KNX T-L-Pr-UP Touch CH

Presence, brightness and temperature sensor

Item numbers 70851 (pure white), 70853 (jet black)

For Swiss installation system 60 mm

elsner

Manual

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.

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 **Sensor KNX T-L-Pr-UP Touch CH** for the KNX building system detects brightness and the presence of persons in the room and measures the temperature. Via the bus, the indoor sensor can receive an external temperature measurement and processes it together with its own data to generate an overall temperature (mixed value).

The **KNX T-L-Pr-UP Touch CH** has a settable brightness limit. The limit output and other communication objects can be connected with an AND and OR logic gate.

Two integrated touch buttons (bus buttons) and two red LEDs can be freely assigned bus commands. The device is supplemented with a frame of the switch series used in the building, and thus fits seamlessly into the interior fittings.

Functions:

- **Brightness measurement Brightness limit value** settable by parameter or communication object
- **Presence of persons is detected**

- **Temperature** measurements. **Mixed value** from its own measurement and external values (settable by percentage proportion)
- **2 AND and 2 OR logic gates** each with 4 inputs. All switching events as well as 8 logic inputs (in the form of communications objects) can be used as inputs for the logic gates. The output from each gate can be configured optionally as 1-bit or 2 x 8-bit
- **2 Touch buttons**. Bus button, can be configured as switch, toggle, dimmer, for controlling the drives, as 8 or 16-bit encoder for scene call up/storage
- **2 LEDs**. Can be configured separately, flash or switch using objects

3. Commissioning

Configuration is made using the KNX software as of ETS 5. The **product file** can be downloaded from the ETS online catalogue and the Elsner Elektronik website on **www.elsner-elektronik.de**.

After the bus 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 the equipment

The equipment is delivered with the bus address 15.15.255. Another address can be programmed using the ETS.

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

4. Transfer protocol

Units:

Temperatures in degrees Celsius
Brightness in Lux

4.1. List of all communication objects

Abbreviation flags:

C Communication
R Read
W Write
T Transfer
U Update

No	Text	Function	Flags	DPT type	Size
0	Software version	Output	R-CT	[217.1] DPT_Version	2 Bytes
10	Brightness measurement	Output	R-CT	[9.4] DPT_Value_Lux	2 Bytes
11	Brightness correction factor	Input / Output	RWCT	[14.5] DPT_Value_Amplitude	4 Bytes
12	Brightness limit value Absolute value	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes
13	Brightness limit value (1:+ | 0:-)	Input	-WC-	[1.1] DPT_Switch	1 Bit
14	Brightness limit value Delay from 0 to 1	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
15	Brightness limit value Delay from 1 to 0	Input	-WC-	[7.5] DPT_TimePeriodSec	2 Bytes
16	Brightness limit value Switching output	Output	R-CT	[1.1] DPT_Switch	1 Bit
17	Brightness limit value Switching output block	Input	-WC-	[1.1] DPT_Switch	1 Bit
18	Motion sensor: Test object	Output	R-CT	[14] 14.xxx	4 Bytes
19	Motion sensor: Test object release (1 = release)	Input	-WC-	[1.1] DPT_Switch	1 Bit
20	Motion sensor: Slave: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
21	Motion sensor: Slave: Message	Output	R-CT	[1.1] DPT_Switch	1 Bit
22	Motion sensor: Slave: Cycle reset	Input	-WC-	[5.1] DPT_Scaling	1 Byte
23	Motion sensor: Master 1: Brightness	Input	-SKÜ	[9.4] DPT_Value_Lux	2 Bytes
24	Motion sensor: Master 1: Brightness threshold value On	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes
25	Motion sensor: Master 1: Brightness switching distance	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes

