

NELSON™ HEAT TRACING SYSTEMS SPECIFICATION / APPLICATION

SS-1 Automatic Snow/Ice Melting Controller INSTALLATION

DESCRIPTION



The SS-1 Automatic Snow Controller has been designed and manufactured for the sole intended use of controlling heating cables in residential and commercial snow melting applications such as: sidewalks, driveways, parking garage entrances, etc. The SS-1 uses microprocessor technology to reduce energy consumption by energizing the heating cable only when the right conditions of temperature and snowfall occur.

The snow and temperature sensors detect snow or ice conditions and activate, through a power relay, the heating system.

Another feature of SS-1 is the LED indicator light. This light switches on and turns red if the snow sensor is dirty and needs to be cleaned. This red LED light will switch off automatically when the snow sensor is cleaned. The LED light turns green every time the power relay is activated and will switch off if the power relay is off.

Improper installation, use and/or maintenance of the SS-1 may cause fire, electrical shock and/or result in snow build-up.

The main components of the SS-1 are shown in *Fig 1*.

Electrical Specifications

Functional

Operating temperature +3°C (38°F +/-1°F)
 Power switch OFF temperature +45°C (112°F)
 Power switch ON temperature +30°C (86°F)

Environmental

Working temperature
 -40°C (-40°F) to 65°C (150°F)
 Storage temperature
 -45°C (-49°F) to 70°C (160°F)
 Relative Humidity 0 to 100%

Supply Requirements

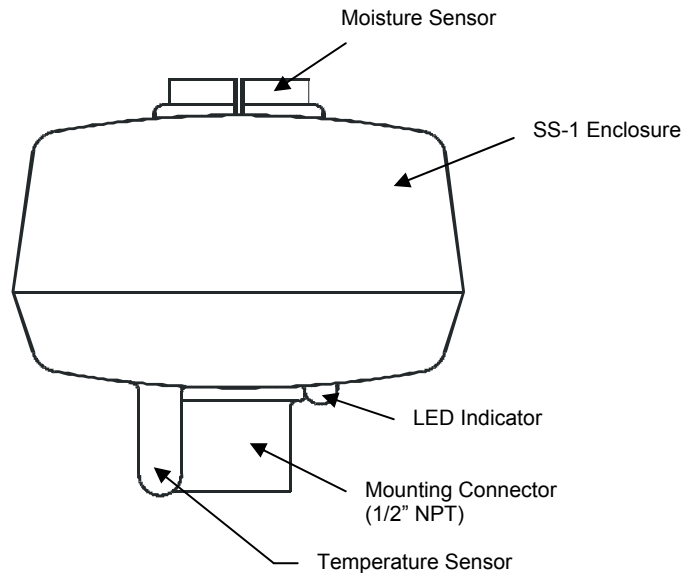
Power supply voltage 120VAC
 Frequency 50/60 Hz
 Maximum power consumption 60W

Output characteristics

Output type 16A Relay

OUTLINE

Figure 1



NELSON™ HEAT TRACING SYSTEMS SPECIFICATION / APPLICATION

SS-1 Automatic Snow/Ice Melting Controller INSTALLATION

OPERATING INSTRUCTIONS

The SS-1 Automatic Snow Controller is designed to energize the heating cable only when snow or ice conditions exist and there is risk of freezing. If the temperature is below 3°C (38°F) and snow is falling, the controller will apply power to the heating cable. The LED indicator will turn green. The cable remains energized for 2 ¾ hours after the snow stops. The delay is necessary to ensure the heated area dries. If at any time the snow starts falling again, the controller restarts the heating cycle.

In spring or fall when the snow conditions are not very heavy, the controller may switch on the heated area. For this situation we recommend having a manual switch connected in series with the SS-1 to turn it off.

In wintertime the wind may cover the heated area with snow. The SS-1 cannot sense this situation and will not energize the heating cable. Putting snow on the sensor surface will energize the SS-1.

The SS-1 may be tested for functionality if outside temperature is below 25°C (77°F). Submerge the temperature sensor into glass with ice water for 5 to 10 minutes, wet the surface of the moisture sensor, the SS-1 should energize the heating cable. After this test disconnect the power for one minute and then reconnect it back. The controller should remain in stand by.

ANNUAL MAINTENANCE

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

1. Disconnect SS-1 from the power supply.
2. With a clean, soft bristle tooth brush clean up the surface of the snow sensor.
3. Reconnect SS-1 to the power supply.

