

FARADITE

MOTION SENSOR 360 KNX
ETS MANUAL

M360-X-KNX

V1

Contents

Introduction	2
Feature Overview	3
Function Types	5
Switching	5
Dimming Value Transmitter	5
Extractor Fan	5
Scene	5
HVAC	5
Advanced	5
Constant Light Control	6
Advanced Features	7
Day / Night Functionality	7
Master / Slave	7
Advanced Pushbutton Blocking Input Functionality	7
Brightness Sensor	7
Operating Modes	8
Long Presence	8
Set Key Parameters via Group Objects	8
Diagnostic Options	8
Parameters - Global	9
General	9
Advanced	9
Brightness	14
Parameters - Per Function	17
Switching	17
Dimming Value Transmitter	19
Extractor Fan	21
Scene	22
HVAC	25
Constant Light Control (CLC)	27
Advanced Function Parameters	33
Advanced Behaviour	40
How-To Guides	47
Brightness Dependent Function Activation	47
Brightness Sensor Calibration	48
Using Brightness Triggers	50
Using Test Mode	51
Using Master and Slave	52
Using Constant Light Control	53
Connect a Pushbutton	55
Connect Day and Night Mode Objects	58
Appendix - Group object list	59

Introduction

With just a 49mm diameter, the Faradite Motion Sensor 360 - KNX is a remarkably small KNX PIR sensor with a huge set of functions. The sensor is designed to provide a range of functions for both residential and commercial KNX installations alike.

The sensor can have up to 4 independent functions, each with independent timeouts and configuration parameters. The range of function types are: switching, dimming value transmitter, scene, HVAC, advanced (value transmitting including RGB) and constant light control.

The constant light control feature (daylight harvesting) ensures a set brightness / lux level is achieved by dynamically dimming the lighting in the room. The Faradite Motion Sensor 360 - KNX also allows for the brightness setpoint to be set via group object. A standby dimming level can also be set.

Day / night modes are available for each of the 4 independent functions allowing each to perform differently during day and night, with different timeouts and settings if required.

The master / slave functionality allows KNX installers to expand the detection capabilities of the motion sensor.

Advanced pushbutton input functionality allows users to manually interact with the motion sensor by extending timeouts, blocking the sensor and more.

A finely tuned internal brightness sensor accurately measures the LUX level in the room (external brightness group object available) no matter the light source, meaning fluorescent lamps, LEDs or halogen/incandescent lamps can all be accurately measured.

Four operating modes allow various levels of automation to be configured meaning the sensor can be configured as presence (auto on / off), absence (auto off only), presence no timeout (auto on only) or pushbutton only.

Long presence can be configured (separately across each function if required) to trigger different actions depending on the length of time a person is detected in the room. E.g. lights may come on instantly when motion is detected, but using long presence detection on the second function for HVAC control means that the air conditioning is only turned to comfort mode if the person stays in the room for a longer period of time.

There is a range of powerful diagnostic tools available for the KNX integrator including a visual LED for detection validation, simple test modes for validating performance and a heartbeat object that can be monitored by a central server to confirm the existence of the sensor.

Feature Overview

Tiny, flush mounted PIR sensor

- Just 49mm diameter for ultra discreet KNX motion detection
- 35mm Hole for installation
- Four independent functions each with independent parameters

6 Function types

- Switching
- Dimming value transmitter
- Extractor fan
- Scene
- HVAC
- Advanced value sending (with 10 different object types)
- Constant light control

Constant light control / daylight harvesting

- Teach in brightness setpoint group object
- Constant light control with standby dimming level function
- Support for manual interaction via 4-bit telegrams

Day / night functionality

- Set different timeouts / brightness thresholds / set points during the day compared to the night
- Send different values, on motion detection and timeout, depending on time of day

Master / slave group objects

- Master / slave or multi master modes possible

Advanced pushbutton input functionality

- Extend timeout on manual intervention
- Optionally block sensor on manual intervention
- Unblock sensor when room is unoccupied, after a delay or immediately

Brightness sensor

- 2 threshold triggers (greater than / less than)
- Support for external or internal brightness sensor
- Measurement of multiple light sources such as LEDs, fluorescent lamps and halogen / incandescent lamps

Advanced behaviour settings

- Four operating modes (presence, absence, presence no timeout, and pushbutton only)
- Bus recovery options
- Cyclic sending
- Long presence detection

Set key parameters via group objects

- Timeout
- Brightness threshold
- Brightness setpoint (constant light control)
- Standby dimming level (constant light control)

Diagnostic options

- Visual feedback LED
- Simple test mode for validating detection area
- Heartbeat object

Function Types

Switching

The switching function provides a simple on/off 1-bit output for simple control of switched lighting circuits.

Dimming Value Transmitter

The dimming value transmitter function can be used to send an absolute value to a dimmer when motion is detected. The value sent on the timeout of the function can also be set independently.

For example: the sensor can be configured so that the room is at 10% brightness when unoccupied. When someone enters, the sensor can then trigger the lights to dim up to 90% brightness while the room is in use. After the timeout elapses the room will then be dimmed back down to 10%.

Extractor Fan

The extractor fan function provides a simple on/off 1-bit output for control of extractor fans.

Scene

The scene function follows the KNX standard for scene triggering. The sensor can be configured to send individual scenes on motion and a separate scene on timeout.

For example: the sensor could turn on the “relaxing” scene automatically and then if the user wanted to “override” the default automatic scene they could change the scene using a pushbutton. After the timeout, the sensor will send the “off” scene (this assumes the sensor has not been blocked when the keypad interaction took place).

HVAC

The HVAC function enables the sensor to deliver HVAC automation.

For example: in a home office setting where the room is sometimes unoccupied throughout the day, the sensor can automatically detect motion and set the HVAC controls for that room to the comfort mode when the user is using the home office. On days where the home office is not occupied the sensor can be configured to keep the HVAC mode set to the standby mode.

Advanced

Fully customisable value sending can be achieved with the advanced function type. This advanced feature is intended for advanced KNX integrators with a need to create bespoke automation using value sending. The full list of value send options are:

- 1-Bit
- 1-Byte Unsigned
- 1-Byte Percentage
- 1-Byte Signed
- 2-Byte Unsigned
- 2-Byte Signed
- 2-Byte DP9 Float

- RGB 3 X 1-Byte Objects
- RGB 3 X 1-Byte Object 232.600 DPT
- HVAC

For example, the advanced function type is a good option for controlling RGB lighting. The function can be configured so that on motion the RGB controller sets the light to green, and after the timeout the lights are set to red. The advanced function type also allows for delayed telegram sending.

Constant Light Control

The constant light control function is a powerful function that can be used to deliver a consistent LUX level in an area. The function monitors the value of the internal brightness sensor and dynamically adjusts the light level to maintain a constant brightness. This function type includes a number of parameters which makes the constant lighting control function extremely powerful.

Key features include:

- A group object that allows an external device such a pushbutton to trigger the teach-in of a new brightness set point.
- When the functions timeout elapses, a standby dimming level can be set to prevent users being plunged into darkness.
- If the user thinks the light level in the room is not sufficient then they can increase the brightness of the dimmer using a 4-bit telegram (sent from a keypad).

Advanced Features

Day / Night Functionality

Day / night mode gives the option to configure the sensor to perform differently during the 'day' or the 'night'. Different timeouts can be configured for day and night allowing, for example, a short timeout during the night in the bathrooms. It is possible to set different brightness setpoints during night and day when used with the constant light control function type.

Automatic turning ON can also be disabled during the night or day, so for example, in a bedroom the sensor could automatically turn on the light during the day, but at night automatic switching ON could be disabled so that only a pushbutton would turn the light on.

Any parameter with the following icon can be configured with separate day and night options



Day / night enabled

See [Connect Day and Night Mode Objects](#) for more guidance.

Master / Slave

The master / slave feature allows integrators to configure how multiple sensors perform together.

There is also the option to have multi master / slave configurations for advanced KNX applications in which there are multiple sensors acting as one, but each controlling a zone with an independent constant light function.

See [Using Master and Slave](#) for more guidance.

Advanced Pushbutton Blocking Input Functionality

Pushbutton blocking inputs allow the integrator to manually interact with the sensor using a 1-bit telegram.

The advanced pushbutton blocking input allows integrators to extend timeouts on manual interaction rather than simply blocking the sensor and unblocking the sensor only once the room has been vacated. It also allows different values to be sent on manual interaction compared to automatic interaction.

See [Connect a Pushbutton](#) for more guidance.

Brightness Sensor

Configure brightness-based automation using the built-in brightness sensor. The brightness sensor also features correction adjustment options (see [Brightness Sensor Calibration](#)) as well as greater-than or less-than triggers see [Using Brightness Triggers](#). The brightness triggers can be linked to any function in the system via a 1-bit group object. The device also supports the use of an external brightness sensor via the "External brightness - [Brightness level input](#)" group object.

Operating Modes

Four [Operating modes](#) allow the sensor to perform fully automatically in presence mode (auto on, auto off), absence mode (auto off only), presence no timeout (auto on only), or in pushbutton-only mode where only pushbuttons can be used to turn the function ON/OFF. This is useful if the sensor is configured for constant light control and the user does not want to have the lights automatically turning ON/OFF based on motion, but wants to optimise the lighting efficiency using constant light control.

Long Presence

There is also the option to restrict turning ON a function to the detection of a long presence. This means the sensor will be required to be triggered multiple times within the configured detection period before the function is activated. The long presence feature and its settings can be configured independently across any or all of the four available function channels.

Set Key Parameters via Group Objects

The application allows for certain key parameters to be set via group objects making it possible for an external system such as a visualisation server to dynamically adjust parameters such as timeouts, brightness thresholds, brightness setpoints (constant light control), standby dimming level (constant light control).

Any parameter with the following icon can be overridden via a group object:



Set key parameters via group objects

Diagnostic Options

There are multiple diagnostic options for the KNX integrator such as a visible LED to verify detection area, simple test modes for evaluating settings and a "heartbeat" group object for KNX bus diagnostics use.

Parameters - Global

General



GENERAL	
Parameter	Description
Colour	<p>Selects the colour of the sensor.</p> <p>Options</p> <ul style="list-style-type: none"> • White (default) • Black <p>Behaviour</p> <p>This parameter adjusts the gain factor on the brightness sensor to account for the different characteristics of the black sensor and the white sensor.</p>
Number of functions	<p>Selects the number of concurrent functions that are active.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 1 • Max: 4 • Step: 1 • Default: 2 <p>Behaviour</p> <p>This parameter is used to set the number of concurrent functions available to be configured from the sensor. For example, if '3' is selected, there will be 3 function menus added for individual configuration.</p>

Advanced

ADVANCED	
Parameter	Description
Startup delay	<p>Introduces a time delay before the sensor starts to perform in the configured manner.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 255 • Step: 1 • Default: 0 • Unit: seconds <p>Behaviour</p> <p>For example, if set to '10', when the sensor is powered up it will wait for 10 seconds before performing any programmed functions.</p>

<p>Master & slave functionality</p>	<p>Sets the sensor to be a master device, slave device or both as a multi master device.</p> <p>Options</p> <ul style="list-style-type: none"> • Master • Slave • Multi master / slave (advanced) • Standalone (no master / slave objects) (default) <p>Behaviour</p> <p>Hides and shows the various input / output objects for the master / slave functionality. By default all the master slave objects are hidden.</p>
<p>*Slave outputs locking time</p> <p><i>Only shown when "Master & slave functionality" is set to "Slave" OR "Multi master / slave (advanced)"</i></p>	<p>Sets the duration during which the slave is locked after sending a "motion detected" telegram. It is used to avoid flooding the bus with telegrams.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 3 • Max: 65535 • Step: 1 • Default: 10 • Unit: seconds <p>Behaviour</p> <p>For example, if set to 10 seconds, as soon as motion is detected a 1-bit ON telegram will be sent to the master on the "Slave - Motion output" group object. The slave will be blocked from sending any more "motion detected" telegrams until either the 10 seconds have elapsed or the slave is reset from the master using the "Slave - Reset input" group object following a timeout of one of the master's enabled functions.</p>
<p>Motion sensor sensitivity</p>	<p>Adjustment for the amount of movement required in the sensor's field of view before the sensor triggers.</p> <p>Options</p> <ul style="list-style-type: none"> • Highest sensitivity (default) • Standard sensitivity • Lower sensitivity • Lowest sensitivity <p>Behaviour</p> <p>When set to "Highest sensitivity" the sensor will trigger immediately when motion is detected. When set to "Lowest sensitivity" it will only pick up on larger movements over a longer period. It is strongly suggested to use the default setting of "Highest sensitivity".</p>
<p>Heartbeat</p>	<p>Enables the heartbeat functionality.</p> <p>Options</p> <ul style="list-style-type: none"> • Disable (default) • Enable <p>Behaviour</p> <p>When set to 'Enable' the device will periodically (at the Heartbeat period) verify its online status by sending a 1-bit ON telegram via the "Heartbeat - Heartbeat output" group object.</p>

