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## 1. General

### 1.1 Basics for the KNX/EIB BUS

B.E.G. KNX occupancy detector receives its operating voltage via the BUS cable. It also sends or receives telegrams via this cable at the same time.

To do this, the communication objects of the occupancy detector must be linked to the desired communication objects of other actuators. The settings are made using the ETS programming tool. To understand these instructions, users must have completed a KNX startup and configuration course.

In order to work with B.E.G. applications, first import them into ETS using the ETS menu item "File → Import", then select and open the file.



#### Attention:

The data Types must be taken into account for the objects. For example, a 1-bit object can only work together with a 1-bit object from another device. The occupancy detector works with 1-bit, 4-bit, 1-byte or 2-byte data Types, depending on the object used.

### 1.2 Application versions

#### Dimmer application version 4.0: BEG\_DIM\_HKL\_V4.0

**Part numbers:** 92430, 92431, 92432,  
92433, 92434, 92435,  
92436, 92437, 92454, 92456,  
92459, 92461, 97052, 97053

### 1.3 Symbols used

The application description below uses various symbols to provide a better overview. A brief explanation of these symbols is given here.



#### Attention:

This symbol indicates text passages, which must be read in order to avoid errors during configuration and startup.



#### Recommendation:

This symbol indicates recommended parameter setting, which by experience, it would offer the optimum device performance.

## 1.4 Functions

To ensure an easy introduction to this application description, the general functions of an occupancy detector will be described first. The main function blocks are motion detection, light evaluation and the internally stored logic.

### Motion detection with the B.E.G. KNX occupancy detector:

The KNX occupancy detector uses the passive infrared system, which registers heat movements and converts them into signals that can be evaluated by a processor. The most important criterion for motion detection is selecting the right installation location.

#### Installation location

The occupancy detector should be installed so that the main direction of movement is always tangential (to the side of the device).

For detecting very small movements (e.g. work on a PC keyboard), we recommend installation directly above the desk. This ensures reliable detection.

#### Avoid sources of interference such as:

1. Radiators
2. Ventilation systems that output warm air
3. Lamps in the immediate detection area (preventing optical feedback)

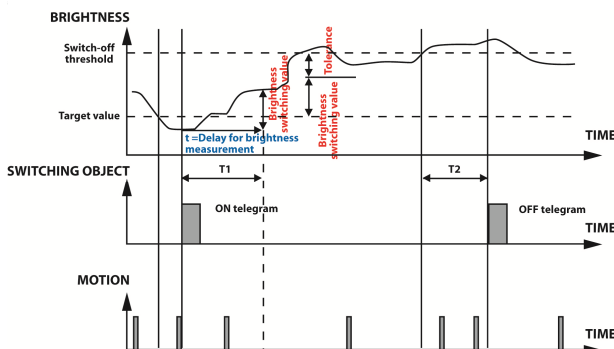
These sources of interference can lead to detection errors due to their heat generation.

Observe the installation height of 2.5 m to ensure the optimum range and sensitivity!

### Light evaluation:

This section provides a more detailed description of light measurement for the KNX occupancy detector if it has been parameterised as a switch.

The following diagram is provided to aid understanding (light curve for fluorescent lamp with daylight):



### Example:

In the example, the light value is initially above the target value (target value setting via "Brightness Threshold"). The light output shows no reaction when motion is detected. If the light value now falls below the target value and the occupancy detector detects motion, the lamp is switched on.

The curve describes the total luminous intensity in a room with daylight and artificial light.

Time T1 starts when the lighting is switched on. This time can be set in the parameters under "Determining switch-off threshold after". As can be seen in the diagram, fluorescent lamps, for example, take a few minutes to reach their maximum luminous intensity.

After the time T1, the switch-off threshold is calculated. The brightness switching value that was determined in time T1 should be added to the parameterised target value. In addition, a tolerance is added to this value. The tolerance can also be set to 50 lux or 100 lux under the Tolerance parameter..

Movements that are made during the dark phase trigger the lag time again so that the lighting stays on.

Movements that are made during the dark phase trigger the lag time again so that the lighting stays on.

If the daylight value slowly rises and exceeds the switch-off threshold, delay time T2 starts. This is the daylight-related shutdown, which switches off the lighting even though the lag time has not yet elapsed. The light value must remain above the switch-off threshold constantly during this time. This function is an energy-saving measure.

The lighting switches off after time T2.