Approvals: General Locations



NELSON™ HEAT TRACING SYSTEMS SPECIFICATION / APPLICATION

SS-1 Automatic Snow/Ice Melting Controller INSTALLATION

INSTALLATION

1. Mount the SS-1 securely in upright position in an open space with a ½" NPT mounting connector. The sensor should be located in direct contact with the expected snowfall pattern. 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 2 ½ feet) to the electrical junction box. See Fig. 4.
2. The SS-1 can be connected to the building power supply as per Fig. 2 or Fig. 3. Before connecting the controller to the electrical power supply, consult the local, state or provincial, and national electrical code. The electrical code may require a Ground Fault Protection device to be used.
3. Ensure that all pipe connections are sealed to prevent any penetration of water inside of conduit or electrical junction box.

Figure 2 – Installation for Direct Control of Load
 *Electrical code may require use of a ground fault protection device

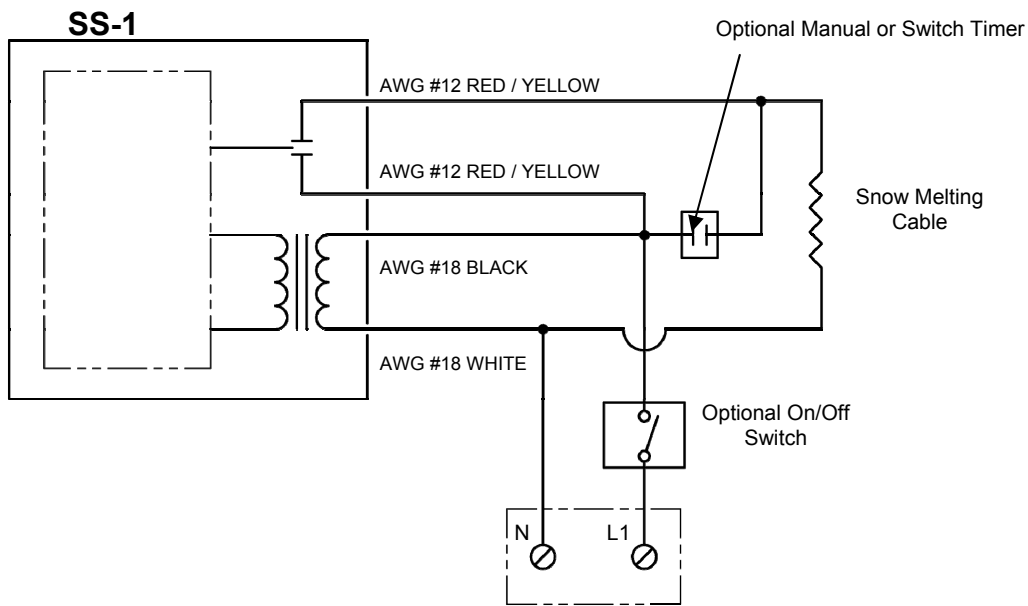
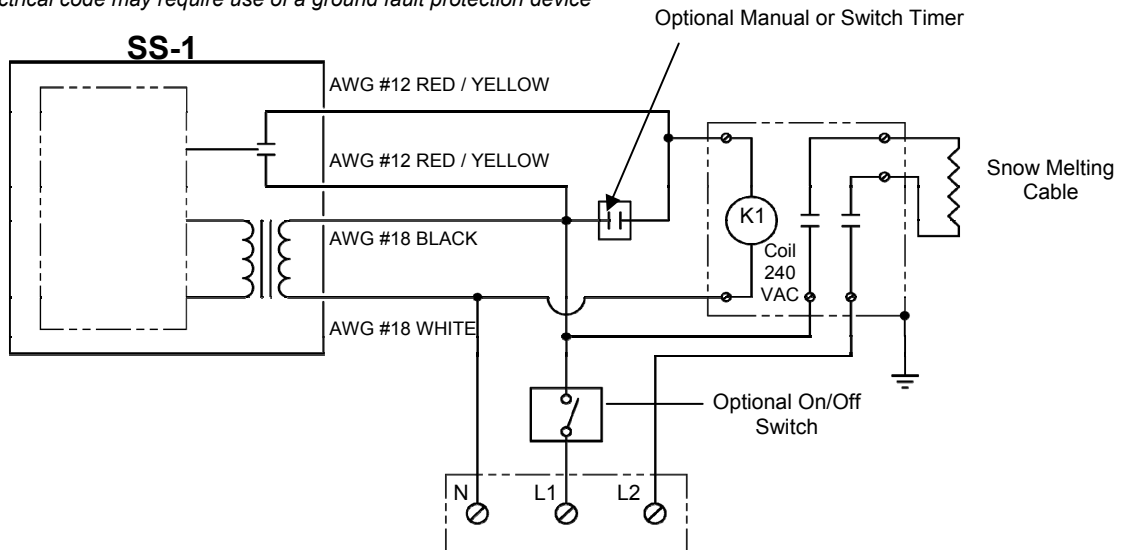


