KNX
Product documentation

GIRA

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Presence detector Mini Standard

Art. no. 2221 530, 2221 550



Product image non-binding

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1 Information on the product

1.1 Product catalogue

Product name:	Presence detector Mini Standard
Ordering no.	2221 530
Use:	Physical sensor
Design:	Installation Flush-mounted with flush-mounting kit (accessories) Surface-mounted with surface-mounting kit (accessories)
Product name:	Presence detector Mini Standard
Ordering no.	2221 550
Use:	Physical sensor
Design:	Installation Flush-mounted with flush-mounting kit (accessories) Surface-mounted with surface-mounting kit (accessories)

1.2 Purpose

Application

The presence detector is installed on a horizontal ceiling and it monitors an area below it. The device is used for the demand-orientated control of lighting systems, room thermostats and other electrical consumers in interior rooms and, due to its compact design, is suitable both for clamp-mounting in dry false ceilings and for ceiling mounting in flush or surface-mounted appliance boxes (accessory). The device is operated to detect motion (as a motion detector) and evaluate presence (as a presence detector) and for room surveillance (for monitoring), depending on the configuration.
When used as a "Motion detector", the device is usually installed in passageways of buildings in order to switch on the lighting automatically whenever necessary. If lighting is switched on by a motion detector, it is not switched off again until no-one is in the monitored area.
The "Presence detector" application is normally used in areas where people spend long periods of time (e.g. workplace as well as bathroom/toilet...) to control the lighting or heating/ventilation. The device can evaluate slightest movements in this application. Unlike the motion detector functionality, in brightness-dependent mode, the brightness is evaluated continuously if the lighting is switched on, even during an active motion detection process. Thus, for example, lighting can be switched off when a defined brightness threshold is exceeded, e.g. by incoming daylight.
When used for "Monitoring", the device always works brightness independently. Signal telegrams indicate whether or not people are present in the monitored area. Here, the number of motion pulses can be specified within a monitoring time whereby it is possible to adapt the motion evaluation to meet the individual requirements. Motion is identified only when the device has determined the set number of motion pulses. This application is appropriate when the device is to be used as a detector for KNX signalling systems.

Motion detection and brightness sensors

The motion detection of the device takes place digitally via a PIR sensor with a total detection field of 360°. The sensitivity of the motion detection, which is a measure for the range of the PIR evaluation, can be configured in the ETS.
To determine the workplace brightness or ambient brightness, the device has a brightness sensor, which is located behind the lens. The sensor detects the reflected mixed light composed of artificial light and daylight from the area or objects below the device. A reflection coefficient programmed at the factory enables the device to determine the effective brightness of the workplace or floor surface. The reflection coefficient of the device can be adapted to other workplace or floor surfaces using the calibration function if necessary.
The brightness value determined by the device can be made available to other bus subscribers by means of an object for indication or evaluation purposes. In addition, the comfort presence detector has up to three mutually independent brightness limit values that are compared continuously with the determined brightness value. If a limit value configured in the ETS or predefined externally is exceeded or fallen below, the device can transmit switching, brightness value or scene call-up telegrams to the bus and thus trigger appropriate reactions in other bus subscribers.

Function blocks 1 … 3

The Comfort presence detector has 3 function blocks for the motion detector and presence operation. Each function block is to be understood as a virtual device that works independently. Each function block is fully configurable to the "Motion detector", "Presence detector" or "Presence detector - Monitoring" application to allow different switching and control tasks affecting various areas of a room to be executed with just one device. Up to two outputs, which can be configured separately, are available per function block. The data format of these objects is defined separately and adapted to the controllable units of the KNX system, depending on the configured function (switching, staircase function, switching with forced position, dimming value transmitter, scene extension unit, brightness value transmitter, temperature value transmitter, temperature operating mode other value transmitters).

Function block switchover

The function block switchover can be used if necessary. The function block switchover makes it possible to toggle between two function block groups, in which assigned function blocks, for example, can be switched over depending on the time of day or the state of the KNX system. This enables continuous switching and thus changing of the device function during operation of the device (e.g. light control at day, orientation light and motion detector for service light at night / presence detector when present, monitoring for KNX signalling systems when absent).
Extensive parameters allow each function block to be adapted to a wide range of control tasks. Thus, in the ETS, for example, settings can be made on the brightness threshold (incl. external specification and teach-in function), on time delays (evaluation delay at the start and run-on time at the end of detection) and on the sensor assignment (PIR and brightness sensors). A disabling function allows demand-oriented disabling of individual function blocks. In addition, manual operation of the actuated KNX actuator and thus, deactivation of the PIR automatic is possible any time.

Activity monitoring

In brightness-independent operation, a function block can determine the time period after the last motion, depending on the configured operation, and transmit it to the bus by means of a communication object. The transmission of the determined time takes place in "Seconds" data format. This function, for example, allows simple monitoring of people's movements in assisted living or senior living.

Control mode

The operating mode can be configured in the ETS for function blocks with the "Motion detector" or "Presence detector" application. The control mode specifies the functionality of the motion detection and defines whether or not the start and end of a motion detection process are identified automatically. For example, the control mode can be configured to "Auto ON, auto OFF", "Manual ON, auto OFF" or "Auto ON, manual OFF". This makes it possible to adjust the motion detection to many applications in private and public areas (e.g. toilet lighting, service lighting, control of ventilation systems).

Manual operation

Each function block also allows manual operation. The various configuration options make it easy to switch on the actuator with the automatic function active, to deactivate the automatic function permanently or temporarily, or operate the actuator in parallel with automatic function deactivated.

Use as

The function blocks can be used in some applications as a single device, as a main or extension unit, or only as a single device or main unit. It is possible to use several devices in one room to extend the detection field by combining a device configured as a main unit with several devices configured as extension units.

Walking test and motion status indicator

The presence detector has a walking test function. The walking test function serves as a guide for the project design and setting of the PIR detection field. The walking test indicates the reaction of the device when detecting movements with a blue status LED, which is clearly visible behind the sensor window. The walking test can be activated and deactivated by means of an object during operation of the device. Optionally, the status LED can indicate any detected movements even during normal operation.

Measurement of the room temperature

The device has an integrated temperature sensor that allows the ambient room temperature to be measured and forwarded. A temperature value received by means of an object can optionally supplement the room temperature measurement performed by the internal temperature sensor to improve the measurement result

Installation

The device is supplied by the bus voltage. An additional power supply is not necessary.

1.3 Device components

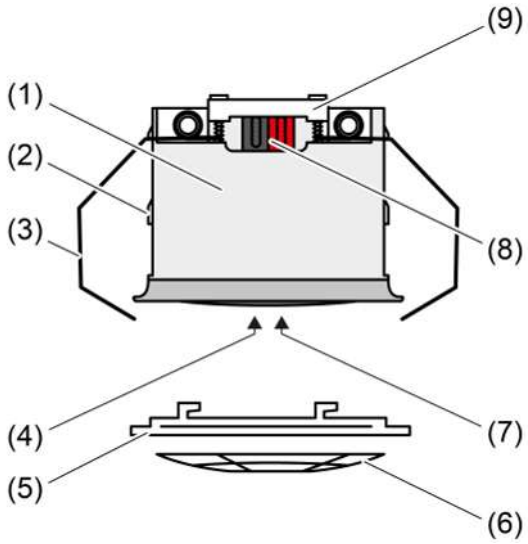


Figure 1: Device components

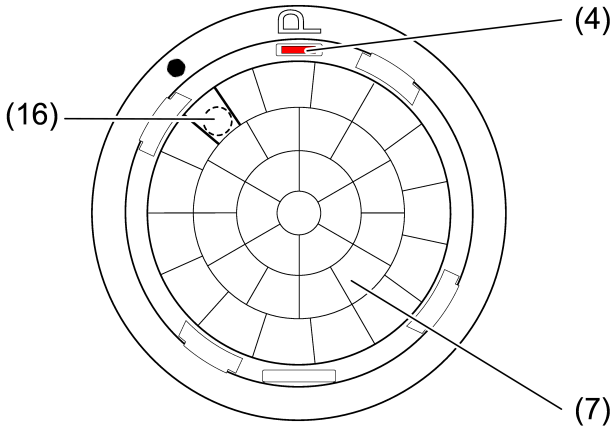


Figure 2: Top view

(1) Presence detector
(2) Guide for spring clips
(3) Spring clamp
(4) Programming button (red)
(5) Design ring
(6) Cover
(7) Sensor window
(8) KNX bus connection
(9) Mounting aid
(16) Brightness sensor position

1.4 Delivery status

In the unprogrammed delivery state, the device behaves passively. It does not transmit any telegrams to the bus when motion is detected. As soon as the device has been programmed in the ETS, it is ready for operation.

1.5 Technical data

General

Ambient temperature	-25 ... +55 °C
Storage/transport temperature	-25 ... +70 °C
Relative humidity	10 ... 100% (no condensation)
Protection class	III
Degree of protection	IP44 (depending on installation)

Motion detection

Detection angle	360°
Range	

Brightness sensor

Measuring range	10 ... 2000 lx
Accuracy > 80 lx	± 20%
Accuracy ≤ 80 lx	± 10 lx
Resolution	1.9 lx

Temperature sensor

Measuring range	Approx. -20 ... +55 °C
Accuracy	± 1 K

Dimensions

Dimensions Ø×D	53.5 x 38 mm (with design ring)
Ceiling cut-out Ø×D	44 x 35 mm

KNX supply

KNX medium	TP
Commissioning mode	S mode
Rated voltage KNX	DC 21 ... 32 V SELV
5 ... 15 mA	5 ... 15 mA
Bus connection type	Device connection terminal

1.6 Accessories

Flush-mounted installation kit	Art. no. 2226 5..
Surface-mounted installation kit	Art. no. 2227 5..

2 Safety instructions



Electric devices may only be mounted and connected by electrically skilled persons.

To avoid potential damage, read and follow the following instructions:

Do not press the sensor window. Device can be damaged.

The device is not suitable for use as a burglar alarm or any other alarm.

Danger of electric shock. Comply with the regulations and standards that apply to SELV circuits during the installation and cable routing.

3 Mounting and electrical connection

Detection field and range

The device detects motion using a digital PIR sensor with a detection field of 360° (see figure 4). The diameter of the detection field depends on the mounting height and the direction of motion of persons in the detection field (see figure 3).

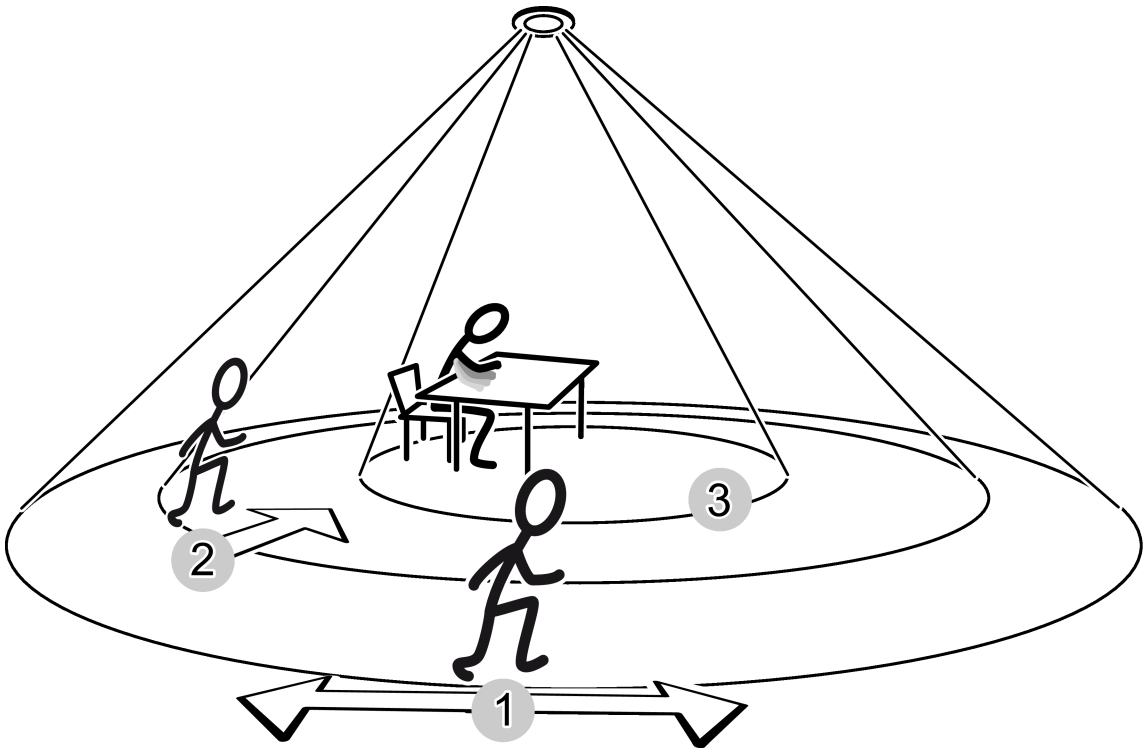


Figure 3: Detection range depending on the direction of motion

1: Range for tangential motion on the ground
2: Range for radial motion on the ground
3: Presence detection range, e.g. arm movement at the desk

The detection field will become larger the greater the mounting height is, while the detection density and sensitivity are reduced at the same time.

Installation height	1:	2:	3:
2.20 m	8.30 m	5.10 m	3.10 m
2.50 m	9.40 m	5.80 m	3.50 m
3.00 m	11.30 m	7.00 m	4.20 m
3.50 m	13.20 m	8.10 m	--*)
4.00 m	15.00 m	9.30 m	--*)
5.00 m	18.80 m	11.60 m	--*)

Diameter of detection field for direction of motion

*: When used as a presence detector, the mounting height should not be greater than 3.0 m. Otherwise presence detection will be possible only to a limited degree.

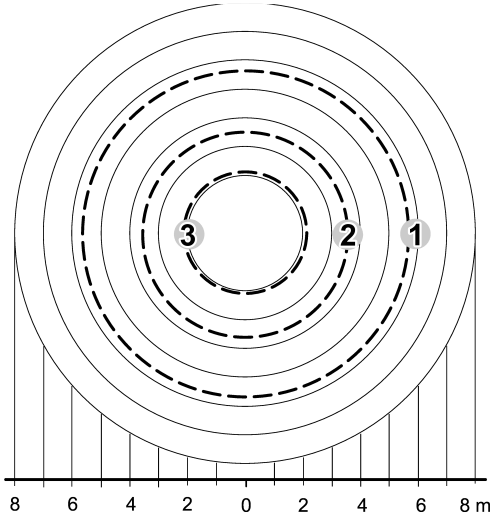


Figure 4: Detection field for a mounting height of 3.00 m

The sensitivity of the motion detection can be parameterised in the ETS in order to reduce or even completely suppress unwanted motion detections.
For an accurate function description of the sensitivity setting, refer to the chapter Software description.

Aligning the device

The presence detector (1) is ideally mounted on the ceiling above a workplace or a bright surface. The device measures the reflected brightness (mixed light of artificial light and daylight) of the areas beneath it. The brightness sensor (16) is located in the sensor housing behind the lens.

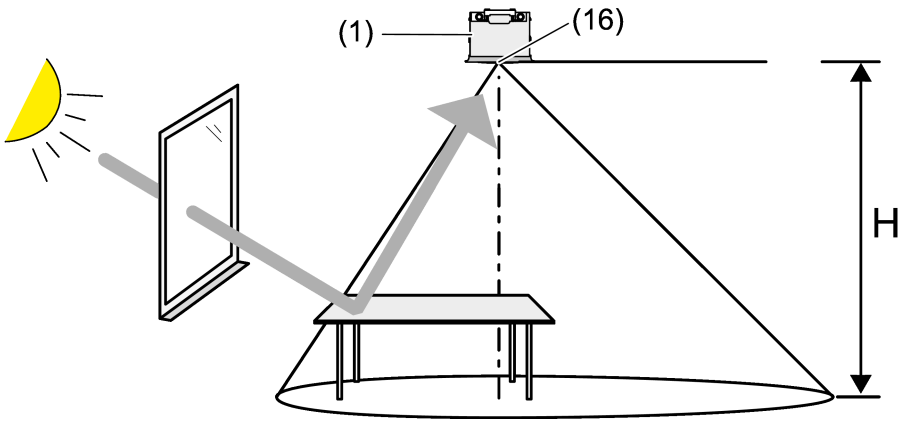


Figure 5: Brightness sensor

- Select a vibration-free installation location. Strong vibrations can lead to varying brightness measurements.

To avoid influencing the brightness measurement unfavourably, care must already be taken when mounting the device to ensure that no direct light falls onto the lens (e.g. sunlight or indirect lighting aligned upwards). Strong reflections can also influence the brightness measurement if they fall directly onto the device lens.

Selecting installation location

When used as a presence detector, the device is installed ideally on the ceiling above a workplace. The device then monitors the surface below it. When used as a motion detector, the device is installed e.g. in corridors or passageways on the ceiling.

- Select a vibration-free installation location. Vibrations can lead to undesired switching operations.
- Avoid interference sources in the detection field. Interference sources, e.g. heaters, ventilation, air conditioners and cooling lamps can lead to undesired detection processes.

If necessary, the detection field can be limited using the push-on cover in order to minimise the influence of interference sources.

To avoid unfavourably influencing the brightness measurement, care must already be taken when mounting the device to ensure that no direct light (sunlight, artificial light) falls onto the lens. Strong reflections can also influence the brightness measurement if they fall directly onto the device lens.

Connecting and mounting the device in a suspended ceiling

In the delivered state, the device is prepared for mounting in a suspended ceiling. The spring clamps are pre-mounted.

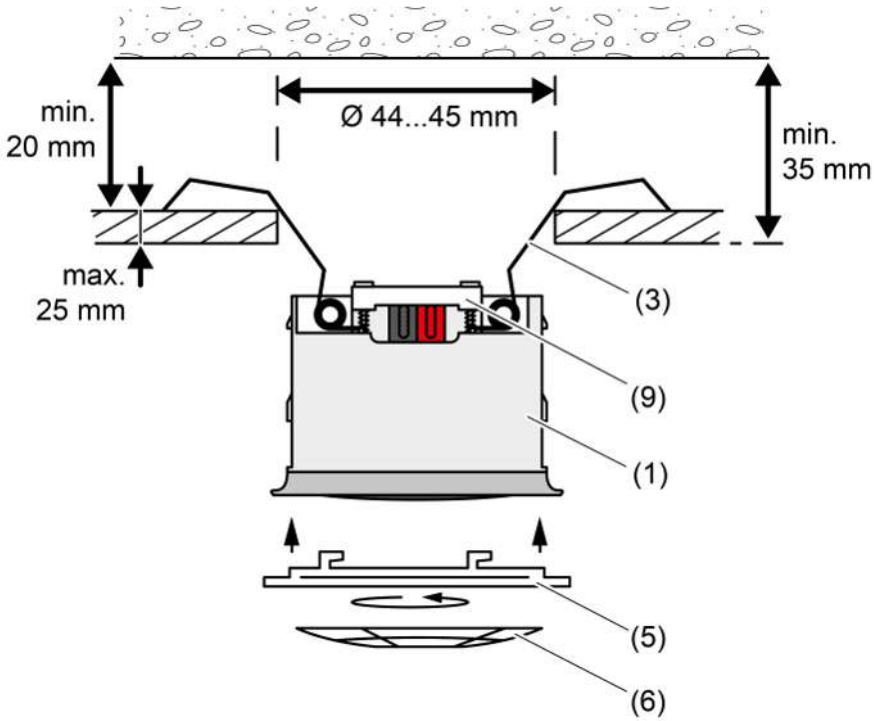


Figure 6: Mounting in a suspended ceiling

Max. thickness of the suspended ceiling of approx. 25 mm. Installation depth of min. 35 mm. Distance between suspended ceiling and concrete ceiling of min. 20 mm.

- Connect the KNX bus line.

- Clamp the KNX bus line with cable fixation (9).
- Bend back the spring clamps (3) and push the presence detector (1) into the suspended ceiling.
- Attach the design ring (5) and turn it clockwise.
- If necessary, cut out the cover (6) and clip it into the design ring.

In suspended ventilated ceilings, we recommend using air-tight, cavity wall appliance boxes and, as a result, the described mounting type for flush-mounted appliance boxes.

Mounting in combination with the mounting kit for flush or surface-mounted box mounting

For mounting in a flush or surface-mounted box, it is necessary to dismantle the premounted spring clamp and mount the spring clips. The clamping springs are included in the mounting kits (see accessories).

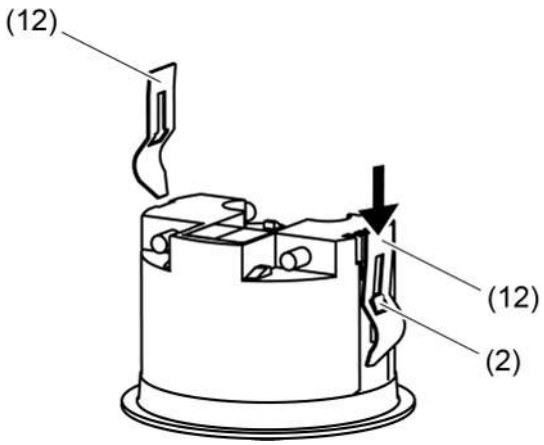


Figure 7: Mounting the spring clips as preparation for flush or surface box mounting

- Remove the spring clamp.
- Push the spring clips (12) in the correct position onto the side guides (2) from behind until they snap into place.

Connecting and fitting the device in a surface-mounted housing

The spring clips must be mounted in advance.

Use the surface-mounted housing included in the mounting kit for surface box mounting.

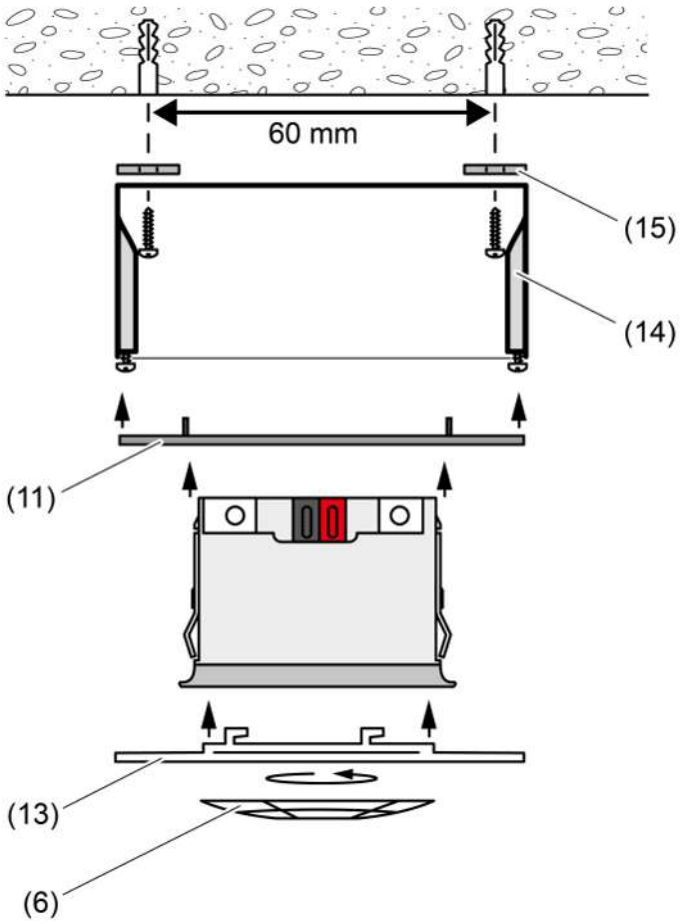


Figure 8: Mounting in the flush-mounted housing (accessories)

- In humid environments and for IP44 mounting: Provide the screw holes of the surface-mounted housing (14) with the supplied seals (15).
- Seal the cable entry with the supplied rubber grommet. Cut the rubber grommet appropriately for the bus cable. Route the bus line into the box.
- Mount the surface-mounted housing onto the room ceiling at the designated installation location. Hole spacing of 60 mm.
- Mount the supporting frame (11) on the surface-mounted housing (14).
- Connect the KNX bus line.
- Snap the presence detector into the supporting frame.
- Attach the large design ring (13) and turn it clockwise.
- If necessary, cut out the cover (6) and clip it into the design ring.

Connecting and mounting the device in an appliance box for flush mount

The spring clips must be mounted in advance.

A suitable flush-mounted appliance box is mounted in the ceiling at the designated installation location.

The large design ring is included in the mounting kit for flush box mounting (see accessories).

In ventilated suspended ceilings, we recommend using air-tight, cavity wall appliance boxes.

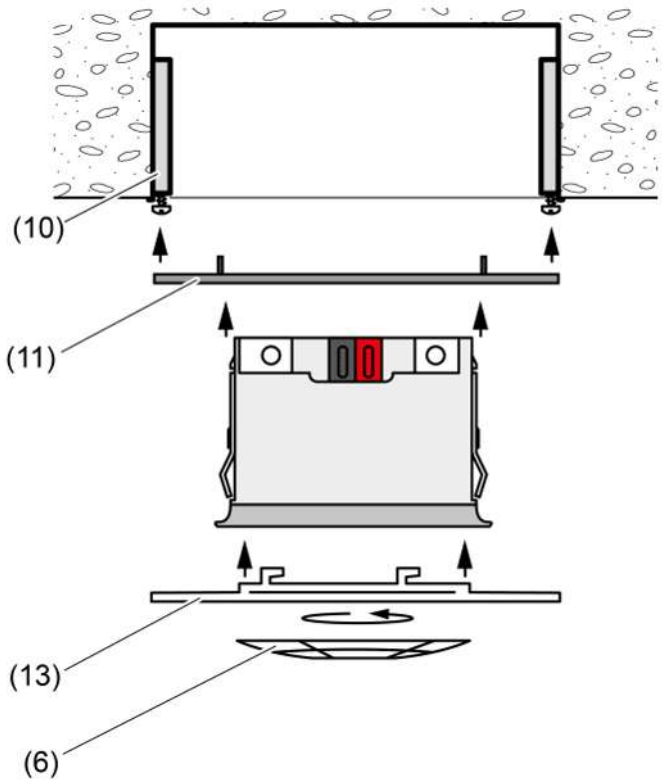


Figure 9: Mounting in a flush-mounted / cavity wall appliance box

- Mount the supporting frame (11) on the appliance box (10).
- Connect the KNX bus line.
- Snap the presence detector into the supporting frame.
- Attach the large design ring (13) and turn it clockwise.
- If necessary, cut out the cover (6) and clip it into the design ring.

4 Commissioning

Programming the physical address and application program

- Switch on the bus voltage.
- Perform commissioning with the ETS.

The red programming button (4) can be accessed by removing the cover (6) (optionally) and the design ring (5).

Testing the detection field

The device must be mounted and connected and the physical address and application program must be loaded.

In the case of main unit and extension arrangements, check the detection fields of the devices individually one after the other.

Activating walking test by means of ETS configuration.

The "Use walking test" parameter is set to "Activated" so that the "Activate/Deactivate walking test" object is visible.

- Switch on the walking test with a telegram to the "Activate/Deactivate walking test" object.

  The device then works brightness-independently and indicates detected movements with the blue status LED. The PIR sensor is active according to its preset sensitivity.
- Pace off the detection field, paying attention to reliable detection and interference sources.
- Limit the detection field as required. To do this, change the sensitivity of the ETS parameter setting preferably or, alternatively, use the clip-on cover.
- After a successful test, switch off the walking test by sending a telegram to the "Activate/Deactivate walking test" object.

  The walking test is deactivated. The device works according to the configuration.

Limiting the detection field using the push-on cover

As an alternative to restricting the detection field with the ETS, the cover (6) can also be used by reducing the sensitivity or switching off individual sensors.

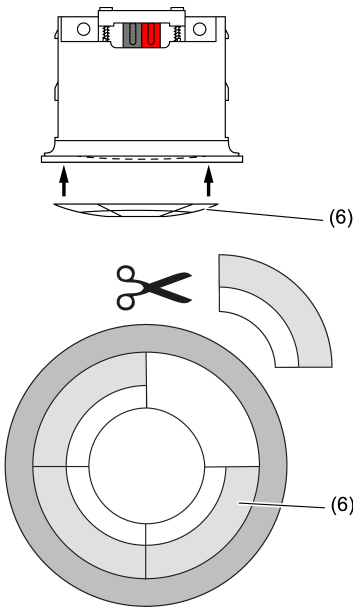


Figure 10: Cover mounting

- Pull off the push-on cover.
- Use the scissors to cut out the push-on cover along the marked lines as required.
- Push on the push-on cover.

4.1 Safe-state mode

The safe-state mode stops the execution of the loaded application program.

Only the system software of the device is still functional. ETS diagnosis functions and programming of the device are possible.

Activating safe-state mode

- Switch off the bus voltage or remove the KNX device connection terminal.
- Wait approx. 10 seconds.
- Press and hold down the programming button.
- Switch on the bus voltage or attach the KNX device connection terminal.
- Wait until the programming LED flashes slowly.
- Release the programming button.

  Safe-state mode is activated.

  The programming mode can be switched on and off as usual also in safe-state mode by briefly pressing the programming button again. The programming LED stops flashing if the programming mode is active.

Deactivating safe-state mode

- Switch off the bus voltage (wait approx. 10 seconds) or carry out the ETS programming procedure.

4.2 Master reset

The master reset restores the basic device settings (physical address 15.15.255, firmware remains in place). The device must then be recommissioned with the ETS.

In secure operation, a master reset will deactivate the device security. The device can then be recommissioned with the device certificate.

Performing a master reset

Prerequisite: safe-state mode is activated.

- Press and hold down the programming button for > 5 s.

  The programming LED flashes quickly.
- Release the programming button.

  The device performs a master reset, restarts and is ready for operation again after approx. 5 s.

4.3 Resetting the device to the default settings

Restoring the device to factory settings

Devices can be reset to factory settings with the Gira ETS Service App. This function uses the firmware included in the device that was active at the time of delivery (delivery state). Restoring the factory settings causes the devices to lose their physical address and configuration.

4.4 Firmware update

The device can be updated. The firmware is easy to update with the Gira ETS Service app (additional software).

5 Application programs

ETS search paths:	Phys. sensors / Movement detector / Presence detector mini Standard
Configuration:	S-mode standard

Applications for presence detector Standard:

Name	Presence detector Standard A01C23
Version	2.3 For ETS from version 5.7.7 or 6.3.0
From mask version	System B
Summarized description	Multifunctional presence detector application: 1 PIR sensor with adjustable sensitivity, function blocks for motion evaluation 1 ... 3 and function block switching. Sensors for brightness and temperature, brightness limit values, day/night switching.

6 Scope of functions

- The device is operated to detect motion (as a motion detector) and evaluate presence (as a presence detector) and for room surveillance (for Presence detection - Monitoring), depending on the configuration.
- Evaluation of the smallest movements in presence detector mode.
- Continuous evaluation of the brightness during active motion detection in presence detector mode. As a result, the lighting can be switched off when a defined brightness threshold is exceeded e.g. by incoming daylight.
- Configurable number of motion pulses within a monitoring time in monitoring operation. Motion is identified only when the device has determined the set number of motion pulses. This application is appropriate when the device is to be used as a detector for KNX signalling systems.
- The motion detection takes place digitally via a PIR sensor with a detection field of 360°.
- Sensitivity of the motion detection can be configured in levels.
- Brightness sensor used to determine the workplace or ambient brightness. Determination of the effective brightness of the workplace or floor surface by means of an adjustable reflection coefficient. Optional calibration of the sensor by means of an object using an externally measured brightness value.
- Evaluation of the measured brightness by up to three mutually independent brightness limit values. If a limit value configured in the ETS or specified externally is exceeded or fallen below, the device can transmit switching, brightness value or scene call-up telegrams to the bus.
- Up to 3 function blocks that work independently of each other are available and the PIR sensor can be assigned individually. Each function block is fully configurable to the "Motion detector", "Presence detector" or "Presence detector - Monitoring" application to allow different switching and control tasks affecting various areas of a room to be executed with just one device.
- Up to two output communication objects are available for each function block, which transmit the switching and control commands to the bus. The data format of these objects is defined separately and adapted to the controllable units of the KNX system, depending on the configured function (switching, staircase function, switching with forced position, dimming value transmitter, scene extension unit, temperature value transmitter, brightness value transmitter, temperature operating mode, other value transmitters).
- Function block switchover for bus-controlled toggling between two function block groups in which assigned function blocks, for example, can be switched over depending on the time of day or state of the KNX system. This makes it possible to continuously switch over during operation of the device and thus change its function (e.g. presence detector for light control at day, motion detector for service light at night / presence detector if present, detector for KNX signalling systems if absent).

- Adaptation of a function block to a wide range of control tasks by means of extensive parameters. Thus, in the ETS, for example, settings can be made on the brightness threshold (incl. external specification and teach-in function), on time delays (evaluation delay at the start and run-on time at the end of detection) and on the sensor assignment (PIR and brightness sensors).
- Demand-oriented disabling of individual function blocks.
- Manual operation of the actuated KNX actuator and thus deactivation of the PIR automatic system is possible.
- For activity monitoring, a function block in brightness-independent operation can determine the time period after a last motion and transmit to the bus by means of a communication object. This function, for example, allows simple monitoring of people's movements in assisted living or senior living.
- Control mode, which can be set for function blocks of the "Motion detector" or "Presence detector" application. The control mode specifies the functionality of the motion detection and defines whether the start and end of a motion detection process is identified automatically. The operation can be configured to "Auto ON, auto OFF", "Manual ON, auto OFF" or "Auto ON, manual OFF".
- The device can be used as a single device or main or extension unit in the "Motion detector" or "Presence detector" applications. It is possible to use several devices in one room to extend the detection field by combining a device configured as a main unit with several devices configured as extension units.
- Walking test function serves as a guide for the project design and setting of the PIR detection field. The walking test indicates the reaction of the device when detecting movements with a blue status LED, which is clearly visible behind the sensor window. Optionally, the status LED can indicate any detected movements even during normal operation.

7 Notes on the software

ETS project design and commissioning

The project design and commissioning of the device is performed using the ETS from version 5.7.7 or 6.3.0.

Unloading the application program

After the application program has been unloaded by the ETS, the device behaves in a neutral manner. The device does not react anymore to movements or bus telegrams. The delivery state (see chapter "Delivery status" ▸ Page 8) described cannot be restored by unloading with the ETS.

ETS Smart Linking

The device is compatible with the ETS function "Smart Linking". This can significantly simplify and speed up project design, especially the linking of communication objects with group addresses. With Smart Linking, functions of the ETS project are linked abstractly with channels of the devices.

– Functions:

  Functions are usually parts of units in building areas, for example switching lights in the kitchen, operating a Venetian blind in the bedroom or controlling a room temperature in the living room. A function contains all group addresses that are relevant for realising the intended functionality.
  The ETS assigns properties to the functions and the contained group addresses (semantics), so that later linking to devices is possible automatically.

– Channels:

  Channels map independently controllable outputs or inputs for KNX actuators or sensors, for example the relay output of a switch actuator, the dimming output of a dimming actuator or the operating rocker of a push-button sensor with display elements. Channels can also be present in room temperature controllers or physical sensors (e.g. presence detectors), which ideally combine all functionally related components into a logical unit. In the ETS, all parameters and communication objects that belong together in terms of functional logic are subordinate to the channels.
  KNX devices must be prepared accordingly in the application programme so that smart linking can be carried out with the ETS. This involves adding information (annotations) to the channels in the ETS product data so that the ETS can recognise how and in what form prepared functions can be linked to the channels of the devices. This device contains this information in the application programme.

ⓘ Smart Linking requires ETS6 version 6.4.0 or higher. Future ETS versions will further expand Smart Linking and continuously create new possibilities.

8 Diagnostics

Firmware diagnostics

The device can be used for diagnostics. Firmware diagnostics can be easily carried out in the parameter dialogue of the ETS application. This checks the compatibility of the application used in the ETS project with the firmware in the device.
A diagnostic can be carried out on the parameter page of the same name. When the "Read out device" button is clicked, the ETS establishes a diagnostic connection to the device via the configured bus interface and reads out firmware data. This process only takes a few seconds.

In order for firmware diagnostics to be carried out, the physical address must have been successfully programmed into the corresponding device at least once using the ETS. It is not necessary to programme the application for diagnostic purposes. The device must be accessible via the configured bus connection in the KNX system.

After the readout process, the parameter dialogue shows the diagnostic result. In the positive case, the application configured in the ETS project matches the firmware of the device in the KNX system. In this case, the application can be programmed without any problems.
In the negative case, the application in the ETS is incompatible with the loaded firmware of the device. The extended diagnostic information indicates which firmware is active in the device and with which firmware the configured application is actually compatible. In the event of incompatibility, either the application in the ETS or the firmware of the device must be changed so that the application can be programmed and the device then functions as intended. The Gira ETS Service App (additional software) can be used to adapt the firmware version of the device. The ETS functions can be used to customise the application in the ETS project (e.g. "Update application program version").

If the readout of the firmware data was not successful, the parameter dialogue shows a corresponding status. Such diagnostic errors can occur in the following cases, for example:

- The device read out in the system is not identical to the configured device (e.g. deviations in type, number of channels or mask version).
- The manufacturer of the device does not match.
- The physical address specified in the ETS project was mistakenly programmed into an incorrect device.

9 General setting and reset behaviour

9.1 Function overview

The device contains various functional units, which perform a variety tasks and have various integrated and external interfaces in the form of sensors and KNX communication objects. Various control or regulation tasks can be performed in the KNX system by activation of KNX actuators and sensors on the objects.

The device combines the functions of up to 3 motion/presence detectors, a brightness sensor with limit value evaluation and a temperature sensor in just one bus device. The following function blocks and functional units implement this variety of functions.

- "Motion/presence detector" function block
  Contains up to 3 function blocks (FB) that operate logically independent of each other and can each be configured separately to the "Motion detector", "Presence detector" " or "Presence detector - Monitoring" application.
- "Function block switchover" functional unit
  This functional unit enables the switch-over of the function blocks 1 ... 3. For this purpose, the function blocks can each be assigned to one of two function block groups. Only one function block group is active at a time during operation. When switching over the function block group, the assigned function blocks of the group to be switched off are deactivated and then the function blocks of the other function block groups are activated. Function blocks that are not assigned to any function block groups are not influenced.
- "Motion" functional unit
  This unit implements the evaluation and processing of the signals from the motion sensors of the device. The prepared signals are made available to various other functional units and can additionally be made available to other bus devices by means of objects as well.
- "Brightness" functional unit
  This unit implements the evaluation and processing of the signals from the brightness sensor of the device. The prepared signals are made available to various other functional units and can additionally be made available to other bus devices by means of objects as well.
- "Brightness limit values" functional unit
  This functional unit evaluates the determined brightness. It can compare this brightness value continuously with a limiting value and transmit preconfigured telegrams of different data formats to the bus if the brightness value exceeds or does not reach the limiting values.
- "Temperature sensor" functional unit
  The device has an integrated temperature sensor that makes it possible to measure the local room temperature. The measured value can be forwarded to other KNX devices by means of an object.

– Heartbeat function
  The heartbeat function makes it easy to check whether the application is running without errors in the device. For this purpose, the Heartbeat communication object sends a telegram with the value "1" with a settable cycle time.

The individual functional units are described in detail in the following chapters of the software description.

9.2 Reset behaviour

Changeable parameters can be reset via object

The device allows parameters to be changed in the individual function blocks by means of objects. If the change to the parameters is to be reversed and the values from the last ETS programming are to be called up again, this can be done with the parameter "Changeable parameters can be reset via object".
This parameter can be found under "Reset behaviour" on the "General" parameter page and applies to the changeable parameters of the entire device.
This parameter can be found in the same place also in all function blocks. If a telegram is sent to the object from the function blocks, all parameters from the function block are reset.

After bus voltage return

Normally, the current states of the device are sent to the bus after the bus voltage returns to communicate the current status to other bus subscribers or initialise them. If this is not desired, the "After bus voltage return" parameter can be set to "No reaction".

Delay after bus voltage return

The device has different status objects, depending on the configuration. These objects are normally configured as "Actively transmitting", which means a feedback telegram can be transmitted automatically to the bus when the state changes. These objects then transmit the current object value constantly even after the bus voltage returns in order to initialise other bus subscribers.
A high telegram load may occur after the bus voltage returns, in particular in large KNX systems with many sensors. To counteract an overload, a transmission delay after the bus voltage return can be configured with this device. This transmission delay takes effect only for automatically transmitting objects of the device after the bus voltage return and is configured by the parameter "Delay after bus voltage return" on the "General" parameter page. It is recommended to configure different delay times in the individual sensors to prevent the devices from transmitting at the same time.

If the delay is not active after an ETS programming operation, the actively transmitting objects transmit their status without delay as soon as the device is restarted after the reset.

9.3 "General" parameters

General -> Enabled functions

Scenes	**Inactive** Active
The device has a versatile scene control. Scenes that can be used to activate day or night operation or switch the function block groups can be activated here. Day/night switchover or function block switchover must be activated to use the scenes sensibly.	

Temperature measurement	**Inactive** Active
The device has an integrated temperature sensor. This temperature sensor can be used to measure the ambient temperature and forward it to other KNX devices (e.g. visualisation systems, room temperature controllers) by means of a 2-byte object. This parameter enables the temperature measurement.	

General -> Function blocks

Number of function blocks	0 … **1** … 3
Up to three function blocks can be activated for motion detection. Each function block works as an independent unit and can be configured separately. Each function block has up to two output objects of its own. This parameter defines the number of function blocks and thus the number of output objects that can be configured in the ETS.	

Function block switchover	**Inactive** Active
Function block switchover can be enabled here. If the function is activated (enabled), you can switch between two function blocks, e.g. one for at day and one for at night.	

General -> Brightness limit values

Brightness limit value	**Inactive** Active
This parameter enables the output objects for the brightness limit value. An upper and a lower brightness threshold can be configured for the brightness limit value, and a configured telegram is sent to the bus if the brightness exceeds or falls below this threshold.	

General -> LED

Motion status indicator (blue LED)	**Inactive** Active
The blue status LED indicates movements detected during the active walking test. If this is to take place also during normal operation, the "Motion status indicator (blue LED)" parameter page, on which the function of the blue status LED is configured, is enabled here.	

General -> Other functions

Day/night switchover	**Inactive** Active
This parameter is used to activate or deactivate the day/night switchover. Individual values can be set for many parameters, e.g. "Sensitivity" for motion detection for day and night. This can be used, for example, to reduce faulty switching processes at night. If this parameter is activated, further parameters appear.	

Combine day/night output objects per FB	Inactive **Active**
If this parameter is active, the outputs of function blocks 1 ... 5 are output by means of a common object at day and at night. If the parameter is inactive, separate output objects will be available for day and night. This parameter is visible only if day/night switchover is set to active.	

Object polarity	**0 = day / 1 = night** 1 = day / 0 = night
This parameter specifies the polarity used to switch between day and night mode. This parameter is visible only if day/night switchover is set to active.	

Time of switchover	**At end of presence for each function block** Immediately
This parameter is used to define when day/night switchover is to take place. **At end of presence for each function block:** The switchover takes place separately for each function block as soon as no detection is active any more for the function block. **Immediately:** The switchover takes place immediately and for all function blocks together. This parameter is visible only if day/night switchover is set to active.	

After bus voltage return	No reaction Query current state **State before bus voltage failure**
This parameter specifies which state (day/night mode) is active after the bus voltage returns. **No reaction:** The device does not yet have any information on which state (day/night mode) is to be switched. The device always switches to day mode until this information is available. **Query current state:** The device sends a telegram to the bus and queries the current state (day/night mode). The current state is then set by means of a telegram to the object "Day/night switchover - Switching". **State as before bus voltage failure:** The device restores the state that was active before the bus voltage failure. This parameter is visible only if day/night switchover is set to active.	

General -> Other functions

Heartbeat function	**Inactive** Active
If the parameter is activated, the heartbeat functions and thus the "Heartbeat" object are enabled. This function monitors the device state and sends it regularly to the bus.	

Cycle time for sending the device state	**0** … 23 h 1 … **2** … 59 min
This parameter defines the time with which the device sends a telegram with the value "1" when the application is running. To limit the bus load, times shorter than 1 minute are excluded.	

General -> Reset behaviour

Changeable parameters can be reset via object	**Inactive** Active
This parameter is used to enable the object "Changeable parameters - Reset". A reset telegram to this object resets all parameters that can be changed by means of objects to the settings in the ETS.	

(Reset behaviour) After bus voltage return	No reaction **Send current states**
Defines the transmission behaviour of the device after the bus voltage returns. **No reaction:** No telegrams are sent to the bus. **Send current states:** The current states of the active function blocks are sent to the bus.	

Delay after bus voltage return	**0** … 59 min 0 … **17** … 59 s
A delay time can be set here in minutes and seconds to prevent all bus devices from sending their state to the bus at the same time after the bus voltage returns. This prevents the bus from being overloaded and ensures that the most important devices can send their status first.	

9.4 "General" objects

Objects that belong to scenes, sensors, function blocks, brightness limit values or the status LED are described in the corresponding chapters.

Function	Name	Type	DPT	Flags
Day/night switchover - Switching	Entire presence detector - Input	1-bit	1,024	C, -, W, T, U
1-bit object for day/night switchover of the device. The polarity of the object can be configured. This object is visible only if the day/night switchover parameter is set to active.				

Function	Name	Type	DPT	Flags
Day/night switchover - Status	Entire presence detector - Output	1-bit	1,024	C, R, -, T, A
This 1-bit object indicates whether the device is in day or night mode. The polarity of the object can be configured. This object is visible only if the "Day/night switchover" parameter is set to active.				

Function	Name	Type	DPT	Flags
Heartbeat	Heartbeat - Output	1-bit	1,002	C, R, -, T, A
1-bit object for cyclical signalling of the device function. When the application of the device is running, the communication object transmits the value "1" with the set cycle time.				

Function	Name	Type	DPT	Flags
Changeable parameters - Reset	Entire presence detector - Input	1-bit	1,017	C, -, W, -, U
1-bit object that can be used to reset all parameters of the device that can be changed by means of objects or the teach-in function to the settings in the ETS. A telegram is sent to this object for this purpose. This object is visible only if the parameter "Changeable parameters can be reset by means of object" is set to active.				

10 Scenes

Up to 64 scenes can be created and scene values (function) configured for the device. The scene values are called up by means of a separate scene extension object. The data point type of the extension object allows all scenes to be addressed.

A distinction is made between two types of scenes:

– Scenes that apply to the entire device and, in this way, influence all function blocks. They are configured on the "Scenes" parameter page

– Scenes that only apply to the respective function block and therefore influence only it.
The scene function must be enabled on the "Enabled function" parameter page of the corresponding function block so that the "Scenes" parameter page of the function block is visible together with the required communication objects and parameters.

The scene configuration selected in the configuration decides whether the number of scenes is either variable (1 ... 64) or alternatively fixed to the maximum (64).

– Scene configuration = "Variable (1 ... 64 scenes)"
In this setting, the number of scenes used can be selected anywhere within a range of 1 to 64. The "Number of scenes" parameter decides how many scenes are visible in the ETS and can therefore be used. It is possible to specify which scene number (1 ... 64) controls each scene.

– Scene configuration = "Fixed (64 scenes)"
In this setting, all scenes are always visible and can therefore be used. The scenes are actuated by permanently assigned scene numbers (1 ... 64) (scene number 1 -> scene 1, scene number 2 -> scene 2 ...). Individual scenes can be deactivated if necessary.

The scene function can be combined together with other functions of the device, whereby the set state received last is always executed.

Setting scene numbers

The scene number can be defined for each scene of the device.
The data point type of the scene extension object allows up to a maximum of 64 scenes to be addressed.

The scene function must be enabled on the "General" parameter page.

The scene configuration is set to "Variable (1 ... 64 scenes)"

- Set the "Scene number" parameter on the "Scenes" parameter page for each scene to the number used to address the scenes.

A setting of "0" deactivates the corresponding scene to prevent it from being called up.

If the same scene number is configured for several scenes, only the scene with the lowest sequential number will be addressed. In this case, the other scenes will be ignored.

Example 1:
KNX scene number 42 was assigned to the internal scene with number 2 by means of the configuration. If the product receives a call-up telegram with KNX scene number 42 by means of the KNX scene extension object, the internal scene with number 2 will be called up.

Example 2:
For the internal scenes with numbers 2 and 5, the KNX scene number 42 was assigned by means of the configuration. If the product receives a call-up telegram with KNX scene number 42 by means of the KNX scene extension object, the internal scene with number 2 will be called up. The internal scene with number 5 is ignored.