### Detector operating mode:

The detector operating mode can be set under the main "Light Output" tab in the BEG\_DIM\_HKL\_V4.0 application. The device can be operated in the following operating modes:

1. Standard mode
2. Semi-automatic mode
3. Slave mode
4. Permanent dimmer (DIM application only)

The individual operating modes are explained in the description.

**Output light:**

This parameter can be used to determine whether the device should switch or dim the lighting in full/semi-automatic mode. If the device is parameterised as a dimmer, the settings described under point 2.1 apply. The parameters for use as a switch are described under point 2.2.

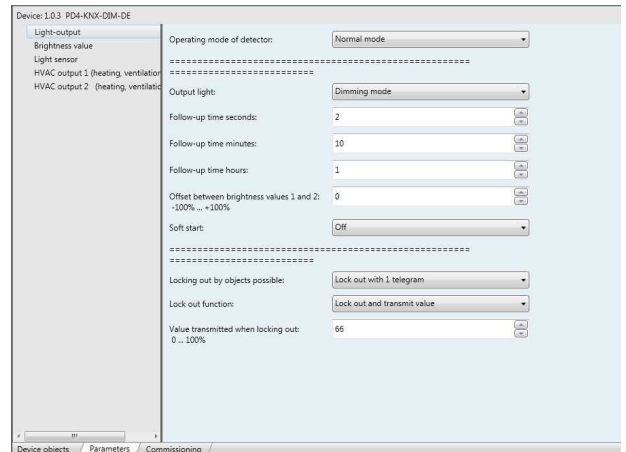
**⚠ Internal logic of the detector:**

One important point must be noted for the B.E.G. KNX occupancy detector. The entire logic is processed internally by the device. This means that other devices such as light sensors, timers or logical devices are not required. Interventions in the light controller are not recommended, as this could cause behaviour that may be interpreted as an error. This applies in particular to higher level logical devices such as KNX servers or operator panels. Manual interventions should only be made using the locking or pushbutton objects.

**2. Guide for initial startup  
Standard mode**

**2.1 Occupancy detector as a dimmer**

**Settings for the main "Light Output" tab:**

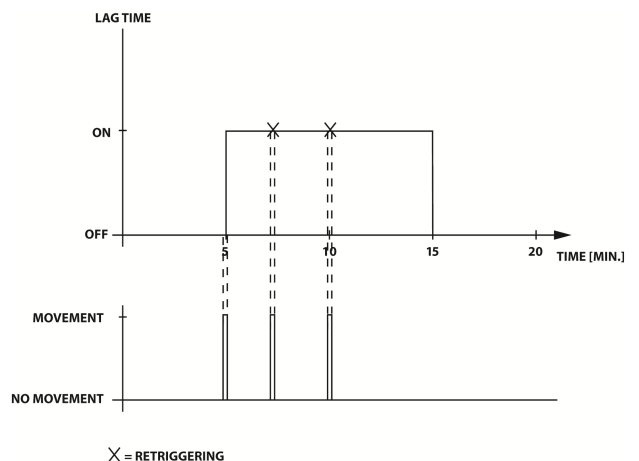


**"Lag time" parameter:**

The lag time is used to determine how long the lighting stays active after the last detected movement. Each time a movement is detected, the lag time is reset (see diagram).

The lag time is set under "Lag time in seconds", "Lag time in minutes" and "Lag time in hours" and is the sum of these three times.

**Example for retriggering, lag time of 5 minutes**



**i** For fluorescent lamps, a lag time of at least 10 minutes is recommended to increase the life of the lighting.

## "Offset between brightness 1 and 2" parameter:

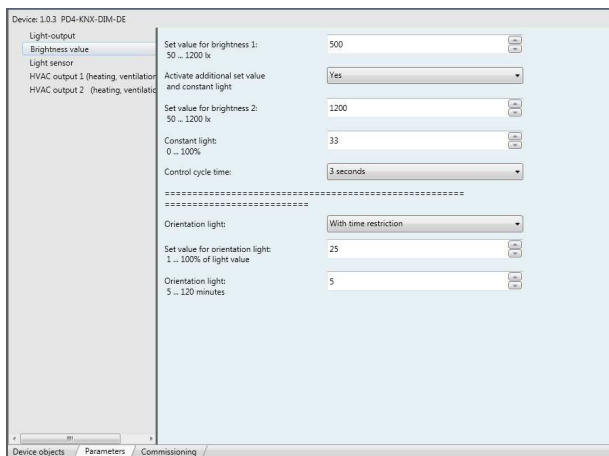
If the system requires the separate control of 2 rows of lights, this can be implemented using the offset. The "Brightness 1" communication object is defined as the base channel. If, for example, an offset of -30% is parameterised, the second channel is only activated when the base channel reaches 30%. This provides a fixed control difference of 30% between the two channels. When the base channel reaches 100%, the second channel is raised to 100% automatically.

