CHORUS

GEWISS

GWA9531 KNX Presence sensor - Ceiling mounting
GWA9532 KNX Motion sensor for great heights - Ceiling mounting

GWA9531

GWA9532

Technical Manual

Summary

1 GENERAL DESCRIPTION

1.1 Introduction

The KNX occupancy/presence detector works on a passive infrared system, which registers heat movements and converts them to signals that can be analysed by a processor. The most important factor in motion detection is the right choice of mounting location.

Mounting location

The occupancy detector should be mounted so that the main direction of motion is always tangential (side-to-side across the device).

The following sources of interference can lead to unwanted triggering, since they can also produce differences in temperature:

1. radiant heaters
2. ventilation systems which emit hot or cold air
3. lights directly in the detection area

Accordingly, the detector must be positioned far from these sources.

If even the smallest movements are to be recognised (e.g. working at a computer keyboard), we recommend that you choose a mounting location directly above the desk. This will ensure that detection takes place.

Please always follow the mounting height given for the units. Smaller mounting heights reduce the range. Greater mounting heights increase the range but also reduce sensitivity.

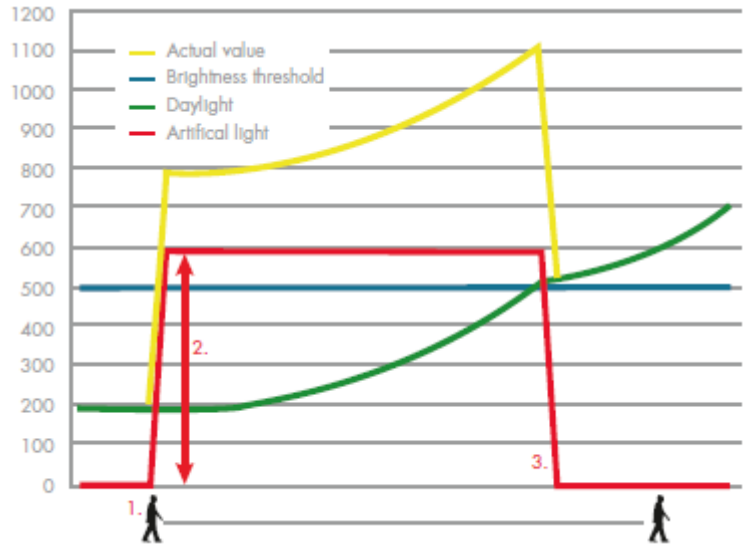
1.2 Operating principle

Both sensors (GWA9531 - GWA9532) automatically control the light, on the basis of the presence / movement detection and the ambient light levels. They switch on the light if the ambient light in the environment is below a threshold level of brightness (which can be set on the device) and if it detects the presence / movement. The light switch off takes place once the level of ambient light exceeds, for a minimum time, the brightness threshold set, even if the presence or a movement is detected.

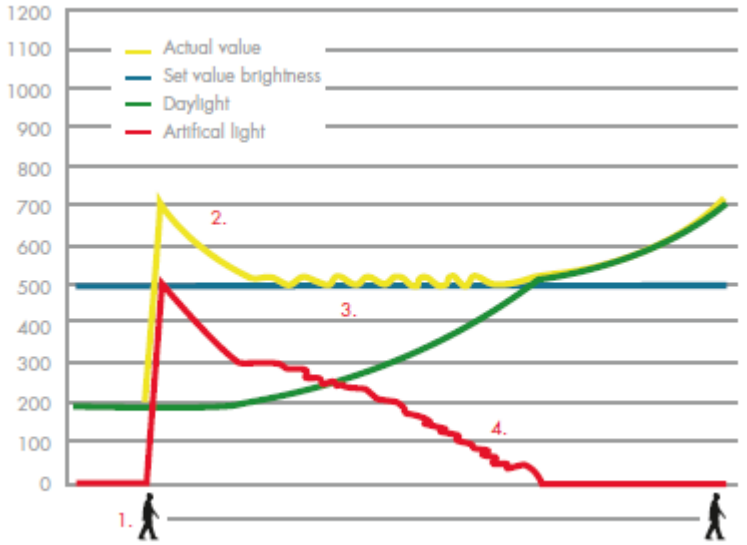
1.3 Switching mode and regulation mode

The detector can operate in two modes: switching mode and regulating mode. In switching mode, the light is switched on and off using 1-bit switching telegrams. For this, a switch actuator is required on the actuator side. In regulating mode, a dimming actuator is required. 1-byte dimming telegrams (percent values) are sent to the bus.

The desired brightness level for the room can be freely selected. In switching mode, the term brightness threshold is used. This specifies the brightness threshold under which the detector should switch on the light. If a threshold of 500 lux is set and the ambient light (daylight) level is 200 lux, the detector switches on when motion is detected (1). The increase in light caused by the selected lamp is measured (2). With a 600 lux increase in light, the detector switches off (3) as soon as the sum of the increase in light and the rise in ambient light reaches 1100 lux. Therefore, the selected light level (increase in light) is no longer available. The ambient light is now 500 lux (1100 lux - 600 lux), which is exactly the value defined as brightness threshold.

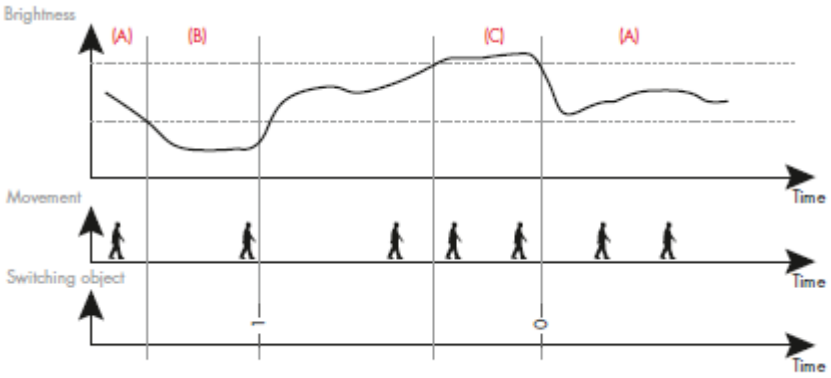


With lighting regulation, the term used is not brightness threshold, but set value. Here, the detector sends a dimming telegram to the bus. If the ambient light (daylight) level is under the set value, and the detector registers a movement (1), the light switches on (100%). Then, using the brightness level determined (2), the light is dimmed until the set value is reached. From now on, the detector regulates the light (3) and keeps the room brightness at a constant value (set value), until the proportion of artificial light reaches 0% (4).



1.4 Light analysis

The occupancy detector switches the light automatically, depending on the people being present (movements) and on ambient light. The light sensor integrated into the detector continually measures ambient light and compares it with the brightness threshold or set value set in the detector. If ambient light is sufficient, the lighting is not switched on (A). If ambient light is below the defined set value brightness, any movement in the room will cause the lighting to switch on (B).
The detector switches the lighting off even if a person is present if there is enough natural light (C) or no movement is detected in the room for a given follow-up time.

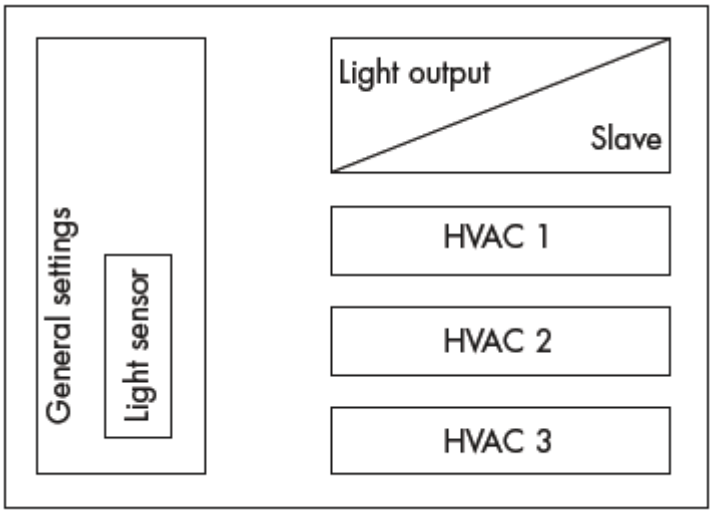


1.5 Detector operating modes

The detector can operate in the following modes:
1. Full automatic mode
In this mode, the lighting switches on and off automatically, according to occupancy and brightness, for greater convenience.
2. Semi-automatic mode
In this mode, the lighting only switches on by manual operation, for improved energy saving. Switching off takes place automatically or manually. Semi-automatic mode behaves essentially in the same way as full automatic mode. The difference is that switch-on must always be manual.
3. Slave mode
In this mode, the device only detects movement and sends this information to the master. With more than one detector per light group, at least one device must be set as master. All other detectors must be set to slave mode. Only the master decides whether the lighting is to be switched on/off or dimmed.
4. Occupancy-independent regulating mode
In this mode, the detector operates as brightness sensor (permanent dimmer), i.e. motion data is not analysed.

1.6 Detector functional groups

The occupancy detector has various functional groups. The most important is light output. In this group, the basic function of the occupancy detector is performed. Here, motion and brightness information is analysed, switching and regulation takes place, and changes between the different modes are made.
Light output also includes the option to run the detector as a slave. This is required for systems that need an expanded detection area. Several detectors then work in conjunction. In slave mode, the other light output functions are no longer available.
In addition, three HVAC channels (heating, ventilation and air conditioning) are available. These channels are for the control of energy-intensive systems such as air conditioning.
As well as these functional groups, the detector also requires an administration group. Here, general settings are activated, including calibration of the light sensor.


General settings
Light sensor
Light output
Slave
HVAC 1
HVAC 2
HVAC 3

2 IR REMOTE CONTROL (optional)

GW A9540

In addition, GEWISS KNX occupancy and motion detectors can be controlled via the KNX bus using infrared (IR) remote control. The optional IR-PD-KNX remote control, item no. 92123, is available as an accessory.

2.1 Special functions

The “Reset” button resets the detector. Here, the detector behaves as it does on bus voltage return. The parameter settings activated there are used.
The “Prog.” button puts the detector in programming mode, in order to program a physical KNX address.

2.2 Operating modes and remote control buttons

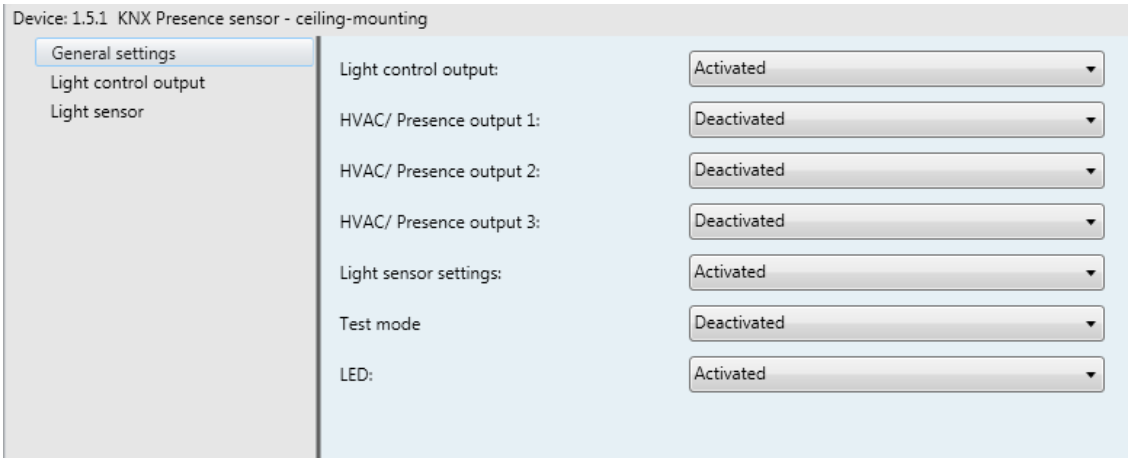
Depending on the detector’s current mode, some remote control functions may be blocked. The detector’s mode can be modified by KNX telegrams. The following five modes exist:
• Not programmed: The detector has not yet been programmed or “downloaded” by ETS
• Standard: The detector is working in normal mode (master)
• Slave: The detector is working in slave mode
• Test: The detector is in test mode
• Locked: The detector is locked
In each mode (except for when the detector is locked), the detector can be locked or unlocked with the remote control. In locked mode, there are generally fewer remote control functions available

IR Remote control		Not programm.		Standard mode		Slave mode		Test mode		Locked	
		🔒	🔓	🔒	🔓	🔒	🔓	🔒	🔓	🔒	🔓
Set Value/threshold 1000lux	1000 Lux				X				X		
Set Value/threshold 500lux	500 Lux				X				X		
Set Value/threshold 200lux	200 Lux				X				X		
Set Value/threshold 100lux	100 Lux				X				X		
Read-in current light value	👁				X						
Set Value/threshold 20lux	20 Lux				X				X		
Burn-in function on	100h on				X				X		
Burn-in function off	100h off				X						
Dim up	max ▲				X						
Dim down	min ▼				X				X		
Follow-up time 1 min	1 min				X				X		
Follow-up time 5 min	5 min				X				X		
Follow-up time 10 min	10 min				X				X		
Follow-up time 15 min	15 min				X				X		
Follow-up time 30 min	30 min				X				X		
Follow-up time 60 min	60 min				X				X		
Automatic mode	☀				X				X		
Semi-automatic mode	☀				X				X		
Corridor function ON	Corr ON				X				X		
Corridor function OFF	Corr OFF				X				X		
Led ON	LED on				X		X		X		
Led OFF	LED off				X		X		X		
KNX programming button	Prog.		X		X		X		X		
Test mode ON/OFF	TEST			X	X				X		
Reset	RESET	X	X	X	X	X	X	X	X		

3 GENERAL SETTING

3.1 Activate/deactivate outputs

If light output or one of the three HVAC/occupancy channels is activated, additional parameter settings appear, for setting up detail functions.
Only when a channel is activated do its parameters and communication objects appear.



3.2 Test mode

Test mode is for checking the detection area. If movement is detected, the lighting switches on for 2 seconds and then off again. The duration of switch-off depends on the length that was set up for the safety pause.

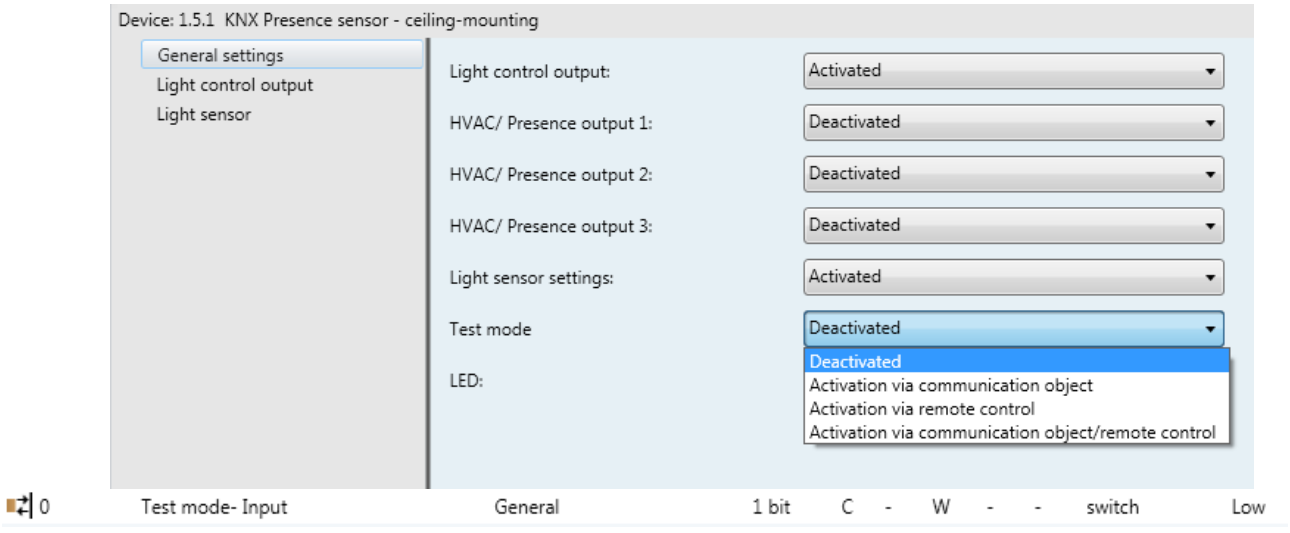
Test mode can be activated as follows:

- with a 1-bit “1” telegram on the “Test mode – Input – General” communication object
- with the “Test” button on the remote control
- with both the communication object and the remote control

Test mode can be deactivated at any time as follows:

- automatically after 3 minutes
- after the “Reset” button on the remote control is operated
- with a “0” telegram on the “Test mode – Input – General” communication object

The test mode function must first be activated in General Settings.

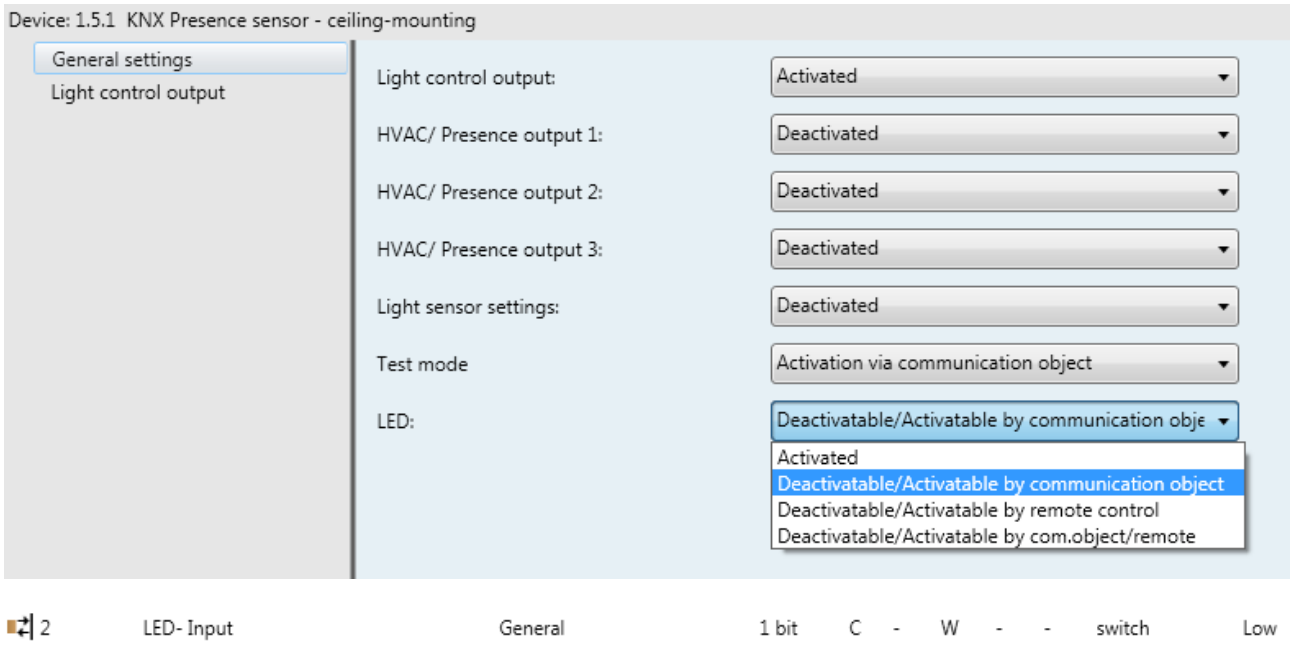


3.3 Led

Since the integrated LED can be detected as a source of interference in some locations, there is an option to switch it off after programming with ETS.

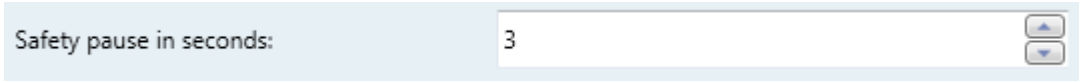
The LED can be switched off and on as follows:

- using the “LED – Input – General” communication object (1-bit “0” telegram: switch off / 1-bit “1” telegram: switch on)
- with the “LED off” and “LED on” buttons on the remote control
- with both the communication object and the remote control



3.4 Safety pause

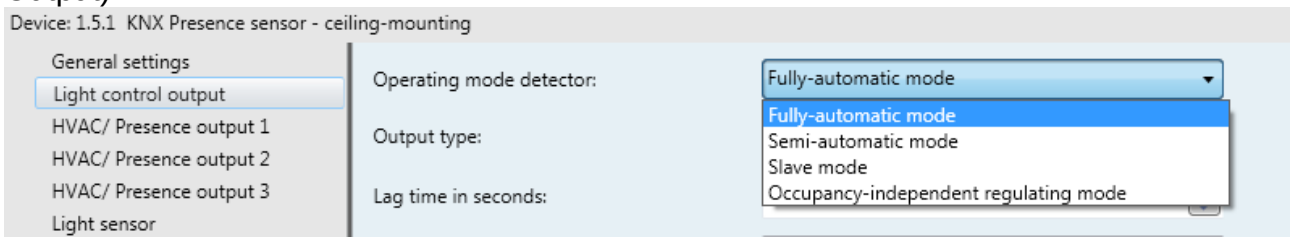
The safety pause is to prevent optical feedback and reactivation with no movement, for example because of thermal interference. It is defined as the shortest period between switching off and switching back on the lighting.