Scene functions

For each scene, you must define which scene command (e.g.: activate FB group 1, activate disabling function, deactivate disabling function) is to be set when the scene is called up. Different settings are available for the device or each function block.

- Set the "Function" parameter to the desired operating mode for each scene on the "Scenes" parameter page.

  The configured scene command is called up if a scene is called up.

Setting a scene call-up delay

Each scene call-up of the device can optionally also be delayed. In this way, dynamic scene sequences can be configured if several scene outputs are combined with cyclical scene telegrams.

Prerequisite
The scene function must be enabled for the device or the function block on the "Scenes" parameter page.

- Activate the "Delay scene recall" parameter on the "Scenes" parameter page.

  The delay time is activated and can be configured separately. The delay influences only the scene call-up of the "Presence detector". The delay time is started when a call-up telegram arrives. The corresponding scene is called up and the operating mode set only after the time has elapsed.

i Each scene call-up telegram restarts the delay time and retriggers it. If a new scene call-up telegram is received while a delay is active (scene not yet called up), the old (not yet called up) scene will be rejected and only the scene received last executed.

i The scene call-up delay has no influence on the storage of scene values. A scene storage telegram within a scene call-up delay will terminate the delay and thus the scene call-up.

10.1 "Scenes" parameter

Scenes

Delay scene recall	**Inactive** Active
A scene is called up by means of the object "Scenes - Scene extension units". The scene call-up can be delayed after receiving a call-up telegram (parameter activated) if necessary. Alternatively, the scene will be called immediately after receiving the telegram (parameter deactivated).	

Delay time	**0** … 59 min 0 … **10** … 59 s
This parameter defines the time by which the scenes are delayed when called up. The setting is made in minutes and seconds.	

Extended scene call-up	**Inactive** Active
The extended scene call-up allows up to 64 scenes to be called up in sequence. The scene is called up here by means of the 1-bit communication object "Scenes - Scene recall". Each ON telegram received by means of this object calls up the next scene. Each OFF telegram received calls up the previous scene. This parameter enables the extended scene call-up, if necessary.	

With overflow	**Inactive** Active
The extended scene call-up can take place with or without overflow at the scene limits. An overflow occurs when the last scene of the selected configuration is reached when counting up or scene 1 is reached when counting down and an additional telegram in the last counting direction is received by the actuator. Parameter activated: After reaching the last scene of the selected configuration, another ON telegram of the overflow is executed and scene 1 is called up. Similarly, after reaching scene 1, the overflow is executed by another OFF telegram and the last scene of the selected configuration is called up. Parameter deactivated: A scene overflow is not possible. After reaching the last scene of the selected configuration, another ON telegram of the extended scene call-up will be ignored. In the same way, further OFF telegrams are ignored if scene 1 was called up last. This parameter is visible only if the extended scene call-up is used.	

Scene configuration	**Variable (1...64 scenes)** Fixed (64 scenes)
The scene configuration selected here decides whether the number of scenes is either variable (1 ... 64) or, alternatively, fixed to the maximum (64). Variable (1...64 scenes): In this setting, the number of scenes used can be selected anywhere within a range of 1 to 64. The "Number of scenes" parameter decides how many scenes are visible for the switching output in the ETS and can therefore be used. It is possible to specify which scene number (1 ... 64) controls each scene. Fixed (64 scenes): In this setting, all scenes are always visible and can therefore be used. The scenes are actuated by permanently assigned scene numbers (1 ... 64) (scene number 1 -> scene 1, scene number 2 -> scene 2 ...). Individual scenes can be deactivated if necessary. To do this, remove the tick from the corresponding scene under "Scene active".	

Number of scenes	**1** ... 64
This parameter defines how many scenes are visible in the ETS and can therefore be used. This parameter is visible only if the "Scene configuration" parameter is set to variable (1…64 scenes)	

Scene number	0 ...**1***...64 *: The predefined scene number depends on the scene (1...64).
It is possible to set which scene number (1 ... 64) actuates each scene. A setting of "0" deactivates the corresponding scene to prevent it from being called up or stored. If the same scene number (1…16) is configured for several scenes, only the scene with the lowest sequential number will be addressed. In this case, the other scenes will be ignored. Scene number 0 deactivates a scene. This parameter is visible only if the "Scene configuration" parameter is set to variable (1…64 scenes).	

Function	**Activate day mode** Activate night mode Activate FB group 1 Activate FB group 2

This parameter is present for each scene separately. The number depends on the setting of the "Number of scenes" parameter.
This parameter is used to configure the function executed when the scene is called up.

"Activate day mode"
All function blocks are switched to day mode when the scene is called up.
This setting makes sense only if the "Day/night switchover" parameter is set to active.

"Activate night mode"
All function blocks are switched to day mode when the scene is called up.
This setting makes sense only if the "Day/night switchover" parameter is set to active.

"Activate FB group 1"
When this scene is called up, all function blocks assigned to FB group 1 are activated and all function blocks assigned to function group 2 are deactivated. Function blocks that are not assigned to any group are not influenced.
This setting makes sense only if the "Function block switchover" parameter is set to active.

"Activate FB group 2"
When this scene is called up, all function blocks assigned to FB group 2 are activated and all function blocks assigned to function group 1 are deactivated. Function blocks that are not assigned to any group are not influenced.
This setting makes sense only if the "Function block switchover" parameter is set to active.

10.2 "Scenes" objects

Only the scene objects of the scenes that apply to the entire device are described here. The scene objects of the function blocks are described in the corresponding chapters of the function blocks.

Function	Name	Type	DPT	Flags
Scene extension unit	Scenes - Input	1-byte	17,001	C, -, W, -, U
1-byte object to which a telegram is sent with the scene number to activate the device. The scenes apply to the entire device. These scenes can be used to activate day or night mode or to activate function block group 1 or 2.				

Function	Name	Type	DPT	Flags
Extended scene call-up	Scenes - Input	1-bit	1,001	C, -, W, -, U
-bit object for extended scene call-up. Each ON telegram received calls up the next scene in sequence. Each OFF telegram received calls up the previous scene. An ON or OFF telegram always calls up scene 1 first after a reset (bus voltage return, ETS programming operation). This object is visible only if the scene function and the extended scene call-up are activated in the ETS.				

11 Sensor system

11.1 Motion

Motion detection

The device detects motion extremely sensitively by means of a digital PIR sensor with a detection field of 360°. The sensitivity of the motion detection, which is, among other things, a measure for the range of the PIR evaluation, can be configured in the ETS.
The PIR sensor can be assigned individually to the function blocks of the device numbering up to 3. The assignment is made on the "General" parameter page of the corresponding function block.

Sensitivity of motion detection

The sensitivity of the motion detection is a measure for the range of the PIR evaluation and can be configured in the ETS. In the ETS, the setting for motion evaluation can be made uniformly for all function blocks on the "Sensors - Motion" parameter page or individually for each function block on the "Motion evaluation" parameter page of the respective function block.
In addition, the sensitivity for the initial detection and presence phases can be set individually to adapt it ideally to the location and purpose. If day/night switchover is active, a different sensitivity value can be configured for the initial detection phase for day and night. The sensitivity for the presence phase is the same at day and night.

The sensitivity is set in 10 levels, which can be set by means of parameters. Level 1 is the lowest sensitivity and level 10 the highest. Optionally, the sensitivity can also be set and adjusted by means of objects. The "Sensitivity can be set via object" parameter must be activated for this purpose.
Up to four objects appear when the parameter is activated, depending on the configuration of the sensitivity evaluation. These are 1-byte objects "PIR sensor ... - Sensitivity" and "PIR sensor ... - Sensitivity - Status", which can be used to specify a new sensitivity or read out the status of the sensitivity.

The 1-byte objects are a data type that does not correspond to any KNX standard data type.
The 1-byte objects have the following structure:

	Explanation
Bit 0 to bit 3	Sensitivity (default setting or status) 0 = deactivate sensor The affected PIR sensor can be deactivated by setting the sensitivity level to "0". 1 = sensor sensitivity 1 2 = sensor sensitivity 2 3 = sensor sensitivity 3 4 = sensor sensitivity 4 5 = sensor sensitivity 5

	Explanation
	6 = sensor sensitivity 6 7 = sensor sensitivity 7 8 = sensor sensitivity 8 9 = sensor sensitivity 9 10 = sensor sensitivity 10
Bit 4	C flag (Sensitivity -> valid = 1, invalid = 0 With "invalid", the state configured in the ETS is activated.)
Bit 5 to bit 7	Reserved (unused)

Locking of motion detection (fault detection by thermal radiation)

Switching lamps on and off in the detection field can lead to motion detection due to changing heat radiation. This applies in particular to luminaires operated with incandescent lamps or halogen lamps. To avoid this faulty detection process, the "Avoid faulty detection" parameter must be activated on the "Sensors -> Motion" parameter page.

Parameters that appear can be used to set the time a motion is ignored and whether this ignoring should be applied only when switching the lighting on, off or on and off. When a status telegram is received from the actuator, detected motion is ignored for a configured time to prevent motion from being evaluated due to the changing heat radiation.

An expiring ignore period is restarted by receiving a new status telegram.

Example of solving a problem
The presence detector is monitoring a desk workstation and a pendant light with halogen lamps is located in the detection field. If the workplace is vacated, the luminaire is switched off when the run-on time elapses. The cooling halogen lamp interprets motion and switches the lighting on again.
Solution:
The status of the actuator is linked to the input object "Fault detection protection - Ignore motion - Activate" via a separate group address, so that the ignore time is activated when the lighting is switched off. During the first critical seconds of the halogen lamps cooling down, no motion is evaluated and the lighting remains switched off.

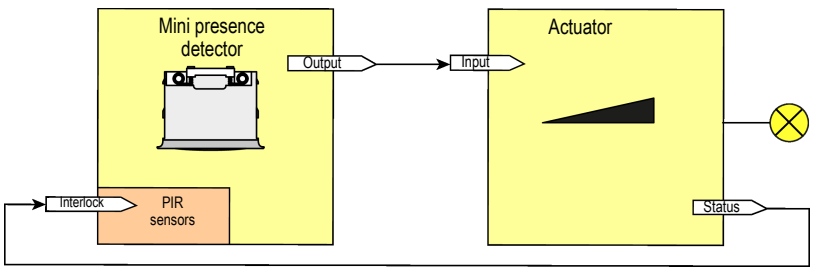


Figure 11: Faulty detection due to thermal radiation

11.1.1 "Motion" parameter

Sensors -> Motion

Differentiated according to initial detection phase and presence phase	**Inactive** Active
This parameter is used to specify whether the sensitivity can be set separately for the initial detection of a motion and for retriggering. "Active" The sensitivity can be set separately for the initial detection phase of a movement and re-triggering during the presence phase. "Inactive" It is the same for the initial detection of a movement and the retriggering during presence. Additional parameters appear.	

PIR sensor	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to inactive. The day/night switchover function must be set to inactive on the "General" parameter page.	

(PIR sensor) At day	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor for day mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to inactive. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor) At night	1 … **6** … 10
This parameter is used to set the sensitivity of the PIR sensor for night mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 6. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to inactive. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor) Initial detection phase	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor for the initial detection phase (initial detection of a movement). The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to inactive on the "General" parameter page.	

(PIR sensor initial detection phase) At day	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor for the detection phase (initial detection of a movement) for day mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. Increase the sensitivity if the detection is insufficient. These parameters are visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor initial detection phase) At night	1 … **6** … 10
This parameter is used to set the sensitivity of the PIR sensor for the detection phase (initial detection of a movement) for night mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 6. Reduce the sensitivity if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. Increase the sensitivity if the detection is insufficient. These parameters are visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor) Presence phase	1 … **10**
These parameters are used to set the sensitivity of the PIR sensor for the presence phase. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 10. Reduce the sensitivity if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to inactive on the "General" parameter page.	

(PIR sensor presence phase) At day and night	1 … **10**
This parameter is used to set the sensitivity of the PIR sensor for the presence phase. The setting applies to day and night time operation. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 10. Reduce the sensitivity if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to active on the "General" parameter page.	

Sensitivity can be set via object	Active **Inactive**
The sensitivity of the PIR sensors in the device is reset by sending a telegram to one of the 1-byte objects "PIR sensor - Sensitivity" according to DPT "non standard", which can be enabled by this parameter. The values are retained until a new specification is made by a telegram. An ETS programming operation sets the parameters automatically to the ETS pre-settings if this is provided for in the configuration.	

Overwrite values in device during ETS programming	Active **Inactive**
This parameter can be used to specify whether the sensitivity values are overwritten during an EST programming operation. The values are retained until a new specification is made by a telegram. To automatically set the values to the ETS specifications during an ETS programming operation, set this parameter to active. This parameter is visible only if the "Sensitivity can be set via object" parameter is set to active.	

Show info graphic	**Inactive** *Active*
This parameter can be used to display the infographic used to differentiate the motion detection process according to the initial detection and presence phase.	

Faulty detection due to thermal radiation

Avoid faulty detection	Active **Inactive**
Switching lamps on and off in the detection field can lead to motion detection due to changing heat radiation. This applies in particular to luminaires operated with incandescent lamps or halogen lamps. This parameter can be used to temporarily ignore the movement. This prevents faulty switching processes, e.g. due to a lamp cooling down. Set the parameter to active for this purpose. Additional parameters appear.	

Ignore motion if switching status	**OFF** ON ON and OFF
This parameter is used to specify whether motion is to be ignored only when switching on or off, or in both cases. **OFF:** The motion is ignored for the configured time after the actuator is switched off. **ON**: The motion is ignored for the configured time after the actuator is switched on. **ON and OFF**: The motion is ignored for the configured time after the actuator is switched on and off. This parameter is visible only if the "Avoid faulty detection" parameter is set to active.	

Duration of ignoring	1 … **3** … 59 s
This parameter defines how long the motion is ignored. The setting is made in seconds. Movements are detected again at the end of the ignore period. This parameter is visible only if the "Avoid faulty detection" parameter is set to active.	

11.1.2 "Motion" objects

Function	Name	Type	DPT	Flags
Error detection protection - Ignore motion - Activate	Motion - Input	1-bit	1,003	C, -, W, - U
1-bit object used to temporarily ignore a detected movement. This prevents faulty switching processes, e.g. due to lamps cooling down.				

Function	Name	Type	DPT	Flags
Error detection protection - Ignore motion - Status	Motion - Output	1-bit	1,002	C, R, -, T, A
1-bit object used to output whether a detected movement is ignored.				

Function	Name	Type	DPT	Flags
PIR sensor - Sensitivity - Status	Motion - Output	1-byte	Non standard	C, R, -, T, A
1-byte object used to output the active sensitivity of PIR sensor A to the bus. This non-standardised data type is described here Table : Motion [▶ Page 38)				

Function	Name	Type	DPT	Flags
PIR-sensor - Sensitivity	Motion - Input	1-byte	Non standard	C, -, W, -, U
1-byte object used to specify the sensitivity of PIR sensor A by means of a telegram. This non-standardised data type is described here Table : Motion [▶ Page 38)				

Function	Name	Type	DPT	Flags
PIR sensor - Initial detection sensitivity - Status	Motion - Output	1-byte	Non standard	C, R, -, T, A
1-byte object used to output the active sensitivity of PIR sensor A for initial detection to the bus. This non-standardised data type is described here Table : Motion [▶ Page 38)				

Function	Name	Type	DPT	Flags
PIR sensor - Initial detection sensitivity	Motion - Input	1-byte	Non standard	C, -, W, -, U
1-byte object used to specify the sensitivity of PIR sensor A for the initial detection by means of a telegram. This non-standardised data type is described here Table : Motion [▶ Page 38)				

Function	Name	Type	DPT	Flags
PIR sensor - Presence sensitivity - Status	Motion - Output	1-byte	Non standard	C, R, -, T, A
1-byte object used to output the active sensitivity of PIR sensor A to the bus during an ongoing detection process. This non-standardised data type is described here Table : Motion [▶ Page 38)				

Function	Name	Type	DPT	Flags
PIR sensor - Presence sensitivity	Motion - Input	1-byte	Non standard	C, -, W, -, U
1-byte object used to specify the sensitivity of PIR sensor A during an ongoing detection process by means of a telegram. This non-standardised data type is described here Table : Motion [▶ Page 38)				

11.2 Brightness

Brightness measurement

To determine the workplace brightness or ambient brightness, the device has a brightness sensor, which is located behind the lens. The brightness sensor can be individually assigned to up to 3 function blocks of the device. The sensor detects the reflected mixed light composed of artificial light and daylight from the area or objects below the device. A configured reflection coefficient enables the device to determine the effective brightness of the workplace surface or floor surface. The reflection coefficient of the device can be adapted to other workplace or floor surfaces using the calibration function if necessary.

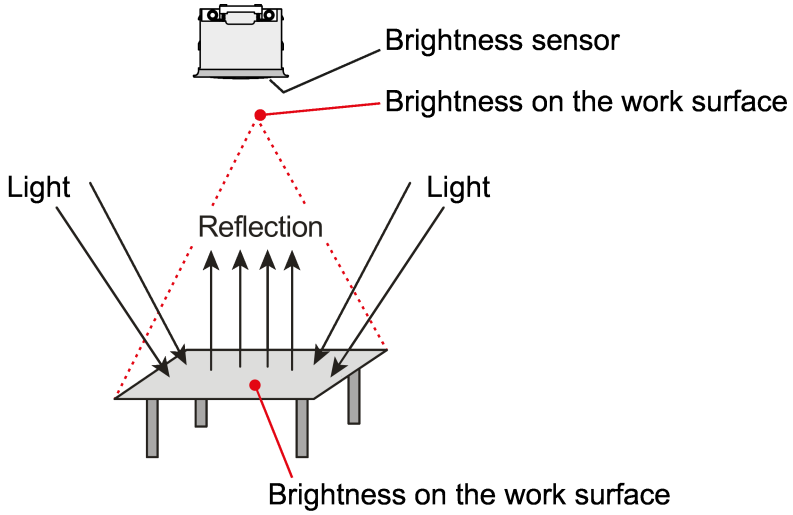


Figure 12: Determining the brightness by measuring reflected mixed light composed of artificial light and daylight

The brightness value determined by the device can be made available to the KNX system by means of the 2-byte communication object "Measured brightness value". The device can actively transmit the brightness value in the event of a configured brightness change and/or cyclically. It is also possible to only provide the brightness value passively and to transmit it upon request.

Calibration function

The value for the brightness to be determined on the work surface or floor surface by the device depends on the measured brightness. This is derived from the reflected brightness on the underlying surface. To determine the brightness on the measuring surface from the measured brightness on the device, the reflection coefficient of the surface must be known. In the default setting, the reflection coefficient for the measuring surface is set to 0.3. This already makes an adjustment to many surfaces possible.

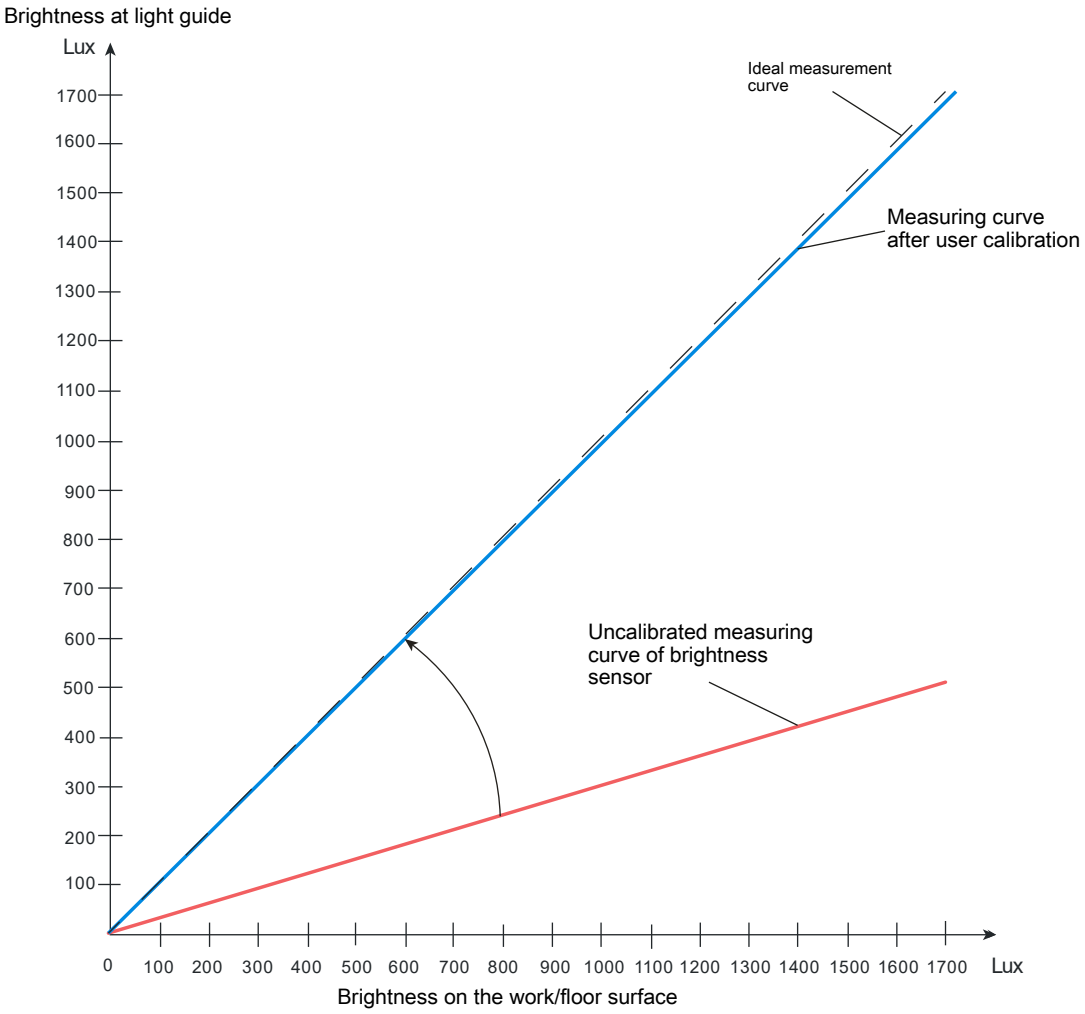


Figure 13: Determining the brightness on the work/floor surface in the default setting Reflection factor 0.3 corresponds to the surface finish e.g. light oak

To compensate for any deviations between the brightness determined in the default setting and the actual brightness on the work surface, the brightness measurement can be calibrated using a calibration function (adjustment of the reflection coefficient) and thus adapted to other surface finishes. This can take place in two ways.

If the "Sensor calibration via" parameter is set to "Reflection factor", the "Reflection factor" parameter can be set to a different value. There are various surfaces with their typical reflection factors to choose from.

Alternatively, the calibration can be calibrated with a brightness value determined with a suitable measuring device. During the calibration, the brightness value currently measured by the internal sensor is assigned an externally measured brightness value below the presence detector. This specification is made via the 2-byte communication object "Measured brightness". For this object to be visible and external calibration to be possible, the sensor calibration in the ETS must be set to "Object with separately measured brightness" on the parameter page "Sensors -> Brightness" using the "Sensor calibration via" parameter.

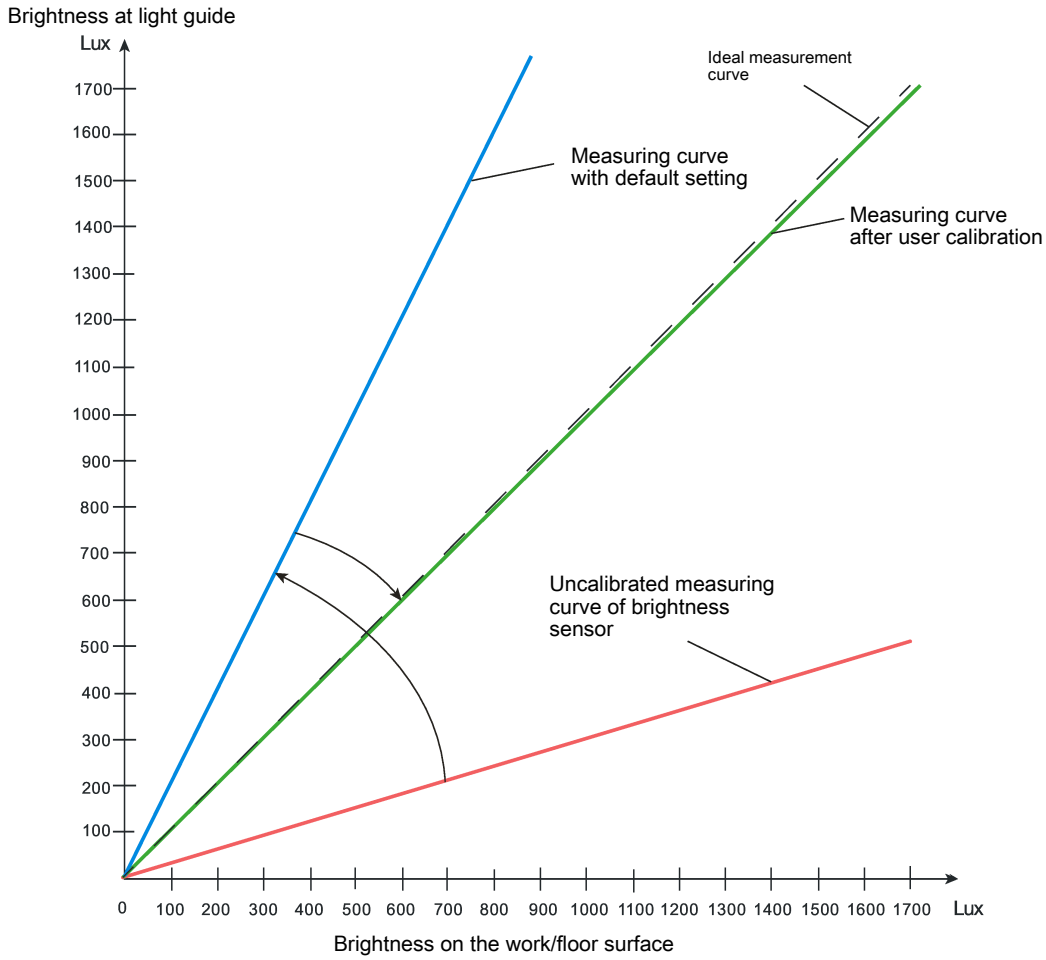


Figure 14: Correction of the determined brightness on the work/floor surface by means of user calibration
e.g. a reflection factor of 0.5 corresponds to the surface finish e.g. light wood fibre boards

Whether or not a subsequent user calibration is necessary can be determined purely subjectively or by reference measurement. User calibration should be performed if the brightness evaluation or light control can be evaluated subjectively as "not adequate" by persons present. Alternatively, it is possible to determine whether subsequent calibration is necessary immediately after commissioning by reading out the brightness value determined by the device in the default setting by means of the object "Brightness value - Status". Here, the read-out brightness value is to be compared with the measured value of a suitable brightness meter (calibrated luxmeter) located on the work surface or floor surface. If the deviation between the brightness values is too great, user calibration should be performed. During the comparison measurement on the surface, several measurements should be made at various points. The individual measurement results must then be averaged and compared with the measured value of the device.

User calibration is necessary if an unfavourable installation location has been chosen for the device (installed not directly above a desktop in an office in the application as presence detector) or the device - for example, in the application as motion detector - measures the reflected light of a dark floor surface.

The following steps must be carried out for user calibration...

- Set the brightness level in the room as desired.
- Then transmit the brightness on the work / floor surface (measuring surface) that was measured several times and averaged - with the aid of the ETS, for example - to the object "Measured brightness". As a result, the device assigns the externally measured value to the currently measured brightness value, whereby the measured value curve is adapted in the device.

If the "Sensor calibration via" parameter in the ETS is set to "Object with separately measured brightness value" and no measured brightness value has yet been transmitted, the device does not evaluate any brightness until user calibration has been performed! In this case, the light control will therefore have no function until the calibration process has been carried out properly. Function blocks 1 ...5 work brightness independently. The brightness value tracked internally by means of the object "Brightness value - Status" can be influenced by the parameter "Behaviour if calibration is not carried out" if the calibration has not yet been carried out. Depending on the setting, the device will either transmit no brightness value (value "0" in the object) or the value "0x7FFF" (hexadecimal) is sent to indicate an invalid brightness measured value.

An old user calibration is replaced permanently by a new calibration (maintained even after bus voltage failure or ETS programming operation).
The sensor calibration must be carried out again after the calibration method has been changed, the application programme has been unloaded or a master reset has been carried out.

11.2.1 "Brightness" parameter

Sensors -> Brightness

Sensor calibration via	**Reflection factor** Object with separately measured brightness value
If necessary, this parameter can be used to adjust the brightness measured by the internal sensor to the brightness actually present in the room. There are two ways to do this: **Reflection factor:** The reflection factor used in the default setting (0.3 e.g. light oak) is replaced by a selection of reflection factors. Typical values have been selected for this purpose from various surfaces. **Object with separately measured brightness value**: In this setting, a brightness value measured with a suitable measuring device is assigned to the value measured by the internal sensor. The input object "Brightness value - Sensor calibration" that appears can be used to transmit the brightness value to the presence detector. Another parameter appears.	

Reflection factor	0.1 (e.g. dark oak) 0.2 (e.g. granite) **0.3 (e.g. light oak)** 0.4 (e.g. limestone) 0.5 (e.g. light wood fibre boards) 0.6 (e.g. maple, birch) 0.7 (e.g. fresh snow) 0.8 (e.g. plastering, gypsum) 0.9 1
The sensors detect the reflected mixed light composed of artificial light and daylight from the area or objects below the device. A reflection coefficient programmed at the factory enables the device to determine the effective brightness of the workplace or floor surface. The reflection coefficient of the device can be adapted to other workplace or floor surfaces by means of this parameter if necessary by using the calibration function.	

Behaviour if calibration is not carried out	**Do not send brightness value** Transmit invalid brightness value ($7FFF)
If the brightness sensor is calibrated by a KNX telegram, the device will not evaluate any brightness after the initial commissioning until the sensors have been calibrated for the first time. In this case, the brightness evaluation will therefore have no function until a calibration has been carried out properly. The brightness value tracked by means of the object "Brightness value - Status" can be called up in the event of a calibration not yet carried out. Depending on the setting, the device will either transmit no temperature value (value "0" in the object) or the value "7FFF" (hexadecimal) to indicate an invalid measured value. This parameter is visible only if the "Sensor calibration via" parameter is set to Object with separately measured brightness value.	

Transmission behaviour

Send brightness value	**On change** Cyclically On change and cyclically
This parameter is used to define when the current brightness value is automatically sent to the bus. **On change:** The brightness is sent as soon as it has changed by the set value. The specification is made in lux. **Cyclically:** The brightness is sent to the bus in a fixed cycle. **On change and cyclically**: The brightness is sent in a fixed cycle and additionally when there is a change by the set value.	

On change by	5 … **20** … 200 lux
This parameter is used to specify the value in lux by which the brightness must change before the brightness value is automatically sent to the bus. This parameter is visible only if the "Send brightness value" parameter is set to "On change" or "On change or cyclically".	

Cycle time	**0** … 23 h 0 … **15** …59 min **0** … 59 s
This parameter is used to set the cycle time after which the brightness is automatically sent to the bus. This parameter is visible only if the "Send brightness value" or "On change and cyclically" parameter is set.	

Other settings

Switch the LEDs off periodically to measure brightness	**Active** Inactive
This parameter determines whether illuminated LEDs are switched off cyclically for approximately 1 second in order to measure the current brightness value. **Active:** The status LED and the motion status indicator are switched off periodically. The interval is set using the "Brightness measurement interval" parameter. **Inactive:** The LEDs are not switched off periodically. There may be variations in the measurement of the current brightness.	

Interval for brightness measurement	0 … **5** …59 min
This parameter is used to set the cycle time after which the status LED is switched off in order to measure the brightness. This parameter is only visible if the "Switch LEDs off cyclically to measure brightness" parameter is set to active. The specification is made in minutes.	

11.2.2 "Brightness" objects

The name of the following objects can be specified by the "Name" parameter.

Function	Name	Type	DPT	Flag
Brightness value - Status	Brightness - Output	2-byte	9,004	C, R, -, T, A
2-byte object used to output the brightness determined by the presence detector. The reflection factor or the separately measured brightness value sent to the device is taken into account, depending on the configuration. The brightness value is always output in "Lux" format.				

Function	Name	Type	DPT	Flag
Brightness value - Sensor calibration	Brightness - Input	2-byte	9,004	C, -, W, -, U
2-byte object that can supply an external brightness value in lux to the device during the sensor calibration. During a calibration process, the device assigns the measured value specified by means of this object to the currently measured brightness value (internal sensor), which results in calibration of the brightness.				

11.3 Temperature

Basic principles

The device has an integrated temperature sensor that can be used to measure the room temperature. Alternatively (e.g. if the device has been installed in an unfavourable location or in case of operation in difficult conditions, as in a humid atmosphere in large rooms or halls), a second external sensor linked by bus telegrams can be used to determine the actual value.

The temperature measurement is activated on the "General" parameter page and configured on the "Sensors -> Temperature" parameter page.

When choosing the installation location of the device or the external sensor, the following points should be considered:

- The external temperature sensor should not be used in multiple combinations, especially together with flush-mounted dimmers.
- Do not install the temperature sensor in the area of large electrical consumers (avoid heat influences).
- Installation in the vicinity of radiators or cooling systems is not advisable.
- The temperature sensor should not be exposed to direct sunlight.
- The installation of sensors on the inside of an outside wall might have a negative impact on the temperature measurement.
- Temperature sensors should be installed at least 30 cm away from doors, windows or ventilation devices and at least 1.5 m above the floor.

Temperature measurement and measured value determination

The presence detector has an integrated temperature sensor. This temperature sensor can be used to measure the ambient temperature and forward it, for example, to a room temperature controller by means of the 2-byte object "Temperature value - Status".

The room temperature measurement can optionally be supplemented with an external sensor. The external sensor is linked to the device (for example a push-button sensor or a KNX room temperature controller) via the bus by means of the additional 2-byte communication object "Temperature value - External sensor".

The "Temperature measurement by" parameter in the parameter node "Sensors -> Temperature" specifies the sensor used to determine the room temperature. The following settings are possible:

- "Internal sensor"
  The temperature sensor integrated in the presence detector is activated. Thus, the actual temperature value is determined only locally on the device.
- "Internal sensor and external value via bus"
  In this setting, both the internal sensor and the external value are active via the bus. The external sensor must either be a KNX room temperature controller coupled by the "Temperature value - External sensor" 2-byte object or another bus device with temperature detection.

When evaluating the internal sensor and the external value via the bus, the actual temperature is formed from the two measured temperature values. The weighting of the temperature values is defined by the parameter "Weighting of measured value". It is thus possible to adjust the actual temperature measurement, depending on the different locations of the sensors or a possible non-uniform heat distribution inside the room. Often, those temperature sensors that are subject to negative external influences (for example unfavourable location due to exposure to sunlight, heater or door/window directly next to it) are weighted less heavily.

Example:

The presence detector is installed in the centre of the room on the ceiling. An additional external temperature sensor is installed next to the room entrance door (external value via bus).
Internal sensor: 22.5 °C
External value via bus: 21.3 °C
Measured value formation: 30% to 70%

-> $T_{internal\ result} = T_{internal} =·22.5 \times 0.3 = 6.75$ °C,
-> $T_{external\ result} = T_{external} = 21.3$ °C x 0.7 = 14.91 °C
-> $T_{result} = T_{Internal\ result} + T_{external\ result} = \underline{21.66\ °C}$

Transmission of the temperature

The temperatures determined by the room temperature measurement and by the external value via the bus can be sent to the bus by means of the 2-byte object "Temperature value - Status" or "Temperature value - External sensor - Status".

The "Send temperature" parameter on the parameter page "Sensors -> Temperature" defines when a temperature value is to be sent automatically to the bus; when it changes by a defined value and/or cyclically.

The "On change by" parameter defines the temperature value by which the determined temperatures must change so that the actual value is automatically sent by means of the objects "Temperature value - Status", "Temperature value - External sensor - Status" or "Temperature value - Internal sensor - Uncalibrated - Status". The temperature value change can be set between 0.1 K and 25.5 K. The "0" setting here deactivates the automatic transmission of the actual temperature.

In addition, the temperatures determined by the "Internal sensor" or the "External value via bus" can be sent cyclically. The "Cycle time" parameter defines the cycle time (3 seconds to 23:59:59 hours).

11.3.1 "Temperature" parameters

Sensors -> Temperature

Temperature measurement by	**Internal sensor** Internal sensor and external value via bus
The "Temperature measurement by" parameter specifies the sensors used to measure the room temperature. **Internal sensor**: The temperature sensor integrated in the device is activated. The temperature value is therefore determined locally only on the device. **Internal sensor and external value via bus**: The selected temperature sources are combined in these settings. The "External value via bus" is a KNX temperature sensor coupled by means of the "External value" 2-byte object.	

Weighting of measured values	10% to 90% 20% to 80% 30% to 70% 40% to 60% **50% to 50%** 60% to 40% 70% to 30% 80% to 20% 90% to 10%
The weighting of the measured temperature value for the internal and external values is specified here via the bus. This results in an overall measured value, which is drawn on for the further evaluation of the room temperature. This parameter is visible only if "Temperature measurement by = "Internal sensor and external value via bus"!	

Sensor calibration via	**Default setting** Object with separately measured temperature value
The temperature sensor used in the device can be calibrated by means of a calibration process or an externally measured temperature value. If the room temperature deviates considerably from the measured temperature or if a very precise temperature measurement is required, it may be necessary to calibrate the sensors. This calibration of the temperature measurement is permitted with two methods. Default setting: The device's internal temperature sensor can be calibrated to the room temperature. An additional parameter "Calibration of internal sensor" is available for this purpose. **Object with temperature value measured separately**: After commissioning the device, the device's internal temperature sensor must be calibrated with a 2-byte temperature value telegram via the KNX. The default setting has no effect in this setting. The calibration process should be performed as follows: 1. Use a calibrated temperature measuring device to measure the room temperature at different points in the room. 2. Create a mean temperature value of the different measurements (total of the individual measured values, divided by the number of measured values). 3. Transmit the mean temperature value - for example, using the ETS - to the "Sensor calibration" object. Result: The device assigns its own measured value to the transmitted temperature value, meaning that the reference value in the device is adjusted. After this, the temperature measurement is ready for operation. The sensor calibration is permanently saved in the device and is not lost even if there is a bus voltage failure or an ETS programming operation.	

Calibration

Internal sensor	-20...**0**...20 K
If the room temperature deviates permanently from the measured temperature value, it may be necessary to statically calibrate the measured temperature value, for example to compensate for external temperature influences. To determine the temperature deviation, the actual room temperature should be determined by a reference measurement using a calibrated temperature measuring device. Here, it is then also possible to add an offset in positive or negative direction to the measured value of the sensor and thus shift it. This parameter is available only in the "Default setting".	

External value via bus	-20...**0**...20 K
It may be necessary to statically calibrate the temperature value received externally via the bus, for example to compensate for external temperature influences. For example, calibration will be necessary if the value received externally via the bus is permanently above or below the actual room temperature. To determine the temperature deviation, the actual room temperature should be determined by a reference measurement using a calibrated temperature measuring device. Here, it is then also possible to add an offset in positive or negative direction externally via the bus and thus to shift it.	

Temperature transmission behaviour

Send temperature	On change Cyclically **On change and cyclically**
The temperature determined by the device can be sent to the KNX by means of a 2-byte object "Temperature value - Status". The "Send temperature" parameter specifies when the temperature is sent automatically. **On change:** The temperature is sent if it has changed by a configured value. **Cyclically:** The temperature is sent at configured intervals. **On change and cyclically:** Cyclical transmission and transmission upon change work independently of each other. The cycle time is not restarted if a changed value has been sent to the bus.	

On change by	0.1 … **0.5** ... 25.5 K
The temperature determined by the device can be sent to the KNX by means of the 2-byte object "Temperature value - Status". This parameter specifies the temperature value by which the measured value has to change to have the temperature value transmitted automatically by means of the object.	

Cycle time	0 … 23 h 0 ... **15** ... 59 min 0 … 59 s
The determined temperature can be transmitted cyclically. This parameter specifies the cycle time (10 seconds to 23:59:59 hours).	

Actual temperature without calibration	**Inactive** Active
2-byte object used to output the determined actual temperature. The actual temperature is determined by the internal sensor. The output value does not take into account the configured value for the calibration. Possible value range: -99.9 °C to +99.9 °C / Measuring range of internal temperature sensor: 0 °C to +50 °C. The temperature value is output in "°C" format.	

Behaviour if calibration is missing	**Do not send measured value** Transmit invalid measured value (0x7FFF)
If the temperature sensor is calibrated by a KNX telegram, the device will not evaluate any temperature after the first commissioning until the sensor calibration has been carried out. In this case, the temperature measurement will therefore have no function until a calibration has been carried out properly. The temperature value tracked by means of the object "Temperature measurement - Status" can be influenced by this parameter in the event of a calibration not yet carried out. Depending on the setting, the device will either transmit no temperature value (value "0" in the object) or the value "7FFF" (hexadecimal) to indicate an invalid measured value. This parameter is available only for sensor calibration by means of "Object with separately measured temperature value".	

11.3.2 "Temperature" objects

Function	Name	Type	DPT	Flag
Temperature value - Status	Temperature - Output	2-byte	9,001	C, R, -, T, A
2-byte object used to output the actual temperature (room temperature) which, if configured, was calculated from the values of the internal sensor, the external value via the bus and the configured weighting of the two values. The configured temperature calibration is taken into account. Possible value range: -99.9 °C to +99.9 °C / Measuring range of internal temperature sensor: -40 °C to +50 °C. The temperature value is output always in "°C" format.				

Function	Name	Type	DPT	Flag
Temperature value - Internal sensor - Uncalibrated - Status	Temperature - Output	2-byte	9,001	C, R, -, T, A
2-byte object used to output the actual temperature (room temperature) determined by the presence detector without taking into account the configured temperature calibration. Possible value range: -99.9 °C to +99.9 °C / Measuring range of internal temperature sensor: -20 °C to +50 °C. The temperature value is output always in "°C" format. This object is available only if the parameter "Actual temperature without calibration" is available				

Function	Name	Type	DPT	Flag
Temperature value - External sensor	Temperature - Input	2-byte	9,001	C, -, W, -, U
2-byte object used to couple an external KNX temperature sensor. Thus cascading of several temperature sensors to measure the room temperature. Possible range of values: -99.9 °C to +99.9 °C. The temperature value must be specified always in "°C" format. This object is available only with "Internal sensor and external value via bus".				

Function	Name	Type	DPT	Flag
Temperature value - External sensor - Status	Temperature - Output	2-byte	9,001	C, R, -, T, A
2-byte object used to output the temperature received from an external sensor. Possible range of values: -99.9 °C to +99.9 °C. The temperature value is output always in "°C" format. This object is available only with "Internal sensor and external value via bus".				

Function	Name	Type	DPT	Flag
Temperature value - Sensor calibration	Temperature - Input	2-byte	9,001	C, -, W, -, U
2-byte object used to calibrate the internal sensor. An external temperature reference value can be supplied to the device during the sensor calibration process. During the calibration process, the device assigns the measured value specified by means of this object to the current measured temperature value (internal sensor), resulting in a temperature calibration.				

12 Function block switchover

The function block switchover can be used if necessary. The function block switchover makes it possible to toggle between two function block groups, in which assigned function blocks, for example, can be switched over depending on the time of day or the state of the KNX system. This makes it possible to continuously switch over during operation of the device and thus change its function (e.g. presence detector for light control at day, motion detector for service light at night / presence detector if present, detector for KNX signalling systems if absent).

By assigning a function block to a function block group with the "FB..." parameter on the "FB switchover" parameter page, it is only active if the corresponding function block group is also active. Function blocks of deactivated groups are then also deactivated and do not react. Function blocks that are not assigned to any function block groups are not influenced by the function block switchover and thus always work autonomously.
During the switchover from one function block group to the other, all assigned function blocks of the current group are first deactivated and then the assigned function blocks of the switched over function block group are activated.

The function block switchover can be used if the "Function block switchover" parameter is set to "Active" on the "General" parameter page. The 1-bit object "FB switching - Input - FB groups - Switchover" is visible and the group assignment of the function blocks in the ETS is relevant in this case only.
The function block switchover has a 1-bit status object that can feed back the active group to the bus.

Switchover behaviour

The function block switchover is executed by means of the 1-bit communication object "FB groups - Input - Switchover". The telegram polarity can be configured. The function block group can be switched over when receiving a switchover telegram optionally either directly or only at the end of a current motion detection process. The switchover behaviour is defined by the parameter of the same name as follows...

- "Immediately" setting:
  With immediate switchover of the function block groups, the current motion detection processes of the assigned function blocks of the current group are ended immediately and the "Behaviour at end of detection" is executed. After activating the new function block group, the value for the new function block group is transmitted as positive acknowledgement to the bus by means of the object "FB switchover - Output - FB groups - Status". The polarity of the status telegram corresponds to the telegram polarity for the switchover.
- "After ending a detection" setting:
  To identify the end of a current motion detection process, no assigned function blocks must be in an active motion detection process anymore. The function block group is not switched over if a motion detection process of one or more assigned function blocks is still active at the desired switchover time (receipt of telegram). The group active until now continues to remain active. The value for the current function block group is then initially transmitted as negative acknowledgement by means of the object "FB switch-over - Output - FB groups".

Here too, the polarity of the status telegram corresponds to the telegram polarity for the switchover. At the end of the motion detection process, the function block group as last requested is switched over and the value of the new function block group is transmitted by means of the status object, provided the switchover was not cancelled again by a new switchover telegram.

Before switching over the function block groups, all active disabling functions of the function blocks assigned to the active group are also deactivated. The function blocks activated after the switchover are not disabled and work according to their configuration. If a function block is to be disabled after the switchover, the disabling object of this function block must be described actively with a disabling telegram.

After the bus voltage returns and after ETS programming, the value of the object "FB switchover - Output - FB groups - Status" is updated according to the active group (see "Behaviour on bus voltage return" below) and transmitted to the bus.

Behaviour on bus voltage return

The active function block group can be specified after the bus voltage returns and ETS programming. This is carried out by the parameter "Active group after bus voltage return". The assigned function blocks of the activated group then process their configured behaviour after the bus voltage returns or after ETS programming (according to the configuration of the function block). The assigned function blocks of the deactivated function block group are inactive and do not react.
After the bus voltage returns and after ETS programming, the value of the object "FB switchover - Output - FB groups - Status" is updated to the active function block group.

12.1 "Function block switchover" parameters

General

Function block switchover	**Inactive** Active
Function block switchover can be activated or deactivated here.	

Function blocks (FB) -> FB switchover

Name of FB group 1	FB group 1 Max. 40 characters long text
This parameter gives FB group 1 a name for identification. The name serves merely as an aid in the ETS and is not programmed into the device.	

Name of FB group 2	FB group 2 Max. 40 characters long text
This parameter gives FB group 2 a name for identification. The name serves merely as an aid in the ETS and is not programmed into the device.	

The following three parameters are present for each function block separately

Assignment

FB x (FB 1, FB 2, FB 3)	**Not assigned** FB group 1 FB group 2
The function block (FB) is assigned optionally to a function block group by this parameter so that it can be activated and deactivated during the function block switchover. Function blocks not assigned to any function block group ("Not assigned" setting) are not influenced by the function block switchover and thus always work autonomously.	

When activating the FB group	**Ready for detection** Track
This parameter defines the behaviour of the function block when the FB group to which the function block is assigned is activated. "Ready for detection" The function block reacts to a detection process as it was configured. Any telegrams or detection processes received before the FB group was activated are not executed. Track The function block reacts as it was configured. The telegram received last or a detection process that took place before the FB group was activated is executed. This parameter is visible only if the function block is assigned to an FB group.	

When deactivating the FB group	No reaction **Behaviour as at end of detection**
This parameter defines the behaviour of the function block when the FB group to which the function block is assigned is activated. "No reaction" The function block does not send a telegram for outputs 1 and 2 "Behaviour as at end of detection" The function block behaves in the same way as the "End of detection" behaviour was configured for outputs 1 and 2. The end of a detection process is detected either by the absence of motion signals and expiry of the run-on time or by permanently exceeding a configured switch-off brightness (only in presence detector mode). This parameter is visible only if the function block is assigned to an FB group.	

