

Ice and Snow Detection Sensors **3354 (for gutter heating systems)** **3356 (for open-area heating systems)**

Installation Instructions



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Mounting the sensor

Sensor mounting in open areas (3356)

When choosing the sensor's installation location, unfavourable circumstances such as aisles, shady areas, warm air outlets in underground parking lots etc. need to be avoided. Ideally the combined moisture and temperature sensor should be installed in a place where the critical criteria "moisture and low temperature" causing the formation of ice are most likely to occur first. Mount sensors within the area to be monitored and heated.

Choose the sensor location in such a way that the draining melt water runs onto the sensor's measuring surface. This ensures that moisture is detected as long as there is any. It is important that the sensor surface lies horizontally and is level with the surrounding surface material.

In the following sections you can find illustrations showing the different circumstances during sensor mounting.

You can mount the sensor in a ground socket. When the open area is built, this ground socket is placed into

the surface without the sensor in such a way that there will be an even surface after installation of the sensor.

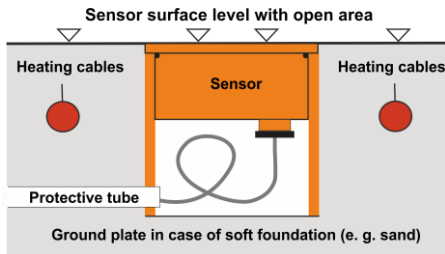
Especially in case of surfaces which need a high processing temperature, such as poured asphalt ($> 75^{\circ}\text{C}$), the fitting of a ground socket should be well provided for. In order to avoid that the ground socket sinks into a soft surface later (e. g. in a sand bed for stone paving), it is recommended to create a firm footing for the socket (e. g. by putting a concrete slab underneath it).

Note: A protective tube needs to be used for the sensor supply line. This is beneficial both during a new installation and in case of a necessary replacement. Depending on the weight and material of the surface either a plastic pipe or an armoured steel tube DN20 can be used. Make sure that the openings of the empty conduit and the ground socket are securely closed during the construction of the open area to keep out building material.

To make sure that the ice and snow detection system works properly, take care that the minimum heating time is long enough so that melt water can moisten the sensor.

Installation in flat open areas

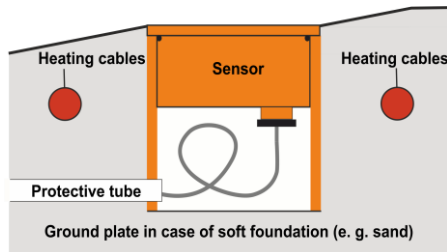
The sensor needs to be installed inside the area to be monitored and heated in such a way that the sensor surface is in level with the surrounding surface material and the sensor surface remains free. The sensor must not stick out of the open area but can rather be a few mm lower so that draining water is collected.



Installation in open areas with a slope

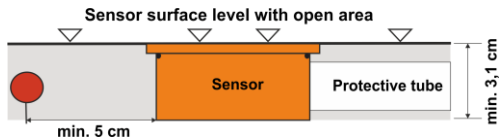
In case of slopes it needs to be made sure that the sensor surface lies horizontally in order to be able to collect snow or melt water.

If the sensor surface does not lie horizontally, this may lead to errors in detecting moisture.



Installation in open areas with minimum construction height

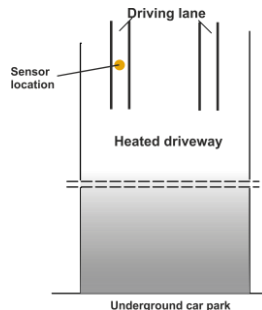
If the area only allows for a low construction height, a sensor, which has a supply line at the side of the sensor case can be used. Its height is only 35 mm.



Take care not to damage the sensor when constructing the surface, e. g. by an excessive processing temperature ($>75^{\circ}\text{C}$) or by mechanical load due to the use of compactors. Use a suitable protective tube (DN20 in plastic or armoured steel) to ease installation and protect the supply line.

Installation in driveways

In driveways (e. g. an entrance to an underground parking lot) the sensor should ideally be mounted in the driving lane.