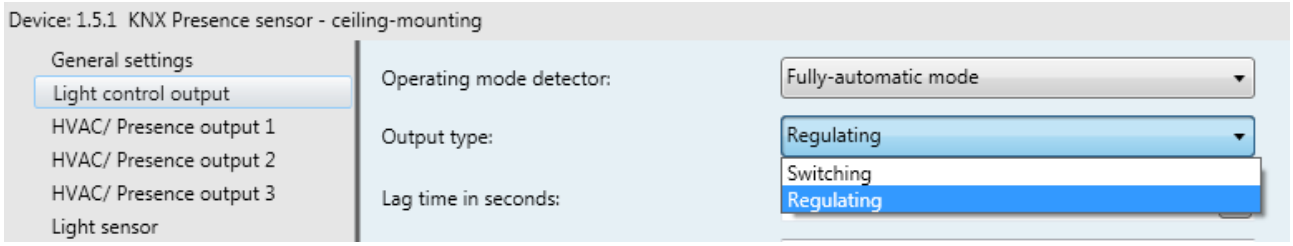


4 LIGHT OUTPUT SETTING

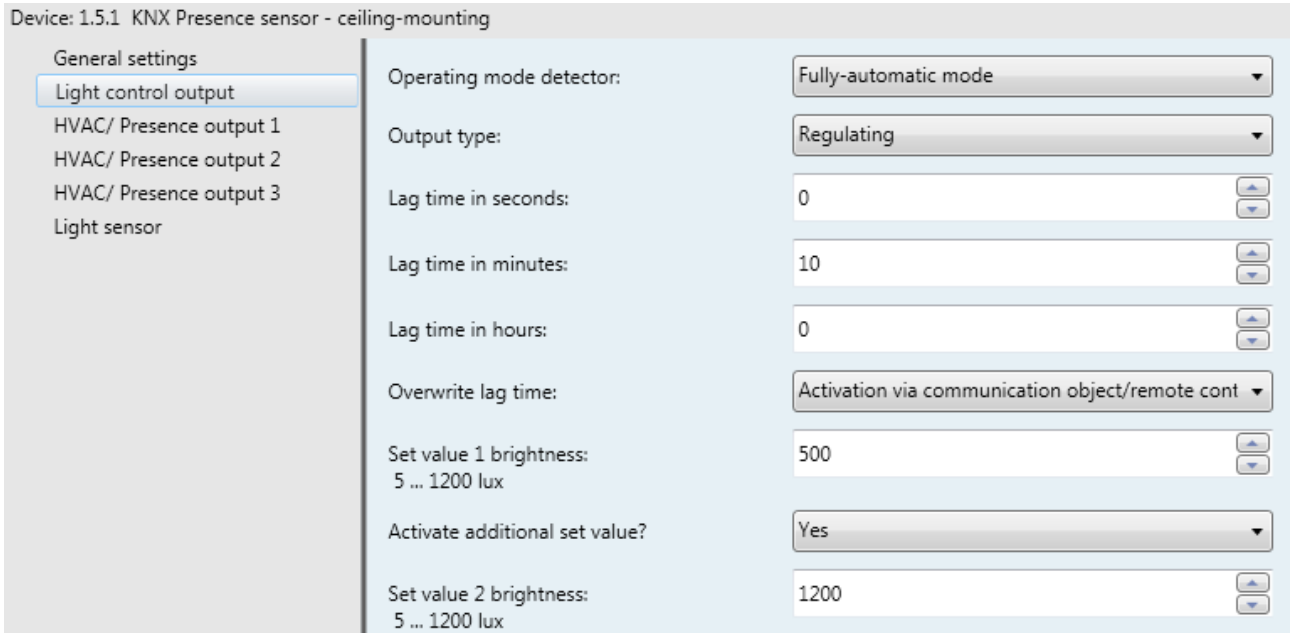
4.1 Basic settings

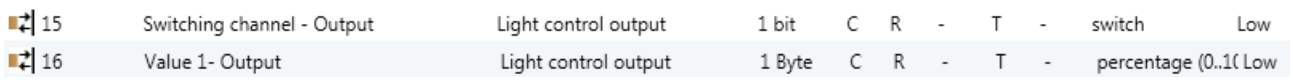
During project configuration, it is advisable first to set parameters for mode (full automatic, semi-automatic, slave or occupancy-independent regulation) and output type (switching or regulation). Output type affects the output object. In switching mode, a 1-bit object (15: Switching channel – Output) is used, and in regulating mode a 1-byte object (16: Value 1 – Output).

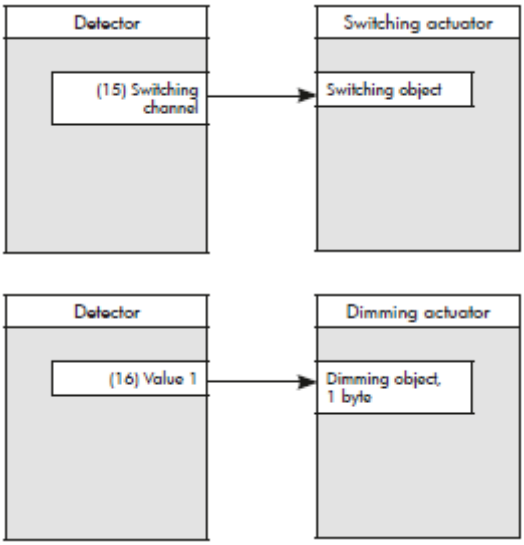




After that, it is recommended that you define the brightness threshold or set value and the follow-up time. Following these basic settings, the detector is ready for service. All other settings/parameters are for optimization or for adjustment in particular situations.





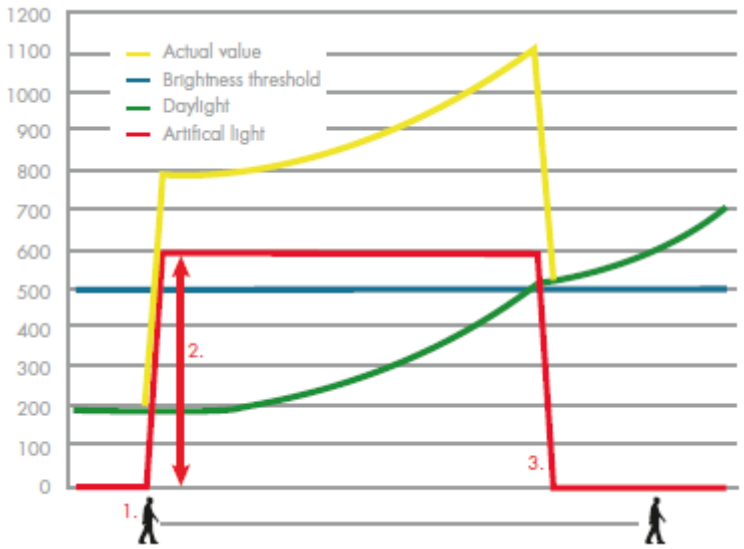


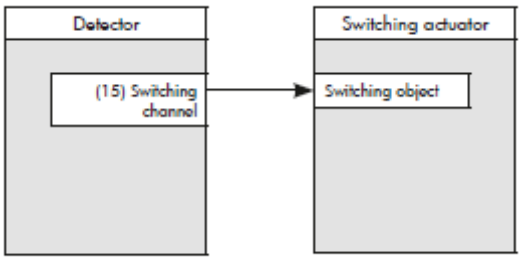
4.2 Output type

The “Output type” parameter defines whether the detector should work in switching or regulating mode. In regulating mode, the detector regulates the brightness to the set value given. The corresponding dimming actuators on the opposite side are used for this.

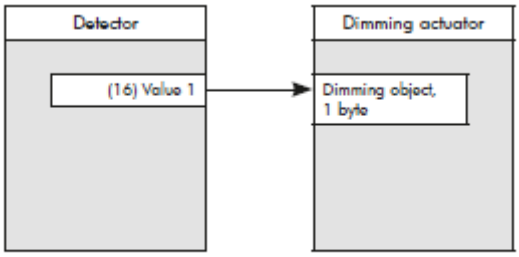
In switching mode, the detector only switches on and off. Normally, this is performed via 1-bit switching telegrams. Switch actuators are to be found on the opposite side.
However, instead of 1-bit telegrams, 1-byte or scene telegrams can also be sent. Here, the detector is in switching mode, i.e. it is not regulated, but when switching on, the 1-bit switching telegram is replaced with a value telegram (0-100%) or a scene number. The same applies for switching off.

Switching mode

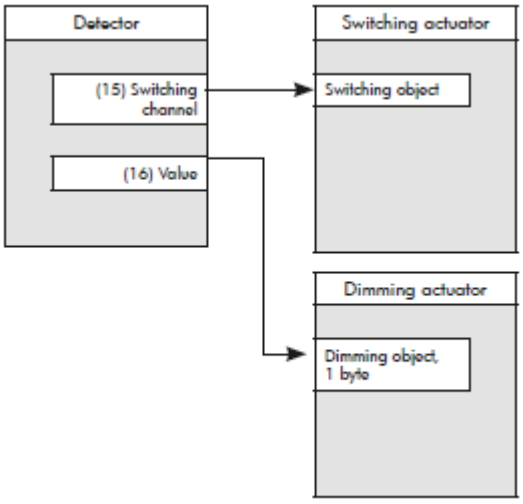




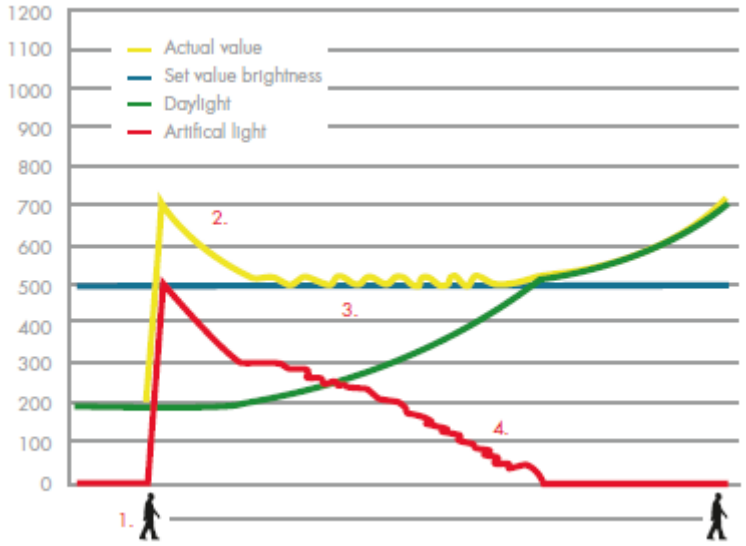
Switching mode 1 bit

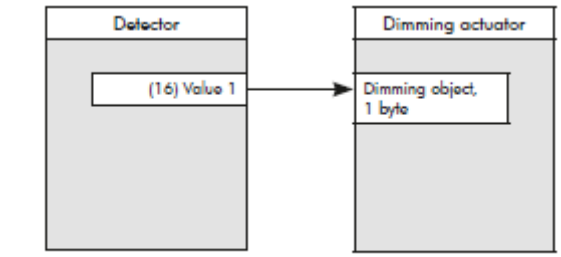


Switching mode 1Byte

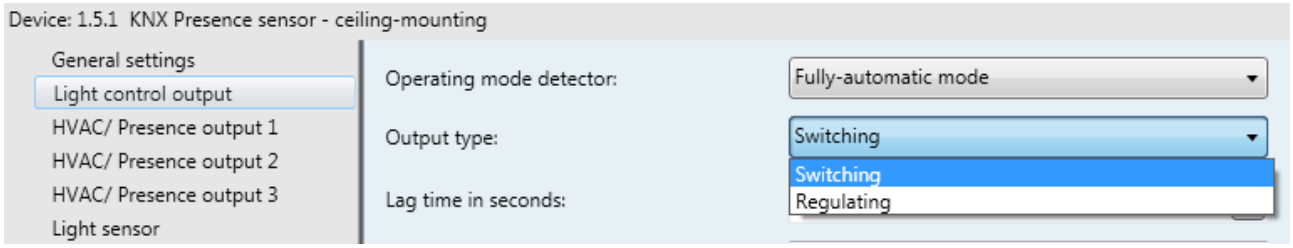


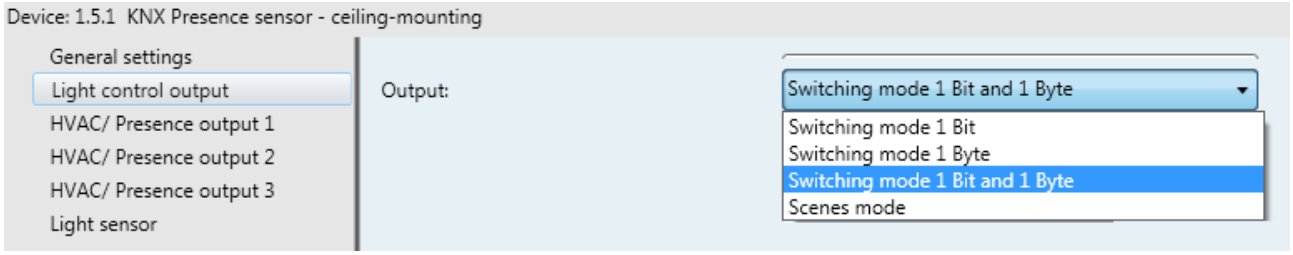
Regulation mode

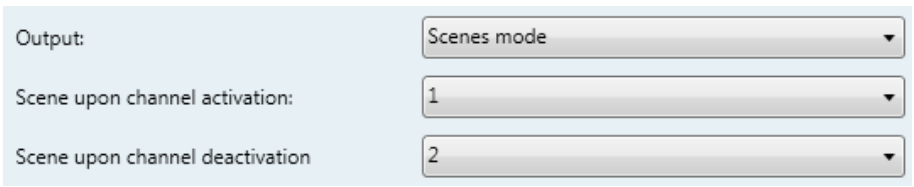




Dimming mode 1 byte



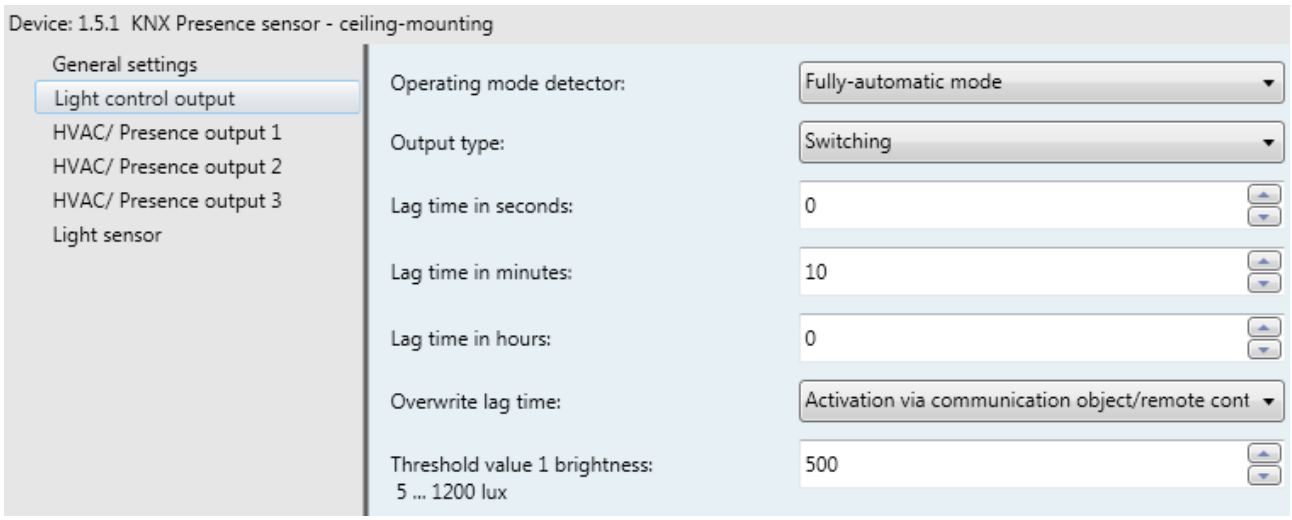


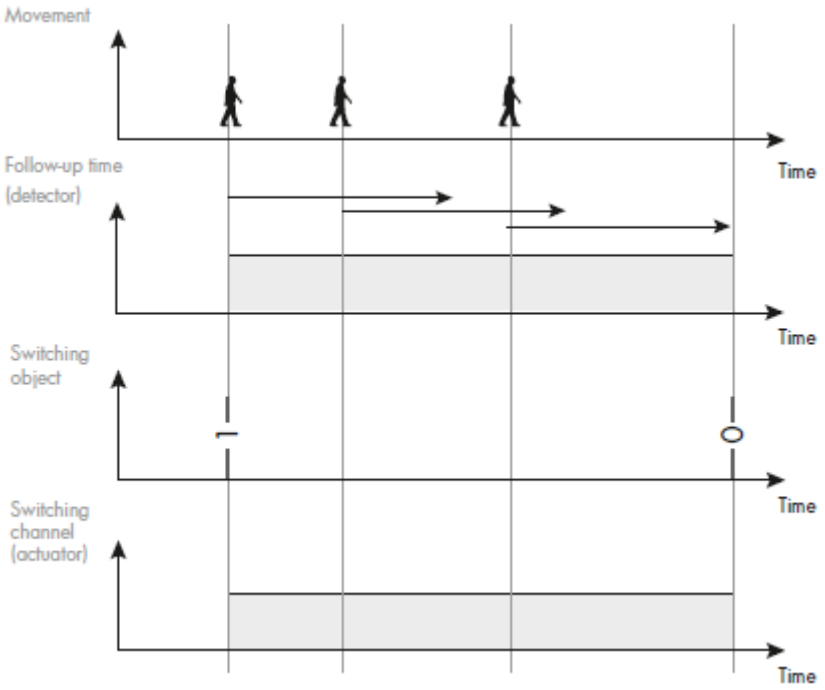


15	Switching channel - Output	Light control output	1 bit	C	R	-	T	-	switch	Low
16	Value- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..1(	Low
16	Scene- Output	Light control output	1 Byte	C	R	-	T	-		Low

4.2.1 Follow-up time parameter

The follow-up time determines how long the lighting remains on after the last detected movement. Each new movement restarts the follow-up time. Follow-up time is set under “Follow-up time in seconds”, “Follow-up time in minutes” and “Follow-up time in hours”, and is produced by adding these three times.