Switchover behaviour	**At end of all active detections** Immediately
The function block group can be switched over when receiving a switchover telegram optionally either directly or only at the end of a current motion detection process. "Immediately" The function block groups are immediately switched over. After activating the new function block group, the value for the new function block group is transmitted as positive acknowledgement to the bus by means of the object "FB switchover - Output - FB groups - Status". "At end of detection" The function block group is switched over if no motion detection of one or more assigned function blocks is still active at the desired switchover time (receipt of telegram). The previously active group remains active if a motion detection process is still active. The value for the current function block group is then initially transmitted as negative acknowledgement by means of the object "FB switch-over - Output - FB groups". Provided the switchover was not revoked by a new switchover telegram, the function block group is then switched over and the value of the new function block group is transmitted by means of the status object only at the end of the motion detection.	

Polarity	**0 = group 1 / 1 = group 2** 1 = group 1 / 0 = group 2
This parameter defines the telegram polarity for the function block group switchover. Similarly, the polarity of the status telegrams of the function block group switchover is defined by this parameter.	

Reset behaviour

After bus voltage return	**FB group 1 active** FB group 2 active
The active function block group can be specified by this parameter after the bus voltage returns and after ETS programming. The assigned function blocks of the specified group then process their configured behaviour after the bus voltage returns or after ETS programming (according to the configuration of the function block). The assigned function blocks of the deactivated function block group are inactive and do not react.	

12.2 "Function block switchover" objects

Function	Name	Type	DPT	Flag
FB groups - Switching	FB switchover - Input	1-bit	1,001	C, -, W, -, U
1-bit object used to switch over the function block groups (telegram polarity configurable). When read out, this object merely returns the telegram value last written in the object via the bus (after "0" reset). The active group (depending on the configuration) after the bus voltage returns or after ETS programming is not tracked automatically in this object (see "Status" object).				

Function	Name	Type	DPT	Flag
FB groups - Status	FB switchover - Output	1-bit	1,001	C, R, -, T, A
1-bit object for status indication of the actual active function block group (telegram polarity is determined by the configuration of the polarity of the "Polarity" object).				

13 Function blocks 1...3 for motion detection

13.1 Function blocks 1...3 General

The device contains up to 3 function blocks (FB) that operate logically independently of each other and can each be configured separately for the "Motion detector - Lighting", "Presence detector - Lighting", "Presence detector - Heating / Ventilation / Air conditioning", "Presence detector - Universal" or "Presence detector - Monitoring" application. This means that motion evaluation (presence signal) and brightness evaluation can be conveniently carried out with just one bus device.

Up to two output communication objects are available for each function block, which transmit the switching and control commands to the bus. The data format of these objects is defined separately and adapted to the controllable units of the KNX system, depending on the configured function (switching, staircase function, switching with forced position, dimming value transmitter, scene extension unit, temperature value transmitter, brightness value transmitter, temperature operating mode, other value transmitters).

If a function block is to be used, the number of function blocks must be set in the ETS on the "General" parameter page. Optionally, a function block can also be assigned to a function block group in order to use the function block switchover. Parameters and objects will appear in the ETS function block dependently, provided a function block was enabled.
On the "FB x - General" parameter page, the application of a function block ("Motion detector - Lighting", "Presence detector - Lighting", "Presence detector - Heating / Ventilation / Air conditioning", Presence detector - Universal" or "Presence detector - Monitoring") can be configured with the parameter of the same name. Just like the "Use as" and "Control mode" parameters, this parameter should be configured to the necessary setting at the very start of the device configuration, since all other function block parameters and objects depend on the afore-mentioned parameters.

The different applications of function blocks 1-3 are described in detail in the following chapters.

Motion detector application

When used as a motion detector, the device is usually installed in passageways of buildings in order to switch on the lighting automatically whenever necessary. If lighting is switched on by a motion detector, it will not be switched off until no-one is in the monitored area.

In the motion detector function, the function block detects movements and transmits the telegram configured at the beginning of a detection process to the bus whenever the measured brightness value is below the set brightness threshold. At the start of a detection process, the telegram can be transmitted after a delay (evaluation delay).

If the telegram was transmitted at the start of a detection, the device works independently of the brightness. If no further movements are detected, the device transmits the configured telegram to the bus at the "End of detection" after the set or self-learning run-on time has elapsed.

A switch-off pre-warning can be activated if the output is set to the "Dimming value transmitter" or "Brightness value transmitter" function. To do this, set the "Switch-off pre-warning" parameter to active. A dimming or brightness value set for the switch-off warning is initially output to the bus after the run-on time has elapsed. Only after the "Duration" of the switch-off pre-warning has elapsed is the "At end of detection" telegram sent.

The lighting can be switched on and off even if the motion detector is disabled, during manual operation and when the bus voltage returns independently of a motion detection.

The brightness level, whereupon motion pulses are transmitted by the motion detector if this level is fallen below, is defined by the brightness threshold. The brightness threshold is configured in the ETS and can optionally be changed by a teach-in function or an external bus specification. If the determined brightness falls below the brightness threshold, the motion detector will switch on the lighting by means of the KNX actuators if motion is detected. The brightness range above the brightness threshold distinguishes the brightness of a room in which the illumination is sufficiently bright and thus the lighting no longer has to be switched on. The lighting is not switched on if the ambient brightness is within this range and the device detects a new motion.

If the motion evaluation is configured to "Brightness-independent", the lighting is always switched on when motion is detected without monitoring the ambient brightness.

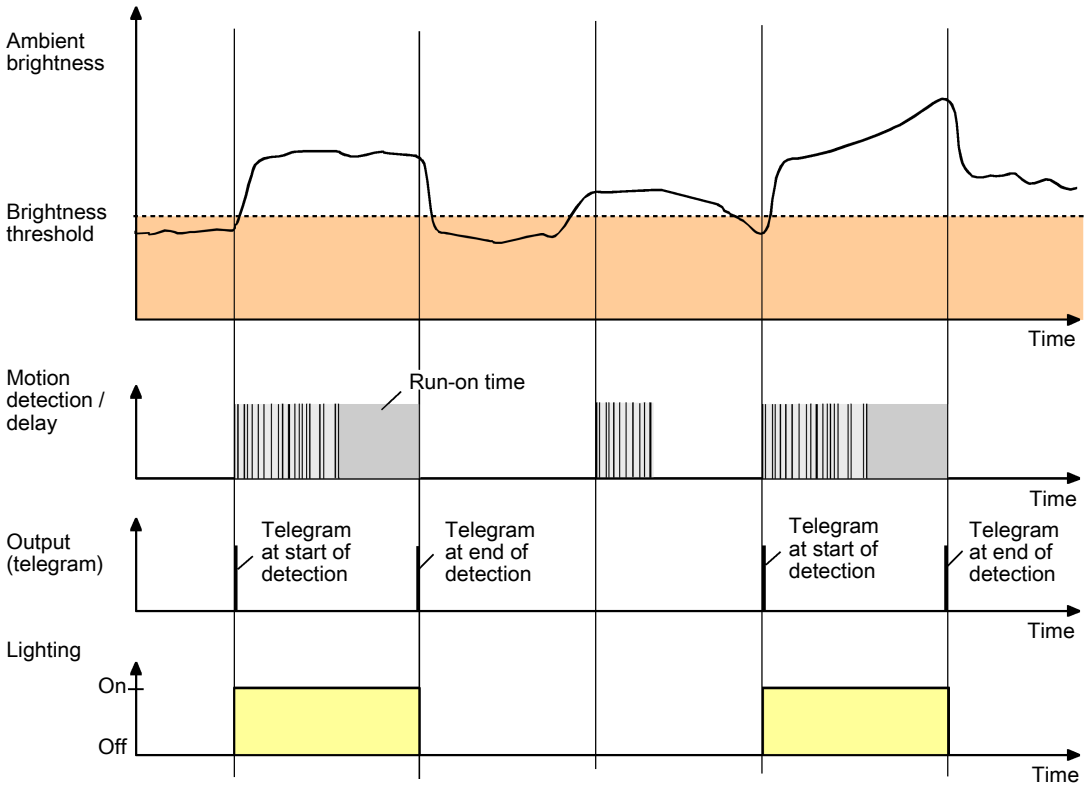


Figure 15: Brightness and motion evaluation with the motion detector

Presence detector application - Lighting, heating/ventilation/air conditioning, universal

The presence detector application is normally used in areas where people spend long periods of time (e.g. workplace as well as bathroom/toilet...) to control the lighting or heating/ventilation. The device can evaluate slightest movements in this application. Unlike the motion detector functionality, in brightness-dependent mode the brightness is evaluated continuously if the lighting is switched on even during an active motion detection process. If the measured brightness exceeds a defined switch-off brightness (e.g. due to incidental light), no further movements are evaluated and the lighting is switched off after a configured run-on time has elapsed even during an active motion detection process.

Regardless of a motion detection, the light can be switched on and off even if the presence detector is disabled, during manual operation and when the bus voltage returns.

A presence detector detects the presence of a person and transmits the configured telegram at the start of a detection process whenever the determined brightness value is below the set brightness threshold. The brightness threshold is configured in the ETS and can optionally be changed by a teach-in function or an external bus specification. The telegram can also be transmitted after a delay (evaluation delay) at the beginning of a detection process. If no more presence is detected in the further course of the motion detection, the device will send the configured telegram to the bus after the set run-on time has elapsed.
If the measured brightness exceeds the set switch-off brightness during an active presence detection process, no further movements are evaluated and the configured telegram is transmitted at the end of the detection process after the run-on time or a separately configurable switch-off delay has elapsed. The switch-off delay is used for the debouncing of brief light reflexes and prevents faulty switching of the lighting.
The range between the brightness threshold and switch-off brightness characterises the brightness in the room to be set by the presence detector. No additional artificial light is activated if the ambient brightness is within this range and the device detects a new movement. If the brightness threshold is configured to "Brightness-independent", the artificial light is always activated without monitoring the ambient brightness when presence is detected.

If the presence detection controls a heating or cooling system, the brightness signal is not evaluated and no brightness threshold can be set.

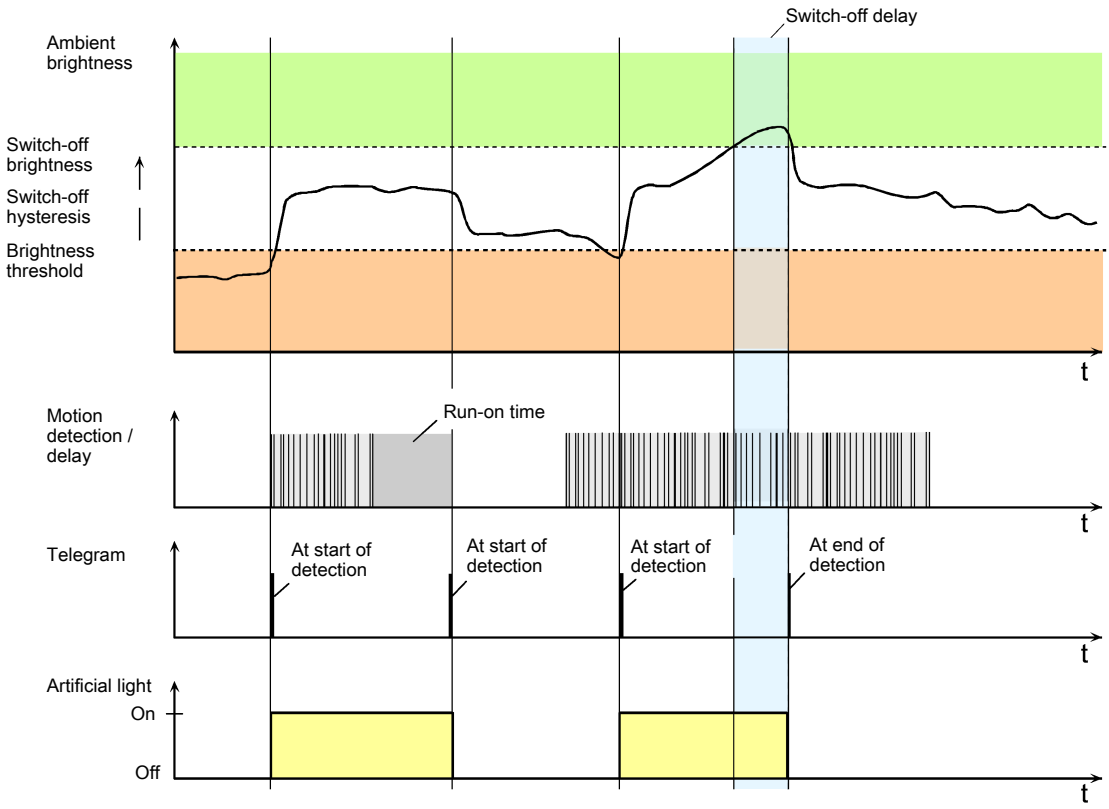


Figure 16: Brightness and motion evaluation with the presence detector

Presence detector - Monitoring application

The device always operates brightness-independently in the Presence detector - Monitoring application. Signal telegrams indicate whether or not people are present in the monitored area. Here, the number of motion pulses can be specified within a monitoring time whereby it is possible to adapt the motion evaluation to meet the individual requirements. Motion is identified only when the device has determined the set number of motion pulses. This application is appropriate when the device is to be used as a detector for KNX signalling systems.

In the Presence detector - Monitoring application, the device reacts less sensitively to detected movements since a message telegram is only transmitted by means of the output object after repeatedly querying the motion signal. The configurable number of motion pulses that can occur within a selectable monitoring period is the criterion for triggering a message telegram. A message telegram can be output at the beginning or end of an identified movement.

The Presence detector - Monitoring application works only as a single device and if necessary transmits a telegram to a central point by means of the output object after detecting and evaluating the motion. The extension unit inputs or outputs are deactivated in the Presence detector - Monitoring.

The diagram illustrated below shows the behaviour of the function block in the Presence detector - Monitoring application. In the example, the number of motion pulses was set to "4".

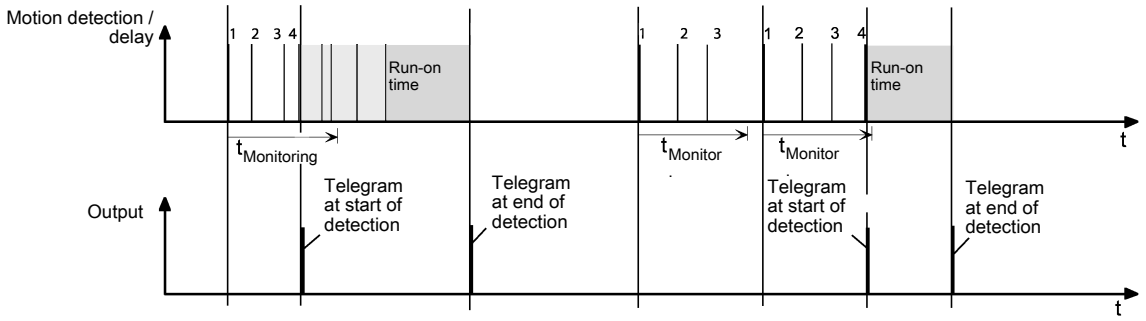


Figure 17: Motion evaluation with detector

After detecting the fourth motion pulse in the monitoring period ($t_{monitoring}$), the message telegram "At the beginning of the detection" is transmitted and the run-on time is started. The run-on time is retriggered by further motion pulses within the run-on time. In the absence of motion signals and after the run-on time has elapsed, the message telegram is transmitted "At the end of detection".
No message telegram is triggered if fewer than 4 motion pulses are detected within the monitoring period. After the monitoring period has elapsed, the next motion pulse is the first one of a new monitoring period. The monitoring period is stopped and reset when a detection process begins (start of run-on time). The monitoring is restarted again with the first motion pulse after the run-on time has elapsed.

The following functions have been specified for the Presence detector - Monitoring...

- Brightness threshold: brightness-independent
- Outputs: only output 1
- Teach-in function: disabled
- Evaluation delay at the beginning of detection: no
- Cyclical transmission during detection: possible
- Triggering of a telegram when retriggering: possible
- Run-on time at end of detection: possible
- Disabling function: possible (disabling behaviour specified)
- Extensions inputs and outputs: deactivated

Use as a single device or main or extension unit

The device can be used as a single device or as a main or extension unit in the "Motion detector - Lighting" or "Presence detector - Lighting, universal or heating / ventilation / air conditioning" applications. It is possible to use several devices in one room to extend the detection field by combining a device configured as a main unit with several devices configured as extension units.
The type of use of a function block is configured in the ETS with the "Use as" parameter on the "FB x - General" parameter page. Just like the "Application" and "Control mode" parameter, this parameter should be configured to the necessary setting at the very start of the device configuration, since all other function block parameters and objects depend on the afore-mentioned parameters.

The different types of use are described in the following.

In the "Presence detector - Monitoring" application, the device can be operated only as a "Single device".

Use as "Single device"

This type of use can be set as "Motion detector - Lighting" or "Presence detector - Lighting, Universal or heating / ventilation / air conditioning" in the application. The device then works autonomously. A main and extension unit arrangement with other motion or presence detectors is not possible.

Optionally, a manual operation can be supplied to the device, which, for example, originates from a push-button sensor in the room. This allows the user to control the connected KNX actuator even without motion detection in the detection field of the device. Simple or permanent manual operation can be used as manual operation options.

The device works exclusively as a single device in the "Presence detector - Monitoring" application. Manual operation is not possible in this application.

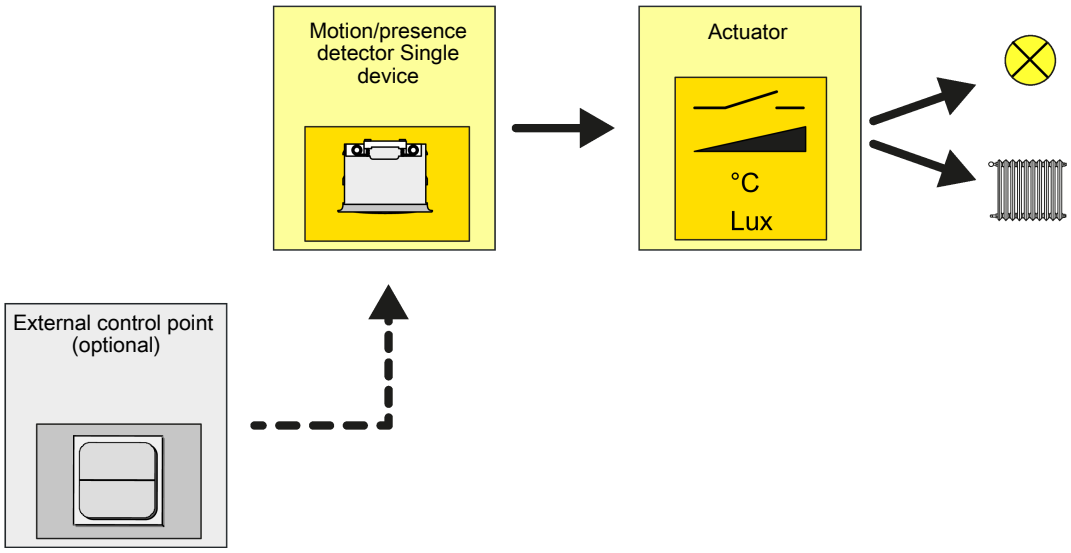


Figure 18: "Single device" application type

Use as "Main unit"

A main unit is used as a central unit in combination with one or more motion or presence detectors configured as extensions. The combined main and extension units execute the motion and presence detection coherently and thus allow any desired extension of the detection area. The extensions combined with the main unit transmit their motion signal to the object "Motion status - External" of the main unit via the same group address .

The brightness threshold evaluation can be made separately in main and extension unit(s) or centrally in the main unit. The evaluation of the brightness thresholds can be deactivated in the main and extension unit(s) for brightness-independent control systems such as temperature value transmitter applications, room temperature controller operating mode switchovers or ventilation control systems. The switch-off

brightness at the presence detector is evaluated always centrally in the main unit. The actuators are controlled exclusively by the main unit. A combination of several main units (affecting the same KNX actuator) is not possible.

User-guided and motion-independent control is possible also with this type of use, for example with a push-button sensor in the room. This allows the user to control the connected KNX actuator even without motion detection in the detection field. Simple or permanent manual operation can be used as manual operation options.

The device works exclusively as a single device in the "Presence detector - Monitoring" application.

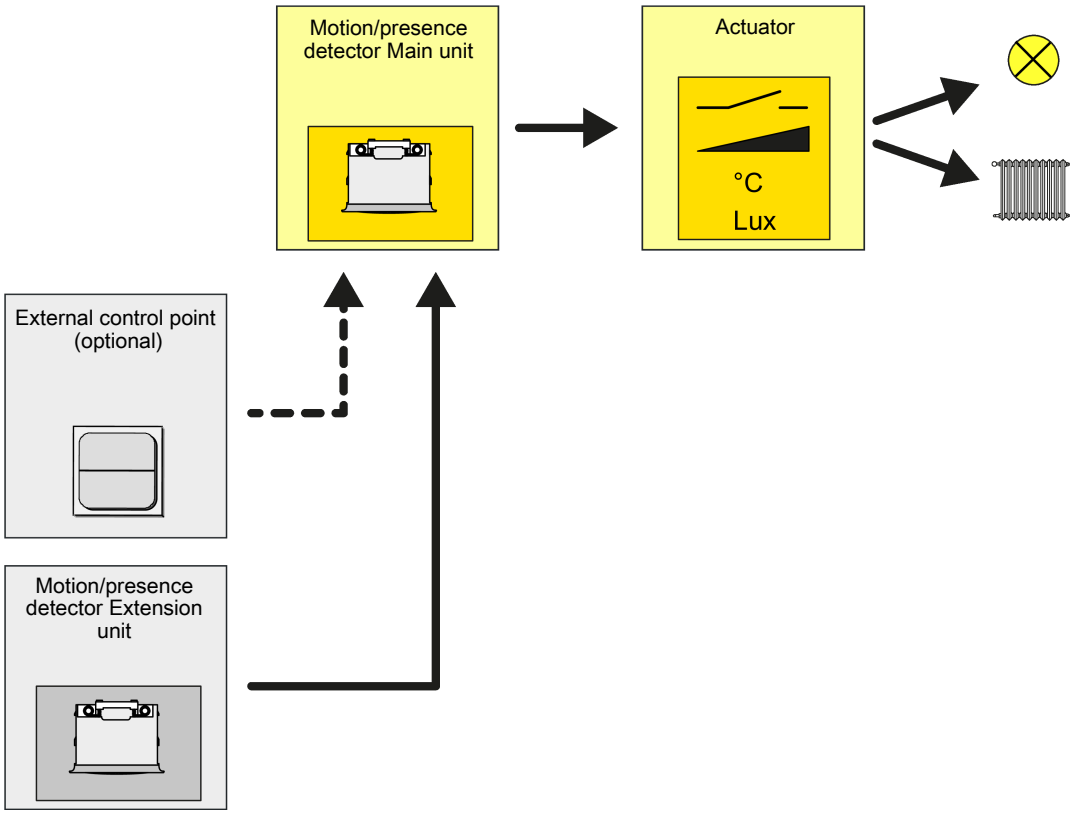


Figure 19: "Main unit" application type

Use as "Extension unit"

An extension unit is a device in a combination of several motion or presence detectors to detect motion/presence and optionally also evaluate the brightness threshold. The extension unit transmits only one motion signal to one main unit. An extension unit therefore does not directly control an actuator.
An extension unit can subject the motion detection to the evaluation of its own brightness threshold or, alternatively, can work brightness independently. If the brightness evaluation is activated in the extension unit, the brightness threshold must be deactivated by the main unit when switching on the lighting (brightness-independent operation with lighting switched on). This is done, regardless of the data format of the actuator output objects of the main unit, by means of the input object "Brightness-dependent operation - Activate/Deactivate", which must be connected to the corresponding output object of the main unit.

The evaluation of the brightness thresholds can be deactivated in the main and extension unit(s) for brightness-independent control systems such as temperature value transmitter applications, room temperature controller operating mode switchovers or ventilation control systems.

The switch-off brightness at the presence detector is evaluated always centrally in the main unit.

The device works exclusively as a single device in the "Presence detector - Monitoring" application.

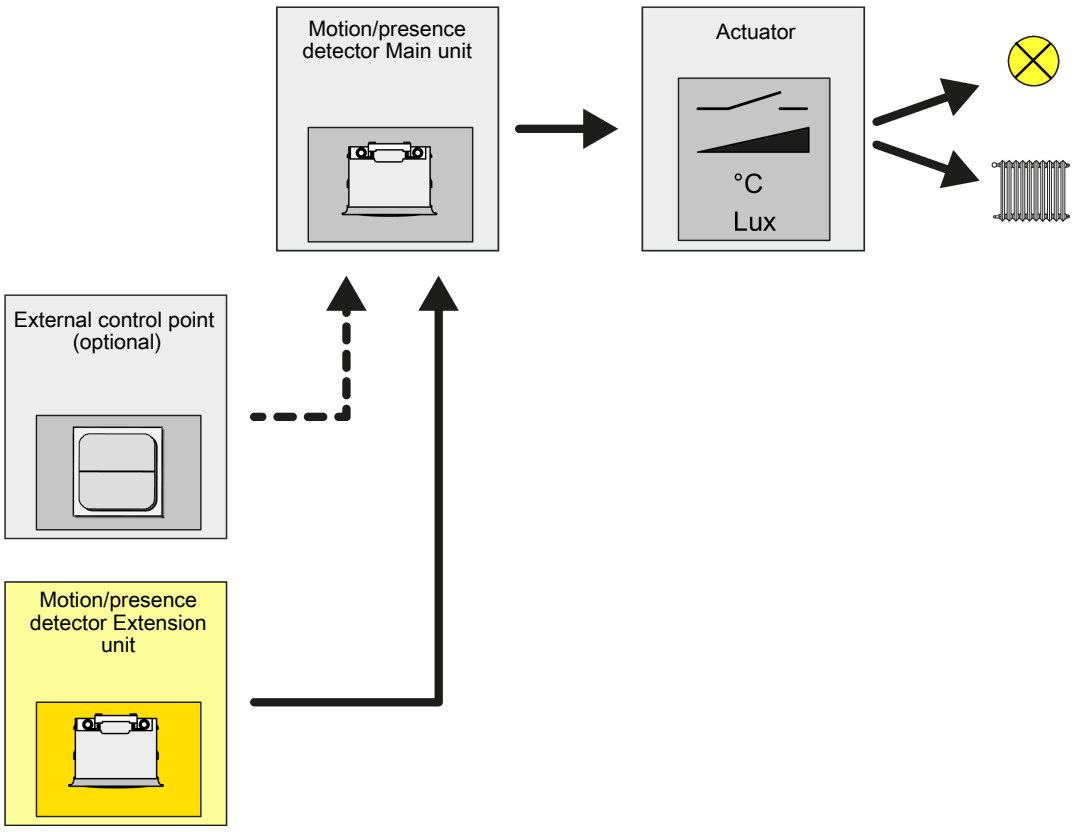


Figure 20: "Extension unit" application type

The extension unit sends cyclical motion telegrams to the main unit by means of the "Motion" object. The cycle time t_2 can be configured in the extension unit on the "FB x - Output 1" parameter page. All extension units must be configured to the same time. The cycle time must be coordinated with the run-on time of the main unit. Within the run-on time of the main unit, there must be at least one motion telegram during a continuous movement. To ensure reliable motion evaluation, the cycle time should be slightly less than half of the run-on time of the main unit. In the default configuration, the cycle time is set to 25 seconds. This ensures reliable motion evaluation by the extension units for the default configuration of the run-on time in the main unit. In the case of long run-on times of the main unit, it is recommended to also adapt the cycle time as described in order to reduce the bus load due to the extension motion telegrams.
The run-on time t_1 is permanently set to 6 seconds in extension unit mode.
When retriggering (new motion within the run-on time), no motion telegram is transmitted.

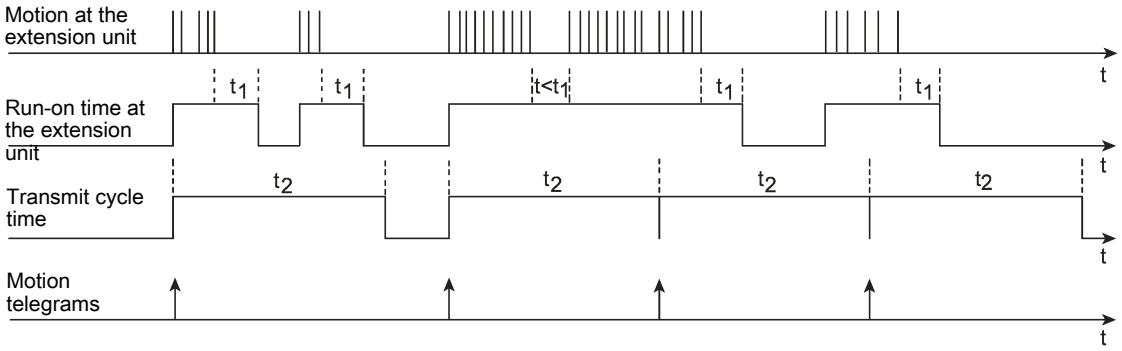


Figure 21: Motion signals of an extension unit

Manual operation (e.g. with a push-button sensor) is not possible on devices used as extension units. This is possible only on a main unit.

Control mode

The control mode can be configured in the ETS for function blocks with the application "Motion detector - Lighting", "Presence detector - Lighting" or "Presence detector - Universal". The control mode specifies the functionality of the motion detection and defines whether or not the start and end of a motion detection process are identified automatically. Thus, the control mode can be configured to "Automatic ON, automatic OFF", "Manual ON, automatic OFF" or "Automatic ON, manual OFF". This makes it possible to adjust the motion detection to many applications in private and public areas (e.g. toilet lighting, service lighting, control of ventilation systems).

Auto ON, auto OFF

In this control mode, the outputs of a function block are activated automatically by the motion detection and brightness evaluation. Manual actuation of the device is not necessary.

An additional manual operation can take place by means of the following objects if necessary...

– "Manual operation - Simple":
  When used as a "Single device" or "Main unit", this object can be used with an external push-button sensor to operate a connected KNX actuator brightness and motion independently. ON or OFF telegrams can be used for this purpose, depending on the setting. Automatic operation continues to run in the background. The subsequent evaluation of PIR motion signals and the processing of the delay times then takes place according to the normal pattern and the corresponding telegrams are sent.
– "Manual operation - Permanent":
  This object can be used directly for the manual operation e.g. with a push-button sensor. An ON telegram is evaluated as a brightness-dependent motion detection, whereby the telegrams are always transmitted to the outputs at the beginning of detection and the run-on time is started. An OFF telegram transmitted to this object during a current motion detection results in the cancellation of the motion evaluation and termination of the run-on time, including

transmission of the telegrams at the end of the motion. The function block is then in the basic state and ready for a new motion detection process. Further information can be found in the chapter "Manual operation" .

– "Disabling function - Activate/Deactivate":
This object is used to activate and deactivate the disabling function. This makes it possible to disable the function block and initiate a corresponding action by force (e.g. lighting permanently ON due to cleaning lighting). The normal operation of the function block will only be possible again after enabling the disabling function.

Manual ON, auto OFF

In this control mode, an ON telegram must be initially sent to the object "Manual operation - Simple" before a movement (including ext. motion) is detected and evaluated. At the same time, the ON telegram starts the first motion detection process including the run-on time. The end of the detection is identified automatically or initiated by an OFF telegram to the object "Manual operation - Simple". Afterwards, a manual ON telegram is required again to evaluate a new movement.
This control mode cannot be set for the "Presence detector - Heating / Ventilation / Air conditioning or monitoring" application.

Auto ON, manual OFF

The initial detection is automatic in this control mode. After detecting a movement, the telegrams are sent at the "Start of a detection". The run-on time is not started. This means that the end of detection can be achieved only by an OFF telegram to the "Manual operation - Simple" object. The function block is then ready again for a new motion evaluation process.
This control mode cannot be set for the "Presence detector - Heating / Ventilation / Air conditioning or monitoring" application.

13.1.1 "General" parameters

This parameter page is available for each activated function block (FB) separately.

Function blocks (FB) -> FB x - General

Designation	Free text Max. 40 characters long text
This parameter gives the "FB" a name for identification. The name serves merely as an aid in the ETS and is not programmed into the device.	

Function properties

Application	Motion detector - Lighting **Presence detector - Lighting** Presence detector - Heating / Ventilation / Air conditioning Presence detector - Monitoring (monitoring / alarm / signalling mode) Presence detector - Universal
Definition of the function block application. Just like the "Use as" and "Control mode" parameters, this parameter should be configured to the necessary setting at the very start of the device configuration, since all other function block parameters and objects depend on the afore-mentioned parameters. "Motion detector - Lighting" Application e.g. in corridors or passageways. The lighting is switched on brightness-dependently or brightness-independently when motion is detected and switched off again when it is absent, depending on the setting. "Presence detector - Lighting" Application e.g. above a workstation in offices. The lighting is switched on brightness-dependently or brightness-independently when motion is detected and switched off again when it is absent or when the switch-off threshold is exceeded, depending on the setting. "Presence detector - Heating / Ventilation / Air conditioning" Application e.g. for the presence-dependent control of a heating system. Motion is detected always brightness independently. "Presence detector monitoring" Application e.g. to monitor the activity in a hospital room. The function block evaluates motion detection processes and reacts according to the configuration. The "Activity monitoring" function is available in this application. "Presence detector - Universal" The function block works in principle as in the Presence detector - Lighting setting, but additional parameters are also available.	

Use as	**Single device** Main unit Extension unit
Definition of the function block application type. It is possible to use several devices in one room to extend the detection field by combining a device configured as a main unit with several devices configured as extension units. A single device always works autonomously. The "Presence detector monitoring" application always works as a single device.	

Control mode	**Auto ON, auto off** Manual ON, auto off Auto ON, manual off
This parameter defines the control mode used by the FB and how it reacts to the configured "trigger". Auto ON, auto OFF: In this operating mode, the outputs of the function block are automatically actuated by the "trigger". Manual actuation of the device is not necessary. Manual ON, auto OFF: In this control mode, an ON telegram must be sent first to the "Manual operation - Simple" or "Manual operation - Permanent" object before a trigger is evaluated. To do this, manual operation must be configured to active on the "Enabled functions" parameter page. At the same time, the ON telegram starts the first motion detection process including the run-on time. The end of triggering is detected automatically or initiated by an OFF telegram to the "Manual operation - Simple" or "Manual operation - Permanent" object. Afterwards, a manual ON telegram is required again to evaluate a new triggering process. In this operating mode, an ON telegram must first be transmitted to the object "Lighting manual ON/OFF" before a movement (including ext. motion) can be detected and evaluated. At the same time, the ON telegram starts the first motion detection process including the run-on time. The end of the detection process is identified automatically or initiated by an OFF telegram to the "Lighting manual ON/OFF" object. Afterwards, a manual ON telegram is required again to evaluate a new movement. Auto ON, manual OFF: A triggering process is detected automatically in this control mode. No run-on time is started after detecting a triggering process and outputting the telegrams at the "Start of detection". This means that the end of triggering can be achieved only by an OFF telegram to the "Manual operation - Simple" or "Manual operation - Permanent" object. To do this, manual operation must be configured to active on the "Enabled functions" parameter page. The function block is then ready again for a new triggering process.	

(Control mode) At day	**Auto ON, auto off** Manual ON, auto off Auto ON, manual off
The "At day" parameter defines the control mode used by the FB at day and how it reacts to the configured "trigger". Auto ON, auto OFF: In this operating mode, the outputs of the function block are automatically actuated by the "trigger". Manual actuation of the device is not necessary. Manual ON, auto OFF: In this control mode, an ON telegram must be sent first to the "Manual operation - Simple" or "Manual operation - Permanent" object before a trigger is evaluated. To do this, manual operation must be configured to active on the "Enabled functions" parameter page. At the same time, the ON telegram starts the first motion detection process including the run-on time. The end of triggering is detected automatically or initiated by an OFF telegram to the "Manual operation - Simple" or "Manual operation - Permanent" object. Afterwards, a manual ON telegram is required again to evaluate a new triggering process. Auto ON, manual OFF: A triggering process is detected automatically in this control mode. No run-on time is started after detecting a triggering process and outputting the telegrams at the "Start of detection". This means that the end of triggering can be achieved only by an OFF telegram to the "Manual operation - Simple" or "Manual operation - Permanent" object. To do this, manual operation must be configured to active on the "Enabled functions" parameter page. The function block is then ready again for a new triggering process.	

(Control mode) At night	**Auto ON, auto off** Manual ON, auto off Auto ON, manual off

The "At night" parameter defines the control mode that the FB uses at night and how it reacts to the configured "trigger".

"Auto ON, auto OFF"
In this operating mode, the outputs of the function block are automatically activated by the "trigger". Manual actuation of the device is not necessary.

"Manual ON, auto OFF"
In this control mode, an ON telegram must be sent first to the "Manual operation - Simple" or "Manual operation - Permanent" object before a trigger is evaluated. To do this, manual operation must be configured to active on the "Enabled functions" parameter page. At the same time, the ON telegram starts the first motion detection process including the run-on time. The end of the trigger is detected automatically. Afterwards, a manual ON telegram is required again to evaluate a new triggering process.

"Auto ON, manual OFF"
In this control mode, triggers are detected automatically. No run-on time is started after detecting a triggering process and outputting the telegrams at the "Start of detection". This means that the end of triggering can be achieved only by an OFF telegram to the "Manual operation - Simple" or "Manual operation - Permanent" object. To do this, manual operation must be configured to active on the "Enabled functions" parameter page. The function block is then ready again for a new triggering process.

Functionality	**Brightness dependent** Brightness-independent

This parameter can be used to activate or deactivate the evaluation of brightness when a motion detection is received for the respective FB.

"Brightness-independent":
The brightness is not evaluated. The FB always evaluates movements for the initial detection.

"Brightness-dependent":
The brightness is evaluated. The FB evaluates movements for the initial detection only if the brightness falls below the set brightness threshold.

This parameter is visible only if the "Application" parameter is set to Motion detector - Lighting or Presence detector - Lighting/Universal.

Reset behaviour

Changeable parameters can be reset via object	Active **Inactive**
The parameters of the FB in the device are reset to the values configured in the ETS by sending a telegram to the 1-byte object "Changeable parameters - Reset", which can be enabled by this parameter. The values are retained until a new specification is made by a telegram or a teach-in function. An ETS programming operation sets the parameters automatically to the ETS pre-settings if this is provided for in the configuration.	

After bus voltage return	No reaction Disabling function active State when starting a detection **State as before bus voltage failure**
When used as a "Single device" and "Main unit", different operating states can be assumed when the bus voltage returns. The behaviour of the function block is defined by this parameter. The behaviour configured here is not executed if the function block is not active (e.g. by function block switch-over, walking test) or the "Behaviour after ETS programming operation" is executed. "No reaction" The function block switches to the basic state (no motion, run-on time inactive, disabling function inactive). No telegram is output. "Disabling function active" In this setting, the function block is set to the disabling state after the bus voltage returns. If a telegram output is configured at the beginning of the disabling function, these telegrams are then transmitted. The basic state (no motion, run-on time inactive, disabling function inactive) is set as previous state for the disabling function. "State when starting a detection" In this setting, the state changes to that of an active motion detection after the bus voltage returns (an evaluation delay is not processed). The processing of the motion detection is then subject only to the configured brightness threshold evaluation. In brightness-independent detection mode, the configured telegrams are transmitted at the beginning of the detection and the run-on time is started. In brightness-dependent detection mode, the configured telegrams are transmitted at the beginning of the detection, the run-on time is started and brightness-independent motion detection is switched to only if the brightness values are below the brightness threshold. If no further motion is then detected, the device processes the end of the detection after the run-on time has elapsed. "State as before bus voltage failure" In this setting, the state of the function block as it was before the bus voltage failure is assumed again.	

After ETS programming operation	**No reaction** Disabling function active State when starting a detection
When used as a "Single device" and "Main unit", various states of operation (possibly with telegram output) can be assumed after ETS programming. The behaviour of the FB is defined by this parameter. "No reaction" The function block switches to the basic state (no motion, run-on time inactive, disabling function inactive). No telegram is output. "Disabling function active" In this setting the function block is set to the disabling state after ETS programming. If a telegram output is configured at the beginning of the disabling function, these telegrams are then transmitted. The basic state (no motion, run-on time inactive, disabling function inactive) is set as previous state for the disabling function. "State when starting a detection" In this setting, the state changes to that of an active motion detection after ETS programming (an evaluation delay is not processed). The processing of the motion detection is then subject only to the configured brightness threshold evaluation. In brightness-independent detection mode, the configured telegrams are transmitted at the beginning of the detection and the run-on time is started. In brightness-dependent detection mode, the configured telegrams are transmitted at the beginning of the detection, the run-on time is started and brightness-independent motion detection is switched to only if the brightness values are below the brightness threshold. If no further motion is then detected, the device processes the end of the detection after the run-on time has elapsed.	

13.1.2 "Enabled functions" parameters

This parameter page is available for each activated function block (FB) separately.

Function blocks (FB) -> FB x - General -> Enabled functions

Output 2	**Inactive** Active
This parameter enables the parameters and objects for output 2 for the FB. The "Output 2" parameter page and other objects appear. For this parameter to be visible, the "Application" parameter must not be set to Presence detector - Monitoring.	

Manual operation	**Inactive** Active
The FB can be operated also manually. There is simple manual operation and permanent manual operation. This parameter enables manual operation. The "FB x - Manual operation" parameter page and other objects appear. For this parameter to be visible, the "Application" parameter must not be set to Presence detector - Monitoring.	

Disabling function	**Inactive** Active
A disabling function can be configured for the FB. This parameter enables the disabling function. The "FB x - Disabling function" parameter page and other objects appear.	

Scenes	**Inactive** Active
Scenes can be configured for the FB. This parameter enables the scenes. The "FB x - Scenes" parameter page and other objects appear.	

Activity monitoring function	**Inactive** Active
This parameter enables the activity monitoring function for the FB. The "Activity monitoring function" parameter page and the "Activity monitoring - Time since last motion" object appear. This parameter is visible only if the "Function" parameter on the FB x- General parameter page is set to brightness-independent or the "Application" parameter is set to Presence detector - Heating/Ventilation/Cooling or Presence detector - Monitoring.	

13.1.3 "General and enabled functions" objects

The objects are available for each function block separately.

Function	Name	Type	DPT	Flags
Changeable parameters - Reset	FB x - Input	1-bit	1,017	C, -, W, -, U
1-bit object used to reset all parameters of this function block that have been reset to the settings in the ETS by means of objects or the teach-in function. A telegram is sent to this object for this purpose.				

13.2 Motion evaluation

Sensitivity of motion detection

The motion detection takes place digitally via a PIR sensor with a detection field of 360°. The sensitivity of the motion detection, which is a measure for the range of the PIR evaluation, can be configured in the ETS. In the ETS, the setting for motion evaluation can be made uniformly for all function blocks on the "Sensors - Motion" parameter page or individually for each function block on the "Motion evaluation" parameter page of the respective function block.

In addition, the sensitivity for the initial detection and presence phases can be set individually to adapt it ideally to the location and purpose. If day/night switchover is active, a different sensitivity value can be configured for the initial detection phase for day and night. The sensitivity for the presence phase is the same at day and night.

13.2.1 "Motion evaluation" parameters

Function blocks (FB) -> FB x - General -> Motion evaluation

Sensitivity

Source of sensitivity setting	**Like general sensor setting** Individual setting
This parameter is used to specify whether the general sensor setting or an individual setting is to be used. "Like general sensor setting" The sensor setting on the "Sensors - Motion" parameter page is used. "Individual setting" An individual sensitivity setting can be made for the assigned PIR sensors for the function block. The settings on the "Sensors - Motion" parameter page have no effect. Additional parameters appear.	

Differentiated according to initial detection phase and presence phase	**Inactive** Active
The parameter is used to specify whether the sensitivity for the initial detection of a movement and for retriggering can be set individually. "Active" The sensitivity can be set separately for the initial detection phase of a movement and re-triggering during the presence phase. "Inactive" It is the same for the initial detection of a movement and the retriggering during presence. Additional parameters appear.	

PIR sensor	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to inactive. The day/night switchover function must be set to inactive on the "General" parameter page.	

(PIR sensor) At day	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor for day mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to inactive. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor) At night	1 … **6** … 10
This parameter is used to set the sensitivity of the PIR sensor for night mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to inactive. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor) Initial detection phase	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor for the initial detection phase (initial detection of a movement). The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity if there is an increase in faulty switching processes. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to inactive on the "General" parameter page.	

(PIR sensor initial detection phase) At day	1 … **8** … 10
This parameter is used to set the sensitivity of the PIR sensor for the detection phase (initial detection of a movement) for day mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity for the individual PIR sensors if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor initial detection phase) At night	1 … **6** … 10
This parameter is used to set the sensitivity of the PIR sensor for the detection phase (initial detection of a movement) for night mode. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 8. Reduce the sensitivity for the individual PIR sensors if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. Increase the sensitivity if the detection is insufficient. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to active on the "General" parameter page.	

(PIR sensor) Presence phase	1 … **10**
This parameter is used to set the sensitivity of the PIR sensor for the presence phase. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 10. Reduce the sensitivity if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. This parameter is visible only if the parameter "Differentiated according to initial detection and presence phase" is set to active. The day/night switchover function must be set to inactive on the "General" parameter page.	

(PIR sensor presence phase) At day and night	1 … **10**
This parameter is used to set the sensitivity of the PIR sensor for the presence phase. The setting applies to day and night time operation. The setting is made in 10 levels from 1 (very low) to 10 (very high). The sensitivity is set by default to level 10. Reduce the sensitivity if there is an increase in faulty switching processes. This may limit the influence of sources of interference such as heaters. This parameter is only visible if the "Differentiated according to initial recognition and presence phase" is set to active. The day/night switchover function must be set to active on the "General" parameter page.	

Sensitivity can be set via object	Active **Inactive**
The sensitivity of the PIR sensors for the function block in the device is reset by sending a telegram to one of the 1-byte objects "PIR sensor - Sensitivity" according to "non standard" DPT, which can be enabled by this parameter. The values are retained until a new specification is made by a telegram. An ETS programming operation sets the parameters automatically to the ETS pre-settings if this is provided for in the configuration.	

Overwrite values in device during ETS programming	Active **Inactive**
This parameter can be used to specify whether the sensitivity values of the function block are to be overwritten during an EST programming operation. The values are retained until a new specification is made by a telegram. To automatically set the values to the ETS specifications during an ETS programming operation, set this parameter to active. This parameter is visible only if the "Sensitivity can be set via object" parameter is set to active.	

Show info graphic	**Inactive** *Active*
This parameter can be used to display the infographic used to differentiate the motion detection process according to the initial detection and presence phase.	

13.2.2 "Motion evaluation" objects

Function	Name	Type	DPT	Flags
Motion - Status	FB x - Output	1-bit	1,010	C, -, -, T, -
1-bit object that sends a telegram with a motion signal to the bus when motion is detected (cyclically "1" = motion present, "0" = not sent).				

Function	Name	Type	DPT	Flags
Motion - Status - External	FB x - Input	1-bit	1,010	C, -, W, -, U
1-bit object used to receive an external motion signal for single devices and main units ("1" = motion present, "0" irrelevant). An external 1-bit motion signal can be supplied to the device by means of this object, which comes, for example, from a motion detector or push-button sensor in the room. This allows the user to trigger the start of detection even without motion detection in the detection field of the device. The external motion signal can be evaluated brightness-dependently or brightness-independently (configurable). In the case of main unit and extension arrangements, the main units receive the cyclical motion telegrams of the extension units by means of this object (it must be linked to the "Motion" objects of the extension units).				

Function	Name	Type	DPT	Flags
PIR sensor - Sensitivity - Status	FB x - Output	1-byte	Non standard	C, R, -, T, A
1-byte object used to output the active sensitivity of the PIR sensor to the bus. This non-standardised data type is described here Table : Motion [Page 38).				

Function	Name	Type	DPT	Flags
PIR-sensor - Sensitivity	FB x - Input	1-byte	Non standard	C, -, W, -, U
1-byte object used to specify the sensitivity of the PIR sensor by means of a telegram. This non-standardised data type is described here Table : Motion [Page 38).				

Function	Name	Type	DPT	Flags
PIR sensor - Presence sensitivity - Status	FB x - Output	1-byte	Non standard	C, R, -, T, A
1-byte object used to output the active sensitivity of the PIR sensor to the bus during an ongoing detection process. This non-standardised data type is described here Table : Motion [Page 38).				