## "Soft start" parameter:

If the soft start is active, the brightness ramps up incrementally from 0% to the target value when movement is detected.


By default the soft start is deactivated, which means the light switch on at 100% full brightness and adjust itself towards the target level after movement is detected.

## Settings for the main "Brightness" tab:



## "Target value for brightness 1 and 2" parameter:

The target value for brightness is the lux value desired in the room. It can be freely selected in the range from 5 - 1200 lux.

 Experience shows that an ideal target value for the occupancy detector is 500 lux.

## "Constant light" parameter:

If the constant light threshold is active, the brightness communication objects are used to transfer a fixed value in % to the BUS. The lighting is no longer adjusted. The value is set between 0 – 100% in the "Constant light" parameter.

## Toggle mode:

If the additional thresholds "Target value for brightness 2" and "Constant light" are activated, the "Toggle target value", "Toggle target value/constant light" and "Current target value" communication objects are displayed.

These communication objects respond to 1-bit signals. The selected threshold remains active permanently, even after manual or automatic deactivation.

## Telegram to "Toggle target value":

1 = Change target value 1/constant light to target value 2

0 = Change target value 2/constant light to target value 1

## Telegram to "Toggle target value/constant light":

1 = Change target value 1/target value 2 to constant light


0 = Change target value 1/constant light to target value 2

## "Current target value/constant light":

Status display for the threshold

## "Cycle time control" parameter:

The "Cycle time control" parameter specifies the control speed of the lighting.

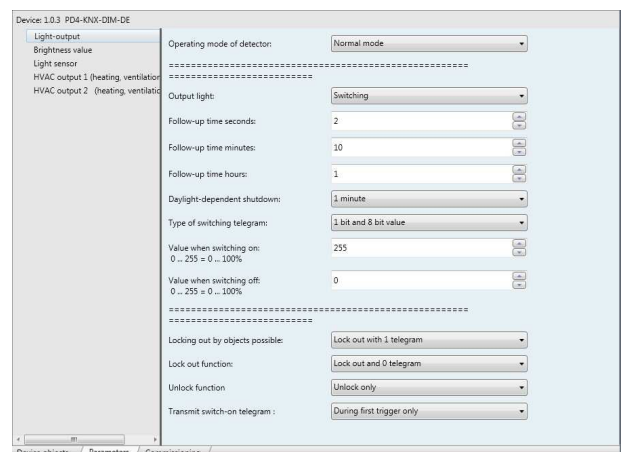
 An average time of 3 seconds is recommended. If the control speed is too fast, it may lead to oscillation in the lighting.

If the lighting shows signs of oscillation, the "Cycle time control" parameter should be set to a higher value.

For the settings for the light sensor and the HVAC channels, see sections 6 and 7 !

## 2.2 Occupancy detector as a switch:

### The main "Light Output" tab:



### The main "Light Output" tab:

See section 2.1 Lag time

## "Daylight-related shutdown" parameter:

The time T2 in the diagram under Section 1 "Light evaluation" can be set here. Please refer to this section for details.



A parameterised time of 5 minutes is recommended.

### "Type of switching telegram" parameter:

This parameter can be used to define the signal, which is output to the BUS when a movement is detected. For normal applications, the 1-bit signal is sufficient. An 8-bit signal can also be parameterised, which outputs a value from 0 - 100% to the BUS. The 8-bit signal can be freely parameterised for activation and deactivation.

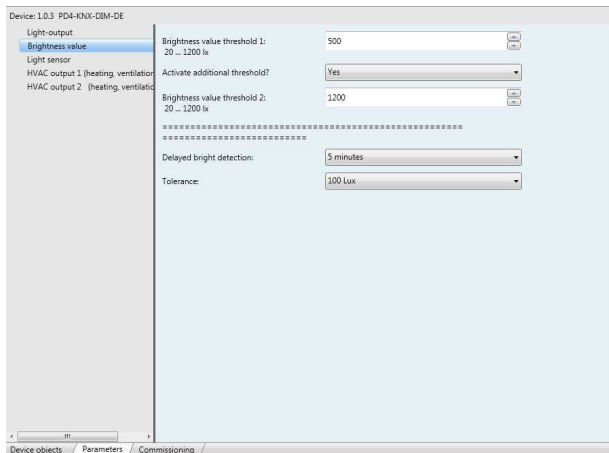
### "Send switch-on telegram" parameter:

When "Send on every detection" is selected, the signal is output via communication object 0: "Light output" and 1: "Brightness" each time a movement is detected. When "Only on first trigger" is selected, a signal is output the first time a movement is detected.