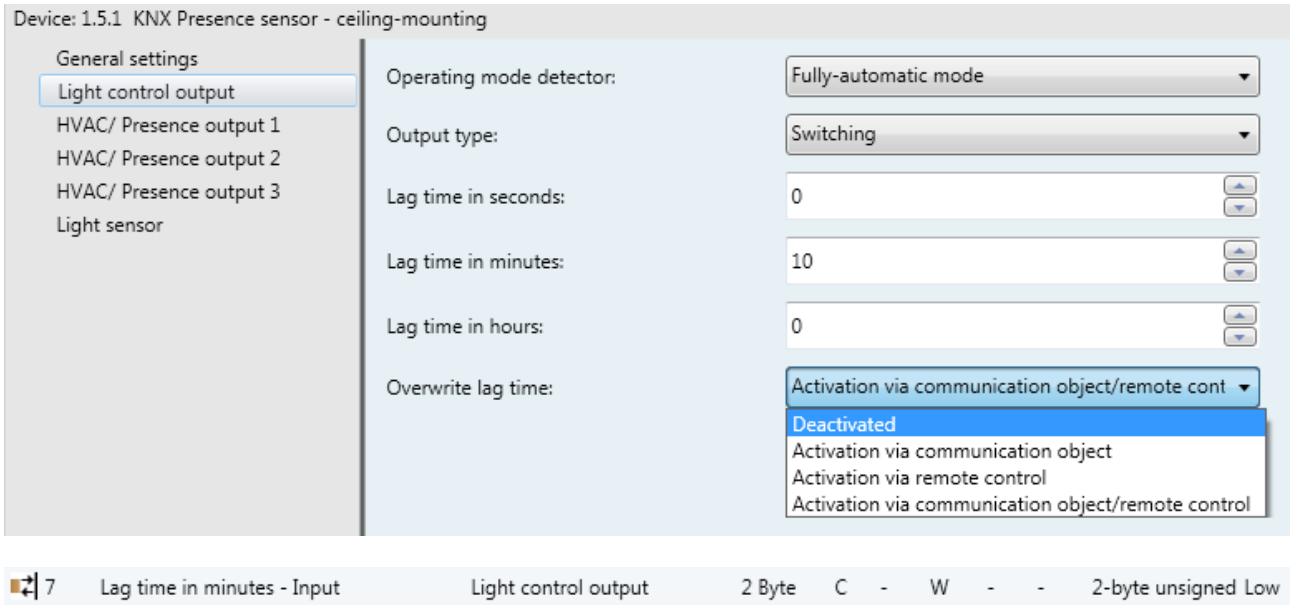
With fluorescent lamps, a follow-up time of at least 10 minutes is recommended, to increase the lifespan of the lamp.

The shortest follow-up time is approx. 100 ms (input of 0/0/0).

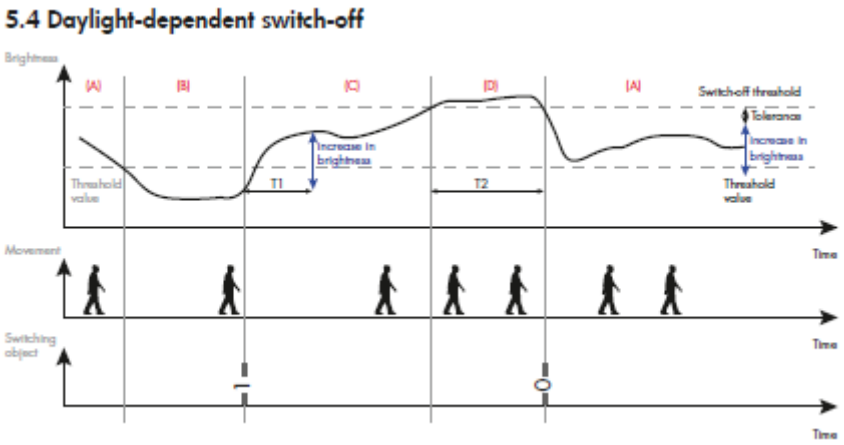
The occupancy detector follow-up time can be changed via the “Follow-up time in minutes – Input – Light output” communication object and/or by remote control.

The communication object is a 2-byte object. Follow-up time is given in minutes.

Using the remote control (optional), predefined follow-up times can be set (1 min, 5 min, 10 min, 15 min, 30 min, 60 min). The detector must previously have been unlocked for this (grey button, open lock).
As soon as a new value has been specified via remote control or via the “Overwrite follow-up time in minutes – Input” communication object, the occupancy detector works with the newly specified time.



4.3 Daylight-dependent switch-off



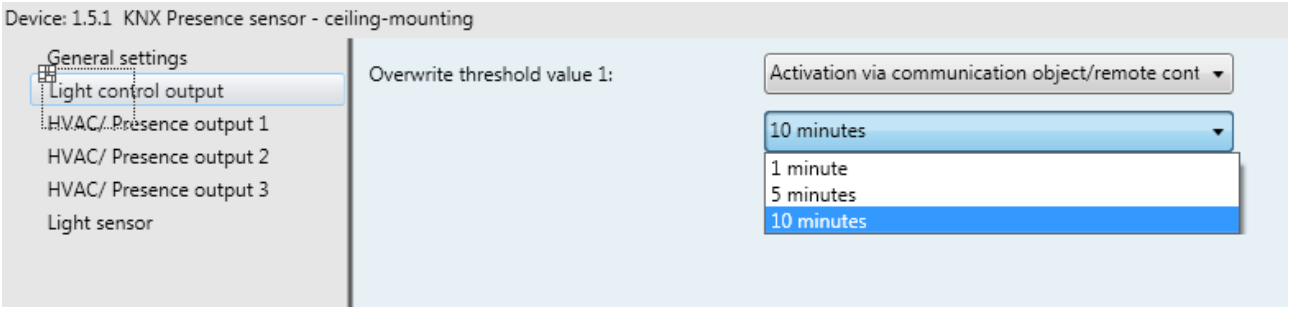
In the example (switching mode), the light value is initially above the brightness threshold. There is no reaction in terms of light output when movement is detected (A). If the light value falls below the threshold, and the occupancy detector detects movement, the lighting is switched on (B).

The curve (brightness) describes the total light intensity in a room with daylight and artificial light. After the lighting is switched on, time T1 starts. This time can be set in the parameters under “Calculate threshold for switching off after”. As seen in the diagram, fluorescent lamps for example only reach their maximum brightness after a few minutes. After time T1, the switch-off threshold is calculated. The increase in brightness achieved in time T1 is added to the threshold in the parameter settings. In addition, a selectable tolerance is added to this value. In regulating mode, this setting does not apply, as regulation is made to the set value.

During the time in which the actual light level is below the switch-off threshold, any movements, which occur, re-trigger the follow-up time, so that the lighting remains on (C).

If the proportion of daylight rises slowly to (C) and exceeds the switch-off threshold (D), delay time T2 starts. This is Daylight-depending shutdown (switch off), which causes the lighting to be switched off although the follow-up time has not yet expired. The light value over this time must remain above the switch-off threshold. This function is for energy saving. The lighting switches off after time T2. In regulating mode, T2 cannot be changed. The duration here is 60 seconds.

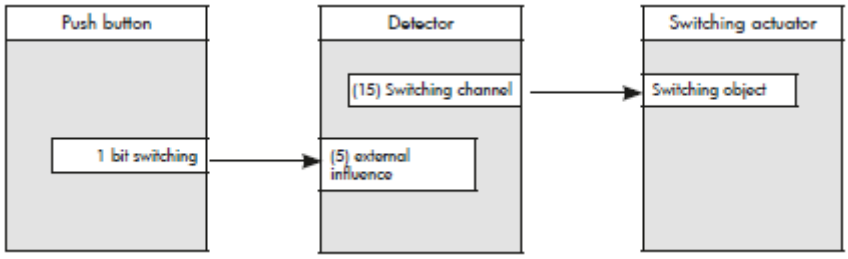
For fluorescent lamps, we recommend a duration of 5-10 minutes. For resistive loads such as incandescent lamps, a duration of 5 minutes is sufficient.
Daylight-depending shutdown (switch off) is not to be confused with follow-up time.



4.4 Manual control options

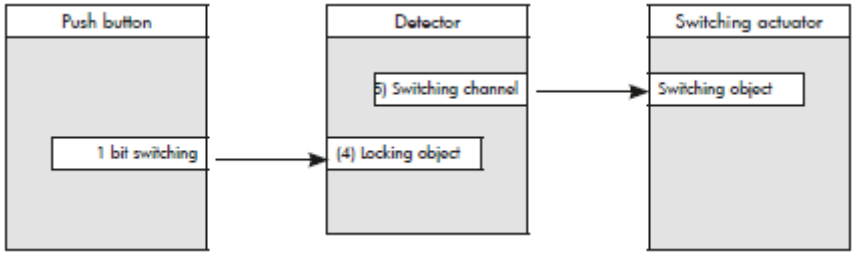
The main task for a detector is automation of lighting. This results in energy saving from the lighting (light is only switched on if it is really needed), as well as increased convenience (light switches on automatically or constant light regulation maintains even illumination in the workplace). To fulfil these tasks, the detector switches or regulates the light actuators (switching actuators, dimming actuators).

The detector contains all the sensors and analyses the values measured by them for switching or regulating the lighting. Therefore, there are no further components required, such as light sensors, timers or connectors. Manual intervention in lighting control is not recommended, as this may cause behaviour that can be interpreted as errors. The light fitting controlled by the detector may not be influenced by other KNX sensors (apart from the detector).
In switching mode, the detector switches the light on (100%) or off (0%). It therefore has two states. Automatic operation can be controlled externally through the “External influence – Input – Light output” object. An external switch (via the KNX bus) can cause the detector to switch the connected actuators. The reaction varies according to the parameter settings selected.



5	External interference - Input	Light control output	1 bit	C	-	W	-	-	switch	Low
15	Switching channel - Output	Light control output	1 bit	C	R	-	T	-	switch	Low

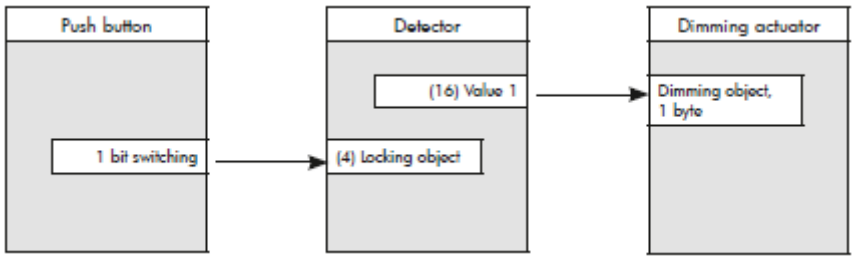
Alternatively, the detector´s locking function can be used to set the connected actuator to a fixed position (off or on, no automatic operation).



4	Locking object - Input	Light control output	1 bit	C	-	W	-	-	switch	Low
15	Switching channel - Output	Light control output	1 bit	C	R	-	T	-	switch	Low

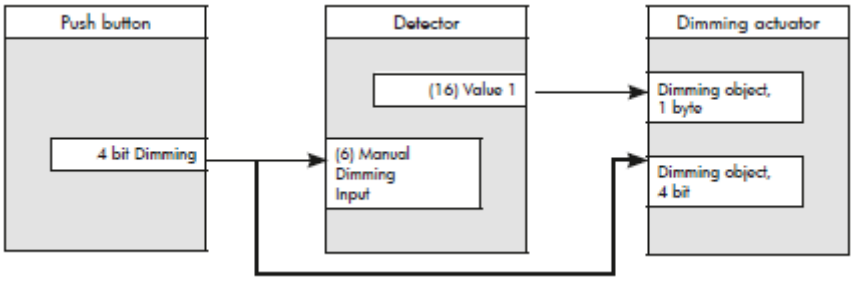
In regulating mode, there are more than two states (on and off). It is often desired to dim to a value between 0% and 100%, which should then be maintained without any automatic adjustment. For this, the locking function can be used. When activating a lock, a 1-byte

telegram can be sent, to set the dimming actuator to the desired value. This is a fixed value. It cannot be changed or modified during operation.



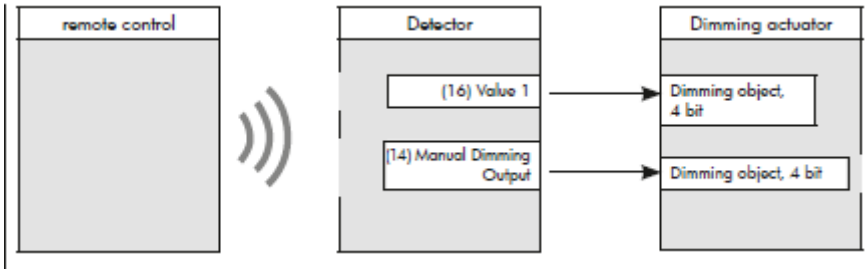
4	Locking object - Input	Light control output	1 bit	C	-	W	-	-	switch	Low
16	Value- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..1(	Low

Also, the detector only offers the option to dim the actuator using a push button. This manual dimming must be transmitted to the detector using the “Manual Dimming – Input – Light output” object. The KNX dimming push button (4 bit) now sends the dimming commands to both the dimming actuator and the detector. The detector then no longer sends dimming telegrams to the actuator via the “Value 1/2 – Output – Light output” objects. Only the switch-off telegram is transmitted, after the expiry of the follow-up time (no more people in the room). Finally, the occupancy detector reverts to the mode set in the parameters.



6	Manual dimming - Input	Light control output	4 bit	C	-	W	-	-	dimming control	Low
16	Value- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..1(	Low

In addition, manual dimming is available via the optional remote control. In this case, dimming commands are transmitted from the remote control to the detector. The detector forwards these values to the dimming actuator via the “Manual dimming – Output – Light output” object.
The max button increases the light level for as long as it is pressed, and the min button dims the light level for as long as it is pressed (equivalent to KNX 4-bit dimming). The detector must be set to unlocked for this.



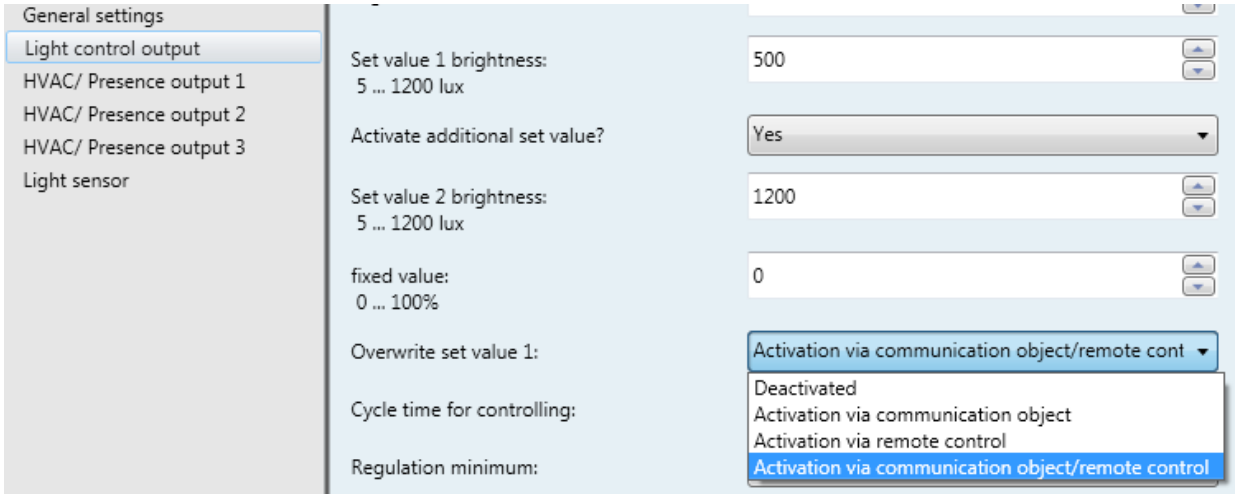
14	Manual dimming - Output	Light control output	4 bit	C	R	-	T	-	dimming control	Low
16	Value- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..1(	Low

4.5 Brightness threshold 1 and 2 (switching) or set value 1 and 2 (regulating)

The set value or brightness threshold is the lux value desired for the room. This can be freely selected in a range of 5-1200 lux.
Recommended values (room brightness):
Transit areas: approx. 200 lux
Working areas: approx. 600 lux
Detailed or close-up activities: approx. 1000 lux

In switching mode, two brightness thresholds can be stored. These two values can be swapped using the 1-bit object “Toggle threshold value 1 and 2 – Input”. When a swap takes place, the 1-bit object “Current threshold – output” sends a response. Here, “0” telegrams describe threshold 1 and “1” telegrams threshold 2.

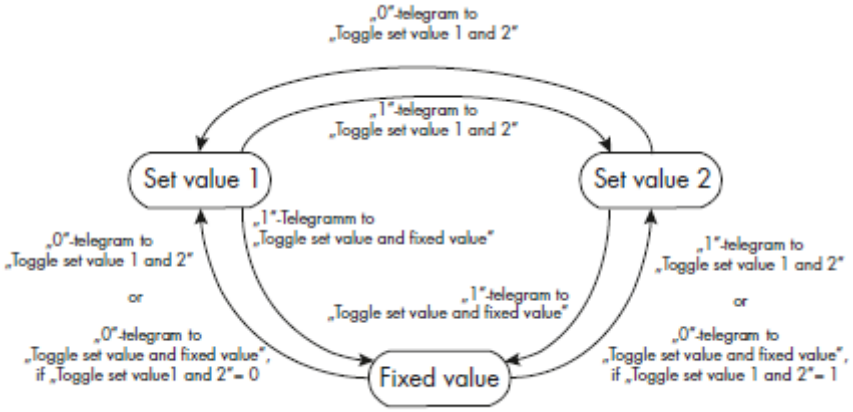
As well as this fixed brightness threshold pre-set, the respective first value can be overwritten using the 2-byte object “Overwrite threshold 1 – Input – Light output”.
When unlocked, there is also the option to change the values using the optional remote control. Here, the following values are available: 100 lux, 200 lux, 500 lux and 1000 lux.



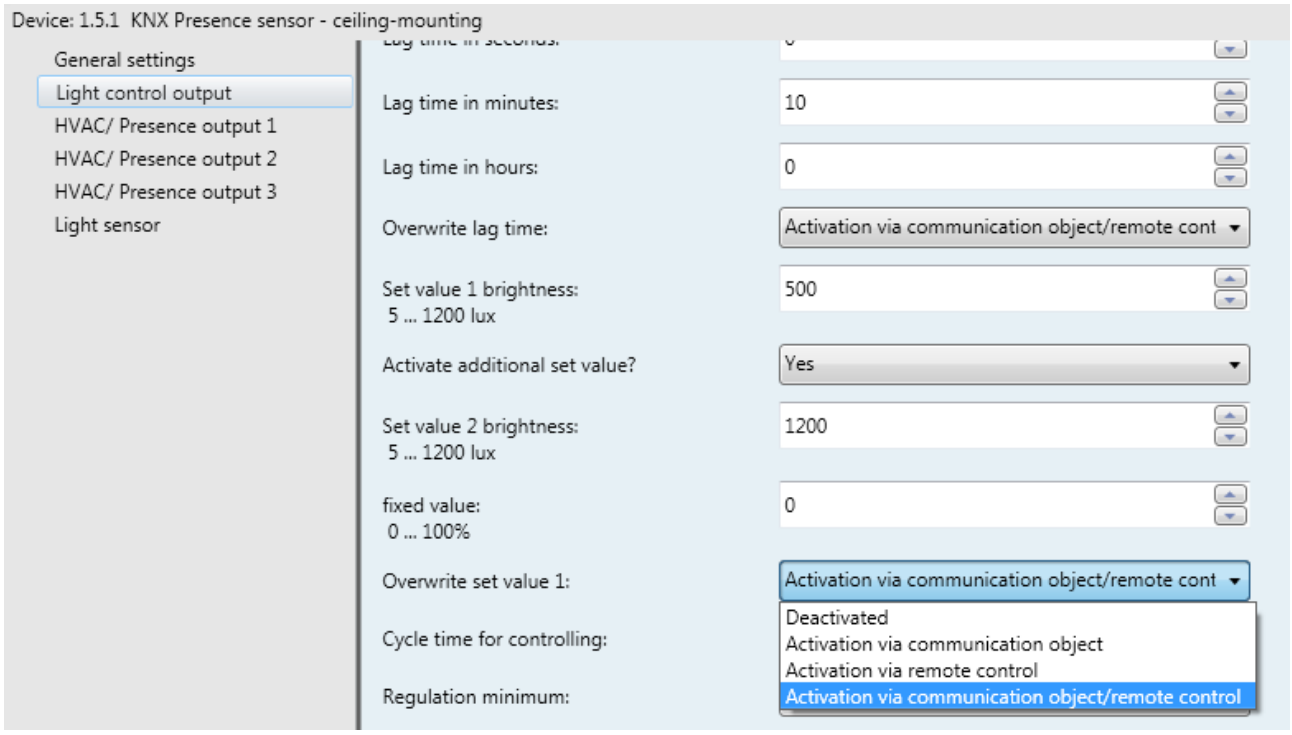
8	Overwrite set value 1- Input	Light control output	2 Byte	C	-	W	-	-	lux (Lux)	Low
9	Toggle set value 1 and 2- Input	Light control output	1 bit	C	-	W	-	-	enable	Low
15	Switching channel - Output	Light control output	1 bit	C	R	-	T	-	switch	Low
18	Current set value/ fixed value- Output	Light control output	1 Byte	C	R	-	T	-		Low

In regulating mode, the term set value is used instead of brightness threshold. As well as set value 1 and 2, there is another value, the fixed value. A fixed value is defined if, for example, regulation should not occur at night, but instead the light should be switched on at a particular value when movement is detected. If the fixed value is activated, the detector works as a movement detector and not an occupancy detector (no regulation function). It merely switches the light on regardless of brightness level.