<p>*Heartbeat period</p> <p><i>Only shown when "Heartbeat" is "Enabled"</i></p>	<p>Sets the heartbeat period.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:10 • Max: 12:00:00 • Default: 00:01:00 <p>Behaviour</p> <p>Controls frequency of heartbeat verification telegrams sent out on "Heartbeat - Heartbeat output" group object.</p>
<p>Test mode</p>	<p>Enables test mode.</p> <p>Options</p> <ul style="list-style-type: none"> • Disable (default) • Enabled by object for max - 1 min • Enabled by object for max - 2 min • Enabled by object for max - 3 min • Enabled by object for max - 4 min • Enabled by object for max - 5 min • Enabled by object for max - 6 min • Enabled by object for max - 7 min • Enabled by object for max - 8 min • Enabled by object for max - 9 min • Enabled by object for max - 10 min • Enabled by object for max - 20 min • Enabled by object for max - 30 min • Enabled by object for max - 40 min • Enabled by object for max - 50 min • Enabled by object for max - 60 min <p>Behaviour</p> <p>When enabled the group object "Test mode - Detection area test mode input" group object is shown. If an "ON" telegram is sent to this 1-bit group object then the sensor will enter into test mode for the duration specified (see Using Test Mode for more information).</p>
<p>Detection LED feedback</p>	<p>Enables a red feedback LED on the front of the sensor which can be used to verify motion is being detected.</p> <p>Options</p> <ul style="list-style-type: none"> • Enable • Disable (default) • Enable for 10 minutes after programming / restart <p>Behaviour</p> <p>If set to 'Enable', any time the sensor detects motion the sensor will illuminate a red LED on the front of the sensor to provide visual confirmation of the sensor detecting motion. When 'Disabled' no LEDs will illuminate.</p> <p>"Enable for 10 minutes after ETS programming" is useful to check sensor functionality after commissioning without accidentally leaving LEDs on when complete.</p> <p>Please note: When the Detection LED Feedback is enabled brightness reporting will be paused while the LED is on and resume 0.5 seconds later to avoid any false readings. The LED feedback cannot be enabled if constant light control is being used. If constant light control is enabled on any function then regardless of the setting above the "Detection LED feedback" will be disabled.</p>

<p>Day / night mode</p>	<p>When enabled, it will be possible to define separate "Day" and "Night" parameters for each function.</p> <p>Options</p> <ul style="list-style-type: none"> • Disable (default) • Enable <p>Behaviour</p> <p>If day / night mode is disabled the sensor will perform in the same manner 24 hours a day. If day / night mode is enabled each function can be configured to have different behaviour during the day compared to the night. If bus power is cycled when day / night mode is enabled, the sensor will resume operation in its last active mode (day/night).</p>
<p>*Day / night trigger</p> <p><i>Only shown when "Day / night mode" is Enabled</i></p>	<p>Select the Data Point Type that is used to select whether the sensor is in day or night mode.</p> <p>Options</p> <ul style="list-style-type: none"> • DPT 1.1 (1-bit object) • DPT 10.1 (time of day object) <p>Behaviour</p> <p>The DPT 1.1 (1-bit object) offers the option to use another device in the KNX system to dictate whether the sensor performs in day or night mode e.g. a manual switch / a GUI or a server with a time clock, day (0) and night (1).</p> <p>Alternatively the DPT 10.1 (time of day object) can be used to send the sensor the current time. Night -> day time (AM) and Day -> night time (PM) parameters are then used to define the time at which the night to day and day to night transitions happen.</p>
<p>*Night -> day time (AM)</p> <p><i>Only shown when "Day / night mode" is Enabled & "Day / night trigger" is set to "DPT 10.1 (Time of day object)"</i></p>  <p>Set key parameters via group objects</p> <p><i>Parameter can be overridden using the "Day / night mode - Night -> day time input" group object.</i></p>	<p>Sets the time at which the sensor will transition to day mode.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00 • Max: 23:59 • Default: 06:00 <p>Behaviour</p> <p>This is the time after which the sensor will transition to the configured daytime functionality. If the value is set to 06:00 (default) then at exactly 06:00 the sensor will begin performing in daytime mode.</p> <p>Please note: The "Night -> day time (AM)" time has to be earlier in the day than the "Day -> night time (PM)" time.</p>
<p>*Day -> night time (PM)</p> <p><i>Only shown when "Day / night mode" is Enabled & "Day / night trigger" is set to "DPT 10.1 (Time of day object)"</i></p>  <p>Set key parameters via group objects</p>	<p>Sets the time at which the sensor will transition to night mode.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00 • Max: 23:59 • Default: 22:00 <p>Behaviour</p> <p>This is the time after which the sensor will transition to the configured nighttime functionality. If the value is set to 22:00 (default) then at exactly 22:00 the sensor will begin performing in nighttime mode.</p>

Parameter can be overridden using the "[Day / night mode - Day -> night time input](#)" group object.

Please note: The "Night -> day time (AM)" time must be earlier in the day than the "Day -> night time (PM)" time.

*dependant on other parameter selections

Brightness

BRIGHTNESS	
Parameter	Description
Brightness source	<p>Sets the source from which the sensor will measure brightness.</p> <p>Options</p> <ul style="list-style-type: none"> • Internal brightness sensor (default) • External device <p>Behaviour</p> <p>When set to "Internal brightness sensor" the internal brightness sensor will be used for all brightness-related functions. When "External device" is selected the brightness level sent to "External brightness - Brightness level input" group object will be used for all brightness-related functions.</p> <p><i>Please note: for effective constant light control, the internal brightness sensor must be used.</i></p>
<p>* Calibration objects</p> <p><i>Only shown when "Brightness source" is set to "Internal brightness sensor"</i></p>	<p>Enables the calibration objects.</p> <p>Options</p> <ul style="list-style-type: none"> • Enable • Disable (default) <p>Behaviour</p> <p>When enabled, two objects will be made visible.</p> <ul style="list-style-type: none"> - "Brightness calibration - Measured brightness value on lux meter input" - "Brightness calibration - Room correction factor input or output". <p>These two objects can then be used to calibrate the brightness sensor. See "Brightness Sensor Calibration" for more information.</p>
Transmit update on	<p>Defines when a brightness sensor value update telegram is sent.</p> <p>Options</p> <ul style="list-style-type: none"> • Disable sending • Cyclical (default) • Change of value • Cyclical and change of value <p>Behaviour</p> <p>All transmissions are on the "Brightness - Brightness level output" group object.</p> <p>If "Disable sending" is selected then the "Brightness - Brightness level output" group object will still be visible but it won't send any updates.</p> <p>If "Cyclical" is selected the brightness value will be sent at regular intervals.</p>

	<p>If “Change of value” is selected then the new value will only be sent if it is bigger or smaller than the previously sent value by a set amount “Transmission after change greater than”.</p> <p>If “Cyclical and change of value” is selected then a hybrid approach is taken.</p>
<p>*Cyclical transmission of brightness</p> <p><i>Only shown when “Transmit update on” is set to “Cyclical” or “Cyclical and change of value”</i></p>	<p>Defines the period between brightness sensor update telegrams.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 5 • Max: 65536 • Step: 1 • Default: 60 • Unit: seconds
<p>*Transmission after change greater than</p> <p><i>Only shown when “Transmit update on” is set to “Change of value” or “Cyclical and change of value”</i></p>	<p>Defines how much the brightness sensor reading has to change compared with the previously transmitted value to trigger the sending of an updated value.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 10 • Max: 500 • Step: 1 • Default: 20 • Unit: LUX
<p>Threshold trigger objects</p>	<p>Enables the trigger objects.</p> <p>Options</p> <ul style="list-style-type: none"> • Disable (default) • Enable
<p>**Trigger when</p> <p><i>Only shown when “Threshold trigger objects” are set to “Enable”</i></p>	<p>Defines the condition on which the trigger activates.</p> <p>Options</p> <ul style="list-style-type: none"> • Never • Value greater than threshold • Value less than threshold <p>Behaviour See Using Brightness Triggers</p>
<p>**Threshold</p> <p><i>Only shown when “Threshold trigger objects” are set to “Enable” & “Trigger when” is not equal to “Never”</i></p>	<p>Defines the threshold to which the brightness value is compared using the logic operation defined in “Trigger when”.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 10000 • Step: 1 • Default: 500 • Unit: LUX <p>Behaviour See Using Brightness Triggers</p>
<p>**Hysteresis</p> <p><i>Only shown when “Threshold trigger objects” are set to “Enable” & “Trigger when” is not equal to “Never”</i></p>	<p>Defines a hysteresis band to prevent oscillation of the trigger objects at the point of threshold.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 1 • Max: 50



	<ul style="list-style-type: none"> • Step: 1 • Default: 20 • Unit: LUX <p>Behaviour See Using Brightness Triggers</p>
<p>**Value sent on trigger</p> <p><i>Only shown when "Threshold trigger objects" are set to "Enable" & Trigger when is not equal to "Never"</i></p>	<p>Defines the value sent when the trigger is activated.</p> <p>Options</p> <ul style="list-style-type: none"> • 0 • 1 (default) <p>Behaviour See Using Brightness Triggers</p>





*dependant on other parameter selections

** dependant on other parameter selections (same for both triggers)

Parameters - Per Function



Switching





FUNCTION TYPE: SWITCHING	
Parameter	Description
Function name	Text input area to name the specific function being configured. (max 50 characters) Default: "Default name"
Function type	Dropdown to select the function type required for that specific function channel. Options <ul style="list-style-type: none"> ● Switching (SELECTED) ● Dimming value transmitter ● Extractor fan ● Scene ● HVAC ● Constant light control ● Advanced Behaviour The list of available group objects and parameters will change depending on the selected function type.
*Brightness threshold  Day / night enabled Only shown if " Brightness threshold dependant " is "Enabled" (Default - Enabled)  Set key parameters via group objects Parameter can be overridden using the " Brightness threshold input " group object or learnt in using the " Brightness threshold teach-in ", group object. Both are enabled by the Parameter: brightness threshold drop down in the advanced tab	Sets the lux level below which the function will become active. Value <ul style="list-style-type: none"> ● Min: 0 ● Max: 65535 ● Step: 1 ● Default: 500 Behaviour When motion is detected the lux level will be read by the brightness sensor, if the brightness level in the room is lower than the threshold the function will automatically turn on. If it exceeds the threshold then the function will remain off. This setting is not used when the device is turned on via the " Function X - Pushbutton or blocking input " group object. The operating mode will also affect the sensor's ability to automatically turn on the function on motion (see Operating mode). The brightness level is only evaluated at the start of the function, once the function is ON the timeout will be reset with subsequent motion detections regardless of the brightness level in the room.

<p>*Timeout</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>  <p>Set key parameters via group objects</p> <p>Parameter can be overridden using the "Timeout input" group object, which is enabled by the Parameter: Timeout drop down in the advanced tab</p>	<p>Sets the time in hours, seconds and minutes for which the specific function will run.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 <p>Behaviour</p> <p>This timeout begins to countdown from the moment motion is detected. Each time motion is detected this countdown timeout will restart. If the timeout reaches zero with no re-triggering the timeout will elapse and the function will turn OFF.</p>
<p>On motion</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Presence no timeout"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • On (1) (default) • Off (0) <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - Switching output" group object.</p>
<p>On timeout</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>	<p>Defines the value sent when the function is turned OFF at timeout or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • On (1) • Off (0) (default) <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the set value will be sent on the "Function X - Switching output" group object.</p>

*dependant on other parameter selections



Dimming Value Transmitter





FUNCTION TYPE: DIMMING VALUE TRANSMITTER	
Parameter	Description
Function name	Text input area to name the specific function being configured. (max 50 characters) Default: "Default name"
Function type	Dropdown to select the function type required for that specific function channel. Options <ul style="list-style-type: none"> • Switching • Dimming value transmitter (SELECTED) • Extractor fan • Scene • HVAC • Constant light control • Advanced Behaviour The list of available group objects and parameters will change depending on the selected type.
*Brightness threshold  Day / night enabled <i>Only shown if "Brightness threshold dependant" is "Enabled" (Default - Enabled)</i>  Set key parameters via group objects <i>Parameter can be overridden using the "Brightness threshold input" group object or learnt in using the "Brightness threshold teach-in", group object both are enabled by the Parameter: Brightness threshold drop down in the advanced tab</i>	Sets the lux level below which the function will become active. Value <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 500 Behaviour When motion is detected the lux level will be read by the brightness sensor, if the brightness level in the room is lower than the threshold the function will automatically turn on. If it exceeds the threshold then the function will remain off. This setting is not used when the device is turned on via the " Function X- Pushbutton or blocking input " group object. The operating mode will also affect the sensor's ability to automatically turn on the function on motion (see Operating mode). The brightness level is only evaluated at the start of the function, once the function is ON the timeout will be reset with subsequent motion detections regardless of the brightness level in the room.
*Timeout	Sets the time in hours, seconds and minutes for which the specific function will run.

 <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>  <p>Set key parameters via group objects</p> <p>Parameter can be overridden using the "Timeout input" group object, which is enabled by the Parameter: Timeout drop down in the advanced tab</p>	<p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 <p>Behaviour</p> <p>This timeout begins to countdown from the moment motion is detected. Each time motion is detected this countdown timeout will restart. If the timeout reaches zero with no re triggering the timeout will elapse and the function will turn off.</p>
<p>On motion</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Presence no timeout"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 100 • Step: 1 • Default: 100 <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - Dimming value output" group object.</p>
<p>On timeout</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 100 • Step: 1 • Default: 0 <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the set value will be sent on the "Function X - Dimming value output" group object.</p>

*dependant on other parameter selections



Extractor Fan





FUNCTION TYPE: EXTRACTOR FAN	
Parameter	Description
Function name	Text input area to name the specific function being configured. (max 50 characters) Default: "Default name"
Function type	Dropdown to select the function type required for that specific function channel. Options <ul style="list-style-type: none"> • Switching • Dimming value transmitter • Extractor fan (SELECTED) • Scene • HVAC • Constant light control • Advanced Behaviour The list of available group objects and parameters will change depending on the selected type.
*Brightness threshold  Day / night enabled Only shown if " Brightness threshold dependant " is "Enabled" (Default - Disabled)  Set key parameters via group objects Parameter can be overridden using the " Brightness threshold input " group object or learnt in using the " Brightness threshold teach-in ", group object both are enabled by the Parameter: Brightness threshold drop down in the advanced tab	Sets the lux level below which the function will turn on. Value <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 500 Behaviour When motion is detected the lux level will be read by the brightness sensor, if the brightness level in the room is lower than the threshold the function will automatically turn on. If it exceeds the threshold then the function will remain off. This setting is not used when the device is turned on via the " Function X- Pushbutton or blocking input " group object. The operating mode will also affect the sensor's ability to automatically turn on the function on motion (see Operating mode). The brightness level is only evaluated at the start of the function, once the function is ON the timeout will be reset with subsequent motion detections regardless of the brightness level in the room.
*Timeout	Sets the time in hours, seconds and minutes for which the specific function will run.