This parameter can be used to minimise the BUS load. With this setting, the lag time is also retriggered internally each time a movement is detected.

### Main "Brightness" tab:



### "Brightness threshold" and "Brightness threshold 2" parameters:

See section 2.1.

### "Determining switch-off threshold after" parameter:

This parameter sets the time that elapses before the occupancy detector determines its switch-off threshold. For details, please refer to the diagram in section 1.4 Light evaluation.



For fluorescent lamps, a time of 5 - 10 minutes is recommended. For resistive loads such as incandescent lamps, a time of 1 minute is sufficient.

### Toggle mode:

If the additional threshold "Target value for brightness 2" is activated, the "Toggle threshold" and "Current threshold" communication objects are displayed. These communication objects respond to 1-bit signals. The selected threshold remains active permanently, even after manual or automatic deactivation.

### Telegram to "Toggle threshold":

1 = Change threshold 1 to threshold 2  
0 = Change threshold 2 to threshold 1

### Current threshold:

Status display for the threshold

### "Tolerance" parameter:

The tolerance to be added to the calculated switch-off threshold is set here. For details, please refer to the diagram in section 1.4 Light evaluation.

For the settings for the light sensor and the HVAC channels, see sections 6 and 7.

## 3. Guide for initial startup Semi-automatic mode

Semi-automatic mode responds in the same way as standard mode. The parameter settings do not change in this mode.

However, the first switch-on telegram is different. In semi-automatic mode, the lighting is switched on by a 1-bit signal to the pushbutton object, whereas in standard mode it is switched on the first time a movement is detected.



To switch on the lighting in semi-automatic-mode a pushbutton is essential.

The lighting is switched off automatically in the same way as for standard mode.

For the precise settings for light channels, the light sensor and HVAC channels, see Sections 2, 6 and 7!

#### 4. Guide for slave mode

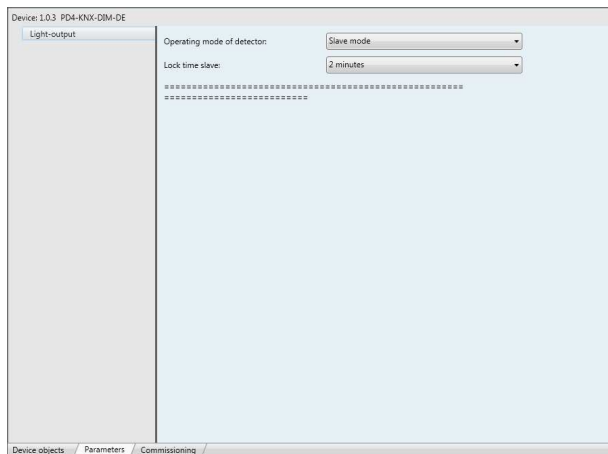
A problem that arises in practical applications is the master/master operation of occupancy detectors. This can lead to errors in the lighting system because both masters perform brightness evaluations and specify lag times.

A solution to this problem is offered by the master/slave system. The master performs all logical evaluations such as brightness detection or the specification of the lag time. The slave is used only to extend the range. Several slave devices can work together with one master.


##### Explanation of the master/slave principle



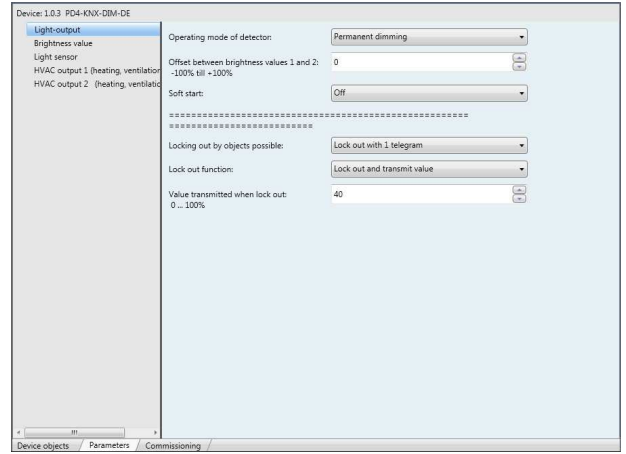
##### "Locking time" parameter:



The locking time is the only parameter that can be set in slave mode. It specifies the dead time between sending two signals.