Function	Name	Type	DPT	Flags
PIR sensor - Presence sensitivity	FB x - Input	1-byte	Non standard	C, -, W, -, U
1-byte object used to specify the sensitivity of the PIR sensor during an ongoing detection process by means of a telegram. This non-standardised data type is described here Table : Motion [Page 38).				

Function	Name	Type	DPT	Flags
PIR sensor - Initial detection sensitivity - Status	FB x - Output	1-byte	Non standard	C, R, -, T, A
1-byte object used to output the active sensitivity of the PIR sensor for initial detection to the bus. This non-standardised data type is described here Table : Motion [Page 38).				

Function	Name	Type	DPT	Flags
PIR sensor - Initial detection sensitivity	FB x - Input	1-byte	Non standard	C, -, W, -, U
1-byte object used to specify the sensitivity of the PIR sensor for the initial detection by means of a telegram. This non-standardised data type is described here Table : Motion [Page 38).				

13.3 Brightness evaluation

Brightness threshold

The motion detection can be evaluated brightness-independently or brightness-dependently in the "Motion detector - Lighting" and "Presence detector - Lighting and universal" applications. In the brightness-independent evaluation, no brightness value is taken into account when processing a movement. Each motion then triggers a new detection process in the idle state. This configuration, for instance, is interesting for lighting-independent applications (e.g. presence detection for room temperature controls).
In the brightness-dependent evaluation, the measured brightness value in relation to the effective brightness threshold is taken into account to process a motion detection. The function block then only detects movements when the measured brightness value is below the set brightness threshold. This configuration is normally used to control lighting systems in corridors or rooms with some levels of daylight.

The brightness threshold is specified in the ETS by the corresponding parameter and can be changed by means of an external brightness threshold (via object) or with the teach-in function in the operating state and thus adapted to meet the user requirements.

Motion is detected always brightness independently in the "Presence detector - Heating / Ventilation / Air conditioning and monitoring" application.

With the "Presence detector - Lighting and universal" application, the brightness in brightness-dependent motion detection mode continues to be evaluated when the lighting is switched on even with active motion detection. If the measured brightness exceeds the defined switch-off brightness, which is derived from the effective brightness threshold, no further movements are evaluated and the lighting is switched off after a configurable run-on time has elapsed once the switch-off brightness has been reached even during active motion detection. With brightness-independent motion detection (brightness-independent operation activated), the switch-off brightness is therefore also not effective.

Active brightness threshold feedback

Feedback of the brightness threshold effectively set in the function block is possible by means of the 2-byte object "Switch-on brightness - Status" in accordance with DPT 9.004. This object can optionally wort as an active signalling object or a passive status object. As an active signalling object, the current brightness threshold is transmitted once to the bus each time the brightness threshold is changed, after ETS programming or after the bus voltage returns (optionally delayed).

Specify brightness threshold externally

The brightness threshold currently set can be reset by sending a 2-byte brightness value to the "Switch-on brightness" object in accordance with DPT 9.004. This object can be configured if the parameter "Can be set via object" is set to "Enabled" on the parameter page "FB x - Brightness evaluation". The brightness threshold received by means of the object is retained until a new specification is made (switch-on bright-

ness, teach-in function). Even a bus voltage failure does not reset a brightness threshold received via the bus. ETS programming resets the brightness threshold automatically to the ETS presettings if this is intended in the configuration (see below).

The disabling function has no influence on the external specification of the brightness threshold.

Teach-in function

Another option for user-guided adjustment of the brightness threshold is the teach-in function. The teach-in function is used to adopt the effective brightness value as new brightness threshold without delay by sending a corresponding telegram to the 1-bit object "Teach-in function - Teach-in". This object can be configured if the "Teach-in function" parameter is set to "active" on the parameter page "FB x - Brightness evaluation".
The polarity of a teach-in telegram can be configured with the "Functionality for teach-in" parameter. Depending on the configuration, it is possible to reset to the configured brightness threshold upon receiving the opposite object value (teach-in inactive). The previously learnt brightness threshold is lost. However, if the teach-in polarity is configured actively to "1" and "0", it will no longer be possible to switch back to the configured brightness threshold by means of this object during operation of the device! The new brightness threshold set with the teach-in function is retained until a new specification is made (switch-on brightness, teach-in function). Even a bus voltage failure will not reset the new brightness threshold. ETS programming resets the brightness level automatically to the ETS presettings if this is intended in the configuration (see below).

The disabling function has no influence on the teach-in function.

Brightness threshold for external motion signal

When used as a main unit, an external motion signal can be sent from the extension units to the device. If the motion evaluation is configured to "Brightness-dependent", the evaluation of the external motion detections can be influenced. The parameter "Brightness-dependent on motion detection via external object" on the parameter page "FB x - Brightness evaluation" defines the behaviour when a motion telegram is received.

- "Only in the main unit":
  External motion signals are evaluated by the main unit. The main unit only sends a telegram "At start of detection" if the brightness is below the brightness threshold set on the main unit.
- "In main unit and extension unit":
  The extension unit sends motion signals only if the brightness falls below the brightness threshold set on the extension unit. The external motion signals are evaluated by the main unit. The main unit sends a telegram "At start of detection" also if the brightness is above the brightness threshold set on the main unit.

With brightness-independent motion evaluation, the external motion detections in a main unit are always evaluated.

Brightness threshold for an ETS programming operation

The parameter "Overwrite brightness threshold in device during ETS programming operation" determines whether an active brightness threshold previously set by an external object presetting or by the teach-in function is automatically overwritten by the brightness threshold configured in the ETS during an ETS programming operation. In the "Active" setting, the last value that was preset externally or by the teach-in function and is still active is replaced by the ETS specification. If "Deactivated", the brightness threshold last specified externally or by the teach-in function remains active even after an ETS programming operation.

The device always works with the value configured in the ETS if the parameter "Overwrite brightness threshold in the device during ETS programming" is set to "Deactivate" and no external presetting has been made yet - if provided for in the configuration - by means of the 2-byte object or by the teach-in function after the initial ETS commissioning. The ETS parameter only becomes invalid within the above configuration after an external presetting or after a teach-in procedure.

Switchover of the evaluation of the brightness threshold for brightness-dependent operation

It is possible to switch the evaluation of the brightness threshold off and on again during operation of the device by means of the 1-bit object " Activate/Deactivate brightness-independent operation". When using main units and extension units, the use of this object is fundamental in order to switch the main units to brightness-independent operation for output functions that are unlike the 1-bit data format. Consequently, the use of the object must be differentiated in the project design:

- Use as "Single device":
  The object "Brightness-independent operation - Activate/Deactivate" is an input. A "1" telegram activates the brightness evaluation. A "0" telegram switches to brightness-independent operation.
  After switching to brightness-independent operation by means of the object, the application does not automatically switch back to brightness-dependent operation at the end of a motion detection process.
- Use as "Main unit":
  This includes the objects "Activate/Deactivate brightness-independent operation" once as an input and once as an output.
  Input: A "1" telegram deactivates the evaluation of the brightness threshold. A "0" telegram enables the evaluation of the brightness threshold again. After switching over to brightness-independent operation by means of the object, the application does not automatically switch back to brightness-dependent operation at the end of a motion detection as would be the case in brightness-independent operation.
  Output: The main unit uses this output to control the switchover of the evaluation of the brightness threshold of the extension unit(s) depending on its own evaluation of the brightness threshold. The application examples in this documentation show this more precisely.

Combined use of the input and output objects: If the main unit is switched to brightness-independent operation by means of the input object, the "Activate/ Deactivate brightness-independent operation" object is no longer used to control the evaluation of the brightness threshold of the extension unit(s) (output function deactivated). No telegrams are then transmitted automatically from the main unit anymore until there is a switch back to brightness-dependent operation! To ensure that the main unit and extension unit(s) work correctly during the switch-over of the main unit to brightness-independent operation, the extension unit(s) must be switched simultaneously to brightness-independent operation by means of the object "Brightness-dependent operation Activate/ Deactivate".

– Use as "Extension unit":
The "Activate/Deactivate brightness-dependent operation" object is an input. A "1" telegram deactivates the brightness threshold. A "0" telegram enables the brightness threshold again.

Switch-off brightness during presence detector operation

The switch-off brightness in Presence detector operation - Lighting, universal (only with the single device and main unit application types) is specified for brightness-dependent operation with the "Switch off when brightness threshold is exceeded by" parameter on the parameter page "FB x - Brightness evaluation". The switch-off brightness is calculated as follows:
Switch-off brightness = effective brightness threshold + switch-off when brightness threshold is exceeded by (in lux).

If the measured brightness exceeds the set switch-off brightness during an active presence detection, no further movements are evaluated. The device then transmits the configured telegram at the end of the detection process after the run-on time has elapsed or alternatively after a separately configurable delay time. The "Run-on time when reaching the switch-off brightness" parameter determines the type of delay time in this case.
The delay when reaching or exceeding the switch-off brightness is used for the debouncing of brief light reflexes and prevents faulty switching of the lighting.

If the switch-off brightness is fallen below again before the delay has elapsed, the device will abort the switch-off process. Detected movements will then retrigger the transmission delay.

With brightness-independent detection, no "Switch-off brightness" can be configured.

Teach-in function for switch-off brightness
The teach-in function makes it possible to preset the switch-off brightness externally. This function can be used by the ETS in parallel to the presetting of the switch-off brightness and allows for user-guided adjustment of the switch-off brightness to the lamp used. With the teach-in function, the currently measured brightness value is applied instantly by transmitting a corresponding telegram to the 1-bit object "Teach switch-off brightness" as a new switch-off brightness. This object can be configured if the "Teach-in function" parameter for the switch-off brightness is set to "active" on the parameter page "FB x - Brightness evaluation". The polarity of a teach-in telegram can be configured with the "Trigger" parameter. Depending on the configuration, it is

possible to reset to the configured switch-off brightness upon receiving the opposite object value (Teach-in - Inactive). The switch-off brightness previously learned will be lost in the process. If, however, the trigger is configured actively to "1" and "0", it will not be possible to reset to the configured switch-off brightness anymore by means of this object during ongoing operation of the device! The new switch-off brightness set with the teach-in function is retained until a new teach-in operation is carried out. Even a bus voltage failure will not reset the new switch-off brightness.

The teach-in function is used to set an absolute brightness as switch-off brightness. When the brightness threshold is changed, the switch-off brightness set during the teach-in process remains unchanged in contrast to the configured switch-off hysteresis (switch-off when brightness threshold is exceeded by X lux). If the configured switch-off hysteresis is active, the resulting switch-off brightness (switch-off brightness + switch-off hysteresis) changes according to the brightness threshold set.

If the teach-in function learns a switch-off brightness that is too low, this will cause a light swing during operation (the lighting is switched on and off permanently). This will also happen if the switch-off brightness is below the brightness threshold. The same applies if after setting the switch-off brightness, the brightness threshold is adjusted in such a way that the interval between the brightness threshold and switch-off brightness is too low.

The disabling function has no influence on the teach-in function.

The parameter "Overwrite values during ETS download in the device - Switch-off brightness" is used to determine whether a switch-off brightness preset by teach-in is overwritten automatically by the switch-off brightness configured in the ETS during ETS programming. If the setting is "Active", the last switch-off brightness preset by teach-in and still active is replaced by the ETS presetting. If the setting is "Inactive", the last switch-off brightness preset by teach-in still remains active even after ETS programming.

If the parameter "Overwrite values during ETS download in the device" is set to "Inactive" and no teach-in has taken place yet after the initial commissioning - if provided for in the configuration - the device always works with the value configured in the ETS. The ETS parameter in the above configuration only becomes invalid after a teach-in process.

Assignment of the brightness sensors

To determine the workplace brightness or ambient brightness, the device has a brightness sensor behind the lens. The brightness value determined by this internal sensor can be supplied to a function block internally for the brightness evaluation. Optionally, an external 2-byte brightness value in accordance with DPT 9.004 can also be made available to the function block via the bus. This makes it possible to evaluate the brightness independently of the installation location of the device (e.g. provision of an external brightness value by an extension unit positioned more favourably). In special cases, it is possible to link the determined brightness value of the internal sensor to an external brightness value. In this way, the light measurement of a function block can take place at 2 locations. At the same time, both sensor values are weighted to determine the effective brightness value. The "Weighting of

the brightness values internal to external" can be configured statically in the ETS. The "Brightness measurement by" parameter on the "FB x - Brightness evaluation" parameter page is used to define which sensors are used to evaluate the brightness of a function block.

The brightness value determined by the internal sensor can be supplied to other KNX bus subscribers by means of the object "Brightness value - Status".

In "External" or "Internal and external" brightness value detection: In brightness-dependent motion evaluation mode, a current brightness value must first be present after a device reset before the corresponding function block can work properly. The function block works brightness-independently until a valid brightness value has been received externally! If user calibration of the internal brightness sensor is configured, this must first be executed correctly beforehand so that the internal sensor provides valid brightness values.

If the "Motion detector - Lighting, Presence detector - Lighting, Universal" applications are to work brightness independently, set the "Functionality" parameter on the "FB x - General" parameter page to brightness-independent.

The "Presence detector - Heating / Ventilation / Air conditioning - Monitoring" applications always work brightness-independent.

13.3.1 "Brightness evaluation" parameter

This parameter page is visible only if the "Application" parameter is set to "Motion detector - Lighting" or "Presence detector - Lighting/Universal".

Function blocks (FB) -> FB x - General -> Brightness evaluation

Functionality

(With internal motion detection) Brightness-independent operation can be activated via object	**Active** Inactive
In the default setting, the function block evaluates movements detected by means of an internal sensor on a brightness-dependent basis. This parameter enables the object "Brightness-independent operation - Activate/Deactivate", which can be used to switch the evaluation of movements to brightness-independent. "Active" The brightness is not evaluated. Each motion triggers a new detection process in the idle state. "Inactive" The brightness is evaluated. In the idle state, motion triggers a new detection process only if the brightness falls below the set brightness threshold.	

Brightness-dependent with motion detection via external object	Main unit only **In main unit and extension unit**
This parameter can be used to activate the evaluation of the brightness when a motion detection is received by means of the external object "Motion status - External" only for the main unit or for the main and extension unit. "Main unit only" The brightness is evaluated only by the main unit. The extension units send a telegram when motion is detected, brightness independently. The main unit evaluates this and sends a "Start of detection" telegram only if the brightness falls below the brightness threshold set on the main unit. "Main and extension unit" The brightness is evaluated by the main and extension unit. The extension unit sends a telegram when motion is detected only if the brightness falls below the brightness threshold set on the extension unit. The main unit evaluates them and sends a "Start of detection" telegram. This parameter is visible only if the "Use as" parameter is set to main unit.	

Brightness source

Brightness measurement by	**Internal sensor** External sensor (object) Internal and external sensor (average value)
The "Brightness measurement by" parameter specifies which sensor is used to determine the brightness. This parameter can be set only if the "Use as" parameter on the FB - General parameter page is set to single device or main unit. With "Use as" extension unit, the parameter is permanently set to "internal sensor". "Internal sensor": The sensor integrated in the device is activated. The brightness value is therefore determined only locally on the device. "External sensor (object)": The "External sensor" is a KNX brightness sensor or device with brightness detection connected by means of the 2-byte object "Brightness value - External". "Internal and external sensor (average value)": In these settings, the selected sources are combined with each other and an average value is calculated from the values. The setting of the "Weighting of the brightness value, internal to external" parameter is taken into account.	

Weighting of measured values	10% to 90% 20% to 80% 30% to 70% 40% to 60% **50% to 50%** 60% to 40% 70% to 30% 80% to 20% 90% to 10%
The weighting of the measured brightness value of the internal and external sensor is defined here. This results in an overall value, which will be used for the further interpretation of the brightness. This achieves a more homogeneous brightness measurement in rooms with large differences in brightness. This parameter is visible only with "Brightness measurement by = "Internal and external sensor"!	

"Brightness value" status object	Active **Inactive**
The determined brightness value is sent to the bus by sending a brightness value to the 2-byte object "Active brightness value - Status", which can be enabled by this parameter. The value is output in lux. This parameter is visible only if the "Use as" parameter is set to single device or main unit on the FB - General parameter page.	

Brightness threshold

Trigger if motion is detected and brightness is lower than	10 … **500** … 2000 lux
This parameter is used to set the brightness threshold in lux, below which a new detection process is triggered if there is motion in the idle state. This parameter is visible only if the "Use as" parameter is set to single device or main unit on the FB - General parameter page and the "Day/night operation" function is set to inactive on the General parameter page.	

(Trigger if motion is detected and brightness is lower than) At day	10 … **500** … 2000 lux
This parameter is used to set the brightness threshold in lux for day mode, below which a new detection process is triggered if the brightness falls below the threshold and there is motion in the idle state. This parameter is visible only if the "Use as" parameter on the FB - General parameter page is set to single device or main unit and the "Day/night operation" function is set to active on the General parameter page.	

(Trigger if motion is detected and brightness is lower than) At night	10... **400** ...2,000 lux
This parameter is used to set the brightness threshold in lux for night mode, below which a new detection process is triggered if the value falls below the threshold and there is motion in the idle state. This parameter is visible only if the "Use as" parameter on the FB - General parameter page is set to single device or main unit and the "Day/night operation" function is set to active on the General parameter page.	

Can be set via object	Active **Inactive**
The brightness threshold in the device is reset by sending a brightness value to the 2-byte object "Switch-on brightness", which can be enabled by this parameter. The new value is retained until a new specification is made (externally by means of the object or the teach-in function). An ETS programming operation resets a switch-on brightness value automatically to the ETS presettings if this is provided for in the configuration.	

Teach-in function	Active **Inactive**
With the teach-in function, the brightness value currently measured is adopted as the new brightness threshold without delay by sending a corresponding telegram to the 1-bit object "Switch-on brightness - Teach-in". The object can be configured if this parameter is set to "Active".	

Function for teach-in	**0 = inactive / 1 = active** 0 = active / 1 = inactive 0 = active / 1 = active
The polarity of a teach-in telegram is configurable by this parameter. It is possible to reset to the configured limit value upon receiving the opposite object value (teach-in function inactive), depending on the configuration. The previously learnt brightness value is lost. If, however, the polarity is configured to "1"- and "0"-active, it is not possible anymore to reset to the configured brightness value via this object during ongoing operation of the device! This parameter is visible only if the teach-in function is active.	

Switch-off brightness

Evaluate switch-off brightness	**Active** Inactive
This parameter is used to enable the evaluation of the switch-off brightness. Further parameters appear, which can be used to define the value of the switch-off brightness. This parameter is visible only if the "Use as" parameter on the FB - General parameter page is set to single device or main unit and the "Application" parameter is set to Presence detector - Lighting/Universal.	

Switch off when brightness threshold is exceeded by	10 … **500** … 2000 lux
This parameter is used to set the brightness threshold in lux above which no further movements are evaluated during active motion detection. The device then sends the configured telegram at the end of the detection after a delay time has elapsed. The delay time is set with the parameter "Run-on time after reaching switch-off brightness". This parameter is visible only if the "Evaluate switch-off brightness" parameter is set to active and the "Day/night operation" function is set to inactive on the General parameter page.	

(Switch off when brightness threshold is exceeded by) At day	10... **300** ...800 lux
This parameter is used to set the brightness threshold in lux for day mode, above which no further movements are evaluated during active motion detection. The device then sends the configured telegram at the end of the detection after a delay time has elapsed. The delay time is set with the parameter "Run-on time after reaching switch-off brightness". This parameter is visible only if the "Evaluate switch-off brightness" parameter is set to active and the "Day/night operation" function is set to active on the General parameter page.	

(Switch off when brightness threshold is exceeded by) At night	10... **300** ...800 lux
This parameter is used to set the brightness threshold in lux for night mode, above which no further movements are evaluated during active motion detection. The device then sends the configured telegram at the end of the detection after a delay time has elapsed. The delay time is set with the parameter "Run-on time after reaching switch-off brightness". This parameter is visible only if the "Evaluate switch-off brightness" parameter is set to active and the "Day/night operation" function is set to active on the General parameter page.	

Can be set via object	Active **Inactive**
The switch-off brightness in the device is reset by sending a brightness value to the 2-byte object "Switch-off brightness", which is enabled by this parameter. The new value is retained until a new specification is made (externally by means of the object or the teach-in function). An ETS programming operation resets the switch-off brightness value automatically to the ETS presettings if this is provided for in the configuration. This parameter is visible only if the "Evaluate switch-off brightness" parameter is set to active.	

Teach-in function	Active **Inactive**
With the teach-in function, the currently measured brightness value is applied instantly by transmitting a corresponding telegram to the 1-bit object "Teach switch-off brightness" as a new switch-off brightness. The object can be configured if this parameter is set to "Active". This parameter is visible only if the "Evaluate switch-off brightness" parameter is set to active.	

Trigger (Function for teach-in)	**0 = no takeover / 1 = brightness takeover** 0 = brightness takeover / 1 = no takeover 0 = brightness takeover / 1 = brightness takeover
The polarity of a teach-in telegram is configurable by this parameter. Depending on the configuration, it is possible to reset to the configured switch-off brightness value upon receiving the opposite object value (teach-in inactive). The switch-off brightness value previously learnt is lost. If, however, the polarity is configured to "1"- and "0"-active, it is not possible anymore to reset to the configured switch-off brightness value via this object during ongoing operation of the device! This parameter is visible only if the teach-in function is active.	

Run-on time after reaching switch-off brightness	**Like at end of detection** Individual specification
This parameter determines the run-on time to be used after the switch-off brightness is reached. "Like at end of detection": The settings that were set for the end of detection on the parameter page "FB - Start and end of detection" are used. "Individual specification": In this setting, an individual run-on time can be set for the run-on time. The settings under "End of detection" are no longer taken into account. This parameter is visible only if the "Evaluate switch-off brightness" parameter is set to active.	

Individual specification	0 … **5** … 59 min **0** … 59 s
This parameter is used to determine how long the delay time is after the switch-off brightness is reached if the parameter "Run-on time after switch-off brightness is reached" is set to individual specification. Seconds (0 ... 59 s) and minutes (0 ... 59 min) can be set for this time.	

Behaviour during ETS programming

Brightness threshold	**Active** Inactive
This parameter is used to determine whether an active brightness threshold previously set by an external object specification or by the teach-in function is to be overwritten by the brightness threshold configured in the ETS during an ETS programming operation. In the "Active" setting, the last value that was specified externally or by the teach-in function and is still active is replaced automatically by the ETS specification. With "Inactive", the brightness threshold specified last externally or by teach-in remains active even after an ETS programming operation. This parameter is visible only if at least one of the parameters "Can be set via object" or the teach-in function is set to active for the brightness threshold.	

Switch-off brightness	**Active** Inactive
This parameter is used to determine whether an active switch-off brightness previously set by an external object specification or by the teach-in function is overwritten by the switch-off brightness configured in the ETS during an ETS programming operation. In the "Active" setting, the last value that was specified externally or by the teach-in function and is still active is replaced automatically by the ETS specification. If the setting is "Inactive", the last switch-off brightness preset externally or by teach-in still remains active even after ETS programming. This parameter is visible only if at least one of the parameters "Can set via object" or "Teach-in function" is set to active for the switch-off brightness.	

13.3.2 "Brightness evaluation" objects

Function	Name	Type	DPT	Flags
Brightness-independent operation - Activate/Deactivate	FB x - Input	1-bit	1,003	C, -, W, -, U
1-bit object that can be used to switch the motion evaluation of the main unit to brightness-independent mode. "Active" The brightness is not evaluated. Each motion detection process results in the transmission of the "At start of detection" telegram. "Deactivated" The brightness is evaluated. The "At start of detection" telegram is sent only if the brightness falls below the configured brightness threshold and motion is detected.				

Function	Name	Type	DPT	Flags
Brightness-independent operation - Extension unit - Activate/Deactivate	FB x - Output	1-bit	1,003	C, R, -, T, A
1-bit object that can be used by the main unit to set the switchover of the motion evaluation of the extension unit(s) depending on its own brightness evaluation. If the main unit is switched to brightness-independent mode; by means of a telegram or at the start of detection, the extension unit(s) must simultaneously also be switched to brightness-independent mode by means of this object for the main unit and extension unit(s) to function correctly.				

Function	Name	Type	DPT	Flags
Brightness independent operation - Status	FB x - Output	1-bit	1,003	C, R, -, T, A
1-bit object used to feed back whether brightness-independent operation is activated or deactivated. This object can optionally act as an active signalling object or passive status object (read out object). As an active signalling object, the current status is transmitted once to the bus on each change of the brightness value, after ETS programming or after the bus voltage returns (optionally delayed). This object is visible only if the parameter "Brightness-independent operation can be activated via object" is set to active on the parameter page FB x - Brightness evaluation.				

Function	Name	Type	DPT	Flags
Brightness value - External	FB x - Input	2-byte	9,004	C, -, W, -, U
2-byte object used to couple an external KNX brightness sensor or a KNX device with brightness sensor. This allows several brightness sensors to be cascaded for brightness measurement. Possible range of values: 10 ... 2,000 lux This object is visible only if the "Brightness evaluation by" parameter is configured to "External sensor (object)" or "Internal and external sensor (average value)".				

Function	Name	Type	DPT	Flags
Brightness value - Status	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object for the feedback of the active brightness value of the function block. This object can optionally act as an active signalling object or passive status object (read out object). As an active signalling object, the current brightness value is transmitted once to the bus on each change of the brightness value, after ETS programming or after the bus voltage returns (optionally delayed). This object is visible only if the "Status objects brightness value" parameter is set to active on the parameter page FB x Brightness evaluation.				

Function	Name	Type	DPT	Flags
Switch-on brightness	FB x - Input	2-byte	9,004	C, -, W, -, U
2-byte object used to specify the switch-on brightness for the function block. The specification is made in lux. The brightness value sent is adopted as the new switch-on brightness by sending a corresponding telegram to this object. This object is visible only if the "Can be set via object" parameter for the brightness threshold is active.				

Function	Name	Type	DPT	Flags
Switch-on brightness - Teach-in	FB x - Input	1-bit	1,017	C, -, W, -, U
1-bit object used to triggering a teach-in process to learn the switch-on brightness. With the teach-in function, the effective brightness value is applied instantly by transmitting a corresponding telegram to this object as new switch-on brightness. The telegram polarity can be configured. This object is visible only if the teach-in function for the brightness threshold is active.				

Function	Name	Type	DPT	Flags
Switch-on brightness - Status	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used to feed back the active brightness threshold of the function block. This object can optionally act as an active signalling object or passive status object (read out object). As an active signalling object, the current brightness threshold is transmitted once to the bus each time the brightness value is changed after ETS programming or after the bus voltage returns (optionally delayed).				

Function	Name	Type	DPT	Flags
Switch-off brightness	FB x - Input	2-byte	9,004	C, -, W, -, U
2-byte object used to specify the switch-off brightness for the function block. The specification is made in lux. The transmitted brightness value is applied as new switch-off brightness by transmitting a corresponding telegram to this object. This object is visible only if the "Can be set via object" parameter for the switch-off brightness is active.				

Function	Name	Type	DPT	Flags
Switch-off brightness - Teach-in	FB x - Input	1-bit	1,017	C, -, W, -, U
1-bit object for triggering a teach-in operation for learning the switch-off brightness. With the teach-in function, the effective brightness value is applied instantly by transmitting a corresponding telegram to this object as new switch-off brightness. The telegram polarity can be configured. This object is visible only if the teach-in function for the switch-off brightness is active.				

Function	Name	Type	DPT	Flags
Switch-off brightness -Status	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used to feed back the active switch-off brightness of the function block. This object can optionally act as an active signalling object or passive status object (read out object). As an active signalling object, the current switch-off brightness is transmitted once to the bus each time the brightness value is changed after ETS programming or after the bus voltage returns (optionally delayed). This object is visible only if the "Evaluate switch-off brightness" parameter on the parameter page FB x brightness evaluation is set to active.				

13.4 Start and end of detection

Total motion

A total motion is defined as the time period from the start of the first detection pulse of the PIR sensor (start of detection) plus the run-on time. The shortest run-on time is 10 seconds and starts immediately after the last active motion signal. The run-on time can be configured in the ETS.
If configured in the ETS, an evaluation delay at the start of detection can be set to ignore short-term movements.

Telegrams can be transmitted at the beginning, during and at the end of a motion detection. The setting is made on the parameter page "FB x - Output 1/2". During a motion detection, the function block concerned is always in brightness-dependent operation in relation to the brightness threshold. Thus, regardless of the ambient brightness and provided that the switch-off brightness (only in presence detector operation) was not exceeded, the run-on time is retriggered for each new motion detection.

It should be noted that the function block is always switched over to brightness-dependent operation at the end of a detection if the brightness threshold is not set to brightness-independent. Thus, special care should be taken since no motion detections will take place anymore if the ambient brightness is constantly above the brightness threshold at the end of the detection due to a switched-on light.

Transmission behaviour at the start of a detection process

The "Transmission behaviour" parameter can be used, if necessary, to delay the motion evaluation at the start of a detection process. The function block may therefore not react to a movement detected only temporarily (e.g. walking quickly through a room). The motion is only processed during a longer-lasting detection and the telegram is transmitted "at the beginning of detection".

The evaluation delay and the monitoring time window are available for this purpose. The evaluation delay and the monitoring time window always affect both outputs together as well as external motion detectors.

"Evaluation delay"
The evaluation delay is started when motion is detected. The "At start of detection" telegram is sent and the run-on time started only if another movement is detected within 30 seconds after the evaluation delay has elapsed.
The evaluation delay cannot be used in the "Presence detector - Monitoring" application and in the "Manual ON, auto OFF" control mode.

"Monitoring time window"
The "At start of detection" telegram is not sent until a defined number of detection processes has been reached within a defined time window. If no more motion is detected within the monitoring time, no telegram is sent and the run-on time does not start.
Several monitoring time windows can be combined with each other.
The monitoring time window can be used only in the "Presence detector - Heating/

ventilation/cooling, monitoring and universal" applications.
The monitoring time window cannot be used in "Manual ON, Auto OFF" control mode.

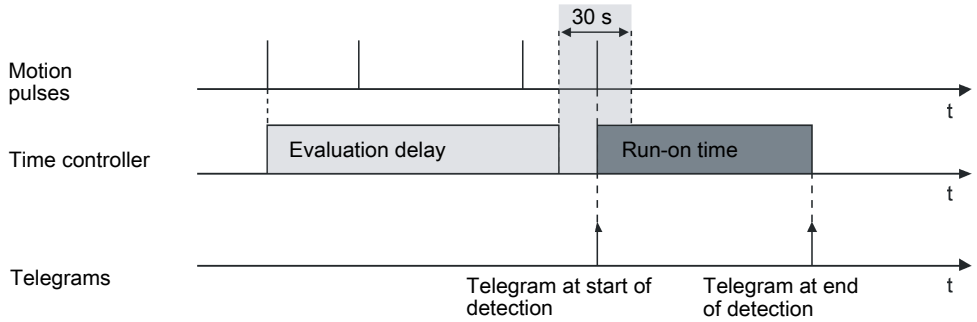


Figure 22: Evaluation delay

Motion evaluation with active monitoring time window

If the monitoring time window is active, the number of motion pulses can be specified within a monitoring time whereby it is possible to adapt the motion evaluation to meet individual requirements. The function block reacts less sensitively to detected movements, because the "At start of detection" telegram is sent only after the motion signal has been queried several times. The criterion for sending the "At start of detection" telegram is the configurable number of motion pulses that occur within the selectable duration of the monitoring time window.

The following diagram illustrates the behaviour of the function block with monitoring time window. In the example, the number of motion pulses was set to "4".

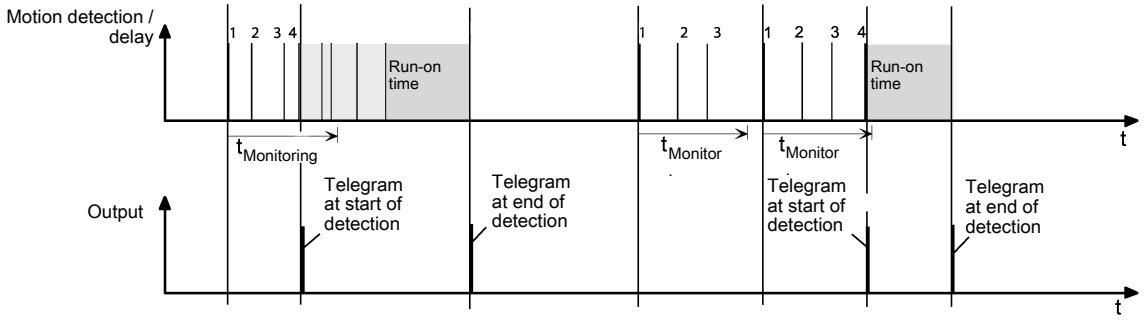


Figure 23: Motion evaluation with detector

After detecting the fourth motion pulse in the monitoring period ($t_{monitoring}$), the "At start of detection" telegram is sent and the run-on time is started. The run-on time is retriggered by further motion pulses within the run-on time. If there are no motion signals and the run-on time has elapsed, the "At end of detection" telegram is sent.
If less than 4 motion pulses are detected within the monitoring period, no telegram is sent. After the monitoring period has elapsed, the next motion pulse is the first one of a new monitoring period. The monitoring period is stopped and reset when a detection process begins (start of run-on time). The monitoring is restarted again with the first motion pulse after the run-on time has elapsed.

Telegram output at the end of the detection

Just like at the beginning of a detection, a telegram output can be configured for the end of a detection according to the output functions for the outputs 1 and 2. The end of a detection is detected either by the absence of motion signals and expiry of the run-on time or by permanently exceeding a configured switch-off brightness (only in presence detector mode - lighting, universal).

Run-on time

Motion detection processes end always after the run-on time has expired. The minimum run-on time is 10 seconds.

The run-on time can either be set discretely by parameters in the ETS or, alternatively, calculated by the device by means of self-learning. The "Run-on time" parameter on the "FB x - Start and end of detection" parameter page defines whether a fixed or self-learning run-on time is used.

– "By parameter" setting:
  The run-on time is configured in the ETS. This makes it possible to adjust the run-on time dynamically via the bus in a user-defined manner.

– "Self-learning" setting:
  In this setting, the device determines the run-on time independently, depending on the frequency of the motion pulses within a range defined by the user. In addition, the evaluation of a short presence can be activated there. This means that a short presence is not evaluated. The self-learning run-on time should be selected if the objectives and tasks listed below are to be fulfilled using the device (optimization strategies)...

  - Increased user comfort & lamp protection: A high level of user comfort can be achieved especially when used as a presence detector if constant switching off and on again is avoided. The maximum run-on time possible guarantees the best comfort here. A self-learning run-on time makes it possible for the device to incorporate recurring motion signals into the calculation of the run-on time during a motion evaluation and thus prevent the lighting from being switched off too early. If light bulbs are frequently switched off and on again, this often additionally reduces their service life. The longest possible run-on time ensures a long service life of the lamps.

  - Energy efficiency: It is always possible to control the lighting or load in an energy-efficient manner when the switch-on time, which is directly is proportional to the consumed energy, can be minimized adequately. The device is able to identify recurring short presence or motion detections, while keeping the delay-time to a minimum without any loss in comfort.

  With a self-learning run-on time, the device always calculates the actual run-on time dynamically. In this case, no constant value can be derived by the user. Moreover, the run-on time is adjusted constantly and attuned to the frequency of the motion signals. While doing so, the device extends the time only during a motion evaluation. The delay is reduced internally only if no motion is evaluated.

The limits of the self-learning run-on time can be configured in the ETS. The "Minimum duration" and "Maximum duration" parameters are available for this purpose. The self-learning behaviour can either be forced more in the direction of user-comfort / lamp protection or energy efficiency by means of a specific parameter setting of the minimum and maximum value. The dynamic range selected for these optimization strategies should be as narrow as possible. If the user or installation engineer does not want to or cannot do this, the dynamic range should alternatively be defined as wide as possible. In the optimization that is then fully automatic, the device can adapt optimally to the current motion pattern.

The table below shows how the limits of the minimum and maximum values should be selected depending on the desired optimization strategy...

Optimization strategy	Minimum run-on time duration	Maximum run-on time duration	Dynamic range
User comfort / Lamp protection	high	high	narrow
Energy efficiency	low	low	narrow
none (fully automatic adjustment)	low	high	wide

Parameter setting for the different optimization strategies

The device has an early switch-off detection function for the adaptive adjustment of the run-on time. In this process, the device evaluates the time interval between the end of a previous detection process (OFF) and the beginning of a new motion evaluation process (ON). If the time between switching off and on again is shorter than 10 seconds, the run-on time last calculated will be evaluated as "too short to calculate". In this case, the device will extend the run-on time immediately to prevent a repeated early switch-off process.

The device can optionally evaluate a short presence during the self-learning run-on time. Short presence detection is an interesting option in presence detector operation, for example, for preventing immediate activation of a long run-on time when the detection field is entered briefly (e.g. just quickly taking the office key from the desk). The device identifies whether or not a detected motion is brief according to the time defined in the ETS parameter "Time window for detection". This parameter is visible only if the parameter "Evaluate short presence" is set to "Active" on the parameter page - "FB x - Beginning and end of detection". In this case, the short presence evaluation is activated too.
Upon the first motion signal of a new movement, the device starts the configured time window. Movements within the time window are evaluated as short presence. If additional movements also continue to occur after the time window has elapsed, the device will discard the short presence and work normally with the determined run-on time. If, however, no movements occur anymore beyond the configured time window, the device will assume a short presence and start merely the "Minimum run-on time".

The "Minimum duration of the run-on time" configured in the ETS should be at least three times as long as the configured time window for the short presence to allow a short presence to be evaluated reliably.

The short presence detection, if activated in the ETS, is processed in parallel to the self-learning of the run-on time and has no influence on the process and value of the self-learning time calculation. If a short presence is detected, this is given one-time priority over the self-learning, i.e. the device processes the short presence and ends the motion detection early.

The short presence detection will not take effect if there is a new movement after an early switch-off has been identified.

Switch-off warning

A switch-off pre-warning can be activated for the application "Motion detector - Lighting or presence detector operation - Lighting/universal". This makes sense in public spaces because it prevents a person from suddenly standing in the dark. The switch-off pre-warning starts as soon as the run-on time has elapsed. The telegram is sent at the end of the detection only after the set duration of the switch-off pre-warning has elapsed.

The switch-off pre-warning is enabled first for the corresponding function block with the "Switch-off pre-warning" parameter on the "Start and end of detection" parameter page. The duration of the switch-off warning is also defined here. The duration set here applies to all outputs of the function block. The run-on time is extended practically by the duration of the switch-off warning. This also applies to outputs for which the switch-off pre-warning has not been activated or for which an output function has been set for which no switch-off pre-warning can be activated.

To activate the switch-off pre-warning for an output, the function of the output is now set to dimming value transmitter or brightness value transmitter on the parameter page for the output and the switch-off pre-warning is also activated.
The "Dimming value" or "Brightness value" parameter that now appears can now be used to set the brightness during the switch-off pre-warning. At the end of the run-on time, the function block now sends a dimming value in per cent or a brightness value in lux, depending on the function set.

13.4.1 "Start and end of detection" parameter

Function blocks (FB) -> FB x - General -> Start and end of detection

Start of detection

Transmission behaviour	**Send directly** Evaluation delay Monitoring time window
This parameter is used to specify when a telegram is sent to the bus after a detection process. The evaluation delay and the monitoring time window at the beginning of a motion detection process ensure that there is no reaction to just a briefly detected movement (e.g. when quickly striding through a room). The motion is processed and the telegram is transmitted at the start of the detection process only if the detection process takes place for a prolonged time "Send directly" After a detection, the telegram at the start of the detection is sent directly to the bus. "Evaluation delay" The evaluation delay is started when motion is detected. The telegram is sent to the bus at the start of the detection and the run-on time started only if another movement is detected within 30 seconds after the evaluation delay has elapsed. Another parameter appears. "Monitoring time window" The telegram is sent to the bus at the start of the detection only once a defined number of motion detections has been reached within a defined time window. Additional parameters appear.	

Delay time	0 … 59 min 0 … **30** …-59 s
This parameter is used to set the duration of the evaluation delay. Minutes and seconds can be set.	

(Monitoring time window) Number	**1** … 10
The parameter is used to define how many monitoring time windows are available. If only one continuous movement over a longer period of time is to trigger the "Start of detection", it is recommended to use several monitoring time windows.	

(Monitoring time window) Duration per time window	0 … 59 min 0 … **10** … 59 s
This parameter is used to set the length of a monitoring time window in seconds and minutes.	

(Monitoring time window) Trigger message from	1 … **20** … 255 motion pulses per time window
This parameter defines how many motion pulses must be detected in a time window before a telegram is sent to the bus.	

Show info graphic	**Inactive** *Active*
This parameter can be used to display the infographic for the monitoring time windows.	

End of detection

Run-on time	**Fixed time** Self-learning
This parameter is used to define whether a fixed or self-learning run-on time is used at the end of the detection before the "At end of detection" telegram is sent. "Fixed run-on time" At the end of detection, a fixed run-on time starts to expire. The setting is made in hours, minutes and seconds. "Self-learning" The run-on time at the end of detection varies within specified limits. The minimum and maximum duration is defined in hours, minutes and seconds. If present only for a short time, the run-on time is shortened. If present for a long time, the run-on time is extended. Additional parameters appear.	

(Run-on time) At day	0 … 59 h 0 … **10** … 59 min 0 … 59 s
This parameter is used to set the fixed run-on time at the end of a detection in day mode. The setting is made in hours, minutes and seconds. These parameters are visible only if the run-on time parameter is set to a fixed time and the "Day/night switchover" parameter on the General parameter page is set to active.	

(Run-on time) At night	**0** … 59 h 0 … **10** … 59 min **0** … 59 s
This parameter is used to set the fixed run-on time at the end of a detection in night mode. The setting is made in hours, minutes and seconds. These parameters are visible only if the run-on time parameter is set to a fixed time and the "Day/night switchover" parameter on the General parameter page is set to active.	

(Run-on time) Can be set via object	Active **Inactive**
This parameter enables the "Run-on time" and "Run-on time - Status" objects that can be used to set the fixed run-on time by means of a telegram or query the active run-on time. This parameter is visible only if the "Run-on time" parameter is set to a fixed run-on time.	

Minimum duration	**0** … 59 h 0 … **10** … 59 min **0** … 59 s
This parameter is used to set the lower limit of the self-learning run-on time. The setting is made in hours, minutes and seconds. This parameter is visible only if the "Run-on time" parameter is set to self-learning.	

Maximum duration	**0** … 59 h 0 … **10** … 59 min **0** … 59 s
This parameter is used to set the upper limit of the self-learning run-on time. The setting is made in hours, minutes and seconds. This parameter is visible only if the "Run-on time" parameter is set to self-learning.	

Evaluate short presence	Active **Inactive**
This parameter enables the evaluation of a short presence. This parameter is not available for the presence detector - monitoring application. The presence time in the specified time window is assessed as short presence. The time window is defined with the "Time window for detection" parameter. If short presence is detected, the minimum run-on time is applied. This parameter is visible only if the "Run-on time" parameter is set to self-learning.	

Time window for detection	1 … **10** … 59 s
This parameter is used to define the length of the short presence detection. The time is set by default to 10 s. All presence times up to the set time are counted as short presence. This parameter is visible only if the "Evaluate short presence" parameter is set to active.	

Switch-off warning	Active **Inactive**
This parameter is used to activate the switch-off pre-warning for the applications "Motion detector - Lighting and Presence detector - Lighting, universal". The switch-off pre-warning can be used only if the output is set to the dimming value transmitter or brightness value transmitter function. When the function is activated, the function block first sends a configured dimming value / brightness value after the run-on time has elapsed. After the "duration" of the switch-off pre-warning has elapsed, the "At the end of detection" telegram is sent. If a movement is detected during the ongoing switch-off pre-warning, the switch-off pre-warning is stopped, the "At start of detection" telegram sent and the run-on time started.	

(Switch-off warning) Duration	0 … **30** … 59 s 0 … 59 min
This parameter is used to set the length of the switch-off warning. The setting is made in minutes and seconds. The time is set by default to 30 s. The run-on time is extended by this value. The time set here applies to all outputs of the function block and all output functions. This also applies to the functions for which no switch-off pre-warning can be activated on the "Start and end of detection" parameter page. This parameter is visible only if the "Switch-off pre-warning" parameter is set to active and the "Day/night operation" function is set to inactive on the General parameter page.	

(Switch-off warning duration) At day	0 … **30** … 59 s 0 … 59 min
This parameter is used to set the length of the switch-off warning for day mode. The setting is made in minutes and seconds. The time is set by default to 30 s. The run-on time is extended by this value. The time set here applies to all outputs of the function block and all output functions. This also applies to the functions for which no switch-off pre-warning can be activated on the "Start and end of detection" parameter page. This parameter is visible only if the "Switch-off pre-warning" parameter is set to active and the "Day/night operation" function is set to active on the General parameter page.	

(Switch-off warning duration) At night	0 … **30** … 59 s 0 … 59 min
This parameter is used to set the length of the switch-off warning for night mode. The setting is made in minutes and seconds. The time is set by default to 30 s. The run-on time is extended by this value. The time set here applies to all outputs of the function block and all output functions. This also applies to the functions for which no switch-off pre-warning can be activated on the "Start and end of detection" parameter page. This parameter is visible only if the "Switch-off pre-warning" parameter is set to active and the "Day/night operation" function is set to active on the General parameter page.	

(Switch-off warning) Can be set via object	Active **Inactive**
This parameter enables the objects "Switch-off pre-warning" and "Switch-off pre-warning - Status" that can be used to set the duration of the switch-off pre-warning by means of a telegram or query the active duration. This parameter is visible only if the "Switch-off pre-warning" parameter is set to active.	

Behaviour during ETS programming

(Overwrite values during ETS programming) Run-on time	**Active** Inactive
This parameter must be activated if the fixed run-on time is to be overwritten with the values set in the ETS after an ETS programming operation. These parameters are visible only if the "Can be set via object" parameter is set to active.	

(Overwrite values during ETS programming) Duration for switch-off warning	**Active** Inactive
This parameter must be activated if the duration of the switch-off pre-warning is to be overwritten with the values set in the ETS after an ETS programming operation. These parameters are visible only if the "Can be set via object" parameter is set to active.	

13.4.2 "Start and end of detection" objects

Start and end of detection

Function	Name	Type	DPT	Flags
Run-on time	FB x - Input	2-byte	7,005	C, -, W, -, U
2-byte object used to specify a fixed run-on time. The telegram is sent at the end of a detection only after this time has elapsed. This entry is made in seconds. This object is visible only if the "Run-on time" parameter for the end of detection is set to a fixed time and to the ability to be set by means of an object on the parameter page "FB x - Start and end of detection".				

Function	Name	Type	DPT	Flags
Run-on time - Status	FB x - Output	2-byte	7,005	C, R, -, T, A
2-byte object used to feed back the active fixed run-on time. This entry is made in seconds This object is visible only if the "Run-on time" parameter for the end of detection is set to a fixed time and to the ability to be set by means of an object on the parameter page "FB x - Start and end of detection".				

Function	Name	Type	DPT	Flags
Switch-off warning - Duration	FB x - Input	2-byte	7,005	C, -, W, -, U
2-byte object used to specify the duration of the switch-off pre-warning. The time starts after the run-on time has expired at the end of the detection process. The telegram is sent at the end of the detection only after the time for the switch-off pre-warning has elapsed. This entry is made in seconds. This object is visible only if the "Switch-off pre-warning" parameter is set to active.				

Function	Name	Type	DPT	Flags
Switch-off warning - Duration - Status	FB x - Output	2-byte	7,005	C, R, -, T, A
2-byte object used to feed back the active duration of the switch-off pre-warning. This entry is made in seconds This object is visible only if the "Switch-off pre-warning" parameter is set to active.				

13.5 Output functions

When used as a "Single device" and "Main unit", a function can be set for each output, depending on the "Application" parameter. The corresponding objects are provided for the set function of the output and the reaction of the output at the start and end of detection can be set. No output functions are available when used as an "Extension unit". Only one cyclical telegram output by means of the "Motion" object is intended during the detection process.

Up to two output communication objects are available per function block via which the switching and control commands are transmitted on the bus to the KNX actuator, e.g. lighting system, room temperature control. Depending on the configured function (e.g. switching or staircase function), the data format of these objects is defined independently and adapted to the controllable units of the KNX system.

The functions of the outputs are defined separately on the parameter page "FB x - Output 1" and "FB x - Output 2". The available communication objects adapt depending on the configuration. The following functions can be configured:

"No function", "Switching", "Staircase function", "Switching with forced position", "Dimming value transmitter", "Scene extension unit", "Temperature value transmitter", "Brightness value transmitter", "Temperature operating mode", "Other value transmitters".