No	Text	Function	Flags	DPT type	Size
26	Motion sensor: Master 1: Brightness waiting time	Input	RWC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
27	Motion sensor: Master 1: Output	Output	R-CT	0	4 Bytes
28	Motion sensor: Master 1: Switch-on delay	Input	RWC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
29	Motion sensor: Master 1: Switch-off delay	Input	RWC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
30	Motion sensor: Master 1: Slave message	Input	-WC-	[1.1] DPT_Switch	1 Bit
31	Motion sensor: Master 1: Slave cycle reset	Output	--KÜ	[5.1] DPT_Scaling	1 Byte
32	Motion sensor: Master 1: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
33	Motion sensor: Master 1: Central Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
34	Motion sensor: Master 2: Brightness	Input	-SKÜ	[9.4] DPT_Value_Lux	2 Bytes
35	Motion sensor: Master 2: Brightness threshold value On	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes
36	Motion sensor: Master 2: Brightness switching distance	Input / Output	RWCT	[9.4] DPT_Value_Lux	2 Bytes
37	Motion sensor: Master 2: Brightness waiting time	Input	RWC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
38	Motion sensor: Master 2: Output	Output	R-CT	0	4 Bytes
39	Motion sensor: Master 2: Switch-on delay	Input	RWC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
40	Motion sensor: Master 2: Switch-off delay	Input	RWC-	[7.5] DPT_TimePeriod-Sec	2 Bytes
41	Motion sensor: Master 2: Slave message	Input	-WC-	[1.1] DPT_Switch	1 Bit
42	Motion sensor: Master 2: Slave cycle reset	Output	--KÜ	[5.1] DPT_Scaling	1 Byte
43	Motion sensor: Master 2: Block (1 = Blocking)	Input	-WC-	[1.1] DPT_Switch	1 Bit
44	Motion sensor: Master 2: Central Off	Input	-WC-	[1.1] DPT_Switch	1 Bit
45	Temperature sensor: Malfunction	Output	R-CT	[1.1] DPT_Switch	1 Bit
46	Temperature sensor: Measurement, external	Input	-SKÜ	[9.1] DPT_Value_Temp	2 Bytes
47	Temperature sensor: Measurement	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes

No	Text	Function	Flags	DPT type	Size
48	Temperature sensor: Measurement, total	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
49	Temperature sensor: Measurement, Min/Max query	Input	-WC-	[1.17] DPT_Trigger	1 Bit
50	Temperature sensor: Measurement, minimum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
51	Temperature sensor: Measurement, maximum	Output	R-CT	[9.1] DPT_Value_Temp	2 Bytes
52	Temperature sensor: Min./max. measurement reset	Input	-WC-	[1.17] DPT_Trigger	1 Bit
53	Button left, long-time	Output	R-CT	[1.8] DPT_UpDown	1 Bit
54	Button left, short-time	Output	R-CT	[1.10] DPT_Start	1 Bit
55	Button left, switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
56	Button left, dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
57	Button left, encoder 8 Bit	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
58	Button left, encoder 16 Bit	Output	R-CT	[9] 9.xxx	2 Bytes
59	Button left, scene (call up)	Output	R-CT	0	1 Byte
60	Button right, long-time	Output	R-CT	[1.8] DPT_UpDown	1 Bit
61	Button right, short-time	Output	R-CT	[1.10] DPT_Start	1 Bit
62	Button right, switching	Output	R-CT	[1.1] DPT_Switch	1 Bit
63	Button right, dimming	Input / Output	RWCT	[3.7] DPT_Control_Dimming	4 Bit
64	Button right, encoder 8 Bit	Output	R-CT	[5.10] DPT_Value_1_Ucount	1 Byte
65	Button right, encoder 16 Bit	Output	R-CT	[9] 9.xxx	2 Bytes
66	Button right, scene (call up)	Output	R-CT	0	1 Byte
67	LED left	Input	-WC-	[1.1] DPT_Switch	1 Bit
68	LED right	Input	-WC-	[1.1] DPT_Switch	1 Bit
69	LED bottom left	Input	-WC-	[1.1] DPT_Switch	1 Bit
70	LED bottom right	Input	-WC-	[1.1] DPT_Switch	1 Bit
71	Logic input 1	Input	-WC-	[1.2] DPT_Bool	1 Bit
72	Logic input 2	Input	-WC-	[1.2] DPT_Bool	1 Bit
73	Logic input 3	Input	-WC-	[1.2] DPT_Bool	1 Bit
74	Logic input 4	Input	-WC-	[1.2] DPT_Bool	1 Bit
75	Logic input 5	Input	-WC-	[1.2] DPT_Bool	1 Bit
76	Logic input 6	Input	-WC-	[1.2] DPT_Bool	1 Bit
77	Logic input 7	Input	-WC-	[1.2] DPT_Bool	1 Bit
78	Logic input 8	Input	-WC-	[1.2] DPT_Bool	1 Bit
79	AND logic 1: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit

No	Text	Function	Flags	DPT type	Size
80	AND logic 1: 8-bit output A	Output	R-CT	0	1 Byte
81	AND logic 1: 8-bit output B	Output	R-CT	0	1 Byte
82	AND logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
83	AND logic 2: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
84	AND logic 2: 8-bit output A	Output	R-CT	0	1 Byte
85	AND logic 2: 8-bit output B	Output	R-CT	0	1 Byte
86	AND logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
87	OR logic 1: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
88	OR logic 1: 8-bit output A	Output	R-CT	0	1 Byte
89	OR logic 1: 8-bit output B	Output	R-CT	0	1 Byte
90	OR logic 1: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit
91	OR logic 2: 1-bit switching output	Output	R-CT	[1.2] DPT_Bool	1 Bit
92	OR logic 2: 8-bit output A	Output	R-CT	0	1 Byte
93	OR logic 2: 8-bit output B	Output	R-CT	0	1 Byte
94	OR logic 2: Block	Input	-WC-	[1.1] DPT_Switch	1 Bit

5. Parameter setting

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. Delays established in the "General settings" parameter block are taken into account.

