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Ice and Snow Sensors

6050 Series

Installation, commissioning and servicing instructions

Technical characteristics

Gutter sensor

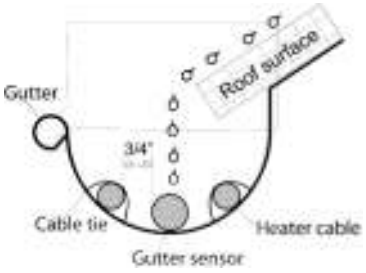
Materials:	Brass
Sensor dimensions:	3⅛” (78.5) L x ½” (12) Dia.

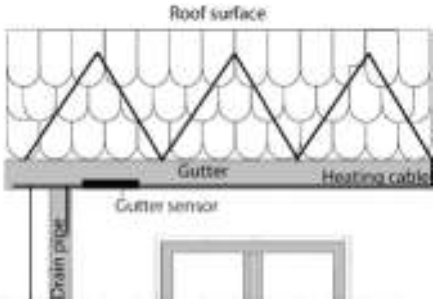
Gutter sensor functioning

The patented gutter sensor has two sensors that are inside a round brass sleeve. Sensor area one contains an NTC temperature thermistor and one thick film PTC hybrid moisture resistor close to the surface. The power consumption of a PTC resistor does not only depend on the ambient temperature but is also affected to a very high degree by the presence or absence of moisture.

Gutter sensor dimensions and installation

Gutter Sensor





Place the sensor below the drip rim close to the down pipe to ensure that melt water will drip onto the sensor. As shown in the example above, heating conductors are also installed on the lower part of the roof surface. This keeps a sufficient area in and above the gutter free from ice and snow, thus facilitating a proper drainage of the melt water.

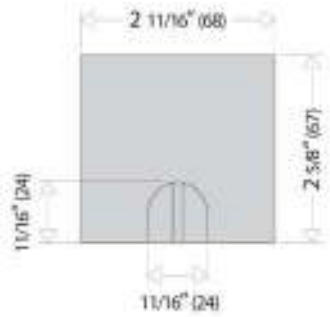
The mounting location of the sensor should be chosen such that the draining melt water flows over the sensing area of the sensor. In a gutter the sensor should be located at the lowest point of the gutter, preferably close to the down pipe.

On a flat roof the sensor should be placed close to a drain and on a dish antenna it should be fitted horizontally on the lower flat part below the drip rim.

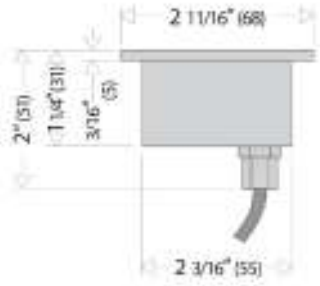
Slab sensor functioning

The patented slab sensor technology is embedded into the brass body which is based on the behavior of the power consumption of a PTC hybrid moisture resistor which replaces the exposed metal electrodes normally used in older sensors. Exposed metal electrodes can collect dirt, suffer from corrosion or get shorted by external conductive objects which require maintenance. The embedded NTC thermistor accurately measures slab temperature.

