



KNX RW

Rain/Wind Sensor

Item number 70127



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This manual is amended periodically and will be brought into line with new software releases. The change status (software version and date) can be found in the contents footer. If you have a device with a later software version, please check **www.elsner-elektronik.de** in the menu area "Service" to find out whether a more up-to-date version of the manual is available.

Clarification of signs used in this manual



Safety advice.



Safety advice for working on electrical connections, components, etc.

DANGER!

... indicates an immediately hazardous situation which will lead to death or severe injuries if it is not avoided.

WARNING!

... indicates a potentially hazardous situation which may lead to death or severe injuries if it is not avoided.

CAUTION!

... indicates a potentially hazardous situation which may lead to trivial or minor injuries if it is not avoided.



ATTENTION! ... indicates a situation which may lead to damage to property if it is not avoided.

ETS

In the ETS tables, the parameter default settings are marked by underlining.

1. Safety and operating instructions



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



CAUTION! **Live voltage!**

- Inspect the device for damage before installation. Only put undamaged devices into operation.
 - Comply with the locally applicable directives, regulations and provisions for electrical installation.
 - Immediately take the device or system out of service and secure it against unintentional switch-on if risk-free operation is no longer guaranteed.
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Use the device exclusively for building automation and observe the operating instructions. Improper use, modifications to the device or failure to observe the operating instructions will invalidate any warranty or guarantee claims.

Operate the device only as a fixed-site installation, i.e. only in assembled condition 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.

For information on installation, maintenance, disposal, scope of delivery and technical data, please refer to the installation instructions.

2. 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

- **Wind sensor monitoring:** If the wind measurement value changes by less than ± 0.5 m/s within 48 hours, the maximum measurement value of 35 m/s is output as a fault message. All wind alarms with a limit value below 35 m/s become active as a result
- **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

3. Commissioning

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.

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.

3.1. Addressing of the device at the bus

The equipment is delivered with the individual address 15.15.255. This can be changed via the ETS. There is a button and a control LED on the circuit board inside the housing for this purpose.

4. Transmission protocol

Units of measurement:

Wind in metre per second

4.1. List of all communication objects

Abbreviations EIS types:

- 1 Switching1/0
- 5 Floating point value
- 6 8 bit value

Abbreviations flags:

- C Communication
- R Read
- W Write
- T Transmit

No	Name	Function	EIS type	flags
0	Wind force measured value	Output	5	C R T
1	Request max. wind force	Input	1	C R W
2	Max. wind force measured value	Output	5	C R T
3	Reset max. wind force	Input	1	C R W
4	Wind threshold value 1	16 bit value	5	C R W T
5	Wind threshold value 1	1 = Increment 0 = Decrement	1	C R W
6	Wind threshold value 1	Increment	1	C R W
7	Wind threshold value 1	Decrement	1	C R W
8	Wind threshold value 1	Switching output	1	C R T
9	Wind threshold value 1	Switching output block	1	C R W
10	Wind threshold value 2	16 bit value	5	C R W T
11	Wind threshold value 2	1 = Increment 0 = Decrement	1	C R W
12	Wind threshold value2	Increment	1	C R W
13	Wind threshold value 2	Decrement	1	C R W
14	Wind threshold value 2	Switching output	1	C R T
15	Wind threshold value 2	Switching output block	1	C R W
16	Wind threshold value 3	16 bit value	5	C R W T
17	Wind threshold value 3	1 = Increment 0 = Decrement	1	C R W
18	Wind threshold value3	Increment	1	C R W

