

KNX RW Rain/Wind Sensor

Technical specifications and installation instructions
Item numbers 70126 (230 V AC), 70127 (20...32 V DC)



1. Description

The **Rain/Wind Sensor KNX RW** measures precipitation and wind speed and transfers the values to the KNX system. Four switching outputs with three adjustable threshold values as well as additional AND and OR logic gates are available. The sensor system, the evaluation electronics and the electronics of the bus connection are mounted in a compact housing.

Functions:

- **Precipitation perception:** The surface of the sensor is heated so that only drops and flakes are recognised as precipitation but not fog or dew. If it stops raining or snowing, the sensor dries quickly and the precipitation message ends
- **Wind measurement:** The wind strength measurement takes place electronically and thus noiselessly and reliably, even during hail, snow and sub-zero temperatures. Even turbulent air and anabatic winds in the vicinity of the weather station are recorded
- **4 switching outputs (communication objects),** 3 with adjustable threshold values (Threshold values can be set by parameter or via communication objects)
- **8 AND and 8 OR logic gates** with each 4 inputs. Every switching incident as well as 8 logic inputs (in the form of communication objects) may be used as inputs for the logic gates. The output of each gate may optionally be configured as 1 bit or 2 x 8 bits

Configuration is made using the KNX software ETS. The **product file** can be downloaded from the Elsner Elektronik website on www.elsner-elektronik.de in the "Service" menu.

1.1. Deliverables

- Sensor with combined wall/pole mounting
- 2x stainless steel installation band for pole installation

1.2. Technical specifications

Housing	Plastic material
Colour	White/ translucent
Mounting	On-wall
Protection category	IP 44
Dimensions	approx. 96 x 77 x 118 (W x H x D, mm)
Weight	230 V AC version: approx. 240 g, 20...32 V DC version: approx. 170 g
Ambient temperature	Operation -30...+50°C, storage -30...+70°C
Operating voltage	Available for 230 V AC or 20...32 V DC. An appropriate power supply unit can be obtained from Elsner Elektronik.
Cable cross-section	Massive conductors of up to 1.5 mm ² or conductors with fine wires
Current	230 V AC version: max. 20 mA, 20...32 V DC version max. 100 mA, residual ripple 10%
Data output	KNX +/- bus terminal plug
BCU type	Own micro controller
PEI type	0
Group addresses	max. 254
Allocations	max. 255
Communication objects	81
Heating rain sensor	approx. 1,2 W (230 V and 20...32 V DC)
Measurement range wind	0...70 m/s
Resolution (wind)	<10% of the measured value
Accuracy (wind)	±25% at 0...15m/s, at an angle of attack of 45°, pole mounting

The product conforms with the provisions of EU directives.

2. Installation and commissioning

2.1. Installation notes

Installation, testing, operational start-up and troubleshooting should only be performed by an electrician.

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. Location

Select an assembly location at the building where precipitation and wind may be collected by the sensors unobstructedly. Do not assemble any construction components above the sensor from where water may drop on to the rain and wind sensor after it has stopped raining or snowing.

At least 60 cm of clearance must be left all round the device. This facilitates correct wind speed measurement without eddies. The distance concurrently prevents spray (raindrops hitting the device) or snow (snow penetration) from impairing the measurement. It also does not allow birds to bite it.

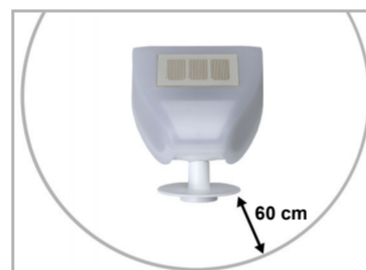


Fig. 1
There must be at least 60 cm of space below, to the sides and in front of the sensor left from other elements (structures, construction parts, etc.).

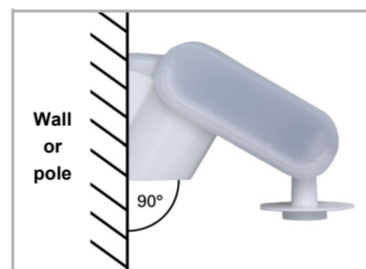


Fig. 2
The rain/wind sensor must be mounted on a vertical wall (or a pole).