 <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>  <p>Set key parameters via group objects</p> <p>Parameter can be overridden using the "Timeout input" group object, which is enabled by the Parameter: Timeout drop down in the advanced tab</p>	<p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 <p>Behaviour</p> <p>This timeout begins to countdown from the moment motion is detected. Each time motion is detected this countdown timeout will restart. If the timeout reaches zero with no re triggering the timeout will elapse and the function will turn off.</p>
<p>On motion</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Presence no timeout"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • On (1) (default) • Off (0) <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - Extractor fan output" group object.</p>
<p>On timeout</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • On (1) • Off (0) (default) <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the set value will be sent on the "Function X - Extractor fan output" group object.</p>

*dependant on other parameter selections



Scene





FUNCTIONAL BLOCK TYPE: SCENE	
Parameter	Description
Function name	Text input area to name the specific function being configured. (max 50 characters) Default: "Default name"
Function type	Dropdown to select the function type required for that specific function channel. Options <ul style="list-style-type: none"> • Switching • Dimming value transmitter • Extractor fan • Scene (SELECTED) • HVAC • Constant light control • Advanced Behaviour The list of available objects and parameters will change depending on the selected type.
*Brightness threshold  Day / night enabled Only shown if " Brightness threshold dependant " is "Enabled" (Default - Enabled)  Set key parameters via group objects Parameter can be overridden using the " Brightness threshold input " group object or learnt in using the " Brightness threshold teach-in ", group object both are enabled by the Parameter: Brightness threshold drop down in the advanced tab	Sets the lux level below which the function will turn on. Value <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 500 Behaviour When motion is detected the lux level will be read by the brightness sensor, if the brightness level in the room is lower than the threshold the function will automatically turn on. If it exceeds the threshold then the function will remain off. This setting is not used when the device is turned on via the " Function X- Pushbutton or blocking input " group object. The operating mode will also affect the sensor's ability to automatically turn on the function on motion (see Operating mode). The brightness level is only evaluated at the start of the function, once the function is ON the timeout will be reset with subsequent motion detections regardless of the brightness level in the room.
*Timeout	Sets the time in hours, seconds and minutes for which the specific function will run.

 <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>  <p>Set key parameters via group objects</p> <p>Parameter can be overridden using the "Timeout input" group object, which is enabled by the Parameter: Timeout drop down in the advanced tab</p>	<p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 <p>Behaviour</p> <p>This timeout begins to countdown from the moment motion is detected. Each time motion is detected this countdown timeout will restart. If the timeout reaches zero with no re triggering the timeout will elapse and the function will turn off.</p>
<p>On motion</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Presence no timeout"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 1 • Max: 64 • Step: 1 • Default: 1 <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - Scene output" group object.</p>
<p>On timeout</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 1 • Max: 64 • Step: 1 • Default: 2 <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the set value will be sent on the "Function X - Scene output" group object.</p>

*dependant on other parameter selections



HVAC



FUNCTIONAL BLOCK TYPE: HVAC	
Parameter	Description
Function name	Text input area to name the specific function being configured. (max 50 characters) Default: "Default name"
Function type	Dropdown to select the function type required for that specific function channel. Options <ul style="list-style-type: none"> • Switching • Dimming value transmitter • Extractor fan • Scene • HVAC (SELECTED) • Constant light control • Advanced Behaviour The list of available objects and parameters will change depending on the selected type.
*Brightness threshold  Day / night enabled <i>Only shown if "Brightness threshold dependant" is "Enabled" (Default - Disabled)</i>  Set key parameters via group objects <i>Parameter can be overridden using the "Brightness threshold input" group object or learnt in using the "Brightness threshold teach-in", group object both are enabled by the Parameter: Brightness threshold drop down in the advanced tab</i>	Sets the lux level below which the function will turn on. Value <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 500 Behaviour When motion is detected the lux level will be read by the brightness sensor, if the brightness level in the room is lower than the threshold the function will automatically turn on. If it exceeds the threshold then the function will remain off. This setting is not used when the device is turned on via the " Function X - Pushbutton or blocking input " group object. The operating mode will also affect the sensor's ability to automatically turn on the function on motion (see Operating mode). The brightness level is only evaluated at the start of the function, once the function is ON the timeout will be reset with subsequent motion detections regardless of the brightness level in the room.
*Timeout	Sets the time in hours, seconds and minutes for which the specific function will run.



 <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>  <p>Set key parameters via group objects</p> <p>Parameter can be overridden using the "Timeout input" group object, which is enabled by the Parameter: Timeout drop down in the advanced tab</p>	<p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 <p>Behaviour</p> <p>This timeout begins to countdown from the moment motion is detected. Each time motion is detected this countdown timeout will restart. If the timeout reaches zero with no re-triggering the timeout will elapse and the function will turn off.</p>
<p>On motion</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Presence no timeout"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • 00 = Auto • 01 = Comfort • 02 = Standby • 03 = Economy • 04 = Building protection <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the operating mode value set will be sent on the "Function X - HVAC mode output" group object.</p>
<p>On timeout</p>  <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • 00 = Auto • 01 = Comfort • 02 = Standby • 03 = Economy • 04 = Building protection <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the operating mode value set will be sent on the "Function X - HVAC mode output" group object.</p>

*dependant on other parameter selections

Constant Light Control (CLC)

FUNCTION TYPE: CONSTANT LIGHT CONTROL	
Parameter	Description
Function name	Text input area to name the specific function being configured. (max 50 characters) Default: "Default name"
Function type	Dropdown to select the function type required for that specific function channel. Options <ul style="list-style-type: none"> • Switching • Dimming value transmitter • Extractor fan • Scene • HVAC • Constant light control (SELECTED) • Advanced Behaviour The list of available objects and parameters will change depending on the selected type.
*Timeout  Day / night enabled <i>Only shown if "Operating mode" is either "Presence" or "Absence"</i>  Set key parameters via group objects <i>Parameter can be overridden using the "Timeout input" group object, which is enabled by the Parameter: Timeout drop down in the advanced tab</i>	Sets the time in hours, seconds and minutes for which the specific function will run. Value <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 Behaviour This timeout begins to countdown from the moment motion is detected. Each time motion is detected this countdown timeout will restart. If the timeout reaches zero with no re-triggering the timeout will elapse and the function will turn off.
Action on timeout	Defines what happens after timeout elapses. Options <ul style="list-style-type: none"> • Turn lights off (default) • Set to standby dim level Behaviour

	<p>If set to "Turn lights off" then the "CLC - Switching output" group object is used to turn the lights off with a 1-bit (0) when the timeout elapses.</p> <p>If set to "Set to standby dim level" then the "CLC - Dimming value output" group object is used to send a "Standby dimming level" to the dimming actuator.</p>
<p>*Standby dimming level</p> <p>Only shown when "Action on timeout" is set to "Set to standby dim level"</p>  <p>Day / night enabled</p>  <p>Set key parameters via group objects</p> <p>Parameter can be overridden using the "Standby dimming level input" group object which is enabled by the Parameter: Standby dimming level drop down in the advanced tab</p>	<p>Sets the standby dimming level that will be used once the timeout elapses. It is recommended that this value is lower than the Lower dimming output limit used for constant light control.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 100 • Default: 10 <p>Behaviour</p> <p>See Action on timeout</p>
<p>*Standby timeout</p> <p>Only shown when "Action on timeout" is set to "Set to standby dim level"</p>	<p>Sets how long the "Standby dimming level" will stay on before turning off completely.</p> <p>Options</p> <ul style="list-style-type: none"> • Always ON • Turn off after 1 min • Turn off after 2 min • Turn off after 3 min • Turn off after 4 min • Turn off after 5 min • Turn off after 6 min • Turn off after 7 min • Turn off after 8 min • Turn off after 9 min • Turn off after 10 min • Turn off after 15 min • Turn off after 20 min • Turn off after 25 min • Turn off after 30 min • Turn off after 35 min • Turn off after 40 min • Turn off after 45 min • Turn off after 50 min • Turn off after 55 min • Turn off after 1 hour • Turn off after 2 hour • Turn off after 3 hour • Turn off after 4 hour • Turn off after 5 hour • Turn off after 6 hour

	<ul style="list-style-type: none"> • Turn off after 7 hour • Turn off after 8 hour • Turn off after 9 hour • Turn off after 10 hour <p>Behaviour If the function timeout expires and Action on timeout is set to “Set to standby dim level” then a standby dim level will be sent to the dimmer on expiry of the timer. If Standby timeout was set to “Always ON” then the standby dim level will remain until motion is detected again. But if Standby timeout was set to “Turn off after 1 min” then after 1 min of the standby dim level being on it will turn off completely.</p>
<p>Brightness setpoint</p>  <p>Day / night enabled</p>  <p>Set key parameters via group objects</p> <p><i>Parameter can be overridden using the “Brightness set point input” group object or learnt in using the “Brightness set point teach-in”, group object both are enabled by the Parameter: Brightness setpoint drop down in the advanced tab</i></p>	<p>Sets the target brightness setpoint that will be maintained when the function is active.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Default: 500 • Unit: lux
<p>Response to 4-bit dimming telegram</p>	<p>Select what happens after receiving a 4-bit dimming telegram</p> <p>Options</p> <ul style="list-style-type: none"> • Maintain new lux level (default) • Maintain new dimming level <p>Behaviour</p> <p>When set to “Maintain new lux level” if a user dims the lights up or down using a keypad, after the user finishes dimming the lights, the sensor will read the light level in the room. It will then use it as a new, temporary brightness setpoint.</p> <p>When set to “Maintain new dimming level” if a user dims the lights up or down using a keypad then after the user finishes dimming the lights the sensor will stop actively controlling the lights so that the new absolute dimming level is maintained.</p> <p>In both cases the new temporary brightness setpoint or the new dimming level is reset on the expiry of the timeout or the function being turned OFF using a pushbutton.</p>
<p>Initialise control with</p>	<p>Select the Data Point Type that is used to initiate the constant light control.</p> <p>Options</p> <ul style="list-style-type: none"> • Dimming value telegram (default)



	<ul style="list-style-type: none"> • ON telegram <p>Behaviour</p> <p>If set to “Dimming value telegram” when motion is detected or a pushbutton ON is received the Initial dimming level is sent on the “Function X - CLC Dimming value output” group object. The actuator then ramps the light to this level.</p> <p>If set to “ON telegram” when motion is detected or a pushbutton ON is received a 1 is sent on “Function X - CLC - Switching output” to turn the actuator on, the actuator will then ramp at its defined rate to its configured ON value.</p>
<p>*Initial dimming level</p> <p><i>Only shown when “Initialise control with” is set to “Dimming value telegram”</i></p>	<p>Defines the initial dimming value sent to the dimmer.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0% • Max: 100% • Step: 1% • Default: 70% <p>Behaviour</p> <p>See Initialise control with for more information on the behaviour of this parameter.</p>
<p>Send stop telegram when lux level is reached</p>	<p>Determines if a 4-bit stop telegram is used during turn-on.</p> <p>Options</p> <ul style="list-style-type: none"> • Yes (default) • No <p>Behaviour</p> <p>If set to “Yes” then the brightness level is monitored at turn-on, while the light dimming level increases. When the monitored brightness level reaches the brightness setpoint, a 4-bit stop telegram is sent on “Function X - CLC Brighter darker output”. The intention is to prevent the dimmer module from overshooting the desired brightness level. For optimum performance of this feature, it is recommended to adjust the parameters of the dimmer actuator to give a 0-100% ramp time of greater than 5 seconds.</p> <p>Alternatively if set to “No” then the brightness level is not monitored during turn-on. This might result in a lux level higher than the setpoint lux level until the CLC subsequently regulates the level down to the required level.</p>
<p>Dimming control speed</p>	<p>Sets the speed at which the constant light control algorithm attempts to maintain the target brightness setpoint.</p> <p>Options</p> <ul style="list-style-type: none"> • Slow • Standard (default) • Fast • Very fast <p>Behaviour</p> <p>The default setting of “Standard” is recommended.</p> <p>The “Slow” setting will reduce the gain of the controller and can help if the lux levels are consistently overshoot or if there is a perceived control</p>



	<p>instability.</p> <p>The "Fast" and "Very Fast" settings will increase the gain of the controller and can help if lux levels are consistently not being met or if the response time is inadequate. These settings should be used with care as they can increase the risk of control instability, leading to fluctuating light levels. Please note that if dimmer outputs are operating at 100%, no higher light levels are possible.</p>
Upper dimming output limit	<p>Sets the highest dimming level in %.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 50% • Max: 100% • Step: 1 • Default: 100% <p>Behaviour</p> <p>This is the highest possible value that will be sent, irrespective of the calculated CLC value. This will limit the ability of the CLC to achieve target lux levels under all conditions.</p>
Lower dimming output limit	<p>Sets the lowest dimming level in %.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0% • Max: 49% • Step: 1 • Default: 10% <p>Behaviour</p> <p>This is the lowest possible value that will be sent, irrespective of the calculated CLC value. This will limit the ability of the CLC to achieve target lux levels under all conditions.</p>
Hysteresis	<p>Defines the hysteresis band applied to the "Brightness Setpoint", within which no output value adjustment will take place.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 10 • Unit: Lux <p>Behaviour</p> <p>If the currently measured brightness is within the hysteresis then no further action will be taken to control the light level.</p>
Switch off when there is enough brightness	<p>If the dimming level sits at the Lower dimming output limit for the specified duration the lights will be turned OFF. With the selection, "Never switch off", the lighting will never be switched off.</p> <p>Options</p> <ul style="list-style-type: none"> • Never turn off (default) • Turn off after 1 min

	<ul style="list-style-type: none">• Turn off after 2 min• Turn off after 3 min• Turn off after 4 min• Turn off after 5 min• Turn off after 6 min• Turn off after 7 min• Turn off after 8 min• Turn off after 9 min• Turn off after 10 min• Turn off after 15 min• Turn off after 20 min• Turn off after 25 min• Turn off after 30 min• Turn off after 35 min• Turn off after 40 min• Turn off after 45 min• Turn off after 50 min• Turn off after 55 min• Turn off after 1 hour• Turn off after 2 hour• Turn off after 3 hour• Turn off after 4 hour• Turn off after 5 hour• Turn off after 6 hour• Turn off after 7 hour• Turn off after 8 hour• Turn off after 9 hour• Turn off after 10 hour <p>Behaviour If the dimming output is at the lower dimming output level for the set amount of time, the function will switch off.</p>
--	---

*dependant on other parameter selections

Advanced Function Parameters

FUNCTIONAL BLOCK TYPE: ADVANCED	
Parameter	Description
Function name	Text input area to name the specific function being configured. (max 50 characters) Default: "Default name"
Function type	Dropdown to select the function type required for that specific function channel. Options <ul style="list-style-type: none"> • Switching • Dimming value transmitter • Extractor fan • Scene • HVAC • Constant light control • Advanced (SELECTED) Behaviour The list of available group objects and parameters will change depending on the selected type.
*Brightness threshold  Day / night enabled Only shown if " Brightness threshold dependant " is "Enabled" (Default - Enabled)  Set key parameters via group objects Parameter can be overridden using the " Brightness threshold input " group object or learnt in using the " Brightness threshold teach-in ", group object both are enabled by the Parameter: Brightness threshold drop down in the advanced tab	Sets the lux level below which the function will turn on. Value <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 500 Behaviour When motion is detected the lux level will be read by the brightness sensor, if the brightness level in the room is lower than the threshold the function will automatically turn on. If it exceeds the threshold then the function will remain off. This setting is not used when the device is turned on via the " Function X- Pushbutton or blocking input " group object. The operating mode will also affect the sensor's ability to automatically turn on the function on motion (see Operating mode). The brightness level is only evaluated at the start of the function, once the function is ON the timeout will be reset with subsequent motion detections regardless of the brightness level in the room.
*Timeout	Sets the time in hours, seconds and minutes for which the specific function will run.

