

Leak 2.0 Leakage Sensor for water and pipe breakage reporting

Technical specifications and installation instructions

Item number 30166



1. Description

The **Leakage sensor Leak 2.0** includes an evaluation unit and a probe. If there is water between the electrodes of the probe, the evaluation unit produces an acoustic alarm. Additionally, the alarm output of the evaluation unit switches on. The output can be used to transmit the alarm signal to other systems (e.g. klaxons, light indicators, stop valves, building control system, alarm system). The changeover contact design of the output makes it possible to detect wire breakage in the alarm line by suitable systems.

Even if no probe is connected or the cable is defective, an alarm is sounded and the alarm output of the evaluation unit switches on.

Functions:

- Detection of water on the probe
- Acoustic alarm signal by the evaluation unit during a water alarm (sustained beeping tone). Short beeping during the follow-up time (1 minute after the end of the alarm).
- Output for alarm reporting (potential-free changeover contact)
- Detection whether probe is connected and the probe cable is functional
- Acoustic alarm signal on the evaluation unit when the probe is not connected or when the probe cable is broken (two short beeps per second)

1.1. Deliverables

- Evaluation unit with mains power supply
- Cable guide for alarm output
- Probe with BNC cable
- Stainless steel A2 plumbing screw 4.5 x 70 (DIN 7995), matching dowel SX6 x 30

1.2. Technical specifications

The evaluation unit 30166 (2.0) is not compatible with the 30165 probe.

1.2.1. Analysis unit

| | |
|----------------------|--|
| Casing | Plastic |
| Colour | Grey |
| Installation | Surface mounted |
| Degree of protection | IP 20 |
| Dimensions | approx. 118 x 86 x 65 (W x H x D, mm), |
| Weight | approx. 460 g |
| Ambient temperature | Operation -20...+70°C, storage -55...+90°C. |
| Ambient humidity | max. 95 % RH, avoid condensation |
| Operating voltage | 230 V AC, 50 Hz |
| Power consumption | no alarm: approx. 1 W with alarm: approx. 4 W |
| Probe input | 1 x electrode probe, plug-in BNC terminal |
| Alarm output | 1 x potential-free changeover contact, max. 230 V AC / 3 A, max. 30 V DC / 3 A, Connector NC/Com/NO |

The product is compliant with the provisions of EC guidelines.

1.2.2. Probe

| | |
|-------------------------------|--|
| Material | Casing / electrodes: stainless steel A2 |
| Installation | for placing on the floor |
| Protection category | IP 68 |
| Electrode chemical resistance | Water |
| Dimensions | Diameter: approx. 77 mm Height: approx. 33 mm |
| Cable length | approx. 140 mm (plus cable grip and plugs). Extendable to 10 m. |
| Weight | approx. 200 g |
| Ambient temperature | Operation -25...+85°C, storage -40...+125°C. |

The product is compliant with the provisions of EC guidelines.

2. Installation and commissioning



If the alarm output is used, the installation, testing, commissioning and troubleshooting of the unit may only be performed by an electrician (pursuant to VDE 0100).

2.1. Installation notes



DANGER!

Risk to life from live voltage (mains voltage)!

There are unprotected live components within the device.

- VDE regulations and national regulations are to be followed.
- Ensure that 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.

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 possible 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. Evaluation unit installation



The evaluation unit may only be installed and operated in dry, indoor spaces.

Never expose the evaluation unit to water (e.g. rain) or dust. This can damage the electronics.

The evaluation unit can be screwed to the wall with mounting brackets.



Fig. 1

Evaluation unit exterior view

- 1 Mains supply line (mains supply 230 V AC, 50 Hz)
- 2 Bushing for alarm output line (sealed in the delivered state)
- 3 BNC terminal for the probe
- 4 Loudspeaker (behind the opening in the side wall of the casing)
- 5 Mounting brackets

2.3. Probe placement

The electrode probe is placed on the floor with the contacts facing downwards. To prevent slipping or tilting, the probe can be screwed to the floor.

Ideally, the probe should be located in a place that, in case of water damage, would be the first to be flooded – e.g. close to washing machines, sinks, baths, water pipes or pump sumps.



Fig. 2

Probe

- 1) 3 electrodes (contacts) on the lower side
- 2) Fixing screw
- 3) Connection lead (for evaluation unit)

