

Moisture and temperature sensor for surface snow melting

PRODUCT OVERVIEW



Ground sensor for combined measurement of temperature and moisture in outdoor areas with foot or vehicle traffic. Robust version made of brass, fully encapsulated.

Very low installation height, so particularly well suited to staircases, terraces, etc.

One accessory available - brass ground sleeve for installation of E650C-G flush with the surface in an outdoor area (travel lane, etc.) with a protective cover made of aluminum for covering ground sleeve during installation.

PRODUCT SPECIFICATIONS

E650C-G: Ø 68 mm, H 31 mm

E650C-G-HOUSING: Ø 68 mm, H 67 mm

E650C-G	
Cable connection	To the side
Connection cable	4 x 0.5 mm ² length 20 m
Temperature sensor	NTC
Temperature range	-30°C to 75°C
Temperature range for moisture measurement	-20°C to 30°C
Load capacity	20 kN (based on DIN EN 60598-2-12)

Sensor installation

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 the sensor within the area to be monitored and heated.

Arrange the sensor 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 sleeve. 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.

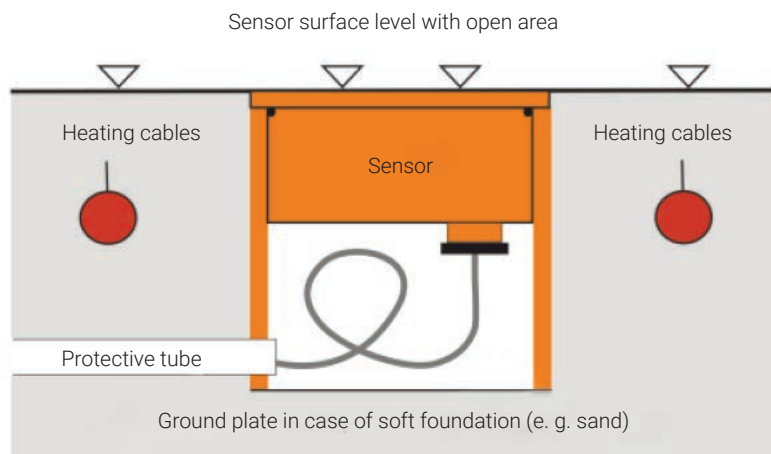
Especially in case of surfaces which need a high processing temperature, such as poured asphalt (>75°C), the fitting of a ground sleeve should be well provided for. In order to avoid that the ground sleeve sinks into a soft ground later (e.g. in a sand bed for stone paving), it is recommended to create a firm foundation for the sleeve (e.g. by putting a concrete support underneath).

A protective conduit needs to be used for the sensor cable. This is beneficial both during a new installation and in case of a replacement. Depending on the weight and material of the surface either a plastic conduit or a steel pipe DN20 can be used. Make sure that the openings of the empty conduit and the ground socket are securely closed during the construction works.

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

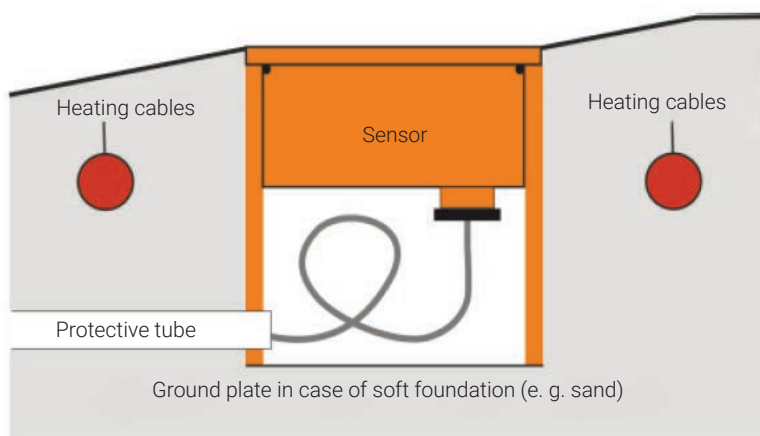
Installation in horizontal flat open areas

The sensor needs to be installed inside the area to be monitored and heated in such a way that the sensor surface is level with the surrounding surface 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 melting water is collected.



