



# Leak KNX 2.0

Leakage sensor for water and pipe breakage reporting

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Item number 70316



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**elsner**

**Installation and Adjustment**

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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.

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# 1. Safety and operating instructions

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

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.

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

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## 2. Description

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The **Leakage sensor Leak KNX 2.0** includes an evaluation unit and a probe. If there is water between the electrodes of the probe, the evaluation unit produces an acoustic alarm. Additionally, the alarm signal is sent to the KNX bus.

Even if no probe is connected or the cable is defective, the alarm can be sounded and signalled on the bus.

### **Functions:**

- Detection of water on the probe
- Acoustic alarm signal by the evaluation unit during a water alarm (sustained beeping tone). Short beeping during the follow-up time (1 minute after the end of the alarm).
- Alarm signal sent to the KNX bus with a text message
- Detection whether probe is connected and the probe cable is functional
- Acoustic alarm signal on the evaluation unit when the probe is not connected or when the probe cable is broken (long beeps)

- 4 AND and 4 OR logic gates with each 4 inputs. Every switching incident as well as 16 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

## 2.1. Bus settings

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If there is water contact, the evaluation unit submits an acoustical signal and sends an alarm signal and a text message to the KNX bus. Adjust the setting for these parameters in the ETS.

## 3. Addressing the device

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The device is delivered with the bus address 15.15.255. You can program a different address in the ETS by overwriting the address 15.15.255 or by teaching the device via the programming button.

The programming button is inside the case (Fig. 1: No. 3).

## 4. Transfer protocol

### 4.1. List of all communication objects

#### Abbreviations:

*R* Read

*W* Write

*C* Communication

*T* Transfer

*U* Update

No.	Text	Function	Flags	Data Point Type	Size
0	Software version	Readable	R-C-	[217.1] DPT_Version	2 Bytes
1	Leakage Sensor error (1 = On   0 = Off)	Output	R-CT	[1.1] DPT_Switch	1 Bit
2	Leakage alarm (1 = On   0 = off)	Output	R-CT	[1.1] DPT_Switch	1 Bit
3	Leakage alarm text	Output	R-CT	[16.0] DPT_String_ASCII	14 Bytes
4	Leakage alarm Switching-on delay	Input	RWCT	[7.5] DPT_TimePeriodSec	2 Bytes
5	Leakage alarm Switching-off delay	Input	RWCT	[7.5] DPT_TimePeriodSec	2 Bytes
6	Leakage alarm signal tone muting (1 = mute   0 = not mute)	Input	-WC-	[1.1] DPT_Switch	1 Bit
7	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 Bit
8	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 Bit
9	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 Bit
10	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 Bit
11	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 Bit
12	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 Bit
13	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 Bit
14	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 Bit
15	Logic input 9	Input	-WC-	[1.2] DPT_Bool	1 Bit

No.	Text	Function	Flags	Data Point Type	Size
16	Logic input 10	Input	-WC-	[1.2] DPT_Bool	1 Bit
17	Logic input 11	Input	-WC-	[1.2] DPT_Bool	1 Bit
18	Logic input 12	Input	-WC-	[1.2] DPT_Bool	1 Bit
19	Logic input 13	Input	-WC-	[1.2] DPT_Bool	1 Bit
20	Logic input 14	Input	-WC-	[1.2] DPT_Bool	1 Bit
21	Logic input 15	Input	-WC-	[1.2] DPT_Bool	1 Bit
22	Logic input 16	Input	-WC-	[1.2] DPT_Bool	1 Bit
23	AND Logic 1: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
24	AND Logic 1: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
25	AND Logic1: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte
26	AND Logic 1: block	Output	-WC-	[1.1] DPT_Switch	1 Bit
27	AND Logic 2: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
28	AND Logic2: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
29	AND Logic2: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte
30	AND Logic 2: block	Input	-WC-	[1.1] DPT_Switch	1 Bit
31	AND Logic 3: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
32	AND Logic 3: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
33	AND Logic 3: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte
34	AND Logic 3: block	Input	-WC-	[1.1] DPT_Switch	1 Bit
35	AND Logic 4: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
36	AND Logic 4: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
37	AND Logic 4: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte
38	AND Logic 4: block	Output	-WC-	[1.1] DPT_Switch	1 Bit
39	OR Logic 1: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
40	OR Logic 1: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
41	OR Logic 1: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte