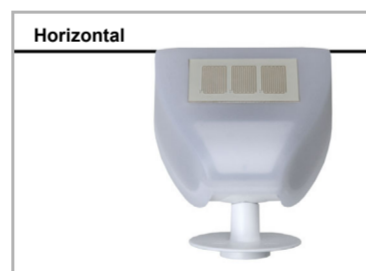


Fig. 3
The rain/wind sensor must be mounted in the horizontal transverse direction (horizontally).

2.3. Mounting the sensor

2.3.1. Attaching the mount

The sensor comes with a combination wall/pole mount. The mount comes adhered by adhesive strips to the rear side of the housing. Fasten the mount vertically onto the wall or pole.

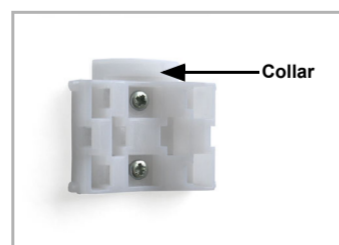


Fig. 4
When wall mounting: flat side on wall, crescent-shaped collar upward.

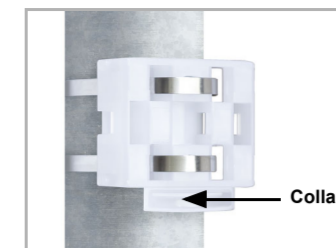


Fig. 5
When pole mounting: curved side on pole, collar downward.



Fig. 6
Different mounting arms are available from Elsner Elektronik as additional, optional accessories for flexible installation of the weather station on a wall, pole or beam (pictures of sensors exemplary). Example of the use of a mounting arm: Due to flexible ball joints, the sensor can be brought into ideal position.



Fig. 7
Example use of the hinge arm mounting: With the hinge arm mounting, the weather station projects from beneath the roof overhang. Sun, wind and precipitation can act upon the sensors without hindrance.

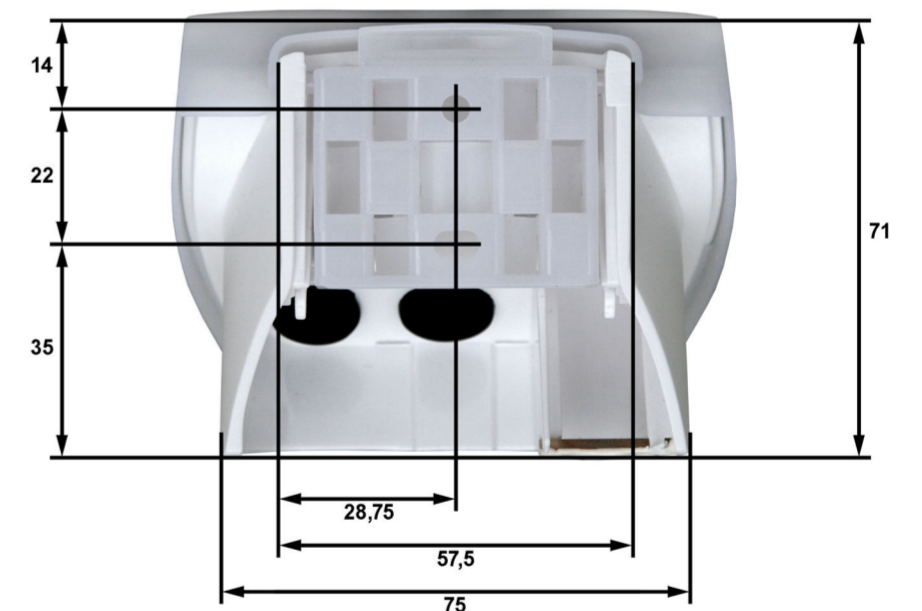
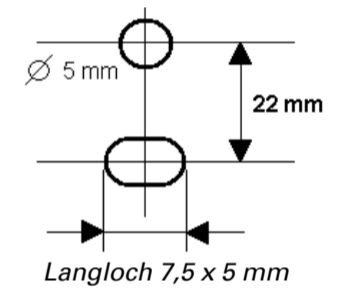


Fig. 8
Example use of the hinge arm mounting: Fitting to a pole with worm drive hose clips

2.3.2. View of rear side and drill hole plan

Fig. 9 a+b
Drill hole plan

Dimensions of rear side of housing with bracket. Subject to change for technical enhancement.