Figure 3 – Installation for Contactor Controlled Load
 *Electrical code may require use of a ground fault protection device



NELSON™ HEAT TRACING SYSTEMS SPECIFICATION / APPLICATION

SS-1 Automatic Snow/Ice Melting Controller INSTALLATION

Figure 4a

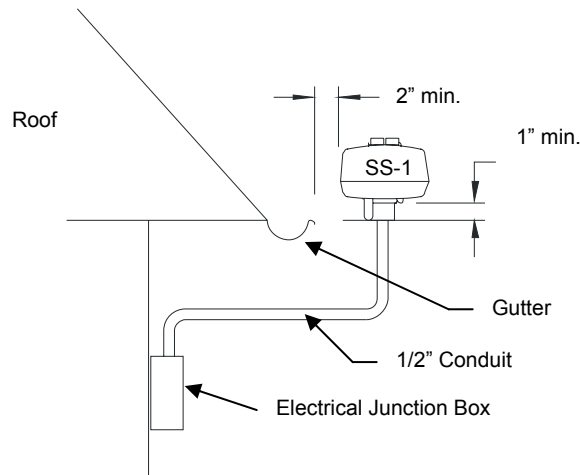


Figure 4b



WARNINGS

1. A qualified electrician must install the SS-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 SS-1 enclosure and wires for possible shipping damages. Do not install a damaged SS-1 controller.
4. All heating cables, controls & associated systems must be installed in compliance with the latest editions of all applicable electrical codes and ordinances.
5. These instructions must be saved and made available to the owners or users of this product and/or transferred to future owners.
6. Any heating cable that is to be connected to the SS-1 must be installed according to the manufacturer's instructions.
7. Do not connect more than a 16 amp load to the SS-1 (See Fig. 2). Risk of fire, electric shock or accumulation of snow can result from a larger cable or from multiple cables being connected.
8. Secure the SS-1 in an area free of obstructions such as trees, shrubs, etc. to prevent any damage to the snow sensor.
9. Avoid excessive shock or vibration.
10. Do not touch the surface of the moisture sensor, it is a heated surface.

NELSON™ HEAT TRACING SYSTEMS SPECIFICATION / APPLICATION

SS-1 Automatic Snow/Ice Melting Controller INSTALLATION

LIMITED WARRANTY AND LIABILITY

Nelson warrants that if there are any defects in material or workmanship in any heating cable or accessory during the first year (two years on MI or self regulating heaters) after the date of its 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 any services performed for the Buyer hereunder will be performed in a good and skillful manner, based on our understanding of pertinent technical data as of the date of performance of such services. Nelson'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 the Nelson'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 the 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 NELSON 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 NELSON IN SPECIFICATIONS, DRAWINGS OR OTHERWISE, AND WHETHER OR NOT NELSON'S PRODUCTS ARE SPECIFICALLY DESIGNED AND/OR MANUFACTURED BY NELSON 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 (other than Nelson's), unauthorized modification or alteration, use beyond rate capacity, or improper installation, maintenance or application. To the extent that you or your agents has supplied specifications, information, representation of operating conditions or other data to Nelson in the selection or design of the Goods and the preparation of Nelson'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 Nelson thereof in writing, Nelson 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 Nelson 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, 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 NELSON'S LIABILITY TO YOU AND/OR YOUR CUSTOMERS EXCEED THE PRICE PAID BY YOU FOR THE SPECIFIC GOODS PROVIDED BY NELSON 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 Nelson with a description of the defect and proof of purchase at the addresses noted herein.

NELSON™ HEAT TRACING SYSTEMS SPECIFICATION / APPLICATION
SS-1 Automatic Snow/Ice Melting Controller INSTALLATION
