.

The main components of them MSA-1 are shown in Fig.1.

Figure 1



WARNINGS

1. This is not a "do-it-your-self" product. A qualified electrician must install the MSA-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 MSA-1 body enclosure or wires for possible shipping damages. Do not install a damaged MSA-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 MSA-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 MSA-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.
8. Secure the MSA-1 in an area free of obstructions such as trees, shrubs, etc. to prevent any damages to the snow sensor.
9. Avoid excessive shock or vibration.
10. Do not install an MSA-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.

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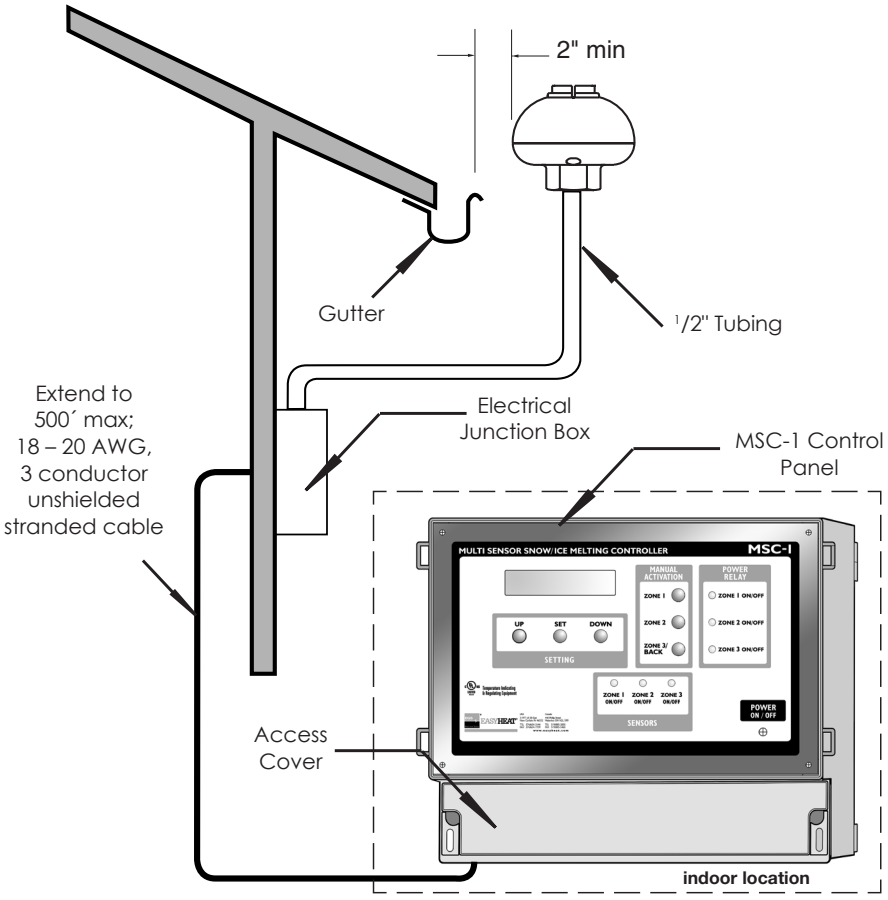
EMERSON. Industrial Automation

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INSTALLATION INSTRUCTIONS

1. Mount the MSA-1 securely in upright position in an open space, in direct contact with snowfall pattern with a ½" NPT mounting connector. The unit is water-resistant, but it is not designed to be submerged or immersed in water. Ensure that the mounting location is close (less than 10 feet) to the MSC-1 Control Panel or a suitable connection box. See Fig.2
2. Ensure that all pipe connections are sealed to prevent any penetration of water inside of conduit or electrical junction box.
3. The MSA-1 connection wire may be extended up to 500' with an appropriately rated 18-20AWG 3 wire unshielded cable. Ensure that all electrical connections within connection boxes are sealed to prevent any penetration of water.
4. The MSA-1 is wired directly to the appropriate zone sensor terminal block on the MSC-1 control panel.

Figure 2 — MSA-1 connection to MSC-1



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OPERATION INSTRUCTIONS

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

The MSA-1 may be tested for functionality if outside temperature is below 3°C (38°F), Apply a small amount of moisture onto the surface of the moisture sensor, 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.

Every year, in the fall the MSA-1 must be inspected for physical damage and to clean up the snow sensor surface. To clean the snow sensor surface:

1. Disconnect MSA-1 from the power supply.
2. With a clean wet swab clean up the surface of the snow sensor.
3. Reconnect MSA-1 to the power supply.

ELECTRICAL SPECIFICATIONS

Environmental

Working / Storage temperature	-40°C (-40°F) to 70°C (160°F)
Humidity environment	0 to 100 %
Supply requirements	
Power supply voltage	24VAC
Maximum amperage	500mA
Mounting connector	1/2" NPT
Connection Leads length	10 feet

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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.

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