

Suntracer KNX basic Weather Station

Technical specifications and installation instructions

Item number
3095 (230 V AC),
3096 (12...40 V DC, 12...28 V AC)



1. Description

The **Weather Station Suntracer KNX basic** perceives temperature, wind speed, brightness and precipitation. All data may be used for the control of switching outputs which depend on threshold values. The states may be linked by means of AND and OR logic gates. The compact housing of **Suntracer KNX basic** stores the sensor system, the evaluation electronics and the electronics of the bus connection.

Functions:

- **Brightness measurement:** The current light intensity is measured by means of a sensor
- **Wind measurement:** The measurement of wind speed is accomplished electronically and thus noiseless and reliable even in case of hail, snow and minus temperature. Air swirls and up-draught in the radius of the weather station are collected, too
- **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
- **Temperature measurement**
- **Threshold values** can be adjusted per 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.

1.0.1. Scope of delivery

- Weather station
- 2x stainless steel installation band for pole installation

1.1. 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 12...40 V DC, 12...28 V AC version: approx. 170g An appropriate power supply unit can be obtained from Elsner Elektronik.
Ambient temperature	Operation -30...+50°C, Storage -30...+70°C
Operating voltage	Available for 230 V AC or for 12...40 V DC, 12...28 V AC
Current	230 V AC version: max. 20 mA 12...40 V DC, 12...28 V AC 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	109
Heating rain sensor	approx. 1.2 W
Measurement range temperature	-40...+80°C
Resolution (temperature)	0.1°C
Accuracy (temperature)	±1°C at -10...+85°C ±1.5°C at -25...+150°C

Measurement range wind	0...70 m/s
Resolution (wind)	<10% of the measured value
Accuracy (wind)	±25% at 0...15 m/s at an angle of attack of 45°, pole mounting
Measurement range brightness	0...150 000 lux
Resolution (brightness)	1 lux at 0...120 lux 2 lux at 121...1 046 lux 63 lux at 1 047...52 363 lux 423 lux at 52 364...150 000 lux
Accuracy (brightness)	±35%

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.

2.1.1. Location

Select an assembly location at the building where wind, rain and sun may be collected by the sensors unobstructedly. Do not assemble any construction components above the weather station from where water may drop on to the rain sensor after it has stopped raining or snowing. The weather station may not be shaded by the building or for example by trees.

At least 60 cm of clearance must be left all round the weather station. 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. Please ensure that the extended awning does not cast shade on the unit, and that this is not protected from the wind.

Temperature measurements can also be affected by external influences such as by warming or cooling of the building structure on which the sensor is mounted, (sunlight, heating or cold water pipes). Temperature variations from such sources of interference must be corrected in the ETS in order to ensure the specified accuracy of the sensor (temperature offset).

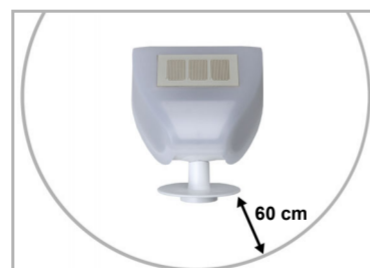


Fig. 1
There must be at least 60 cm of space below, to the sides and in front of the weather station left from other elements (structures, construction parts, etc.).

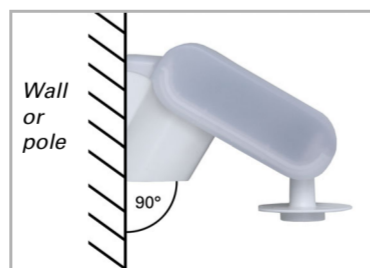


Fig. 2
The wind sensor must be mounted onto a vertical wall (or pole).



Fig. 3
The wind sensor must be mounted horizontally in the lateral direction.

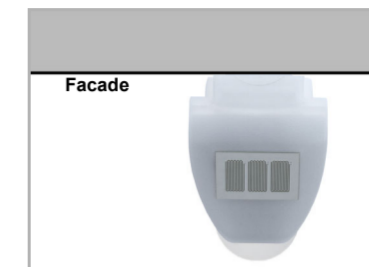


Fig. 4
The weather station must be aligned in the direction of the façade on which shade is to be provided.

2.2. Mounting the weather station

2.2.1. 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.

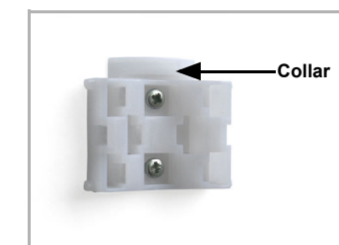


Fig. 5
When wall mounting: flat side on wall, crescent-shaped collar upward.