A 1-bit “0” or “1” telegram can be used to switch to and fro between set values 1 and 2 and the fixed value.



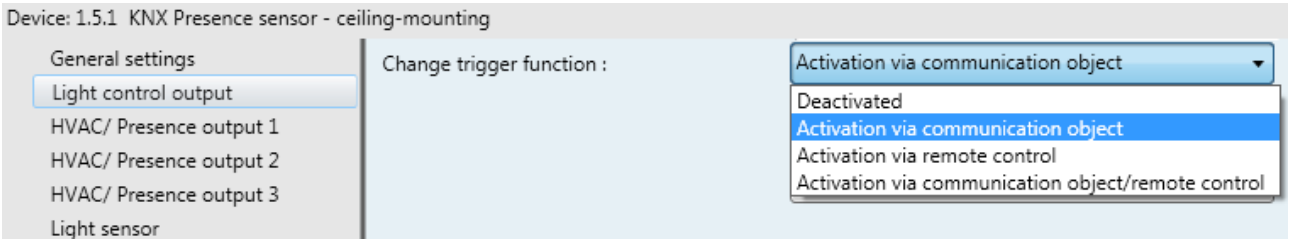
On a mode change, the currently active mode is sent back via a response object, and can be queried via the “Actual set value/fixed value – output” communication object: set value 1 = 1; set value 2 = 2; fixed value = 3.



8	Overwrite set value 1- Input	Light control output	2 Byte	C	-	W	-	-	lux (Lux)	Low
9	Toggle set value 1 and 2- Input	Light control output	1 bit	C	-	W	-	-	enable	Low
10	Toggle set value and constant light - Inpu	Light control output	1 bit	C	-	W	-	-	enable	Low
16	Value- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..1(	Low
18	Current set value/ fixed value- Output	Light control output	1 Byte	C	R	-	T	-		Low

4.7 Change trigger function

In full automatic mode, the occupancy detector is activated by detection of a movement. In contrast to full automatic, semi-automatic mode means that switch-on must occur manually. This takes place via a 1-bit “1” telegram on the “External influence – Input – Light output” object.
It is possible to swap between full automatic and semi-automatic modes during operation using a communication object (Switch-on upon movement – Input) and/or the remote control while the detector is unlocked.
Communication object 13, “Switch-on upon movement – Input”, is visible if the parameter “Change trigger function” is set to “Activation via communication object” or “Activation via communication object/remote control”. This parameter also covers use of the remote control.
If the parameter setting for the detector is full automatic mode, it can be swapped to semi-automatic mode and back. A 1-bit “1” telegram switches the detector to full automatic mode, and a 1-bit “0” telegram to semi-automatic mode.



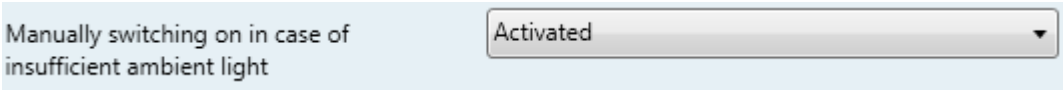
5	External interference - Input	Light control output	1 bit	C	-	W	-	-	switch	Low
13	Switch on by movement - Input	Light control output	1 bit	C	-	W	-	-	enable	Low

4.8 Dynamic semi-automatic mode/daylight-dependent resetting

In semi-automatic mode, the detector must be manually switched on by an external push button (via the KNX bus). The detector automatically switches off if for one follow-up time no movement has been detected or the ambient light is bright enough.

However, natural light often fluctuates considerably, for example because of passing clouds. If the detector has switched off the light because it is bright enough, it must be reactivated manually when daylight drops, which, for example could disrupt the working routine in an office.

By activating the “Daylight-depending resetting” parameter, this behaviour can be influenced. After the detector has switched off because ambient light is bright enough, the follow-up time continues to run in the background. So long as there is movement, this time will keep being restarted. If the follow-up time is still running, and the ambient light falls under the selected threshold, the detector switches back on automatically if the parameter has been activated (without the use of an external switch) when movement is detected.
Then, the external push button only has to be used if no movement is detected for an entire follow-up time, for example if everybody has left the room.



4.9 Manual switching—on in case of sufficient ambient light / forced shutdown (switch off)

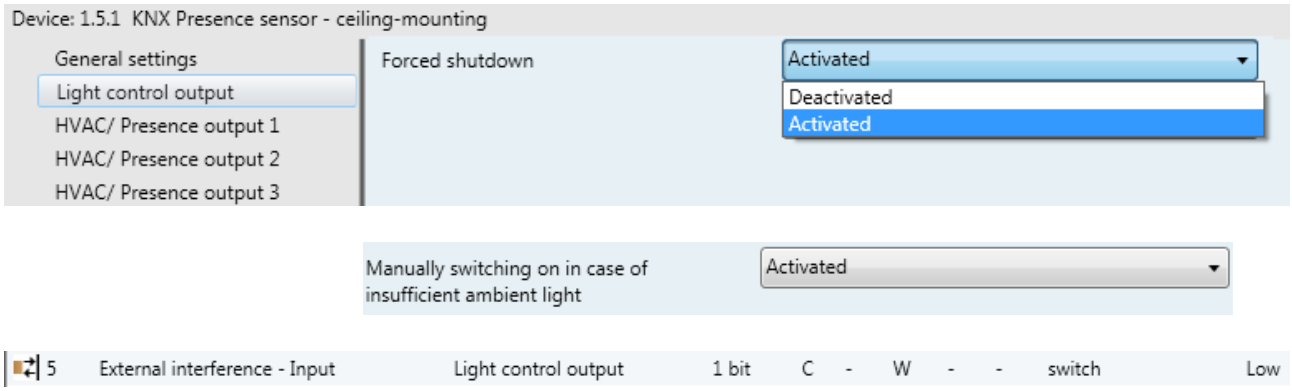
In full automatic mode, the detector automatically switches on as soon as it detects movement and ambient light is too low. If switch-on is also permitted via an external switch at high ambient light levels (above the selected threshold), this must be enabled through a parameter (Manual switching-on in case of sufficient ambient light).

In semi-automatic mode, the detector must essentially be switched on manually. Here, a parameter defines whether the detector can be switched on only at a brightness level below the selected brightness threshold, or also above it.

If the detector is switched on manually at a high ambient light level (above the selected threshold), its behaviour depends on the selected mode:

- In switching mode, the detector switches on the lighting and remains active as long as there are people in the room. After the follow-up time has expired, the lighting switches off (re-triggered by each new movement). If forced shutdown is active, the lighting is switched off after 15 minutes if the ambient light is continuously bright enough.
- In regulating mode, the detector switches on the lighting at 10% for the duration of the follow-up time (re-triggered by each new movement) or for forced shutdown (switch off), for 15 minutes, as long as brightness remains above the set value. As soon as the light level falls below the set value when the lighting is active, lighting regulation is used (starting from 10%).

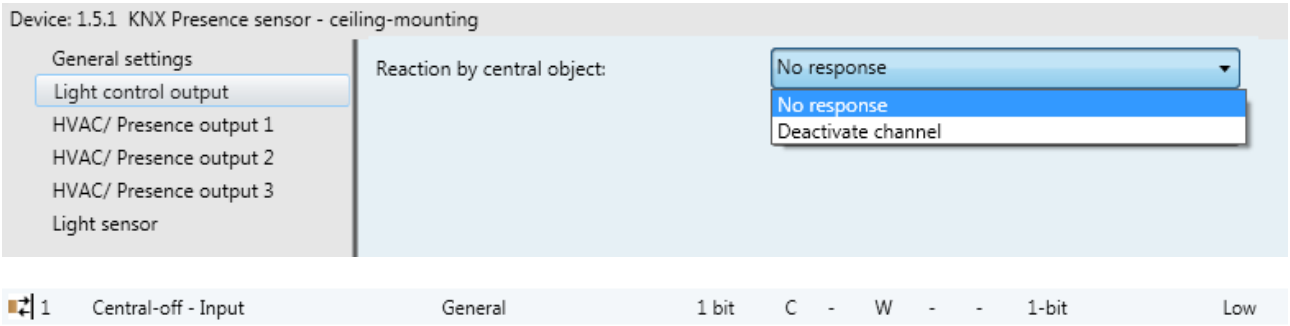
Manual switching-on when ambient light is sufficient reduces the potential for saving energy. With forced shutdown (switch off), the manually “forced” switch-on period can be limited to 15 minutes. This parameter is visible once the “Manual switch-on in case of sufficient ambient light” parameter is activated. Forced shutdown (switch off) is active if a manual switch-on takes place at sufficient ambient light levels. If it continues to be bright enough for 15 minutes, the regulating/switching channel is switched off. In regulating mode, if brightness falls below the set value, normal regulation is used.



4.10 Centralised-switching

If the detector has switched on the light because of a movement, the light can be switched off early by a 1-bit “0” telegram on the central object. This central-OFF command can be performed with a delay. During the delay period, the detector checks whether there is still movement taking place in the room. If movement is detected during the delay time, this aborts the central-OFF function.

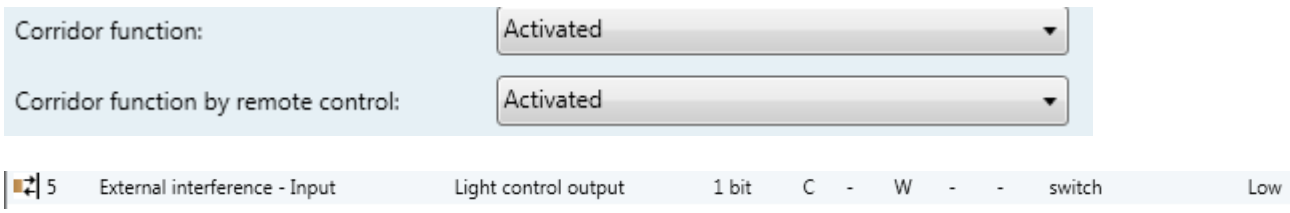
Example: The caretaker switches the lights off centrally in the evening. However, the light may only be switched off if there are in fact no more people in the office. If monitoring via the delay period is not required, the time is set to zero.
Each channel (light and HVAC) can be set separately to respond to a central-OFF command or not.



4.11 Corridor function

If the detector has switched on the light in full automatic mode, it can be switched off manually via the “External influence – Input” object. After receiving the telegram via the object, the light remains switched off for the follow-up time that has been set despite any movements, and any movement during this time restarts the follow-up time. This function may be useful for presentations, for example, where the light has to remain off. This is the case if corridor function is deactivated.
In offices, the following disadvantage can occur: At closing time, the workers leave the office and turn off the light. In the corridor, a worker realises they have forgotten something, and goes back into the office. If corridor function is deactivated, the light does not switch on in this case. By contrast, if corridor function is activated, after manual switch-off, the detector returns to normal mode after a short time, i.e. when the worker goes back into the office, motion is detected and the light is switched on. The time for corridor function can be freely selected between 1 and 60 seconds.

Semi-automatic mode precludes corridor function.
Corridor function can also be activated via remote control. For this, the “Corridor function” and “Corridor function via remote control” parameters must be activated, and the detector must be in an unlocked state.



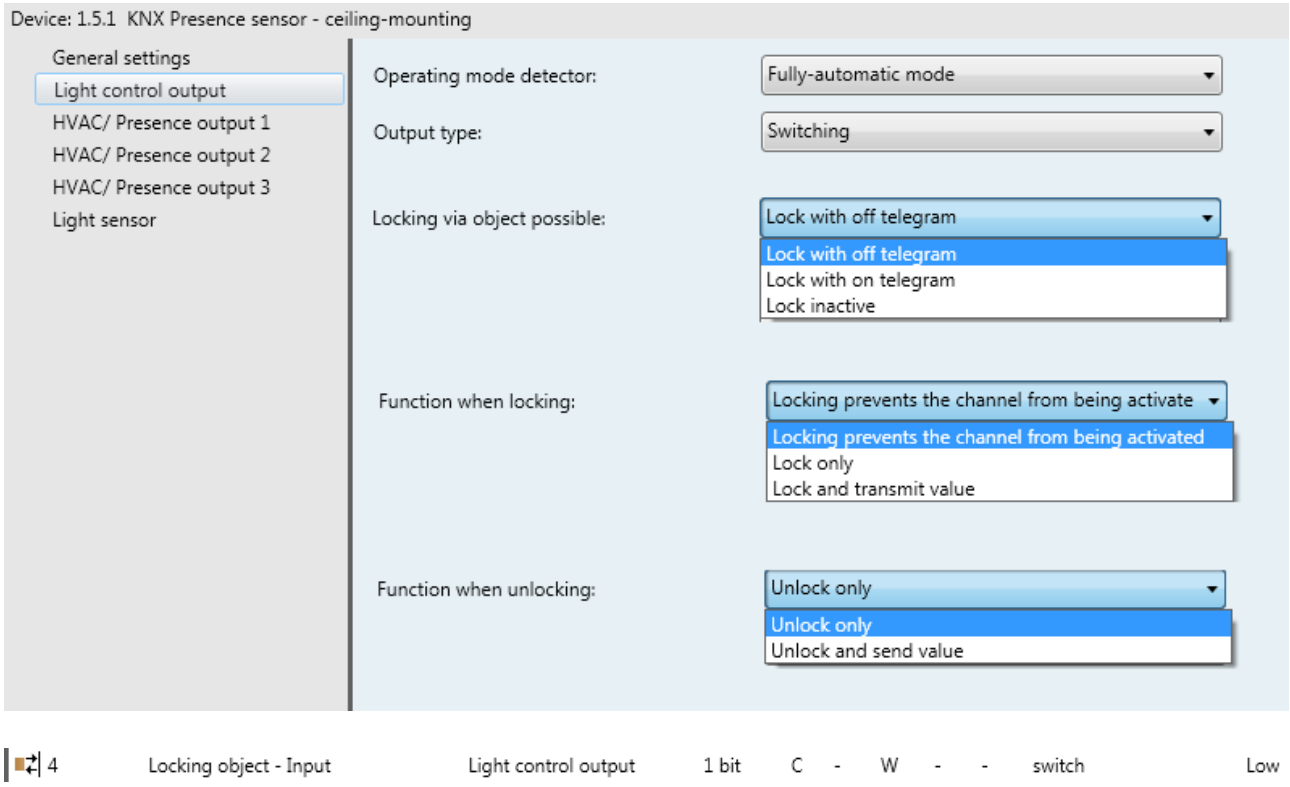
4.12 Locking function

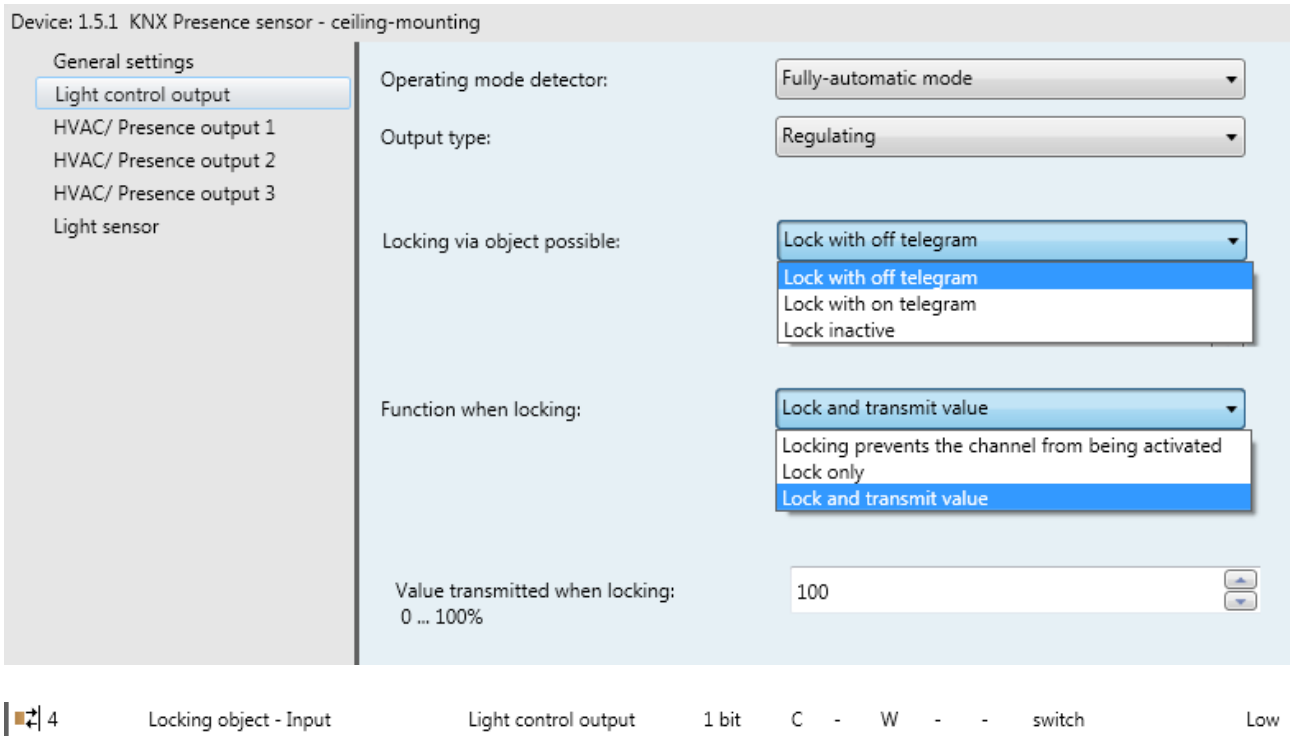
The locking function allows the occupancy detector to be locked, so that no telegrams are sent to the bus. The locking function is available for both switching and regulating modes for lighting, and for the three HVAC channels. You must select a locking value to choose which 1-bit object value (“1” or “0”) should activate locking.
When transitioning from unlocked to locked, an action can be triggered. A decision has to be made on which state light output is in. If the channel is switched on, i.e. a follow-up time runs, the locking can cause the situation in which this follow-up time expires before locking is activated (“Locking prevents the channel from being activated”). Then the channel is locked. Alternatively, locking can be active immediately. Here, there is the option to send an ON telegram, an OFF telegram or no telegram as an action.

Reaction upon unlocking can also trigger an action: send an ON telegram, OFF telegram or no telegram. If an ON telegram is sent, follow-up time is automatically started.

For locking, a dimming value (0-100%) can be set on a regulation output. If the device is unlocked, it automatically jumps back to its normal regulating mode.

While the locking function is active, the remote control cannot be used.





4.13 Bus voltage return

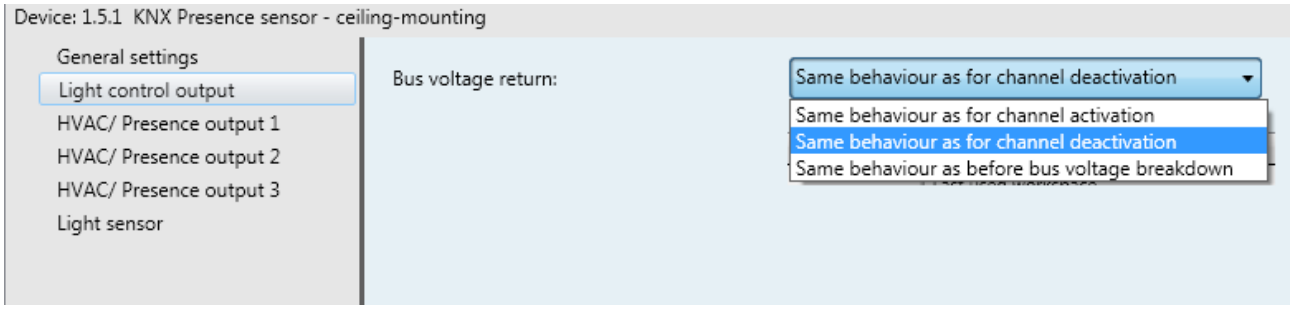
After bus voltage return, the detector requires a 60-second initialisation time, during which it records neither motion nor brightness. During initialisation, it is possible to switch a connected actuator on or off. If all connected loads are switched on at the same time after a bus voltage return, this overloads the supply. Conversely, if the connected loads are not switched one, there is a danger that the room remains dark and people could be injured.
The “Bus voltage return” parameter lets you define how the detector should behave on bus voltage return. For this, there are three selection options:

1) the connected loads are switched on
2) the connected loads are switched off
3) the state before bus voltage failure is restored

After bus voltage return, the detector sends corresponding telegrams via its output objects (via “Switching channel – Output – Light output” in switching mode; and via “Value 1 – Output – Light output” and “Value 2 – Output – Light output” in regulating mode).