No	Name	Function	EIS type	flags
19	Wind threshold value 3	Decrement	1	C R W
20	Wind threshold value 3	Switching output	1	C R T
21	Wind threshold value 3	Switching output block	1	C R W
22	Wind sensor Disruption	Output	1	C R T
23	AND Logic 1	Switching output	1	C R T
24	AND Logic 1	8 bit output A	6	C R T
25	AND Logic 1	8 bit output B	6	C R T
26	AND Logic 2	Switching output	1	C R T
27	AND Logic 2	8 bit output A	6	C R T
28	AND Logic 2	8 bit output B	6	C R T
29	AND Logic 3	Switching output	1	C R T
30	AND Logic 3	8 bit output A	6	C R T
31	AND Logic 3	8 bit output B	6	C R T
32	AND Logic 4	Switching output	1	C R T
33	AND Logic 4	8 bit output A	6	C R T
34	AND Logic 4	8 bit output B	6	C R T
35	AND Logic 5	Switching output	1	C R T
36	AND Logic 5	8 bit output A	6	C R T
37	AND Logic 5	8 bit output B	6	C R T
38	AND Logic 6	Switching output	1	C R T
39	AND Logic 6	8 bit output A	6	C R T
40	AND Logic 6	8 bit output B	6	C R T
41	AND Logic 7	Switching output	1	C R T
42	AND Logic 7	8 bit output A	6	C R T
43	AND Logic 7	8 bit output B	6	C R T
44	AND Logic 8	Switching output	1	C R T
45	AND Logic 8	8 bit output A	6	C R T
46	AND Logic 8	8 bit output B	6	C R T
47	OR Logic 1	Switching output	1	C R T
48	OR Logic 1	8 bit output A	6	C R T
49	OR Logic 1	8 bit output B	6	C R T
50	OR Logic 2	Switching output	1	C R T
51	OR Logic 2	8 bit output A	6	C R T
52	OR Logic 2	8 bit output B	6	C R T
53	OR Logic 3	Switching output	1	C R T
54	OR Logic 3	8 bit output A	6	C R T
55	OR Logic 3	8 bit output B	6	C R T
56	OR Logic 4	Switching output	1	C R T

No	Name	Function	EIS type	flags
57	OR Logic 4	8 bit output A	6	C R T
58	OR Logic 4	8 bit output B	6	C R T
59	OR Logic 5	Switching output	1	C R T
60	OR Logic 5	8 bit output A	6	C R T
61	OR Logic 5	8 bit output B	6	C R T
62	OR Logic 6	Switching output	1	C R T
63	OR Logic 6	8 bit output A	6	C R T
64	OR Logic 6	8 bit output B	6	C R T
65	OR Logic 7	Switching output	1	C R T
66	OR Logic 7	8 bit output A	6	C R T
67	OR Logic 7	8 bit output B	6	C R T
68	OR Logic 8	Switching output	1	C R T
69	OR Logic 8	8 bit output A	6	C R T
70	OR Logic 8	8 bit output B	6	C R T
71	Logic input 1	Input	1	C R W
72	Logic input 2	Input	1	C R W
73	Logic input 3	Input	1	C R W
74	Logic input 4	Input	1	C R W
75	Logic input 5	Input	1	C R W
76	Logic input 6	Input	1	C R W
77	Logic input 7	Input	1	C R W
78	Logic input 8	Input	1	C R W
79	Switching output rain	Output	1	C R T
80	Software Version	readable	6	CR

5. Setting of parameters

5.1. General settings

The screenshot shows a software window titled '1.1.4 KNX Regen-/Windsensor' with a 'General settings' tab. The window is divided into a left sidebar and a main configuration area. The sidebar lists 'General settings', 'Threshold values' (Wind threshold value 1, 2, 3), and 'Logic' (AND logic 1-8, OR logic 1-8). The main area contains the following settings:

- Wind force:
- Measured value: send in case of change and cyclically (dropdown)
- from change in %: 20 (spin box)
- send cyclically every: 5 sec (dropdown)
- Send and reset of the maximum wind load value on request: do not release (dropdown)
- Use malfunction object: No (dropdown)
- Rain:
- Switching output is with rain: 1 (dropdown)
- Switching output sends: in case of change and cyclically (dropdown)
- send cyclically every: 5 sec (dropdown)
- Maximum telegram quota: 5 Telegrams per second (dropdown)

Buttons at the bottom: OK, Cancel, Default, Info, Help.