2.3.3. Preparing the sensor

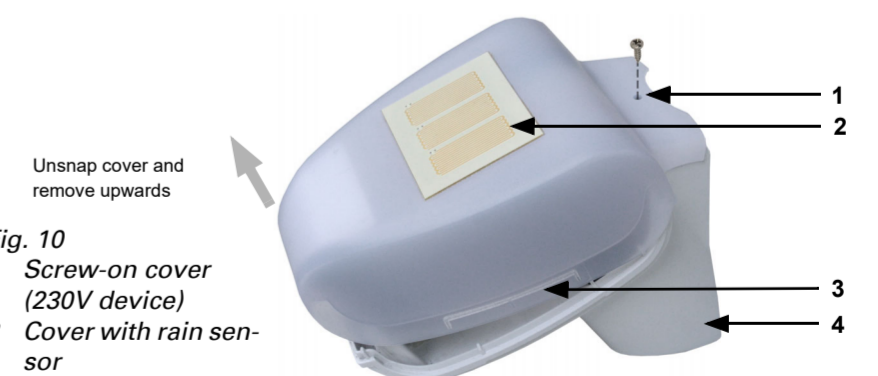


Fig. 10
1 Screw-on cover (230V device)
2 Cover with rain sensor
3) Cover Snaps
4 Bottom part of housing

The sensor cover snaps in on the left and right along the bottom edge (see Fig.). The cover of the 230V model is also screwed on top. Remove the cover. Proceed carefully, so as not to pull off the wire connecting the PCB in the bottom part with the rain sensor in the cover (soldered cable connection in case of 230 V AC version, cable with plug in case of 20...32 V DC version).

Lead the cable for the voltage supply and bus connection through the rubber seals on the bottom of the device and connect Voltage L/N and Bus +/- to the terminals provided.

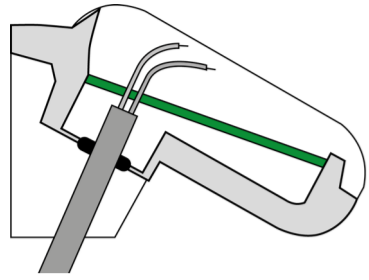


Fig. 11
Remove the cable shielding under the circuit board and only feed the connector cables upwards through the openings in the circuit board.

For 20...32 V DC devices the connection cable must be plugged in between the cover and circuit board.

2.3.4. PCB Layout

230 V AC version

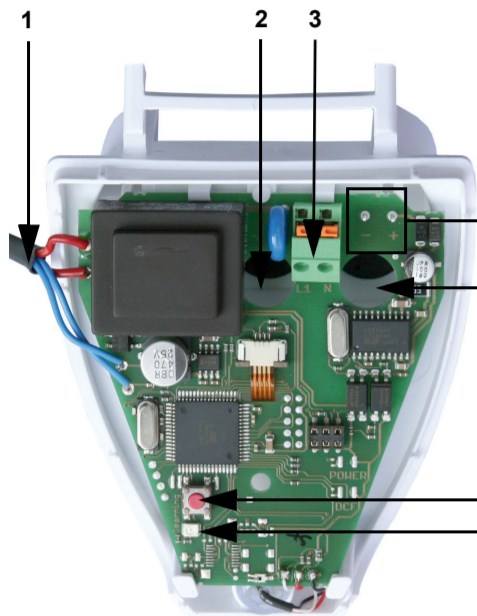


Fig. 12
1) Cable connection to the rain sensor in the housing cover
2) Opening for the cable for the voltage supply
3) Tension clamp for voltage supply (230 V AC), suitable for massive conductors of up to 1.5 mm² or conductors with fine wires
4) Slot for KNX clamp +/-
5) Opening for the bus cable
6) Programming pushbutton for the teach-in of the device
7) Programming LED