For the HVAC/occupancy outputs, the “Detector transmits” parameter can be used to define which telegrams the detector sends to the bus. Behaviour defined under this parameter is taken into account on bus voltage return.

In regulating mode, there are two output objects (“Value 1 – Output – Light output” and “Value 2 – Output – Light output”). These behave the same way on bus voltage return. Both can send 0% or both 100%.

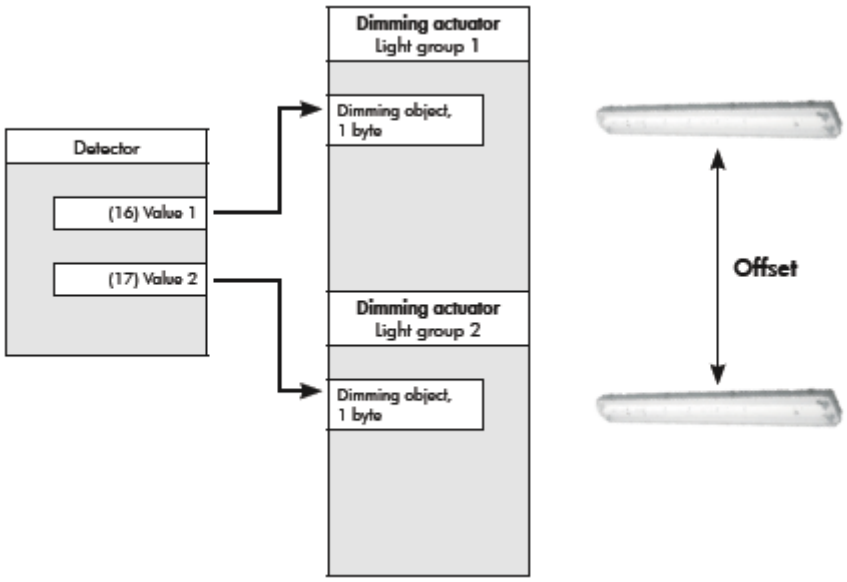


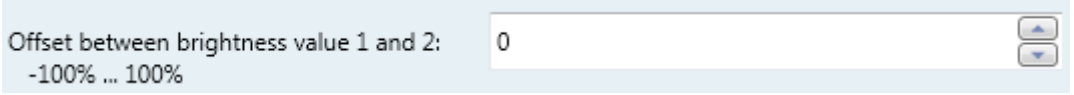
15	Switching channel - Output	Light control output	1 bit	C	R	-	T	-	switch	Low
16	Value 1- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
17	Value 2- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low

4.14 Additional functions in regulating mode

4.14.1 Regulation (dimming) of two light groups (offset)

If there is a requirement to regulate 2 light groups differently, this can be achieved using an offset. The base channel is defined as the “Value 1 – Output” communication object. If for example an offset of -30% is set in the parameters, the second channel switches on when the base channel has exceeded 30%. There is a permanent 30% difference in the regulated value between the two objects ““Value 1 – Output” and “Value 2 – Output”. If the base channel reaches 100%, then the second channel is automatically increased to 100%.
Note: It is not possible to control two light groups independently, i.e. with two different set values

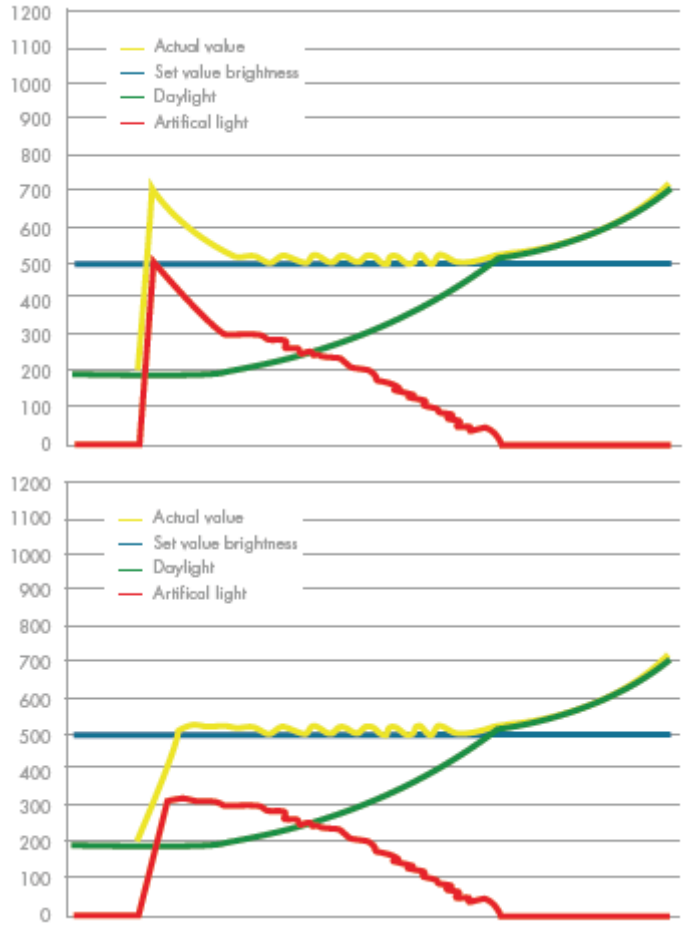


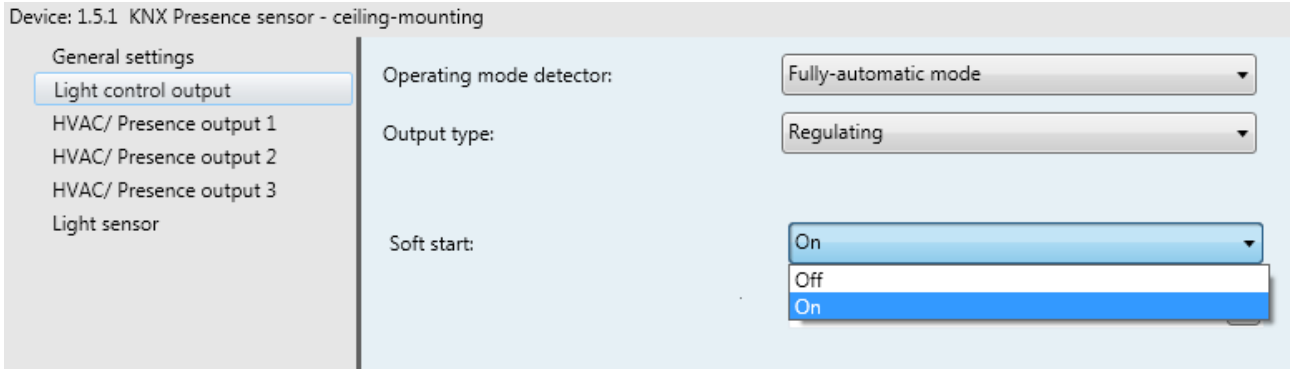


16	Value 1- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
17	Value 2- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low

4.14.2 Soft start

When motion is detected, the detector initially switches on the lighting to 100%, and then regulates it to the set value. With the soft start function activated, the detector regulates from 0% to the set value when motion is detected.

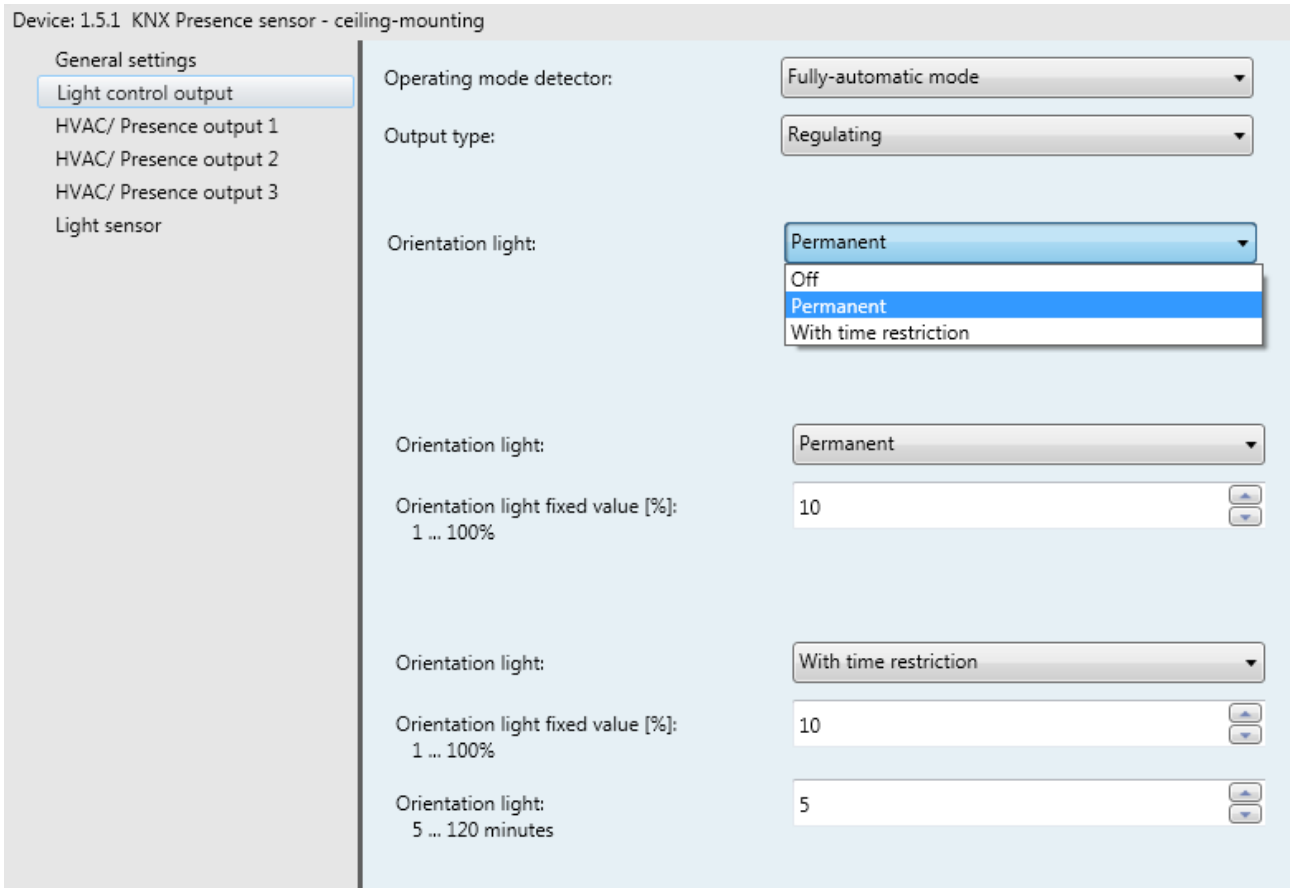




16	Value 1- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
17	Value 2- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low

4.14.3 Orientation light

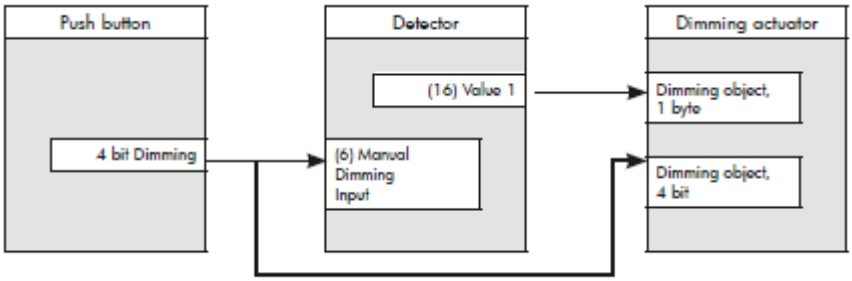
The orientation light function is for providing dimmed lighting after the selected follow-up time has expired. This can be set as a percentage. Provision of dimmed lighting can be time-limited or permanently-on while no motion is detected and ambient light levels remain below the selected value.
In orientation lighting, the selected offset between the “Value 1 – Output” and “Value 2 – Output” objects is set to 0%.



16	Value 1- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
17	Value 2- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low

4.14.4 Burn-in function for fluorescents

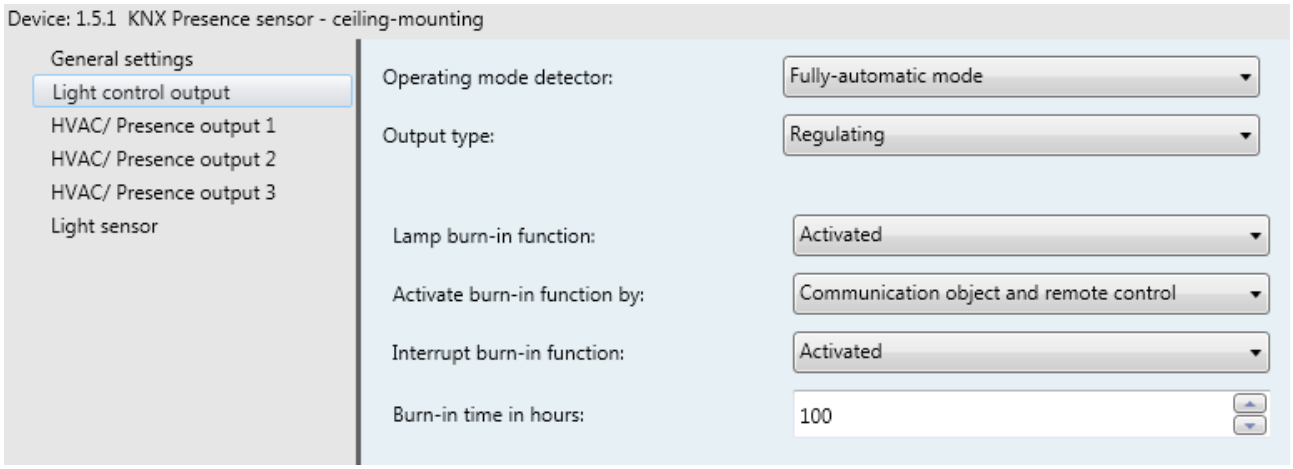
Before they are dimmed, new fluorescent lamps should be burned in for a certain period, to ensure a long life and flicker-free operation. The application provides a parameter for this, “Lamp burn-in function”, which can be activated or deactivated. If the function is activated, lamps will always be 100% switched on or completely switched off for the burn-in period. Regulation to the set value is not available.
The prerequisite for this is that the lights are not controlled directly via a dimmer switch, as shown in the following arrangement:



Burn-in time can be selected between 1-100 hours. There is an option to terminate a running burn-in time early, as long as the “Interrupt burn-in function” is activated. Therefore, a conscious decision has to be taken as to whether termination of the burn-in function should be permitted.

The current state of the burn-in time (time remaining) can be accessed via the “Retrieve burn-in time – Input” communication object, and is given via the “Burn-in time status – Output – Light output” object.

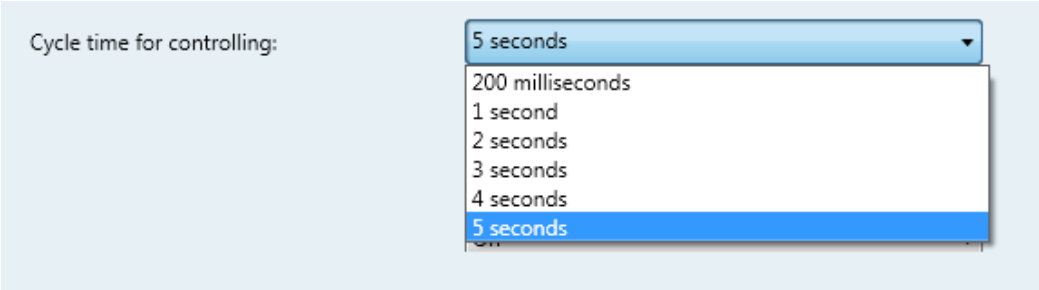
If the burn-in function is activated, this can be started with the optional remote control (“100h ON” button), via a communication object (“1” telegram to the “Start/stop burn-in function – Input” object) or via both methods.
If termination of the burn-in function is permitted, burn-in can be terminated early by pressing the “100h OFF” button, by a “0” telegram to the “Start/stop burn-in function – Input” object, or via both methods.



11	Start/Stop burn in function - Input	Light control output	1 bit	C	-	W	-	-	start/stop	Low
12	Reading burn-in time - Input	Light control output	1 bit	C	-	W	-	-	start/stop	Low
16	Value 1- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
17	Value 2- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
19	Burn-in time status - Output	Light control output	2 Byte	C	R	-	T	-	2-byte unsigned value	Low

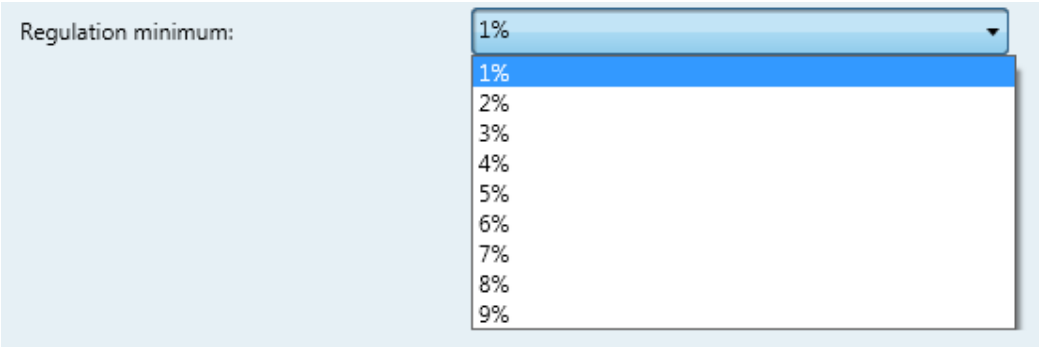
4.14.5 Regulation cycle time (Cycle time for controlling)

The “Cycle time for controlling” parameter controls the time delay between individual regulation telegrams.
If telegrams are sent too closely together, this can cause the lighting to fluctuate. Therefore, the standard time for this parameter is 3 seconds. If lighting fluctuation occurs, the “Cycle time for controlling” parameter must be set to a longer delay.



4.14.6 Regulation minimum

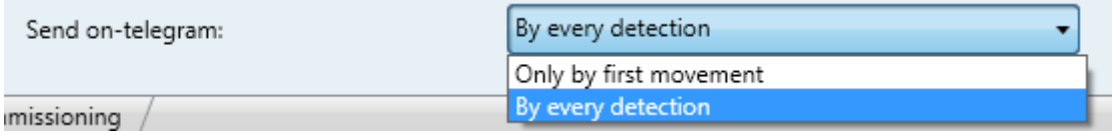
This parameter determines the minimum value to which the detector can regulate. For example, some fluorescent lamps can develop colour casts if the light value is too low. The minimum value, selectable between 1% and 9%, is set to avoid these unwanted effects.



4.15 Additional functions in switching mode

4.15.1 Send ON-telegrams during follow-up time

The parameter "Send ON-telegram" determines whether the detector sends an ON telegram only at the first triggering or at every movement detected. If the “Only upon first movement” option is selected, the number of telegrams sent to the bus is minimised, reducing bus load. For special applications, the detector has the option to send an ON telegram for every movement detected. For example, this can be useful to determine how often there is movement in the room and if necessary to reduce the duration of the follow-up time accordingly. However, there is more load on the bus in this setting.
Visible only in switching mode.



5 HVAC OPERATION

5.1 Introduction

The occupancy detector's light output is optimised for control of lights (switching or dimming). In addition to this output, the detector has three HVAC channels (HVAC = heating, ventilation and air conditioning). These channels are optimised for energy-intensive applications, for example air conditioning.

An HVAC channel functions in a similar way to the light output switching channel. However, the range of functions and the factory settings are more suited to HVAC applications. For example, dimming is not possible, and an HVAC channel normally works independently of brightness levels.

