NELSON™

MULTI SENSOR SNOW/ICE MELTING CONTROLLER

Specification – Application Information

SMMC-3

Description of Control Panel

The SMMC-3 Control Panel manages snow and ice melting systems for sidewalks, driveways, gutters and downspouts. Suitable for controlling all types of heating cable systems, the SMMC-3 can monitor snow and ice accumulation in three separate zones. The SMMC-3 programming allows each zone to be controlled independently or on a priority mode basis.

The SMMC-3 is housed in an enclosure suitable for commercial/industrial applications (NEMA 12) and features an LCD display, programming and associated indicator lights for operation of each zone.

The control signal relays operate external contactors.

Features

- Automatic snow/ice melting control
- Manual zone activation
- Suitable for NEMA 12
- UL Listed to US and Canadian Standards
- Hold on Time: Adjustable 0-10 hours in half-hour increments
- Maximizes energy efficiency
- Monitors and controls 3 separate zones, sequentially or independently
- Reduced power requirements when Priority operation mode is used

Electrical

Power Requirements

120 VAC, 450 VA

System Memory

Non-volatile: no data loss with a loss of system power

Control Relays

120 VAC, 1 Amp contacts

Mechanical

NEMA 12 non-metallic enclosure

Environmental Specifications

Ambient Operating Temperature Range
-4°F to 160°F / -20°C to 70°C

Storage Temperature
-4°F to 185°F / -20°C to 85°C

Relative Humidity
0 to 90% RH, non condensing

Dimensions

12.375” W x 10.25” H x 4.75” D

Operating Modes

Mode 1 – Independent

- Programmable for 3 independent snow melting systems (zones) for any combination of snow/ice melting or roof & gutter de-icing systems
- Controlling any combination

Mode 2 – Priority

- Sequentially operating 3 snow melting zones with individual zone priority level of 1 to 3
- With one in-ground sensor per zone and an optional Aerial Moisture sensor for priority zone 1

Manual Bypass

Manually cycles from 0-10 hours in half-hour increments

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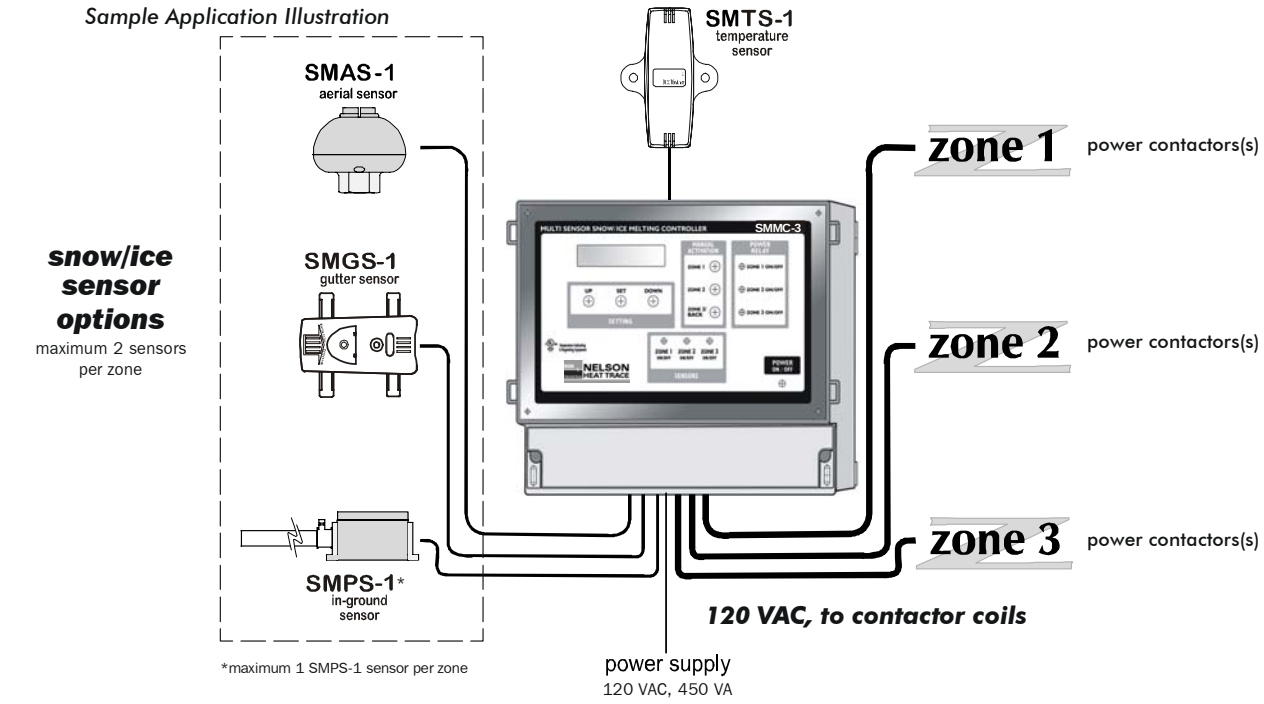
Sensors for SMMC-3