Output 2 cannot be configured in the application "Presence detector - Monitoring". The function for output 1 is permanently set to report.

The behaviour of outputs 1 and 2 during detection of a motion, depending on the configured output function, can be configured separately. In the ETS on the parameter pages of the outputs, it is possible to define for each output whether a new telegram should be transmitted to the bus at the beginning of a new motion detection. The corresponding commands (e.g. switching commands or brightness values) are then configurable depending on the set function.

If a telegram is to be sent at the beginning of a detection, cyclical transmission during detection or telegram triggering with retriggering "Resend upon movement during run-on time" can be configured alternatively (see below). If none of the options have been activated, a telegram is only sent once at the start of detection.

Cyclical transmission:
Cyclical telegram output is activated during a detection process by setting the parameter "Cyclical transmission during detection" to "Active". The detection process includes a continuous run-on time. This means that the telegram is sent also during the run-on time. No telegram is sent while a switch-off warning is in progress.
Cyclical transmission is activated by the "Cyclical transmission during detection" parameter. The "Cycle time" parameter defines the time interval between the telegrams.

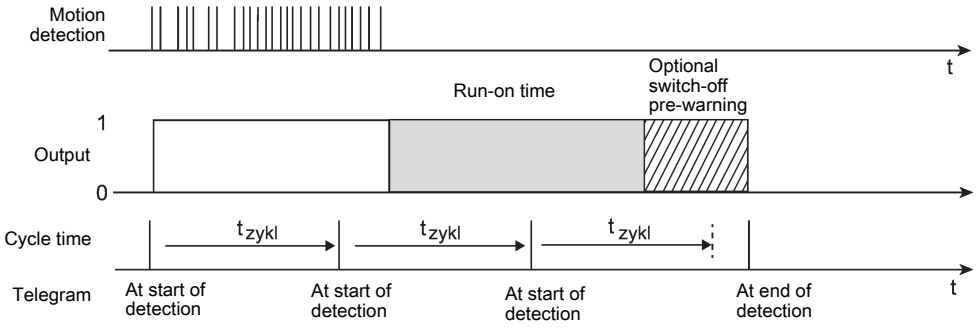


Figure 24: Cyclical transmission during a motion detection

Triggering of a telegram when retriggering:

When the first movement is detected, the "At start of detection" telegram is sent and the run-on time is started. If the cyclical transmission is not activated, an output can repeat the telegram at the beginning of the transmission when retriggering. Retriggering takes place when the device detects a new motion during an ongoing run-on time. To limit the number of telegrams, no telegram is sent within 10 seconds if motion is detected again.

The telegram triggering when retriggered is activated by the "Resend upon movement within the run-on time" parameter in the ETS.

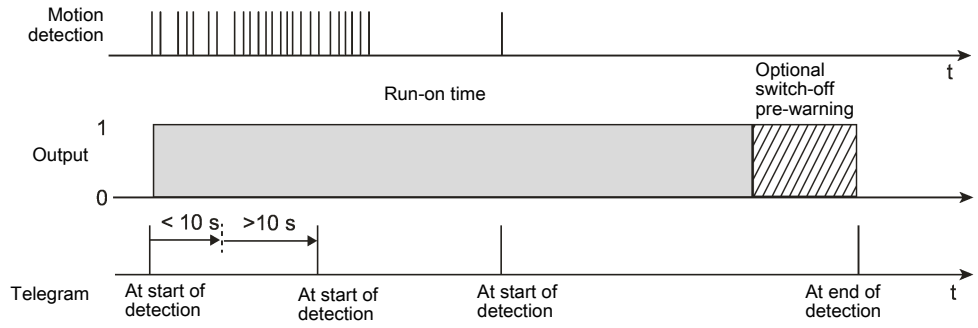


Figure 25: Send if motion is detected during the run-on time.

A cyclical telegram repetition or the triggering of a telegram when retriggering during an active motion detection is also possible in alert operation.

13.5.1 "Output 1/2" parameter

These parameter pages are available for each activated function block (FB) and each output separately.

Function blocks (FB) -> FB x - General -> Output

Function	no function **Switching** Staircase function Switching with forced position Dimming value transmitter Light scene extension Temperature value transmitter Brightness value transmitter Temperature operating mode Additional value transmitters
When used as a "Single device" and "Main unit", a function can be set for each output, depending on the "Application" parameter. The corresponding objects are provided for the set function of the output and the reaction of the output at the start and end of detection can be set. No output functions are available when used as an "Extension unit". Only one cyclical telegram output by means of the "Motion" object is intended during the detection process. Further parameters appear, which are described in the following. **No function:** No parameters and objects are available for the output. **Switching:** Switching: 1-bit switching telegrams (ON/OFF) can be output. Example application: Switching lighting. **Staircase function:** 1-bit switching telegrams (ON, OFF) are output cyclically in order to trigger the run-on time in the activated KNX actuator. Example application: Switching staircase lighting. **Switching with forced position:** 2-bit switching telegrams can be output for the forced position of an actuator channel in accordance with DPT 2.001. This makes it possible to set switching states with a higher priority (ON, OFF). Example application: Switching lighting by forced control (cleaning lighting, service light). **Dimming value transmitter:** 1-byte brightness value telegrams in accordance with DPT 5.001 (0...100 %) can be output. Example application: Dimming lighting.	

Function	no function **Switching** Staircase function Switching with forced position Dimming value transmitter Scene extension unit Temperature value transmitter Brightness value transmitter Temperature operating mode Additional value transmitters

Scene extension unit: 1-byte telegrams to call scenes can be output in accordance with DPT 18.001 (1 ... 64) are issued. Example application: Calling up actuator scenes (e.g. TV lighting).

Temperature value transmitter: 2-byte temperature value telegrams in accordance with DPT 9.001 (0...+40 °C configurable in 1 °C-increments) can be output. Example application: Preset temperature setpoints.

Brightness value transmitter: 2-byte brightness value telegrams in accordance with DPT 9.004 (0...2,000 Lux configurable in 50-Lux increments) can be output. Example application: Preset lighting setpoints.

Temperature operating mode: 1-byte telegrams can be output to switch over the operating mode of a KNX room temperature controller in accordance with DPT 20.102 (auto, comfort, standby, night, frost/heat protection). Example application: Influence room temperature control.

Other value transmitters: Various telegrams can be output, which are defined by the parameter "Data point type | Value range". Example application: setting the brightness and colour temperature of lamps.

Output 2 cannot be configured in the application "Presence detector - Monitoring". The function for output 1 is permanently set to report.
Report: 1-bit telegrams with the value zero or one can be output. Example application: presence monitoring in a retirement home.

Data point type | Value range	DPT 5.010 | 0 … 255 DPT 5.003 | 0 … 360° DPT 5.004 | 0 … 255% DPT 6010 | -128 … 127 DPT 7.001 | 0 … 65535 DPT 7.600 | 1000 … 10000 K DPT 8.001 | -32768 … 32767 DPT | 249.600 colour temperature + brightness RGB/HSV (RGB: DPT 232.600, HSV: DPT5.003, DPT 5.001, DPT 5.001) RGBW/HSVW (RGBW: DPT 251.600, HSV: DPT5.003, DPT 5.001, DPT 5.001, DPT 5.001)
This parameter is used to define the data point type and value range that can be used for the output function if the "Function" parameter is set to other value transmitters. The following parameters can be displayed, depending on the setting of this parameter.	

Commands at the start of detection

At start of detection	**No reaction** "Output function" e.g.: switching
When used as a "Single device" and "Main unit", a telegram (corresponding to the configured function) can be sent separately via each output at the start of detection. This parameter defines whether a telegram is transmitted. "No reaction" No telegram is sent at the start of detection. "Output function" e.g. switching When the detection process begins, a telegram with the configured state or the configured values is sent, depending on the function of the output. Further parameters appear, which are described in the following.	

Switching	OFF **ON**
This parameter is used to define whether an OFF or ON telegram is sent at the start of the detection for the "Switching" output functions. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Switching) At day	OFF **ON**
This parameter is used to define whether an OFF or ON telegram is to be sent for the "Switching" output functions in day mode at the start of detection. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Switching) At night	OFF **ON**
This parameter is used to define whether an OFF or an ON telegram is to be sent for the "Switching" output functions at the start of detection in night mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Staircase function	**ON**
This parameter defines the telegram at the beginning of detection for the "Staircase function" output function. The parameter is set permanently to "ON". This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Staircase function) At day	**ON**
This parameter defines the telegram at the beginning of detection for the "Staircase function" output function for day operation. The parameter is set permanently to "ON". This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Staircase function) At night	**ON**
This parameter is used to define the telegram at the start of detection for the "Staircase function" output functions for night mode. The parameter is set permanently to "ON". This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Priority control	**Priority active, ON** Priority active OFF Priority inactive
This parameter defines the telegram at the beginning of the detection for the "Switching with forced position" output functions. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Priority control) At day	**Priority active, ON** Priority active OFF Priority inactive
This parameter is used to define the telegram at the start of detection for the "Switching with forced position" for the output functions for day mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Priority control) At night	**Priority active, ON** Priority active OFF Priority inactive
This parameter is used to define the telegram at the start of detection for the "Switching with forced position" output functions for night mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

Dimming value	0 … **100**%
This parameter is used to define the dimming value at the start of detection for the "Dimming value transmitter" output functions. The entry is made. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Dimming value) At day	0 … **100**%
This parameter is used to define the dimming value at the start of detection for the "Dimming value transmitter" output functions for day mode. This entry is made in per cent. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Dimming value) At night	0 … **100**%
This parameter is used to define the dimming value at the start of detection for the "Dimming value transmitter" output functions for night mode. This entry is made in per cent. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

Scene number	**1** … 64
This parameter is used to define the scene number at the start of detection for the "Scene extension unit" output functions. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Scene number) At day	**1** … 64
This parameter is used to define the scene number at the start of detection for the "Scene extension unit" output functions for night mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Scene number) At night	**1** … 64
This parameter is used to define the scene number at the start of detection for the "Scene extension unit" output functions for day mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

Temperature value	0 … **23** … 40 °C in 1 °C increments
This parameter is used to define the temperature value at the start of detection for the "Temperature value transmitter" output functions. This entry is made in °C. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Temperature value) At day	0 … **23** … 40 °C in 1 °C increments
This parameter is used to define the temperature value at the start of detection for the "Temperature value transmitter" output functions for day mode. This entry is made in °C. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Temperature value) At night	0 … **23** … 40 °C in 1 °C increments
This parameter is used to define the temperature value at the start of detection for the "Temperature value transmitter" output functions for night mode. This entry is made in °C. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

Brightness value	0 … **1000** … 2000 lux in 50-lux increments
This parameter is used to define the brightness value at the start of detection for the "Brightness value transmitter" output functions. This entry is made in LUX. The increment is 50 lux. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Brightness value) At day	0 … **1000** … 2000 lux
This parameter is used to define the brightness value at the start of detection for the "Brightness value transmitter" output functions for day mode. This entry is made in LUX. The increment is 50 lux. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Brightness value) At night	0 … **1000** … 2000 lux
This parameter is used to define the brightness value at the start of detection for the "Brightness value transmitter" output functions for night mode. This entry is made in LUX. The increment is 50 lux. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Operating mode	Auto **Comfort** Standby Night Frost/heat protection
This parameter is used to define the operating mode to be sent at the start of detection for the "Temperature operating mode" output functions. The entry is made as a decimal value: 0 = auto 1 = Comfort 2 = standby 3 = Night 4 = Frost/heat protection This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Operating mode) At day	Auto **Comfort** Standby Night Frost/heat protection
This parameter defines the operating mode to be sent for the "Temperature operating mode" output functions at the start of detection for day mode. The entry is made as a decimal value: 0 = auto 1 = Comfort 2 = standby 3 = Night 4 = Frost/heat protection This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Operating mode) At night	Auto **Comfort** Standby Night Frost/heat protection
This parameter is used to define the operating mode to be used for the " Temperature operating mode " output functions at the start of detection for night mode. This parameter is used to define the operating mode to be sent at the start of detection for the "Temperature operating mode" output functions. The entry is made as a decimal value: 0 = auto 1 = Comfort 2 = standby 3 = Night 4 = Frost/heat protection This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

"Additional value transmitters" function

Value	Depending on the data point type
Different data point types and value ranges are available for the "Other value transmitters" function, depending on the configuration. This parameter is used to define the value the telegram is to send for the "Additional value transmitters" output function at the end of detection. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Value) At day	Depending on the data point type
This parameter is used to define the telegram at the beginning of detection for the "Other value transmitters" output function for day operation. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Value) At night	Depending on the data point type
This parameter is used to define the telegram at the beginning of detection for the "Other value transmitters" output function for day operation. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

Commands at the end of detection

At end of detection	**No reaction** "Output function" e.g.: switching
When used as a "Single device" and "Main unit", a telegram (corresponding to the configured function) can be sent separately via each output at the end of the detection. This parameter defines whether a telegram is transmitted. "No reaction" No telegram is sent at the end of the detection process. "Output function" e.g. switching At the end of the detection process, a telegram with the configured state or the configured values is sent, depending on the function of the output. Further parameters appear, which are described in the following.	

Switch-off warning	Active **Inactive**
This parameter is used to activate the switch-off pre-warning for the applications "Motion detector - Lighting" and "Presence detector - Lighting". The switch-off warning can be used only if the "Function" parameter is set to dimming value transmitter or brightness value transmitter. When the function is activated, the function block first sends a configured dimming value / brightness value after the run-on time has elapsed. After the "duration" of the switch-off pre-warning has elapsed, the "At the end of detection" telegram is sent.	

(Switch-off warning) dimming value	**0 … 100%**
This parameter is used to define the dimming value during the current switch-off pre-warning for the "Dimming value transmitter" output functions. This entry is made in per cent. This parameter is visible only if the Switch-off pre-warning parameter is set to active and "Day/night switchover" is set to inactive on the General parameter page.	

(Switch-off warning dimming value) At day	**0 … 100%**
This parameter is used to define the dimming value during the current switch-off pre-warning for the "Dimming value transmitter" output functions for day mode. This entry is made in per cent. This parameter is visible only if the Switch-off pre-warning parameter is set to active and "Day/night switchover" is set to active on the General parameter page.	

(Switch-off warning dimming value) At night	**0 … 100%**
This parameter is used to define the dimming value during the current switch-off pre-warning for the "Dimming value transmitter" output functions for night mode. This entry is made in per cent. This parameter is visible only if the Switch-off pre-warning parameter is set to active and "Day/night switchover" is set to active on the General parameter page.	

Brightness value (switch-off pre-warning)	0 … **750** … 2000 lux in 50-lux increments
This parameter is used to define the brightness value during the current switch-off pre-warning for the "Brightness value transmitter" output functions. This entry is made in LUX. The increment is 50 lux. This parameter is visible only if the Switch-off pre-warning parameter is set to active and "Day/night switchover" is set to inactive on the General parameter page.	

(Brightness value switch-off pre-warning) At day	0 … **750** … 2000 lux in 50-lux increments
This parameter is used to define the brightness value during the current switch-off pre-warning for the "Brightness value transmitter" output functions for day mode. This entry is made in LUX. The increment is 50 lux. This parameter is visible only if the Switch-off pre-warning parameter is set to active and "Day/night switchover" is set to active on the General parameter page.	

(Brightness value switch-off pre-warning) At night	0 … **750** … 2000 lux in 50-lux increments
For day mode, This parameter is used to define the brightness value during the current switch-off pre-warning for the "Brightness value transmitter" output functions for night mode. This entry is made in LUX. The increment is 50 lux. This parameter is visible only if the Switch-off pre-warning parameter is set to active and "Day/night switchover" is set to active on the General parameter page.	

Switching	**OFF** ON
This parameter defines the telegram at the end of detection for the "Switching" output functions. This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Switching) At day	**OFF** ON
This parameter is used to define the telegram at the end of detection for the "Switching" output functions for day mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Switching) At night	**OFF** ON
This parameter is used to define the telegram at the end of detection for the "Switching" output functions for night mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Staircase function	**OFF**
This parameter defines the telegram at the end of detection for the "Staircase function" output function. The parameter is set permanently to "OFF". This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Staircase function) At day	**OFF**
This parameter defines the telegram at the end of detection for the "Staircase function" output function for day operation. The parameter is set permanently to "OFF". This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Staircase function) At night	**OFF**
This parameter is used to define the telegram at the start of detection for the "Staircase function" output functions for night mode. The parameter is set permanently to "On". This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Priority control	Priority active, ON **Priority active OFF** Priority inactive
This parameter defines the telegram at the end of detection for the "Switching with forced position" output functions. This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Priority control) At day	Priority active, ON **Priority active OFF** Priority inactive
This parameter is used to define the telegram at the end of detection for the "Switching with forced position" for the output functions for day mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Priority control) At night	Priority active, ON **Priority active OFF** Priority inactive
This parameter is used to define the telegram at the end of detection for the "Switching with forced position" output functions for night mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

Dimming value	**0** … 100%
This parameter defines the telegram at the end of detection for the "Dimming value transmitter" output functions. This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Dimming value) At day	**0** … 100%
This parameter is used to define the telegram at the end of detection for the "Dimming value transmitter" output functions for night mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Dimming value) At night	**0** … 100%
This parameter is used to define the telegram at the end of detection for the "Dimming value transmitter" output functions for day mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Scene number	1 … 64
This parameter is used to define the telegram at the end of the detection process for the "Scene extension unit" output functions. This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Scene number) At day	1 … 64
This parameter is used to define the telegram at the end of the detection process for the "Scene extension unit" output functions for night mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Scene number) At night	1 … 64
This parameter is used to define the telegram at the end of the detection process for the "Scene extension unit" output functions for day mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Temperature value	0 … **21** … 40 °C
This parameter defines the telegram at the beginning of detection for the "Temperature value transmitter" output function. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Temperature value) At day	0 … **21** … 40 °C
This parameter is used to define the telegram at the start of detection for the "Temperature value transmitter" output functions for night mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page	

(Temperature value) At night	0 … **21** … 40 °C
This parameter is used to define the telegram at the start of detection for the "Temperature value transmitter" output functions for day mode. This parameter is visible only if a telegram is to be sent at the start of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Brightness value	**0** … 2000 lux in 50-lux increments
This parameter defines the telegram at the end of detection for the "Brightness value transmitter" output functions. This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Brightness value) At day	**0** … 2000 lux
This parameter is used to define the telegram at the end of detection for the "Brightness value transmitter" output functions for night mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Brightness value) At night	**0** … 2000 lux
This parameter is used to define the telegram at the end of detection for the "Brightness value transmitter" output functions for day mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Operating mode	Auto Comfort **Standby** Night Frost/heat protection
This parameter is used to define the telegram at the end of the detection process for the "Temperature operating mode" output functions. This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Operating mode) At day	Auto Comfort **Standby** Night Frost/heat protection
This parameter is used to define the telegram at the end of the detection process for the output functions "Temperature operating mode" for day mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Operating mode) At night	Auto Comfort **Standby** Night Frost/heat protection
This parameter is used to define the telegram at the end of the detection process for the " Temperature operating mode" output functions for night mode. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

"Additional value transmitters" function

Value	Depending on the data point type
Different data point types and value ranges are available for the "Other value transmitters" function, depending on the configuration. This parameter defines the value the telegram sends for the "Additional value transmitters" output function at the end of detection. This parameter is visible only if a telegram is to be sent at the end of the detection process and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Value) At day	Depending on the data point type
This parameter is used to define the telegram at the end of the detection process for the "Other value transmitters" output function for day operation. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Value) At night	Depending on the data point type
This parameter is used to define the telegram at the end of the detection process for the "Other value transmitters" output function for day operation. This parameter is visible only if a telegram is to be sent at the end of detection and the "Day/night switchover" parameter is set to active on the General parameter page.	

Output values can be set via object	**Active** **Inactive**
This parameter enables the objects that can be used to set the behaviour at the start and end of the detection process. This parameter is not provided for the staircase function and other value transmitters RGB/HSV and RGBW/HSVW.	

Transmission behaviour

Cyclical transmission during detection	**Active** **Inactive**
"Active" The "At start of detection" telegram is sent cyclically during an ongoing detection process. The detection process also includes a run-on time. This means that the telegram is sent also during the run-on time. No telegram is sent while a switch-off warning is in progress. "Inactive" A telegram is sent only once at the start of the detection process. When used as an extension unit, this parameter is permanently set to active. This parameter is visible only if a telegram is to be sent at the start of a detection process and the parameter "Resend upon motion within the run-on time" is set to inactive.	

Cycle time	0 … 23 h 0 … 59 min 0 … **25** …59 s
This parameter is used to set the time interval at which the "At start of detection" telegram is sent. Hours (0 ... 23 h), minutes (0 ... 59 min) and seconds (0 ... 59 s) can be set for the cycle time. The minimum cycle time is 3 seconds. The parameter is visible only if the "Cyclical transmission during detection" parameter is set to active.	

Re-send upon movement during run-on time	**Active** **Inactive**
"Active" When the first movement is detected, the "At start of detection" telegram is sent and the run-on time is started. The "At start of detection" telegram is also sent during the current run-on time and a new detection process. To limit the number of telegrams, no telegram is sent within 10 seconds if motion is detected again. No telegram is sent while a switch-off warning is in progress. "Inactive" A telegram is sent only once at the start of the detection process. This parameter is not present when used as an extension unit. The parameter is visible only if the "Cyclical transmission during detection" parameter is set to inactive.	

Behaviour during ETS programming

(Overwrite values in device during ETS programming) Output values	Inactive **Active**
This parameter must be activated if the values set by means of an object are to be overwritten with the values set in the ETS after an ETS programming operation. This parameter is visible only if the "Output values can be set via object" parameter is set to active.	

13.5.2 "Output 1/2" objects

The objects are available for each output of a function block separately .
Output 2 cannot be used in the "Presence detector - Monitoring" application.

Switching

Function	Name	Type	DPT	Flags
Output 1 / 2 - Switching value - At start of detection	FB x - Input	1-bit	1,001	C, -, W, -, U
1-bit object that can be used to specify a value (0 = OFF, 1 = ON) for the telegram at the "Start of detection" by means of a telegram to this object. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Switching" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1 / 2 - Switching value - At start of detection - Status	FB x - Output	1-bit	1,001	C, R, -, T, A
1-bit object used to send the active value (ON, OFF) for the telegram at the "Start of detection" to the bus. This object is visible only if the output function is configured to "Switching" This object is visible only if the output function is configured to "Switching" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Switching value - At end of detection	FB x - Input	1-bit	1,001	C, -, W, -, U
1-bit object that can be used to specify a value (0 = OFF, 1 = ON) for the telegram at the "End of detection" by means of a telegram to this object. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Switching" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Switching value - At end of detection - Status	FB x - Output	1-bit	1,001	C, R, -, T, A
1-bit object that can be used to send the active value (0 = OFF, 1 = ON) for the telegram at the "End of detection" to the bus. This object is visible only if the output function is configured to "Switching" This object is visible only if the output function is configured to "Switching" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Switching	FB x - Output	1-bit	1,001	C, R, -, T, A
1-bit object via which the output of a function block outputs the switching commands to the KNX actuator (e.g. switch actuator). This object is visible only if the output function is configured to "Switching" and day/night switchover is deactivated, or if the parameter "Combine day/night output objects per FB" is activated when day/night switchover is activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Switching	FB x - Output	1-bit	1,001	C, R, -, T, A
1-bit object via which the output of a function block outputs the switching commands to the KNX actuator (e.g. switch actuator) in day mode. This object is visible only if the output function is configured to "Switching" and day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Switching	FB x - Output	1-bit	1,001	C, R, -, T, A
1-bit object via which the output of a function block outputs the switching commands to the KNX actuator (e.g. switch actuator) in night mode. This object is visible only if the output function is configured to "Switching" and day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.				

Staircase function

Function	Name	Type	DPT	Flags
Output 1/2 - Staircase switching	FB x - Output	1-bit	1,010	C, R, -, T, A
1-bit object used by the output of a function block to output the staircase commands to the KNX actuators (e.g. switch actuator). This object is visible only if the output function is configured to "Staircase" and the day/night switchover is deactivated, or if the "Combine day/night output objects per FB" parameter is activated when day/night switchover is activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Staircase switching	FB x - Output	1-bit	1,010	C, R, -, T, A
1-bit object used by the output of a function block to output the staircase commands to the KNX actuators (e.g. switch actuator) in day mode. This object is visible only if the output function is configured to "Staircase" and the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Staircase switching	FB x - Output	1-bit	1,010	C, R, -, T, A
1-bit object used by the output of a function block in night mode to output the staircase commands to the KNX actuators (e.g. switch actuator) in night mode. This object is visible only if the output function is configured to "Staircase" and the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Switching with forced position

Function	Name	Type	DPT	Flags
Output 1/2 - Forced position value - At start of detection	FB x - Input	2-bit	2,001	C, -, W, -, U
2-bit object that can be used to specify a value for the telegram at the "Start of detection" by means of a telegram to this object. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the function of the output is configured to "Switching with forced position" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Forced position value - At start of detection - Status	FB x - Output	2-bit	2,001	C, R, -, T, A
2-bit object used to send the active value for the telegram at the "Start of detection" to the bus. This object is visible only if the output function is set to "Switching with forced position" and the "Output values can be set via objects" parameter is set to "Active"				

Function	Name	Type	DPT	Flags
Output 1/2 - Forced position value - At end of detection	FB x - Input	2-bit	2,001	C, -, W, -, U
2-bit object that can be used to specify a value for the telegram at the "End of detection" by means of a telegram to this object. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the function of the output is configured to "Switching with forced position" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Forced position value - At end of detection - Status	FB x - Output	2-bit	2,001	C, R, -, T, A
2-bit object used to send the active value for the telegram at the "End of detection" to the bus. This object is visible only if the function of the output is configured to "Switching with forced position" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Forced position	FB x - Output	2-bit	2,001	C, R, -, T, A
2-bit object used by the output of a function block to output the telegrams for switching with forced position to the KNX actuators (e.g. switch actuator). This object is visible only if the output function is configured to "Switching with forced position" and day/night switchover is deactivated, or if the parameter "Combine day/night output objects per FB" is activated when day/night switchover is activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Forced position	FB x - Output	2-bit	2,001	C, R, -, T, A
2-bit object used by the output of a function block to output the telegrams for switching with forced position to the KNX actuators (e.g. switch actuator) in day mode. This object is visible only if the output function is configured to "Switching with forced position" and day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Forced position	FB x - Output	2-bit	2,001	C, R, -, T, A
2-bit object used by the output of a function block to output the telegrams for switching with forced position to the KNX actuators (e.g. switch actuator) in night mode. This object is visible only if the output function is configured to "Switching with forced position" and day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Dimming value transmitter

Function	Name	Type	DPT	Flags
Output 1/2 - Dimming value - At start of detection	FB x - Input	1-byte	5,001	C, -, W, -, U
1-byte object that can be used to specify a dimming value for the telegram at the "Start of detection" by means of a telegram to this object. This entry is made in per cent. The value range is 0 ... 100%. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Dimming value" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Dimming value - At start of detection - Status	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object used to send the active dimming value for the telegram at the "Start of detection" to the bus. The output is in per cent. This object is visible only if the output function is configured to "Dimming value" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Dimming value - At end of detection	FB x - Input	1-byte	5,001	C, -, W, -, U
1-byte object that can be used to specify a dimming value for the telegram at the "Start of detection" by means of a telegram to this object. This entry is made in per cent. The value range is 0 ... 100%. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Dimming value" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Dimming value - At end of detection - Status	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object used to send the active dimming value for the telegram at the "End of detection" to the bus. The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Dimming value" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Dimming value	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object used by the output of a function block to output the dimming value to the KNX actuators (e.g. dimming actuator). The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Dimming value" and day/night switchover is deactivated, or if the parameter "Combine day/night output objects per FB" is activated when day/night switchover is activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Dimming value	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object used by the output of a function block to output the dimming value to the KNX actuators (e.g. dimming actuator)in day mode. The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Dimming value", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Dimming value	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object used by the output of a function block to output the dimming value to the KNX actuators (e.g. dimming actuator) in night mode. The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Dimming value", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Scene extension unit

Function	Name	Type	DPT	Flags
Output 1/2 - Scene extension unit - Scene number - At start of detection	FB x - Input	1-byte	17,001	C, -, W, -, U
1-byte object that can be used to specify a scene number for the telegram at the "Start of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is 0 ... 64. The scene number is valid until a new scene number is received. If the configured scene number from the ETS is to be used again, an ETS programming operation can be carried out if configured. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Scene extension unit" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Scene extension unit - Scene number - At start of detection - Status	FB x - Output	1-byte	17,001	C, R, -, T, A
1-byte object used to send the active scene number for the telegram at the "Start of detection" to the bus. The output is a decimal value. The value range is 0 ... 64. This object is visible only if the output function is configured to "Scene extension unit" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Scene extension unit - Scene number - At end of detection	FB x - Input	1-byte	17,001	C, -, W, -, U
1-byte object that can be used to specify a scene number for the telegram at the "End of detection" by means of a telegram to this object. This entry is made in per cent. The value range is 0 ... 64. The scene number is valid until a new scene number is received. If the configured scene number from the ETS is to be used again, an ETS programming operation can be carried out if configured. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Scene extension unit" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - At end of detection - Scene extension unit - Status	FB x - Output	1-byte	17,001	C, R, -, T, A
1-byte object used to send the active scene number for the telegram at the "End of detection" to the bus. The value range is 0 ... 64. This object is visible only if the output function is configured to "Scene number" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Scene extension unit	FB x - Output	1-byte	17,001	C, R, -, T, A
1-byte object used by the output of a function block to output the scene number to the KNX actuators (e.g. dimming actuator). The output is a decimal value The value range is 0 ... 64. This object is visible only if the output function is configured to "Scene extension unit" and day/night switchover is deactivated, or if the parameter "Combine day/night output objects per FB" is activated when day/night switchover is activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Scene extension unit	FB x - Output	1-byte	17,001	C, R, -, T, A
1-byte object used by the output of a function block to output the scene number to the KNX actuators (e.g. dimming actuator) in day mode. The output is a decimal value. The value range is 0 ... 64. This object is visible only if the output function is configured to "Scene extension unit" and day/night switchover is activated, or if the parameter "Combine day/night output objects per FB" is deactivated with activated day/night switchover.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Scene extension unit	FB x - Output	1-byte	17,001	C, R, -, T, A
1-byte object used by the output of a function block in night mode to output the scene number to the KNX actuators (e.g. dimming actuator). The output is a decimal value. The value range is 0 ... 64. This object is visible only if the output function is configured to "Scene extension unit", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Temperature value transmitter

Function	Name	Type	DPT	Flags
Output 1/2 - Temperature value - At start of detection	FB x - Input	2-byte	9,001	C, -, W, -, U
2-byte object that can be used to specify a temperature value for the telegram at the "start of detection" by means of a telegram to this object. This entry is made in degrees Celsius. The value range is 0 ... 40°C. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Temperature value transmitter" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Temperature value - At start of detection - Status	FB x - Output	2-byte	9,001	C, R, -, T, A
2-byte object used to send the active temperature value for the telegram at the "start of detection" to the bus. The output is in degrees Celsius. The value range is 0 ... 40°C. This object is visible only if the output function is configured to "Temperature value transmitter" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Temperature value - At end of detection	FB x - Input	2-byte	9,001	C, -, W, -, U
2-byte object that can be used to specify a temperature value for the telegram at the "start of detection" by means of a telegram to this object. This entry is made in degrees Celsius. The value range is 0 ... 40°C. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Temperature value transmitter" and the parameter "Output values can be set via objects" is set to "Active"				

Function	Name	Type	DPT	Flags
Output 1/2 - Temperature value - At end of detection - Status	FB x - Output	2-byte	9,001	C, R, -, T, A
2-byte object used to send the active temperature value for the telegram at the "end of detection" to the bus. The output is in degrees Celsius. The value range is 0 ... 40°C. This object is visible only if the output function is configured to "Temperature value transmitter" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Temperature value	FB x - Output	2-byte	9,001	C, R, -, T, A
2-byte object used by the output of a function block to output the temperature value to the KNX actuators or sensors (e.g. room temperature controller). The output is in degrees Celsius. The value range is 0 ... 40°C. This object is visible only if the output function is configured to "Temperature value transmitter" and day/night switchover is deactivated, or if the parameter "Combine day/night output objects per FB" is activated when day/night switchover is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Temperature value	FB x - Output	2-byte	9,001	C, R, -, T, A
2-byte object used by the output of a function block to output the temperature value to the KNX actuators or sensors (e.g. room temperature controller) in day mode. The output is in degrees Celsius. The value range is 0 ... 40°C. This object is visible only if the output function is configured to "Temperature value transmitter", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Temperature value	FB x - Output	2-byte	9,001	C, R, -, T, A
2-byte object used by the output of a function block to output the temperature value to the KNX actuators or sensors (e.g. room temperature controller) in night mode. The output is in degrees Celsius. The value range is 0 ... 40°C. This object is visible only if the output function is configured to "Temperature value transmitter", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Brightness value transmitter

Function	Name	Type	DPT	Flags
Output 1/2 - Brightness value - At start of detection	FB x - Input	2-byte	9,004	C, -, W, -, U
2-byte object that can be used to specify a brightness value for the telegram at the "Start of detection" by means of a telegram to this object. The entry is made in lux. The value range is 0 ... 2000 lux. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Brightness value transmitter" and the parameter "Output values can be set via objects" is set to "Active"				

Function	Name	Type	DPT	Flags
Output 1/2 - Brightness value - At start of detection - Status	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used to send the active brightness value for the telegram at the "Start of detection" to the bus. The output is in lux. The value range is 0 ... 2000 lux. This object is visible only if the output function is configured to "Brightness value transmitter" and the parameter "Output values can be set via objects" is set to "Active"				

Function	Name	Type	DPT	Flags
Output 1/2 - Brightness value - At end of detection	FB x - Input	2-byte	9,004	C, -, W, -, U
2-byte object that can be used to specify a brightness value for the telegram at the "End of detection" by means of a telegram to this object. The entry is made in lux. The value range is 0 ... 2000 lux. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Brightness value transmitter" and the parameter "Output values can be set via objects" is set to "Active"				

Function	Name	Type	DPT	Flags
Output 1/2 - Brightness value - At end of detection - Status	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used to send the active brightness value for the telegram at the "End of detection" to the bus. The output is in lux. The value range is 0 ... 2000 lux. This object is visible only if the output function is configured to "Brightness value transmitter" and the parameter "Output values can be set via objects" is set to "Active"				

Function	Name	Type	DPT	Flags
Output 1/2 - Brightness value	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used by the output of a function block to output the brightness value to the KNX actuators or sensors (e.g. external constant light controller). The output is in lux. The value range is 0 ... 2000 lux. This object is visible only if the output function is configured to "Brightness value transmitter" and the day/night switchover is deactivated, the parameter "Combine day/night output objects per FB" is deactivated with day/night switchover activated, or the "Combine day/night output objects per FB" parameter is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Brightness value	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used by the output of a function block to output the brightness value to the KNX actuators or sensors (e.g. external constant light controller) in day mode. The output is in lux. The value range is 0 ... 2000 lux. This object is visible only if the output function is configured to "Brightness value transmitter", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Brightness value	FB x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used by the output of a function block to output the brightness value to the KNX actuators or sensors (e.g. external constant light controller) in night mode. The output is in lux. The value range is 0 ... 2000 lux. This object is visible only if the output function is configured to "Brightness value transmitter", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Temperature operating mode

Function	Name	Type	DPT	Flags
Output 1/2 - Operating mode - At start of detection	FB x - Input	1-byte	20,102	C, -, W, -, U

1-byte object that can be used to specify the temperature operating mode for the telegram at the "start of detection" by means of a telegram to this object. The entry is made as a decimal value:
0 = auto
1 = Comfort
2 = standby
3 = Night
4 = Frost/heat protection

This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values".

This object is visible only if the output function is configured to "Temperature operating mode" and the parameter "Output values can be set via objects" is set to "Active".

Function	Name	Type	DPT	Flags
Output 1/2 - Operating mode - At end of detection - Status	FB x - Output	1-byte	20,102	C, R, -, T, A

1-byte object used to send the active temperature operating mode for the telegram "At the end of detection" to the bus. The entry is made as a decimal value:
0 = auto
1 = Comfort
2 = standby
3 = Night
4 = Frost/heat protection

This object is visible only if the output function is configured to "Temperature operating mode" and the parameter "Output values can be set via objects" is set to "Active".

Function	Name	Type	DPT	Flags
Output 1/2 - Operating mode - At end of detection	FB x - Input	1-byte	20,102	C, -, W, -, U

1-byte object that can be used to specify the temperature operating mode for the telegram at the "end of detection" by means of a telegram to this object. The entry is made as a decimal value:
0 = auto
1 = Comfort
2 = standby
3 = Night
4 = Frost/heat protection

This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values".

This object is visible only if the output function is configured to "Temperature operating mode" and the parameter "Output values can be set via objects" is set to "Active"

Function	Name	Type	DPT	Flags
Output 1/2 - Operating mode - At end of detection - Status	FB x - Output	1-byte	20,102	C, R, -, T, A

1-byte object used to send the active temperature operating mode for the telegram at the "end of detection" to the bus. The output is a decimal value.

This object is visible only if the output function is configured to "Temperature operating mode" and the parameter "Output values can be set via objects" is set to "Active".

Function	Name	Type	DPT	Flags
Output 1/2 - Operating mode	FB x - Output	1-byte	20,102	C, R, -, T, A

1-byte object used by the output of a function block to output the temperature operating mode to the KNX actuators or sensors (e.g. room temperature controller). The output is a decimal value.

This object is visible only if the output function is configured to "Temperature operating mode" and day/night switchover is deactivated, or if the parameter "Combine day/night output objects per FB" is activated when day/night switchover is deactivated.

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Operating mode	FB x - Output	1-byte	20,102	C, R, -, T, A
1-byte object used by the output of a function block to output the temperature operating mode to the KNX actuators or sensors (e.g. room temperature controller) in day mode. The output is a decimal value. This object is visible only if the output function is configured to "Temperature operating mode", day/night switch-over is activated, and the parameter "Combine day/night output objects per FB" is deactivated or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Operating mode	FB x - Output	1-byte	20,102	C, R, -, T, A
1-byte object used by the output of a function block to output the temperature operating mode to the KNX actuators or sensors (e.g. room temperature controller) in night mode. The output is a decimal value. This object is visible only if the output function is configured to "Temperature operating mode", the day/night switchover is activated, and the parameter "Combine day/night output objects per FB" is deactivated.				

Additional value transmitters

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0 … 255 - At start of detection	FB x - Input	1-byte	5,010	C, -, W, -, U
1-byte object that can be used to specify a value for the telegram at the "Start of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is 0 ... 255. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.010, and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0 … 255 - At start of detection - Status	FB x - Output	1-byte	5,010	C, R, -, T, A
1-byte object used to send the active value for the telegram at the "Start of detection" to the bus. The output is a decimal value. The value range is 0 ... 255. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.010, and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0 … 255 - At end of detection	FB x - Input	1-byte	5,010	C, -, W, -, U
1-byte object that can be used to specify a value for the telegram at the "End of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is 0 ... 255. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.010, and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0 ... 255 - At end of detection - Status	FB x - Output	1-byte	5,010	C, R, -, T, A
1-byte object used to send the active value for the telegram at the "End of detection" to the bus. The output is a decimal value. The value range is 0 ... 255. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.010, and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0 … 255	FB x - Output	1-byte	5,010	C, R, -, T, A
1-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator). The output is a decimal value. The value range is 0 ... 255. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 5.010 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Value 0 ... 255	FB x - Output	1-byte	5,010	C, R, -, T, A
1-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in day mode. The output is a decimal value. The value range is 0 ... 255. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 5.010 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Value 0 … 255	FB x - Output	1-byte	5,010	C, R, -, T, A
1-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in night mode. The output is a decimal value. The value range is 0 ... 255. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 5.010 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0 … 360° - At start of detection	FB x - Input	1-byte	5,003	C, -, W, -, U
1-bit object that can be used to specify an angle value for the telegram at the "Start of detection" by means of a telegram to this object. The entry is made in degrees. The value range is 0 ... 360° The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.003 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…360° - At start of detection - Status	FB x - Output	1-byte	5,003	C, R, -, T, A
1-bit object used to send the active angle value for the telegram at the "Start of detection" to the bus. The output is in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.003 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…360° - At end of detection	FB x - Input	1-byte	5,003	C, -, W, -, U
1-bit object that can be used to specify an angle value for the telegram at the "End of detection" by means of a telegram to this object. The entry is made in degrees. The value range is 0 ... 360°. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.003 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0...360° - At end of detection - Status	FB x - Output	1-byte	5,003	C, R, -, T, A
1-bit object used to send the active angle value for the telegram at the "End of detection" to the bus. The output is in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.003 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…360°	FB x - Output	1-byte	5,003	C, R, -, T, A
1-bit object used by the output of a function block to output the angle value to the KNX actuators (e.g. actuator for colour control). The output is in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.003 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Value 0...360°	FB x - Output	1-byte	5,003	C, R, -, T, A
1-bit object used by the output of a function block to output the angle value to the KNX actuators (e.g. actuator for colour control) in day mode. The output is in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.003 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Value 0…360°	FB x - Output	1-byte	5,003	C, R, -, T, A
1-bit object used by the output of a function block in night mode to output the switching commands to the KNX actuators (e.g. actuator for colour control). The output is in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.003 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…255% - At start of detection	FB x - Input	1-byte	5,004	C, -, W, -, U
1-byte object that can be used to specify a percentage value for the telegram at the "Start of detection" by means of a telegram to this object. This entry is made in per cent. The value range is 0 ... 100%. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.004 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…255° - At start of detection - Status	FB x - Output	1-byte	5,004	C, R, -, T, A
1-byte object used to send the active percentage value for the telegram at the "Start of detection" to the bus. The output is in per cent. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.004 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…255% - At end of detection	FB x - Input	1-byte	5,004	C, -, W, -, U
1-byte object that can be used to specify a percentage value for the telegram at the "End of detection" by means of a telegram to this object. This entry is made in per cent. The value range is 0 ... 100%. This value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.004 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0...255% - At end of detection - Status	FB x - Output	1-byte	5,004	C, R, -, T, A
1-byte object used to send the active percentage value for the telegram at the "End of detection" to the bus. The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.004 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…255%	FB x - Output	1-byte	5,004	C, R, -, T, A
1-byte object used by the output of a function block to output the percentage value to the KNX actuators (e.g. dimming actuator). The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.004 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Value 0...255%	FB x - Output	1-byte	5,004	C, R, -, T, A
1-byte object used by the output of a function block to output the percentage value to the KNX actuators (e.g. dimming actuator) in day mode. The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.004 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Value 0…255%	FB x - Output	1-byte	5,004	C, R, -, T, A
1-byte object used by the output of a function block to output the percentage value to the KNX actuators (e.g. dimming actuator) in night mode. The output is in per cent. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to 5.004 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -128...127 - At start of detection	FB x - Input	1-byte	6,010	C, -, W, -, U
1-byte object that can be used to specify a value for the telegram at the "Start of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is -128 ... 127. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 6.010 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -128...127 - At start of detection - Status	FB x - Output	1-byte	6,010	C, R, -, T, A
1-byte object used to send the active value for the telegram at the "Start of detection" to the bus. The output is a decimal value. The value range is -128 ... 127. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 6.010 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -128 … 127 - At end of detection	FB x - Input	1-byte	6,010	C, -, W, -, U
1-byte object that can be used to specify a value for the telegram at the "End of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is -128 ... 127. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 6.010 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -128 ... 127 - At end of detection - Status	FB x - Output	1-byte	6,010	C, R, -, T, A
1-byte object used to send the active value for the telegram at the "End of detection" to the bus. The output is a decimal value. The value range is -128 ... 127. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 6.010 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -128 … 127	FB x - Output	1-byte	6,010	C, R, -, T, A
1-byte object used by the output of a function block to output the scene number to the KNX actuators (e.g. dimming actuator). The output is a decimal value. The value range is -128 ... 127. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 6.010 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Value -128 ... 127	FB x - Output	1-byte	6,010	C, R, -, T, A
1-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in day mode. The output is a decimal value. The value range is -128 ... 127. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 6.010 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Value -128 … 127	FB x - Output	1-byte	6,010	C, R, -, T, A
1-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in night mode. The output is a decimal value. The value range is -128 ... 127. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 6.010 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0...65535 - At start of detection	FB x - Input	2-byte	7,001	C, -, W, -, U
1-byte object that can be used to specify a value for the telegram at the "Start of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is 0...65535. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0...65535 - At start of detection - Status	FB x - Output	2-byte	7,001	C, R, -, T, A
1-byte object used to send the active value for the telegram at the "Start of detection" to the bus. The output is a decimal value. The value range is 0...65535. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…65535 - At end of detection	FB x - Input	2-byte	7,001	C, -, W, -, U
2-byte object that can be used to specify a value for the telegram at the "End of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is 0...65535. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0...65535 - At end of detection - Status	FB x - Output	2-byte	7,001	C, R, -, T, A
2-byte object used to send the active value for the telegram at the "End of detection" to the bus. The output is a decimal value. The value range is 0...65535. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value 0…65535	FB x - Output	2-byte	7,001	C, R, -, T, A
2-byte object used by the output of a function block to output the scene number to the KNX actuators (e.g. dimming actuator). The output is a decimal value. The value range is 0...65535. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.001 and day/night switchover is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Value 0 ... 65535	FB x - Output	2-byte	7,001	C, R, -, T, A
2-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in day mode. The output is a decimal value. The value range is 0...65535. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.001 and day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Value 0…65535	FB x - Output	2-byte	7,001	C, R, -, T, A
2-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in night mode. The output is a decimal value. The value range is 0...65535. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.001 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -100 … 10000K - At start of detection	FB x - Input	2-byte	7,600	C, -, W, -, U
2-byte object that can be used to specify the absolute colour temperature for the telegram at the "Start of detection" by means of a telegram to this object. This entry is made in Kelvin. The value range is 1000...10000 K. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.600 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -100 … 10000 K - At start of detection - Status	FB x - Output	2-byte	7,600	C, R, -, T, A
2-byte object used to send the active value for telegram at the "Start of detection" to the bus. The output is made in Kelvin. The value range is 100 ... 10000 K. This object is visible only if the output function is configured to "Other value transmitters" and the data point type is configured to DPT. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.600 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -100 … 10000 K - At end of detection	FB x - Input	2-byte	7,600	C, -, W, -, U
2-byte object that can be used to specify the absolute colour temperature for the telegram at the "End of detection" by means of a telegram to this object. This entry is made in Kelvin. The value range is 100 ... 10000 K. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters" and the data point type is configured to DPT. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.600 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -100 … 10000 K - At end of detection - Status	FB x - Output	2-byte	7,600	C, R, -, T, A
2-byte object used to send the active value for the telegram at the "End of detection" to the bus. The output is made in Kelvin. The value range is 100 ... 10000 K. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.600 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -100 … 10000 K	FB x - Output	2-byte	7,600	C, R, -, T, A
2-byte object used by the output of a function block to output the absolute colour temperature to the KNX actuators (e.g. DALI actuator). The output is made in Kelvin. The value range is 100 ... 10000 K. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.600 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Value 100 … 10000 K	FB x - Output	2-byte	7,600	C, R, -, T, A
2-byte object used by the output of a function block to output the absolute colour temperature to the KNX actuators (e.g. DALI actuator) in day mode. The output is made in Kelvin. The value range is 100 ... 10000K. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Value 100 … 10000 K	FB x - Output	2-byte	7,600	C, R, -, T, A
2-byte object used by the output of a function block to output the absolute colour temperature to the KNX actuators (e.g. DALI actuator) in night mode. The output is made in Kelvin. The value range is 100 ... 10000 K. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 7.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -32768 … 32767 - At start of detection	FB x - Input	2-byte	8,001	C, -, W, -, U
2-byte object that can be used to specify a value for the telegram at the "Start of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is -32768 ... 32767. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 8.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -32768 ... 32767 - At start of detection - Status	FB x - Output	2-byte	8,001	C, R, -, T, A
2-byte object used to send the active value for telegram at the "Start of detection" to the bus. The output is a decimal value. The value range is -32768 ... 32767. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 8.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -32768 … 32767 - At end of detection	FB x - Input	2-byte	8,001	C, -, W, -, U
2-byte object that can be used to specify a value for the telegram at the "End of detection" by means of a telegram to this object. The entry is made as a decimal value. The value range is -32768 ... 32767. The value is valid until a new value is received. An ETS programming operation can be carried out if configured and the configured value from the ETS is to be used again. For this purpose, activate the parameter "Overwrite values in device during ETS programming - Output values". This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 8.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -32768 ... 32767 - At end of detection - Status	FB x - Output	2-byte	8,001	C, R, -, T, A
2-byte object used to send the active value for the telegram at the "End of detection" to the bus. The output is a decimal value. The value range is -32768 ... 32767. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 8.001 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value -32768 … 32767	FB x - Output	2-byte	8,001	C, R, -, T, A
2-byte object used by the output of a function block to output the scene number to the KNX actuators (e.g. dimming actuator). The output is a decimal value. The value range is -32768 ... 32767. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 8.001 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - Value -32768 ... 32767	FB x - Output	2-byte	8,001	C, R, -, T, A
2-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in day mode. The output is a decimal value. The value range is -32768 ... 32767. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 8.001 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Value -32768 … 32767	FB x - Output	2-byte	8,001	C, R, -, T, A
1-byte object used by the output of a function block to output the value to the KNX actuators (e.g. dimming actuator) in night mode. The output is a decimal value. The value range is -32768 ... 32767. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 8.001 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Colour temperature and brightness value - At start of detection	FB x - Input	6-byte	249,600	C, -, W, -, U
6-byte object for combined absolute dimming of brightness (in percent) and setting of the colour temperature (in Kelvin) by separate dimming values and for specifying a transition time (in seconds) for the telegram at the start of detection. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 249.600 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Colour temperature and brightness value - At start of detection - Status	FB x - Output	6-byte	249,600	C, R, -, T, A
6-byte object for combined absolute dimming of brightness (in percent) and setting of the colour temperature (in Kelvin) by separate dimming values and for specifying a transition time (in seconds) for the telegram at the start of detection. This object is visible only if the output function is configured to "Other value transmitters" and the data point type is configured to DPT. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 249.600 and the parameter "Output values can be set via objects" is set to "Active".				