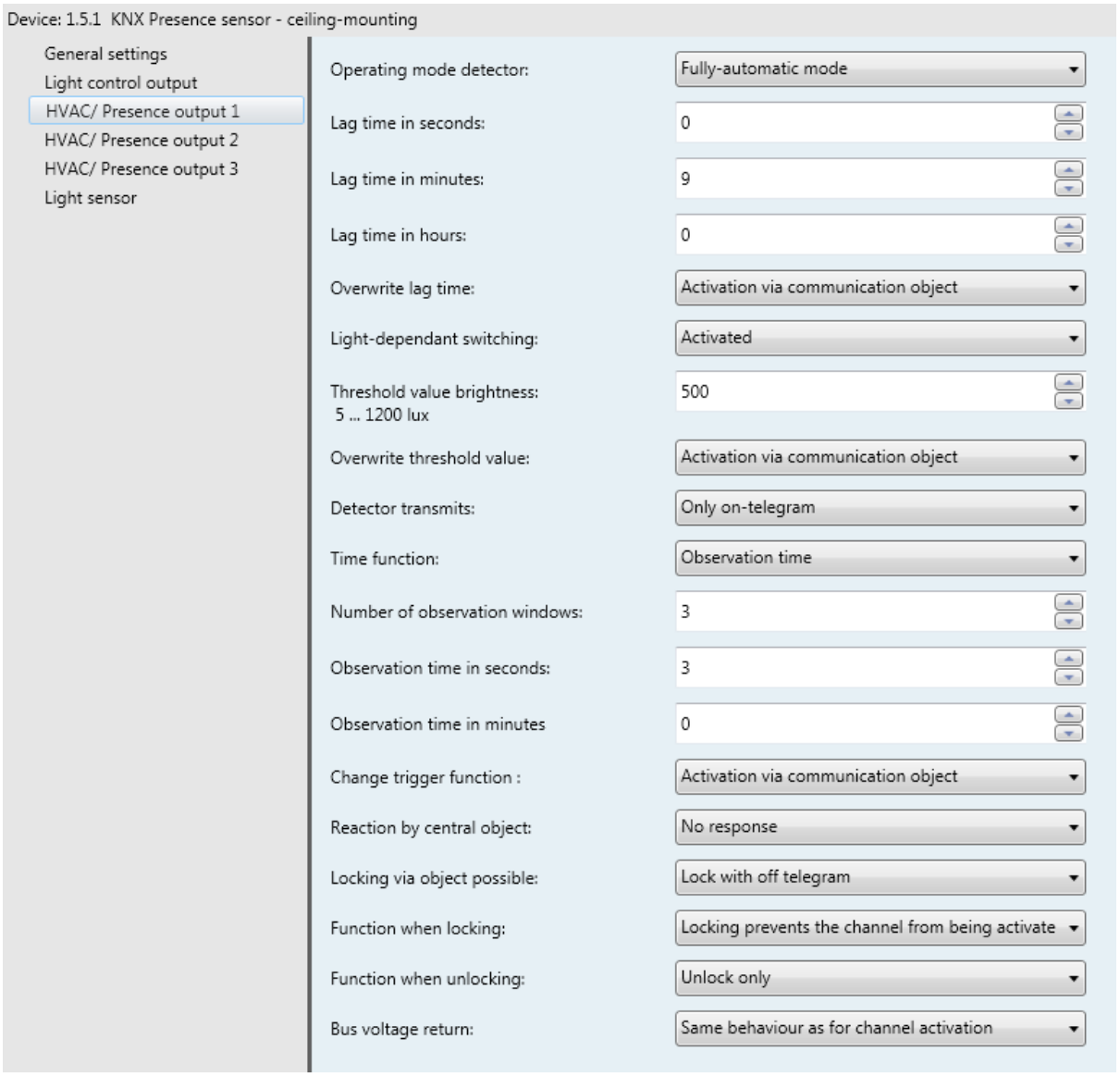
Examples:

1) When entering an office, the lighting should switch on immediately (light output), but the air conditioning should only switch on when a person stays in the room for at least 5 minutes. Therefore, on a short visit to an office, only the light should switch on automatically, and not the air conditioning. As well as energy saving, a further advantage is that the air conditioning unit is protected, as it is not being continuously switched on and off again.
2) There are two light groups in a classroom. The lighting output controls these with a fixed offset from the set value. The teacher's board should be controlled via a separate switch, independent of the light groups. An HVAC channel can also be used for this purpose. Difference between light output and HVAC channels

The functions of an HVAC channel are similar to those for light output. A description of the functions can be taken from the corresponding sections for light output. Below, we concentrate on the differences between light output and HVAC channels.
An HVAC channel can either switch on automatically, as soon as a movement is detected (full automatic), or it must be switched on via an external KNX push button (semi-automatic). In both cases, it switches off automatically (unless set otherwise in the parameter settings). Swapping between full automatic and semi-automatic modes can be carried out via an object

Follow-up time is freely selectable. Input is made in hours, minutes and seconds. Follow-up time can be changed via the bus using a 2-byte object.

An HVAC channel normally functions independent of brightness, as opposed to a light output. However, it is possible to set parameters for an HVAC channel to depend on brightness. Different brightness thresholds can be defined for each channel. These can also be changed via the bus using 2-byte telegrams.
HVAC channels are switching channels. However, under the "Detector transmits" parameter, it can be defined whether (a) both ON and OFF telegrams, or (b) only ON or OFF telegrams are sent.



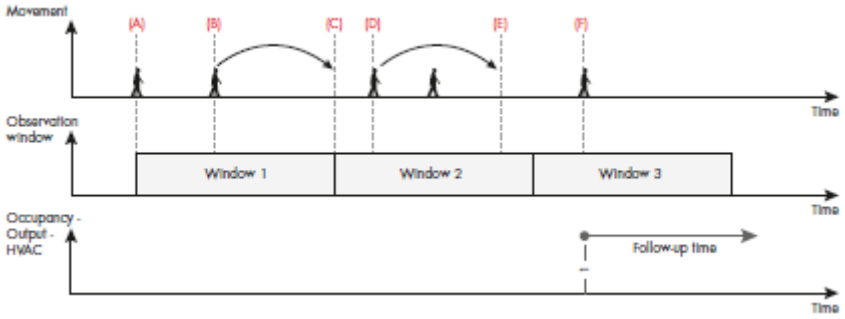
20	Locking object - Input	HVAC/Presence 1	1 bit	C	-	W	-	-	switch	Low
21	External interference - Input	HVAC/Presence 1	1 bit	C	-	W	-	-	switch	Low
22	Lag time in minutes - Input	HVAC/Presence 1	2 Byte	C	-	W	-	-	2-byte unsigned value	Low
23	Overwrite threshold value - Input	HVAC/Presence 1	2 Byte	C	-	W	-	-	lux (Lux)	Low
24	Switch on by movement - Input	HVAC/Presence 1	1 bit	C	-	W	-	-	enable	Low
25	Occupancy - Output	HVAC/Presence 1	1 bit	C	R	-	T	-	switch	Low
26	Locking object - Input	HVAC/Presence 2	1 bit	C	-	W	-	-	switch	Low
27	External interference - Input	HVAC/Presence 2	1 bit	C	-	W	-	-	switch	Low
28	Lag time in minutes - Input	HVAC/Presence 2	2 Byte	C	-	W	-	-	2-byte unsigned value	Low
29	Overwrite threshold value - Input	HVAC/Presence 2	2 Byte	C	-	W	-	-	lux (Lux)	Low
30	Switch on by movement - Input	HVAC/Presence 2	1 bit	C	-	W	-	-	enable	Low
31	Occupancy - Output	HVAC/Presence 2	1 bit	C	R	-	T	-	switch	Low
32	Locking object - Input	HVAC/Presence 3	1 bit	C	-	W	-	-	switch	Low
33	External interference - Input	HVAC/Presence 3	1 bit	C	-	W	-	-	switch	Low
35	Overwrite threshold value - Input	HVAC/Presence 3	2 Byte	C	-	W	-	-	lux (Lux)	Low
36	Switch on by movement - Input	HVAC/Presence 3	1 bit	C	-	W	-	-	enable	Low
37	Occupancy - Output	HVAC/Presence 3	1 bit	C	R	-	T	-	switch	Low
38	Measured lux value- output	Light sensor	2 Byte	C	R	-	T	-	lux (Lux)	Low

5.2 Delayed switch-on

Depending on the usage of an HVAC channel, it can be useful to switch on the devices connected to it, such as HVAC equipment, with a time delay. The “Activation time” parameter is used to define whether the channel is switched on directly when movement is detected, or after a delay. If a delayed reaction is desired, this parameter must be set to “Observation time”. In this case, other parameters become visible, which allow definition of the switch-on delay time (Number of observation windows, Observation time in seconds/minutes).

Up to 20 observation windows can be defined per HVAC channel. The duration defined under the “Observation time in seconds” and “Observation time in minutes” parameters applies to all windows (1-60 seconds and 0-60 minutes). At least one movement must be detected in each window to allow the channel to switch on.

Example: Three observation windows each with an observation time of 10 seconds.
After the first detected movement (A), the detector starts window 1. If no movement is detected within its duration of 10 seconds, evaluation is terminated. If at least one movement is detected (B), after the first window’s time has elapsed (C), the second observation window is started. Here too, evaluation is terminated if no movement is detected within the duration of the window. If at least one movement is detected (D), the third window is started (E). If more than three windows are set in the parameters, this is repeated for the total number of observation windows. The detector switches on as soon as the last window has detected its first movement (F). So in this example, this will result in a delay time of 21-30 seconds (depending on when the last movement is detected). If there is no movement in a window, all windows are reset.

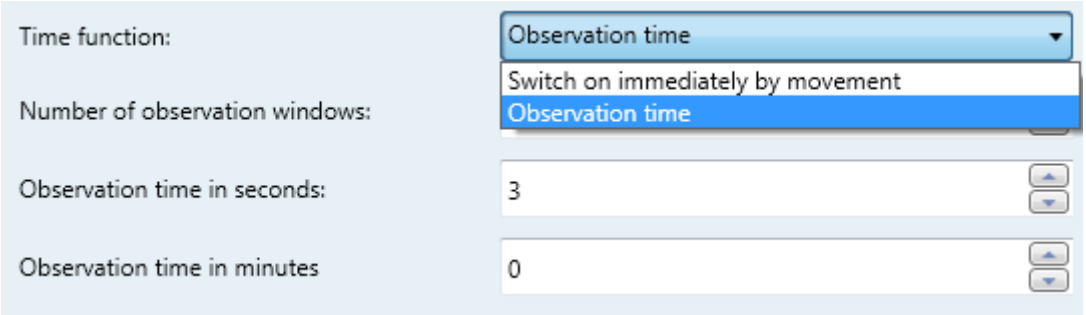


The observation time ensures that there is movement for the defined duration before the connected load is switched on. In this way, sources of interference can partly be filtered out.14

Example:

The detector is a motion detector, which is attached on the outside wall of a house to control the exterior lighting. The observation window prevents an animal scurrying by from triggering a switch-on. Conversely, the house occupants can be sure that, if the light has been switched on, motion has been detected on their property or in their garden for a longer time, for example by a person who is on their property (or else by an animal staying in their garden for a long time).

Note: The GEWISS motion and occupancy detectors are not a certified alarm. They are not suitable for use in alarm installations.



6 OCCUPANCY-INDIPENDENT REGULATING MODE

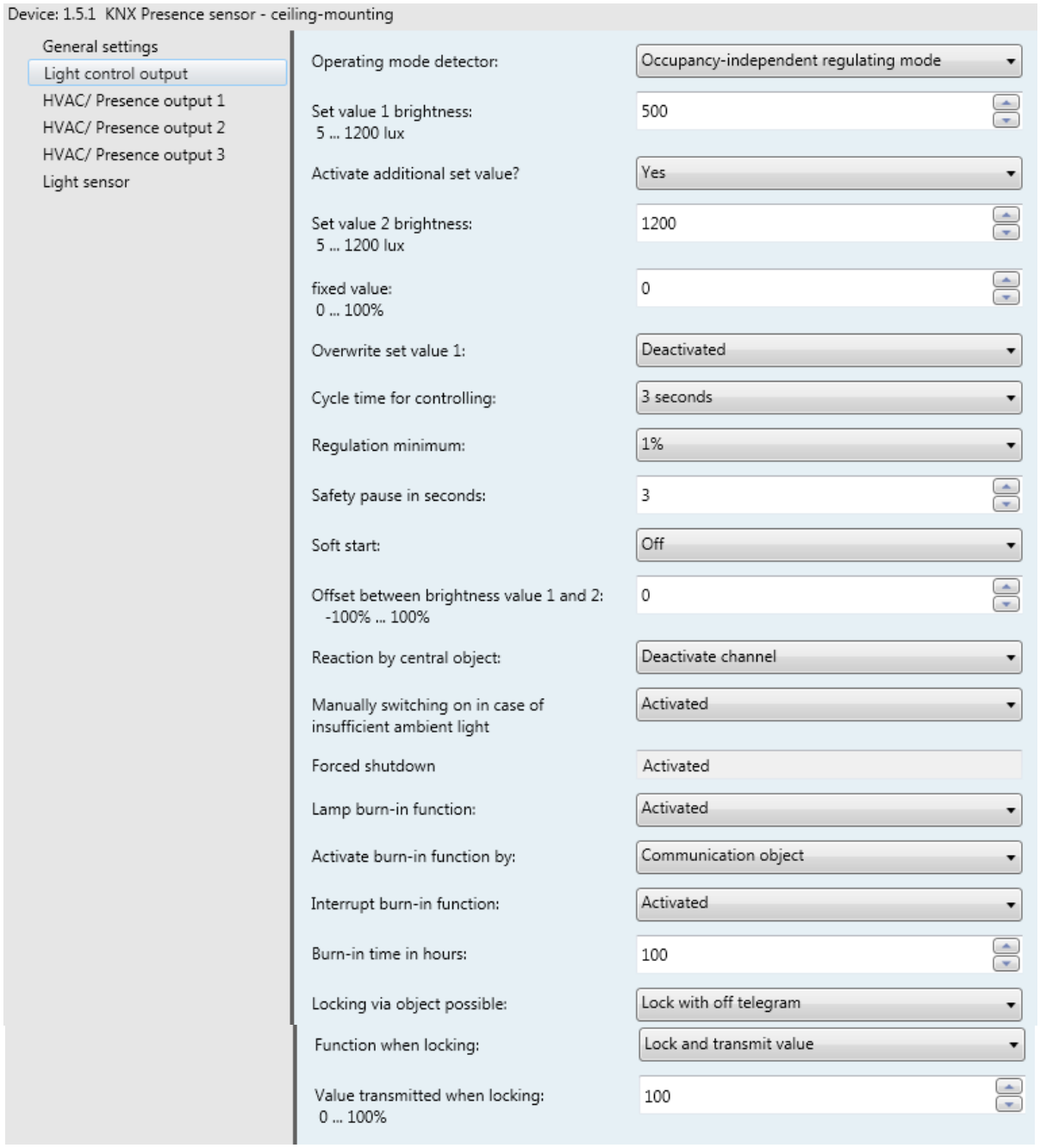
Occupancy-independent regulating mode, the detector analyses the brightness level and regulates lighting independently of movement. This is advantageous if a particular light level should be maintained regardless of whether people are present, for example in bank lobbies or passageways. The detector switches the light on when brightness levels fall below a set value, and regulate it to that set value. If the proportion of daylight increases and exceeds the set value, the detector switches the light off again.

The parameter structure for occupancy-independent regulating mode corresponds to that for normal regulating mode. The relevant parameters and their functions can be found in the description of regulating mode.

If continuous lighting regulation at particular times is not desired, it can be switched off permanently using a locking object.

If the detector is switched on manually (“External influence” object) at a high ambient light level above the selected set value, the lighting is switched on at 10% for a duration of 15 minutes, so long as the light level does not fall below the set value. Forced shutdown (switch off) cannot be deactivated in occupancy-independent regulating mode. As soon as the light level falls below the set value when the lighting is active, lighting regulation is used (starting from 10%).

If the detector is switched off with the central-OFF function/object while in occupancy-independent regulating mode, it can no longer switch itself back on, as movement information is not analysed in this mode. If the central-OFF function is used, the “External influence” object must additionally be activated, with which the system can be put back into regulating mode (ON telegram). The central-OFF object affects all detector blocks (light output and three HVAC blocks), but external commands only affect light output.
By contrast to occupancy-dependent regulating mode, the central-OFF command in occupancy-independent regulating mode switches the lights off immediately, as the detector does not check if there are still people in the detection area.



1	Central-off - Input	General	1 bit	C	-	W	-	-	1-bit	Low
2	LED- Input	General	1 bit	C	-	W	-	-	switch	Low
3	Slave- Input	General	1 bit	C	-	W	-	-	1-bit	Low
4	Locking object - Input	Light control output	1 bit	C	-	W	-	-	switch	Low
5	External interference - Input	Light control output	1 bit	C	-	W	-	-	switch	Low
9	Toggle set value 1 and 2- Input	Light control output	1 bit	C	-	W	-	-	enable	Low
10	Toggle set value and constant light - I	Light control output	1 bit	C	-	W	-	-	enable	Low
11	Start/Stop burn in function - Input	Light control output	1 bit	C	-	W	-	-	start/stop	Low
12	Reading burn-in time - Input	Light control output	1 bit	C	-	W	-	-	start/stop	Low
16	Value 1- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
17	Value 2- Output	Light control output	1 Byte	C	R	-	T	-	percentage (0..100%)	Low
18	Current set value/ fixed value- Output	Light control output	1 Byte	C	R	-	T	-		Low
19	Burn-in time status - Output	Light control output	2 Byte	C	R	-	T	-	2-byte unsigned value	Low

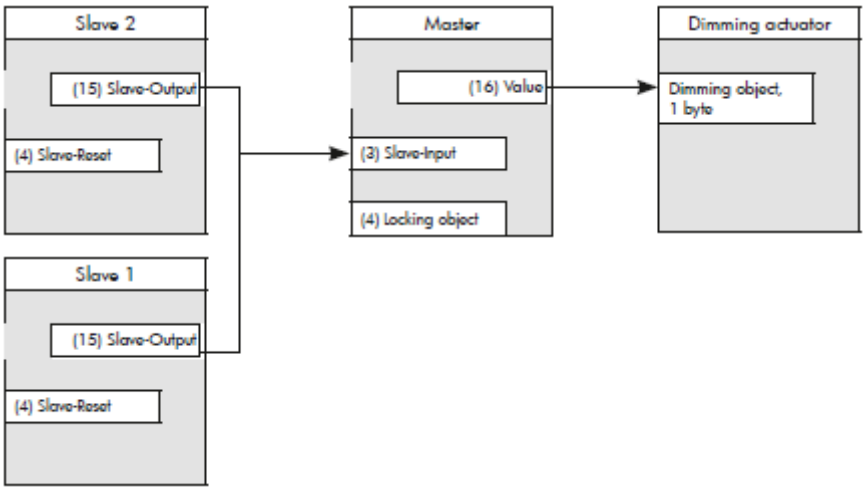
7 MASTER-SLAVE SYSTEMS / OCCUPANCY DETECTORS IN SLAVE MODE

If an area larger than a detector's detection area is to be monitored, additional detectors can be set up in slave mode.

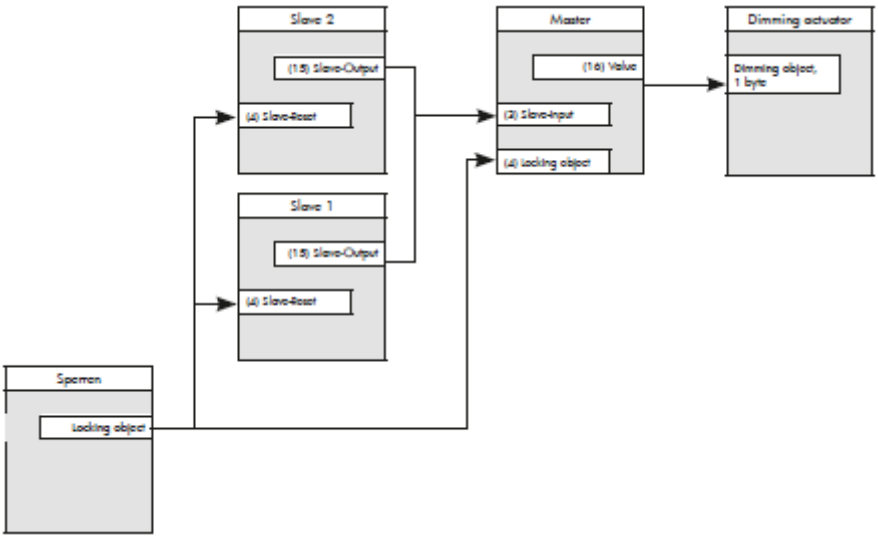
Two master detectors in a lighting system can lead to problems. Since both masters analyse brightness levels and specify follow-up times, and can influence each other optically, this can lead to interference in both regulating mode and switching mode.