No.	Text	Function	Flags	Data Point Type	Size
42	OR Logic 1: block	Input	-WC-	[1.1] DPT_Switch	1 Bit
43	OR Logic 2: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
44	OR Logic 2: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
45	OR Logic 2: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte
46	OR Logic 2: block	Input	-WC-	[1.1] DPT_Switch	1 Bit
47	OR Logic 3: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
48	OR Logic 3: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
49	OR Logic 3: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte
50	OR Logic 3: block	Input	-WC-	[1.1] DPT_Switch	1 Bit
51	OR Logic 4: 1 Bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
52	OR Logic 4: 8 Bit output A	Output	R-CT	Depending on setting	1 Byte
53	OR Logic 4: 8 Bit output B	Output	R-CT	Depending on setting	1 Byte
54	OR Logic 4: block	Input	-WC-	[1.1] DPT_Switch	1 Bit

## 5. Parameter setting

The default settings of the parameter are labelled by an underscore.

### 5.1. Behaviour on power failure/ restoration of power

#### ***Behaviour following a failure of the bus power supply:***

The device sends nothing.

#### ***Behaviour on bus restoration of power and following programming or reset:***

The device sends all outputs according to their send behaviour set in the parameters with the delays established in the "General settings" parameter block. The "Software version" communications object is sent once after 5 seconds.

## 5.2. General settings

First, set the general parameters for the bus communication (transmission delay). When labelling objects, you can enter an additional label (abbreviation) for the objects of the device, e.g. 'LR' for 'living room', to make the room installation more transparent.

Send delay in seconds after reset and voltage returns	<u>5</u> ...7200
Maximum telegram quota	<ul style="list-style-type: none"> <li>• 1 message per second</li> <li>• ...</li> <li>• <u>10 messages per second</u></li> <li>• ...</li> <li>• 50 message per second</li> </ul>
Object labelling	[Free text]

## 5.3. Sensor error

Set the send behaviour of the sensor error object.

Send behaviour of the sensor error object	<ul style="list-style-type: none"> <li>• not</li> <li>• <u>on change</u></li> <li>• on change and periodically</li> </ul>
Send cycle (if sent periodically)	5 s • ... • <u>5 min</u> • ... • 2 h

## 5.4. Alarm object

If the sensor detects water, this always leads to an alarm. Set whether a sensor error is also reported as an alarm. Adjust the setting for the alarm object. Define the sending behaviour and the object value.

Report sensor error as alarm	<u>No</u> • Yes
Alarm object sending behaviour	<ul style="list-style-type: none"> <li>• not</li> <li>• <u>on change</u></li> <li>• on change and alarm on</li> <li>• on change and alarm off</li> <li>• on change and periodically</li> <li>• on change to alarm on and periodically</li> <li>• on change to alarm off and periodically</li> </ul>
Send cycle	5 s • ... • <u>10 s</u> • ... • 2 h
Analysis of alarm object	<ul style="list-style-type: none"> <li>• <u>0 = alarm off</u>   1 = alarm on</li> <li>• 1 = alarm off   0 = alarm on</li> </ul>
Adjust alarm delay via object	<u>No</u> • Yes
Maintain delays received via objects	<ul style="list-style-type: none"> <li>• never be retained</li> <li>• <u>after power restoration</u></li> <li>• after power restoration and programming</li> </ul>

Delay for alarm on (until 1. communication)	<u>0</u> s • ... • 10 s • ... • 2 h
Delay for alarm off (until 1. communication)	<u>0</u> s • ... • 10 s • ... • 2 h

## 5.5. Text object

When an alarm is issued, a text message is transmitted to the KNX bus. Adjust the parameters for the sending behaviour. You can insert your own text that is shown during alarm on or alarm off.