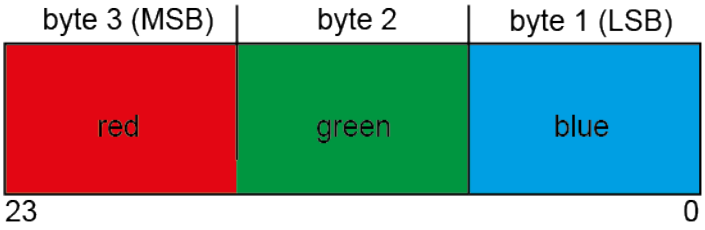
Function	Name	Type	DPT	Flags
Output 1/2 - Colour temperature and brightness value - At end of detection	FB x - Input	6-byte	249,600	C, -, W, -, U
6-byte object for combined absolute dimming of brightness (in percent) and setting of the colour temperature (in Kelvin) by separate dimming values and for specifying a transition time (in seconds) for the telegram at the end of detection. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 249.600, the parameter "Output values can be set via objects" is set to "Active" and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Colour temperature and brightness value - At end of detection - Status	FB x - Output	6-byte	249,600	C, R, -, T, A
6-byte object for combined absolute dimming of brightness (in percent) and setting of the colour temperature (in Kelvin) by separate dimming values and for specifying a transition time (in seconds) for the telegram at the end of detection. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 249.600 and the parameter "Output values can be set via objects" is set to "Active".				

Function	Name	Type	DPT	Flags
Output 1/2 - Value - Colour temperature and brightness	FB x - Output	6-byte	249,600	C, R, -, T, A
6 bytes object used by the output of a function block to outputs the dimming value in percent, the colour temperature in Kelvin and the transition time in seconds to the KNX actuators (e.g. DALI actuator). This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 249.600 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

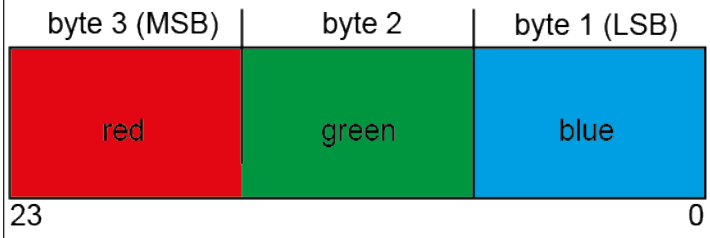
Function	Name	Type	DPT	Flags
Output 1/2 - Day - Colour temperature and brightness value	FB x - Output	6-byte	249,600	C, R, -, T, A
6 bytes object used by the output of a function block to outputs the dimming value in percent, the colour temperature in Kelvin and the transition time in seconds to the KNX actuators (e.g. DALI actuator) in day mode. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 249.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - Colour temperature and brightness value	FB x - Output	6-byte	249,600	C, R, -, T, A
6 bytes object used by the output of a function block to outputs the dimming value in percent, the colour temperature in Kelvin and the transition time in seconds to the KNX actuators (e.g. DALI actuator) in night mode. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 249.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flag
Output 1/2 value - RGB/HSV RGB	FB x - Output	3-byte	232,600	C, R, -, T, A
3-byte object used by the output of a function block to output the colour value to the KNX actuators (e.g. DALI actuator).  This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 232.600 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flag
Output 1/2 - Day - RGB/ HSV value RGB	FB x - Output	3-byte	232,600	C, R, -, T, A

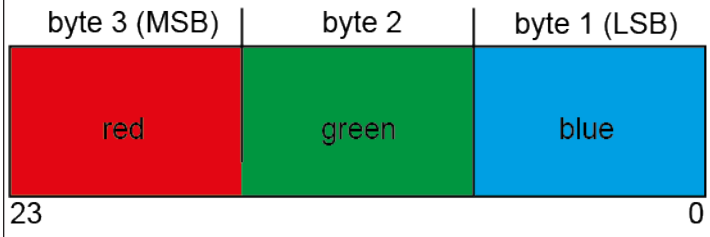
3-byte object used by the output of a function block to output the colour value to the KNX actuators (e.g. DALI actuator) in day mode.



This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 232.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flag
Output 1/2 - Night - RGB/HSV value RGB	FB x - Output	3-byte	232,600	C, R, -, T, A

3-byte object used by the output of a function block to output the colour value to the KNX actuators (e.g. DALI actuator) in night mode.



This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 232.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flags
Output 1/2 - RGB/HSV value HSV H	FB x - Output	1-byte	5,003	C, R, -, T, A

1-byte object for transmitting the colour hue. This entry is made in degrees. The value range is 0 ... 360°.

This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.

Function	Name	Type	DPT	Flags
Output 1/2 - RGB/HSV value HSV S	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the saturation. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - RGB/HSV value HSV V	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the brightness value. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - RGB/HSV value HSV H	FB x - Output	1-byte	5,003	C, R, -, T, A
1-byte object for transmitting the colour hue in day mode. This entry is made in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - RGB/HSV value HSV S	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the saturation in day mode. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - RGB/ HSV value HSV V	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the brightness value in day mode. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

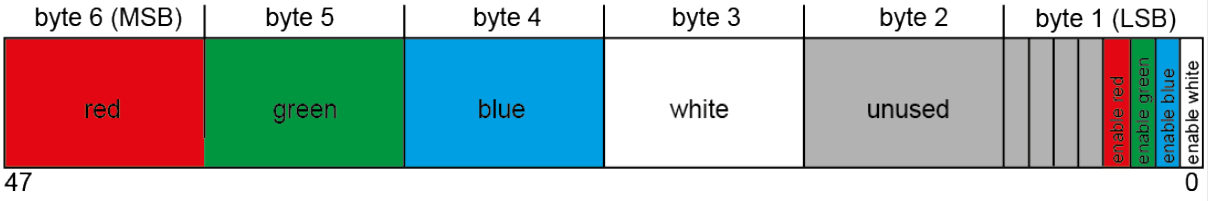
Function	Name	Type	DPT	Flags
Output 1/2 - Night - RGB/HSV value HSV H	FB x - Output	1-byte	5,003	C, R, -, T, A
1-byte object for transmitting the colour hue in night mode. This entry is made in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - RGB/HSV value HSV S	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the saturation in night mode. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - RGB/HSV value HSV V	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the brightness value in night mode. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flag
Output 1/2 - RGBW/ HSVW value RGBW	FB x - Output	6-byte	251,600	C, R, -, T, A

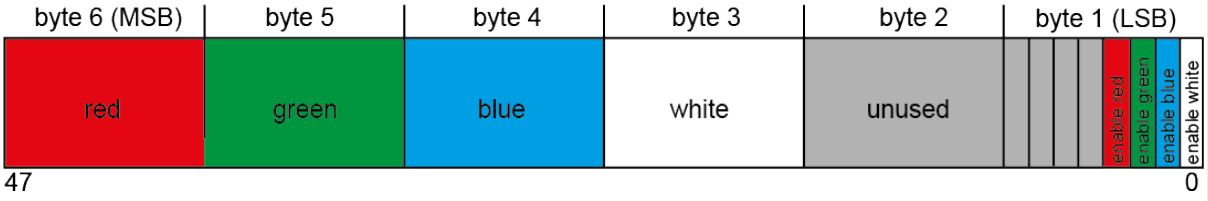
6-byte object used by the output of a function block to output the colour value to the KNX actuators (e.g. DALI actuator).



This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 251.600 and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.

Function	Name	Type	DPT	Flag
Output 1/2 - Day - RGBW/HSVW value RGBW	FB x - Output	6-byte	251,600	C, R, -, T, A

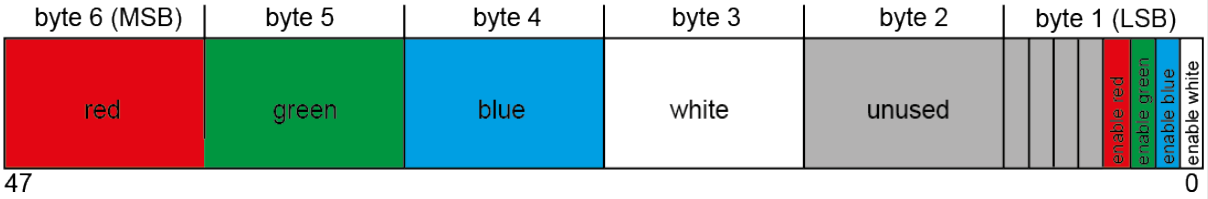
6-byte object used by the output of a function block to output the colour value to the KNX actuators (e.g. DALI actuator) in day mode.



This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 251.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flag
Output 1/2 - Night - RGBW/HSVW value RGBW	FB x - Output	6-byte	251,600	C, R, -, T, A

6-byte object used by the output of a function block to output the colour value to the KNX actuators (e.g. DALI actuator) in night mode.



This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to DPT 251.600 and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flags
Output 1/2 - RGBW/ HSVW value HSVW H	FB x - Output	1-byte	5,003	C, R, -, T, A

6-byte object for transmitting the colour hue. This entry is made in degrees. The value range is 0 ... 360°.

This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001) and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.

Function	Name	Type	DPT	Flags
Output 1/2 - RGBW/ HSVW value HSVW S	FB x - Output	1-byte	5,001	C, R, -, T, A

1-byte object for transmitting the saturation. The entry is made as a percentage. The value range is 0 ... 100%.

This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001) and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.

Function	Name	Type	DPT	Flags
Output 1/2 - Value RGBW/WHSVW HSVW V	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the brightness value. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001) and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - RGBW/ HSVW value HSVW W	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the white level. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001) and the day/night switchover is deactivated, or the parameter "Combine day/night output objects per FB" is activated with day/night switchover activated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - RGBW/HSVW value HSVW H	FB x - Output	1-byte	5,003	C, R, -, T, A
1-byte object for transmitting the colour hue in day mode. This entry is made in degrees. The value range is 0 ... 360°. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001), day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - RGBW/HSVW value HSVW S	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the saturation in day mode. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001), day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Day - RGBW/HSVW value HSVW V	FB x - Output	1-byte	5,001	C, R, -, T, A

1-byte object for transmitting the brightness value in day mode. The entry is made as a percentage. The value range is 0 ... 100%.

This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001), day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flags
Output 1/2 - Day - RGBW/HSVW value HSVW W	FB x - Output	1-byte	5,001	C, R, -, T, A

1-byte object for transmitting the white value in day mode. The entry is made as a percentage. The value range is 0 ... 100%.

This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001), day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flags
Output 1/2 - Night - RGBW/HSVW value HSVW H	FB x - Output	1-byte	5,003	C, R, -, T, A

1-byte object for transmitting the colour hue in night mode. This entry is made in degrees. The value range is 0 ... 360°.

This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGB/HSV (RGB: DPT232.600, HSV: DPT 5.003, DPT 5.001, DPT 5.001) and day/night switchover is deactivated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flags
Output 1/2 - Night - RGBW/HSVW value HSVW S	FB x - Output	1-byte	5,001	C, R, -, T, A

1-byte object for transmitting the saturation in night mode. The entry is made as a percentage. The value range is 0 ... 100%.

This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001), day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.

Function	Name	Type	DPT	Flags
Output 1/2 - Night - RGBW/HSVW value HSVW V	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the brightness value in night mode. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001), day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.				

Function	Name	Type	DPT	Flags
Output 1/2 - Night - RGBW/HSVW value HSVW W	FB x - Output	1-byte	5,001	C, R, -, T, A
1-byte object for transmitting the white level in night mode. The entry is made as a percentage. The value range is 0 ... 100%. This object is visible only if the output function is configured to "Other value transmitters", the data point type is configured to RGBW/HSVW (RGBW: DPT251.600, HSVW: DPT 5.003, DPT 5.001, DPT 5.001, DPT 5.001), day/night switchover is activated and the parameter "Combine day/night output objects per FB" is deactivated.				

13.6 Manual operation

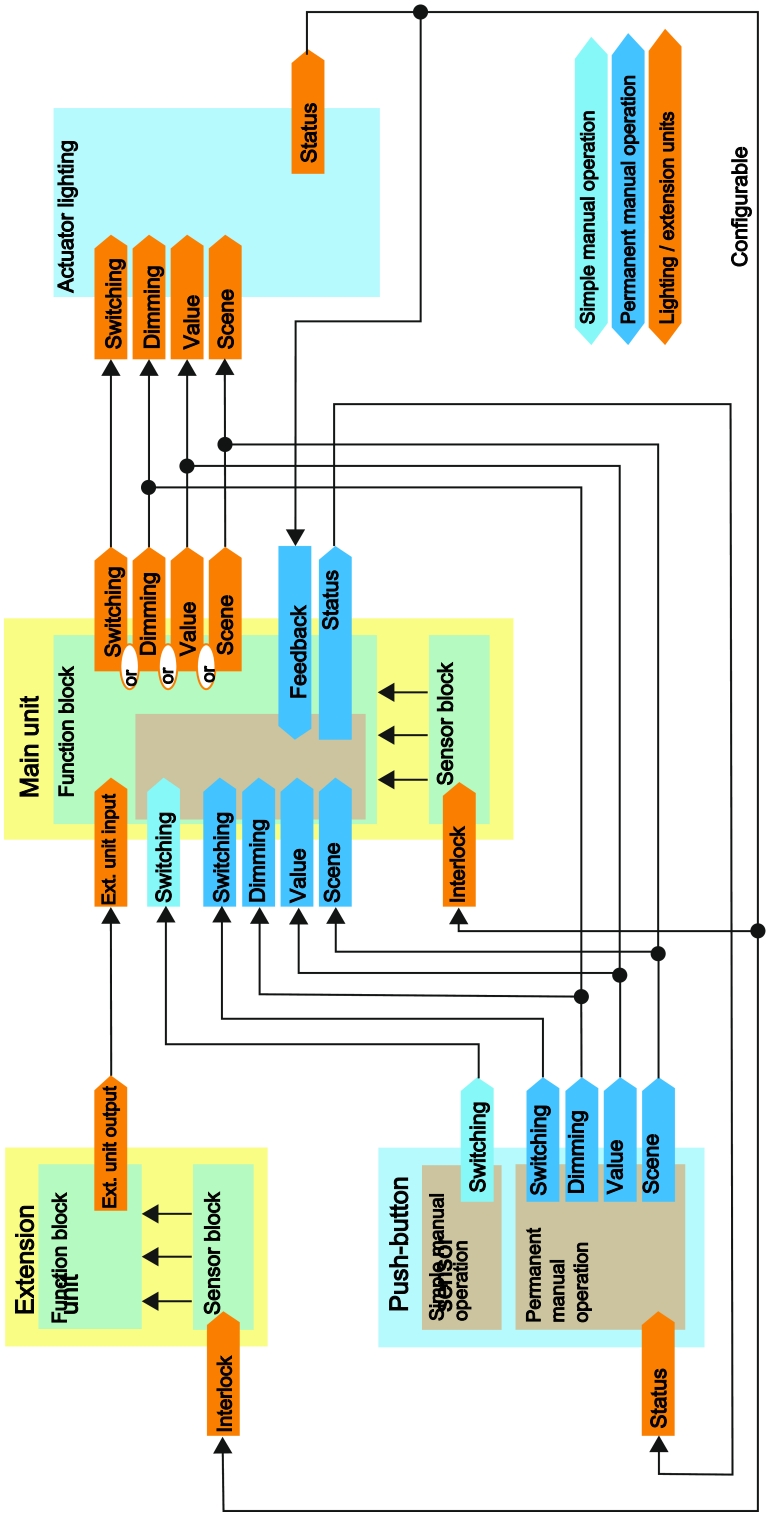


Figure 26: Manual operation

With manual operation, the function blocks can be operated manually by means of KNX commands, e.g. with push-button sensors. A distinction is made between two manual operating options. Depending on the settings, one of the following three operating concepts can be used:

Simple manual operation

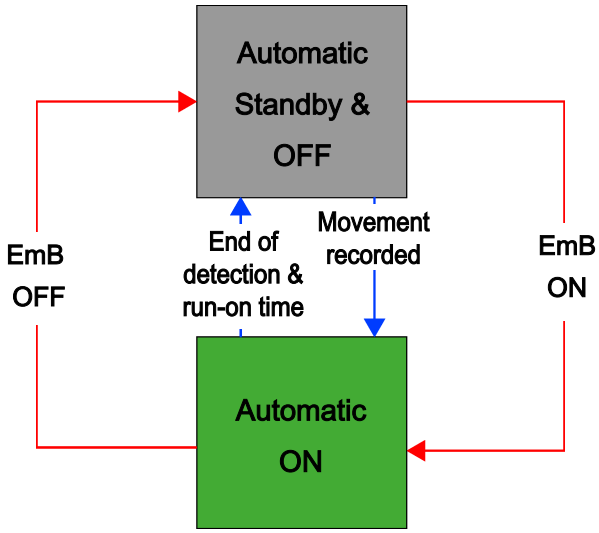


Figure 27: Simple manual operation

Permanent manual operation

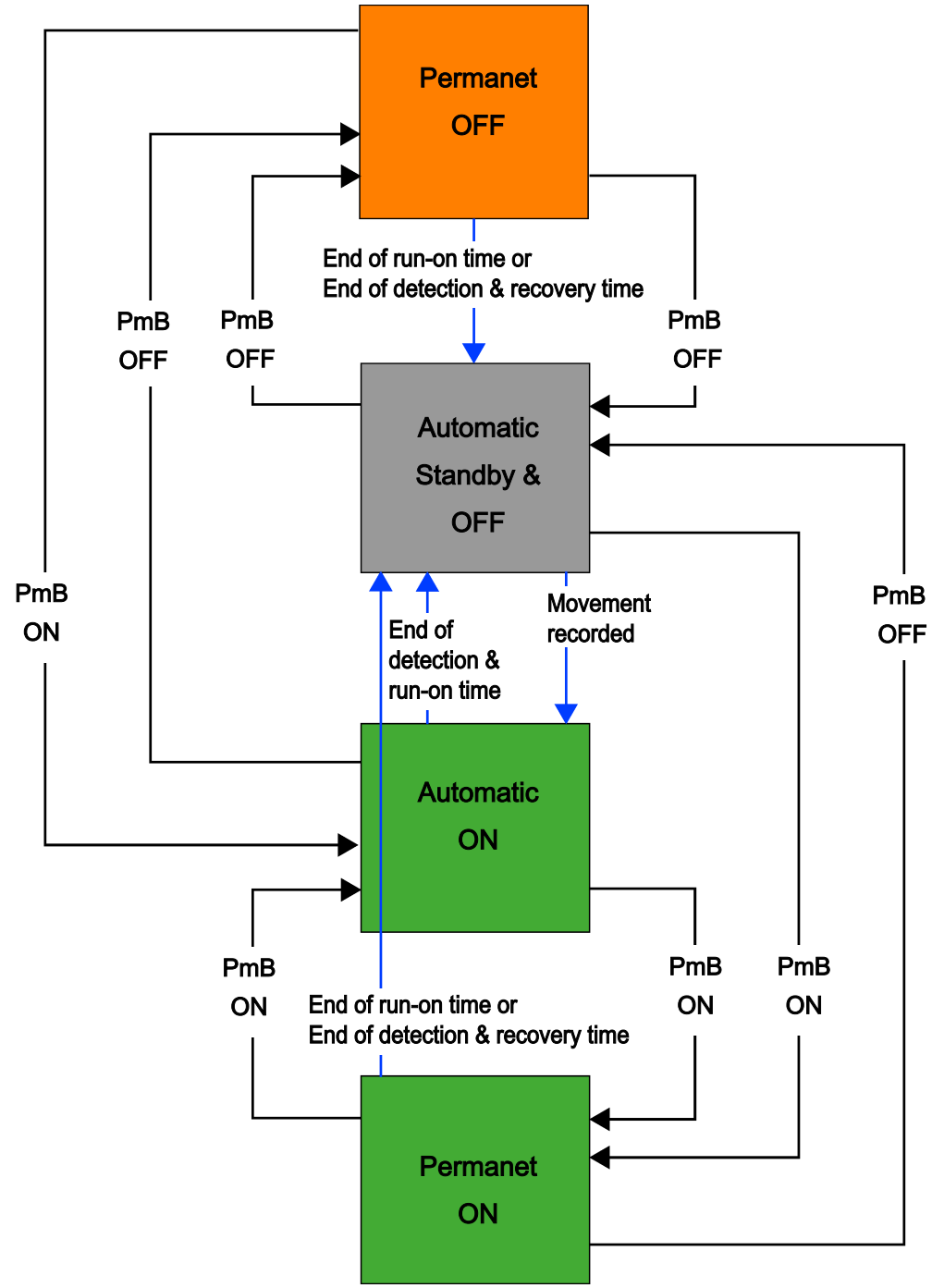


Figure 28: Permanent manual operation

Simple and permanent manual operation

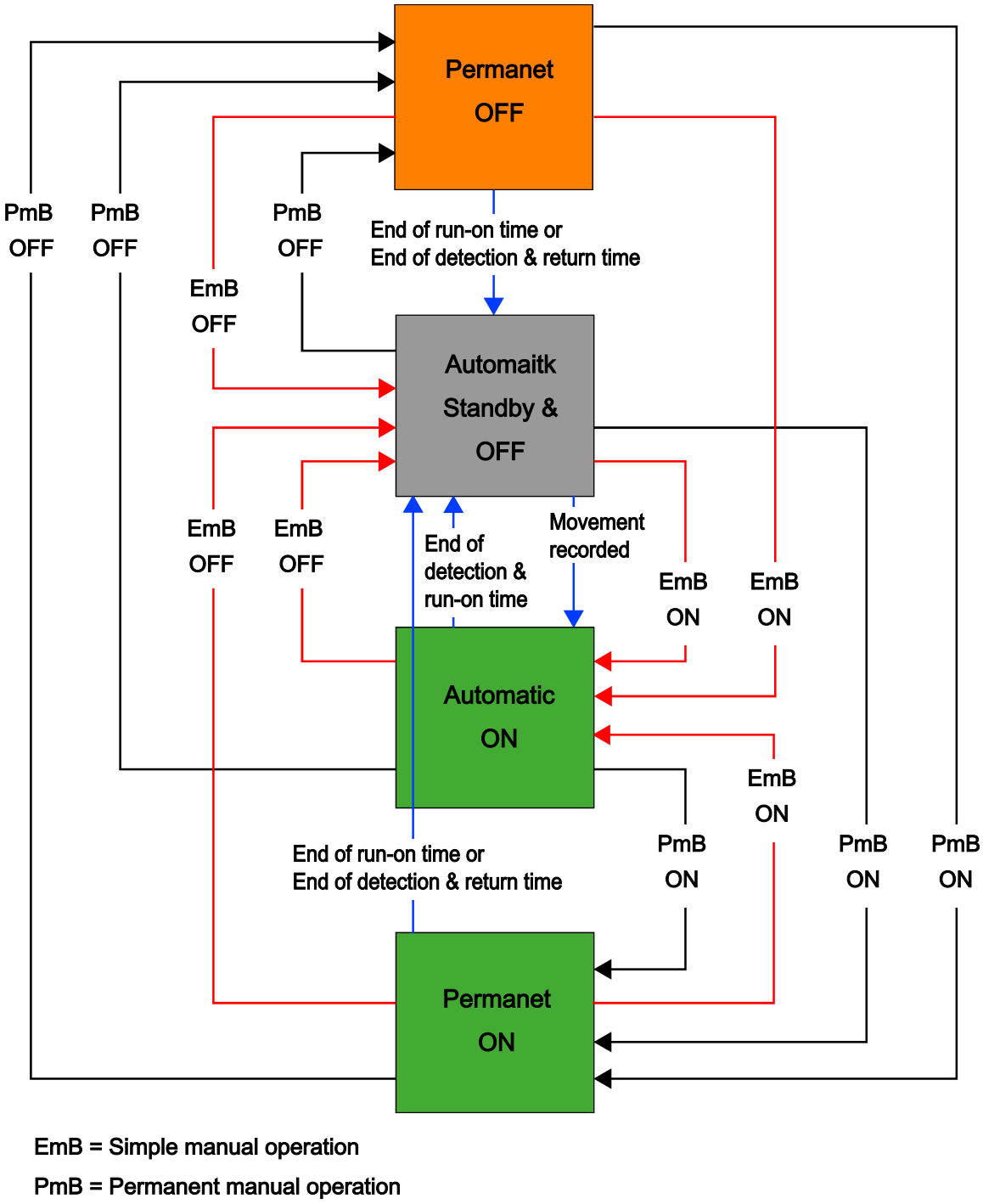


Figure 29: Simple and permanent manual operation

Simple manual operation

With simple manual operation, the function blocks can be started and stopped by the user independently of the sensors, e.g. with a push-button sensor, whereby no ambient brightness is evaluated when starting. Thus, activation of the actuators is forced when switching on manually.
This manual operation is activated by means of the "Manual operation - Simple" object.
After manual activation, the function block works presence and brightness-depend-

ently as usual thereby ensuring automatic switch-off if there is no presence or adequate basic brightness.
An OFF command in simple manual operation causes the lighting to be switched off as configured, (see figure 27).
Parameters can be used to set which telegrams (ON/OFF/UM) the device is to react to during simple manual operation.

Activating permanent manual operation

Even with this type of manual operation, the function block can be started or stopped independently of the sensors, for example with a push-button sensor. However, the automatic function is deactivated so that the actuators remain permanently in the called state until it is operated again.
This manual operation is activated by means of the object "Manual operation - Permanent".
Parameters can be used to set which telegrams (ON/OFF/TOGGLE) the device reacts to during permanent manual operation.

Ending permanent manual operation

To terminate permanent manual operation, the following options are available, depending on the settings:

- Only permanent operation is enabled: Re-triggering permanent manual operation (see figure 28)
- Simple and permanent operation are enabled: Activating simple manual operation, (see figure 29)
- The "End automatically" parameter for permanent manual operation can be used to configure an automatic end by means of a configurable "Run-on time" or "At the end of the presence and relapse time". Different times can be entered for day and night mode, depending on the configuration.

Parallel operation

The parameter "Objects for parallel operation via other control points" enables parallel operation of the actuators controlled by means of the function blocks. With parallel operation, the assigned actuators can be activated directly, for example, via a push-button sensor or operating panel. The manually triggered dimming or scene commands to the actuators must be transmitted to the function block for this purpose. Otherwise, the automatic function of the function block would override the manual operation. For this purpose, each function block has 4 objects, each with different data formats ("Parallel operation input" - 4-bit relative dimming, 1-byte brightness value, 1-byte scene extension unit, 1-byte HVAC operating mode). The automatic function is deactivated during parallel operation, which means that the actuators are no longer influenced by motion or brightness, but only by the user by "listening" to the telegrams by means of the objects mentioned.

i To reactivate automatic operation after parallel operation, see terminating permanent operation.

If parallel operation is performed during an active permanent manual operation with automatic end, e.g. because the configured brightness is too low or too high, the run-on time or reset time is not stopped. After the run-on or reset time has elapsed, the device returns to normal operation and the automatic function is active.

Ignore motion for OFF telegram

The lighting is switched off directly by switching off the lighting in simple or permanent manual operation mode. If a detection field had to be crossed to leave the room, the light would switch on again. To prevent this, there is the "Ignore motion if OFF" parameter. This parameter can be used to set a time of up to one hour during which no motion is detected after the lighting is switched off manually.

13.6.1 "Manual operation" parameter

Function blocks (FB) -> FB x - General -> Enabled functions

Use simple manual operation	**Inactive** Active
This parameter enables simple manual operation. Set the parameter to active for this purpose. Additional parameters appear. The "Simple Manual Operation" function cannot be used in the "Monitoring" application.	

Function blocks (FB) -> FB x - General -> Manual operation

(Simple manual operation) Reacts to	ON OFF **ON and OFF** ON/OFF as TOGGLE
The "Reacts to" parameter specifies how and to which telegram the function block reacts. **ON**: The function block reacts only to ON telegrams to the object "Manual operation - Simple". When an ON telegram is received, the configured behaviour at the "Start of detection" is executed regardless of the brightness and motion. Automatic operation continues to run in the background. This means, for example, that the behaviour is executed at the "End of detection" if there is no detection. **OFF**: The function block reacts only to OFF telegrams to the object "Manual operation - Simple". When an OFF telegram is received, the configured behaviour for "End of detection" is executed immediately, regardless of brightness and movement. This occurs even if the run-on time has not yet expired. Automatic operation continues to run in the background. This means, for example, that the behaviour is executed at the "Start of detection". **ON and OFF**: The function block reacts to an ON and OFF telegram to the object "Manual operation - Simple". When an ON telegram is received, the configured behaviour at the "Start of detection" is executed regardless of the brightness and motion. When an OFF telegram is received, the behaviour at the "End of detection" is executed regardless of the brightness and motion. This occurs even if the run-on time has not yet expired. Automatic operation continues to run in the background. If a new event occurs, e.g. new detection or exceedance of the switch-off brightness, the corresponding telegram is sent. **ON/OFF as TOGGLE**: The function block reacts to each telegram input to the object "Manual operation - Simple". When a telegram is received, the telegram that switches the output is sent regardless of the brightness and motion. This depends on the current status of the output, which must be communicated to the operating device, e.g. push-button sensor, via group addresses. Automatic operation continues to run in the background. If a new event occurs, e.g. new detection or exceedance of the switch-off brightness, the corresponding telegram is sent. This parameter is visible only if the "Use simple manual operation" parameter is set to active.	

Use permanent manual operation	**Inactive** Active
This parameter enables permanent manual operation. Set the parameter to active for this purpose. Additional parameters appear. The “Permanent manual operation” function cannot be used in the “Monitoring” application.	

(Permanent manual operation) Reacts to	ON OFF **ON and OFF** ON/OFF as TOGGLE
The "Reacts to" parameter specifies how and to which telegram the function block reacts during permanent manual operation. **ON**: The function block reacts only to ON telegrams to the object "Manual operation - Permanent". When an ON telegram is received, the configured behaviour at the "At start of detection" is executed regardless of the brightness and motion. Automatic mode is stopped. The evaluation of movements and brightness is disabled. Whether permanent manual operation can be terminated depends on how the simple manual operation has been configured. Manual operation is not enabled. To end permanent manual operation, send another ON telegram to the object "Manual operation - Permanent". Automatic mode is active again. The configured behaviour "At start of detection" is executed. Manual operation is enabled: To end permanent manual operation, send another ON telegram to the object "Manual operation - Simple". Automatic mode is active again. The configured behaviour "At start of detection" is executed. **OFF**: The function block reacts only to OFF telegrams to the object "Manual operation - Permanent". When an OFF telegram is received, the configured behaviour is executed at the "End of detection". This also takes place if the run-on time has not yet expired. Automatic mode is stopped. The evaluation of movements and brightness is disabled. The evaluation of movements and brightness is disabled. Whether permanent manual operation can be terminated depends on how the simple manual operation has been configured. Manual operation is not enabled. To end permanent manual operation, send another OFF telegram to the object "Manual operation - Permanent". Automatic mode is active again. The configured behaviour "At end of detection" is executed. Manual operation is enabled: To end permanent manual operation, send another OFF telegram to the object "Manual operation - Simple". Automatic mode is active again. The configured behaviour "At end of detection" is executed.	

(Permanent manual operation) Reacts to	ON OFF **ON and OFF** ON/OFF as TOGGLE

ON and OFF: The function block reacts to an ON and OFF telegram to the object "Manual operation - Permanent". When an ON telegram is received, the configured behaviour at the "At start of detection" is executed regardless of the brightness and motion. When an OFF telegram is received, the behaviour "At end of detection" is executed immediately, regardless of brightness and motion. This occurs even if the run-on time has not yet expired. The evaluation of movements and brightness is disabled. Whether permanent manual operation can be terminated depends on how the simple manual operation has been configured.

Manual operation is not enabled.
To end permanent manual operation, send another ON or OFF telegram to the object "Manual operation - Permanent". The behaviour is executed "At start of detection" or "At end of detection", depending on the telegram.

Manual operation is enabled.
To end permanent manual operation, send another ON or OFF telegram to the object "Manual operation - Simple". The behaviour is executed "At start of detection" or "At end of detection", depending on the telegram.

ON/OFF as TOGGLE: The function block reacts to each telegram input to the object "Manual operation - Permanent". When a telegram is received, there is an immediate switchover regardless of the brightness and motion. This depends on the current status of the actuators, which must be communicated to the operating device, e.g. push-button sensor, via group addresses. The evaluation of movements and brightness is disabled. Whether permanent manual operation can be terminated depends on how the simple manual operation has been configured.

Manual operation is not enabled.
To end permanent manual operation, send a switchover telegram to the object "Manual operation - Permanent" again. The lighting is like at the start of detection or switched off, depending on the previous state

Manual operation is enabled.
To end permanent manual operation, send a switchover telegram to the object "Manual operation - Simple". The lighting is like at the start of detection or switched off, depending on the previous state

This parameter is visible only if the "Use permanent manual operation" parameter is set to active.

End automatically	**Deactivated** After run-on time At end of presence and relapse time
This parameter is used to define whether permanent manual operation is to be ended automatically or remain active until manual deactivation. Automatic mode is active at the end of permanent manual operation. **Deactivated**: Permanent manual operation is not terminated automatically. To end it, a telegram must be sent again to the object "Manual operation - Permanent". The "Reacts to" parameter is used to specify the telegram type that can be used for this purpose. **After run-on time**: Permanent manual operation is automatically ended after the time set with the "Run-on time" parameter has elapsed. Permanent manual operation can still be terminated manually. To do this, send a telegram to the object "Manual operation - Permanent". The "Reacts to" parameter is used to specify the telegram type that can be used for this purpose. **At end of presence and relapse time:** Permanent manual operation is automatically terminated when no detection takes place anymore (end of presence) and the relapse fall-back time has expired. The "Relapse time" parameter is used to set the relapse time. Permanent manual operation can still be terminated manually. To do this, send a telegram to the object "Manual operation - Permanent". Transmit. The "Reacts to" parameter is used to specify the telegram type that can be used for this purpose. This parameter is visible only if "Permanent manual operation" parameter is activated.	

Run-on time	**0** … 23 h 0 … **30** …59 min **0** … 59 s
This parameter is used to define how long permanent manual operation is to remain switched on. The setting is made in hours, minutes and seconds. The shortest time that can be set is 10 seconds. After exiting permanent manual operation, the function block behaves in the same way as at the end of a detection process. This parameter is visible only if the "End automatically" parameter is set to "Run-on time" and the "Day/night switchover" parameter is activated on the "General" parameter page.	

(Run-on time) At day	**0** … 23 h 0 … **30** …59 min **0** … 59 s
This parameter is used to define how long permanent manual operation is to remain switched on in day mode. The setting is made in hours, minutes and seconds. The shortest time that can be set is 10 seconds. After exiting permanent manual operation, the function block behaves in the same way as at the end of a detection process. This parameter is visible only if the "End automatically" parameter is set to "Run-on time" and the "Day/night switchover" parameter is activated on the "General" parameter page.	

(Run-on time) At night	**0** … 23 h 0 … **30** …59 min **0** … 59 s
This parameter is used to define how long permanent manual operation is to remain switched on in night mode. The setting is made in hours, minutes and seconds. The shortest time that can be set is 10 seconds. After exiting permanent manual operation, the function block behaves in the same way as at the end of a detection process. This parameter is visible only if the "End automatically" parameter is set to "Run-on time" and the "Day/night switchover" parameter is activated on the "General" parameter page.	

Relapse time	**0** … 23 h 0 … **30** …59 min **0** … 59 s
This parameter is used to define for how long permanent manual operation is to remain switched on after the last detection of presence. The setting is made in hours, minutes and seconds. The shortest time that can be set is 10 seconds. After exiting permanent manual operation, the function block behaves in the same way as at the end of a detection. This parameter is visible only if the "End automatically" parameter is set to "At end of presence and relapse time" or "At end of external presence and relapse time".	

(Relapse time) At day	**0** … 23 h 0 … **30** …59 min **0** … 59 s
This parameter is used to define for how long permanent manual operation is to remain switched on after the last detection of presence in day mode. The setting is made in hours, minutes and seconds. The shortest time that can be set is 10 seconds. After exiting permanent manual operation, the function block behaves in the same way as at the end of a detection. This parameter is visible only if the "End automatically" parameter is set to "At end of presence and relapse time" or "At end of external presence and relapse time" with day/night switchover activated.	

(Relapse time) At night	**0** … 23 h 0 … **30** …59 min **0** … 59 s
This parameter is used to define for how long permanent manual operation is to remain switched on after the last detection of presence in night mode. The setting is made in hours, minutes and seconds. The shortest time that can be set is 10 seconds. After exiting permanent manual operation, the function block behaves in the same way as at the end of a detection. This parameter is visible only if the "End automatically" parameter is set to "At end of presence and relapse time" or "At end of external presence and relapse time" with day/night switchover activated.	

Objects for parallel operation via additional control points	**Inactive** Active
The parameter enables parallel operation of the actuators actuated by means of the function block. With parallel operation, the assigned actuators can be activated directly, for example, via a push-button sensor or operating panel. The manually triggered dimming, HVAC or scene commands to the actuators must be transmitted to the function block for this purpose. Otherwise, the automatic function would override the manual operation. Depending on the setting of the "Application" parameter, the following objects are available: "Manual operation - Permanent - Parallel operation - Dimming step" Setting the brightness of the function block by sending relative dimming telegrams. "Manual operation - Permanent - Parallel operation - Dimming value" Specification of an absolute dimming value for the function block in per cent. "Manual operation - Permanent - Parallel operation - Scene extension unit" Call-up of a scene of the function block. "Manual operation - Permanent - Parallel operation - Actuator status" Feedback of the switching state of the actuated actuator ("1" = active / "0" = inactive) to the bus. "Manual operation - Permanent - Parallel operation - Dimming step - HVAC operating mode" Setting of the HVAC mode: automatic, comfort, standby, night; frost/heat protection In parallel operation, the function blocks behave in the same way as in permanent manual operation, i.e. the automatic function is deactivated. This state remains until it is revoked by simple manual operation or permanent manual operation. This parameter is visible only if the "Permanent manual operation" parameter is set to active.	

Show info graphic	**Inactive** Active
This parameter can be used to display the infographic for manual operation.	

Ignore motion if OFF	**0** … 59 min 0 … **5** …59 s
This parameter specifies for how long no movements are evaluated after switching off (OFF telegram) by means of simple or permanent manual operation . The setting is made in minutes and seconds. This parameter is visible only if at least one type of manual operation has been activated.	

13.6.2 "Manual operation" objects

Function	Name	Type	DPT	Flags
Manual operation - Simple	FB x - Input	1-bit	1,001	C, -, W, -, U
1-bit object used to manually actuate (switch on/off) the function block. Manual operation is detected and processed by the device by means of this object. With manual control by means of the "Manual operation - Simple object", the automatic function is still active ("1" = ON / reaction as at start of detection, "0" = OFF / reaction as at end of detection) This object is only visible if "Simple manual operation" is enabled and the "Responds to" parameter is set to ON, OFF or ON and OFF.				

Function	Name	Type	DPT	Flags
Manual operation - Simple	FB x - Input	1-bit	1,017	C, -, W, -, U
1-bit object for manually controlling (toggling) the function block. Manual operation is detected and processed by the device by means of this object. It is switched to either the ON state (triggered by the start of a measurement) or the OFF state (triggered by the end of a measurement). When controlling the system manually via the "Manual Operation - Simple" object, the automatic mode remains active. This object is only visible if "Simple manual operation" is enabled and the "Responds to" parameter is set to ON/OFF as TOGGLE.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent	FB x - Input	1-bit	1,001	C, -, W, -, U
1-bit object used to manually actuate (switch on/off) the function block. Manual operation is detected and processed by the device by means of this object. During manual control, automatic mode is deactivated ("1" = ON / reaction as at start of detection, "0" = OFF / as at end of detection) by means of the object Manual operation - Permanent. To reactivate automatic mode, another telegram must be sent to this object. This object is only visible if "Permanent manual operation" is enabled and the "Responds to" parameter is set to ON, OFF or ON and OFF.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent	FB x - Input	1-bit	1,017	C, -, W, -, U
1-bit object for manually controlling (toggling) the function block. Manual operation is detected and processed by the device by means of this object. When manual control is selected via the "Manual Operation - Permanent" object, the automatic function is disabled. It is switched to either the ON state (triggered by the start of a measurement) or the OFF state (triggered by the end of a measurement). To reactivate automatic mode, another telegram must be sent to this object. This object is only visible if "Permanent manual operation" is enabled and the "Responds to" parameter is set to ON/OFF as TOGGLE.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent - ON - Status	FB x - Output	1-bit	1,011	C, R, -, T, A
1-bit object for feedback that the function block has the same status as at the start of detection due to permanent manual operation and that the automatic function is deactivated. This object is visible only if permanent manual operation is enabled.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent - OFF - Status	FB x - Output	1-bit	1,011	C, R, -, T, A
1-bit object for feedback that the function block has the same status as at the end of detection due to permanent manual operation and that the automatic function is deactivated. This object is visible only if permanent manual operation is enabled. This object is not visible in the "Heating / Air Conditioning / Ventilation" application.				

Parallel operation

The actuators controlled by the function block can also be controlled by other sensors of the KNX installation. This is referred to as parallel operation. Parallel operation deactivates automatic mode. The following objects are visible only if permanent manual operation is activated and the parameter "Objects for parallel operation via additional control points" is activated.

Function	Name	Type	DPT	Flags
Manual operation - Permanent - Parallel operation - Dimming step	FB x - Input	4-bit	3,007	C, -, W, -, U
4-bit object that can be used to send telegrams for relative dimming to the function block. Dimmer steps are sent to this object as long as, for example, a push-button sensor is actuated. The dimming process stops when the push-button sensor is released. This object is visible only if permanent manual operation is enabled. This object is not visible in the "Heating / Air Conditioning / Ventilation" application.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent - Parallel operation - Dimming value	FB x - Input	1-byte	5,001	C, -, W, -, U
This 1-byte object is used to inform the function block that dimming values are sent to the actuators actuated by means of the function block, e.g. with a push-button sensor. This object is visible only if permanent manual operation is enabled. This object is not visible in the "Heating / Air Conditioning / Ventilation" application.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent - Parallel operation - HVAC operating mode	FB x - Input	1-byte	20,102	C, -, W, -, U
1-byte object used to set the HVAC mode. A telegram with the value 0 ... 4 is sent to this object. Possible modes: 0 = auto, 1 = comfort, 2 = standby, 3 = economy; 4 = building protection. This object is visible only if permanent manual operation is enabled. This object is only visible in the "Universal" and "Heating / Air Conditioning / Ventilation" applications.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent - Parallel operation - Scene extension unit	FB x - Input	1-byte	17,001	C, -, W, -, U
This 1-byte object is used to inform the function block that a scene call-up is being sent to the actuators controlled by means of the function block, e.g. with a push-button sensor. This object is visible only if permanent manual operation is enabled.				

Function	Name	Type	DPT	Flags
Manual operation - Permanent - Parallel operation - Actuator status	FB x - Input	1-bit	1,011	C, -, W, -, U
1-bit object used for feedback on the state of the actuated actuator after parallel operation. "1 = active" The actuator is switched on after parallel manual operation. "0 = inactive" The actuator is switched off after parallel manual operation. This object is visible only if permanent manual operation is enabled. This object is not visible in the "Heating / Air Conditioning / Ventilation" application.				

13.7 Disabling function

The disabling function can be used to disable function blocks independently of the other function units. Automatic mode is deactivated in the event of an active disabling process. The assigned outputs can be brought to a defined state at the beginning or end of the disabling function. The disabling function can be activated by force by means of the object "Disabling function - Activate/Deactivate", after the bus voltage returns or after an ETS programming operation.

Behaviour at the beginning of the disabling function

A telegram can be transmitted separately at the beginning of the disabling function via each output (according to the configured function) for the application types "Single device" and "Main unit". The parameter "Behaviour at the beginning of the disabling function" on the parameter page "FB x - Disabling function" defines whether a telegram is transmitted.

No telegram output is intended at the start of disabling in the "Presence detector - Monitoring" application or when used as an "Extension unit". Here, the function block is merely interlocked.

Ongoing run-on times and switch-off delays are stopped and reset by activation of the disabling function. The current state (motion active/inactive) of the motion detection is frozen and saved.

The output can send a telegram to the actuator at the start of disabling, depending on the configured function of the output (switching, dimming, scene, value transmitter ...).

Behaviour during the disabling function

During an active disable, no motion detection and telegram output takes place via the outputs. External motion telegrams from extension units and telegrams for manual operation are ignored.

i Repeated disabling telegrams (disabling function active after disabling function active) received during an active disable cause the device to execute the disabling reaction again (repeat of the configured behaviour at the beginning of the disabling function).

Behaviour at the end of the disabling function

The following behaviour can be configured when the disabling function is ended …

- Enable and send no telegram,
- Enable and reaction as at end of detection,
- Enable and reaction as at start of detection,
- Enable and state as before the disabling function.

i If a disabling function is not activated, the receipt of an enabling telegram is discarded and does not trigger the behaviour at the end of the disabling function.

In brightness-dependent motion detection, attention must be paid to the state of the lighting at the end of the disabling function. If the lighting is on, a motion detection might not be possible again anymore (the function block no longer responds). The lighting can then still only be switched off manually.

13.7.1 "Disabling function" parameter

Function blocks (FB) -> FB x - General -> Disabling function

Behaviour of the outputs at the beginning of disabling

Output 1 Output 2	**No reaction** "Output function" e.g.: switching
A telegram can be transmitted separately at the beginning of the disabling function via each output (according to the configured function) when used as a "Single device" and "Main unit". This parameter defines whether a telegram is transmitted. "No reaction" No telegram is sent at the start of a disabling process. "Output function" e.g. switching A telegram with the configured state or configured values is sent at the beginning of the disabling, depending on the output function. Further parameters appear, which are described in the following. No telegram output is intended at the start of disabling in the "Presence detector - Monitoring" application or when used as an "Extension unit". Here, the function block is merely interlocked. Ongoing run-on times and switch-off delays are stopped and reset by activation of the disabling function. The current state (motion active/inactive) of the motion detection is frozen and saved.	