 A dead time > 30 sec. is recommended to ensure the BUS is not overloaded.

#### 5. Guide for permanent dimmer



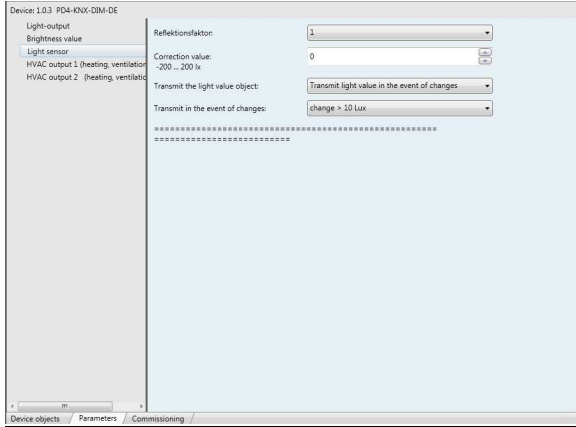
Permanent dimmer mode is used in areas where a specific lux value should be provided at all times (bank lobby, passage, etc.).

In this mode, the occupancy detector only evaluates the brightness and controls it regardless of movement, i.e. permanently. If permanent light control is not required at certain times, a logical device can send a 1-bit telegram to the locking object, which switches off the permanent dimmer permanently (for more information about locking, refer to section 9.4 Locking mode).

The parameters for the permanent dimmer were described already in section 2.1. For setting details, please refer to this section.

For the settings for the light sensor and the HVAC channels, see sections 6 and 7!

## 6. Guide for light sensor



B.E.G. KNX occupancy detector offers the option of outputting the measured light value in the room to the BUS via a 2-byte object.

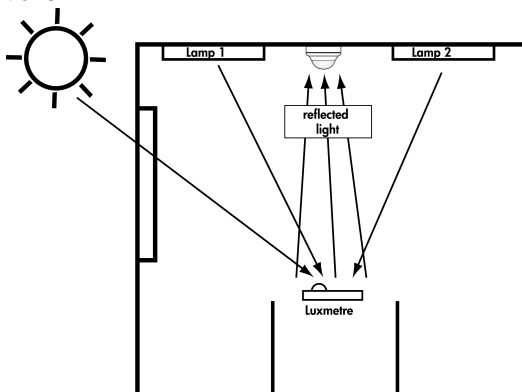
### "Send the light value object" parameter:

This parameter is deactivated by default. As soon as the "Send light value cyclically" or "Send light value on change" menu item is activated, the "Light value" communication object appears.

- Send light value cyclically: The light value is sent to the BUS again after the set time has elapsed.
- Send light value on change: The light value is only sent to the BUS after the parameterized change to the light value.

### Reflection factor:

The light measurement on the ceiling is based on the fact that incoming sunlight and artificial light in the room is reflected off the ceiling and can be measured. The problem is that the full luminous intensity is not reflected. The degree of reflection is strongly influenced by the properties of the floor or furniture, which means that the measured light value on the ceiling does not correspond to the brightness of the room. The KNX occupancy detector must therefore be adapted to the relevant conditions.



To make this adjustment, a lux meter must be positioned at the point where the desired lux value is to be achieved. The lighting must be switched on (please allow 10 minutes for fluorescent lights to warm up). The lux value is then measured, e.g. on the desk. Finally, the light value on the ceiling should be determined. To do this, a lux meter can be held at the position of the occupancy detector or the occupancy detector can output the lux value on the BUS.

Once the values have been determined, the reflection factor can be set.