5.2. General settings

Set basic characteristics for the data transfer.

Send delay after reset/bus restoration for:	
Measured values	5 s • ... • 300 s
Threshold values and switching outputs	5 s • ... • 300 s
Controller objects	5 s • ... • 300 s
Comparator and logic objects	5 s • ... • 300 s
Maximum telegram rate	• 1 message per second • ... • 10 messages per second • ... • 50 messages per second

5.3. Brightness Measurement

The sensor detects the brightness in rooms, for example for controlling lights.

Set the **sending pattern** for the measured brightness.

Sending pattern	• never • periodically • on change • on change and periodically
at and above change in % *(if sent on change)*	1 ... 100; 20
Send cycle *(if sent periodically)*	5 s ... 2 h

The brightness reading can be **corrected** in order to compensate for a dull or bright point of installation for the sensor.

Use reading correction	No • Yes

Set, in which cases the correction factor received via object is to be retained. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first communication (setting via objects is ignored).
Specify the starting correction factor.

Maintain the	
correction factor received via communication object	• never • after power supply restoration • after power supply restoration and programming
Start correction factor in 0.001 valid till first communication	1 ... 10000; 1000

Examples:
For a factor of 1.234 the parameter value is 1234.
For a factor of 0.789 the parameter value is 789.
For a factor of 1.2 and a reading of 1000 Lux the transmitted value is 1200 Lux.

5.4. Brightness threshold value

Activate the required brightness threshold value. The menus for setting the threshold value are displayed.

Threshold value 1	No • Yes

Threshold value

Set, in which cases threshold values and delay times received are to be kept per object. The parameter is only taken into consideration if the specification/ setting by object is activated further down. Please note that the setting "After power restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the first call (setting via objects is ignored).

Maintain the	
threshold values and delays received via communication objects	• never • after power supply restoration • after power supply restoration and programming

Select whether the threshold value is to be specified per parameter or via a communication object.

Threshold value setpoint using	Parameter • Communications object

When the **threshold value per parameter** is specified, then the value is set.

Threshold value in kLux	1 ... 5000; 200

When the **threshold value per communication object** is specified, the starting value, object value limit and type of change to the threshold value are then set.

Start threshold value in Lux valid until first call	1 ... 5000; 200
Object value limit (min.) in Lux	1 ... 5000
Object value limit (max.) in Lux	1 ... 5000
Type of threshold change	Absolute value • Increase/decrease
Increment in Lux *(upon increase/decrease change)*	1 • 2 • 5 • 10 • 20 • 50 • 100 • 200

With both of the methods for specifying the threshold values the switching distance (hysteresis) is set.

Switching distance setting	in % • absolute
Switching distance in % of the threshold value *(for setting in %)*	0 ... 100; 50
Switching distance in Lux *(for absolute setting)*	0 ... 5000; 200

Switching output

Define which value the output transmits if the threshold value is exceeded or undercut. Set the delay for the switching and in which cases the switch output transmits.

When the following conditions apply, the output is (TV = Threshold value) (SD = Switching distance)	• TV above = 1 | TV - SD below = 0 • LV above = 0 | TV - SD below = 1 • TV below = 1 |TV + SD above = 0 • TV below = 0 |TV + SD above = 1
Delays can be set via objects (in seconds)	No • Yes
Delay from 0 to 1	none • 1 s ... 2 h
Delay from 1 to 0	none • 1 s ... 2 h
Switching output sends	• 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
Cycle *(if sent periodically)*	5 s ... 2 h

Block

If necessary, activate the switching output block and set what a 1 or 0 at the block entry means and what happens in the event of a block.