Alarm object sending behaviour	<ul style="list-style-type: none"> <li>• not</li> <li>• <u>on change</u></li> <li>• on change and alarm on</li> <li>• on change and alarm off</li> <li>• on change and periodically</li> <li>• on change to alarm on and periodically</li> <li>• on change to alarm off and periodically</li> </ul>
Send cycle	5 s • ... • <u>10</u> s • ... • 2 h
Text for alarm on	[Free text]
Text for alarm off	[Free text]

## 5.6. Signal tone

Define the behaviour and the object value of the signal tone.

Use signal tone	<u>No</u> • Yes
Use muting	<u>No</u> • Yes
Duration of muting in seconds (the signal tone is repeated if the alarm is still on after this time)	5 ... 600, <u>60</u>
Object analysis	1 = alarm mute   0 = alarm not mute 0 = alarm mute   1 = alarm not mute

## 5.7. Logic Inputs

The device has 16 logic inputs, four AND and four OR logic gates. Activate the logic inputs and assign object values up to 1st communication.

Use logic inputs	<u>No</u> • <b>Yes</b>
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Object value before 1st communication

Logic input 1	<u>0</u> • 1
Logic input 2	<u>0</u> • 1
Logic input ...	<u>0</u> • 1
Logic input 16	<u>0</u> • 1

### 5.7.1. AND Logic

Activate the required logic outputs.

AND Logic 1	<u>not active</u> • active
AND Logic 2	<u>not active</u> • active
AND Logic 3	<u>not active</u> • active
AND Logic 4	<u>not active</u> • active

### 5.7.2. OR Logic

Activate the required logic outputs.

OR Logic 1	<u>not active</u> • active
OR Logic 2	<u>not active</u> • active
OR Logic3	<u>not active</u> • active
OR Logic 4	<u>not active</u> • active

### 5.7.3. AND Logic 1-4 and OR Logic 1-4

AND and OR logic gates provide the same setting options. Each logic output can send 1-bit or 8-bit objects. Chose what the output sends at logic = 1 and = 0.

1. / 2. / 3. / 4. Input	<ul style="list-style-type: none"> <li>• <u>do not use</u></li> <li>• Logic input 1...16</li> <li>• Logic input 1...16 inverted</li> <li>• all switching events which are available to the device (see chapter <i>connection inputs of the AND or Or logic</i>)</li> </ul>
Logic output sends	<ul style="list-style-type: none"> <li>• <u>one 1-bit object</u></li> <li>• two 8-bit objects</li> </ul>

Adjust the output values for different states for the one **1-bit object**.

Output value if logic = 1	<u>1</u> • 0
Output value if logic = 0	1 • <u>0</u>
Output value if block is active	1 • <u>0</u>
Output value if monitoring period is exceeded	1 • <u>0</u>

Adjust the object type and output values for different states for the two **8-bit objects**.

Object type	<ul style="list-style-type: none"> <li>• Value (0...255)</li> <li>• Percent (0...100%)</li> <li>• Angle (0...360°)</li> <li>• Scenario load (0...63)</li> </ul>
Output value object A if logic = 1	0 ... 255 / 100% / 360° / 63; <u>1</u>
Output value object B if logic = 1	0 ... 255 / 100% / 360° / 63; <u>1</u>
Output value object A if logic = 0	0 ... 255 / 100% / 360° / 63; <u>0</u>
Output value object B if logic = 0	0 ... 255 / 100% / 360° / 63; <u>0</u>
Output value object A if block is active	0 ... 255 / 100% / 360° / 63; <u>0</u>
Output value object B if block is active	0 ... 255 / 100% / 360° / 63; <u>0</u>
Output value object A if monitoring period is exceeded	0 ... 255 / 100% / 360° / 63; <u>0</u>
Output value object B if monitoring period is exceeded	0 ... 255 / 100% / 360° / 63; <u>0</u>

Adjust the sending behaviour of the output.