Wind force

Measured value	<ul style="list-style-type: none"> • do not send • <u>send cyclically</u> • send on change • send on change and cyclically
send cyclically every <i>(only if sending "cyclically")</i>	<u>5 sec</u> ... 2 h
From change in % <i>(only if sending "on change")</i>	1 ... 50; <u>20</u>
Send and reset of the maximum wind load value on request	<u>do not release</u> • release
Use malfunction object	<u>No</u> • Yes

Rain

Switching output is with rain	0 • <u>1</u>
Switching output sends	<ul style="list-style-type: none"> • not • on change • on change to 1 • on change to 0 • on change and cyclically • on change to 1 and cyclically • <u>on change to 0 and cyclically</u>
send cyclically every (only if sending "cyclically")	<u>5 sec</u> ... 2 h
Maximum telegram quota	1 • 2 • 3 • <u>5</u> • 10 • 20 <u>telegrams per second</u>

5.2. Threshold values**Wind force**

Use threshold value 1 / 2 / 3	<u>No</u> • Yes
Transmission delay of the switching outputs after power up and programming	<u>5 sec</u> ... 2 h
Transmission delay of the switching outputs after power up and programming	<u>5 sec</u> ... 2 h

5.2.1. Wind threshold value 1 / 2 / 3**Threshold value**

Threshold value setpoint per	<u>Parameter</u> • Communication object
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If the threshold value is set per Parameter:

Threshold value in 0.1 m/s	0 ... 350; <u>40</u>
Switching distance (hysteresis) of the threshold value in %	0 ... 250; <u>20</u>

If the threshold value is set per Communication object:

From the 1st communication onwards, the threshold value corresponds to the value of the communication object and is not multiplied by the factor 0.1.

The value communicated last shall be maintained	<ul style="list-style-type: none"> • <u>not</u> • after restoration of voltage (the changes threshold value may be saved at least 100,000 times) • after restoration of voltage and programming (Attention: Do not use for first commissioning)
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Start threshold value in 0.1 m/s valid until 1. communication (only if the value communicated last is „not“ maintained or „after restoration of voltage“)	0 ... 350; <u>40</u>
Type of threshold change	<ul style="list-style-type: none"> • <u>Absolute value with a 16 bit communication object</u> • Increment / decrement with one communication object • Increment / decrement with two communication objects
Step size (only if sending „Increment/decrement“)	0,1 m/s ... 5 m/s; <u>1 m/s</u>
Switching distance of the threshold value in %	0 ... 250; <u>20</u>

Switching output

When the following conditions apply, the output is (TV = Threshold value) (SD = Switching distance)	<ul style="list-style-type: none"> • <u>TV above = 1 TV - SD below = 0</u> • <u>TV above = 0 TV - SD below = 1</u> • <u>TV below = 1 TV + SD above = 0</u> • <u>TV below = 0 TV + SD above = 1</u>
Switching delay from 0 to 1	<u>none</u> • 1 sec ... 2 h
Switching delay from 1 to 0	<u>none</u> • 1 sec ... 2 h
Switching output sends	<ul style="list-style-type: none"> • <u>not</u> • on change • on change to 1 • on change to 0 • on change and periodically • on change to 1 and periodically • on change to 0 and periodically
send periodically all (only if sending „periodically“)	<u>5 sec</u> ... 2 h

Blocking

„Blocking“ only appears if using „Switching output sends on change“

Use block of the switching output	Yes • <u>No</u>
If block of the switching output is used:	
Use block of the switching output	Yes
Evaluation of the blocking object	<ul style="list-style-type: none"> • <u>if value 1: block if value 0: release</u> • <u>if value 0: block if value 1: release</u>
Value of the blocking object before 1. communication	<u>0</u> • 1
Behaviour of the switching output with blocking	<ul style="list-style-type: none"> • <u>do not send telegram</u> • send 0 • send 1

Behaviour of the switching output with release (selection depends on settings made before)	<ul style="list-style-type: none"> • do not send telegram • <u>send status of the switching output</u> • if switching output = 1 => send 1 • if switching output = 0 => send 0
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5.3. Logic

Communication objects logic inputs	<u>do not release</u> • release
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AND Logic

Logic 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8	<u>not active</u> • active
Transmission delay of the switching outputs after power up and programming	<u>5 sec</u> ... 2 h