In a master-slave system, as many slaves as necessary feed one master. The master takes over all logical evaluation, such as brightness detection and specification of follow-up time. Slaves expand the range and are only for motion detection. As soon as a movement is registered, they send this information to the master.

In a master-slave system, brightness measurement is carried out by the master. It monitors and analyses set values and brightness thresholds. These values always refer to the master's mounting location.
In simple systems, it is enough to connect all slave outputs to the master's slave input. If a slave detects a movement, it sends this information to the master. In order to minimise the load on the KNX bus from telegrams, telegrams from slaves are sent in a particular frame. The time between telegrams can be changed in the "Locking time slave" parameter. Times of under 30 seconds are not recommended. These are reserved for special cases. The time selected should not be greater than half the follow-up time installed in the master.



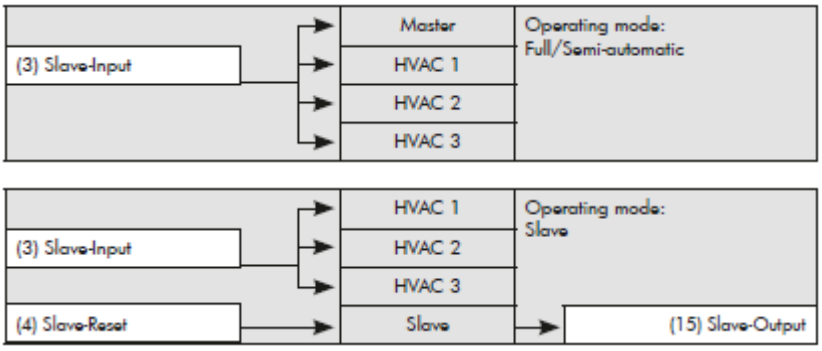
On systems that can be locked, this information is also required by the slaves, so that they can restart motion detection after a lock is removed. In this case, the slaves also send a telegram outside their time frame.



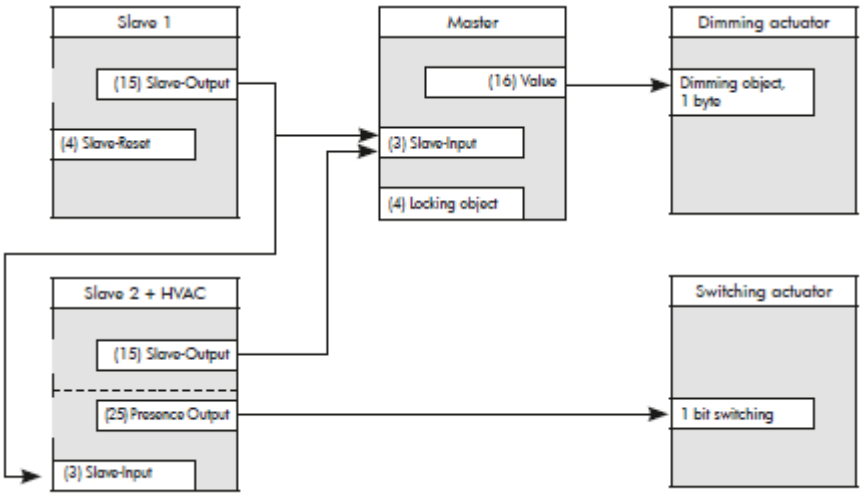
GEWISS KNX occupancy detector also has three HVAC channels as well as its base master and slave functions (light output). When setting up the parameters, the following options are available:

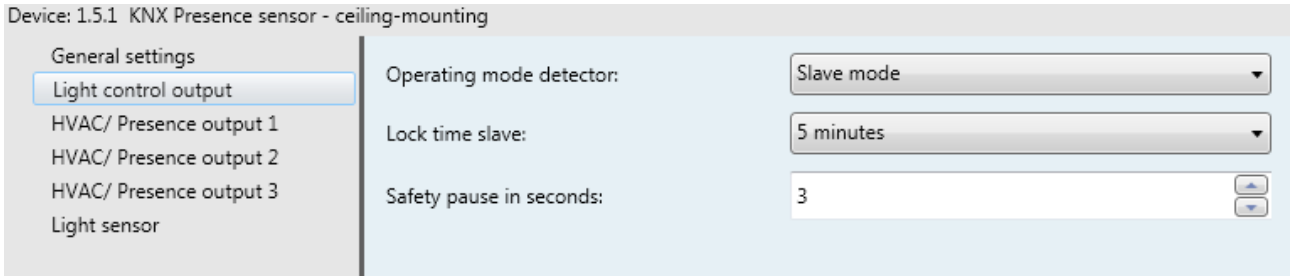
1. Detector is operating purely as a master
2. Detector is operating as a master and has additional HVAC channels
3. Detector is operating purely as a slave
4. Detector is operating as a slave and has additional HVAC channels

The slave input of a master affects both light output and the HVAC blocks.



In the following example, the master is fed by two slaves. Slave 2 also has an HVAC channel. This HVAC channel is also triggered by slave 1. The HVAC channel should not control any light source, as in this case, lighting regulation is controlled by the master.





3	Slave- Input	General	1 bit	C	-	W	-	-	1-bit	Low
4	Slave reset- Input	Light control output	1 bit	C	-	W	-	-	1-bit	Low
15	Slave- Output	Light control output	1 bit	C	R	-	T	-	1-bit	Low

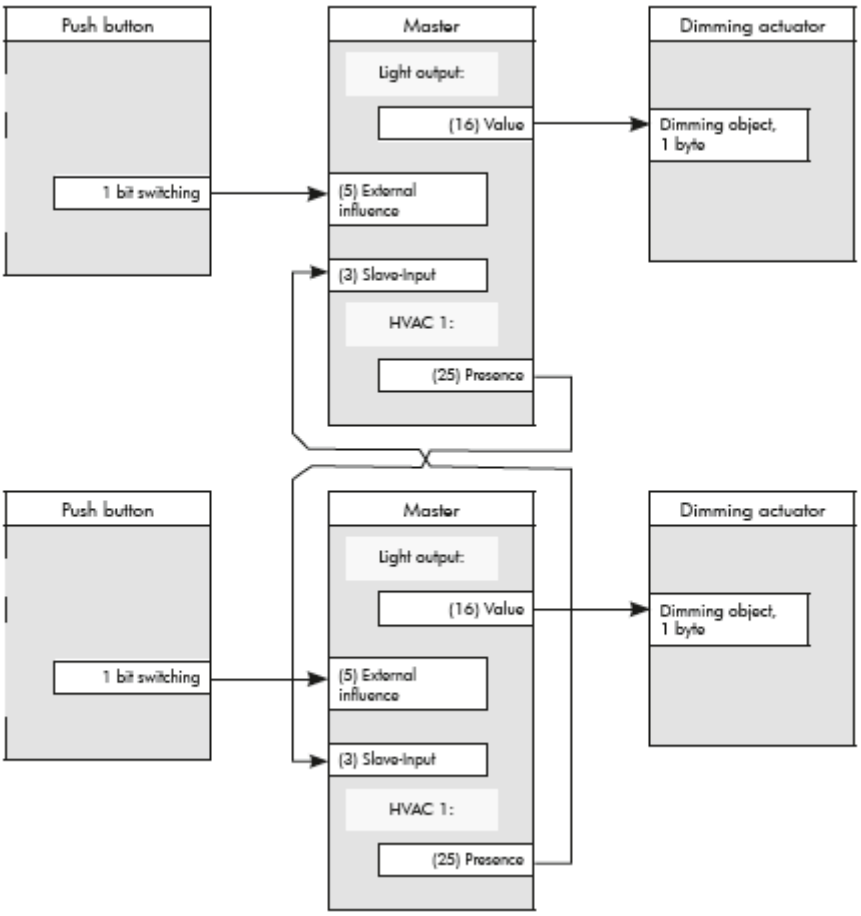
7.1 Special case: Master-Master system

If an area larger than a detector's detection area is to be monitored, additional detectors can be set up in slave mode.

Two master detectors in a lighting system can lead to problems. Since both masters analyse brightness levels and specify follow-up times, and can influence each other optically, this can lead to interference in both regulating mode and switching mode.

In a master-slave system, as many slaves as necessary feed one master. The master takes over all logical evaluation, such as brightness detection and specification of follow-up time. Slaves expand the range and are only for motion detection. As soon as a movement is registered, they send this information to the master.

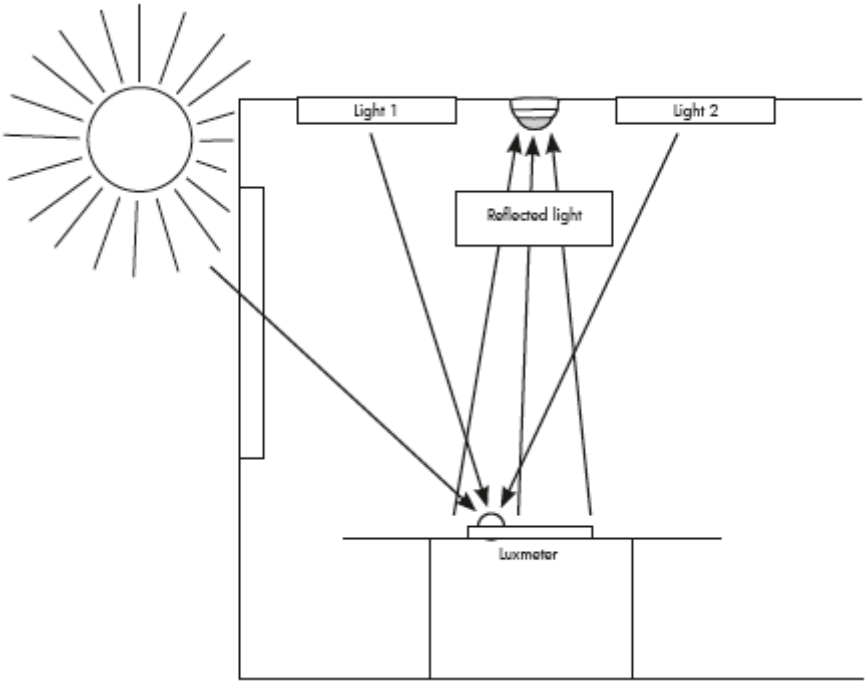
In a master-slave system, brightness measurement is carried out by the master. It monitors and analyses set values and brightness thresholds. These values always refer to the master's mounting location.
In simple systems, it is enough to connect all slave outputs to the master's slave input. If a slave detects a movement, it sends this information to the master. In order to minimise the load on the KNX bus from telegrams, telegrams from slaves are sent in a particular frame. The time between telegrams can be changed in the "Locking time slave" parameter. Times of under 30 seconds are not recommended. These are reserved for special cases. The time selected should not be greater than half the follow-up time installed in the master.


Push button
1 bit switching
Master
Light output:
(16) Value
(5) External influence
(3) Slave-Input
HVAC 1:
(25) Presence
Dimming actuator
Dimming object, 1 byte
Push button
1 bit switching
Master
Light output:
(16) Value
(5) External influence
(3) Slave-Input
HVAC 1:
(25) Presence
Dimming actuator
Dimming object, 1 byte

8 LIGHT SENSOR SETTING

8.1 Reflection Factor

An occupancy detector includes a light sensor to measure brightness. Since the detector is mounted on the room ceiling, it measures the light there too. This means that it measures light which is present in the room (as sunlight and artificial light) and which is reflected onto the ceiling. However, not all the light is reflected, as the reflection factor depends heavily on the surfaces and furnishings. The light value measured on the ceiling does not therefore represent the room brightness. Therefore, the reflection factor must be determined, and the KNX occupancy detector adjusted to local conditions.



To determine the reflection factor, please proceed as follows:

1. Switch on the lighting. For fluorescent lamps, it is advisable to let them warm up for at least 10 minutes, so that they reach their maximum brightness.
2. Place a lux meter in the location where the desired lux value should be achieved, e.g. at a workstation, and measure the lux value.
3. Determine the brightness at the ceiling, i.e. at the occupancy detector. Hold the lux meter at the occupancy detector's location.

The relationship between the brightness measured at the ceiling and the brightness measured at the workstation represents the reflection factor.

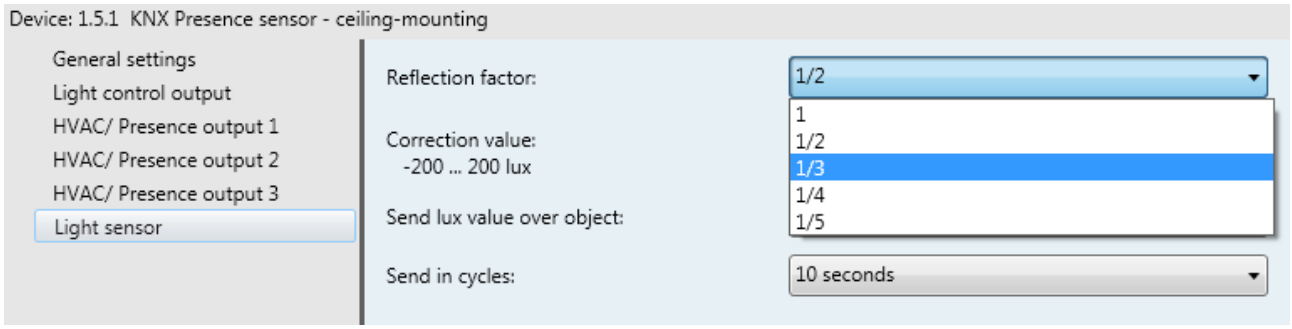
Example:

Measured value, ceiling 300 lux

Measured value, desk 600 lux

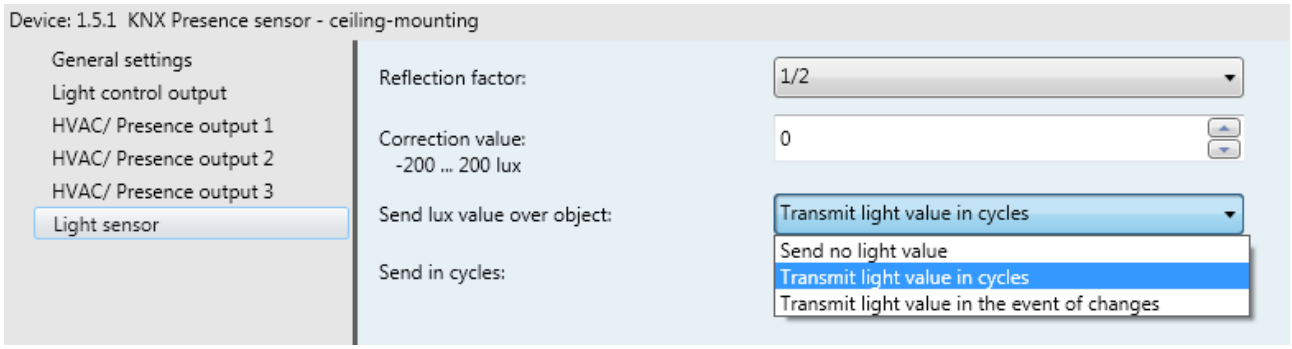
This gives a ratio of 1:2, so a reflection factor of 1/2 must be set.

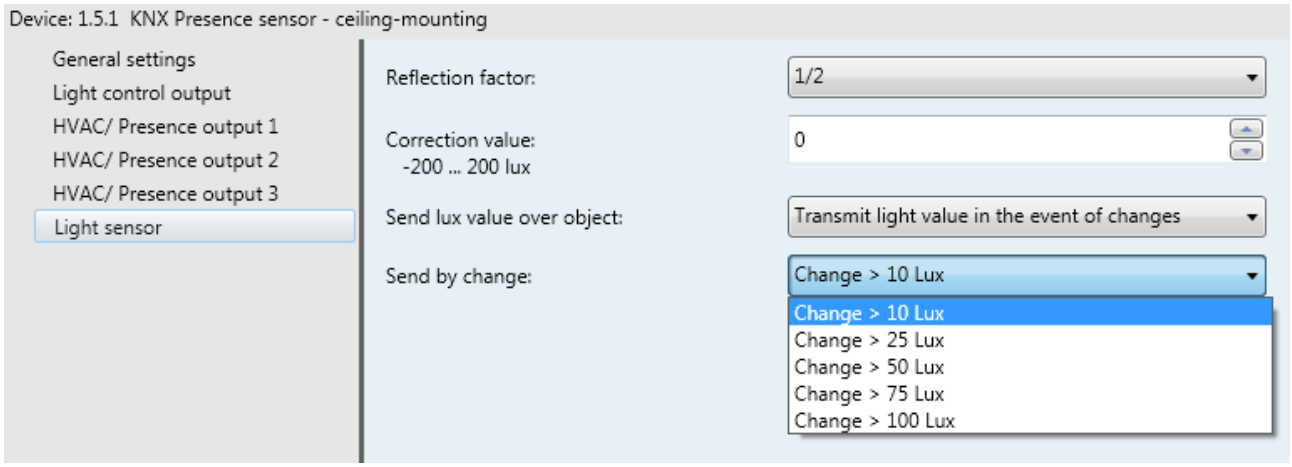
It should be noted that in practice, because of fluctuations in daylight (passing clouds), documents on desks (white or dark sheets of paper), or the setting of window blinds for example, the reflection factor continually changes, so that there can be deviations from the desired/installed set value.

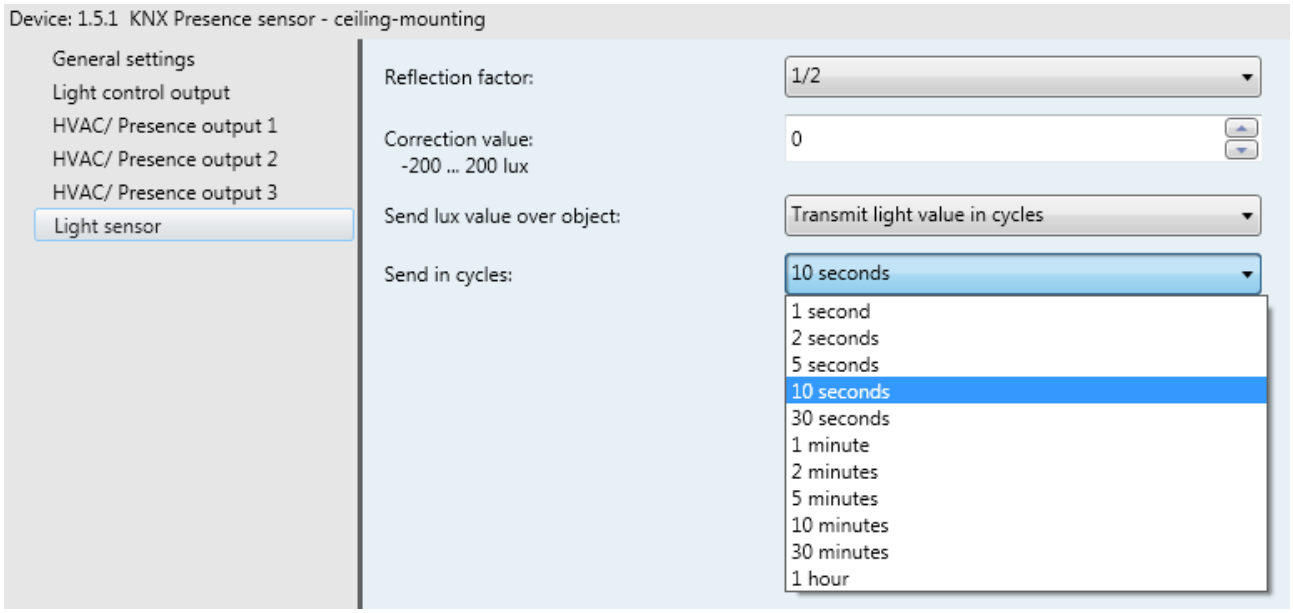


8.2 Sending the light value / correction value

The light value measured can be sent to the KNX bus. After enabling this function, the corresponding objects are visible. This offers a choice between sending the light value at intervals or when it changes. For sending at intervals, a time delay can be defined for the change in light value and the amount of change.
If the lux value sent to the bus does not agree with the measured value, this can then be fine-tuned.