Switching	**OFF** ON
This parameter defines the telegram at the beginning of the disabling function for the output function "Switching" and "Staircase function". This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Switching) At day	**OFF** ON
This parameter defines the telegram at the beginning of the disabling function for the output function "Switching" and "Staircase function" for day operation. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Switching) At night	**OFF** ON
This parameter defines the telegram at the beginning of the disabling function for the output function "Switching" and "Staircase function" for night operation. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

Priority control	**Priority active, OFF** Priority active ON Priority inactive
This parameter defines the telegram at the beginning of the disabling function for the output function "Switching with forced position". This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Priority control) At day	**Priority active, OFF** Priority active ON Priority inactive
This parameter defines the telegram at the beginning of the disabling function for the output function "Switching with forced position" for day operation. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Priority control) At night	**Priority active, OFF** Priority active ON Priority inactive
This parameter defines the telegram at the beginning of the disabling function for the output function "Switching with forced position" for hight operation. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

Dimming value	**0** … 100%
This parameter defines the telegram at the beginning of the disabling function for the output function "Dimming value transmitter". This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Dimming value) At day	**0** … 100%
This parameter defines the telegram at the beginning of disabling for the "Dimming value transmitter" output function for day operation. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Dimming value) At night	**0** … 100%
This parameter defines the telegram at the beginning of disabling for the "Dimming value transmitter" output function for night operation. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

Scene number	**1** … 64
This parameter defines the telegram at the beginning of the disabling function for the "Scene extension unit" output function. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Scene number) At day	**1** … 64
This parameter is used to define the telegram at the beginning of the disabling function for the "Scene extension unit" output function. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Scene number) At night	**1** … 64
This parameter is used to define the telegram at the beginning of the disabling function for the "Scene extension unit" output function for night mode. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to active on the General parameter page.	

Temperature value	0 … **21** … 40 °C
This parameter defines the telegram at the beginning of the disabling function for the output function "Temperature value transmitter". This parameter is visible only in the applications "Presence detector - Heating / Ventilation / Air conditioning" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Temperature value) At day	0 … **21** … 40 °C
This parameter defines the telegram at the beginning of disabling for the "Temperature value transmitter" output function for day operation. This parameter is visible only in the applications "Presence detector - Heating / Ventilation / Air conditioning" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Temperature value) At night	0 … **21** … 40 °C
This parameter defines the telegram at the beginning of disabling for the "Temperature value transmitter" output function for night operation. This parameter is visible only in the applications "Presence detector - Heating / Ventilation / Air conditioning" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to active on the General parameter page.	

Brightness value	0 … **750** … 2000 lux
This parameter defines the telegram at the beginning of the disabling function for the output function "Brightness value transmitter". This parameter is visible only in the applications "Motion detector - Lighting", "Presence detector - Lighting" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Brightness value) At day	0 … **750** … 2000 lux
This parameter defines the telegram at the beginning of the disabling function for the output function "Brightness value transmitter" for day operation. This parameter is visible only in the applications "Motion detector - Lighting", "Presence detector - Lighting" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to active on the General parameter page.	

(Brightness value) At night	0 … **750** … 2000 lux
This parameter defines the telegram at the beginning of the disabling function for the output function "Brightness value transmitter" for night operation. This parameter is visible only in the applications "Motion detector - Lighting", "Presence detector - Lighting" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to active on the General parameter page.	

Operating mode	Auto Comfort **Standby** Night Frost/heat protection
This parameter is used to define the telegram at the start of disabling for the "Temperature operating mode" output functions. This parameter is visible only in the applications "Presence detector - Heating / Ventilation / Air conditioning" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to inactive on the General parameter page	

(Operating mode) At day	Auto Comfort **Standby** Night Frost/heat protection
This parameter is used to define the telegram at the start of disabling for the "Temperature operating mode" output functions for day mode. This parameter is visible only in the applications "Presence detector - Heating / Ventilation / Air conditioning" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to active on the General parameter page	

(Operating mode) At night	Auto Comfort **Standby** Night Frost/heat protection
This parameter is used to define the telegram at the start of disabling for the "Temperature operating mode" output functions for night mode. This parameter is visible only in the applications "Presence detector - Heating / Ventilation / Air conditioning" and "Presence detector - Universal" if a telegram is to be sent at the beginning of the disabling period and the "Day/night switchover" parameter is set to active on the General parameter page.	

"Additional value transmitters" function

Value	Depending on the data point type of the output
The following data point types and value ranges are available for the "Other value transmitters" function, depending on the configuration: DPT 5.010 | 0 … 255 DPT 5.003 | 0 … 360° DPT 5.004 | 0 … 255% DPT 6.010 | -128 … 127 DPT 7.001 | 0 … 65535 DPT 7.600 | 1000 … 10000 K DPT 8.001 | -32768 … 32767 DPT | 249.600 colour temperature + brightness RGB/HSV (RGB: DPT 232.600, HSV: DPT5.003, DPT 5.001, DPT 5.001) RGBW/HSVW (RGBW: DPT 251.600, HSV: DPT5.003, DPT 5.001, DPT 5.001, DPT 5.001). This parameter is used to define which value the telegram sends at the start of disabling for the "Other value transmitters" output function. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Value) At day	Depending on the data point type
The following data point types and value ranges are available for the "Other value transmitters" function, depending on the configuration: DPT 5.010 | 0 … 255 DPT 5.003 | 0 … 360° DPT 5.004 | 0 … 255% DPT 6.010 | -128 … 127 DPT 7.001 | 0 … 65535 DPT 7.600 | 1000 … 10000 K DPT 8.001 | -32768 … 32767 DPT | 249.600 colour temperature + brightness RGB/HSV (RGB: DPT 232.600, HSV: DPT5.003, DPT 5.001, DPT 5.001) RGBW/HSVW (RGBW: DPT 251.600, HSV: DPT5.003, DPT 5.001, DPT 5.001, DPT 5.001). This parameter is used to define which value the telegram sends at the start of disabling for the "Other value transmitters" output function. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

(Value) At night	Depending on the data point type
The following data point types and value ranges are available for the "Other value transmitters" function, depending on the configuration: DPT 5.010 | 0 … 255 DPT 5.003 | 0 … 360° DPT 5.004 | 0 … 255% DPT 6.010 | -128 … 127 DPT 7.001 | 0 … 65535 DPT 7.600 | 1000 … 10000 K DPT 8.001 | -32768 … 32767 DPT | 249.600 colour temperature + brightness RGB/HSV (RGB: DPT 232.600, HSV: DPT5.003, DPT 5.001, DPT 5.001) RGBW/HSVW (RGBW: DPT 251.600, HSV: DPT5.003, DPT 5.001, DPT 5.001, DPT 5.001). This parameter is used to define which value the telegram sends at the start of disabling for the "Other value transmitters" output function. This parameter is visible only if a telegram is to be sent at the start of disabling and the "Day/night switchover" parameter is set to inactive on the General parameter page.	

At end of disabling	**Enable and send no telegram** Enable and reaction as at end of detection Enable and reaction as at start of detection Enable and state as before the disabling function

This parameter is used to define the behaviour of the function block at the end of disabling.

"Enable and send no telegram"
In this setting, the function block is in the internal OFF state after enabling and reacts to a new motion detection according to the configuration. At the end of the disabling period, the current state of the connected actuators is not changed until motion is detected again by the function block.

"Enable and reaction as at end of detection"
At the end of disabling, the function block behaves in the same way as at the end of a detection. The function block sends the telegram configured for the end of a detection directly. With new motion is detected, the function block reacts with the same behaviour as at the start of a detection.

"Enable and reaction as at the start of a detection"
In this setting, the function block sends the telegram configured for "At the start of detection". The further behaviour of the function block depends on the actual motion detection.

"Enabled and state as before disabling"
The function block restores the state that was active before the disabling.

The behaviour at the end of disabling is the same for all active channels.

This parameter is visible only if the "Day/night switchover" parameter is inactive on the General parameter page.

(At end of disabling) At day	**Enable and send no telegram** Enable and reaction as at end of detection Enable and reaction as at start of detection Enable and state as before the disabling function
This parameter is used to define the behaviour of the function block at the end of disabling. "Enable and send no telegram" In this setting, the function block is in the internal OFF state after enabling and reacts to a new motion detection according to the configuration. At the end of the disabling period, the current state of the connected actuators is not changed until motion is detected again by the function block. "Enable and reaction as at end of detection" At the end of disabling, the function block behaves in the same way as at the end of a detection. The function block sends the telegram configured for the end of a detection directly. With new motion is detected, the function block reacts with the same behaviour as at the start of a detection. "Enable and reaction as at the start of a detection" In this setting, the function block sends the telegram configured for "At the start of detection". The further behaviour of the function block depends on the actual motion detection. "Enabled and state as before disabling" The function block restores the state that was active before the disabling. The behaviour at the end of disabling is the same for all active channels. This parameter is visible only if the "Day/night switchover" parameter is activated on the General parameter page.	

(At end of disabling) At night	**Enable and send no telegram** Enable and reaction as at end of detection Enable and reaction as at start of detection Enable and state as before the disabling function
This parameter is used to define the behaviour of the function block at the end of disabling. "Enable and send no telegram" In this setting, the function block is in the internal OFF state after enabling and reacts to a new motion detection according to the configuration. At the end of the disabling period, the current state of the connected actuators is not changed until motion is detected again by the function block. "Enable and reaction as at end of detection" At the end of disabling, the function block behaves in the same way as at the end of a detection. The function block sends the telegram configured for the end of a detection directly. With new motion is detected, the function block reacts with the same behaviour as at the start of a detection. "Enable and reaction as at the start of a detection" In this setting, the function block sends the telegram configured for "At the start of detection". The further behaviour of the function block depends on the actual motion detection. "Enabled and state as before disabling" The function block restores the state that was active before the disabling. The behaviour at the end of disabling is the same for all active channels. This parameter is visible only if the "Day/night switchover" parameter is activated on the General parameter page.	

Unlocking behaviour

The behaviour at the end of disabling is set together for outputs 1 and 2.

Unlock automatically	**Deactivated** After configured disabling time At end of presence and individual run-on time
This parameter specifies whether a disabling process must be ended manually or is ended automatically. "Deactivated" An active disabling function must be ended manually by sending a telegram to the object "Disabling function - Activate/Deactivate". "After configured locking period: An active locking function is automatically deactivated after the locking period has expired. Additional parameters appear. At end of presence and individual run-on time: An active disabling process is automatically ended when no more presence is detected (end of presence) and the individual run-on time has expired. Additional parameters appear. Furthermore, it is still possible to unlock with an object, regardless of the selected setting.	

Disabling time	**0** … 23 h 0 … **15** …59 min **0** … 59 s
This parameter is used to set the length of the disabling period in hours, minutes and seconds. This parameter is visible only if the "Unlock automatically" parameter is set to "After configured locking period" and the "Day/night switchover" parameter is inactive on the "General" parameter page.	

(Disabling time) At day	**0** … 23 h 0 … **15** …59 min **0** … 59 s
This parameter is used to set the length of the disabling period in hours, minutes and seconds. This parameter is visible only if the "Unlock automatically" parameter is set to "After configured locking period" and the "Day/night switchover" parameter is activated on the "General" parameter page.	

(Disabling time) At night	0 … 23 h 0 … **15** …59 min 0 … 59 s
This parameter is used to set the length of the disabling period in hours, minutes and seconds. This parameter is visible only if the "Unlock automatically" parameter is set to "After configured locking period" and the "Day/night switchover" parameter is activated on the "General" parameter page.	

Disabling time can be set via object	**Inactive** Active
This parameter is used to enable the 2-byte objects "Disabling function - Disabling duration" and "Disabling function - Disabling duration - Status". Set the parameter to active for this purpose. These objects can be used to specify the disabling period or query the active disabling period. This parameter is visible only if the "Unlock automatically" parameter is set to "At end of disabling period".	

Individual run-on time	**0** … 23 h **0** … 59 min 0 … **30** …59 s
This parameter is used to set the length of the individual run-on time in hours, minutes and seconds. At the "End of detection" and expiry of the individual run-on time, the disabling is automatically terminated. This parameter is visible only if the "Unlock automatically" parameter is set to "At end of presence and individual run-on time" and the "Day/night switchover" parameter is inactive on the "General" parameter page.	

(Individual run-on time) At day	**0** … 23 h **0** … 59 min 0 … **30** …59 s
This parameter is used to set the length of the individual run-on time in day mode. The setting is made in hours, minutes and seconds. This parameter is visible only if the "Unlock automatically" parameter is set to "At end of presence and individual run-on time" and the "Day/night switchover" parameter is activated on the "General" parameter page.	

(Individual run-on time) At night	**0** … 23 h **0** … 59 min 0 … **30** …59 s
This parameter is used to set the length of the individual run-on time in night mode. The setting is made in hours, minutes and seconds. This parameter is visible only if the "Unlock automatically" parameter is set to "At end of presence and individual run-on time" and the "Day/night switchover" parameter is activated on the "General" parameter page.	

Individual run-on time can be set via object	**Inactive** Active
This parameter is used to enable the objects "Disabling function - Individual run-on time" and "Disabling function - Individual run-on time - Status". Set the parameter to active for this purpose. These objects can be used to specify the individual run-on time or query the active individual run-on time by means of telegrams. This parameter is visible only if the "Unlock automatically" parameter is set to "At end of presence and individual run-on time".	

Unlocking delay after manual unlocking	**Inactive** Active
This parameter is used to specify the behaviour of a disabling process that was ended manually, e.g. by a telegram from a push-button sensor. Inactive The disabling is revoked immediately. Active The disabling is revoked only after the set unlocking delay has elapsed. Additional parameters appear.	

Duration of unblocking delay	**0** … 59 min 0 … **15** … 59 s
This parameter is used to set the length of the unlocking delay in minutes and seconds. This parameter is visible only if the "Unlocking delay after manual unlocking" parameter is set to active and the "Day/night switchover" parameter is inactive on the General parameter page.	

(Duration of unblocking delay) At day	**0** … 59 min 0 … **15** … 59 s
This parameter is used to set the length of the unlocking delay in minutes and seconds. This parameter is visible only if the "Unlocking delay after manual unlocking" parameter is set to active and the "Day/night switchover" parameter is activated on the General parameter page.	

(Duration of unblocking delay) At night	**0** … 59 min 0 … **15** … 59 s
This parameter is used to set the length of the unlocking delay in minutes and seconds. This parameter is visible only if the "Unlocking delay after manual unlocking" parameter is set to active and the "Day/night switchover" parameter is activated on the General parameter page.	

Overwrite values in device after ETS programming	Inactive **Active**
If the disabling duration or the individual run-on time of the disabling function is to be overwritten in the device after an ETS programming operation, this parameter must be set to activated. The parameter is visible only if the "Disabling duration can be set via object" or "Individual run-on time can be set via object" parameter is activated.	

Object polarity	**0 = enable / 1 = disable** 0 = disable / 1 = enable
This parameter defines the telegram polarity of the disabling object. The parameter is visible only if the disabling function is enabled.	

Status object	**Inactive** Active
This parameter enables the object "Disabling function - Status", which is used to send the current status of the disabling function to the bus. A telegram is sent whenever a change is made: Default setting 0 = normal operation, 1 = disabling function active The parameter is visible only if the disabling function is enabled.	

Acknowledgement	**Inactive** Active
The deactivation of the disabling function can optionally take place using an additional 1-bit acknowledgement object. This prevents the deactivation of the disabling function by the disabling object. Parameter activated: The acknowledgement object is available. The disabling function can only be deactivated using the acknowledgement object by an ON telegram. OFF telegrams to the disabling object are ignored by the actuator. Parameter deactivated: No additional acknowledgement object is available. The disabling function can be deactivated via the disabling object by means of an "OFF" telegram. The parameter is visible only if the disabling function is enabled.	

13.7.2 "Disabling function" objects

Disabling function

Function	Name	Type	DPT	Flags
Disabling function - Activate/Deactivate	FB x - Input	1-bit	1,003	C, -, W, -, U
1-bit object used to activate and deactivate the disabling function. This is done independently of the other function blocks. The telegram polarity can be configured.				

Function	Name	Type	DPT	Flags
Disabling function - Status	FB x - Output	1-bit	1,003	C, R, -, T, A
1-bit object for feedback on whether the disabling function is activated or deactivated.				

Function	Name	Type	DPT	Flags
Disabling function - Acknowledgement	FB x - Input	1-bit	1,016	C, -, W, -, U
1-bit object used to acknowledge an active disabling function of an output. This object is visible only if the acknowledgement is to be used with the disabling function ("1" = disabling function is deactivated / "0" = disabling function remains active). It is no longer possible to deactivate the disabling function by means of the "Disabling function - Activate/Deactivate" object.				

Function	Name	Type	DPT	Flags
Disabling function - Disabling time	FB x - Input	2-byte	7,005	C, -, W, -, U
2-byte object used to set a disabling period in seconds. The disabling function is terminated automatically after this time has elapsed. This object is visible only if the "Unblock automatically" parameter is set to "After configured disabling time".				

Function	Name	Type	DPT	Flags
Disabling function - Disabling time - Status	FB x - Output	2-byte	7,005	C, R, -, T, A
2-byte object used to output the currently active disabling period in seconds.				

Function	Name	Type	DPT	Flags
Disabling function - Individual run-on time	FB x - Input	2-byte	7,005	C, -, W, -, U
2-byte object used to set a run-on time in seconds. The disabling function is automatically terminated at the end of the presence and the expiry of this time. This object is visible only if the "Unlock automatically" parameter is set to "At end of presence and individual run-on time".				

Function	Name	Type	DPT	Flags
Disabling function - Individual run-on time - Status	FB x - Output	2-byte	7,005	C, R, -, T, A
2-byte object used to output the currently active individual run-on time in seconds.				

13.8 Activity monitoring function

Activity monitoring

In brightness-independent operation, a function block can determine the time period after the last motion, depending on the configured operation, and transmit it to the bus by means of a communication object. This function, for example, allows simple monitoring of people's movements for example in assisted living or in a senior citizens' residence.
The function is activated if the parameter "Activity monitoring function" on the parameter page "FB x - General -> Enabled functions" is set to active in the ETS. However, the activity monitoring function is visible only if the "Functionality" parameter is set to brightness-independent on the parameter page FB x- General or the "Application" parameter is set to Presence detector - Heating/Ventilation/Cooling or Presence detector - Monitoring.

If this function is enabled, the device sends the current meter value to the bus when motion is detected and then sets the time meter to "0".
The meter value is always "0" during active motion or an ongoing run-on time. The time meter is started only immediately after the run-on time has elapsed. The meter starts with the value of the set run-on time. This ensures that the current meter value represents the period of time since the last time motion was detected.
The current meter value is tracked in the 2-byte communication object "Activity monitoring - Time since last motion" in "Seconds" data format in accordance with DPT 7.005.
As soon as the meter has reached the maximum value of "65,535", the meter stops until it is reset by a new motion detection process.

The meter is always reset and the time for cyclical transmission restarted if the function block is restarted (e.g. after ETS programming, after the bus voltage returns, after a function block switch-over, when deactivating the disabling function, after a walking test).

The device can also send the current meter reading cyclically to the bus. To do this, set the parameter "Transmit meter reading cyclically" to active on the parameter page "FB x- General -> Activity monitoring". The cycle time can be configured in the ETS.

The device cannot evaluate the time period after the last motion if the brightness threshold is configured to "Brightness-dependent" or "Auto ON, manual OFF" control mode is configured. In these cases, the function cannot be configured.

13.8.1 "Activity monitoring function" parameter

Function blocks (FB) -> FB x - General -> Activity monitoring

Transmit meter reading cyclically	**Active** Inactive
This parameter is used to define whether the meter reading is sent cyclically to the bus. Active The meter reading is sent automatically. The interval is defined with the "Cycle time" parameter. Inactive The parameter must be queried by means of a telegram to the object "Activity monitoring - Time since last motion".	

Cycle time	**0** … 23 h 0 **… 10** …59 min
This parameter is used to set the time interval at which the meter reading is automatically sent to the bus. Hours and minutes can be set for the cycle time. The shortest cycle time is 10 minutes. This parameter is visible only if the "Transmit meter reading cyclically" parameter is set to active	

13.8.2 "Activity monitoring function" objects

Function	Name	Type	DPT	Flags
Activity monitoring - Time since last movement	FB x - Output	2-byte	7,005	C, R, -, T, A
2-byte object containing the current meter reading of the measurement of the time period after the motion identified last in the "Seconds" data format. This object cyclically sends the current meter reading to the bus if cyclical transmission is activated. The cycle time can be configured in the ETS. The meter value is always "0" during active motion or an ongoing standard delay. As soon as the meter has reached the maximum value of "65,535", the meter stops until it is reset by a new motion detection process. This object is visible only if the activity monitoring function is activated in the ETS.				

13.9 Scenes

Up to 64 scenes can be called up in the function block 1 … 3, which can trigger disabling functions or manual operations only for the corresponding function block.
The scene values are called up by means of a separate scene extension object. The data point type of the extension object allows all scenes to be addressed.

Disabling function via scene call-up

Automatic mode is deactivated in the event of an active disabling process. The assigned outputs can be brought to a defined state at the beginning or end of the disabling function. The disabling function can be activated via the "Disable" object or by force after the bus voltage returns or after ETS programming.

- To activate and deactivate the disabling function by scene call-up, the disabling function must be enabled and configured for the corresponding function block.

- To use simple manual operation by calling up a scene, **"Manual operation" must be enabled and "Simple manual operation" configured**be.

- To use permanent manual operation by scene call-up, **"Manual operation" must be enabled and "Permanent manual operation" configured**be.

There are also parameters for delayed scene call-up with adjustable delay time and an extended scene call-up to call up scenes one after the other, optionally also with overflow.

13.9.1 "Scenes" parameter

Function blocks (FB) -> FB x - General -> Scenes

Delay scene recall	**Inactive** Active
A scene is called up by means of the object "Scenes - Scene extension units". The scene call-up can be delayed after receiving a call-up telegram (parameter activated) if necessary. Alternatively, the scene will be called immediately after receiving the telegram (parameter deactivated).	

Delay time	**0** … 59 min 0 … **10** … 59 s
This parameter is used to define the time by which the scenes are delayed after being called up. The setting is made in minutes and seconds.	

Extended scene call-up	**Inactive** Active
The extended scene call-up allows up to 64 scenes of the function block to be called up in sequence. The scene is called up here by means of the 1-bit communication object "Scenes - Scene recall". Each ON telegram received by means of this object calls up the next scene. Each OFF telegram received calls up the previous scene. This parameter enables the extended scene call-up, if necessary.	

With overflow	**Inactive** Active
The extended scene call-up can take place with or without overflow at the scene limits. An overflow occurs when the last scene of the selected configuration is reached when counting up or scene 1 when counting down and an additional telegram is received in the last counting direction. **Active:** After reaching the last scene of the selected configuration, a further ON telegram of the overflow is executed and scene 1 is called up. Similarly, after reaching scene 1, the overflow is executed by another OFF telegram and the last scene of the selected configuration is called up. **Inactive:** A scene overflow is not possible. After reaching the last scene of the selected configuration, another ON telegram of the extended scene call-up will be ignored. In the same way, further OFF telegrams are ignored if scene 1 was called up last. This parameter is visible only if the extended scene call-up is used.	

Scene configuration	**Variable (1...64 scenes)** Fixed (64 scenes)
The scene configuration selected here decides whether the number of scenes is variable (1 ... 64) or alternatively fixed to the maximum (64). **Variable (1...64 scenes):** In this setting, the number of scenes used can be selected anywhere within a range of 1 to 64. The "Number of scenes" parameter decides how many scenes are visible in the ETS and can therefore be used. It is possible to specify which scene number (1 ... 64) controls each scene. **Fixed (64 scenes)**: In this setting, all scenes are always visible and can therefore be used. The scenes are actuated by means of permanently assigned scene numbers (1 ... 64) (scene number 1 -> scene 1, scene number 2 -> scene 2...). Individual scenes can be deactivated if necessary. To do this, remove the tick from the corresponding scene under "Scene active".	

Number of scenes	1...**10**...64
This parameter defines how many scenes are visible for the function block in the ETS and can therefore be used. This parameter is visible only if the "Scene configuration" parameter is set to variable (1…64 scenes)	

Scene number	0...**1***...64 *: The predefined scene number depends on the scene (1...64).
It is possible to set which scene number (1 ... 64) actuates each scene. A setting of "0" deactivates the corresponding scene to prevent it from being called up or stored. If the same scene number is configured for several scenes, only the scene with the lowest sequential number will be addressed. In this case, the other scenes will be ignored. This parameter is visible only if the "Scene configuration" parameter is set to variable (1…64 scenes).	

Function	**Activate disabling** Deactivate disabling Simple manual operation - As with ON Simple manual operation - As with OFF Permanent manual operation - As with ON Permanent manual operation - As with OFF Permanent manual operation - Deactivate

This parameter is used to defines the function that is executed when the scene is called up.

Select the following settings only if the "Disabling function" has been enabled and configured:

Activate disabling: When the scene is called up, a telegram is sent to the object "Disabling function - Activate/Deactivate", which activates the disabling function. If configured, the function block sends the telegram at the "Start of disabling". Automatic mode is deactivated. This state is maintained until disabling is deactivated again. This can be done by a telegram or automatically if configured.
Deactivate disabling: When the scene is called up, a telegram is sent to the object "Disabling function - Activate/Deactivate", which deactivates the disabling function. If configured, the function block sends the "End of disabling" telegram. Automatic mode is active again.

Select the following settings only if "Manual operation" has been enabled and "Simple manual operation" has been configured:

Simple manual operation - As with ON: When this scene is called up, an ON telegram is sent to the object "Manual operation - Simple". The function block behaves in the same way as with operation via an extension unit. This function is not available for use as a "Presence detector - Monitoring".
Simple manual operation - As with OFF: When the scene is called up, an OFF telegram is sent to the object "Manual operation - Simple". The function block behaves in the same way as with operation via an extension unit. This function is not available for use as a "Presence detector - Monitoring".

Select the following settings only if "Manual operation" has been activated and "Permanent manual operation" has been configured:

Permanent manual operation - As with ON: When the scene is called up, an ON telegram is sent to the object "Manual operation - Permanent". The configured behaviour at "Start of detection" is executed regardless of the brightness and motion. Automatic mode is stopped. The evaluation of movements and brightness is disabled. This function is not available for use as a "Presence detector - Monitoring".
Permanent manual operation - As with OFF: An OFF telegram is sent when the scene is called up. The configured behaviour at the "End of detection" is executed. This also takes place if the run-on time has not yet expired. Automatic mode is stopped. The evaluation of movements and brightness is disabled. This function is not available for use as a "Presence detector - Monitoring".
Permanent manual operation - Deactivate: Permanent manual operation is deactivated when the scene is called up. The disabling is revoked and automatic mode is reactivated. This function is not available for use as a "Presence detector - Monitoring".

13.9.2 "Scenes" objects

Function	Name	Type	DPT	Flag
Scenes - Scene extension unit	FB x - Input	1-byte	17,001	C, -, W, -, U
1-byte object used to call up, switch or save one of a maximum of 64 scenes from a scene extension unit. This object is visible only if the scene function for the function block is activated in the ETS.				

Function	Name	Type	DPT	Flag
Scenes - Extended scene recall	FB x - Input	1-bit	1,001	C, -, W, -, U
1-bit object for extended scene call-up. Each ON telegram received calls up the next scene in sequence. Each OFF telegram received calls up the previous scene. An ON or OFF telegram always calls up scene 1 first after a reset (bus voltage return, ETS programming operation). This object is visible only if the scene function and the extended scene call-up are activated for the function block in the ETS.				

13.10 Application examples

Single device for lighting control with manual operation

Application example:
Push-button sensor on the entrance door of a storage room outside the detection field of the device. When entering the room, the lighting should be switched on user-guided even before the PIR detection field is entered.

Alternative application:
Central switch-on of the lighting devices in an office building in the case of service or cleaning. Automatic switch-off if there are no more motion detections.

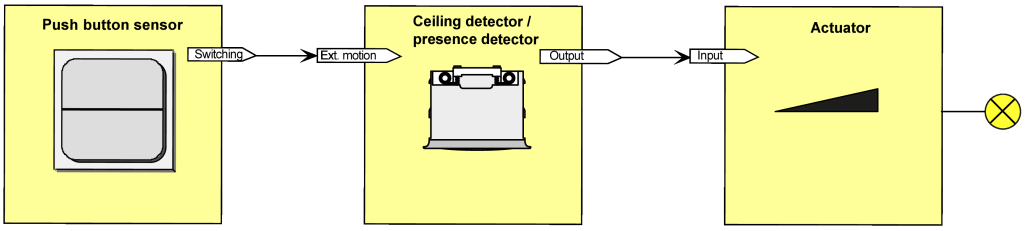


Figure 30: Application example of single device with external motion detection

The switching object of the push-button sensor goes to the object "Simple manual operation" of the presence detector and forces the lighting to be switched on with an ON telegram. After manual activation, the device works in a presence- and brightness-dependent manner. The automatic function is active and will automatically switch off the switched-on lighting again at the end of motion detection (if configured accordingly). Sending an OFF telegram to the "Simple manual operation" object causes the lighting to be switched off directly.

Main and extension unit arrangement for lighting control without brightness evaluation

Application example:
Lighting is to be activated in a room without daylight.

Configuration of main unit and extension unit:
Functionality = brightness-independent

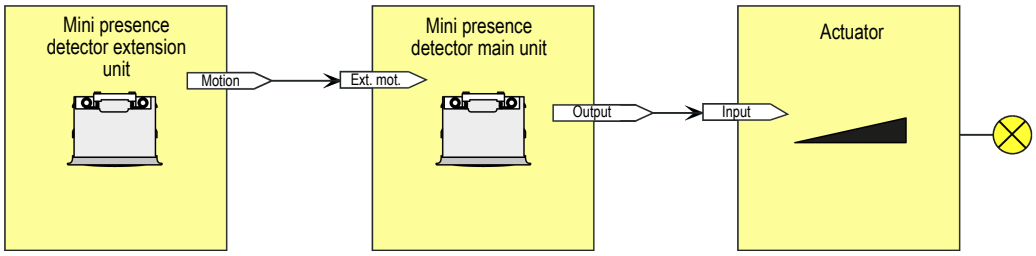


Figure 31: Main and extension unit application example

The system is configured so that no brightness evaluation takes place. Consequently, each motion detection of the main unit and extension unit always results in a telegram output or retriggering of the run-on time in the main unit.

Main and extension unit arrangement for brightness-dependent lighting control at the main unit

Application example:
Presence detector main unit with one or more presence detector extension units in a passageway area with daylight. The main unit is mounted optimally so that the daylight can be detected reliably by the brightness sensor of the device. A brightness evaluation on the extensions is not necessary.

Main unit configuration:
Functionality = brightness-dependent

Extension unit configuration:
Functionality = brightness-independent

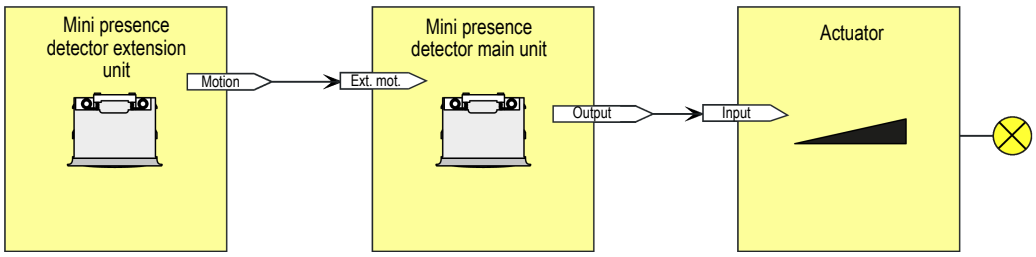


Figure 32: Main and extension unit application example with brightness evaluation in the main unit

The system is configured so that the brightness in the room is only detected at the location of the main unit and compared with the brightness threshold set there. The brightness conditions on the extensions are irrelevant for the control of the lighting conditions. The external motion signal is subject to the brightness evaluation of the main unit. If it is bright enough on the main unit, motion telegrams of the extensions are discarded.

Main and extension unit arrangement for lighting control with brightness evaluation in the main unit and all extension units

Application example:
Presence detector main unit with one or more presence detector extension units in a staircase or large storage room with various daylight conditions. The devices are mounted on different floors or in different room areas and detect the daylight condition independently of each another.

Main unit configuration:
Functionality = brightness-dependent

Extension unit configuration:
Functionality = brightness-dependent

The system is configured so that motion as well as brightness are detected and evaluated at every location (main unit and extensions). The distributed brightness measurement and brightness evaluation is used for controlling the lighting conditions. The motion detectors of the extension units are not explicitly subjected only to the brightness evaluation of the main unit. Thus, each motion telegram results in the triggering

of a telegram at the beginning of the detection or in the retriggering of the run-on time.
In this application example, the brightness evaluation must be controlled between the main unit and extensions. When a movement is detected (regardless of the location), the lighting is switched on brightness dependently. Until the run-on time has elapsed, the brightness evaluation in the main unit and at **all** extension units must be brightness-independent. This ensures that longer-lasting motion processes can still be detected further on by all extensions whereby the retriggering of the run-on time can take place in the main unit. To do this, the main unit must set the mode of operation in the extension units to "Brightness-independent" at the start of a detection process and reset it to "Brightness-dependent" after the run-on time has elapsed.
The control of the functionality in the extension units must take place differently depending on the configured output function. This is shown by the following application examples...

Example of Output Function "Switching" (KNX Master Slave Solution 1)

In this example, the brightness evaluation of the extension units is deactivated and activated by the switching output telegram of the main unit. The "Brightness-independent operation - Activate/Deactivate" objects of the extension units can be linked to the same group address as the "Output x - Switching" object of the main unit.

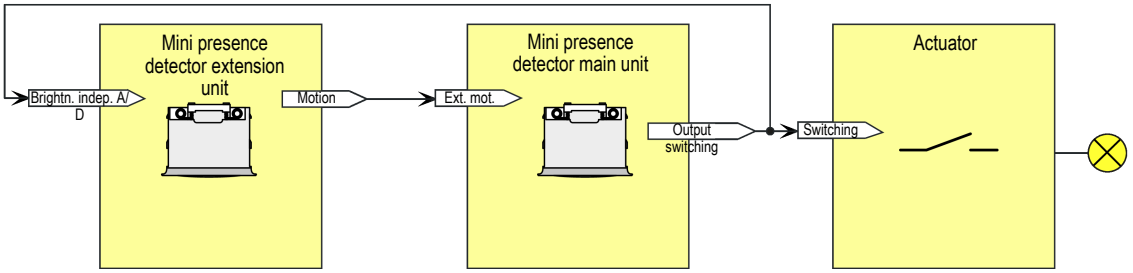


Figure 33: Application example with brightness evaluation in the main unit and extensions for the data format "Switching"

Case A - Motion is detected by the main unit:
Beginning of the detection: After a motion is detected by the main unit, it transmits an ON telegram to the switch actuator if the brightness threshold is fallen below so that the lighting is switched on. All extensions receive this ON telegram on their input "Brightness-independent operation - Activate/Deactivate" whereby the extensions switch over to the brightness-independent motion detection and are thus able to detect artificial light if it is now switched on in their own detection field.
End of the detection: After the run-on time has elapsed in the main unit, it transmits an OFF telegram to the switch actuator so that the lighting is switched off. This OFF telegram is received by all extension units at the "Brightness-dependent operation - Activate/Deactivate" input, resulting in them switching back to brightness-dependent motion detection.

Case B - Motion is detected by an extension unit:
Beginning of detection: After a motion is detected by an extension unit, it transmits motion telegrams cyclically to the main unit via the object "Motion" if the brightness threshold is fallen below. The main unit evaluates the external motion and transmits

an ON telegram to the switch actuator so that the lighting is switched on. All extension units receive this ON telegram on their input "Brightness-independent operation - Activate/Deactivate" whereby all extension units switch over to the brightness-independent motion detection and are thus able to detect artificial light if it is now switched on in their own detection field.
End of the detection: If no motion is detected anymore by an extension unit within its own detection field, the device concerned no longer transmits any motion telegrams to the main unit. As soon as motion is no longer detected by any extension unit, there are no longer any motion telegrams. The main unit identifies the absence of external motion telegrams and starts the run-on time if the main unit no longer detects any movement. After the run-on time has elapsed, the main unit transmits an OFF telegram to the switch actuator so that the lighting is switched off. This OFF telegram is received by all extension units at your "Brightness-dependent operation - Activate/Deactivate" input, resulting in them switching back to brightness-dependent motion detection.

Example of output functions "Switching", "Switching with forced position", "Dimming value transmitter", "Scene extension unit" and "Brightness value transmitter" (general solution for the lighting control)

In this example, the brightness evaluation of the extension units is deactivated and activated by the main unit by means of the "Brightness-independent operation - Activate/Deactivate" output object. This data format-independent universal solution is not only restricted to the output function Switching. A separate group address must be used for the brightness evaluation control.

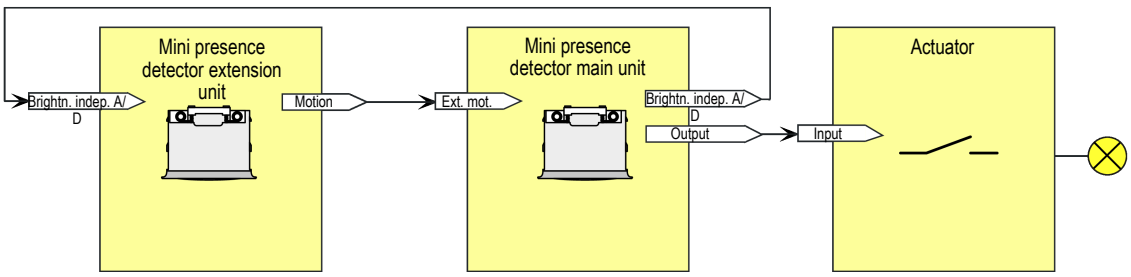


Figure 34: Application example with brightness control
in the main unit and extensions
Universal solution for all data formats

Case A - Motion is detected by the main unit:
Start of detection: After motion is detected by the main unit, it transmits an ON telegram by means of the output object to the switch actuator if the brightness threshold is fallen below so that the lighting is switched on. Furthermore, the main unit transmits an ON telegram via the object "Brightness-independent operation - Activate/Deactivate" to all extension units, whereby they switch over to the brightness-independent motion detection and are thus able to detect artificial light if it is now switched on in their own detection field.
End of the detection: After the run-on time has elapsed in the main unit, it transmits an OFF telegram via the output object to the switch actuator so that the lighting is

switched off. It also sends an OFF telegram by means of the "Brightness-independent operation - Activate/Deactivate" object to all extension units, resulting in them switching back to brightness-dependent motion detection.

Case B - Motion is detected by an extension unit:
Beginning of detection: After a motion is detected by an extension unit, it transmits motion telegrams cyclically to the main unit via the object "Motion" if the brightness threshold is fallen below. The main unit evaluates the external motion and transmits an ON telegram to the switch actuator via the output object so that the lighting is switched on. Furthermore, the main unit transmits an ON telegram via the object "Brightness-independent operation - Activate/Deactivate" to all extension units, whereby they switch over to the brightness-independent motion detection and are thus able to detect artificial light if it is now switched on in their own detection field.
End of the detection: If no motion is detected anymore by an extension unit within its own detection field, the device concerned no longer transmits any motion telegrams to the main unit. As soon as motion is no longer detected by any extension unit, there are no longer any motion telegrams. The main unit detects the absence of external motion telegrams and starts the run-on time if the main unit does not detect any motion either. After the run-on time has elapsed, the main unit transmits an OFF telegram to the switch actuator via the output object so that the lighting is switched off. The main unit also sends an OFF telegram by means of the "Brightness-independent operation - Activate/Deactivate" object to all extension units, resulting in them switching back to brightness-dependent motion detection.

Example of Output Function "Staircase function" (KNX Master Slave Solution 2)

In the staircase function, the staircase time of the lighting is configured in the KNX actuator. In this case, the main unit transmits ON telegrams cyclically to the actuator to switch on the lighting for the duration of the motion and the configured run-on time. If no motion is detected anymore, the main unit transmits no more telegrams to the actuator. In the absence of the ON telegrams, the staircase time in the actuator is no longer retriggered. After the staircase time has elapsed, the actuator switches off the lighting again.
Even with the output function "Staircase function", the brightness threshold must be controlled between main and extension unit(s). The brightness evaluation is deactivated and activated by means of the "Brightness-independent operation - Activate/Deactivate" object. This object is present at the main unit as an input and as an output. The status of the actuator informs the main unit by means of the input object about when the lighting is switched on or off. This information is then transmitted to all extension units by means of the output object so that all presence detectors work brightness-independently when the lighting is switched on and brightness-dependently when the lighting is switched off.

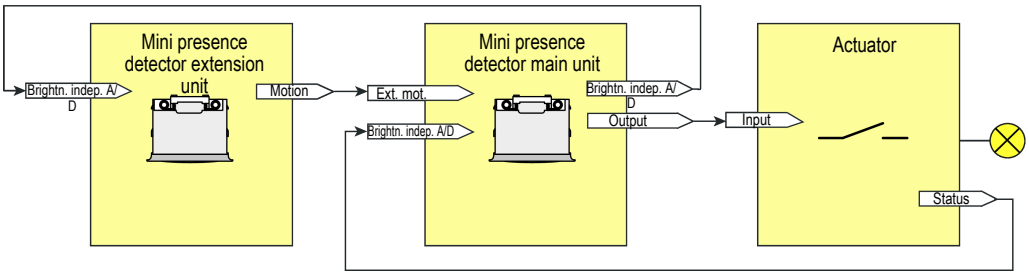


Figure 35: Application example with brightness evaluation in the main unit and extensions for output function "Staircase function"

Motion is detected by the main unit or the extension unit:
Beginning of detection: After a motion is detected by the main unit or extension unit, the main unit transmits ON telegrams cyclically (cycle time = parameter "Time for cyclical transmission") to the switch actuator via the output object if the brightness threshold is fallen below so that the lighting is switched on. The actuator sends its status to the main unit, which switches to brightness-independent motion detection and forwards this information to all extension units by means of the "Brightness-independent operation - Activate/Deactivate" object.
End of detection: At the end of the run-on time after the last detected movement, the main unit no longer sends any ON telegram to the switch actuator, so that the lighting is switched off after the staircase time has elapsed. The main unit switches back to brightness-dependent operation due to the changed status of the actuator and also forwards this information to all extension units.

Main and extension unit arrangement for controlling lighting-independent systems without brightness evaluation

Application example:
In the lighting-independent output functions, the motion detection in the main units and extensions is normally brightness-independent. Presence detector main unit with one or more presence detector extensions in an office with various daylight conditions

Configuration of main unit and extension unit:
Functionality = brightness-independent

The system is configured so that motion is detected and evaluated at every location (main unit and extensions). The distributed motion evaluation is used for controlling lighting-independent systems (e.g. room temperature control -> operating mode switchover, setpoint presetting, presence signal). The motion detectors of the extension units are subjected explicitly to the evaluation of the main unit. Thus, each motion telegram results in the triggering of a telegram at the beginning of the detection or in the retriggering of the run-on time.

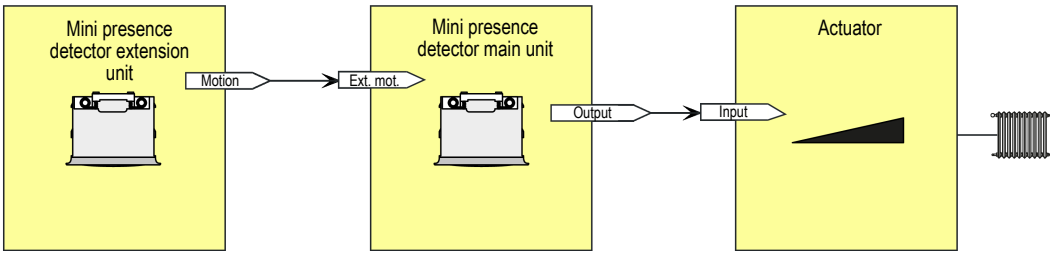


Figure 36: Application example without brightness evaluation in the main unit and extensions

Case A - Motion is detected by the main unit:
Beginning of the detection: After the main unit detects a motion, it transmits the telegram to the controller or actuator at the beginning of the detection and triggers actions accordingly (e.g. comfort mode, raised setpoint).
End of detection: After the run-on time has elapsed in the main unit, it transmits the telegram to the controller or actuator at the end of the detection and retriggers actions (e.g. standby mode, lowered setpoint).

Case B - Motion is detected by an extension unit:
Beginning of the detection: After a motion is detected by an extension unit, it transmits motion telegrams cyclically to the main unit via the object "Motion". It detects the external motion and transmits the corresponding telegram to the controller or actuator and triggers actions accordingly (e.g. comfort mode, raised setpoint).
End of the detection: If no motion is detected anymore by an extension within its own detection field, the extension unit no longer transmits any motion telegrams to the main unit. As soon as each of the extensions no longer detect motion, motion telegrams are completely absent. The main unit identifies the absence of external motion telegrams and starts the run-on time. After the run-on time has elapsed, the main unit sends the corresponding telegram to the controller or actuator by means of the output object and triggers actions (e.g. standby mode, lowered setpoint).

14 Brightness limit value

The device has a brightness limit value that is continuously compared with the brightness value determined. If a limit value configured in the ETS or predefined externally is exceeded or fallen below, the device can transmit switching, dimming value or scene call-up telegrams to the bus and thus trigger appropriate reactions in other bus subscribers.
The "Function brightness limit value" must be enabled in the ETS on the "General" parameter page so that the function can be configured and used. To do this, set the "Brightness limit value" parameter to active.

Output functions

The limit value has its own output object
The output can be configured to one of the following data formats by the "Function" parameter:

- "Switching" function:
  1-bit switching telegrams (ON/OFF) can be output.
- "Dimming value" function:
  It is possible to output 1-byte dimming value telegrams (0...100%).
- "Scene extension unit" function:
  It is possible to execute a 1-byte scene call-up (0...64) in another bus subscriber by means of the output object of a limit value.

14.1 Limit value definition

A brightness limit value to be monitored always consists of an upper and lower brightness threshold. The brightness thresholds are assigned by means of a limit value and hysteresis derived relatively from the limit value. The type of limit value (upper or lower threshold) must be preset accordingly by the parameter "Brightness limit value corresponds to".
A limit value output can transmit a telegram if the brightness value exceeds the upper threshold and/or is below the lower threshold, depending on the configuration.

The limit value is configured in the ETS and can be changed during operation of the device either by an external specification by means of the 2-byte object "Brightness limit value" or by the teach-in function.
The hysteresis is a static value that is configured in the ETS. The hysteresis cannot be adapted during operation of the device. The device recalculates the hysteresis automatically if a new brightness limit value is specified.

Example of a limit value definition:
1. Brightness limit value = upper threshold (see figure 37)
-> Lower threshold = Brightness limit value - Hysteresis

2. Brightness limit value = lower threshold (see figure 38)
-> Upper threshold = brightness limit value + hysteresis

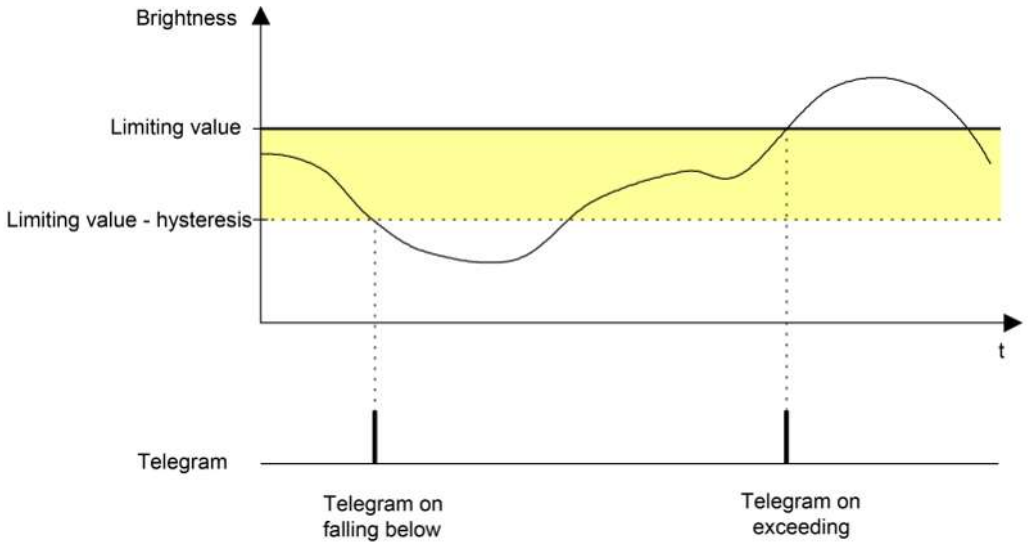


Figure 37: Example 1 of the limit value definition
Limit value is upper threshold

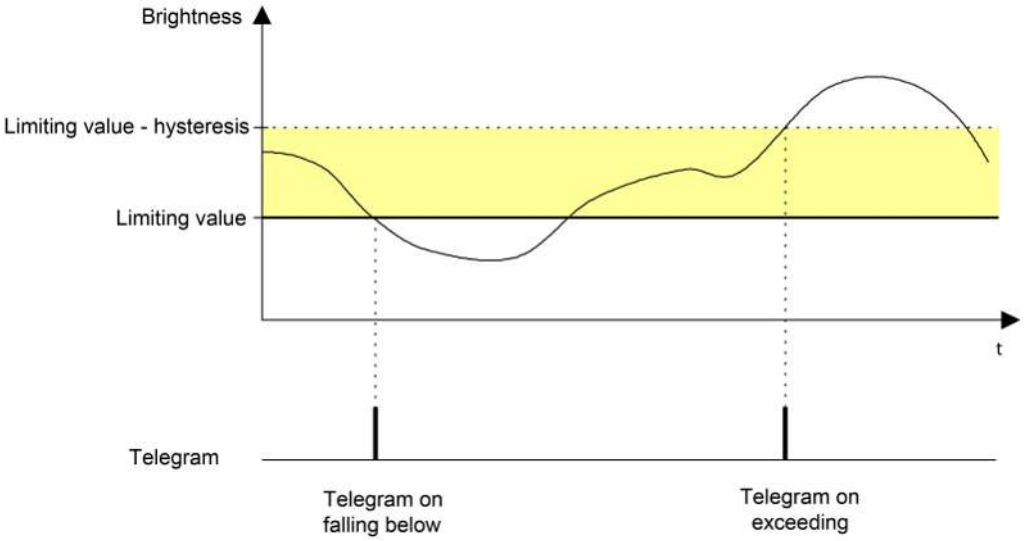


Figure 38: Example 2 of the limit value definition
Limit value is lower threshold

14.2 Limit value specification

During ongoing operation of the device, the brightness limit value can be changed by an external presetting of a 2-byte brightness value by means of the object "External brightness limit value" or by the teach-in function and thus adapted to meet the user requirements.

