



# KNX LW sI

Brightness and Wind Sensor

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## Technical specifications and installation instructions

Item number 70164



**Elsner Elektronik GmbH** Control and Automation Engineering

Sohlengrund 16

D - 75395 Ostelsheim Phone +49 (0) 70 33 / 30 945-0 info@elsner-elektronik.de

Germany Fax +49 (0) 70 33 / 30 945-20 www.elsner-elektronik.de

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# 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](http://www.elsner-elektronik.de) in the "Service" menu.

## 1.0.1. Deliverables

- Sensor unit
- Stainless steel installation band for pole installation
- 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 × 71 × 145 (W × H × D, mm)      |
| Weight              | approx. 85 g                               |
| Ambient temperature | Operation -30...+50°C, storage -30...+70°C |

|                       |  |
|-----------------------|--|
| Auxiliary supply      | 12...40 V DC, 12...28 V AC.<br>An appropriate power supply unit can be purchased from Elsner Elektronik.               |
| Auxiliary current     | at 12V DC: max. 185 mA<br>at 24V DC: max. 90 mA<br>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°<br>(Frontal incoming flow corresponds to 180°)          |
| Brightness sensor:    |  |
| Measurement range     | 0 lux ... 150,000 lux  |
| Resolution            | 1 lux at 0...255 lux<br>4 lux at 256...2,645 lux<br>163 lux at 2,646...128,256 lux<br>762 lux at 128,257...150,000 lux |
| Accuracy              | ±15% of the measurement value at 35 lux ... 150,000 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.

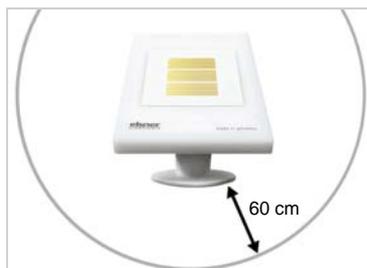
Elsner Elektronik is not liable for any changes in norms and standards which may occur after publication of these operating instructions.

## 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.

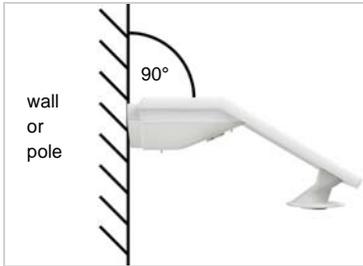
At least 60 cm of clearance must be left around the device. This facilitates correct wind speed measurement without eddies. At the same time, this prevents spray (raindrops hitting the device) or snow (snow penetration) from impairing the measurement. This also prevents birds from biting it.

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).



*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. Device design



Fig. 5

- 1 Programming LED
- 2 Brightness measurement
- 3 Wind measurement
- 4 Programming key on the underside of the housing (recessed), see *Addressing the equipment*, page 11



### ATTENTION!

Sensitive wind sensor.

- Remove the protective transport sticker after installation.
- Do not touch the sensor on the wind measuring element (no. 3).

## 2.4. Sensor assembly



### ATTENTION!

Even a few drops of water can damage the device electronics.

- Do not open the device if water (e.g. rain) can get into it.

### 2.4.1. Preparation for installation



*Fig. 6*  
Slacken both screws on the lid (top) and lower part (bottom) with a Phillips screwdriver.



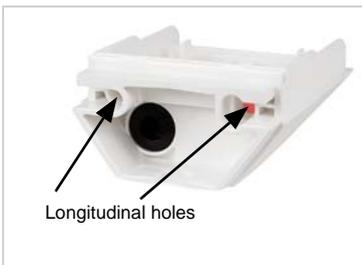
*Fig. 7*  
Pull the lid and lower part completely apart. This also releases the plug-in connection between the board in the lid and the socket in the lower part.

### 2.4.2. Fitting the lower part with mounting

Now, first of all, assemble the lower part of the housing with the integrated mounting for wall or pole installation.

#### **Wall installation**

Use fixing materials (dowels, screws) that are suitable for the base.

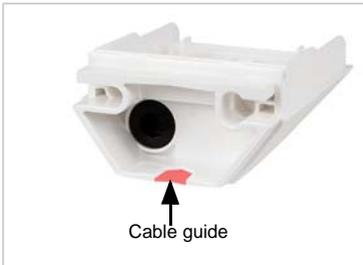


*Fig. 8*  
The device is installed with two screws. Break off the two longitudinal holes in the lower part of the housing.



Fig. 9 a+b

a) If the power lead is to be hidden when installed, it must emerge from the wall in the vicinity of the rear of the housing (marked area).



b) If the power lead is to be surface-mounted, the cable guide is broken off. The lead is then fed into the device at the underside of the housing.