The SMMC-3 can access information from three different types of moisture sensors - surface (SMPS-1), aerial (SMAS-1) and gutter (SMGS-1) and one type of temperature sensor (SMTS-1). The surface, aerial and gutter sensors detect moisture from snow, ice, sleet, etc. and send appropriate signals to the SMMC-3. Similarly, the temperature sensor sends temperature data back to the SMMC-3. Independent temperature and moisture information is processed by the SMMC-3 to ensure that heating equipment will only be energized when precipitation occurs during freezing conditions. For each of the SMMC-3 control zones, up to two individual moisture sensors can be connected. However, for each zone only one of these may be a surface sensor. Each SMMC-3 must have a temperature sensor, SMTS-1, in order to function. The SMTS-1 is included with each SMMC-3.

SMMC-3 *Installation & Operating Instructions*

Sample Application Illustration



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SMTS-1 Temperature Sensor

The SMTS-1 sensor measures temperatures and is placed in the area that best represents the outdoor temperature conditions.

Each SMMC-3 includes a SMTS-1 temperature sensor. The SMTS-1 operates on low voltage provided by the SMMC-3 Control Panel and allows the SMMC-3 to determine when to activate snow-melting or de-icing equipment.

Easily affixed to a wall or fascia by two screws, the SMTS-1's small size and neutral color allows the sensor to discreetly blend with almost any background.

The SMTS-1 is supplied with 10' of connection wire which may be extended up to 500' with an appropriately rated 18-20 AWG 3-wire unshielded cable.

Optional Aerial Sensor SMAS-1

The SMAS-1 Aerial Moisture sensor detects falling or blowing snow coming in contact with the sensor grid, then sends a signal to the SMMC-3 Control Panel to energize heating equipment (snow melting or de-icing cables, etc.).

The sensor operates on low voltage supplied by the SMMC-3 Control Panel and has a built in ½" NPT conduit connection and includes 10' of wire for connection back to the SMMC-3.

The SMAS-1 is well suited for mast mounting and custom positioning. Rounded features and neutral color allows the sensor to discreetly blend into almost any environment.

The SMAS-1 connection wire may be extended up to 500' with an appropriately rated 18-20 AWG 3-wire unshielded cable.

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Optional In-ground Sensor SMPS-1

The SMPS-1 In-Ground Sensor is encased within a rugged enclosure and is intended to be embedded within the surface being heated. The SMPS-1 is supplied with a protective field cover to simplify asphalt or concrete installations, and comes with 30' of wire for connection back to the SMMC-3 Control Panel. The sensor enclosure is provided with a ½" NPT conduit connection. The SMPS-1 connection wire may be extended up to 500' with an appropriately rated 18-20 AWG 4-wire shielded cable.

The low voltage SMPS-1 senses falling or drifting snow by melting it on the grid area of the sensor and then detecting the presence of moisture by measuring an electrical signal between the grid bars. The SMPS-1 also measures the temperature of the surface. This dual sensing technique allows the SMMC-3 to control the heating equipment (snow melting, de-icing cables, etc.) in the most efficient manner possible. This assures minimum energy costs while still providing reliable surface snow detection.

Optional Gutter Sensor SMGS-1

The SMGS-1 Gutter Moisture Sensor 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 traditional sensing grid on the bottom of the SMGS-1 housing. The SMGS-1 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 SMGS-1 sends a signal to the SMMC-3 to energize de-icing cables.

The SMGS-1 Sensor operates on low voltage provided by the SMMC-3 Control Panel and includes 10' of wire for connection back to the SMMC-3 as well as mounting hardware. The SMGS-1 connection wire may be extended up to 500' with an appropriately rated 18-20 AWG 3-wire unshielded cable.