Use switching output block	No • Yes
Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first call	0 • 1
Action when locking	• Do not send message • send 0 • send 1
Action upon release (with 2 seconds release delay)	[Dependent on the "Switching output sends" setting]

The behaviour of the switching output on release is dependent on the value of the parameter "Switching output sends" (see "Switching output")

Switching output sends on change	do not send message • Status object/s send/s
Switching output sends on change to 1	do not send message • If switching output = 1 ➔ send 1
Switching output sends on change to 0	do not send message •
	If switching output = 0 ➔ send 0
Switching output sends on change and periodically	Send switching output status
Switching output sends on change to 1 and periodically	If switching output = 1 ➔send 1
Switching output sends on change to 0 and periodically	If switching output = 0 ➔send 0

5.5. Motion detector

The motion detector detects movement by means of temperature differences. Please note that the "no movement" message is only sent to the bus after a 5 second delay. After connecting the operating voltage and after a reset, it takes 15 seconds until the sensor is ready for operation.

Activate the **test object** if you would like to test the motion detection while commissioning.

With an active test object, you can enter the settings for analysis of the release object, the value prior to the first communication, and the type and value of the test object.

Use test object	No • Yes
If test object is used:	
Release object analysis	• at value 1: release | at value 0: block • at value 0: release | at value 1: block

Value prior to first communication	0 • 1
Type of test object	• 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 1 byte 0...63) scenario call-up • 2 byte counter without math. symbol • 2 byte counter with math. symbol • 2 byte floating point • 4 byte counter without math. symbol • 4 byte counter with math. symbol • 4 byte floating point
Test object value for movement	e.g. 0 • 1 [depending on the type of test object]
Test object value without movement	e.g. 0 • 1 [depending on the type of test object]

Select whether the motion detector is operated as **master or slave**.
For a master device, the reactions to motion detection are filed in the master settings 1 to 4. The master can thus control up to four different lamps, scenarios etc. and, as an option, also observe incoming motion messages from slave devices.
A slave device sends a motion message to the master via the bus.

Mode	Slave • Master

Motion detector as slave:

Activate the slave in order to use it.

Use slave	No • **Yes**

When a motion is detected, the device periodically sends a 1 to the master via the bus.

Information on setting the slave sending cycle and the cycle reset can be found in chapter *Align communication between master and slave*, page 18.

Set the **sending cycle** shorter than the master's switch-off delay.

Sending cycle in the event of movement (in seconds)	1...240; 2

Set the **object type and value** for the cycle reset input for the slave in the same way as for the cycle reset output for the master.

Cycle reset object type	• 1 bit • 1 byte (0%...100%)
Cycle reset at value	0 • 1 and/or 0...100; 1

The slave can be **blocked** via the bus.

Use block	No • **Yes**
Analysis of the blocking object	• at value 1: block | at value 0: release • at value 0: block | at value 1: release
Value prior to first communication	0 • 1

5.5.1. Master 1/2

If the device is set as a master, the additional master settings 1 and 2 will appear. This enables the sensor to perform four different control functions for motion detection. Activate the master in order to use it.

Use master 1/2/3/4	No • Yes

Set, in which cases **threshold values and delay times** received via object are to be retained. The parameter is only taken into consideration if the setting via object is activated below. Please note that the setting "After power supply restoration and programming" should not be used for the initial start-up, as the factory settings are always used until the 1st communication (setting via objects is ignored).

Maintain the	
threshold values and delays received via communication objects	• never • after power supply restoration • after power supply restoration and programming

Select, whether motion is to be detected **constantly or brightness dependent**.

Motion detection	constantly • brightness dependent

Settings for brightness dependent motion detection:

The **brightness dependent motion detection** can be used via separate threshold values for switch-on and switch-off or dependent on daylight. The separate threshold values are ideal for controlling the light in rooms which are only illuminated by artificial light. The daylight dependent control is ideal for rooms with daylight and artificial light.

Motion detection	**brightness dependent**
Type of brightness dependency	• separate switch-on and switch-off values • daylight dependent

For **daylight dependent motion detection with separate switch-on and switch-off threshold values** activate, as required, the objects for setting the threshold values. Then specify the switch-on and switch-off values (brightness range). The switch-on value is the value, below which the room should be lit in the event of move-

ment. The switch-off value should be higher than the brightness value of the artificially lit room.
If the indoor light level is above the switch on limit value, but below the switch off limit value and the motion is still ongoing, or if another motion is detected before the end of the switch-off delay, then the switch-off delay time period starts over. Only when the light level exceeds the switch-off limit value is the switch-off delay no longer extended.
If the master output has detected the value for the end of the motion, then the light level must be below the switch-on limit value before any other motions are detected.

Type of brightness dependency	**• separate switch-on and switch-off values**
Threshold values can be set via objects	No • Yes
Switch on sensor below Lux	1...5000; 200
Switch off sensor below Lux	1...5000; 500

For the **daylight dependent motion detection** activate, as required, the objects for setting the threshold values/switching distance (hysteresis) and waiting period. Then specify the switch-on value. This is the value, below which the room should be lit in the event of movement.

