

KNX LW sl

Brightness and Wind Sensor

Technical specifications and installation instructions

Item number 70164



1. Description

The **Brightness and Wind Sensor KNX LW sl** for the KNX building bus system measures brightness and wind speed.

All values can be used for the control of limit dependent switching outputs. States can be linked via AND logic gates and OR logic gates. Multi-function modules change input data as required by means of calculations, querying a condition, or converting the data point type.

The compact housing of the **KNX LW sl** accommodates the sensors, evaluation circuits and bus-coupling electronics.

Functions:

- **Brightness:** The current light intensity is measured by a sensor
- **Wind measurement:** The wind strength is measured electronically and thus noiselessly and reliably, even during hail, snow and sub-zero temperatures. Even turbulent air and rising winds in the vicinity of the device are recorded
- **Switching outputs** for all measured and computed values. Threshold values can be adjusted per parameter or via communication objects
- **8 AND and 8 OR logic gates**, each with 4 inputs. All switching events as well as 16 logic inputs (in the form of communications objects) can be used as inputs for the logic gates. The output of each gate can be configured optionally as 1-bit or 2 x 8-bit
- **8 multi-function modules** (computers) for changing the input data by calculations, by querying a condition or by converting the data point type

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. Deliverables

- Sensor
- Connection line, approx. 3 m, with plug
- Surface-mounted junction box (IP 55, not weatherproof)
- Worm drive hose clip for pole mounting (Ø 40-60 mm)
- 4x50 mm stainless steel roundhead screws and 6x30 mm dowels for wall mounting. Use fixing materials that are suitable for the base!

1.1. Technical specification

Housing	Plastic
Colour	White / Translucent
Assembly	Surface mount
Protection category	IP 44
Dimensions	approx. 62 x 71 x 152 (W x H x D, mm)
Weight	Weather station with mount, approx. 90 g, Total weight including accessories, approx. 280 g
Ambient temperature	Operation -30...+50°C, storage -30...+70°C
Auxiliary supply	12...40 V DC, 12...28 V AC. An appropriate power supply unit can be purchased from Elsner Elektronik.
Auxiliary current	at 12V DC: max. 185 mA at 24V DC: max. 90 mA at 24V AC: max. 82 mA
Bus current	max. 10 mA
Data output	KNX +/-
BCU type	Integrated microcontroller
PEI type	0
Group addresses	max. 2000
Assignments	max. 2000
Communication objects	303
Wind sensor:	
Measurement range	0 m/s ... 35 m/s
Resolution	0.1 m/s
Accuracy	±15% of the measurement value when incoming flow is 45°...315° (Frontal incoming flow corresponds to 180°)
Brightness sensor:	
Measurement range	0 lux ... 150,000 lux

Resolution	1 lux up to 300 lux 2 lux up to 1000 lux 25 lux up to 150,000 lux
Accuracy	±15% of the measurement value at 30 lux ... 30,000 lux

The product conforms with the provisions of EU directives.

2. Installation and start-up

2.1. Installation notes



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



CAUTION! Live voltage!

There are unprotected live components inside the device.

- National legal 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. Installation location

Select an installation position on the building where the sensors can measure wind and sunshine without hindrance. The weather station should not be shaded by structures or, for example, trees.

At least 60 cm of clearance must be left around the device. This facilitates correct wind speed measurement without eddies. At the same time, this prevents spray (raindrops hitting the device) or snow (snow penetration) from impairing the measurement. The wind sensor must not come into contact with water. This also prevents birds from biting it.

The mounting position must be selected so that the wind sensor cannot be touched by persons.

Please ensure that the extended awning does not cast shade on the unit, and that it is protected from the wind.

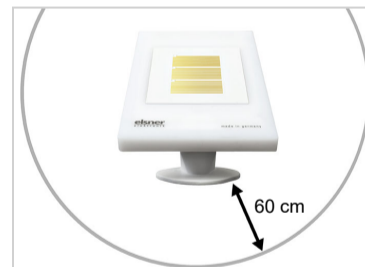


Fig. 1
There must be at least 60 cm clearance to other elements (structures, construction parts, etc.) below, to the sides and in front of the device.

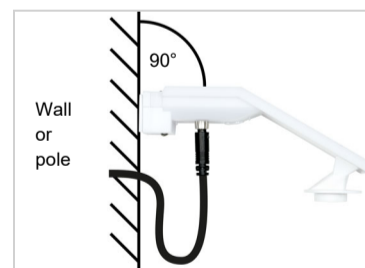


Fig. 2
The device must be attached to a vertical wall (or a pole).

Place the supply line in a loop before leading it into the wall or junction box. This will allow rain to drip off and not drain into the wall or box.