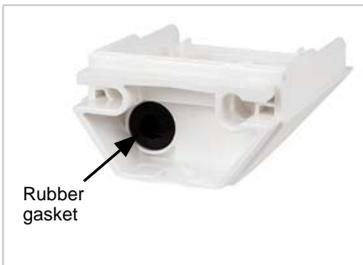
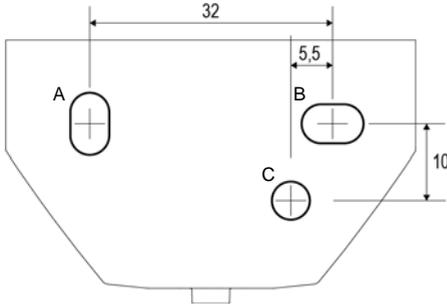


Fig. 10

Feed the power lead through the rubber gasket.

### **Drilling plan**

ATTENTION! The printout of the data sheet does not have original size! A separate, dimensionally correct drilling plan is included ex works and this can be used as a template.



*Fig. 11*  
Dimensions in mm. Variations are possible for technical reasons

A/B 2x longitudinal holes 8 mm x 5.5 mm

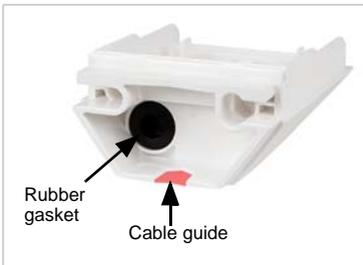
C Position of the cable outlet (rubber gasket) in the housing

### **Pole installation**

The device is installed on the pole with the enclosed stainless steel mounting band.



*Fig. 12*  
Feed the mounting band through the eyelets in the lower part of the housing.



*Fig. 13*  
Break the cable guide off.

Feed the power lead through the rubber gasket.

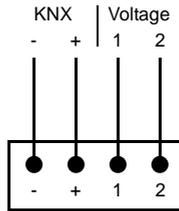
### **2.4.3. Connection**

The connector is in the lower part of the housing.



*Fig. 14*  
Connect  
KNX data (+/-) and  
power supply (12...40V DC, 12...28V AC, 1|2)  
to the connector.

The terminal assignment of the power supply  
is polarity-independent.



#### 2.4.4. Closing the installation



*Fig. 15*  
Push the lid on the lower part. This also  
makes the plug-in connection between the  
board in the lid and the socket in the lower  
part.



*Fig. 16*  
Screw the lid (top) and lower part (bottom) to-  
gether.

### 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 out-put 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.

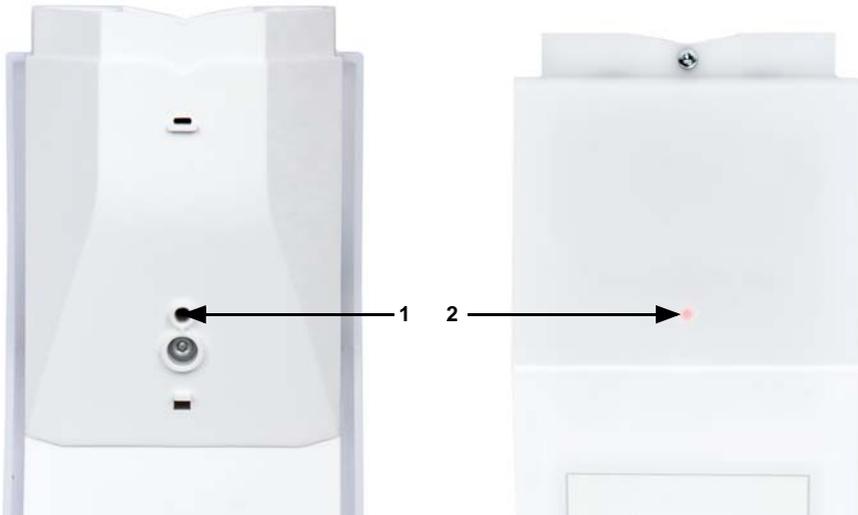
### 3. Addressing the equipment

The equipment is delivered ex works with the bus address 15.15.250. You program a different address in the ETS by overwriting the address 15.15.250 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 mm<sup>2</sup> wire.

Fig. 17

- 1 Programming button for teaching the device
- 2 Programming LED (under the semi-transparent lid)



### 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.

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**ATTENTION**

The device can be damaged if water penetrates the housing.

- Do not clean with high pressure cleaners or steam jets.
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