Send behaviour	<ul style="list-style-type: none"> <li>• <u>on change of logic</u></li> <li>• on change of logic to 1</li> <li>• on change of logic to 0</li> <li>• on change of logic and periodically</li> <li>• on change of logic to 1 and periodically</li> <li>• on change of logic to 0 and periodically</li> <li>• on change of logic + receipt of object</li> <li>• on change of logic + receipt of object and periodically</li> </ul>
Send cycle (is only sent if "periodically" is selected)	5 s • <u>10 s</u> • ... • 2 h

## Block

Activate the block of the logic output if needed and adjust what 1 or 0 means for the inhibiting input and what happens while blocking.

Use block	<u>No</u> • Yes
Blocking object analysis	<ul style="list-style-type: none"> <li>• <u>at value 1: block</u>   at value 0: release</li> <li>at value 0: block   at value 1: release</li> </ul>
Blocking object value before 1st communication	<u>0</u> • 1
Output behaviour	

With blocking	<ul style="list-style-type: none"> <li>• do not send message</li> <li>• Send blocking value [look above, output value when block is active]</li> </ul>
On release (with 2 seconds release delay)	[send value for current logic state]

## Monitoring

If necessary, activate the input monitoring. Set which inputs are to be monitored, at which intervals the inputs are to be monitored and what value the "monitoring status" should have, if the monitoring period is exceeded without feedback.

Use input monitor	<u>No</u> • Yes
Monitor input	<ul style="list-style-type: none"> <li>• 1 • 2 • 3 • 4</li> <li>• 1 + 2 • 1 + 3 • 1 + 4 • 2 + 3 • 2 + 4 • 3 + 4</li> <li>• 1 + 2 + 3 • 1 + 2 + 4 • 1 + 3 + 4 • 2 + 3 + 4</li> <li>• 1 + 2 + 3 + 4</li> </ul>
Monitoring period	5 s • ... • 2 h; <u>1 min</u>
Value of the object "monitoring status" if period is exceeded	<ul style="list-style-type: none"> <li>• <u>do not send message</u></li> <li>• send exceeding value [= value of the parameter „monitoring period“]</li> </ul>

#### **5.7.4. Connection inputs of the AND logic**

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do not use

Logic input 1

Logic input 1 inverted

Logic input 2

Logic input 2 inverted

Logic input 3

Logic input 3 inverted

Logic input 4

Logic input 4 inverted

Logic input 5

Logic input 5 inverted

Logic input 6

Logic input 6 inverted

Logic input 7

Logic input 7 inverted

Logic input 8

Logic input 8 inverted

Logic input 9

Logic input 9 inverted

Logic input 10

Logic input 10 inverted

Logic input 11

Logic input 11 inverted

Logic input 12

Logic input 12 inverted

Logic input 13

Logic input 13 inverted

Logic input 14

Logic input 14 inverted

Logic input 15

Logic input 15 inverted

Logic input 16

Logic input 16 inverted

Leakage alarm ON

Leakage alarm OFF

#### **5.7.5. Connection inputs of the OR logic**

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do not use

Logic input 1

Logic input 1 inverted

Logic input 2

Logic input 2 inverted

Logic input 3

Logic input 3 inverted

Logic input 4

Logic input 4 inverted  
Logic input 5  
Logic input 5 inverted  
Logic input 6  
Logic input 6 inverted  
Logic input 7  
Logic input 7 inverted  
Logic input 8  
Logic input 8 inverted  
Logic input 9  
Logic input 9 inverted  
Logic input 10  
Logic input 10 inverted  
Logic input 11  
Logic input 11 inverted  
Logic input 12  
Logic input 12 inverted  
Logic input 13  
Logic input 13 inverted  
Logic input 14  
Logic input 14 inverted  
Logic input 15  
Logic input 15 inverted  
Logic input 16  
Logic input 16 inverted  
Leakage alarm ON  
Leakage alarm OFF  
Switching output and logic 1  
Switching output and logic 1 inverted  
Switching output and logic 2  
Switching output and logic 2 inverted  
Switching output and logic 3  
Switching output and logic 3 inverted  
Switching output and logic 4  
Switching output and logic 4 inverted





## Questions about the product?

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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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