OR Logic

Logic 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8	<u>not active</u> • active
Transmission delay of the switching outputs after power up and programming	<u>5 sec</u> ... 2 h

5.3.1. AND Logic 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8

1. / 2. / 3. / 4. Input	<ul style="list-style-type: none"> • do not use • all switching events which the sensor provides (see "Linkage inputs of the AND logic")
Logic output sends	<ul style="list-style-type: none"> • <u>not</u> • one 1 bit object • two 8 bit objects

Logic output sends "one 1 bit Object":

Logic output sends	one 1 bit object
if logic = 1 → object value	<u>1</u> • 0
if logic = 0 → object value	1 • <u>0</u>
Communication object AND Logic 1 sends	<ul style="list-style-type: none"> • <u>in case of the change of logic</u> • in case of the change of logic to 1 • in case of the change of logic to 0 • in case of the change of logic and cyclically • in case of the change of logic to 1 and cyclically • in case of the change of logic to 0 and cyclically
send cyclically every (only if sending "cyclically")	<u>5 sec</u> ... 2 h

Logic output sends “two 8 bit objects”:

Logic output sends	two 8 bit objects
if logic = 1 → object A value	0 ... 255; <u>127</u>
if logic = 0 → object A value	<u>0</u> ... 255
if logic = 1 → object B value	0 ... 255; <u>127</u>
if logic = 0 → object B value	<u>0</u> ... 255
Communication objects AND Logic 1 A and B sends	<ul style="list-style-type: none"> • <u>in case of the change of logic</u> • in case of the change of logic to 1 • in case of the change of logic to 0 • in case of the change of logic and cyclically • in case of the change of logic to 1 and cyclically • in case of the change of logic to 0 and cyclically
send cyclically every (only if sending “cyclically”)	<u>5 sec</u> ... 2 h

5.3.2. Linkage inputs of AND logic

do not use

Communication object logic input 1
 Communication object logic input 1 inverted
 Communication object logic input 2
 Communication object logic input 2 inverted
 Communication object logic input 3
 Communication object logic input 3 inverted
 Communication object logic input 4
 Communication object logic input 4 inverted
 Communication object logic input 5
 Communication object logic input 5 inverted
 Communication object logic input 6
 Communication object logic input 6 inverted
 Communication object logic input 7
 Communication object logic input 7 inverted
 Communication object logic input 8
 Communication object logic input 8 inverted
 Rain
 no rain
 Malfunction wind
 Malfunction wind inverted
 Wind threshold value 1
 Wind threshold value 1 inverted
 Wind threshold value 2
 Wind threshold value 2 inverted
 Wind threshold value 3
 Wind threshold value 3 inverted

5.3.3. OR Logic 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8

1. / 2. / 3. / 4. Input	<ul style="list-style-type: none"> • <u>do not use</u> • all switching events which the sensor provides (see "Linkage inputs of the OR logic")
Logic output sends	<ul style="list-style-type: none"> • <u>one 1 bit object</u> • two 8 bit objects

All settings of the OR logic correspond to those of the AND logic.

5.3.4. Linkage inputs of OR logic

The linkage inputs of the OR logic correspond with the parameters of the AND logic. The OR logic is additionally provided with the following inputs:

AND Logic output 1
 AND Logic output 1 inverted
 AND Logic output 2
 AND Logic output 2 inverted
 AND Logic output 3
 AND Logic output 3 inverted
 AND Logic output 4
 AND Logic output4 inverted
 AND Logic output 5
 AND Logic output 5 inverted
 AND Logic output 6
 AND Logic output 6 inverted
 AND Logic output 7
 AND Logic output 7 inverted
 AND Logic output 8
 AND Logic output 8 inverted

Questions about the product?

You can reach the technical service of Elsner Elektronik under
Tel. +49 (0) 70 33 / 30 945-250 or
service@elsner-elektronik.de

We need the following information to process your service request:

- Type of appliance (model name or item number)
- Description of the problem
- Serial number or software version
- Source of supply (dealer/installer who bought the device from Elsner Elektronik)

For questions about KNX functions:

- Version of the device application
- ETS version used for the project

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