The switch-off value is derived from the brightness measurement that is performed by the sensor at the end of the waiting period. Set the waiting period such that after it all lamps are set to the final brightness. The switching distance is added to the measured brightness value. If the room brightness later exceeds this total value because the room is illuminated by daylight, the motion control is switched off.
If the master switches on a light, it measures the indoor light level after the end of the wait time.
If the light level is above the switch-on limit value but below the measured light level + switching distance, and the motion is still ongoing or another motion is detected before the end of the switch-off delay, then the switch-off delay is restarted.
Only when the light level exceeds the light level + switching distance is the switch-off delay no longer extended.
If the master output has detected the end of the motion, then the light level must drop below the switch-on limit value for motions to be detected again.

Type of brightness dependency	**• Daylight dependent**
Threshold values and switching distance can be set via objects	No • Yes
Waiting period can be set via objects	No • Yes
Switch on sensor below Lux	1...5000; 200

Switch off sensor, at the earliest after a waiting period of seconds	0...600; 5
after motion detection and above measured brightness plus switching distance in Lux	1...5000; 200

Settings for all types of motion detection:

The following settings can be made, independent of the motion detection type, i.e. for "constant" and "brightness dependent" motion recognition.

Define the **output type and value**. As a result of the different types, switchable lights (1 bit), dimmer (1 Byte 0-100%), scenarios (1 Byte 0...63 scenario call-up) and other functions can be controlled.

Output type	• 1 bit • 1 byte (0...255) • 1 byte (0%...100%) • 1 byte (0°...360°) • 1 byte (0...63) scenario call-up • 2 byte counter without math. symbol • 2 byte counter with math. symbol • 2 byte floating point • 4 byte counter without math. symbol • 4 byte counter with math. symbol • 4 byte floating point
Output value in the event of motion	e.g. 0 • 1 [depending on the output type]
Output value without motion	e.g. 0 • 1 [depending on the output type]
Output value when blocked	e.g. 0 • 1 [depending on the output type]

Select whether delays can be set via objects and specify the **switching delays**. By setting a **blocking time** after switch-off, you prevent sensors from recognising a switched-off lamp in their detection zone as a temperature change, and sending a motion message.
The blocking time begins once the master output has transmitted the value for "end of motion", e.g. the command "light off" or a central off command is received. During this time period, the master detects no motion, and the motion detection of the slaves is

not recorded. After the end of the time period, the master transmits the slave cycle reset telegram.
Application example:
Depending on the installation situation and lamps, it is possible that a detector will detect the thermal change in the lamp when the light is switched off by the master as a motion. Without a blocking time, the light would be switched on again immediately.

Delays can be set via objects (in seconds)	No • Yes
Switch on delay (for setting via objects: valid until 1st communication)	0 s • 5 s • 10 s • ... 2 h *(for daylight dependent motion detection: fixed value 0s)*
Switch off delay (for setting via objects: valid until 1st communication)	0 s • 5 s • 10 s • ... 2 h
Blocking time for motion detection after switch off delay in seconds	0...600 ; 2

Set the master's output **sending pattern**.

Sending pattern	• on change • on change to movement • on change to no movement • on change and periodically • on change to movement and periodically • on change to no movement periodically
Cycle *(if sent periodically)*	1s • 5 s • ... 2 h

In addition, you can refer to a **slave signal**, i.e. a signal from an additional motion detector, for controlling purposes.

Use slave signal	No • Yes

The slave device periodically sends a 1 to the bus, as long as a motion is detected. The master receives this at the input object "master: slave message" and evaluates the slave message as an own sensor message.

Furthermore, the master has the possibility of triggering a reset of the slave sending cycle.

Information on setting the slave sending cycle and the cycle reset can be found in chapter *Align communication between master and slave*, page 18.

Set the **object type and value** for the master's slave cycle reset output in the same way, as the cycle reset input for the slave.

Slave cycle reset object type	• 1 bit • 1 byte (0%...100%)
Cycle reset at value	0 • 1 and/or 0...100; 1

The master can be **blocked** via the bus.

Use block	No • **Yes**
Analysis of the blocking object	• at value 1: block | at value 0: release • at value 0: block | at value 1: release
Value prior to first communication	0 • 1
Output pattern	
On block	• do not send anything • Send value
For release	• as for transmission pattern • send current value immediately

5.5.2. Align communication between master and slave

Sending cycle slave - switch-off delay master

Set the slave's **sending cycle** shorter than the master's switch-off delay. Thereby it is ensured that the master does not perform a switch-off action, while the slave is still detecting a motion.