 <p>Day / night enabled</p> <p>Only shown if "Operating mode" is either "Presence" or "Absence"</p>  <p>Set key parameters via group objects</p> <p>Parameter can be overridden using the "Timeout input" group object, which is enabled by the Parameter: Timeout drop down in the advanced tab</p>	<p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 <p>Behaviour</p> <p>This timeout begins to countdown from the moment motion is detected. Each time motion is detected this countdown timeout will restart. If the timeout reaches zero with no re-triggering the timeout will elapse and the function will turn off.</p>
<p>On motion send delay</p>	<p>Sets a time delay between the sensor being triggered and the function being sent.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:00:00 <p>Behaviour</p> <p>Delays the sending of the ON telegram by the specified time.</p>
<p>Object type</p>	<p>Dropdown menu to select the specific data type required to be sent.</p> <p>These are advanced functions for expert KNX integrators.</p> <p>Options</p> <ul style="list-style-type: none"> • 1 Bit (default) • 1 Byte unsigned • 1 Byte percentage • 1 Byte signed • 2 Bytes unsigned • 2 Byte signed • 2 Byte DPT9 float • RGB 1 X 3 Byte objects • RGB 1 X 3 Byte object DPT 232.600 • HVAC
<p>*On motion</p> <p>Only shown if "Object type" is "1-bit"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • On (default) • Off <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - Switching output" group object.</p>

<p>*On timeout</p> <p><i>Only shown if "Object type" is "1-bit"</i></p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • On • Off (default) <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - Switching output" group object.</p>
<p>*On motion (0...255)</p> <p><i>Only shown if "Object type" is "1-Byte unsigned"</i></p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 255 • Step: 1 • Default: 0 <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - 1-Byte unsigned output" group object.</p>
<p>*On timeout (0...255)</p> <p><i>Only shown if "Object type" is "1-Byte unsigned"</i></p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 255 • Step: 1 • Default: 0 <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - 1-Byte unsigned output" group object.</p>
<p>*On motion (0...100%)</p> <p><i>Only shown if "Object type" is "1-Byte percentage"</i></p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 255 • Step: 1 • Default: 0 <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - 1-Byte percentage output" group object.</p>
<p>*On timeout (0...100%)</p> <p><i>Only shown if "Object type" is "1-Byte percentage"</i></p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 255

	<ul style="list-style-type: none"> • Step: 1 • Default: 0 <p>Behaviour When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - 1-Byte percentage output" group object.</p>
<p>*On motion (-128...127) <i>Only shown if "Object type" is "1-Byte signed"</i></p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: -128 • Max: 127 • Step: 1 • Default: 0 <p>Behaviour When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - 1-Byte signed output" group object.</p>
<p>*On timeout (-128...127) <i>Only shown if "Object type" is "1-Byte signed"</i></p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: -128 • Max: 127 • Step: 1 • Default: 0 <p>Behaviour When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - 1-Byte signed output" group object.</p>
<p>*On motion (0...65535) <i>Only shown if "Object type" is "2-Byte unsigned"</i></p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 0 <p>Behaviour When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - 2-Bytes unsigned output" group object.</p>
<p>*On timeout (0...65535) <i>Only shown if "Object type" is "2-Byte unsigned"</i></p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 0 • Max: 65535 • Step: 1 • Default: 0 <p>Behaviour When timeout elapses or a pushbutton OFF is received the value set will be</p>

	sent on the " Function X -2-Bytes unsigned output " group object.
<p>*On motion (-32768...32767)</p> <p>Only shown if "Object type" is "2-Byte signed "</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: -32768 • Max: 32767 • Step: 1 • Default: 0 <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - 2-Bytes signed output" group object.</p>
<p>*On timeout (-32768...32767)</p> <p>Only shown if "Object type" is "2-Byte signed "</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: -32768 • Max: 32767 • Step: 1 • Default: 0 <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X -2-Bytes signed output" group object.</p>
<p>*On motion (-671088.64...670760.96)</p> <p>Only shown if "Object type" is "2-Byte float DPT9 "</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: -671088.64 • Max: 670760.96 • Step: 1 • Default: 1 <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - 2-Byte float output" group object.</p>
<p>*On timeout (-671088.64...670760.96)</p> <p>Only shown if "Object type" is "2-Byte float DPT9 "</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: -671088.64 • Max: 670760.96 • Step: 1 • Default: 1 <p>Behaviour</p> <p>When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - 2-Byte float output" group object.</p>
<p>*On motion (RGB)</p> <p>Only shown if "Object type" is</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p>

<p>"RGB 3 X 1-Byte objects"</p>	<p>Value</p> <ul style="list-style-type: none"> • Default: #000000 <p>Use the colour palette selection tool by clicking on the square button to right of value box or input colour value</p> <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - RGB red output" / "Function X - RGB green output" / "Function X - RGB blue output" group objects.</p>
<p>*On timeout (RGB)</p> <p>Only shown if "Object type" is "RGB 3 X 1-Byte objects"</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Default: #000000 <p>When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - RGB red output" / "Function X - RGB green output" / "Function X - RGB blue output" group object</p>
<p>*On motion (RGB)</p> <p>Only shown if "Object type" is "RGB 1 X 3-Byte objects DPT 232.600"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Default: #000000 <p>Use the colour palette selection tool by clicking on the square button to right of value box or input colour value</p> <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - RGB output" group object.</p>
<p>*On timeout (RGB)</p> <p>Only shown if "Object type" is "RGB 1 X 3-Byte objects DPT 232.600"</p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Value</p> <ul style="list-style-type: none"> • Default: #000000 <p>When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - RGB output" group object</p>
<p>*On motion (HVAC)</p> <p>Only shown if "Object type" is "HVAC"</p>	<p>Defines the value sent when the function is turned ON from a motion detection event or from an ON telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> • \$00 = Auto • \$01 = Comfort • \$02 = Standby • \$03 = Economy • \$04 = Building protection <p>Behaviour</p> <p>When motion is triggered or a pushbutton ON is received the value set will be sent on the "Function X - HVAC mode output" group object.</p>

<p>*On timeout (HVAC)</p> <p><i>Only shown if "Object type" is "HVAC"</i></p>	<p>Defines the value sent when the function is turned OFF from a timeout expiring or from an OFF telegram being received at the "Function X - Pushbutton blocking input" group object.</p> <p>Options</p> <ul style="list-style-type: none"> ● 00 = Auto ● 01 = Comfort ● 02 = Standby ● 03 = Economy ● 04 = Building protection <p>When timeout elapses or a pushbutton OFF is received the value set will be sent on the "Function X - HVAC mode output" group object</p>
---	---

*dependant on other parameter selections

Advanced Behaviour

ADVANCED - BEHAVIOUR (Common for all function types)	
Parameter	Description
Operating mode	<p>Operating mode of the presence sensor, that defines if the function can be turned ON / OFF automatically based on motion.</p> <p>Options</p> <ul style="list-style-type: none"> • Presence (auto ON and auto OFF) (default) • Absence (auto OFF only) • Presence no timeout (auto ON only) • Pushbutton only <p>Behaviour</p> <p>In Presence mode, the motion sensor will turn the function ON automatically and then when the timeout expires it will turn it OFF automatically.</p> <p>In Absence mode the sensor will never automatically turn ON the function. This will have to be done via the "Function X - Push button or blocking input" group object. Once the timeout expires the function will automatically be turned OFF.</p> <p>In Presence no timeout, the motion sensor will turn the function ON automatically, but there is no timeout so the only way to turn the lights OFF will be via the "Function X - Push button or blocking input" group object</p> <p>In Pushbutton only the sensor will not automatically turn the lights ON or OFF so the lights will have to be turned ON and OFF via the "Function X - Push button or blocking input" group object. This is only really useful when implementing a manual button to turn ON / OFF lights that are being controlled using constant light control.</p>
<p>Disable (Auto ON) during the night</p> <p><i>Only shown if "Operating mode" is "Presence (auto ON and auto OFF)" or "Presence no timeout (auto ON only)" & Day / night mode is "Enabled"</i></p>	<p>Defines if the lights will come on automatically at night</p> <p>Options</p> <ul style="list-style-type: none"> • Yes • No (default) <p>Behaviour</p> <p>If set to "No", the lights will still automatically come ON during the night, if set to "Yes" then the lights will not come ON automatically during the night.</p>
<p>Disable (auto ON) during the day</p> <p><i>Only shown if "Operating mode" is "Presence (auto ON and auto OFF)" or "Presence no timeout (auto ON only)" & Day / night mode is "Enabled"</i></p>	<p>Defines if the lights will come on automatically during the day</p> <p>Options</p> <ul style="list-style-type: none"> • Yes • No (default) <p>Behaviour</p> <p>If set to "No", the lights will still automatically come ON during the day, if set to "Yes" then the lights will not come ON automatically during the day.</p>
Polarity	<p>Sets the polarity of pushbutton / blocking actions.</p> <p>Options</p>

	<ul style="list-style-type: none"> • Don't invert (default) • Invert <p>Behaviour If set to "Don't invert" then the function will be turned ON with a 1, if set to "Invert" then the function will turn ON with a 0.</p>
<p>Pushbutton ON - blocking behaviour</p>	<p>Defines how the sensor is blocked</p> <p>Options</p> <ul style="list-style-type: none"> • Block (default) • Don't block, allow timeout • Don't block, extend timeout <p>Behaviour If set to "Block", when "Function X - Pushbutton blocking input" group object receives a ON 1 bit telegram the sensor will block the motion sensor from timing out.</p> <p>If set to "Don't block, allow timeout", when "Function X - Pushbutton blocking input" group object receives a ON 1-bit telegram, the sensor won't be blocked and a timeout will be started, subsequent motion triggers will reset the timeout.</p> <p>If set to "Don't block, extend timeout", when "Function X - Pushbutton blocking input" group object receives a ON 1-bit telegram, the timeout will be extended by the extension time. The sensor won't be blocked and the extended timeout will be started, subsequent motion triggers will reset the timeout. See Timeout extension for more information on the behaviour of the timeout extension.</p>
<p>*Timeout extension</p> <p><i>Only shown if "Pushbutton ON - blocking behaviour" is "Don't block but extend timeout"</i></p>	<p>Set the duration by which the timeout will be extended.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:10:00 <p>Behaviour Extends the function's standard timeout by the specified duration. This is useful in kids bedrooms as they will probably leave the lights on once they turn them on manually. So instead of blocking the sensor when turned on from a pushbutton the timeout can simply be extended.</p> <p>If the standard timeout was 5 minutes and the extension was 55 minutes after 1 hour of no movement in the room the lights would be turned off.</p> <p>The timeout extension is only applied for one ON/OFF cycle. So the next time the motion sensor turns the lights ON automatically it will only run for the 5 min timeout instead of the extended 1 hour timeout.</p>
<p>Pushbutton ON - Telegram behaviour</p> <p><i>Only shown if "Function type" is not "Constant light control"</i></p>	<p>Defines what telegram is sent / action taken when a pushbutton turns the function ON.</p> <p>Options</p> <ul style="list-style-type: none"> • Do nothing • Send ON telegram (same as motion) (default) • Send OFF telegram (same as timeout) • Send alternative value telegram <p><i>NOTE: "Sending alternative value" is only available for functions that are configured as "Dimming value transmitter" or "Scene".</i></p>

