ELPOS ELECTRONICS

SNOW MELT CONTROLLER

SIMPLE
RELIABLE
HIGH QUALITY
SAFE
ECONOMICAL

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SNOW MELT CONTROLLER – APPLICATION FOR GUTTER HEATING

SMC-2

- reliably detects snow, ice or freezing water and turns on the heating cables
- connects to a SOV-5 gutter snow sensor
- prevents gutter or downpipe damage in winter
- two output relays (two Zones)
- main advantages:
  - simple to use and install
  - has a high capacity 25 A relay (Zone 1)
  - turns the heating system only when necessary thus reducing the electricity bill
- universal power supply from ~100 to ~240 V (50/60 Hz)
- DIN rail mounting 3 modules wide (52.5 mm)

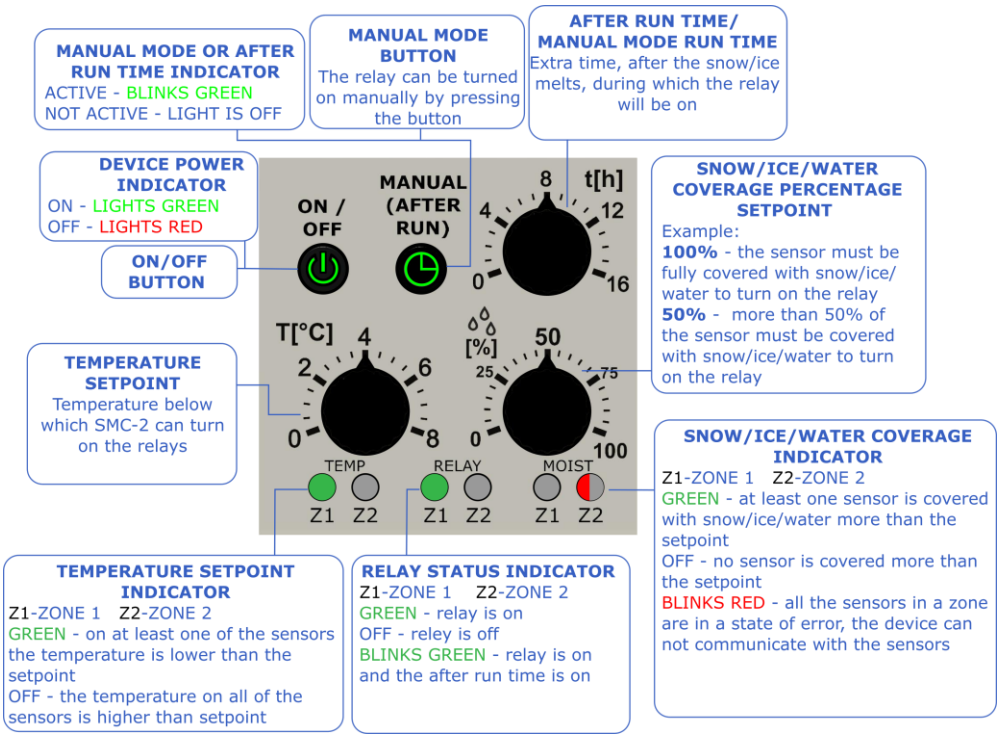
DESCRIPTION

The SMC-2 is a compact electronic snow melt controller designed to turn on the gutter snow melting system as soon as the snow starts to fall or as soon as ice starts to form. The SMC-2 is used to prevent the freezing of water in gutters or downpipes. SMC-2 makes sure that water can drain off without freezing during the winter and also prevents mechanical damage of the gutter that can occur because of ice. The SMC-2 works in pair with the **SOV-5 gutter snow sensors** and with the **SZT-10 air temperature sensor** (air temperature sensor is not mandatory but is highly recommended). The device has two zones (two Normally Open output relays). Users can connect up to 3 sensors in each zone. The SMC-2 also has a power ON/OFF button and a manual button. If the user presses the manual button the output relays will turn on for a set amount of time. The length of time during which the relay is on is controlled with the time dial. Users can set the snow detection sensitivity. This means that the users can choose how much snow/ice/water must be on the sensors before the heating is turned on.