Example:

Measurement at desk 600 Lux  
Measurement at ceiling 300 Lux

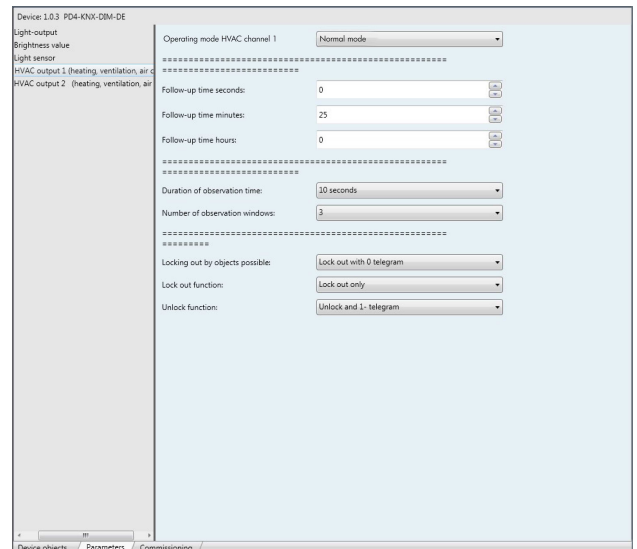
**The ratio is 1:2 so a reflection factor of ½ should be set.**

Fine adjustments can then be made with the offset (see next section).

### "Correction value" parameter:

This parameter is used to calibrate the light value. A value range from -200 to +200 lux can be freely parameterised.

## 7. Guide for HVAC output



The HVAC channel (Heating Ventilation and Air Conditioning) has been designed so that systems with high energy consumption can be started with a time delay. In addition, an alarm indicator can be simulated with an HVAC channel.

**Important:** The HVAC channels only depend on presence, which means that the brightness evaluation is irrelevant for these channels.

## HVAC channel operating mode:

The HVAC channel operating mode parameter can be used to influence the main method of operation of the relevant HVAC channel. Standard mode or semi-automatic mode can be selected.

Standard mode: According to the parameterised behaviour, the HVAC channel sends a 1-bit 1 telegram to the BUS. The "Length of observation time" and "Number of observation windows" parameters are taken into account.

Semi-automatic mode: To activate the relevant HVAC channel, a 1-bit 1 telegram must be sent to communication object 15/16. The "Length of observation time" and "Number of observation windows" parameters are not taken into account. Only the lag time is observed.

## "Lag time" parameter:

As described in Section 2.1, the lag time of the HVAC channel can be set under this parameter. It can be programmed with an accuracy of a few seconds.

## "Length of observation time" parameter:

The "Length of observation time" item can be used to set the length of an observation window.

## "Number of observation windows" parameter:

The "Number of observation windows" parameter can be used to set the number of observation windows.

The observation time and observation windows are directly linked. They are used to set the delay time of the HVAC channel.

## Example: Observation time 10 seconds, observation window 3:

The first time a movement is detected, the time for the first window is started. At least one movement must now be detected in each window. The channel switches on in the last window the first time a movement is detected for its lag time. This leads to a delay time of 21 - 30 seconds (depending on the last detected movement).

The lag time is retriggered on each movement in the same way as for the switch or dimmer channel. If there is no movement in a window, all windows are reset.

## 8. Presence detection function

There are two options for dedicated presence monitoring:

### 8.1 Use of an HVAC channel (1 and 0 telegram):

To implement presence monitoring without delay, the following parameters should be set:

## Lag time:

The lag time can be freely parameterised.

## Length of observation time:

Can be disregarded.

## Number of observation windows:

Switch on immediately on movement

If the parameters are set for this option, the first time a movement is detected the occupancy detector can send a 1-bit ON telegram via the relevant parameterized HVAC communication object. New movements restart the lag time. When no further movements are detected, the lag time elapses. Once the lag time has elapsed, the occupancy detector sends a 1-bit OFF telegram.

## 8.2 Use of the slave as occupancy detector (1 telegram cyclically)

To implement cyclic presence monitoring, KNX occupancy detector must be parameterised as a slave.

The external movement object can then be linked to a logical monitoring device, which expects cyclic signals.

The "Slave locking time" parameter can be used to set the time for cyclic transmission.

When these settings are used, the occupancy detector sends presence signals cyclically via the "External movement object".

## 9. Explanation of other functions

### 9.1 Burning-in fluorescent lights

To achieve an optimum service life for fluorescent lights, light manufacturers require a burn-in period of 100 hours. The lighting should not be dimmed during this time!

In order to implement this function with the B.E.G. occupancy detector, please use locking mode (as described in Section 9.4). Locking mode can be used to lock the occupancy detector and allow the transmission of a 100% or 1-bit 1 telegram. The lights now remain switched on until the device is unlocked. To calculate the total operating time, use a KNX meter



## 9.2 Pushbutton object

The pushbutton object offers the option of establishing a link with a KNX pushbutton.