	<p>Behaviour</p> <p>If set to "Do nothing", no telegrams are sent. This is useful if the "Function X - Pushbutton blocking input" group object is to be used as a pure blocking group object.</p> <p>If set to "Send ON telegram (same as motion)", then the ON telegram will be sent. This is the same telegram that is sent when motion is detected.</p> <p>If set to "Send OFF telegram (same as timeout)", then the OFF telegram will be sent. This is the same telegram that is sent when the function times out.</p> <p>If set to "Send alternative value telegram", then the value specified in "Alternative value ON" will be sent.</p>
<p>Pushbutton ON - Behaviour</p> <p><i>Only shown if "Function type" is "Constant light control"</i></p>	<p>Defines what action is action taken when a push button turns the function ON.</p> <p>Value</p> <ul style="list-style-type: none"> • Do nothing • Start constant light control (default) • Stop constant light control <p>Behaviour</p> <p>If set to "Start constant light control", then the constant light controller will start and the light will be turned ON.</p> <p>If set to "Stop constant light control", then the constant light controller will stop and the light will be turned OFF or set to a standby level depending on the Action on timeout setting.</p>
<p>*Alternative value ON</p> <p><i>Only shown if "Pushbutton ON - Telegram behaviour" is set to "Send alternative value telegram"</i></p>	<p>Defines the alternative value to be sent.</p> <p>Value (If the function type is Scene)</p> <ul style="list-style-type: none"> • Min: 1 • Max: 64 • Step: 1 • Default: 1 <p>Value (If the function type is Dimming value transmitter)</p> <ul style="list-style-type: none"> • Min: 0 • Max: 100 • Step: 1 • Default: 100
<p>Pushbutton OFF - blocking behaviour</p>	<p>Defines how the sensor is unblocked</p> <p>Options</p> <ul style="list-style-type: none"> • Unblock after an exit period (default) • Unblock immediately • Unblock once the room is unoccupied <p>Behaviour</p> <p>If set to "Unblock after an exit period", when "Function X - Pushbutton blocking input" group object receives a OFF 1-bit telegram the sensor will first block the function if it is not already blocked and then after the exit period it will unblock the function.</p>

	<p>If set to "Unblock immediately", when "Function X - Pushbutton blocking input" group object receives a OFF 1-bit telegram the sensor will unblock the function.</p> <p>If set to "Unblock once the room is unoccupied", when "Function X - Pushbutton blocking input" group object receives a OFF 1-bit telegram the sensor will first block the function if it is not already blocked and then the function will remain blocked until the room has been unoccupied for a period of time defined by the "Duration with no motion to evaluate room as unoccupied" parameter.</p>
<p>*Exit period</p> <p>Only shown if "Pushbutton OFF - blocking behaviour" is "Unblock after an exit period"</p>	<p>Defines the period of time that is given to allow a user to leave the room without the sensor retriggering and the lights coming on.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:0:20 <p>Behaviour See Pushbutton OFF - blocking behaviour</p>
<p>*Duration with no motion to evaluate room as unoccupied</p> <p>Only shown if "Action on unblocking" is "Unblock once the room is unoccupied"</p>	<p>Defines the period of time that has to elapse before the room is defined as being unoccupied.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:00 • Max: 23:59:59 • Default: 00:00:30 <p>Behaviour See Pushbutton OFF - blocking behaviour</p>
<p>Pushbutton OFF - Telegram behaviour</p> <p>Only shown if "Function type" is not "Constant light control"</p>	<p>Defines what telegram is sent / action taken when a pushbutton turns the function OFF.</p> <p>Options</p> <ul style="list-style-type: none"> • Do nothing • Send ON telegram (same as motion) • Send OFF telegram (same as timeout) (default) • Send alternative value telegram <p><i>NOTE: "Sending alternative value" is only available for functions that are configured as "Dimming value transmitter" or "Scene".</i></p> <p>Behaviour</p> <p>If set to "Do nothing", no telegrams are sent. This is useful if the "Function X - Pushbutton blocking input" group object is to be used as a pure blocking group object.</p> <p>If set to "Send ON telegram (same as motion)", then the ON telegram will be sent. This is the same telegram that is sent when motion is detected.</p> <p>If set to "Send OFF telegram (same as timeout)", then the OFF telegram will be sent. This is the same telegram that is sent when the function times out.</p> <p>If set to "Send alternative value telegram" then the value specified in "Alternative value OFF" will be sent.</p>

<p>Pushbutton OFF - Behaviour</p> <p><i>Only shown if "Function type" is "Constant light control"</i></p>	<p>Defines what action is action taken when a push button turns the function OFF.</p> <p>Value</p> <ul style="list-style-type: none"> • Do nothing • Start constant light control • Stop constant light control (default) <p>Behaviour</p> <p>If set to "Start constant light control", then the constant light controller will start and the light will be turned ON.</p> <p>If set to "Stop constant light control", then the constant light controller will stop and the light will be turned OFF or set to a standby level depending on the Action on timeout setting.</p>
<p>*Alternative value OFF</p> <p><i>Only shown if "Pushbutton OFF - Telegram behaviour" is set to "Send alternative value telegram"</i></p>	<p>Defines the alternative value to be sent</p> <p>Value (If the function type is Scene)</p> <ul style="list-style-type: none"> • Min: 1 • Max: 64 • Step: 1 • Default: 1 <p>Value (If the function type is Dimming value transmitter)</p> <ul style="list-style-type: none"> • Min: 0 • Max: 100 • Step: 1 • Default: 100
<p>Send telegram on day / night change</p>	<p>Defines if the new value is sent at the transition between day and night.</p> <p>Options</p> <ul style="list-style-type: none"> • Disable • Enable (default) <p>Behaviour</p> <p>When enabled, at the point of transition between day -> night or night -> day the sensor will send a telegram changing the lighting levels to the new settings.</p> <p>If set to "Enable", at the point of transition between day -> night, the sensor will send a function telegram corresponding to the "Night" value.</p> <p>If set to "Enable", at the point of transition between night -> day, the sensor will send a function telegram corresponding to the "Day" value.</p> <p>If set to "Disable, no function telegram is sent until after the next Timeout and subsequent detection / push button input event takes place.</p>
<p>Brightness threshold dependant</p> <p><i>Only shown if Function type is not equal to "Constant light control"</i></p>	<p>Defines if the brightness level of a room is evaluated when a function is turned ON automatically from a motion detection.</p> <p>Options</p> <ul style="list-style-type: none"> • Disable (default for functions with a function type "Extractor fan" or "HVAC") • Enable (default for all functions other than "Extractor fan" and "HVAC") <p>Behaviour</p>

	<p>If Enabled, then the Brightness threshold is used to determine if the lights should turn on. (See Brightness threshold for more information)</p>
<p>Long presence detection</p>	<p>Defines if long presence is required to turn the function ON</p> <p>Options</p> <ul style="list-style-type: none"> • Disable (default) • Enable <p>Behaviour</p> <p>When enabled the function will only turn on when motion is detected multiple times within a set time period. The time period is defined by the Duration of continuous presence required for function activation parameter.</p>
<p>*Duration of continuous presence required for function activation</p> <p><i>Only shown if "Long presence detection" is set to "Enable"</i></p>	<p>Value</p> <ul style="list-style-type: none"> • Min: 6 • Max: 65535 • Step: 1 • Default: 60 • Unit: Seconds <p>Behaviour</p> <p>If the duration is set to 60 seconds then there needs to be a motion detected event at least 3 times within the last 60 second rolling window.</p> <p>One detection needs to be between 0-20 seconds, one between 20-40 seconds and one between 40-60 seconds before current time for the function to turn ON.</p> <p>If the duration was 180 seconds then one detection needs to be between 0-60 one between 60-120 seconds and one between 120-180 seconds before current time for the function to turn ON.</p>
<p>Behaviour upon bus voltage return and programing</p>	<p>Dropdown to select to what state the motion sensor will revert when power is returned after a power loss or after programming.</p> <p>Options</p> <ul style="list-style-type: none"> • Send OFF telegram (same as timeout) • Send ON telegram (same as motion) • Send ON/OFF telegram (same as timeout / same as timeout) telegram based on the state before voltage loss • No reaction (default) <p>Behaviour</p> <p>If there is a bus power failure, or the device is re-programmed, on the return of the bus power / reloading of the parameters the following will be true for each setting:</p> <p>Send OFF telegram (same as timeout) - the sensor will send the OFF telegram when it starts up after the Startup delay</p> <p>Send ON telegram (same as motion) - the sensor will send the ON telegram when it starts up after the Startup delay</p> <p>Send ON/OFF telegram (same as timeout / same as timeout) based on the state before voltage loss - the sensor will either send an ON / OFF telegram depending on the state it was last in before bus voltage loss or programing</p> <p>No reaction - The sensor will not send on startup.</p>

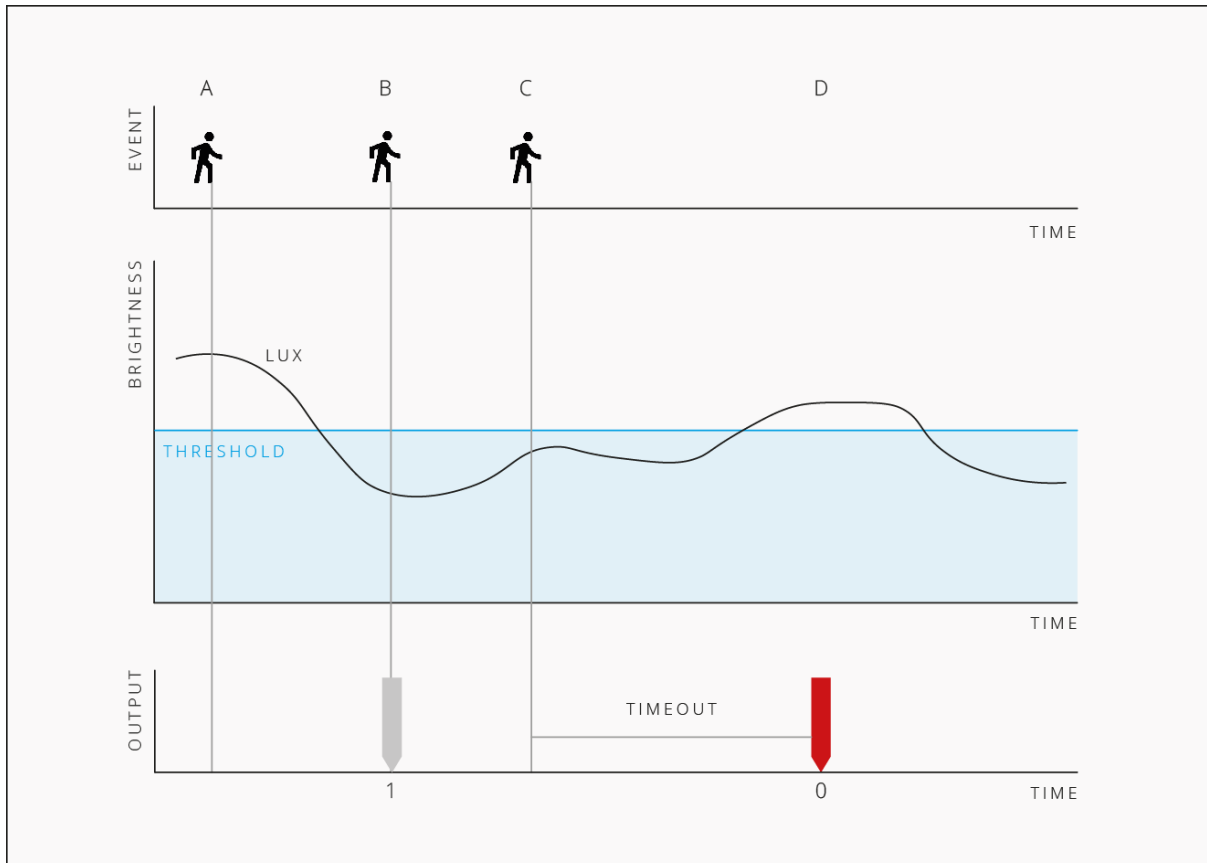
<p>Cyclic Sending</p>	<p>Defines if cyclic sending is enabled</p> <p>Options</p> <ul style="list-style-type: none"> • Disable (default) • Enable <p>Behaviour When enabled, the current state of the function is sent on the bus in a cyclic fashion. The cycle time defines the period between the telegrams.</p>
<p>*Cycle time</p> <p><i>Only shown if "Cyclical sending" is set to "Enable"</i></p>	<p>Sets the frequency of telegram sending when cyclic sending is enabled.</p> <p>Value</p> <ul style="list-style-type: none"> • Min: 00:00:05 • Max: 23:59:59 • Default: 00:01:00 <p>Behaviour (See cyclic sending)</p>
<p>Parameter: Timeout</p> <p><i>Only shown if "Operating mode" is either "Presence" or "Absence"</i></p>	<p>Configure whether the timeout can be set via a group object. Also sets whether an ETS download will overwrite the value previously sent via a group object.</p> <p>Options</p> <ul style="list-style-type: none"> • Hide group object • Show group object - Overwrite parameter value on ETS download • Show group object - Don't overwrite parameter value on ETS download
<p>*Parameter: Brightness threshold</p> <p><i>Only shown if "Brightness threshold dependant" is set to "Enable"</i></p>	<p>Configure whether the brightness threshold can be set via a group object. Also sets whether an ETS download will overwrite the value previously sent via a group object.</p> <p>Options</p> <ul style="list-style-type: none"> • Hide group object • Show group object - Overwrite parameter value on ETS download • Show group object - Don't overwrite parameter value on ETS download
<p>*Parameter: Brightness setpoint</p> <p><i>Only shown if "Function type" is set to "Constant light control"</i></p>	<p>Configure whether the brightness setpoint can be set via group object. Also sets whether an ETS download will overwrite the value previously sent via a group object.</p> <p>Options</p> <ul style="list-style-type: none"> • Hide group object • Show group object - Overwrite parameter value on ETS download • Show group object - Don't overwrite parameter value on ETS download
<p>*Parameter: Standby dimming level</p> <p><i>Only shown if "Function type" is set to "Constant light control" & "Action on timeout" is set to "Set to standby dim level"</i></p>	<p>Configure whether the standby dimming level can be set via group object. Also sets whether an ETS download will overwrite the value previously sent via a group object.</p> <p>Options</p> <ul style="list-style-type: none"> • Hide group object • Show group object - Overwrite parameter value on ETS download • Show group object - Don't overwrite parameter value on ETS download