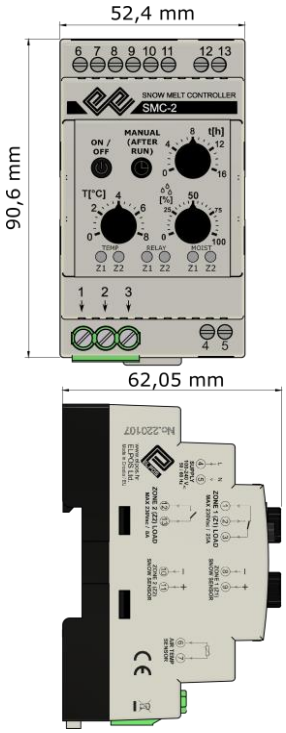
Users can also choose a temperature below which the device will turn on the heating if there is snow, ice, or water on the sensors.

SOV-5 sensors communicate with the SMC-2 and report the amount of snow/ice/water that is covering each sensor. In case any sensor reports that the amount of snow/ice/water covering the sensor is higher than the percentage setpoint, and if the temperature of the air or the temperature of the SOV-5 sensor is lower than the temperature setpoint, that will cause the output relay to be turned on. SOV-5 sensors connected to Zone 1 (terminals 8-9) control the relay in Zone 1 (terminals 1,2,3). Sensors in Zone 2 (terminals 10, 11) control the relay in Zone 2 (terminals 12, 13). The relay in Zone 1 has a 25A continuous and 40A instantaneous switching capacity, while the relay in Zone 2 has 8A continuous capacity. The relay in Zone 1 can be used to directly control high power heating cables, while the relay in Zone 2 can be used to control medium power heating cables.