Installation in open areas with a slope

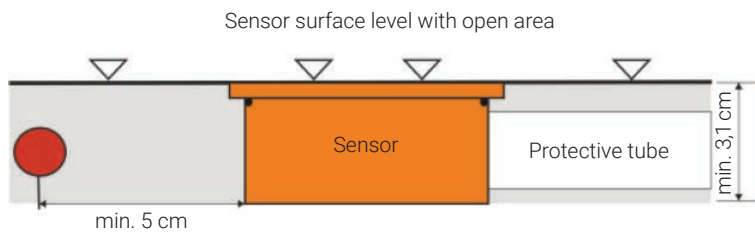
In case of a slope, make sure that the sensor surface lies horizontally in order to be able to collect snow or melt water. If the sensor surface does not lie horizontally, this may lead to errors in detecting moisture.



Installation in open areas with low construction height

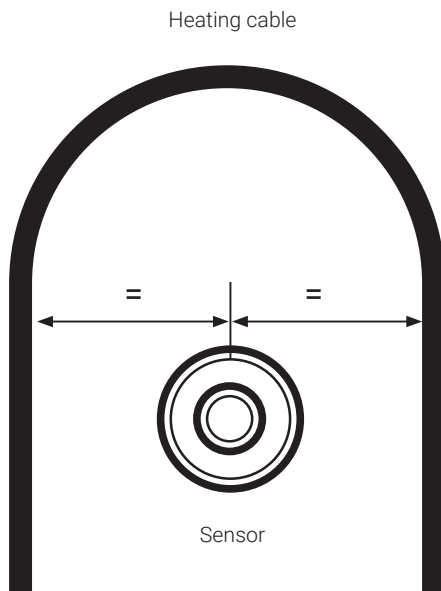
If the area only allows for a low construction height, a sensor, which has a sensor cable at the side of the sensor casing can be used. Its height is only 31 mm. Take care not to damage the sensor when constructing the open surface area, e.g. by an excessive asphalt processing temperature (>75°C) or by mechanical load due to the use of compactors. Use a suitable protective conduit (DN20 in plastic or steel) to ease installation and protect the sensor cable.

Sensor installation in open areas with minimum construction height.



Installation in driveways

In driveways (e.g. an entrance to an underground parking lot) the sensor should ideally be mounted mid-way between the heating cable runs.

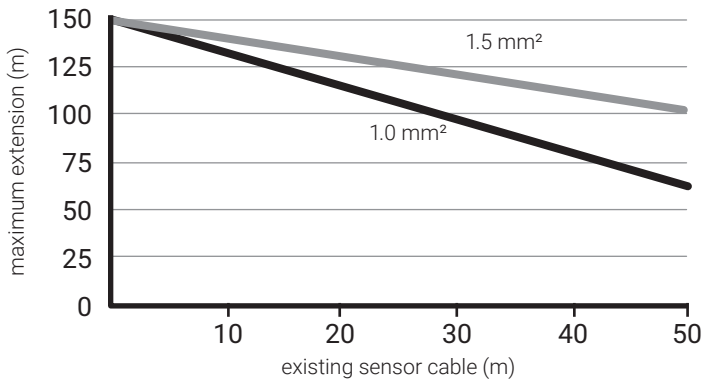


E650C-G Sensor extension

If necessary, the sensor cable may be extended. Longer lengths require cables with a higher conductor cross-section. This can be determined with the help of the following diagram in three steps:

1. On the horizontal axis, search for the length of the cable that is already connected to the sensor.
2. From there, go up to the curve of the intended cable type (e.g. for extension wire 1.0 mm² = thick curve).
3. Go left and read the maximum permissible length of the extension cable on the vertical axis (result of the example for the E650C-G: maximum of 115 m).

E650C-G



ORDERING INFORMATION

Product Name	Product Description	Reference Number	EAN
E650C-G	Moisture / temperature sensor for surface snow melting, 20 m, with housing and protective cover	1244-022794	5414506024661
E650C-G-HOUSING	Spare housing and protective cover for surface snow melting sensor	1244-022796	5414506024685
Elexant 650c-Modbus	Controller for surface snow melting and roof and gutter applications with Modbus	1244-022835	5414506025002
SM-TF130-DI	External module for the ice rain feature and panel alarm digital input	1244-022836	5414506025019

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