*dependant on other parameter selections

How-To Guides

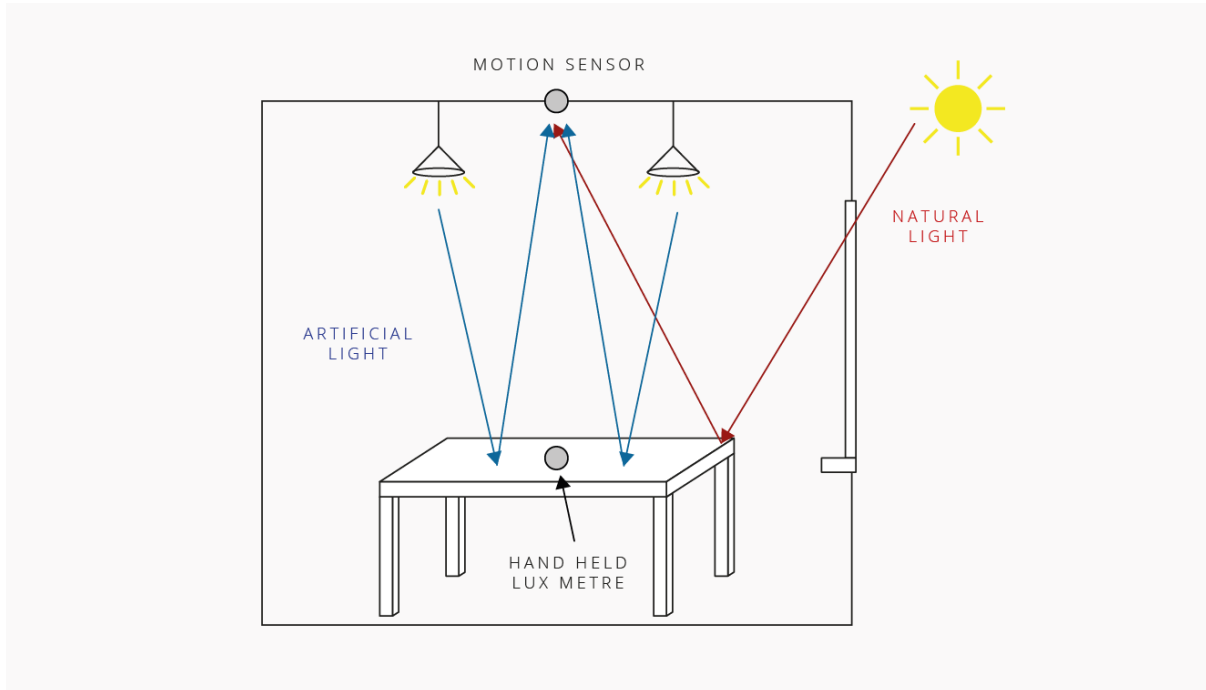
Brightness Dependent Function Activation

When using [Brightness threshold dependent](#) function activation, the measured lux level must be below the defined brightness threshold for the function to turn ON. Once the function is ON the timeout can be reset with subsequent motion detections regardless of the lux level.



Brightness Sensor Calibration

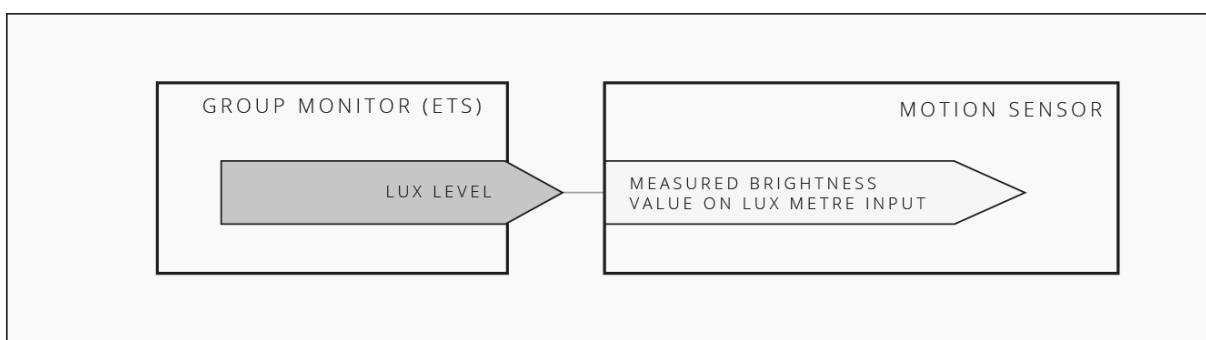
The brightness sensor is located behind a 'C' shaped light window on the front face of the sensor. The brightness sensor will detect the combination of both artificial light and natural light that is reflected off the surfaces below the device as shown in the diagram.



It is therefore necessary to apply a room correction factor to convert lux level received at the sensor to an estimate of the lux level on the desk / floor below the sensor. During factory calibration the sensor is calibrated for an average environment containing desks and carpets, but in reality every environment will be different. Therefore calibration will be necessary to ensure optimal performance.

At any time the current brightness level can be read from the "[Brightness - Brightness level output](#)" group object, or it can be configured to be sent at regular intervals or on the change of value (see [Brightness](#)).

To calibrate the brightness sensor, first ensure that the [calibration objects](#) are enabled. Then connect the "[Brightness calibration - Measured brightness value on lux metre input](#)" group object so that a value can be sent from ETS.



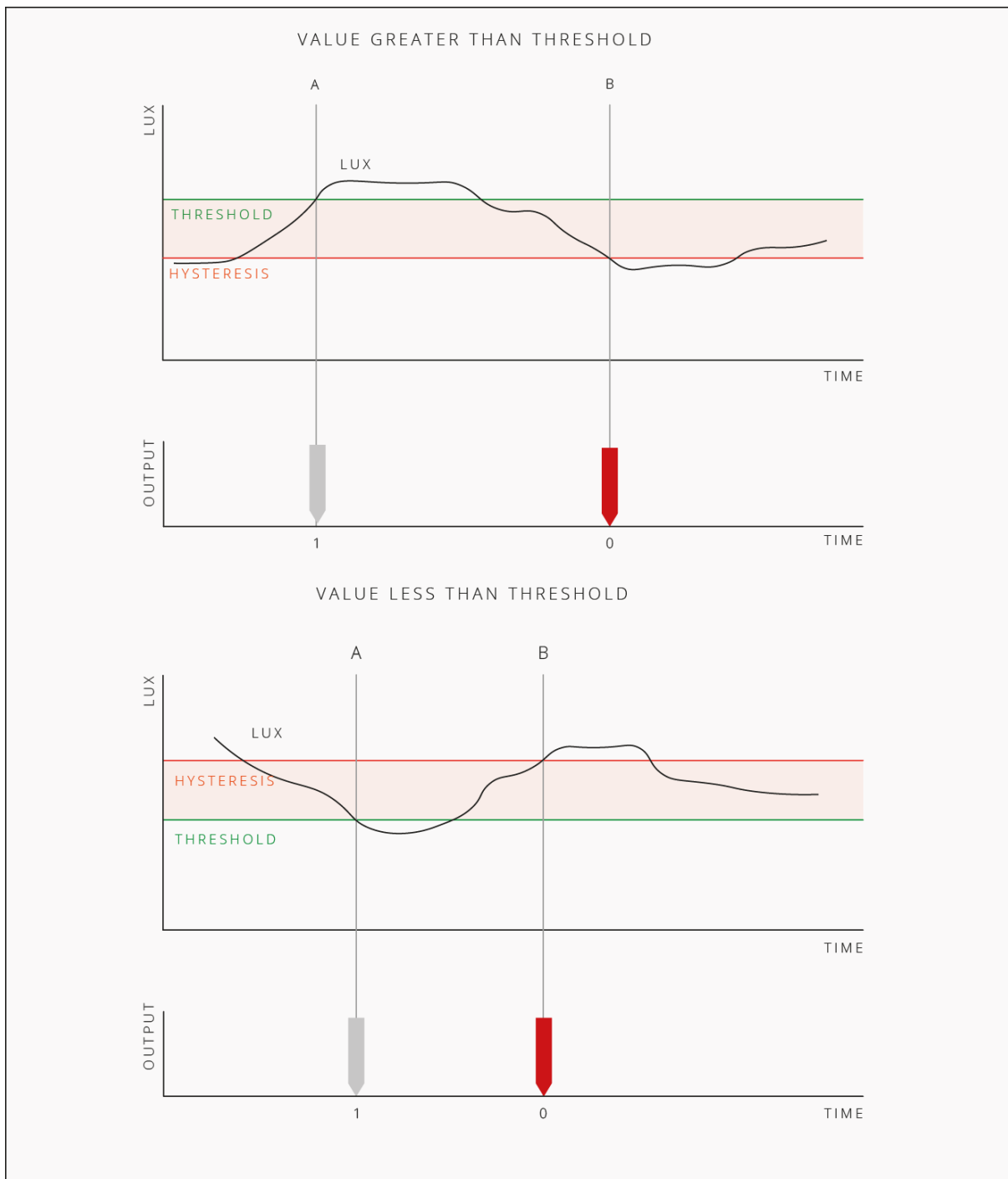
A lux meter should then be placed on the surface below the sensor. The lux reading should be taken (be careful to ensure that you are not creating a shadow on the lux meter when taking the reading). As soon as you take the reading, use the ETS diagnostics group monitor to send the lux reading to the sensor on the "[Brightness calibration - Measured brightness value on lux metre input](#)" group object. The sensor will then internally calculate the room correction factor. The output from the "[Brightness - Brightness level output](#)" group object should now match the lux meter.

The room correction factor can then optionally be read from "[Brightness calibration - Room correction factor input or output](#)" group object. The default room correction factor is 0.3, if you want to return to "factory settings" then connect the "[Brightness calibration - Room correction factor input or output](#)" group object to a group address and use ETS diagnostics, group monitor to send the value 0.3.

Using Brightness Triggers

The brightness triggers can be useful for turning things ON/OFF or changing the state of devices based on the lux level in the room. A great example of this could be to turn a keypad into night mode when the room has a lux level lower than 10 lux. For keypads that support night mode this typically dims the feedback / orientation LED's so they are not too bright.

The diagrams below show how the hysteresis works when configured to be lower than / greater than the configured thresholds. For these example diagrams "[Value sent on trigger](#)" is set to 1.



Using Test Mode

Test mode is useful for testing the performance of the sensor and its connection to the rest of the system.

To put a sensor in test mode first connect the "[Test mode - Detection area test mode input](#)" group object to a group address and use ETS group monitor to send a 1 to the sensor. Then depending on the settings of "[Test mode](#)" the sensor will go into test mode for the set duration:

While the sensor is in test mode it will:

- Not evaluate brightness thresholds.
- Not be blocked by the pushbutton blocking input.
- Not evaluate long presence for any functions that have it enabled.
- Revert to using simple switching for functions using constant light control.
- Have a timeout of 5 seconds on all functions.

Using Master and Slave

The detection area of a sensor can be expanded by connecting multiple sensors together. In the example below two “slave” sensors have been connected to a single “master”.

The slave motion sensors have been configured as slaves by setting [Master & slave functionality](#) to “Slave”.

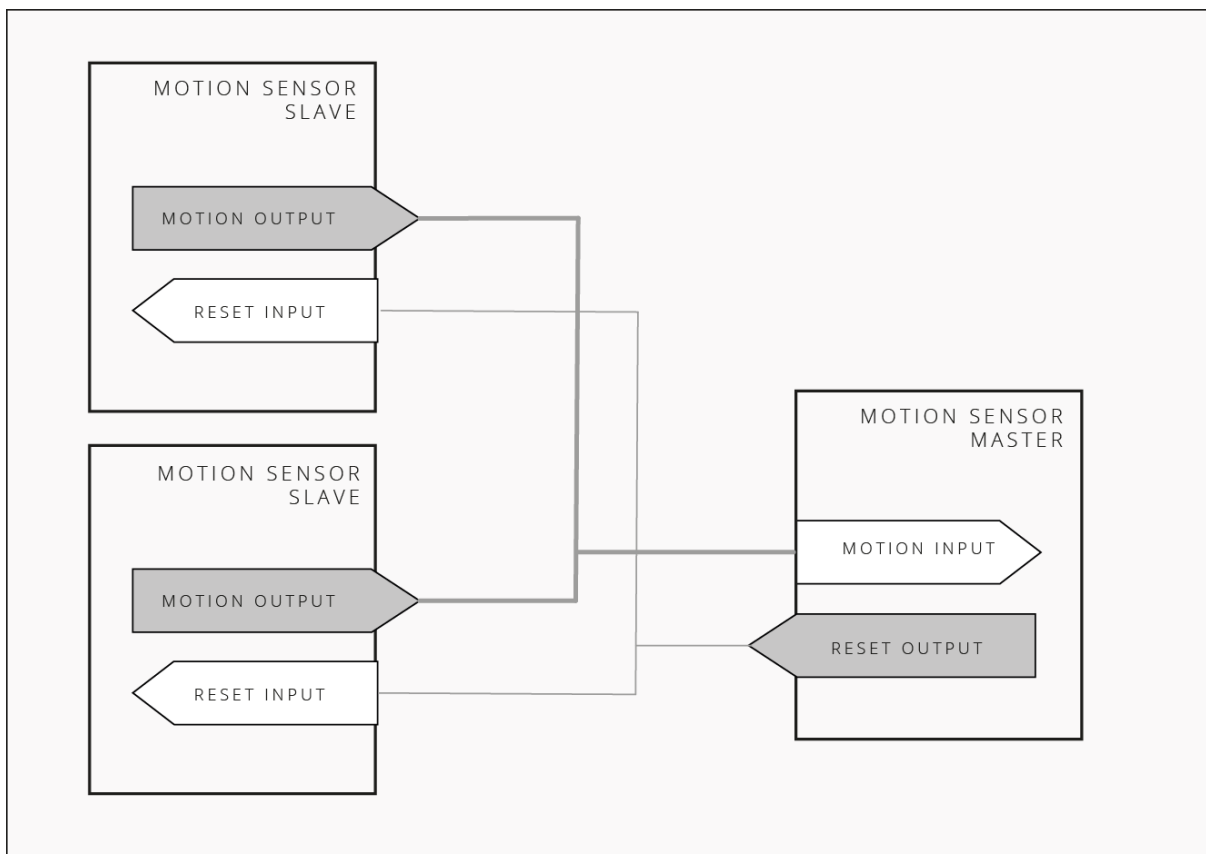
The master motion sensor has been configured as a master by setting [Master & slave functionality](#) to “Master”.