FRONT PANEL DESCRIPTION



DIMENSIONS

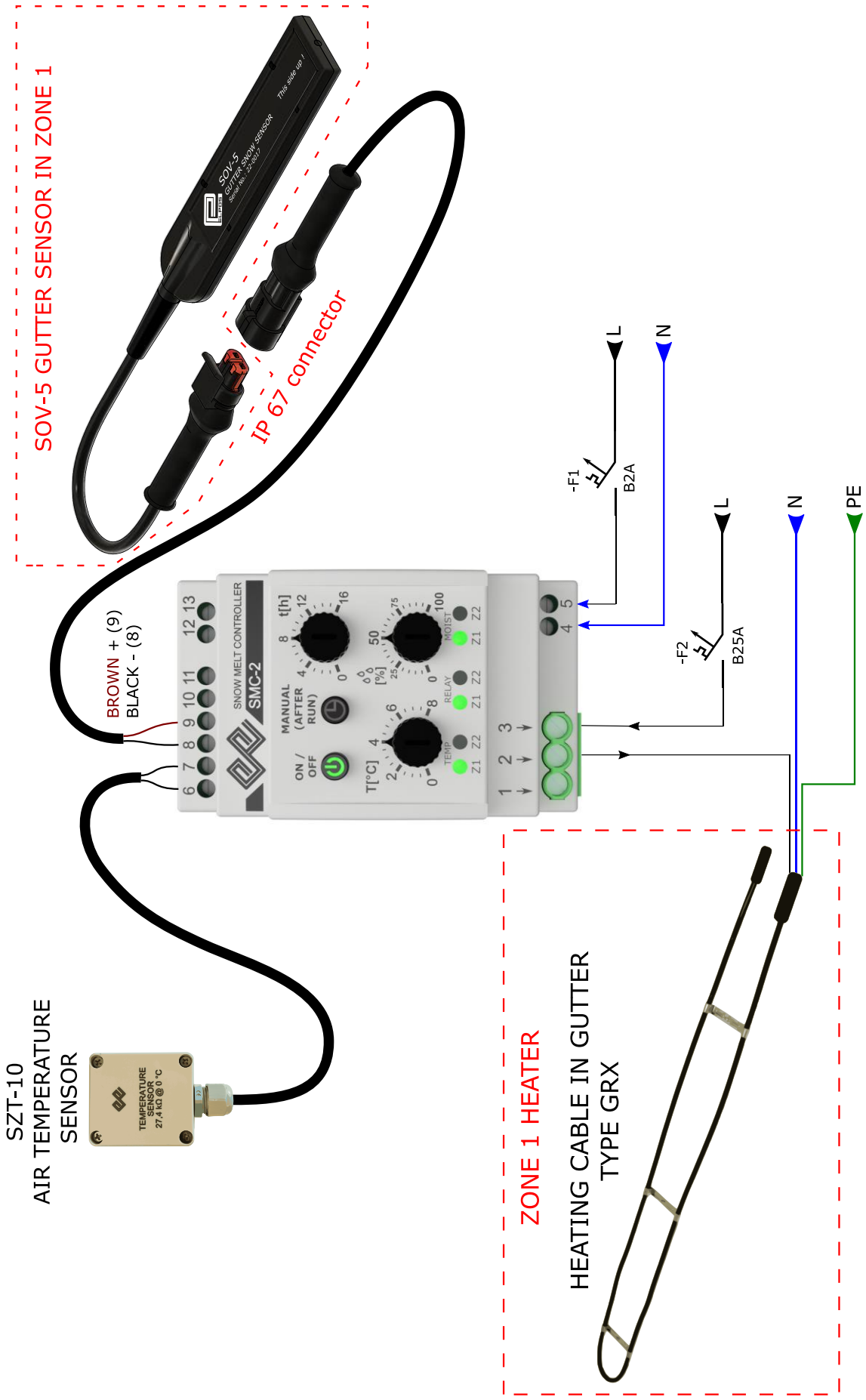


Parameter	Value / Description
Name	SMC-2
Type of functionality	Snow melt controller
Type of mounting	DIN rail 35 mm (according per EN 60715) or panel flush mount
Power supply	universal, from ~ 100 V to ~ 240 V, 50 Hz / 60 Hz
Power supply connection	terminals 4 (Line) - 5 (Neutral)
SMC-2 internal power consumption	< 15 W
Zone 1 output type	Relay SPDT ① ② ③
Zone 1 output max. load current and switching voltage	25 A continuous (40A instantaneous), ~250 V / cosφ ≥ 0.8
Zone 2 output type	Relay SPST ⑫ ⑬
Zone 1 output max. load current and switching voltage	8 A continuous (20A instantaneous), ~230 V / cosφ ≥ 0.8

Parameter	Value / Description
Load connection wire cross section	Zone 1 ≤ 4 mm^2 Zone 2 ≤ 2,5 mm^2
Power supply wire cross section	≤ 1,5 mm^2
Zone 1 sensor connection terminals	8 (-) , 9(+)
Zone 2 sensor connection terminals	10 (-) , 11(+)
Air temperature sensor	NTC thermistor 10kΩ / B3435 terminals 6 – 7 (SZT-10 sensor)
Snow sensor type	**SOV-5 gutter sensor**
Max. sensor number	3 sensors per zone
Maximum ambient temperature	from -20 °C to +55 °C
Protection degree	IP 40 front panel with dials IP 20 connectors
Overvoltage category	III
Pollution degree	2
Dimensions	D= 90,6 mm, W= 52,4 mm, H= 62,1 mm (3 DIN modules)
Mass	300 g
Complies with standards	EN 60730-1, EN 60730-2-9

For example, if the percentage dial is set to 65% then the SMC-2 will turn on the output relay even if the sensor if not fully covered with snow. Similarly, if the sensitivity dial is set to 100% then the SMC-2 will turn on the relay when the sensor is fully covered with snow. The SMC-2 can also detect if there is a malfunction of the sensor. In case the snow/ice sensors fails the MOIST indicator on the front panel will blink red.

SOV-5 gutter sensors are **the latest generation of snow sensors** that need only two wires for connection to the SMC-2 controller. Besides detecting snow, ice or water, sensors also measure the surrounding temperature. This enables more accurate control of the snow melting process thereby reducing the total energy consumption. Users can also connect an additional ambient air sensor (SZT-10 temperature sensor) to SMC-2. Ambient temperature measurement can help to decrease the SMC-2 response time and can additionally decrease the electricity bill.


SOV-5 GUTTER SENSOR IN ZONE 1
IP 67 connector
BROWN + (9)
BLACK - (8)
SNOW MELT CONTROLLER
SMC-2
MANUAL (AFTER RUN)
ON / OFF
t[h]
T[°C]
[%]
MOIST
RELAY
TEMP
-F1
B2A
-F2
B25A
L
N
PE
SZT-10
AIR TEMPERATURE SENSOR
ZONE 1 HEATER
HEATING CABLE IN GUTTER
TYPE GRX