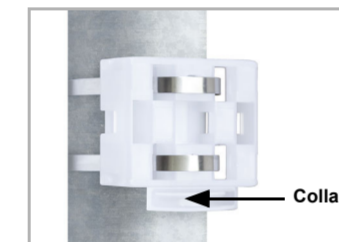


Fig. 6
When pole mounting: curved side on pole, collar downward.



Fig. 7
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. 8
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.

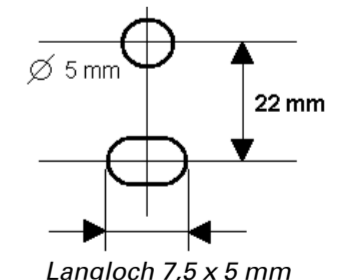


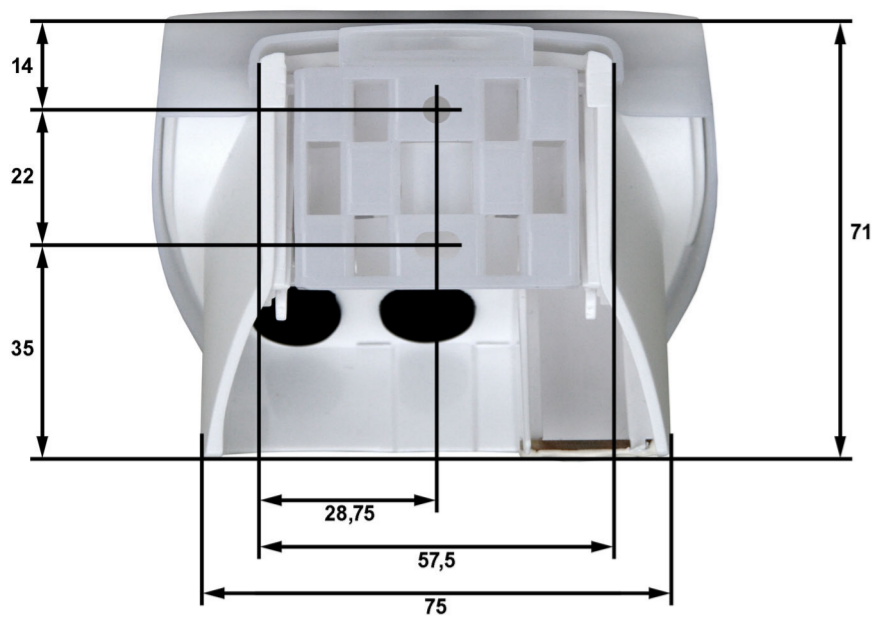
Fig. 9
Example use of the hinge arm mounting: Fitting to a pole with worm drive hose clips

2.2.2. View of rear side and drill hole plan

Fig. 10 a+b
Drill hole plan

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





2.2.3. Weather station layout

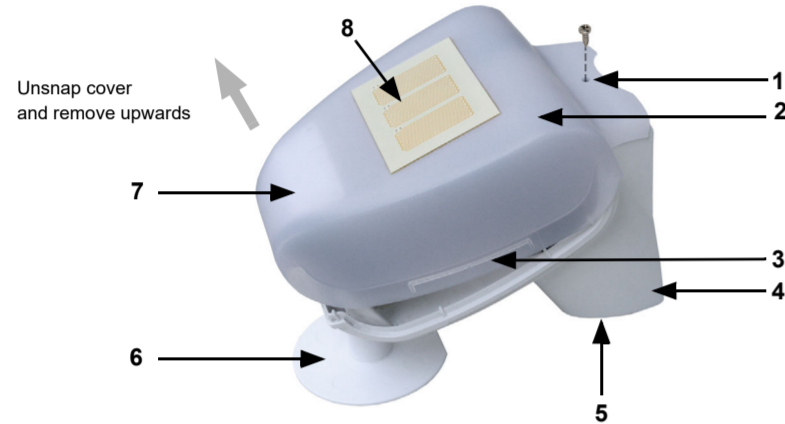


Fig. 11
1 Screw-on cover (230V device)
2 Cover
3 Cover snaps
4 Bottom part of housing
5 Temperature sensor
6 Wind sensor
7 Brightness sensor
8 Rain sensor

2.2.4. Connection of the weather station

The weather station cover with the rain sensor snaps in on the left and right along the bottom edge (see Fig.). Remove the weather station 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 12...40 V DC, 12...28 V AC version).