Two group addresses are required to connect the slaves to the master, firstly link the “[Slave - Motion output](#)” group object of both slaves to the “[Master - Motion input](#)” group object of the master.

Secondly connect the “[Master - Reset output](#)” group object of the master to the “[Slave - Reset input](#)” group objects of the slaves.

For the devices that have been configured as a slave an additional parameter will be visible called “[Slave output locking time](#)” it is recommended that you set this to at least 5 times less than the shortest timeout running on the master.

For example if the master was running two functions, one for lighting with a timeout of 5 minutes and one for HVAC with a timeout of 20 minutes . The “[Slave output locking time](#)” parameter of all connected slaves should be set to 1 min as that is 5 times less than the smallest timeout of 5 minutes used for lighting.



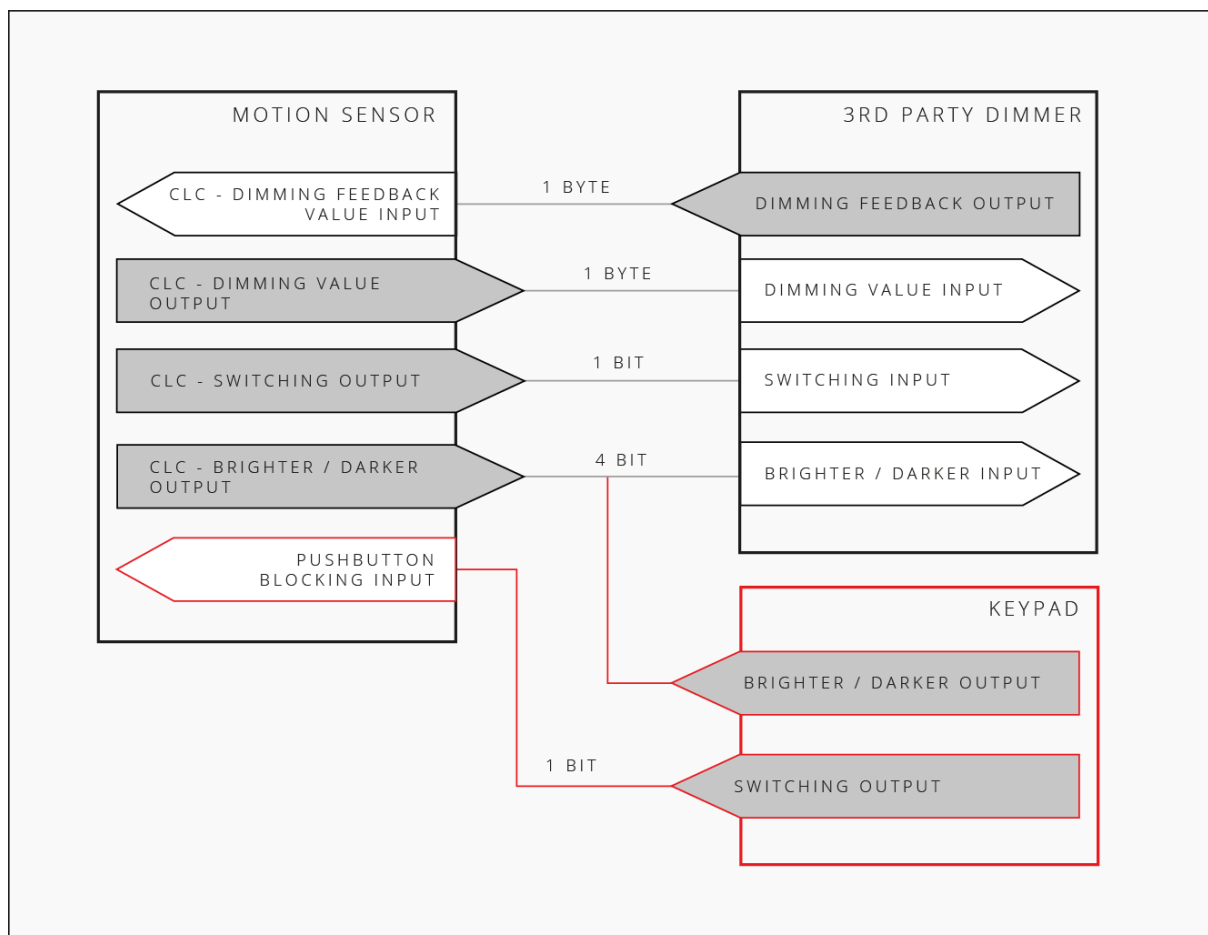
Using Constant Light Control

The constant light controller is an extremely powerful function type as it allows the dynamic control of the dimming level of an actuator to achieve a set lux level in a space. The diagram below shows in black the minimum links that need to be made to achieve basic functionality.

Optionally a keypad can be connected (shown in red) to manually take control of the dimmer, in this instance both the 4-bit and 1-bit objects need to be connected.

It is also important to set up the dimming actuator correctly. It is recommended that the following guidelines are followed:

- Disable turning ON from a 4-bit telegram.
- Dimming response to 1-byte / 1 bit telegram should be "Ramp over 4 seconds".
- Turn on level should be set to 100%.
- Minimum and maximum dimming level should match the levels specified in the sensor.



The constant light controller features some really powerful features including:

Pushbutton interaction (Only when red links above are made)

If the user wishes to increase the brightness of the dimmer, this can be achieved by using a 4-bit telegram (sent from a keypad). When the sensor detects this interaction it suspends automatic control of the actuator and waits for the manual interaction to stop. The sensor can be configured so that once the manual interaction has ended, the CLC will either [maintain the new dimming level](#) (i.e don't dynamically control the dimming level) or [maintain new lux level](#). If the sensor is set to "[Maintain new lux level](#)" then the

current lux level is captured and is used as the new lux target. As soon as the sensor turns the lights OFF the lux target is reset to the default, ready for when the next user enters the room. If set to "[Maintain the new dimming level](#)" then the sensor simply stops controlling and the set dimming level remains until the function times out and the light is turned OFF.

Standby dimming level

The sensor can be configured so that when the function times out, it will set a standby dimming level, or it can turn all lights off, see "[Action on timeout](#)". If a standby dimming level is configured then this can then optionally turn OFF after a set period of time, this double timeout approach can be used to prevent users being plunged into darkness, see "[Standby timeout](#)".

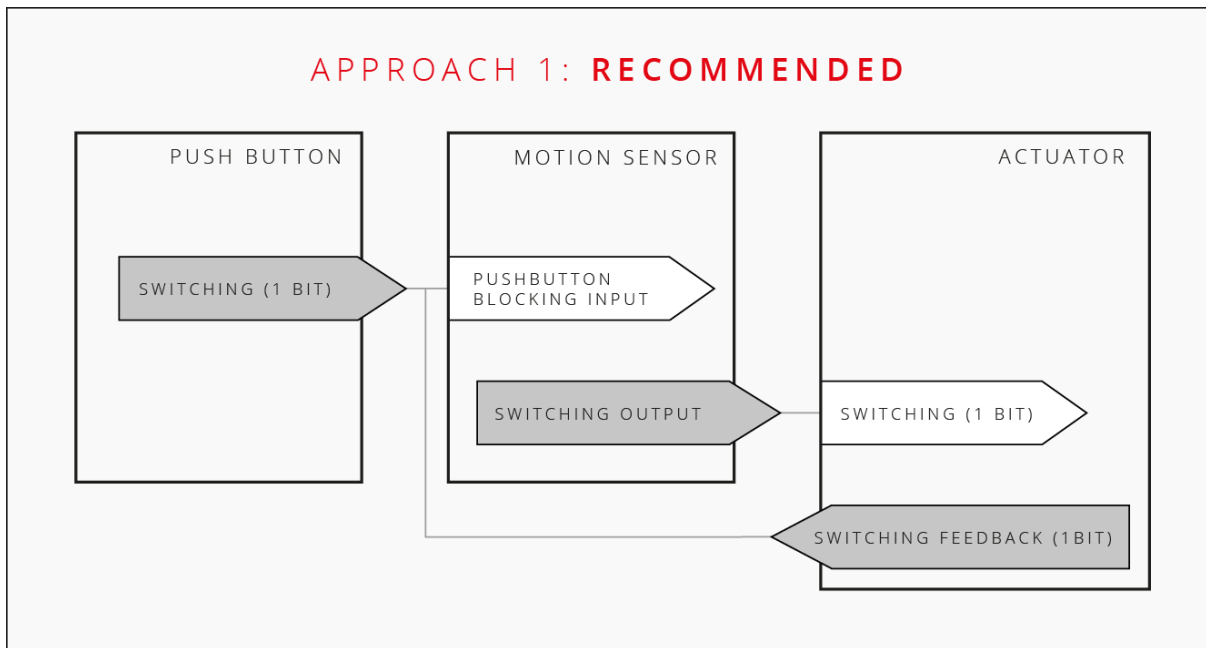
Turn off when there is enough brightness

The sensor can also be optionally set to turn the lights OFF when there is enough brightness in the room for a set period of time, see "[Switch off when there is enough brightness](#)". This will happen when the measured lux level is high enough for the sensor's output dimming value to be at its minimum and that this has persisted for the specified duration.

Connect a Pushbutton

There are two schools of thought with regard to linking a KNX pushbutton to a KNX motion sensor.

Approach 1 (Default recommended setup): The pushbutton is only linked to the motion sensor and the motion sensor is responsible for turning the light ON/OFF when the pushbutton is pressed.

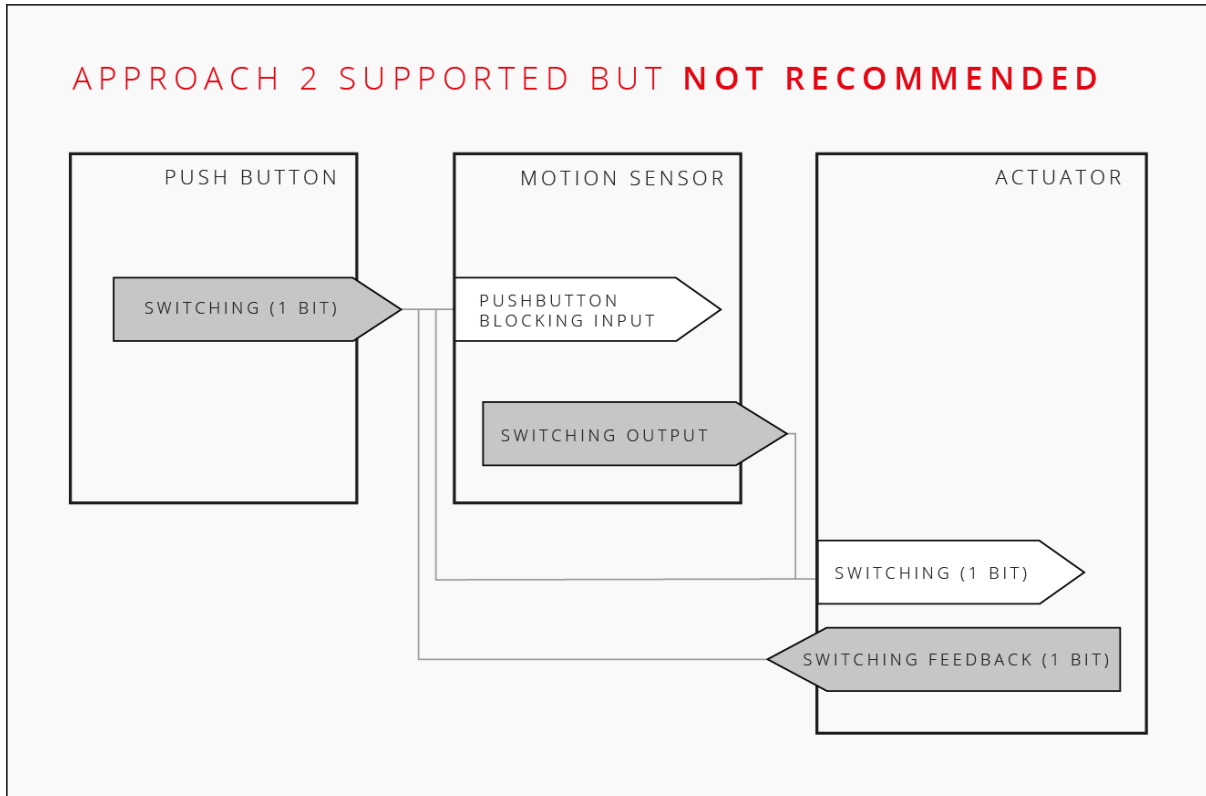


The screenshot below shows the default settings which are designed to work with approach 1, with these settings the sensor is configured to automatically turn the function ON when the sensor detects motion and OFF when the timeout elapses.

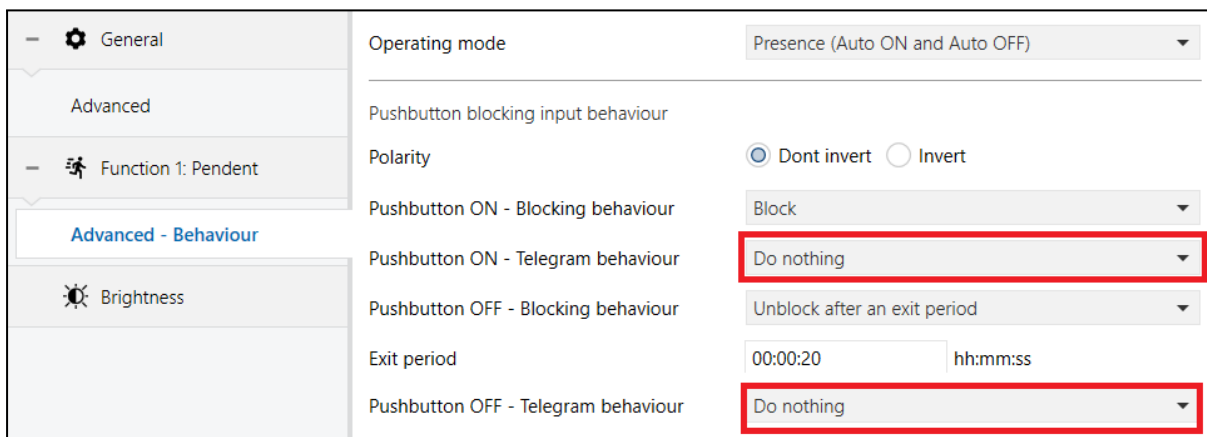
If the user turns the lights ON with a manual pushbutton, the motion sensor will be blocked from timing out, and an ON telegram will be sent from the motion sensor to the actuator to turn the light ON. Conversely, when the user turns the lights OFF with a manual pushbutton, the motion sensor will then turn the lights OFF and unblock the sensor after a duration of 20 seconds allowing the user time to leave the room.