Slave cycle reset

The cycle reset for the slave is required, if a master switch action by the "master: central off" object was triggered.

When the master performs a switch-off action, it simultaneously sends a message to the bus via the "master: slave cycle reset". . This message can be received by the slave via the "slave: cycle reset" in order to *immediately* send a message to the bus in the event of a motion detection. The master receives the motion message without having to wait for the next slave transmission cycle.

Please note that object type and value for the slave's cycle reset input and the master's cycle reset output must be set the same.

Application Example:

A person steps into a corridor, the master recognises this movement and switches on the corridor lighting. When leaving the corridor, the person wants to switch off the light using a switch.

However, in the meantime a second person has entered the corridor who is detected by a slave. This person would be in darkness and would have to wait for the slave's next transmission cycle before the light would be switched on again.

To prevent this, the switch command is connected to the "master: central off" object. As a result, the master sends a cycle reset command to the slave if the light is switched off manually. In the present example, the master would immediately switch the light back on.

5.6. Temperature Measurement

Select, whether a **malfunction object** is to be sent if the sensor is faulty.

Use malfunction object	No • Yes

When **measuring temperature**, the self-heating of the device is considered by the electronics. The heating is compensated for in the device.

Use **Offsets** to adjust the readings to be sent.
Measurement variations from permanent sources of interference can be corrected in this way.

Offset in 0.1°C	-50…50; 0

The unit can calculate a **mixed value** from its own reading and an external value. Set the mixed value calculation if desired. If an external portion is used, all of the following settings (threshold values, etc.) are related to the overall reading.

Use external measured value	No • Yes
Ext. Reading proportion of the total reading	5% • 10% • ... • 50% • ... • 100%
Sending pattern for internal and total measured value	• never • periodically • on change • on change and periodically
At and above change of *(if sent on change)*	0.1°C • 0.2°C • 0.5°C • ... • 5.0°C
Send cycle *(if sent periodically)*	5 s • 10 s • ... • 2 h

The **minimum and maximum readings** can be saved and sent to the bus. Use the "Reset temperature min/max. value" objects to reset the values to the current readings. The values are not retained after a reset.

Use minimum and maximum value	No • Yes

5.7. Buttons

Press the required button. The menus for the additional settings of the buttons are then displayed.

Use button left	No • Yes
Use button right	No • Yes

5.7.1. Pushbutton left / right

Set the function of the pushbutton.

Function	• Switch • Changeover switch • Shutter • Roller blind • Awning • Window • Dimmer • 8-bit encoder • 16-bit encoder • Scenario recall / scene storage

Define which values are sent when the button is pressed/released, and when these are sent.

Command when pressing the pushbutton	• send 0 • send 1 • do not send message
Command when releasing the pushbutton	• send 0 • send 1 • do not send message
Send value	• 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
Cycle (*if sent periodically)*	5 s • ... • 1 min • ... • 2 h

Changeover switching

Use additional function for button held down	No • Yes

Use additional function for button held down	No
Command when pressing the button	• Switching • Do not send message
Command when releasing the button	• Switching • Do not send message

Use additional function for button held down	Yes
Time between tap and hold (0.1 sec)	0 ... 50; 10
Command when pressing the button	Do not send message
Command when releasing before time expires	• Switching • Do not send message

Command when pressing the button	• Send 0 • Send 1 • Switching • Do not send message
Command when releasing the button	• Send 0 • Send 1 • Switching • Do not send message
Send value	• If there is a 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
Transmission cycle (if cyclically sent)	5 s • 10 s • ... • 2 h

Blind

Pushbutton function	• Up • Down
Control mode	• Standard • Standard inverted • Comfort mode • Dead man's switch

Standard:

Behaviour for button actuation (up): short = Stop/Step | long = Up Behaviour for button actuation (down): short = Stop/Step | long = Down	
Time between short and long in 0.1 seconds	0 ... 50; 10

Standard inverted:

Behaviour for button actuation (up): long = Stop/Step | short = Up Behaviour for button actuation (down): short = Stop/Step | long = Down	
Time between short and long in 0.1 seconds	0 ... 50; 10
Repeat the step command for a long button press	every 0.1 s • every 2 sec; every 0.5 sec

Comfort mode:

Button is pushed and	
released before time 1 expired held longer than time 1 released between time 1 and 1-2 released after time 1 +2	stop/step Up or Down Stop no more stop
Time 1 (in 0,1 s)	0 ... 50; 4
Time 2 (in 0,1 s)	0 ... 50; 20

Dead man‘s switch:

Push button	down command
Release button	up command

Shutter

Pushbutton function	• Up • Down • Up/Down
Control mode	• Standard • Standard inverted • Comfort mode • Dead man‘s switch

Standard:

Behaviour for button actuation (up): short = Stop | long = Up Behaviour for button actuation (down): short = Stop | long = Down Behaviour in case of button actuation (up/down): short = Stop | long = Up/Down	
Time between short and long in 0.1 seconds	0 ... 50; 10

Standard inverted:

Behaviour for button actuation (up): long = Stop | short = Up Behaviour for button actuation (down): short = Stop | long = Down Behaviour in case of button actuation (up/down): short = Stop | long = Up/Down	
Time between short and long in 0.1 seconds	0 ... 50; 10
Repeat the step command for a long button press (only Up)	no • every 0,1 s • ... • every 0,5 s • ... • every 2 s

Comfort mode:

Button is pushed and	
released before time 1 expired held longer than time 1 released between time 1 and 1-2 released after time 1 +2	Stopp Up | Down | Up/Down Stop no more stop
Time 1 (in 0,1 s)	0 ... 50; 4
Time 2 (in 0,1 s)	0 ... 50; 20

Dead man‘s switch:

Push button	Up- | Down- | Up/Down command
Release button	Stop command

Awning

Pushbutton function	• Retract • Extend • Retract/Extend
Control mode	• Standard • Standard inverted • Comfort mode • Dead man's switch

Standard:

Behaviour in case of button actuation (retract): short = Stop | long = Retract Behaviour in case of button actuation (extend): short = Stop | long = Extend Behaviour in case of button actuation (retract/extend): short = Stop | long = Retract/Extend	
Time between short and long in 0.1 seconds	0 ... 50; 10

Standard inverted:

Behaviour in case of button actuation (retract): long = Stop | short = Retract Behaviour in case of button actuation (extend): long = Stop | short = Extend Behaviour in case of button actuation (retract/extend): long = Stop | short = Retract/Extend	
Time between short and long in 0.1 seconds	0 ... 50; 10
Repeat the step command for a long button press (only Up)	no • every 0,1 s • ... • every 0,5 s • ... • every 2 s

Comfort mode:

Button is pushed and	
released before time 1 expired held longer than time 1 released between time 1 and 1-2 released after time 1 +2	Stop On | Off | On/Off Stop no more stop
Time 1 (in 0,1 s)	0 ... 50; 4
Time 2 (in 0,1 s)	0 ... 50; 20

Dead man's switch:

Push button	Retract- | Extend- | Retract/Extend command
Release button	Stop command

Window

Pushbutton function	• Close • Open • Open/Close
Control mode	• Standard • Standard inverted • Comfort mode • Dead man's switch

Standard:

Behaviour in case of button actuation (close): short = Stop | long = Close Behaviour for button actuation (up): short = Stop | long = Up Behaviour in case of button actuation (open/close): short = Stop | long = Open/Close	
Time between short and long in 0.1 seconds	0 ... 50; 10

Standard inverted:

Behaviour in case of button actuation (close): long = Stop | short = Close Behaviour for button actuation (up): long = Stop | short = Up Behaviour in case of button actuation (open/close) long = Stop | short = Open/Close	
Time between short and long in 0.1 seconds	0 ... 50; 10
Repeat the step command for a long button press (only Up)	no • every 0,1 s • ... • every 0,5 s • ... • every 2 s

Comfort mode:

Button is pushed and	
released before time 1 expired held longer than time 1 released between time 1 and 1-2 released after time 1 +2	stop/step Up or Down Stop no more stop
Time 1 (in 0,1 s)	0 ... 50; 4
Time 2 (in 0,1 s)	0 ... 50; 20

Dead man's switch:

Push button	Close- | Up- | Open/Close command
Release button	Stop command

Dimmer

Pushbutton function	• Brighter • darker • Brighter/darker
Time between switching and dimming in 0.1 seconds	0 ... 50; 5
Repetition of the dimming command	No • **Yes**
Repetition of the dimming command upon extended button actuation	every 0,1 s • ... • every 0,5 s • ... • every 2 s
Dimming by	100% • ... • 6% • ... • 1,5%

8 bit encoder:

Value range	• 0 ... 255 • 0% ... 100% • 0° ... 360°
Value	• 0... 255 • 0 ... 100 • 0°... 360°

16 bit encoder:

Value in 0.1	-6707600 ... 6707600; 0

scene call up / scene storage:

Scenario no.	0 ... 63
Scenario function	Call up • Call up and storage
Press button longer than (in 0.1s) --> Scene storage (for call up and storage)	0 ... 50

5.8. LEDs

Set the function of the two LEDs.