20...32 V DC version

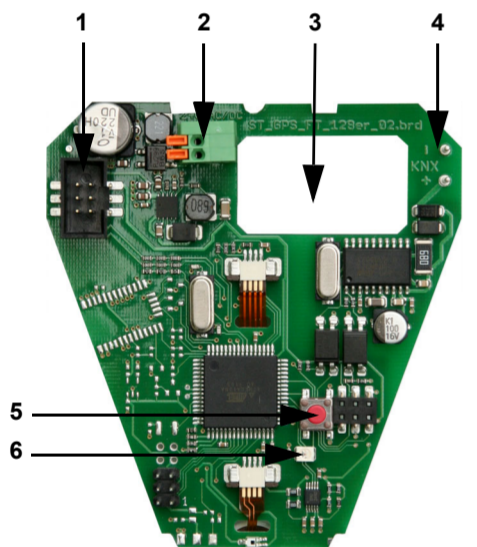


Fig. 13
1 Slot for cable connection to the rain sensor in the housing cover
2 Tension clamp for voltage supply (20...32 V DC). Massive conductors of up to 1.5 mm² or conductors with fine wires. Terminal configuration independent from polarity (+/- or -/+).
3 Opening for the cable for the voltage supply and for bus cable
4 Slot for KNX clamp +/-
5 Programming pushbutton for the teach-in of the device
6 Programming LED

2.3.5. Mounting the sensor

Close the housing by putting the cover back over the bottom part. The cover must snap in on the left and right with a definite "click".

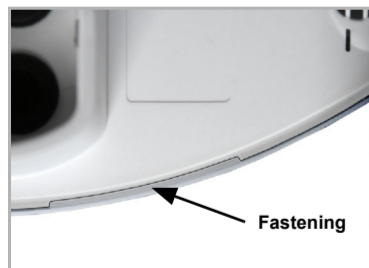


Fig. 14
Make sure the cover and bottom part are properly snapped together! This picture is looking at the closed sensor from underneath.



Fig. 15
With the 230V model, screw the cover on to the underpart, to prevent unauthorised or accidental opening.



Fig. 16
Push the housing from above into the fastened mount. The bumps on the mount must snap into the rails in the housing.

To remove it, the sensor can be simply pulled upwards out of the mount, against the resistance of the fastening.

2.4. Notes on mounting and commissioning

Do not open the device if water (rain) might ingress: even some drops might damage the electronic system.

Observe the correct connections. Incorrect connections may destroy the sensor or connected electronic devices.

The measured wind value and thus all other wind switching outputs may only be supplied 60 seconds after the supply voltage has been connected.

After the auxiliary voltage has been applied, the device will enter an initialisation phase lasting a few seconds. During this phase no information can be received or sent via the bus.

3. Addressing of the device at the bus

The device is supplied with the bus address 15.15.255. You can program another address into the ETS by overwriting the 15.15.255 address or by teaching via the programming key on the circuit board inside the housing.



DANGER!
Risk to life from live voltage (mains voltage)!

- With the 230V model, bus addressing via the programming key should only be done by an accredited electrician.
- Do not touch any components on the circuit board while pressing the key.

4. Maintenance



DANGER!
There is a risk to life from the live voltage (mains voltage)!

If you come into contact with live components in the device, (e.g. caused also by a jet of water) there is the risk of an electric shock with 230 V devices.

Risk of injury caused by components moved automatically!

The automatic control can start system components and place people in danger (e.g. moving windows/awnings if a rain/wind alarm has been triggered while cleaning).

- Always isolate the device from the mains for servicing and cleaning (e. g. switch off or remove the fuse).

The device must regularly be checked for dirt twice a year and cleaned if necessary. In case of severe dirt, the sensor may not work properly anymore.



ATTENTION

- The device can be damaged if water penetrates the housing.
- Do not clean with high pressure cleaners or steam jets.



DANGER!
There is a risk to life from the live voltage on a 230 V device!

- The cover must be screwed on in operation.