This enables manual intervention in the light controller. The following functions can be executed:

### In full automatic mode:

- When the lighting is off, it can be switched on with a 1-bit signal to the pushbutton object. The lighting remains active for as long as the occupancy detector detects movement. Once the lag time has elapsed, the occupancy detector switches off the lighting.
- When the lighting is on, it can be switched off with a 1-bit signal to the pushbutton object. The lighting remains inactive for as long as the occupancy detector detects movement. Once the lag time has elapsed, the presence-detector returns to standard mode.

### In semi-automatic mode:

In semi-automatic mode a pushbutton is **essential** because it is used to trigger the first switch-on telegram. Then the lag time either elapses or is retriggered by movements.

If the light value exceeds the target value, the occupancy detector detects that it is "too bright" and does not switch to full automatic mode.

If the light value exceeds the target value, this is indicated as follows in dimmer mode:

When the pushbutton is pressed, the occupancy detector switches on and then immediately dims until it switches off again. To switch on the lighting permanently, it must be dimmed manually.

This manual dimmer value is maintained until the lag time has elapsed and the device switches off.

## 9.3 Manual dimming

Another application is dimming using the pushbutton. If the lighting is dimmed manually, the occupancy detector only sends a 0% telegram to the BUS after its parameterised lag time.

**Principle:** For manual dimming, the actuator is dimmed directly using a pushbutton. The occupancy detector only receives a signal via its dimming object, which prevents it from sending telegrams to the BUS via its brightness objects.

Only the switch-off telegram is sent to the BUS once the lag time has elapsed. The occupancy detector then returns to its parameterised mode.

## 9.4 Locking mode

Locking mode can be used to lock the occupancy detector so that no telegrams are sent to the BUS via the light object or the brightness objects.

It is also possible to still send a defined final signal when locking or unlocking.

The following parameters can be set in switch mode:

### "Locking using objects supported" parameter:

Locking mode must be activated under this parameter. The user can select whether the lock is activated by sending a 1 or a 0 to the locking object. The other telegram is then used to unlock (for example, lock with 1, unlock with 0).

### "Lock function" parameter:

The response to locking is specified under this parameter. The following parameters can be selected:

- Lock only (no telegram is sent to the BUS)
- Lock prevents activation of the channel. (If the detector is active, the lag time elapses. The occupancy detector then no longer switches on.)
- Lock and 0 telegram
- Lock and 1 telegram

### "Unlock function" parameter:

The response to unlocking is specified under this parameter.

The following parameters can be selected:

- Unlock only (Attention: If this option is activated, another device must send a 0 telegram if the lighting is already active.)
- Unlock and 0 telegram
- Unlock and 1 telegram

The following parameters can be set in dimmer mode:

### "Locking using objects supported" parameter:

Locking mode must be activated under this parameter. The user can select whether the lock is activated by sending a 1 or a 0 to the locking object. The other telegram is then used to unlock (for example, lock with 1, unlock with 0).

### "Lock function" parameter:

The response to locking is specified under this parameter. The following parameters can be selected:

- Lock only (no telegram is sent to the BUS)
- Lock prevents activation of the channel. (If the detector is active, the lag time elapses. The occupancy detector then no longer switches on.)
- Lock and send value (a defined dimmer value from 0 – 100 % can be parameterised)

When the device is unlocked it automatically returns to its usual control mode.



## **⚠ Attention:**

In semi-automatic mode, please note:

If the unlocking function is set to "Unlock only", the channel has a follow-up function. This means that if a switch-on telegram is sent to pushbutton object 5 when the device is locked, the device will send the parameterised telegrams once it is unlocked. The telegrams are set in the main "Light output" tab.

## 9.5 Behaviour on bus voltage recovery

The behaviour of the occupancy detector after programming and after bus voltage recovery cannot be parameterised.

The device behaves as follows on bus voltage recovery:

Light output/HVAC output active prior to voltage failure:  
After bus voltage recovery, the device activates the channels for one minute.

Light output/HVAC output deactivated prior to voltage failure:

After bus voltage recovery, the device deactivates the channels for one minute.

The device then returns to its parameterised operating mode. In the event of sufficient light or no movement, for example, the device would deactivate the channels. In the event of insufficient light and detected movement, the device would switch on the lighting.