Function LED left	• Do not use • on if object = 1 • on if object = 0 • flashes if object = 1 • flashes if object = 0 • on if movement test object = 1 • on if movement test object = 0 • flashes if movement test object = 1 • flashes if movement test object = 0
Function LED right	• Do not use • on if object = 1 • on if object = 0 • flashes if object = 1 • flashes if object = 0 • on if movement test object = 1 • on if movement test object = 0 • flashes if movement test object = 1 • flashes if movement test object = 0

5.9. Logic

The device has 8 logic inputs, two AND and two OR logic gates.

Activate the logic inputs and assign object values up to first call.

Use logic inputs	Yes • No
Object value prior to first call for:	
- Logic input 1 ... 8	0 • 1

Activate the required logic outputs.

AND logic

AND logic 1/2	not active • active

OR logic

OR logic 1/2	not active • active

5.9.1. AND logic 1+2 and OR logic outputs 1+2

The same setting options are available for AND and OR logic.

Each logic output may transmit one 1 bit or two 8 bit objects. Determine what the out put should send if logic = 1 and = 0.

1. / 2. / 3. / 4. Input	• do not use - Logic inputs 1...8 - Logic inputs 1...8 inverted • all switching events that the device provides (see *Connection inputs of the AND/OR logic*)
Output type	• a 1-Bit-object • two 8-bit objects

If the **output type is a 1-bit object**, set the output values for the various conditions.

Output value if logic = 1	1 • 0
Output value if logic = 0	1 • 0
Output value If block is active	1 • 0
Output value if monitoring period is exceeded	1 • 0

If the **output type is two 8-bit objects**, set the type of object and the output values for the various conditions.

Object type	• Value (0…255) • Percent (0…100%) • Angle (0…360°) • Scene call-up (0…63)
Output value object A if logic = 1	0 … 255 / 100% / 360° / 63; 1
Output value object B if logic = 1	0 … 255 / 100% / 360° / 63; 1
Output value object A if logic = 0	0 … 255 / 100% / 360° / 63; 0
Output value object B if logic = 0	0 … 255 / 100% / 360° / 63; 0
Output value object A if block is active	0 … 255 / 100% / 360° / 63; 0

Output value object B if block is active	0 ... 255 / 100% / 360° / 63; 0
Output value object A if monitoring period is exceeded	0 ... 255 / 100% / 360° / 63; 0
Output value object B if monitoring period is exceeded	0 ... 255 / 100% / 360° / 63; 0

Set the output send pattern.

Send pattern	• on change of logic • on change of logic to 1 • on change of logic to 0 • on change of logic and periodically • on change of logic to 1 and periodically • on change of logic to 0 and periodically • on change of logic+object receipt • on change of logic+object receipt and periodically
Send cycle *(if sent periodically)*	5 s • 10 s • ... • 2 h

Block

If necessary, activate the block for the logic output and set what a 1 or 0 at the block input means and what happens in the event of a block.

Use block	No • Yes
Analysis of the blocking object	• At value 1: block | At value 0: release • At value 0: block | At value 1: release
Blocking object value before first call	0 • 1
Output pattern On block	• Do not send message • Transmit block value [see above, Output value if blocking active]
On release (with 2 seconds release delay)	[send value for current logic status]

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 a feedback being given.

Use input monitoring	No • Yes
Input monitoring	• 1 • 2 • 3 • 4 • 1 + 2 • 1 + 3 • 1 + 4 • 2 + 3 • 2 + 4 • 3 + 4 • 1 + 2 + 3 • 1 + 2 + 4 • 1 + 3 + 4 • 2 + 3 + 4 • 1 + 2 + 3 + 4

Monitoring period	5 s • ... • 2 h; 1 min
Output behaviour on exceeding the monitoring time	• Do not send message • Send value exceeding [= value of the parameter "monitoring period"]

5.10. AND logic connection inputs

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
Temperature sensor malfunction ON
Temperature sensor malfunction OFF
Motion detector test output
Motion detector test output inverted
Motion detector slave output
Motion detector slave output inverted
Motion detector master 1 output
Motion detector master 1 output inverted
Motion detector master 2 output
Motion detector master 2 output inverted
Switching output brightness
Switching output brightness inverted

5.10.1. Connection inputs of the OR logic

The OR logic connection inputs correspond to those of the AND logic. In addition, the following inputs are available for the OR logic:

Switching output AND logic 1
Switching output AND logic 1 inverted
Switching output AND logic 2
Switching output AND logic 2 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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