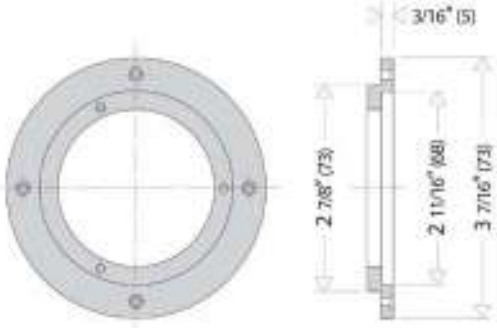
Slab sensor dimensions



Slab Socket



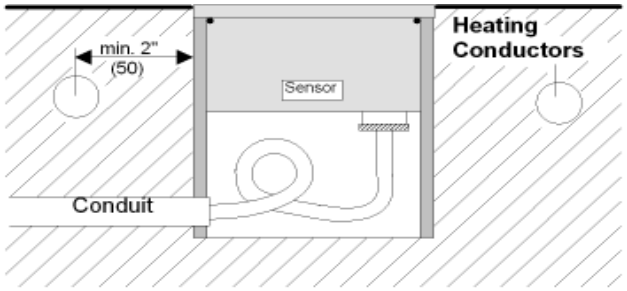
Slab Sensor

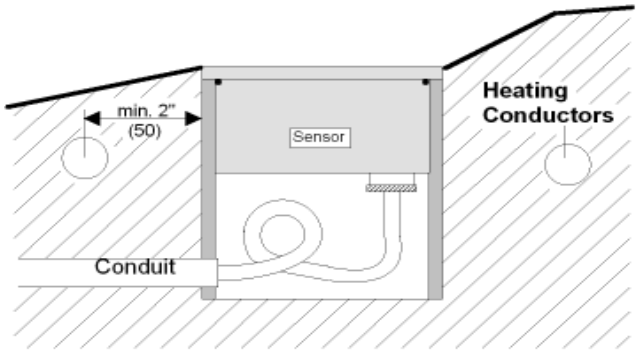


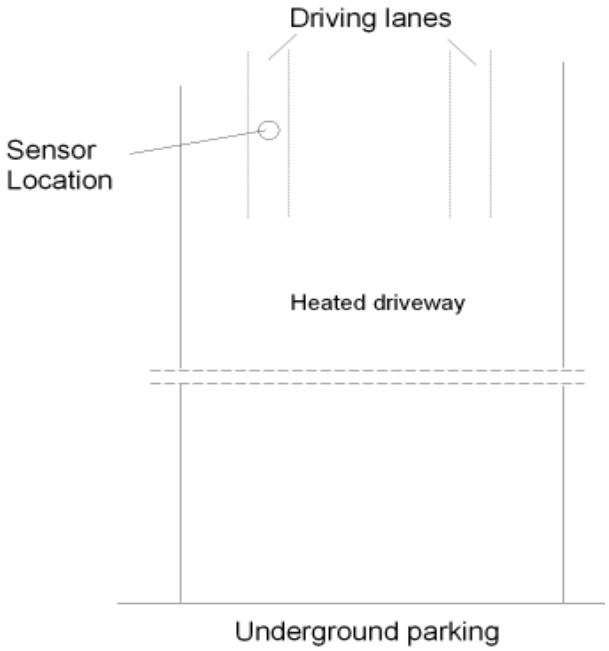
Retofit Ring

Slab sensor location

When determining the location for installing the slab sensor, unfavorable conditions like aisles, shadow areas, warm air exhausts of underground parking garages etc. must be taken into consideration. The sensor must be installed at the place where the critical criteria “moisture and low slab temperature” causing the formation of ice are most likely to occur first. The sensor must be placed inside the area to be heated or monitored such that the sensor surface is level with the surrounding ground surface and is unobstructed. When embedded in an inclined surface the sensor must be installed with the sensor surface horizontally and level with the lower edge in order to retain water from melted snow and ice.





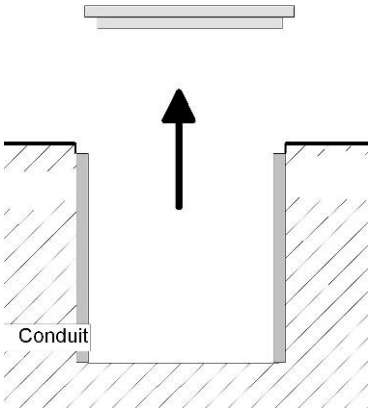


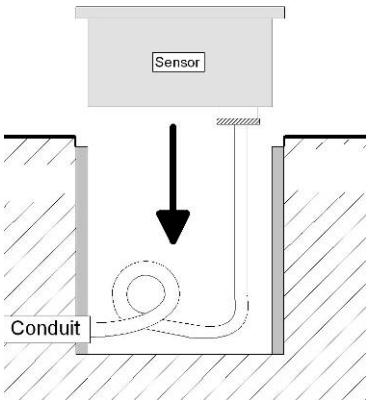
Install the slab socket

Install the slab socket on a firm, smooth surface such as a patio block or similar masonry block. Care should be exercised in adjusting the final grade and level of the sensor to ensure that the plastic socket cap is placed into the socket and that the cap top surface will be flush with the finished pavement and that the adjacent pavement be either level (a sensor submerged in a puddle of water will not function properly). Stabilize the final location of the sensor prior to paving and secure with iron tie wire. If pavement material is asphalt, it is recommended the slab socket be installed following placement of the base course, with wear coat materials being hand placed and tamped adjacent to the slab socket.

Slab sensor installation

When the concrete is set, remove the plastic plug from the socket and fish the cable through the conduit until there is only 6” (152) to 10" (254) of cable between the sensor and conduit. Loop this remaining extra wire in a loose coil so it is not twisted and place it and the sensor into the socket. Secure the sensor to the socket with the three screws provided, making sure not to over tighten.





Sensor checkout

To check the sensor loop after it is installed, the following resistance values can be measured using an Ohm meter at the end of the cable before connecting to detector socket.

Resistance values between **brown** and **blue** wires at corresponding slab sensor temperatures are listed in table below:

°F	Ohm	°F	Ohm	°F	Ohm
-4	14626	17	8132	39	4721
0	11958	25	6752	46	3974
7	10839	28	6164	50	3652
10	9838	32	5634	53	3360
14	8941	35	5155	57	3094

Resistance value between **red** and **red/black** wires on the **slab** sensor must be 25 to 40 Ohms and **gutter** sensor will be approx. 80 Ohms.

Outdoor air temperature sensor overview

The 150004 outdoor air temperature sensor is a two piece design consisting of a 2,000 Ohm thermistor mounted terminal block with a slide on cool gray ABS polycarbonate enclosure housing. The 150004 measures the outside air temperature and provide this information to the 605100A ice & snow detector when using the idling mode function.

Dimensions, mounting and wiring information

The outdoor air temperature sensor should be mounted on an exterior north wall of a building in the shade to achieve a true outdoor air temperature reading. The enclosure cover slides over thermistor mounting terminal block. The wire connection are made to the two screw terminals that accept 18-22AWG twisted pair wire or shielded cable, routed through the bottom of the enclosure. Attach these wires to terminal connections T2/T2 on the 605100A ice & snow detector socket.

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