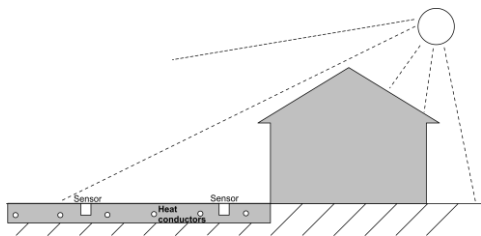


Installation example with several sensors

Several sensors can be connected to the snow and ice detector. In this way it is possible to optimally monitor large or separated open areas, which may have different local conditions (such as sun in the southern

part of the area and shadow in the northern part or due to shading by a roof as in the illustration below).

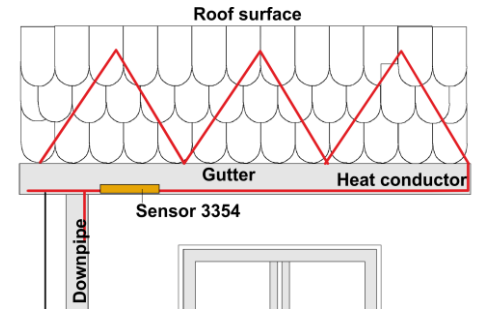
For the connection of additional sensors, one extension unit 1875 per sensor/heating area is required. In systems equipped with more than one sensor/heating circuit, the sensors/heating circuits can be organized in zones. With the help of the optional channel coupling, all heating circuits of a zone switch on together as soon as one of the sensors reports moisture.

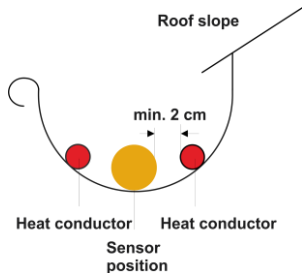


Sensor mounting in gutters, on flat rooftops and on satellite systems (3354)

Installation in a gutter or on a flat rooftop

The sensor must be installed in such a way that draining melt water runs off across the sensor. It should be located as close as possible to the downpipe or the drain.

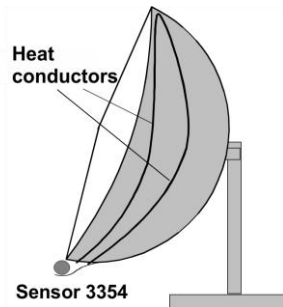




Important: Fasten the sensor only with the supplied fastening material (plastic).

Installation on a satellite dish

Fix the sensor horizontally to the lower edge of the satellite dish in order to detect melt water until the dish is free from snow and ice. The heat conductors are fixed to the back side of the dish and switched on until the snow or ice in the dish are completely melted.



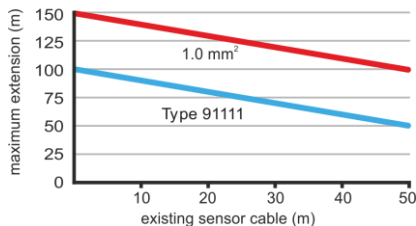
Length of supply lines

Preferably sensors should be ordered with a cable length that allows continuous cabling from the installation location to the ice and snow detector. If necessary, the sensor cable may be extended. For this purpose the original microbe and oil resistant four-core sensor cable is available by the metre.

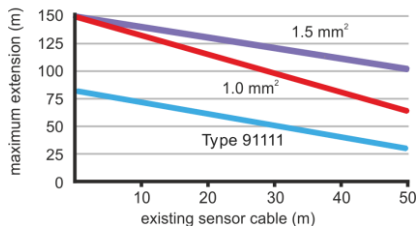
Longer lengths require cables with a higher conductor cross-section. This can be determined with the help of the following diagrams in three steps:

1. On the horizontal axis, search for the length of the cable that is already connected to the sensor (e. g. for the 3356 20 m).
2. From there, go up to the curve of the intended cable type (e. g. for the 3356 1.0 mm^2 = red curve).
3. Go left and read the maximum permissible length of the extension cable on the vertical axis (result of the example for the 3356: maximum of 115 m).

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Documentation

Other relevant documentation:

- Installation instructions for sensors 3354 and 3356

<https://tekmar.de/plink/M-MES-335~46-EN>



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