## 10. Communication objects

→ Input object | ← Output object

### Communication objects in dimmer mode

#### Standard / semi-automatic mode

Object 0:	Hidden	
Object 1:	← Brightness 1	1byte
Object 2:	← Brightness 2	1byte
Object 3:	→ Locking object	1bit
Object 4:	→ External movement	1bit
Object 5:	→ Pushbutton object	1bit
Object 6:	→ Dimming object	4bit
Object 7:	→ Toggle target value	1bit
Object 8:	→ Toggle target value/ Constant light	1bit
Object 9:	→ Current target value/ Constant light	1byte
Object 10:	← HVAC output	1bit

Object 11:	→ Locking object HVAC output 1	1bit
Object 12:	← HVAC output 2	1bit
Object 13:	→ Locking object HVAC output 2	1bit
Object 14:	← Light value	2byte
Object 15:	→ HVAC output 1- Pushbutton object	1bit
Object 16:	→ HVAC output 2- Pushbutton object	1bit

### Switch mode (SWI)

Object 0:	← Light output	1bit
Object 1:	← Brightness	1byte
Object 2:	Hidden	
Object 3:	→ Locking object	1bit
Object 4:	→ External movement	1bit
Object 5:	→ Pushbutton object	1bit
Object 6:	Hidden	
Object 7:	→ Toggeln Schwelle	1bit
Object 8:	Hidden	
Object 9:	→ Aktuelle Schwelle	1byte
Object 10:	← HVAC output 1	1bit
Object 11:	→ Locking object HVAC output 1	1bit
Object 12:	← HVAC output 2	1bit
Object 13:	→ Locking object HVAC output 2	1bit
Object 14:	← Light value	2byte
Object 15:	→ HVAC output 1- Pushbutton object	1bit
Object 16:	→ HVAC output 2- Pushbutton object	1bit

### Slave mode

Object 0:	← External movement	1bit
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### Permanent dimmer

Object 0:	Hidden	
Object 1:	← Brightness 1	1byte
Object 2:	← Brightness 2	1byte
Object 3:	→ Locking object	1bit
Object 4:	Hidden	
Object 5:	→ Pushbutton object	1bit
Object 6:	Hidden	
Object 7:	→ Toggle target valuee	1bit
Object 8:	→ Toggle target value / Constant light	1bit
Object 9:	→ Current target value / Constant light	1byte
Object 10:	← HVAC output 1	1bit
Object 11:	→ Locking object HVAC output 1	1bit

Object 12:	← HVAC output 2	1bit
Object 13:	→ Locking object HVAC output 2	1bit
Object 14:	← Light value	2byte
Object 15:	→ HVAC output 1- Pushbutton object	1bit
Object 16:	→ HVAC output 2- Pushbutton object	1bit

## Description of objects for standard and semi-automatic mode

### 1. Object 0: Light output

Type: 1bit-Output object

Link with: E.g. actuator 1-bit input object

### 2. Object 0: External movement (for slave only)

Type: 1bit-Output object

Link with: E.g. external movement master input object

### 3. Object 1: Brightness

Type: 1 byte-Output object

Link with: Actuator 1-byte input object

### 4. Object 2: Brightness

Type: 1 byte-Output object

Link with: E.g. actuator 1-byte input object

### 5. Object 3: Locking object

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display, logical device

### 6. Object 4: External movement

Type: 1bit-Input object

Link with: Object 0 external movement from slave device

### 7. Object 5: Pushbutton object

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display, logical device



**Note: Essential in semi-automatic mode**

### 8. Object 6: Dimming object

Type: 4 bit-Input object

Link with: E.g. 4-bit dimming object from pushbutton, touch display

### 9. Object 7: Toggle threshold (SWI mode)

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display

### 10. Object 7: Toggle target value (dimmer mode)

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display

### 11. Object 8: Toggle target value/ Constant light

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display

### 12. Object 9: Current threshold / target value / constant light

Type: 1byte-Output object

Link with: E.g. touch display to display the current status

### 13. Object 10: HVAC output 1

Type: 1bit-Output object

Link with: E.g. actuators that control HVAC (Heating Ventilation Air Conditioning) devices. Control of logical alarms

### 14. Object 11: Locking object HVAC output 1

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display, logical device

### 15. Object 12: HVAC output 2

Type: 1bit-Output object

Link with: E.g. actuators that control HVAC (Heating Ventilation Air Conditioning) devices. Control of logical alarms

### 16. Object 11: Locking object HVAC output 2

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display, logical device

### 17. Object 14: Light value

Type: 2 byte-Output object

Link with: E.g. touch display to display lux value.

### 18. Object 15: HVAC output 1 - Pushbutton object

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display, logical device

### 19. Object 16: HVAC output 2 - Pushbutton object

Type: 1bit-Input object

Link with: E.g. pushbutton, touch display, logical device