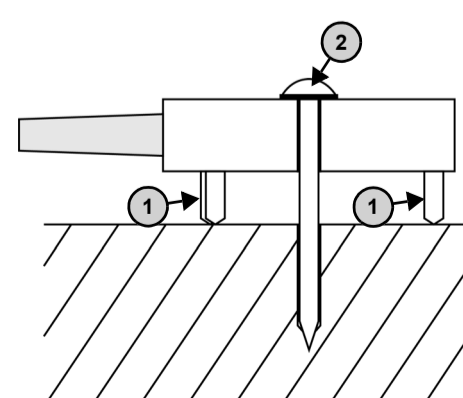


Fig. 3

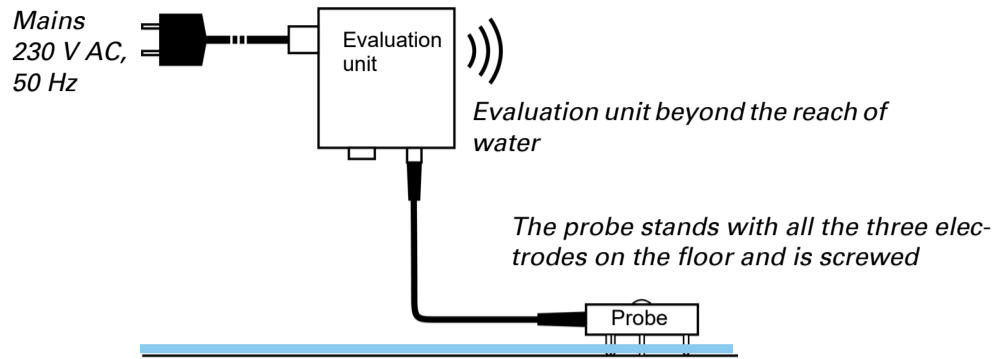
Scheme of the probe bolted to the ground

Use a fixing material suitable for the ground (dowels)!

Tighten the plumbing screw with rubber buffer (2) only so far that the 3 electrodes (1) have loose contact with the ground.


2.4. Leakage sensor commissioning

Fig. 4 Overview



1. Connect the probe to the evaluation unit (insert the BNC plug).
2. Connect the mains supply line to the evaluation unit. Line voltage 230 V AC, 50 Hz.
3. The device is ready for operation.

2.5. Alarm output use

 If the alarm output is used, the installation, testing, commissioning and troubleshooting of the unit may only be performed by an electrician (pursuant to VDE 0100).

DANGER!
Risk to life from live voltage (mains voltage)!
There are unprotected live electric components inside the device.

- Observe the VDE provisions.

1. Disconnect the device from voltage supply (disconnect the mains plug).
2. Open the casing of the evaluation unit (four screws under the cover and in the corners of the casing)
3. Replace the seal on the alarm output with the enclosed cable bushing and insert the alarm line into the casing.
4. Connect the output device to the relay contact. Please observe the *internal view* in the figure below.
5. Close the casing.
6. Connect the mains supply line. Line voltage 230 V AC, 50 Hz.
7. The device is ready for operation.

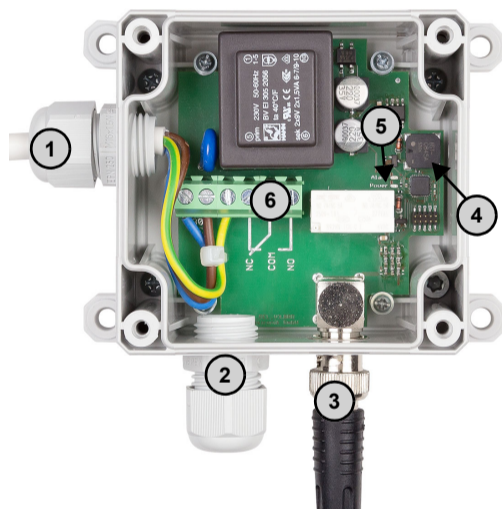


Fig. 5 Inside view

- 1) Mains supply line (mains supply 230 V AC, 50 Hz)
- 2) Bushing for alarm output line
- 3) BNC terminal for the probe
- 4) Loudspeaker
- 5) LEDs:
Alarm (red during alarm and follow-up time),
Power (green)
- 6) Alarm output:
potential-free changeover contact
NC/Com/NO

3. Behaviour in case of alarm

The alarm will be triggered if there is water between the electrodes of the probe for more than 3 seconds. If there is no more water contact detected on the electrodes, the alarm will continue for 1 additional minute (follow-up time).

If no probe cable or a defective probe cable is connected for more than 5 seconds, an alarm is also triggered. If there is a functional probe cable connected, the alarm will continue for 5 additional seconds.

| Operation state | Water between the electrodes? | Beeping sound (once per second) | 'Alarm' LED (red) | Output relay setting |
|----------------------------|-------------------------------|---------------------------------|-------------------|----------------------|
| No alarm | No and functional probe cable | No | off | NC – Com |
| Water alarm | Yes | sustained | on | NO – Com |
| Water alarm Follow-up time | no (1 minute follow-up time) | short (1x/sec.) | on | NO – Com |
| Cable break detection | not detectable | short (2x/sec.) | flashes | NO – Com |

3.1. Signal tone

If there is water contact, the evaluation unit produces sustained beeping sounds once per second. The beeping sounds are shorter during the follow-up time. If a cable break is detected, the beeps are shorter and more frequent.

3.2. Output

Fig. 6

If no alarm is active:
Contact between NC (Normally Closed) and Com (Common) is closed.

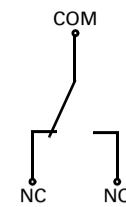
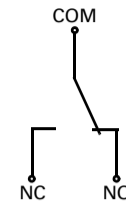


Fig. 7

If there is an active alarm and during the follow-up time:
Contact between NO (Normally Open) and Com (Common) is closed.



4. Disposal

After use, the device must be disposed of or recycled in accordance with the legal regulations. Do not dispose of it with the household waste!