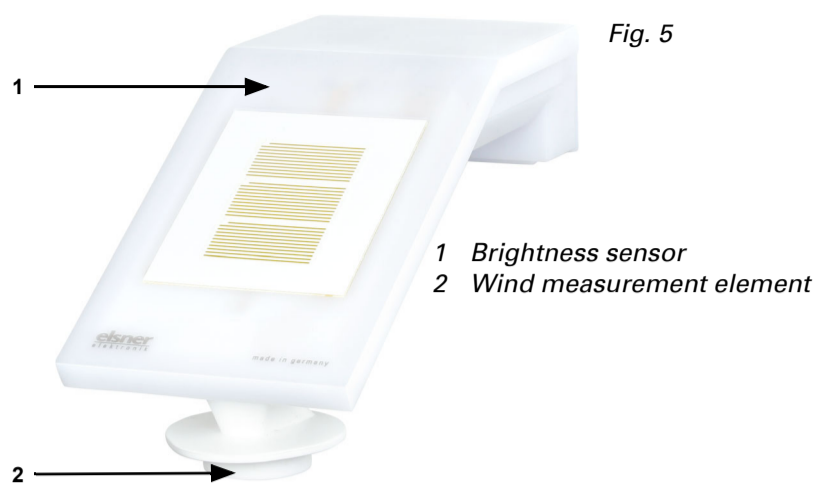


Fig. 3
The device must be mounted in the horizontal (transverse) direction.



Fig. 4
The device must be aligned in the direction of the façade which is to be shaded.

2.3. Sensor positions

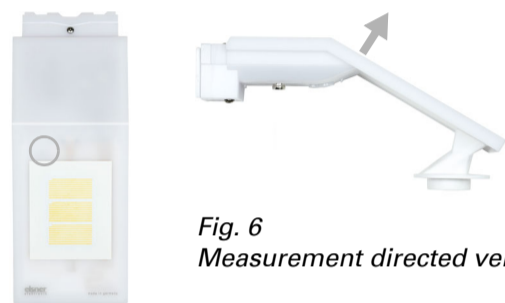


ATTENTION!

Sensitive wind sensor.

- Remove the protective transport sticker after installation.
- Do not touch the sensor on the wind measuring element (on bottom, recessed).

2.3.1. Measurement direction of the brightness sensor



2.4. Sensor assembly

2.4.1. Attach mount

First, assemble the mount for wall/pole mounting. Release the screw joint of the mount with a cross-headed screwdriver.

Wall installation

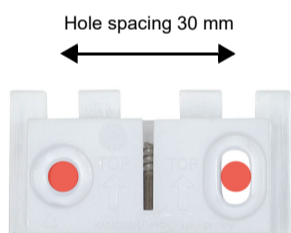


Fig. 7 Front view

Use two screws to attach the mount to the wall. Use the fastening material (dowels, screws) that is suitable for the base.

Make sure that the arrows are pointing upward.

Pole installation

The device is installed on the pole with the enclosed clamp.

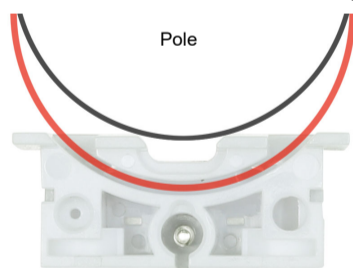


Fig. 8 Bottom view

Insert the clamp in the mount through the recess. Tighten the clamp on the pole.

Make sure that the arrows are pointing upward.

2.4.2. Attaching and connecting the device



Fig. 9

1. Slide the device onto the mounting from above.
2. Tighten the screw of the mount to secure the device.
3. Screw the M8 connectors of the connection cable onto the connection socket on the bottom side of the device.

Connect the loose end of the connection cable to the KNX bus and auxiliary voltage. Use the connection sockets and clips included for this purpose.

KNX bus:	Auxiliary voltage:
+ Red	+ Yellow
- Black	- White

2.5. Instructions for assembly and initial start-up

Remove all transport protection stickers present after installation.

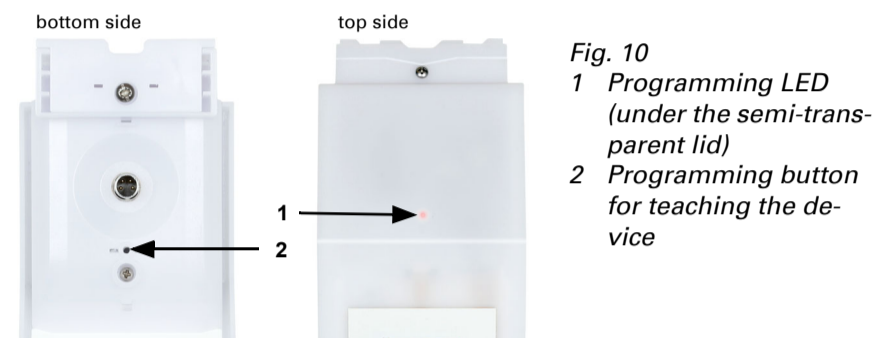
The wind measurement value and thus also all wind switching outputs cannot be output until 35 seconds after the power is turned on.

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 the equipment

The equipment is delivered ex works with the bus address 15.15.255. You program a different address in the ETS by overwriting the address 15.15.255 or teach the device using the programming button.

The programming button can be reached through the opening on the underside of the housing; it is recessed by approx. 15 mm. Use a thin object to reach the key, e. g. a 1.5 mm² wire.



4. Maintenance



WARNING!

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.

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.