38	Measured lux value- output	Light sensor	2 Byte	C	R	-	T	-	lux (Lux)	Low

9 COMMUNICATION OBJECTS

No.	Name	Function	Length	C	R	W	T	DPT
0	Test mode - Input	General	1 bit	C	–	W	–	1.001
1	Central-OFF - Input	General	1 bit	C	–	W	–	1.017
2	LED - Input	General	1 bit	C	–	W	–	1.001
3	Slave - Input	General	1 bit	C	–	W	–	1.016
4	Slave - Reset	Light output	1 bit	C	–	W	–	1.017
4	Locking object - Input	Light output	1 bit	C	–	W	–	1.001
5	External influence - Input	Light output	1 bit	C	–	W	–	1.001
6	Manual Dimming - Input	Light output	4 bit	C	–	W	–	3.007
7	Follow-up time in minutes - Input	Light output	2 byte	C	–	W	–	7.006
8	Overwrite threshold 1 - Input	Light output	2 byte	C	–	W	–	9.004
9	Toggle threshold 1 and 2 - Input	Light output	1 bit	C	–	W	–	1.003
10	Switch set value and fixed value - Input	Light output	1 bit	C	–	W	–	1.003
11	Start/Stop burn-in function - Input	Light output	1 bit	C	–	W	–	1.010
12	Retrieve burn-in time - Input	Light output	1 bit	C	–	W	–	1.010
13	Switch on upon movement - Input	Light output	1 bit	C	–	W	–	1.003
14	Manual Dimming - Output	Light output	4 bit	C	R	–	T	3.007
15	Switching channel - Output	Light output	1 bit	C	R	–	T	1.001
15	Slave - Output	Light output	1 bit	C	R	–	T	1.016
16	Value - Output	Light output	1 byte	C	R	–	T	5.001
16	Scene - Output	Light output	1 byte	C	R	–	T	17.001
16	Value 1 - Output	Light output	1 byte	C	R	–	T	5.001
17	Value 2 - Output	Light output	1 byte	C	R	–	T	5.001
18	Current threshold - Output	Light output	1 bit	C	R	–	T	
19	Burn-in time status - Output	Light output	2 byte	C	R	–	T	7.006
20	Locking object - Input	HVAC 1	1 bit	C	–	W	–	1.001
21	External influence - Input	HVAC 1	1 bit	C	–	W	–	1.001
22	Follow-up time in minutes - Input	HVAC 1	2 byte	C	–	W	–	7.006
23	Overwrite threshold - Input	HVAC 1	2 byte	C	–	W	–	9.004
24	Switch on upon movement - Input	HVAC 1	1 bit	C	–	W	–	1.003
25	Presence - Output	HVAC 1	1 bit	C	R	–	T	1.001
26	Locking object - Input	HVAC 2	1 bit	C	–	W	–	1.001
27	External influence - Input	HVAC 2	1 bit	C	–	W	–	1.001
28	Follow-up time in minutes - Input	HVAC 2	2 byte	C	–	W	–	7.006
29	Overwrite threshold - Input	HVAC 2	2 byte	C	–	W	–	9.004
30	Switch on upon movement - Input	HVAC 2	1 bit	C	–	W	–	1.003
31	Presence - Output	HVAC 2	1 bit	C	R	–	T	1.001
32	Locking object - Input	HVAC 3	1 bit	C	–	W	–	1.001
33	External influence - Input	HVAC 3	1 bit	C	–	W	–	1.001
34	Follow-up time in minutes - Input	HVAC 3	2 byte	C	–	W	–	7.006
35	Overwrite threshold - Input	HVAC 3	2 byte	C	–	W	–	9.004
36	Switch on upon movement - Input	HVAC 3	1 bit	C	–	W	–	1.003
37	Presence - Output	HVAC 3	1 bit	C	–	W	T	1.001
38	Measured lux value - Output	Light sensor	2 byte	C	R	–	T	9.004

- ***Input- Test mode (n. 0)***
  This object is used to enable or disable the test mode.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.001 DPT_Switch
  The standard format of the object is 1 bit and the information it contains is *ON/OFF.*

- ***Input-Centrale OFF (n. 1)***
  This object is used to send a manual OFF command.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.017 DPT_Value Trigger.
  The standard format of the object is 1 bit and the information it contains is *TRIGGER 0/TRIGGER 1.*

- ***Input-LED (n.2)***
  This object is used to enable or disable the device led.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is "*ON/OFF"*.

- ***Input-Slave (n.3)***
  This object is used to bring the detector in SLAVE mode.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.016 DPT_Ack.
  The standard format of the object is 1 bit and the information it contains is "*No action / Acknowledge command".*

- ***Input- Slave reset (n.4)***
  This object is used to reset the slave movement detection function; if a "0" value is received on this object, the device waits for safety pause time expiration and then is able to send the movement detection command (object n°15 - Output-SLAVE) to the master even if the slave lock time is not expired.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.017 DPT_Trigger.
  The standard format of the object is and the information it contains is "0"=reset.

- ***Input-Locking object (n.4)***
  This object is used to start or stop the locking object.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.001 DPT_Switch
  The standard format of the object is and the information it contains is "*ON/OFF"*.

- ***Input- External unfluence (n.5)***
  This object is used to start or stop the external influence.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is "*ON/OFF"*.

- ***Input- Manual Dimming (n.6)***
  This object is used to adjust the brightness.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 3.007 DPT_Control_Dimming.
  The standard format of the object is 4 bit and the information it contains is “increase % /decrease %”.

- ***Input- Follow-up time in minute (n.7)***
  This object is used to set the follow-up time.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 7.006 DPT_TimePeriodMin.
  The standard format of the object is 2 byte and the information it contains is “*VALUE (min)*”.

- ***Input- Overwrite threshold 1 (n.8)***
  This object is used to overwrite threshold 1.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 9.004 DPT_Value_Lux.
  The standard format of the object is 2 byte and the information it contains is “VALUE (lux)”.

- ***Toggle threshold 1 and 2 (n.9)***
  This object is used to switch between threshold 1 and 2. .
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.003 DPT_Value.
  The standard format of the object is 1 bit and the information it contains is “enable/disable”.

- ***Input- Switch set value and fixed value (n.10)***
  This object is used to set a value fixed brigthness.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.003 DPT_Value.
  The standard format of the object is 1 bit and the information it contains is “enable/disable”.

- ***Input- Start/Stop burn-in function (n.11)***
  This object is used to start or stop the Burn-in function.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.010 DPT_Start.
  The standard format of the object is 1 bit and the information it contains is “Start/Stop”.

- ***Input- Retrieve burn-in time (n.12)***
  This object is used to trigger the spontaneous sending of the remaining burn-in time that is sent through the object “Output- burn-in time status” (n.19)
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.010 DPT_Start.
  The standard format of the object is 1 bit and the information it contains is “Start/Stop”.

- ***Input- Switch on upon movement (n.13)***
  This object is used to switch between automatic mode and semy-automatic mode.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.003 DPT_Enable.
  The standard format of the object is 1 bit and the information it contains is "enable/disable".

- ***Output- Manual dimming (n.14)***
  This object is used to adjust the brightness manually.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 3.007 DTP_Control_Dimming.
  The standard format of the object is 4 bit and the information it contains is "increase/decrease 1/100%"

- ***Output- Switching channel (n.15)***
  This object is used by the "light output block" to send the switch on/off command to the light actuator, if the output type set is "switching".
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 1.001 DPT_Switch
  The standard format of the object is 1 bit and the information it contains is ON/OFF.

- ***Output-SLAVE (n.15)***
  This object is used to send the signal to the master device that was detected by the slave device.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 1.016 DPT_Ack.
  The standard format of the object is 1 bit and the information it contains is "No action / *Acknowledge command".*

- ***Output- Output (n.16)***
  This object is used to send the value %
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 5.001 DPT_Scaling.
  The standard format of the object is 1 byte and the information it contains is "VALUE %"

- ***Output-Scene (n.16)***
  This object is used to send the scene number.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 17.001 DPT_Scene Number.
  The standard format of the object is 1 byte and the information it contains is "scene number"

- ***Output- Value 1 (n.16)***
  This object is used used to send the value 1 %.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 5.001 DPT_Scaling.

The standard format of the object is 1 byte and the information it contains is “VALUE %”

- ***Output- Value 2 (n.17)***
  This object is used to send value 2 %
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 5.001 DPT_Scaling.
  The standard format of the object is 1 byte and the information it contains is “VALUE %”

- ***Output- Current threshold (n.18)***
  This object is used to send the current threshold.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 1 bit

- ***Output- Burn-in time status (n.19)***
  This object is used to receive from the bus the Burn-in time missing.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 7.006 DPT_TimePeriodMin.
  The standard format of the object is 2 byte and the information it contains is ”VALUE (min)”

- ***Input- Locking object (n.20)***
  This object is used to block the HVAC 1 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.010 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is “Start/Stop”.

- ***Input- External influence (n.21)***
  This object is used to receive external control of the HVAC 1 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is “On/Off”.

- ***Input- Follow-up time in minutes (n.22)***
  This object is used to set follow time on HVAC 1 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 7.006 DPT_TimePeriodMin.
  The standard format of the object is 2 byte and the information it contains is ”VALUE (min)”

- ***Input- Overwrite threshold (n.23)***
  This object is used to overwrite threshold on HVAC 1 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 9.004 DPT_Value_Lux.
  The standard format of the object is 2 byte and the information it contains is “Value_Lux”.

- ***Input- Switch on upon movement (n.24)***
  This object is used to set automatic mode or semy-automatic on HVAC 1 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.003 DPT_Enable.
  The standard format of the object is 1 bit and the information it contains is "enable/disable".

- ***Output- Presence (n.25)***
  This object is used to report the presence on HVAC 1 channel.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is *"On/Off".*

- ***Input-Locking object (n.26)***
  This object is used to block the HVAC 2 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.010 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is "Start/Stop".

- ***Input- External influence (n.27)***
  This object is used to receive external control of the HVAC 2 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is "On/Off".

- ***Input- Follow-up time in minutes (n.28)***
  This object is used to set follow time on HVAC 2 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 7.006 DPT_TimePeriodMin.
  The standard format of the object is 2 byte and the information it contains is "Value (min)".

- ***Input- Overwrite threshold (n.29)***
  This object is used to overwrite threshold on HVAC 2 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 9.004 DPT_Value_Lux.
  The standard format of the object is 2 byte and the information it contains is "Value_lux".

- ***Input- Switch on upon movement (n.30)***
  This object is used to set automatic mode or semy-automatic on HVAC 2 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.003 DPT_Enable.
  The standard format of the object is 1 bit and the information it contains is "enable/disable".

- ***Output- Presence (n.31)***
  This object is used to report the presence on HVAC 2 channel.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is *"On/Off".*

- ***Input- Locking object (n.32)***
  This object is used to block the HVAC 3 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.010 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is "Start/Stop".

- ***Input- External influence (n.33)***
  This object is used to receive external control of the HVAC 3 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is "On/Off".

- ***Input- Follow time in minutes (n.34)***
  This object is used to set follow time on HVAC 3 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 7.006 DPT_TimePeriodMin.
  The standard format of the object is 2 byte and the information it contains is "VALUE (min)"

- ***Input- Overwrite threshold (n.35)***
  This object is used to overwrite threshold on HVAC 3 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 9.004 DPT_Value_Lux.
  The standard format of the object is a 2 byte and the information it contains is "Value_lux".

- ***Input-Switch on upon movement (n.36)***
  This object is used to set automatic mode or semy-automatic on HVAC 3 channel.
  The enabled flags are C (communication) and W (written by bus).
  The standard format of the object is 1.003 DPT_Enable.
  The standard format of the object is 1 bit and the information it contains is "enable/disable".

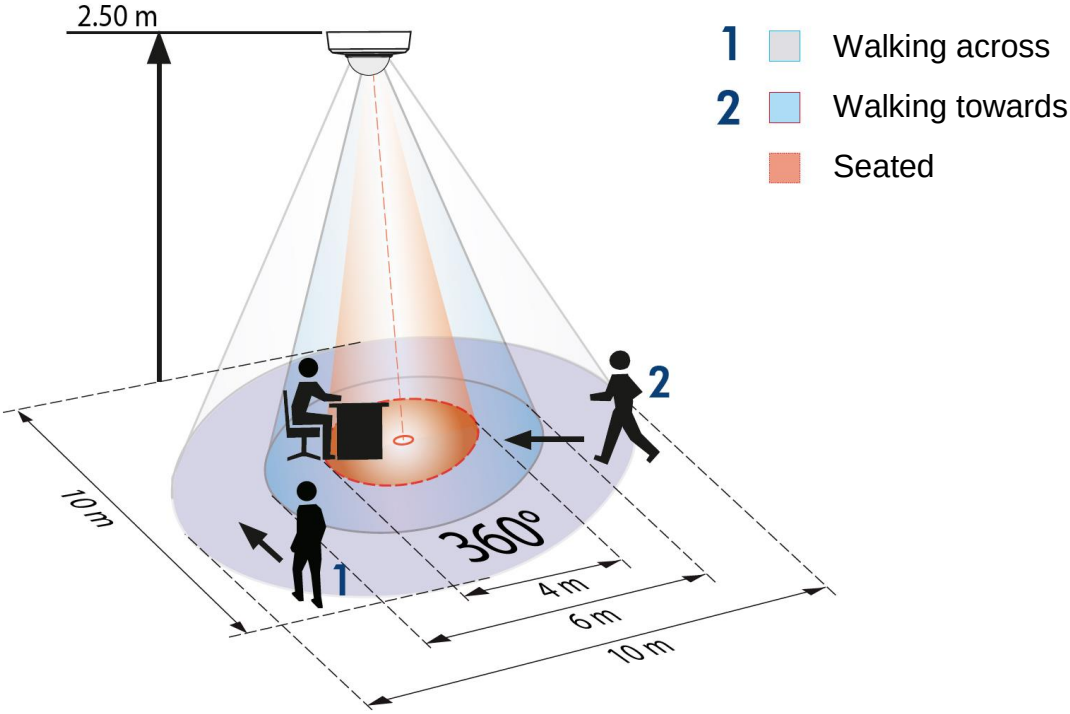
- ***Output- Presence (n.37)***
  This object is used to report the presence on HVAC 3 channel.
  I flag abilitati sono C (communication), W (written by bus) and T (trasmission).
  The standard format of the object is 1.001 DPT_Switch.
  The standard format of the object is 1 bit and the information it contains is *"On/Off".*

- ***Output- Measured lux value (n.38)***
  This object is used to show the measured lux.
  The enabled flags are C (communication), R (read by bus) and T (Trasmission).
  The standard format of the object is 9.004 DPT_Vaue_Lux.
  The standard format of the object is 2 byte and the information it contains is "*VALUE (lux)*".

10 TECHNICAL DATA GWA9531

Communication	Bus KNX
Power supply	via KNX bus, 29 V dc SELV
Current absorbed by bus	10 mA
Bus cable	KNX TP1
Command elements	1 miniature button key for programming
Display elements	1 red LED for programming 1 red presence signalling LED
Detection area	circular 360°, max.10 m (tangential approach)
Assembly height	2 - 3 m, average 2.5 m
Usage environment	Dry, indoor places
Operating temperature	-25 ÷ +55 °C
Relative humidity	Max 93% (non-condensative)
Connection to the bus	Coupling terminal, 2 pin Ø 1 mm
Degree of protection	IP20 IP54 with accessory GWA9541
Dimensions (H x Ø)	50 mm x 98 mm

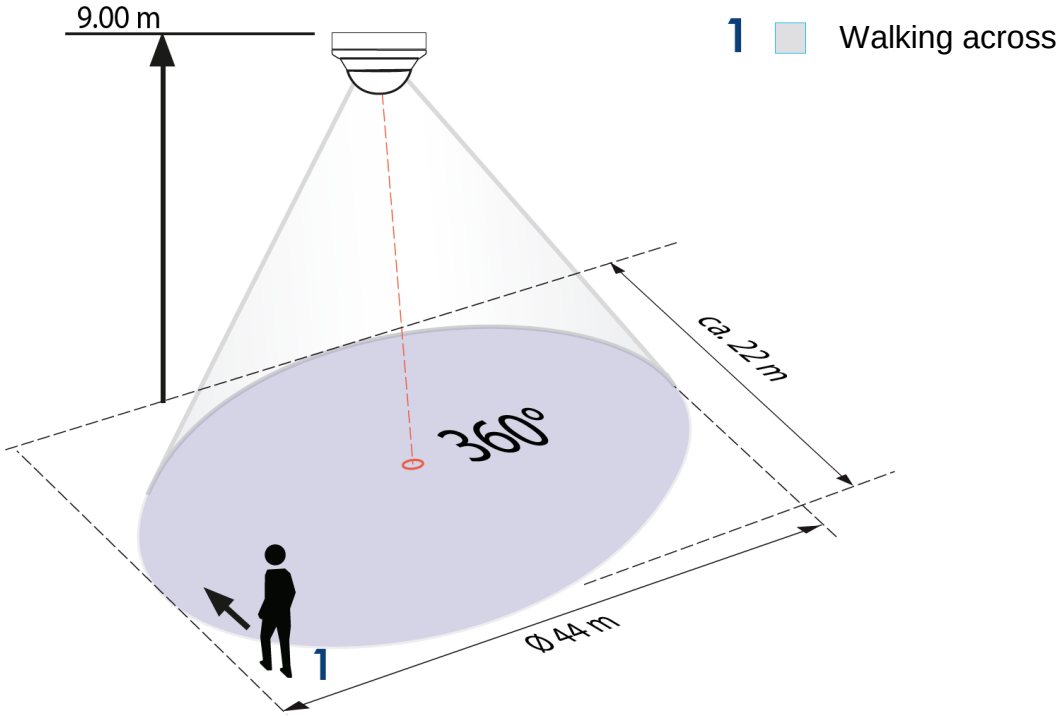
Detection area:



11 TECHNICAL DATA GWA9532

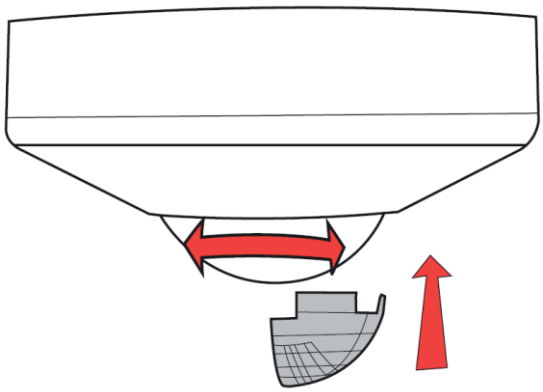
Communication	Bus KNX
Power supply	via KNX bus, 29 V dc SELV
Current absorbed by bus	7 mA
Bus cable	KNX TP1
Command elements	1 miniature button key for programming
Display elements	1 red LED for programming 1 red presence signalling LED
Detection area	circular 360°, max.10 m (tangential approach)
Assembly height	2 - 10 m
Usage environment	Dry, indoor places
Operating temperature	-25 to +55 °C
Relative humidity	Max 93% (non-condensative)
Connection to the bus	Coupling terminal, 2 pin Ø 1 mm
Degree of protection	IP20 IP54 with accessory GWA9541 IP65 with accessory GWA9542
Dimensions (H x Ø)	65 mm x 98 mm

Detection area:

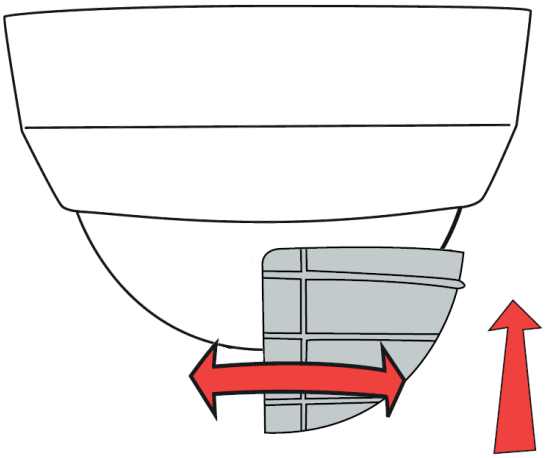


1 Walking across

12 BLINDS



GWA9531



GWA9532

Blinds allow the detector's coverage to be adapted to the local requirements at site. Sources of interference or areas that do not need to be covered may thus be excluded from the area of detection. Blinds are already included in the delivery. Additional blinds may also be ordered if necessary.

code 7.01.8.067.4

Ai sensi delle Decisioni e delle Direttive Europee applicabili, si informa che il responsabile dell'immissione del prodotto sul mercato Comunitario è:
According to the applicable Decisions and European Directives, the responsible for placing the apparatus on the Community market is:
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LAST REVISION 06/2016