<ul style="list-style-type: none"> — General — Function 1: Pendent <li style="background-color: #e0e0e0;">— Advanced - Behaviour — Brightness 	<p>Operating mode Presence (Auto ON and Auto OFF) ▾</p> <hr/> <p>Pushbutton blocking input behaviour</p> <p>Polarity <input checked="" type="radio"/> Dont invert <input type="radio"/> Invert</p> <p>Pushbutton ON - Blocking behaviour Block ▾</p> <p>Pushbutton ON - Telegram behaviour Send ON telegram (Same as motion) ▾</p> <p>Pushbutton OFF - Blocking behaviour Unblock after an exit period ▾</p> <p>Exit period 00:00:20 <input type="text"/> hh:mm:ss</p> <p>Pushbutton OFF - Telegram behaviour Send OFF telegram (Same as timeout) ▾</p>
---	--

Approach 2: The pushbutton is directly linked to the motion sensor and the actuator in one group address. In this setup the pushbutton turns the actuator on directly and just blocks the motion sensor preventing it from timing out.



To enable the sensor to be configured in approach 2 the two parameters shown below in red have to be changed to “Do nothing”. This will prevent the motion sensor from turning ON/OFF the light directly when receiving a telegram from the push button, it will simply just block the motion sensor.



Linking approach overview

The sensor supports both approaches but by default is set up to support Approach 1 and this is therefore the recommended approach. This is because Approach 2 does not allow the more advanced features of the sensor to be realised, such as sending alternative values for manual interaction (only dimming value transmitter / scenes), extending the timeout on manual interaction rather than blocking and also starting / stopping constant light control.

Advanced blocking options

Instead of simply blocking the sensor when a 1 (ON) telegram is received (default behaviour) the sensor can optionally be configured to "[Dont block, extend timeout](#)" this is a useful way of ensuring the light is not going to timeout but also guarantee that, for example, after 3 hours of the room not being used the light will be turned OFF. When this option is selected you can choose how long to extend the timeout if the extension was set to 5 minutes and the standard timeout was 3 minutes then the new timeout would be 8 minutes.

The sensor can also be configured to "[Don't block, allow timeout](#)" this allows the sensor to timeout. By allowing a timeout this makes the "[Pushbutton blocking input](#)" group object behave the same as a motion detection.

Advanced unblocking options

Instead of unblocking the motion sensor after an [Exit period](#) (default behaviour) the sensor can optionally be configured to [Unblock immediately](#). In this configuration the sensor will be unblocked at the same time as turning the light OFF.

Alternatively, the sensor can be configured to [Unblock once the room is unoccupied](#), in this mode the sensor waits until the room has been unoccupied for [Duration with no motion to evaluate room as unoccupied](#) before unblocking the sensor, this accounts for the situation where the light is turned OFF and the user stays in the room.

Advanced telegram sending

If the function type is configured as [Scene](#) or [Dimming value transmitter](#) then the sensor can send alternative values for a manual interaction compared to an automatic interaction. For example, this could be useful for a bathroom during the night when by default the lights could come on at 5% (just enough to see), but if the user wanted to do their makeup or another activity then they could press the keypad and bring the lights on at a higher level.

Connect Day and Night Mode Objects

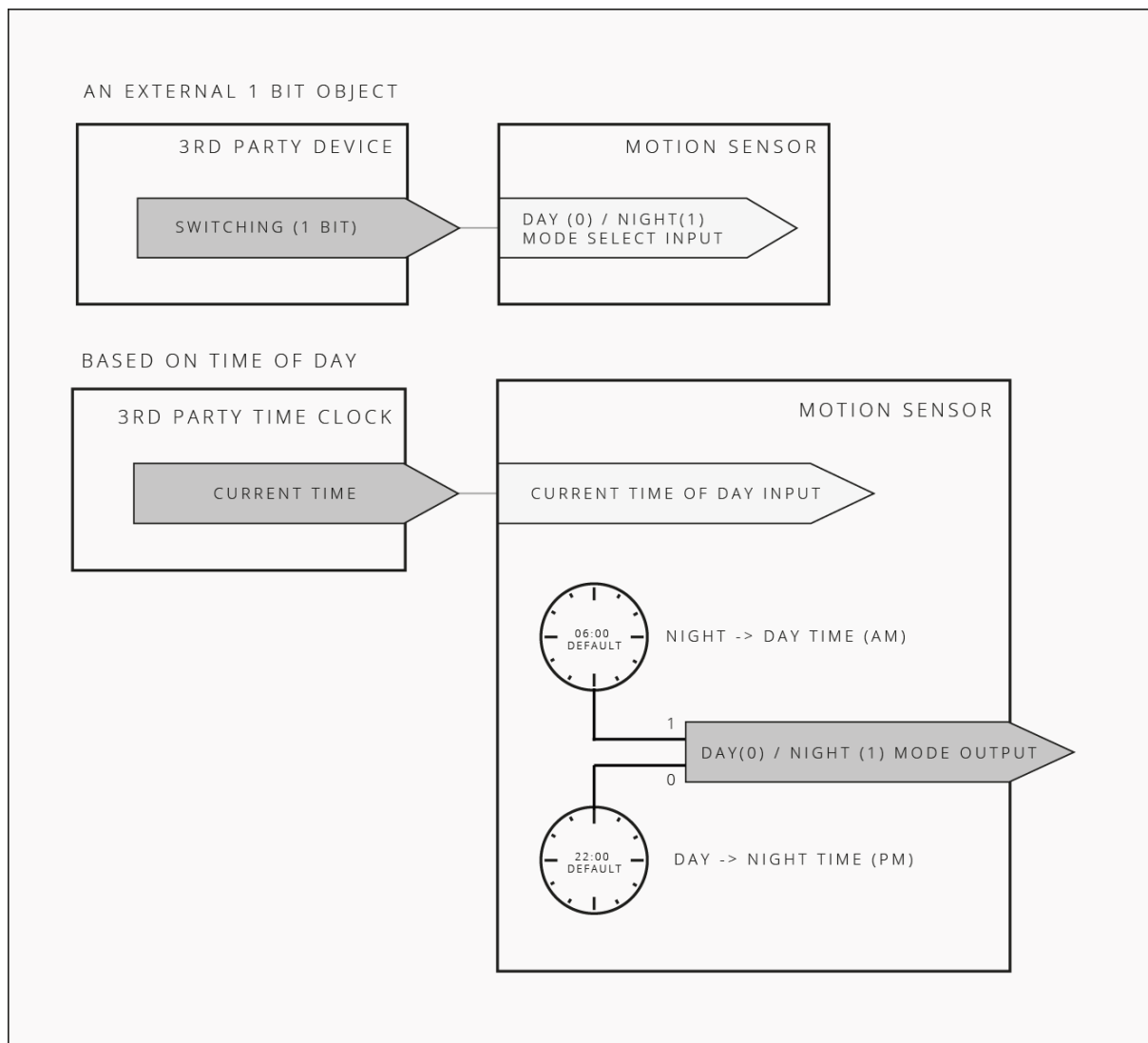
The day / night feature of the sensor is extremely powerful and is explained in more detail in [Day / Night Functionality](#).

To enable all the day / night functionality the sensor needs to know the time of day and when to change state between night and day. There are two approaches that can be taken:

1: **An external 1-bit object** can be used to switch between Day (0) and Night (1) modes. With this approach a 3rd party device is responsible for defining when it is "Day" and when it is "Night", typically a KNX server.

2: **Based on time of day**. In this approach the sensor is simply provided the time of day via an external object on a regular interval to keep the internal time clock in sync. An interval of 1 hour would suffice. The Night -> Day and Day -> Night change over times are then specified by parameters or optionally set using external group objects. The day / night state is then managed internally within the sensor.

Any parameter with the day night logo in the parameter tables can be set up to operate differently during the day compared to during the night.



Appendix - Group object list

Number	Name	Object Function	ObjectSize	DatapointType
Global - Group objects				
1	Brightness calibration	Measured brightness value on lux meter input	2 Bytes	DPST-9-4
2	Brightness calibration	Room correction factor input or output	2 Bytes	DPT-9
3	Brightness	Brightness level output	2 Bytes	DPST-9-4
4	Brightness trigger: 1	Brightness trigger 1 output	1 Bit	DPST-1-1
5	Brightness trigger: 2	Brightness trigger 2 output	1 Bit	DPST-1-1
6	External brightness	Brightness level input	2 Bytes	DPST-9-4
7	Day / Night Mode	Day (0) / Night (1) mode output	1 Bit	DPST-1-24
8	Day / Night Mode	Day (0) / Night (1) mode select input	1 Bit	DPST-1-24
9	Day / Night Mode	Day -> Night time input	3 Bytes	DPST-10-1
10	Day / Night Mode	Night -> Day time input	3 Bytes	DPST-10-1
11	Day / Night Mode	Current time of day input	3 Bytes	DPST-10-1
12	Master	Motion input	1 Bit	DPST-1-1
13	Slave	Motion output	1 Bit	DPST-1-1
14	Slave	Reset input	1 Bit	DPST-1-15
15	Master	Reset output	1 Bit	DPST-1-15
16	Heartbeat	Heartbeat output	1 Bit	DPST-1-1
17	Test mode	Detection area test mode input	1 Bit	DPST-1-1

Function - Group objects X 4				
26,56,86,116	Function X: Default Name	Dimming value output	1 Byte	DPST-5-1
27,57,87,117	Function X: Default Name	RGB red output	1 Byte	DPT-5-1
28,58,88,118	Function X: Default Name	RGB green output	1 Byte	DPT-5-1
29,59,89,119	Function X: Default Name	RGB blue output	1 Byte	DPT-5-1
30,60,90,120	Function X: Default Name	RGB output	3 Bytes	DPST-232-600
31,61,91,121	Function X: Default Name	1 byte unsigned output	1 Byte	DPT-5 DPST-5-10
31,61,91,121	Function X: Default Name	1 byte signed output	1 Byte	DPT-6 DPST-6-10
31,61,91,121	Function X: Default Name	1 byte percentage output	1 Byte	DPT-5 DPST-5-1
31,61,91,121	Function X: Default Name	HVAC mode output	1 Byte	DPST-20-102
32,62,92,122	Function X: Default Name	2 bytes unsigned output	2 Bytes	DPT-7 DPST-7-1
32,62,92,122	Function X: Default Name	2 bytes signed output	2 Bytes	DPT-8 DPST-8-1
32,62,92,122	Function X: Default Name	2 bytes float output	2 Bytes	DPT-9
33,63,93,123	Function X: Default Name	Scene output	1 Byte	DPST-18-1
34,64,94,124	Function X: Default Name	Switching output	1 Bit	DPST-1-1
34,64,94,124	Function X: Default Name	Extractor fan output	1 Bit	DPST-1-1
35,65,95,125	Function X: Default Name	CLC - Switching output	1 Bit	DPST-1-1
36,66,96,126	Function X: Default Name	CLC - Brighter / darker output	4 Bit	DPST-3-7

37,67,97,127	Function X: Default Name	CLC - Dimming value output	1 Byte	DPST-5-1
38,68,98,128	Function X: Default Name	CLC - Dimming feedback value input	1 Byte	DPST-5-1
39,69,99,129	Function X: Default Name	Pushbutton blocking input	1 Bit	DPST-1-1
40,70,100,130	Function X: Default Name	Brightness threshold input	2 Bytes	DPST-9-4
40,70,100,130	Function X: Default Name	Brightness threshold input (Day)	2 Bytes	DPST-9-4
41,71,101,131	Function X: Default Name	Brightness threshold input (Night)	2 Bytes	DPST-9-4
42,72,102,132	Function X: Default Name	Brightness threshold teach-in (Day)	1 Bit	DPST-1-1
42,72,102,132	Function X: Default Name	Brightness threshold teach-in	1 Bit	DPST-1-1
43,73,103,133	Function X: Default Name	Brightness threshold teach-in (Night)	1 Bit	DPST-1-1
44,74,104,134	Function X: Default Name	Timeout input	2 Bytes	DPST-7-5
44,74,104,134	Function X: Default Name	Timeout input (Day)	2 Bytes	DPST-7-5
45,75,105,135	Function X: Default Name	Timeout input (Night)	2 Bytes	DPST-7-5
46,76,106,136	Function X: Default Name	Brightness setpoint input	2 Bytes	DPST-9-4
46,76,106,136	Function X: Default Name	Brightness setpoint input (Day)	2 Bytes	DPST-9-4
47,77,107,137	Function X: Default Name	Brightness setpoint input (Night)	2 Bytes	DPST-9-4
48,78,108,138	Function X: Default Name	Brightness setpoint teach-in (Day)	1 Bit	DPST-1-1
48,78,108,138	Function X: Default Name	Brightness setpoint teach-in	1 Bit	DPST-1-1
49,79,109,139	Function X: Default Name	Brightness setpoint teach-in (Night)	1 Bit	DPST-1-1

50,80,110,140	Function X: Default Name	Standby dimming level input	1 Byte	DPST-5-1
50,80,110,140	Function X: Default Name	Standby dimming level input (Day)	1 Byte	DPST-5-1
51,81,111,141	Function X: Default Name	Standby dimming level input (Night)	1 Byte	DPST-5-1