



TH-ERD

Ground Sensor for KNX I4-ERD

Technical specifications and installation instructions

Item number 70312



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1. Description

The **TH-ERD sensor** measures ground temperature and humidity. The sensor is intended for communication with the **KNX I4-ERD** evaluation unit and cannot be used with other systems

Functions:

- Ground temperature measurement
- Measurement of the ground humidity content
- For connection to the KNX I4-ERD evaluation unit

1.1. Deliverables

- Ground sensor with 10 m lead

1.2. Technical data

Colour	Black (measuring surface green)
Protection category	IP 68
Dimensions	approx. 220 x 32 x 10 (W x H x D, mm), lead length 10 m
Max. cable length	100 m
Weight	approx. 250 g
Measurement accuracy of humidity volume share	~ 1.5%, dependent on ground properties
Humidity volume share measurement resolution	~ 0.5%
Ambient temperature for temperature measurement	-55...125°C
Ambient temperature for humidity measurement	-10...0.70°C
Accuracy Temperature measurement	± 0.5°C
Power consumption	65 mA for less than 1 second during measurement
Data output	RS485

The product conforms with the provisions of EU directives.

2. Installation and start-up

2.1. Installation notes

The device is only to be used for its intended purpose. Any improper modification or failure to follow the operating instructions voids any and all warranty and guarantee claims.

After unpacking the device, check it immediately for mechanical damage. If it has been damaged in transport, inform the supplier immediately.

The device may only be used as a fixed-site installation; that means only when assembled and after conclusion of all installation and operational start-up tasks and only in the surroundings designated for it.

Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

2.2. Connection to the KNX I4-ERD evaluation unit



The sensor should only be connected to the evaluation unit by a qualified electrician.



DANGER!

Risk to life from live voltage (mains voltage)!

The KNX I4-ERD evaluation unit works with a 230V mains supply voltage.

- National legal regulations are to be followed.
 - Make sure all lines to be assembled are free of voltage and take precautions against accidental switching on.
 - Do not use the device if it is damaged.
 - Take the device or system out of service and secure it against unintentional use, if it can be assumed, that risk-free operation is no longer guaranteed.
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Connecting lead pin assignment:

<i>brown</i>	➔ + (+4...24V DC)
<i>white</i>	➔ - (ground)
<i>green</i>	➔ A (RS485 lead A)
<i>yellow</i>	➔ B (RS485 lead B)



ATTENTION!

The KNX I4-ERD sensor connections are not protected against reverse polarity!

- Ensure they are connected correctly!
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The connection lead can be extended with an off-the-shelf twin-pair lead compatible with the type of installation (max. lead length approx. 100 m).

2.3. Placing the sensor

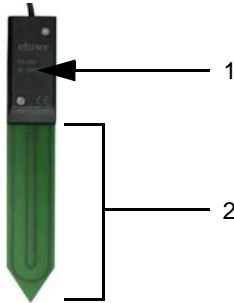


Fig. 1

- 1 Temperature sensor (in the black casing)
- 2 Humidity sensor (green surface with conducting tracks)

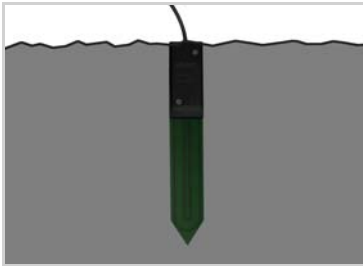


Fig. 2

For a measurement **close to the surface** the **TH-ERD sensor** is pushed vertically into the ground. The casing and the green measuring surface must be completely in the ground. Only then will ground temperature and humidity be recorded correctly.

2.3.1. Measurement in the vicinity of the roots

For a measurement in the vicinity of the roots of larger plants, the TH-ERD sensor is placed in the ground. The probe must be surrounded completely by earth (do not place it in a cavity).

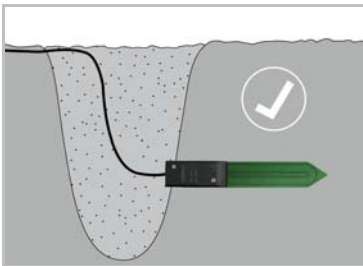


Fig. 3

The sensor must be positioned in a ground area which is representative of the surrounding environment (neither loose or compressed).

The sensor must be placed with its smaller edge facing upwards in order to provide optimal measurement results.

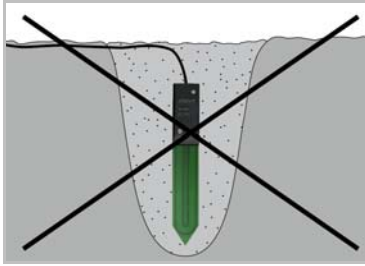


Fig. 4

Example of unfavourable positioning: If the sensor is buried in a hole and the latter is loosely filled, water can seep away from the filled area more quickly so that the measurement values are no longer representative of the surrounding environment.

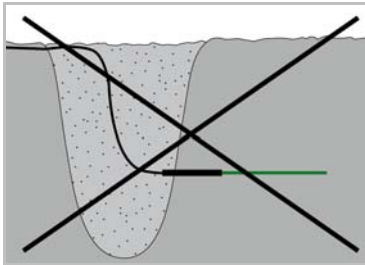


Fig. 5

Example of unfavourable positioning: Water accumulation on the measurement surfaces will cause incorrect measurements. For this reason, the sensor must not be placed with its surface facing upwards.

2.3.2. Measurement in a plant pot

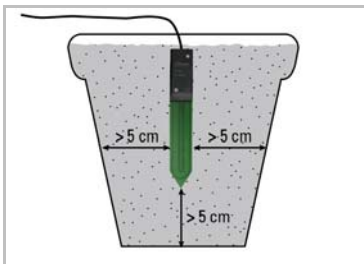


Fig. 6

When measuring in a plant pot, a distance of at least 5 cm from the edges and the base of the pot must be observed.