The 2-byte object "Brightness limit value status" can be used to report back the limit value evaluated by the device. This object can be configured with a group address if the "Brightness limit value status object" parameter is set to "Active".
The feedback can optionally take place actively or passively (object is readable). In

the function as an active signalling object, the current value is transmitted once automatically to the bus each time the brightness limit value is changed, after ETS programming or after the bus voltage returns (optionally delayed).

External specification of the brightness limit value

The brightness limit value is reset in the device in accordance with DPT 9.004 by transmitting a 2-byte brightness value to the object "External brightness limit value". The relative hysteresis value configured in the ETS results in a new value for both brightness thresholds, depending on the type of limit value definition. The new limit value remains unchanged until a new specification is received (externally by means of an object or the teach-in function). An ETS programming operation resets a limit value automatically to the ETS presettings if this is provided for in the configuration (see below).

A limit value set by means of the 2-byte object will be lost during execution of the teach-in function (see below).

Teach-in function

The teach-in function is another option for the external specification of a limit value. The teach-in function is used to instantly apply the currently measured brightness value by transmitting a corresponding telegram to the 1-bit object "Limit value - Teach-in" as a new limit value. The relative hysteresis value configured in the ETS results in a new value for both brightness thresholds, depending on the type of limit value definition.
The limit value teach-in object can be configured if the "Teach-in function" parameter is set to "Active" on the parameter page "BLV x - General". The polarity of a teach-in telegram can be configured with the "Functionality" parameter. It is possible to reset to the configured limit value upon receiving the opposite object value (teach-in function inactive), depending on the configuration. The limit value previously learned will be lost in the process. If, however, the teach-in function is configured actively to "1" and "0", it will not be possible anymore to reset to the configured limit value by means of this object during ongoing operation of the device! The new limit value set with the teach-in function is maintained until a new specification (externally by object or new teach-in process) is received. An ETS programming operation resets a limit value automatically to the ETS presettings if this is provided for in the configuration (see below).

A limit value previously set by means of the 2-byte object will be lost if the teach-in function is executed. With the "Teach-in inactive" command, the brightness limit value programmed by the ETS is always switched over to.

The brightness limit value is saved each time several telegrams of the same polarity are received in succession at the teach-in object with the "Teach-in active" command.

Limit value specification with ETS programming

The parameter "Overwrite brightness limit value during ETS programming in device" determines whether an active limit value previously set by an external object specification or by the teach-in function is overwritten by the limit value configured in the ETS

during ETS programming. In the "Active" setting, the last value that was specified externally or by the teach-in function and is still active is replaced automatically by the ETS specification. If the setting is "Inactive", the last limit value specified externally or by the teach-in function still remains active even after ETS programming.

The device always works with the ETS configured value if the parameter "Overwrite brightness limit value during ETS programming in device" is set to "Inactive" and - if provided for in the configuration - no external specification has been made yet by means of the 2-byte object or by the teach-in function after the initial ETS commissioning. The ETS parameter becomes invalid in the afore-mentioned configuration only after an external presetting or after a teach-in process.

A bus voltage failure does not reset limit values specified by the 2-byte object or by the teach-in function. The disabling function has no effect on the external specification of a new limit value.

14.3 "General" parameters

Limit brightness values -> BLV x - General

The following parameters are present for each limit value (1...3) separately.

Designation	Free text Max. 40 characters long text
This parameter assigns a name to the brightness limit value for identification. The name serves merely as an aid in the ETS and is not programmed into the device.	

Brightness source

Brightness measurement by	**Internal sensor** External value via bus Internal sensor and external value via bus
The "Brightness measurement by" parameter specifies which sensors are used to determine the brightness. "Internal sensor": The sensor integrated in the device is activated. The brightness value is therefore determined only locally on the device. "Internal sensor and external value via bus": In these settings, the selected sources are combined with each other. The "External value via bus" is a telegram by means of the 2-byte object "Brightness value - External" from a connected KNX brightness sensor or device with brightness detection.	

Weighting of measured values	10% to 90% 20% to 80% 30% to 70% 40% to 60% **50% to 50%** 60% to 40% 70% to 30% 80% to 20% 90% to 10%
The weighting of the measured brightness value of the internal and external value is defined via the bus here. This results in an overall value, which will be used for the further interpretation of the brightness. This parameter is visible only with "Brightness measurement by = "Internal sensor and external value via bus"!	

"Brightness value" status object	Active **Inactive**
The determined brightness value is sent to the bus by sending a brightness value to the 2-byte object "Brightness value - Status", which can be enabled by this parameter. The value is output in lux.	

Brightness limit value

Brightness limit value corresponds to	Upper threshold **Lower threshold**
A brightness limit value to be monitored always consists of an upper and lower brightness threshold. The brightness thresholds are assigned by means of a brightness limit value and hysteresis derived relatively from the brightness limit value. The type of brightness limit value (upper or lower threshold) must be specified accordingly here. Example of brightness limit definition: 1. Brightness limit value = Upper threshold -> Lower threshold = Brightness limit value - Hysteresis 2. Brightness limit value = upper threshold -> Lower threshold = brightness limit value + hysteresis	

Lower threshold	10...**1000**...2,000
The limit value (lower threshold) is configured here. This parameter is visible only if the limit value is the lower threshold. The setting is made in lux.	

Upper threshold	+1 %...**+10 %**...+20 % in 1% increments
If the limit value is the lower threshold, the upper threshold is defined by the hysteresis that can be configured here. This parameter is visible only if the limit value is the lower threshold.	

Upper threshold	10...**1000**...2,000
The limit value (upper threshold) is configured here. This parameter is visible only if the limit value is the upper threshold. The setting is made in lux.	

Lower threshold	-1 %...**-10 %**...-20 % in 1% increments
If the limit value is the upper threshold, the lower threshold is defined by the hysteresis that can be configured here. This parameter is visible only if the limit value is the upper threshold.	

Brightness value can be set via object	Active **Inactive**
The brightness limit value is reset in the device by transmitting a brightness value to the 2-byte object "Brightness limit value" in accordance with DPT 9.004, which can be enabled by this parameter. The relative hysteresis value configured in the ETS results in a new value for both brightness thresholds. The new limit value remains unchanged until a new specification is received (externally by means of an object or the teach-in function). An ETS programming operation resets a limit value automatically to the ETS presettings if this is provided for in the configuration.	

Teach-in function	Active **Inactive**
The teach-in function is used to adopt the brightness value currently measured as the new limit value without delay by sending a corresponding telegram to the 1-bit object "Brightness limit value - Teach-in". The relative hysteresis value configured in the ETS results in a new value for both brightness thresholds. The teach-in object can be configured if this parameter is set to "Active".	

Functionality	**0 = inactive / 1 = active** 0 = active / 1 = inactive 0 = active / 1 = active
The polarity of a teach-in telegram can be configured with this parameter. It is possible to switch back to the configured limit value upon receiving the opposite object value (teach-in inactive), depending on the configuration. The limit value previously learned will be lost in the process. If, however, the teach-in function polarity is configured actively to "1" - and "0" - it will not be possible anymore to switch back to the configured limit value by means of this object during ongoing operation of the device! This parameter is visible only if the teach-in function is active.	

Status object, brightness limit value	Active **Inactive**
This parameter enables the 2-byte object "Brightness limit value - Status", which can be used to send the brightness limit value of the device to the bus.	

Overwrite brightness limit value during ETS download in the device	**Active** Inactive
This parameter determines whether an active limit value previously set by an external object specification or teach-in function is overwritten by the limit value configured in the ETS during ETS programming. In the "Active" setting, the last value that was specified externally or by the teach-in function and is still active is replaced automatically by the ETS specification. If the setting is "Inactive", the last limit value specified externally or by the teach-in function still remains active even after ETS programming. The device always works with the value configured in the ETS if this parameter is set to "Inactive" and - as provided for in the configuration - no external presetting has been made yet by means of the 2-byte object "Brightness limit value" or by the teach-in function after the initial ETS commissioning. The ETS parameter becomes invalid in the afore-mentioned configuration only after an external presetting or after a teach-in process.	

Commands

Function	**Switching** Dimming value transmitter Scene extension unit
The limit value can be configured to a specific data format by this parameter. "Switching" 1-bit switching telegrams (ON/OFF) are output. "Dimming value transmitter" 1-byte dimming value telegrams (0...100%) are output. "Scene extension unit" 1-byte scene call-ups (0...64) are output.	

A brightness limit value output can transmit a telegram if the brightness value exceeds the upper threshold and/or does not reach the lower threshold, depending on the configuration. The following parameters define when and which telegram the corresponding channel output is to send.

If upper threshold is exceeded (switching)	**No reaction** ON telegram OFF telegram
This parameter defines the switching command, that is transmitted to the bus when the upper brightness limit value is exceeded. The parameter is visible only if the function of the brightness limit value is configured to "Switching" and a telegram is to be sent when it is exceeded and the "Day/night switchover" parameter is set to inactive on the "General" parameter page.	

(If upper switching threshold is exceeded) At day	**No reaction** ON telegram OFF telegram
This parameter is used to define the switching command that is sent to the bus when the upper brightness limit value is exceeded for day mode. The parameter is visible only if the function of the brightness limit value is configured to "Switching", a telegram is to be sent when it is exceeded and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(Switching if upper threshold is exceeded) At night	**No reaction** ON telegram OFF telegram
This parameter is used to define the switching command that is sent to the bus when the upper brightness limit value is exceeded for night mode. The parameter is visible only if the function of the brightness limit value is configured to "Switching", a telegram is to be sent when it is exceeded and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

If value falls below lower threshold (switching)	**No reaction** ON telegram OFF telegram
This parameter defines the switching command that is transmitted to the bus when the lower threshold is not reached. The parameter is visible only if the brightness limit value function is configured to "Switching", a telegram is to be sent when the value falls below it and the "Day/night switchover" parameter is set to inactive on the "General" parameter page.	

(If value falls below lower switching threshold) At day	**No reaction** ON telegram OFF telegram
This parameter defines the switching command, that is transmitted to the bus if the lower threshold is not reached for day operation. The parameter is visible only if the function of the brightness limit value is configured to "Switching", a telegram is to be sent when the value falls below it and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(If value falls below lower switching threshold) At night	**No reaction** ON telegram OFF telegram
This parameter defines the switching command, that is transmitted to the bus when the lower threshold is not reached for night operation. The parameter is visible only if the function of the brightness limit value is configured to "Switching", a telegram is to be sent when the value falls below it and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

If upper threshold is exceeded (dimming value transmitter)	**No reaction** Send dimming value
This parameter is used to define whether a dimming value is to be sent to the bus when the upper brightness limit value is exceeded. The parameter is visible only if the brightness limit value function is configured to "Dimming value transmitter".	

If value falls below lower threshold (dimming value transmitter)	**No reaction** Send dimming value
This parameter defines whether a dimming value is to be sent to the bus when the brightness falls below the lower brightness limit value. The parameter is visible only if the brightness limit value function is configured to "Dimming value transmitter".	

(If upper threshold is exceeded) dimming value	0...**100%**
This parameter is used to define the dimming value that is sent to the bus when the upper brightness limit value is exceeded. The parameter is visible only if the function of the brightness limit value is set to "Dimming value transmitter", the parameter "When the upper threshold is exceeded" is to be sent a "Dimming value and the "Day/night switchover" parameter is set to inactive on the "General" parameter page.	

(If upper threshold is exceeded) At day	0...**100%**
This parameter is used to define the dimming value that is sent to the bus when the upper brightness limit value is exceeded for day operation. The parameter is visible only if the function of the brightness limit value is set to "Dimming value transmitter", the parameter "If upper threshold is exceeded" is to be sent a dimming value and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(If dimming value upper threshold is exceeded) At night	0...**100%**
This parameter is used to define the dimming value that is sent to the bus when the upper brightness limit value is exceeded for night operation. The parameter is visible only if the brightness limit value function is configured to "Dimming value transmitter", the "If upper threshold is exceeded" parameter is configured to "Send dimming value" and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(If value falls below lower threshold) Dimming value	0...**100%**
This parameter is used to define the dimming value that is sent to the bus when the brightness falls below the lower brightness limit value. The parameter is visible only if the brightness limit value function is configured to "Dimming value transmitter", the parameter "Send dimming value when falling below the lower threshold" is configured to "Send dimming value" and the "Day/night switchover" parameter is set to inactive on the "General" parameter page.	

(If value falls below lower threshold) At day	0...**100%**
This parameter is used to define the dimming value that is sent to the bus when the brightness falls below the lower brightness limit value for day operation. The parameter is visible only if the brightness limit value function is configured to "Dimming value transmitter" and the parameter "If value falls below lower threshold" is configured to "Send dimming value" and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(If value falls below lower dimming value threshold) At night	0...**100%**
This parameter is used to define the dimming value that is sent to the bus when the brightness falls below the lower brightness limit value for night operation. The parameter is visible only if the brightness limit value function is configured to "Dimming value transmitter" and the parameter "If value falls below lower threshold" is configured to "Send dimming value" and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

If upper threshold is exceeded (scene extension unit)	**No reaction** Send scene number
This parameter defines whether a scene call-up command is transmitted to the bus when the upper threshold is exceeded. The parameter is visible only if the brightness limit value function is configured to "Scene extension unit".	

If value falls below lower threshold (scene extension unit)	**No reaction** Send scene number
This parameter defines whether a scene call-up command is to be transmitted to the bus when falling below the lower threshold. The parameter is visible only if the brightness limit value function is configured to "Scene extension unit".	

(If upper threshold is exceeded) scene number	**1**...64
This parameter defines the scene number for the scene call-up command, which is transmitted to the bus when the upper brightness limit value is exceeded. The parameter is visible only if the function of the brightness limit value is configured to "Scene extension unit", the parameter "If upper threshold is exceeded" is configured to "Send scene number" and the parameter "Day/night switchover" is set to inactive on the "General" parameter page.	

(If upper threshold is exceeded, scene number) At day	**1**...64
This parameter defines the scene number for the scene call-up command, which is transmitted to the bus if the upper brightness limit value is exceeded for day operation. The parameter is visible only if the brightness limit value function is configured to "Scene extension unit", the "If upper threshold is exceeded" parameter is configured to "Send scene number" and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(If upper threshold is exceeded, scene number) At night	**1**...64
This parameter defines the scene number for the scene call-up command, which is transmitted to the bus if the upper brightness limit value is exceeded for night operation. The parameter is visible only if the brightness limit value function is configured to "Scene extension unit", the "If upper threshold is exceeded" parameter is configured to "Send scene number" and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(If value falls below lower threshold) scene number	**1**...64
This parameter defines the scene number for the scene call-up command, which is transmitted to the bus if the lower threshold is not reached. The parameter is visible only if the brightness limit value function is configured to "Scene extension unit", the parameter "Send scene number if lower brightness limit value is not reached" is configured to "Send scene number" and the "Day/night switchover" parameter is set to inactive on the "General" parameter page.	

(If value falls below lower threshold, scene extension unit) At day	**1**...64
This parameter defines the scene number for the scene call-up command, which is transmitted to the bus if the lower threshold is not reached for day operation. The parameter is visible only if the brightness limit value function is configured to "Scene extension unit", the parameter "Send scene number if lower brightness limit value is not reached" is configured to "Send scene number" and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

(If value falls below lower threshold, scene extension unit) At night	**1**...64
This parameter defines the scene number for the scene call-up command, which is transmitted to the bus if the lower threshold is not reached for night operation. The parameter is visible only if the brightness limit value function is configured to "Scene extension unit", the parameter "Send scene number if lower brightness limit value is not reached" is configured to "Send scene number" and the "Day/night switchover" parameter is set to active on the "General" parameter page.	

Scenes	**Inactive** Active
The scene function can be activated or deactivated here.	

Disabling function	Active **Inactive**
The limit value evaluation can be disabled independently of the other functional units by the disabling function. No telegrams will then be transmitted anymore by means of the output objects. However, the disabling function does not affect the specification of new brightness limit values by an external value via the bus or by the teach-in function. The disabling function can be used if this parameter is configured to "Active". The disabling is then activated and deactivated by means of the object "Disabling function - Activate/Deactivate".	

14.4 "General" objects

BLV x general parameter page

Function	Name	Type	DPT	Flag
Brightness value - External	BLV x - Input	2-byte	9,004	C, -, W, -, U
2-byte object used to couple an external KNX brightness sensor or a KNX device with brightness sensor. This allows several brightness sensors to be cascaded for brightness measurement. Possible range of values: 10 ... 2,000 lux This object is visible only if the "Brightness measurement" parameter is configured to "External value via bus" or "Internal sensor and external value via bus".				

Function	Name	Type	DPT	Flag
Brightness limit value	BLV x - Input	2-byte	9,004	C, -, W, -, U
2-byte object for presetting an external limit value (10...2,000 Lux). The relative hysteresis value configured in the ETS results in a new value for both brightness thresholds, depending on the type of limit value definition. The new limit value is retained until a new specification is made (external value via bus or by means of teach-in function). This object is visible only if the parameter "Brightness value can be set via object" is enabled (active).				

Function	Name	Type	DPT	Flag
Brightness value - Status	BLV x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used to feed back an active brightness value. This object can optionally act as an active signalling object or passive status object (read out object). As an active signalling object, the current brightness value is transmitted once to the bus each time the brightness value is changed after ETS programming or after the bus voltage returns(optionally delayed). This object is visible only if the "Status object, brightness value" parameter is enabled (active).				

Function	Name	Type	DPT	Flag
Brightness limit value - Teach-in	BLV x - Input	1-bit	1,017	C, -, W, -, U
1-bit object used to trigger a teach-in process to learn a brightness limit value. With the teach-in function, the effective brightness value is applied instantly by transmitting a corresponding telegram to this object as new brightness limit value. The telegram polarity can be configured. This object is visible only if the "Teach-in function" parameter is enabled (active).				

Function	Name	Type	DPT	Flag
Brightness limit value - Status	BLV x - Output	2-byte	9,004	C, R, -, T, A
2-byte object used to feed back an active brightness limit value. This object can optionally act as an active signalling object or passive status object (read out object). As an active signalling object, the current brightness limit value is transmitted once to the bus each time the brightness limit value is changed after an ETS programming operation or after the bus voltage returns (optionally delayed). This object is visible only if the "Status object, brightness value" parameter is enabled (active).				

Function	Name	Type	DPT	Flag
Switching	BLV x - Output	1-bit	1,001	C, R, -, T, A
1-bit object used by the brightness limit value to transmit the switching command if the limit value thresholds are exceeded or not reached. This object is visible only if the function of the brightness limit value is configured to "Switching".				

Function	Name	Type	DPT	Flag
Dimming value	BLV x - Output	1-byte	5,001	C, R, -, T, A
1-byte object used to send the dimming value in per cent when the value exceeds or falls below the limit value thresholds. This object is visible only if the brightness limit value function is configured to "Dimming value transmitter".				

Function	Name	Type	DPT	Flag
Scene	BLV x - Output	1-byte	17,001	C, R, -, T, A
1-byte object used to send the scene call-up command if the value exceeds or falls below the brightness limit value thresholds. This object is visible only if the brightness limit value function is configured to "Scene extension unit".				

14.5 Scenes

Up to 64 scenes can be created and scene values (function) configured for a brightness limit value. The scene values are called up by means of a separate scene extension object. The data point type of the extension object allows all scenes to be addressed.
The scene function must be enabled on the parameter page "BLV x - General" so that the "Scenes" parameter page appears with the required communication objects and parameters.

The scene configuration selected in the configuration decides whether the number of scenes is either variable (1 ... 64) or alternatively fixed to the maximum (64).

– Scene configuration = "Variable (1 ... 64 scenes)"
  In this setting, the number of scenes used can be selected anywhere within a range of 1 to 64. The "Number of scenes" parameter decides how many scenes are visible in the ETS and can therefore be used. It is possible to specify which scene number (1 ... 64) controls each scene.
– Scene configuration = "Fixed (64 scenes)"
  In this setting, all scenes are always visible and can therefore be used. The scenes are actuated by permanently assigned scene numbers (1 ... 64) (scene number 1 -> scene 1, scene number 2 -> scene 2 ...). Individual scenes can be deactivated if necessary.

Setting a scene call-up delay

Each scene call-up can optionally also be delayed. In this way, dynamic scene sequences can be configured if several scene outputs are combined with cyclical scene telegrams.

Prerequisite
The scene function must be enabled on the parameter page "BLV x scenes".

- Activate the "Delay scene recall" parameter on the "BLV x - Scenes" parameter page.

  The delay time is activated and can be configured separately. The delay influences only the scene call-up of the "Presence detector". The delay time is started when a call-up telegram arrives. The corresponding scene is called up and the operating mode set only after the time has elapsed.

Each scene call-up telegram restarts the delay time and retriggers it. If a new scene call-up telegram is received while a delay is active (scene not yet called up), the old (not yet called up) scene will be rejected and only the scene received last executed.

The scene call-up delay has no influence on the storage of scene values. A scene storage telegram within a scene call-up delay will terminate the delay and thus the scene call-up.

Setting scene numbers

The scene number can be set for each scene.
The data point type of the scene extension object allows up to a maximum of 64 scenes to be addressed.

The scene function must be enabled on the "BLV x - General" parameter page.

The scene configuration is set to "Variable (1 ... 64 scenes)"

- Set the "Scene number" parameter for each scene to the number used to address the scenes on the "BLV x - Scenes" parameter page.

A setting of "0" deactivates the corresponding scene to prevent it from being called up.

If the same scene number is configured for several scenes, only the scene with the lowest sequential number will be addressed. In this case, the other scenes will be ignored.

Example 1:
KNX scene number 42 was assigned to the internal scene with number 2 by means of the configuration. If the product receives a call-up telegram with KNX scene number 42 by means of the KNX scene extension object, the internal scene with number 2 will be called up.

Example 2:
For the internal scenes with numbers 2 and 5, the KNX scene number 42 was assigned by means of the configuration. If the product receives a call-up telegram with KNX scene number 42 by means of the KNX scene extension object, the internal scene with number 2 will be called up. The internal scene with number 5 is ignored.

Scene functions

For each scene, you must define which scene command (brightness limit value specification, activate lock, deactivate lock) is to be set when a scene is called up.

- On the parameter page "BLV x - Scenes", set the "Function" parameter to the desired operating mode for each scene.

  The configured scene command is called up if a scene is called up.

Configuring an extended scene call-up

The extended scene call-up allows up to 64 scenes of a brightness limit value to be called up in sequence. Scene are called up by means of the 1-bit communication object "Extended scene call-up". Each ON telegram received by means of this object calls up the next of the available scenes in the configuration. Each OFF telegram received calls up the previous scene.
With the extended scene call-up, the controller always calls up the neighbouring scene - starting with the scene most recently called up by the extended call-up. It is irrelevant whether the scene is effective (scene number = "1...64" or scene active) or ineffective (scene number = "0" or scene inactive). If an ineffective scene is called up by the extended scene call-up, the presence detector will not react.
Only the scenes available in the scene configuration can be selected by the extended scene call-up (defined by the parameter "Number of scenes" with "Variable", always all 64 scenes with "Fixed"). An ON or OFF telegram always calls up scene 1 first after a reset (bus voltage return, ETS programming operation).

The scene sequence of the extended scene call-up is not influenced by calling up a scene by means of the 1-byte extension object. The two call-up functions work independently of each other.

- Activate the "Extended scene recall" parameter on the parameter page "BLV x - Scenes".

  The object "Scene - Extended scene recall" is available. Each ON telegram calls up the next scene. Each OFF telegram calls up the previous scene.
- Deactivate the "Extended scene recall" parameter.

The extended scene call-up is deactivated. A scene can be called up only by means of the 1-byte scene extension object.

The extended scene call-up can take place with or without overflow at the scene limits. An overflow occurs when the last scene of the selected configuration is reached when counting up or scene 1 is reached when counting down and an additional telegram in the last counting direction is received by the actuator. The overflow behaviour is defined in the ETS.

- Activate the "With overflow" parameter.

  After reaching the last scene of the selected configuration, the overflow is executed and scene 1 called up by another ON telegram. Similarly, after reaching scene 1, the overflow is executed by another OFF telegram and the last scene of the selected configuration is called up.

- Deactivate the parameter "With overflow".

  A scene overflow is not possible. After reaching the last scene of the selected configuration, further ON telegrams of the extended scene call-up are ignored. In the same way, the actuator ignores further OFF telegrams if scene 1 was called up last.

14.5.1 "Scenes" parameter

Brightness limit values -> BLV x - General -> Scenes

Delay scene recall	**Inactive** Active
A scene is called up by means of the scene extension object. The scene call-up can be delayed after receiving a call-up telegram (parameter activated) if necessary. Alternatively, the scene will be called immediately after receiving the telegram (parameter deactivated).	

Delay time	**0** … 59 min 0 … **10** … 59 s
This parameter is used to define the duration of the delay before a scene is set after it is called up. The setting is made in minutes and seconds.	

Extended scene call-up	**Inactive** Active
The extended scene call-up allows up to 64 scenes of a brightness limit value to be called up in sequence. The scene is called up here by means of the 1-bit communication object "Scenes - Scene recall". Each ON telegram received by means of this object calls up the next scene. Each OFF telegram received calls up the previous scene. This parameter enables the extended scene call-up, if necessary.	

With overflow	**Inactive** Active
The extended scene call-up can take place with or without overflow at the scene limits. An overflow occurs when the last scene of the selected configuration is reached when counting up or scene 1 is reached when counting down and an additional telegram in the last counting direction is received by the actuator. **Parameter activated:** After reaching the last scene of the selected configuration, another ON telegram of the overflow is executed and scene 1 is called up. Similarly, after reaching scene 1, the overflow is executed by another OFF telegram and the last scene of the selected configuration is called up. **Parameter deactivated:** A scene overflow is not possible. After reaching the last scene of the selected configuration, further ON telegrams of the extended scene call-up are ignored. In the same way, further OFF telegrams are ignored if scene 1 was called up last. This parameter is visible only if the extended scene call-up is used.	

Scene configuration	**Variable (1...64 scenes)** Fixed (64 scenes)
The scene configuration selected here decides whether the number of scenes is either variable (1 ... 64) or, alternatively, fixed to the maximum (64). **Variable (1...64 scenes):** In this setting, the number of scenes used can be selected anywhere within a range of 1 to 64. The "Number of scenes" parameter decides how many scenes are visible for the switching output in the ETS and can therefore be used. It is possible to specify which scene number (1 ... 64) controls each scene. **Fixed (64 scenes)**: In this setting, all scenes are always visible and can therefore be used. The scenes are actuated by permanently assigned scene numbers (1 ... 64) (scene number 1 -> scene 1, scene number 2 -> scene 2 ...). Individual scenes can be deactivated if necessary. To do this, remove the tick from the corresponding scene.	

Number of scenes	1...**10**...64
This parameter defines how many scenes are visible in the ETS for a brightness limit value and can therefore be used.	

Scene number	0...**1***...64 *: The predefined scene number depends on the scene (1...64).
It is possible to set which scene number (1 ... 64) actuates each scene. A setting of "0" deactivates the corresponding scene to prevent it from being called up or stored. If the same scene number (1…64) is configured for several scenes, only the scene with the lowest sequential number will be addressed. In this case, the other scenes will be ignored.	

Scene active	**Active** Inactive
This parameter can be used to deactivate a scene. To do this, remove the tick from the corresponding scene. This parameter is visible only if the "Scene configuration" parameter is set permanently to (64 scenes).	

Function	**Activate disabling** Deactivate disabling Brightness limit value specification
This parameter is present for each scene separately. The number depends on the setting of the "Number of scenes" parameter. The scene function executed when the scene is called up is configured here. In addition, the limit value is set in lux in the "Limit value specification" setting (10 ... 2000 lux)	

Limit value specification (lux)	10 … 2000 lux
This parameter is present for each scene separately. The number depends on the setting of the "Number of scenes" parameter. The brightness limit value is specified here in lux. The parameter is visible only if the "Function" parameter has been set to "Brightness limit value specification".	

14.5.2 "Scenes" objects

BLV x scenes parameter page

Function	Name	Type	DPT	Flag
Scenes - Scene extension unit	BLV x - Input	1-byte	17,001	C, -, W, -, U
1-byte object used to call up a scene. A value between 1 ... 64 is sent to this object, depending on the number of enabled scenes. This object is visible only if the "Scenes" parameter is enabled (active).				

Function	Name	Type	DPT	Flag
Scenes - Extended scene recall	BLV x - Input	1-bit	1,001	C, -, W, -, U
1-bit object for extended scene call-up. Each ON telegram received calls up the next scene of a brightness limit value in sequence. Each OFF telegram received calls up the previous scene. An ON or OFF telegram always calls up scene 1 first after a reset (bus voltage return, ETS programming operation). This object is visible only if the "Extended scene recall" parameter is enabled (active).				

14.6 Disabling function

The limit value evaluation can be disabled independently of the other functional units by the disabling function. If a limit value evaluation is disabled, it is deactivated. No telegrams will then be transmitted anymore by means of the output objects. However, the specification of new brightness limit values by an external brightness value or by the teach-in function is not influenced by the disabling function.
The disabling function can be used if the "Disabling function" parameter is configured to "Active" on the "BLV... - General" parameter page. The disabling function is then activated and deactivated by means of the object “Disabling function - Activate/Deactivate" in which the ETS telegram polarity can be configured. The disabling function can be activated by force after the bus voltage returns or after ETS programming.

Disabling function after bus voltage returns

The state of the disabling function after the bus voltage returns can be configured to the following settings...

- "Disabling deactivated" setting:
  After the bus voltage returns, the brightness limit values are immediately ready for operation. The thresholds configured for each output are compared with the current brightness value and evaluated. The configured telegrams are transmitted if the brightness value exceeds or does not reach the corresponding thresholds.
- "Disabling activated" setting:
  All brightness limit values are disabled after the bus voltage returns. The configured thresholds are not evaluated with the current brightness value. Thus, no telegram is transmitted by any output.
- "State as before bus voltage failure" setting:
  If the device detects a bus voltage failure, it will save the current state of the disabling function. After the bus voltage returns, the disabling function assumes the saved state again (active or inactive).

Disabling function after ETS programming

The state of the disabling function after ETS programming can also be configured. The state can be configured as follows...

- "Disabling deactivated" setting:
  After ETS programming, the brightness limit values are immediately ready for operation. The thresholds configured for each output are compared with the current brightness value and evaluated. The configured telegrams are transmitted if the brightness value exceeds or does not reach the corresponding thresholds.
- "Disabling activated" setting:
  After ETS programming, all brightness limit values are disabled. The configured thresholds are not evaluated with the current brightness value. Thus, no telegram is transmitted by any output.

The limit value evaluation can be disabled independently of the other functional units by the disabling function. If a limit value evaluation is disabled, it is deactivated. No telegrams will then be transmitted anymore by means of the output objects. However, the specification of new brightness limit values by an external brightness value or by the teach-in function is not influenced by the disabling function.
The disabling function can be used if the "Disabling function" parameter is configured to "Active" on the "BLV - General" parameter page. The disabling function is then activated and deactivated by means of the object “BLV limit value - Input - Disabling function - Activate/Deactivate" in which the ETS telegram polarity can be configured. The disabling function can be activated by force after the bus voltage returns or after ETS programming.

14.6.1 "Disabling function" parameter

Brightness limit values -> BLV x - General -> Disabling function

Object polarity	**0 = enable / 1 = disable** 0 = disable / 1 = enable
This parameter defines the telegram polarity of the disabling object. The parameter is visible only if the disabling function is enabled.	

After bus voltage return	**Disabling deactivated** Disabling activated State as before bus voltage failure
The state of the disabling function after the bus voltage returns can be configured here. The parameter is visible only if the disabling function is enabled. **Disabling deactivated:** After the bus voltage returns, the brightness limit values are immediately ready for operation. The thresholds configured for each output are compared with the current brightness value and evaluated. The configured telegrams are transmitted if the brightness value exceeds or does not reach the corresponding thresholds. **Enabling activated:** All brightness limit values are disabled after the bus voltage returns. The configured thresholds are not evaluated with the current brightness value. Thus, no telegram is transmitted by any output. **State as before bus voltage failure**: If the device detects a bus voltage failure, it will save the current state of the disabling function. After the bus voltage returns, the disabling function assumes the saved state again (active or inactive).	

After ETS programming operation	**Disabling deactivated** Disabling activated
The state of the disabling function after ETS programming can be configured here. The parameter is visible only if the disabling function is enabled. **Disabling deactivated**: After ETS programming, the brightness limit values are immediately ready for operation. The thresholds configured for each output are compared with the current brightness value and evaluated. The configured telegrams are transmitted if the brightness value exceeds or does not reach the corresponding thresholds. **Disabling activated:** All brightness limit values are disabled after ETS programming. The configured thresholds are not evaluated with the current brightness value. Thus, no telegram is transmitted by any output.	

14.6.2 "Disabling function" objects

The following parameters are present for each limit value (1...3) separately.

BLV x disabling function parameter page

Function	Name	Type	DPT	Flag
Disabling function - Activate/Deactivate	BLV x - Input	1-bit	1,003	C, -, W, -, U
1-bit object used to activate and deactivate the disabling function (telegram polarity configurable). This object is visible only if the "Disabling function" parameter is enabled (active).				

Function	Name	Type	DPT	Flag
Disabling function - Status	BLV x - Output	1-bit	1,003	C, R, -, T, A
1-bit object used to feed back the state of the disabling function. This object is visible only if the "Disabling function" parameter is active.				

15 Status LED (blue LED)

The device has a status LED to indicate various statuses. To do this, the "Status LED (blue LED)" parameter is set to active on the "General" parameter page. The further configuration is then carried out on the page "Status indicator (blue LED) status 1".

There are two ways of using a status indicator.

- Internal link with a function block
  In this case, the status of the selected function block is displayed, e.g. lock active.
- External object
  In this case, the status of another KNX device is indicated by a telegram to the "Status" object, e.g. the switching state of an actuator.

The indication is performed by a blue LED located behind the lens. The brightness of the LED can be set to adapt it to the ambient brightness or day/night operation.

If the status LED is switched on, brightness measurement will no longer be possible with the internal brightness sensor. The last value before the status LED is switched on is therefore frozen. The function blocks use this value until the status LED is switched off again. **To do this, you can also use the parameter "Switch LEDs off cyclically to measure brightness" on the "Sensors -> Brightness" parameter page.**

The temperature of the status LED changes when it is switched on and off. This temperature change may occasionally result in faulty detections. In this case, the brightness of the status LED should be reduced slightly.

15.1 "Status indicator" parameter

Status indicator (blue LED) -> Status 1

This parameter page is visible only if the "Status LED (blue LED)" parameter is set to active on the "General" parameter page.

Designation	Free text Max. 40 characters long text
This parameter gives the status indicator a name for identification. The name serves merely as an aid in the ETS and is not programmed into the device.	

Activate status via	**External object** Internal link
This parameter is used to specify whether an internal status of the device or the status of an external device connected via the bus is indicated. **Internal link:** The status of a selected function block is indicated. **External object:** The status of a bus device connected by means of the "Status" object is indicated, e.g. a switch actuator.	

Internal link with	**Function block 1** Function block 2 Function block 3
This parameter is used to assign a function block to the status indicator (blue LED). This parameter is visible only if the "Activate status via" parameter is set to internal link.	

Internal link to status	**Disabling active** Disabling inactive Detection active Detection inactive Manual control active Manual control active/inactive
This parameter is used to select the status of a function block that activates the status indicator (blue LED). This parameter is visible only if the "Activate status via" parameter is set to internal link.	

Object polarity status	**1 = active / 0 = inactive** 0 = active / 1 = inactive
This parameter is used to define the telegram polarity for activating or deactivating the status indicator (blue LED). This parameter is visible only if the "Activate status via" parameter is set to external object.	

End status	**As soon as status inactive** After specified duration Via external acknowledgement object
This parameter is used to define when the status indicator (RGB LED) is switched off again. **As soon as status inactive**: The status indicator is switched off as soon as the indicated status is no longer active, e.g. disabling deactivated. **After specified duration:** The status indicator is automatically switched off after the set indication duration has elapsed. **Via external acknowledgement object**: The status indicator must be switched off manually by sending a telegram to the status LED - "Acknowledgement" input object."	

Duration of status display	**1** … 59 h 1 … **15** ... 59 min **1** … 59 s
This parameter is used to define the time before a status indicator is automatically deactivated. The setting is made in hours, minutes and seconds. This parameter is visible only if the "End status" parameter is set to after the expiry of the indication duration.	

Colour	**Blue**
This parameter is set permanently to blue.	

Light mode	**Constant** Flashing
This parameter is used to define how the status indicator lights up. "Constant" The status indicator will light up continuously as long as the status indicator is active or has not been acknowledged. This setting is suitable for informational messages that do not require a direct response. "Flashing" The status indicator flashes as long as the status indicator is active or has not been acknowledged. This setting is suitable for signals that require increased attention.	

LED brightness level	1 … **6** … 10
This parameter is used to set the brightness of the blue LED. The setting is made in 10 levels from 1 (dark) to 10 (light). Level 6 is set by default. This parameter is visible only if the Day/night switchover parameter is set to inactive on the General parameter page.	

(LED brightness level) At day	1 … **6** … 10
This parameter is used to set the brightness of the blue LED in day mode. The setting is made in 10 levels from 1 (dark) to 10 (light). Level 6 is set by default. This parameter is visible only if the Day/night switchover parameter is set to active on the General parameter page.	

(LED brightness level) At night	1 … **6** … 10
This parameter is used to set the brightness of the blue LED in night mode. The setting is made in 10 levels from 1 (dark) to 10 (light). Level 6 is set by default. This parameter is visible only if the Day/night switchover parameter is set to active on the General parameter page.	

15.2 "Status indicator" objects

The name of the following objects can be specified by the "Name" parameter.

Function	Name	Type	DPT	Flag
Status	Status 1 - Input	1-bit	1,001	C, -, W, -, U
1-bit object used to activate and deactivate the status indicator. A telegram is sent to this object for this purpose. A separate object is available for each status indicator enabled by the "Number of status indicators" parameter. This object is visible only if the "Activate status via" parameter is set to external object.				

Function	Name	Type	DPT	Flag
Acknowledgement	Status LED - Input	1-bit	1,016	C, -, W, -, U
1-bit object used to switch off an active status indicator manually by means of a telegram.				

16 Motion status indicator

Indication of motion pulses

The blue status LED is activated by the walking test. Optionally, the status LED can indicate any detected movements even during normal operation. The "LED function in normal operation" parameter enables this function in the "Indication of motion pulses" setting. The signalling enables the start and duration of motion detection to be visualised by the device at any time.
The status LED indicates detected movements brightness-independent.
Example application: Used outdoors to detect the failure of a light bulb.

If the status LED is switched on, brightness measurement will no longer be possible with the internal brightness sensor. The last value before the status LED is switched on is therefore frozen. The function blocks use this value until the status LED is switched off again.

The device has a walking test function. The walking test function serves as a guide for the project design and setting of the PIR detection field. The walking test indicates the reaction of the device when detecting movements with a blue status LED, which is clearly visible behind the sensor window. The walking test is activated and deactivated by a telegram to the object "Walking test - Activate/Deactivate". In addition, a function block must be assigned to the walking test in the ETS or by sending a telegram to the "Walking test - FB assignment" object. Optionally, the status LED can indicate any detected movements even during normal operation.

Characteristics of the device in the walking test

The device has the following characteristics during an active walking test:

- Motion is detected always brightness independently.
- The PIR sensor is active with its set sensitivity.
- When motion is detected, a blue status LED in the sensor window is activated for the duration of the motion pulse.
- No run-on time is started at the end of a detected motion.
- Function blocks 1-3 and the function block switch-over are not processed (no telegrams are transmitted).
- There is no main unit and extension arrangement. The device works autonomously.
- The parameters "Behaviour after bus voltage return" and "Behaviour after ETS programming" and the disabling function of a function block are not evaluated.

Activating and deactivating

To use the walking test, the "Motion status indicator (blue LED)" parameter must first be set to activated on the "General" parameter page. Set the "Use walking test" parameter to "Activated" on the "Movement status - indicator (blue LED)" parameter page that then appears. To start the walking test, send a telegram to the "Activate/Deactivate walking test" object. The walking test can be assigned only to one function block

at a time. If several function blocks have been created for the device, perform the walking test for each function block in turn. If activated in the ETS, the assignment can be changed by means of the "Walk test - FB assignment" object.

The walking test may be deactivated also by a bus voltage failure (device reset).

16.1 "Motion status indicator and walking test" parameter

This parameter page is visible only if the "Motion status indicator (blue LED)" parameter is set to active on the "General" parameter page.

Motion status indicator (blue LED)

Use walking test	Active **Inactive**
This parameter is used to activate the "Activate/Deactivate walking test" object. A telegram to this object can be used to activate or deactivate the walking test to check the detection field. In the walking test, motion is detected brightness independently by means of the assigned function block . The sensitivities set for the PIR sensors are active.	

Use motion pulse meter	Active **Inactive**
This parameter is used to activate or deactivate the motion pulse meter for the walking test. The motion pulse meter indicates how many movements were detected within a defined time window. The detected motion pulses are useful when it comes to defining the number of motion pulses before a reaction is to take place, for example in "Presence detector - Monitoring" operation. "Active" The detected movements are counted The parameter "Duration of monitoring time window visible" appears. "Inactive" No motion pulses are counted. The detection field is monitored only with the blue status LED. This parameter is visible only if the "Use walking test" parameter is set to active.	

Duration of monitoring time window	0 … 59 min 1 … **3** …59 s
This parameter is used to set the length of the monitoring time window. The setting is made in minutes and seconds. The motion pulse meter is restarted after the time has elapsed. This parameter is visible only if the "Use motion pulse meter" parameter is set to active.	

Assigned function block	**Function block 1** Function block 2 Function block 3
This parameter is used to assign a function block to the walking test. This makes it possible to check the individual sensitivity settings of the individual function blocks. This parameter is visible only if the "Use walking test" parameter is set to active.	

Assignment can be changed via object	Active **Inactive**
The assignment can be switched from one function block to another for the walking test by sending a telegram to the 1-byte object "Walk test - FB assignment". This allows the sensitivity setting of all function blocks to be checked one after the other. Function block 1 is assigned by default to the walking test. This parameter enables this function. This parameter is visible only if the "Use walking test" parameter is set to active.	

LED function in normal operation

Indication of motion pulses	Active **Inactive**
This parameter is used to activate or deactivate the indication of motion pulses by the blue status LED in normal operation. "Inactive" The blue status LED does not indicate any motion pulses during normal operation. Application example in presence detector operation at the office to avoid distractions. "Active" The signalling enables the start and duration of motion detection to be visualised by the device at any time. Example application: Used outdoors to detect the failure of a light bulb.	

Can be activated via object	Active **Inactive**
The indication of motion pulses in normal operation can be activated by sending a telegram to the 1-bit object "Indication of motion pulses in normal operation - Activate/Deactivate", which can be enabled by this parameter. This parameter is visible only if the "LED function" parameter is set to indication of motion pulses in normal operation.	

Assignment	**Function block 1** Function block 2 Function block 3
This parameter is used to assign one or more function blocks to the blue status LED. If one of the assigned function blocks detects motion, this is indicated by the blue status LED, even in normal operation. The number of function blocks that can be selected depends on the setting of the "Function blocks" parameter on the General parameter page. This parameter is visible only if the "LED function in normal operation" parameter is set to active.	

Day/night-dependent reaction	**At day and night** Only at night Only at day
This parameter is used to define when the blue status LED indicates motion pulses. "At day and night" Detected movements are indicated in day and night mode. "At night" Detected movements are indicated in night mode. "At day" Detected movements are indicated in day mode. This parameter is visible only if the "Day/night switchover" parameter is set to active on the General parameter page.	

LED brightness	1 … **5** … 10
This parameter is used to set the brightness of the blue status LED. The setting is made in 10 levels from 1 (dark) to 10 (light). Level 5 is set by default. This parameter is visible only if The "LED function" parameter is set to indication of motion pulses in normal operation and the Day/night switchover parameter is set to inactive on the General parameter page, or The "LED function" parameter is set to indication of motion pulses in normal operation, the "Day/night-dependent reaction" parameter is set to only at day or only at night and the Day/night switchover parameter is set to active on the General parameter page.	

(LED brightness) At day	1 … **5** … 10
This parameter is used to set the brightness of the blue status LED in day mode. The setting is made in 10 levels from 1 (dark) to 10 (light). Level 5 is set by default. This parameter is visible only if the "LED function" parameter is set to indication of motion pulses in normal operation and the "Day/night-dependent reaction" parameter is set to day and night.	

(LED brightness) At night	1 … **5** … 10
This parameter is used to set the brightness of the blue status LED in night mode. The setting is made in 10 levels from 1 (dark) to 10 (light). Level 5 is set by default. This parameter is visible only if the "LED function" parameter is set to indication of motion pulses in normal operation and the "Day/night-dependent reaction" parameter is set to at day and night.	

16.2 "Motion status indicator and walking test" objects

Function	Name	Type	DPT	Flag
Walking test - Activate/ Deactivate	Motion status indication - Input	1-bit	1,003	C, -, W, -, U
1-bit object used to activate and deactivate the walking test. The walking test can be used to test whether motion is reliably detected in the detection field. The walking test is activated or deactivated immediately after an ETS programming operation. This object is visible only if the "Use walking test" parameter is set to active.				

Function	Name	Type	DPT	Flag
Walking test - Assignment FB	Motion status indication - Input	1-byte	5,010	C, -, W, -, U
1-byte object used to assign a function block to the walking test. Only one function block can be assigned to the walking test at a time. This object is visible only if the "Use walking test" parameter is set to active.				

Function	Name	Type	DPT	Flag
Walking test - FB assignment - Status	Motion status indication - Output	1-byte	5,010	C, R, -, T, A
1-byte object used to output which function block is assigned to the walking test. This object is visible only if the "Use walking test" parameter is set to active.				

Function	Name	Type	DPT	Flag
Motion pulse meter - Count value - Status	Motion status indication - Output	2-byte	7,001	C, R, -, T, A
2-byte object used to output the movements (pulses) detected by the internal PIR sensors in the defined monitoring time window.				

Function	Name	Type	DPT	Flag
Motion pulse indication in normal operation - Activate/Deactivate	Motion status indication - Input	1-bit	1,003	C, -, W, -, U
1-bit object used to activate and deactivate the indication of motion pulses by the blue status LED in normal operation. The status LED then lights up each time motion is detected in day, night or day and night mode, depending on the configuration.				

Function	Name	Type	DPT	Flag
Motion pulse indication in normal operation - Status	Motion status indication - Output	1-bit	1,001	C, R, -, T, A
1-byte object used to output whether the indication of motion pulses is activated or deactivated in normal operation.				

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