Push the power supply and bus connection cable through the rubber seal on the bottom of the weather station and connect voltage and bus +/- to the provided clamps.

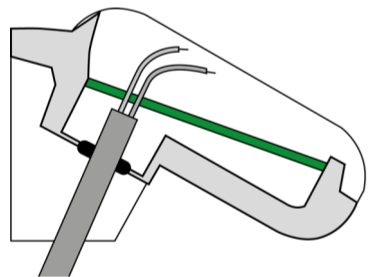


Fig. 12
Remove the cable shielding under the circuit board and only feed the connector cables upwards through the openings in the circuit board.

For 12...40 V DC, 12...28 V AC devices the connection cable must be plugged in between the cover and circuit board.

2.2.5. PCB layout

230 V AC version

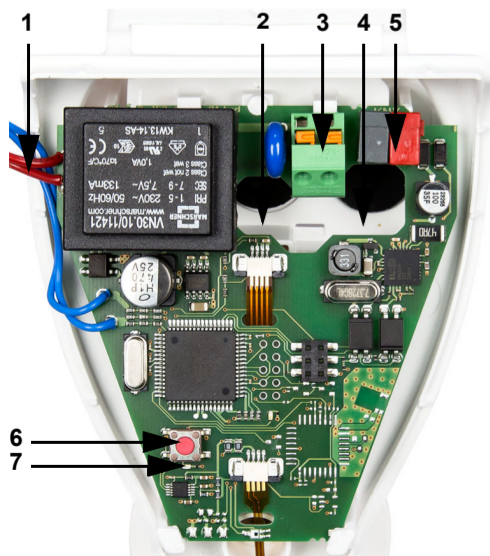


Fig. 13
1 Cable connection to the rain sensor in the housing cover
2 Opening for the cable for the voltage supply
3 Tension clamp for voltage supply (230 V AC), suitable for massive conductors of up to 1.5 mm² or conductors with fine wires
4 Opening for bus cable
5 Slot for KNX clamp +/-
6 Programming push button for the teach-in of the device
7 Programming LED

12...40 V DC, 12...28 V AC version

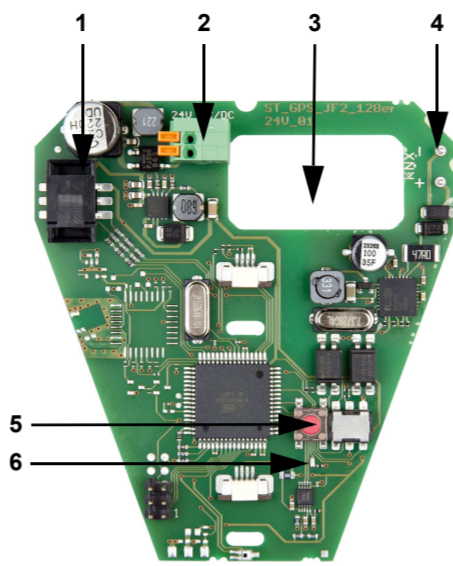


Fig. 14
1 Slot for cable connection to the rain sensor in the housing cover
2 Tension clamp for voltage supply (12...40 V DC, 12...28 V AC). Massive conductors of up to 1.5 mm² or conductors with fine wires. Terminal configuration independent from polarity (+/- or -/+).
3 Opening for the cable for the voltage supply and for bus cable
4 Slot for KNX clamp +/-
5 Programming pushbutton for the teach-in of the device

2.2.6. Mounting the weather station

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".

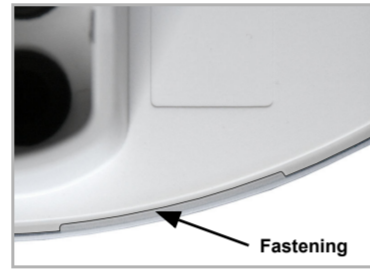


Fig. 15
Make sure the cover and bottom part are properly snapped together! This picture is looking at the closed sensor from underneath.



Fig. 16
With the 230V model, screw the cover on to the underpart, to prevent unauthorised or accidental opening.

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

- The cover must be screwed on in operation.



Fig. 17
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 weather station can be simply pulled upwards out of the mount, against the resistance of the fastening.

2.3. Notes on mounting and commissioning

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

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

Please take care not to damage the temperature sensor (small blank at the bottom part of the housing.) when mounting the weather station. Please also take care not to break away or bend the cable connection between the blank and the rain sensor when connecting the weather station.

Remove all existing protection labels after installation.

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 15.15.250. You can program another address into the ETS by overwriting the 15.15.250 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.