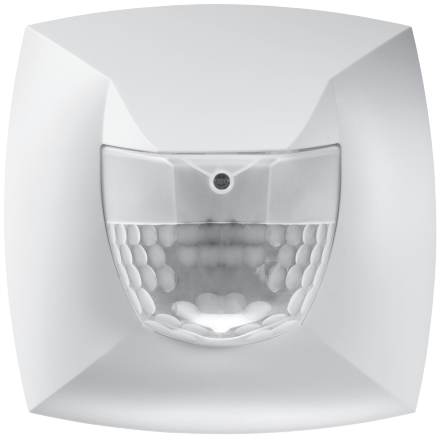
KNX manual

Application description

KNX presence detector
PresenceLight 180x-KNX
PresenceLight 360x-KNX



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1. Functional characteristics

1.1 PresenceLight 180/360 KNX presence detector

Presence detector switches or controls a maximum of two lighting groups dependent on the presence of persons and the current brightness. A brightness level is defined for this, the second light group is then switched or controlled with a brightness difference. With brightness-dependent switching, the lighting is switched on for an adjustable length of time if movement is detected in detection area and there is insufficient light.

With constant light control, the lighting is controlled to constant accumulated brightness of artificial light and daylight if movement has been detected in the detection area

An additional channel transmits the presence information in the room to further devices such as heating, ventilation or blinds controls. The channel has a switch-on delay and a switch-off delay.

Another channel is for room monitoring, the presence of persons is shown with a high degree of certainty.

The presence detector also has another integrated scene component as well the possibility of processing scene numbers for both lighting groups. In combination with the remote control, the presence detector is not only capable of switching and dimming its own lighting groups but also other external consumers such as lights, blinds etc.

1.2 Features

- Optional control of one or two light channels
- Optional constant light control or brightness-dependent switching
- Brightness-dependent switching with dimming values override
- Reduction of switch-off delay time in the event of short presence
- Separate channel (presence) for controlling other devices such as HVAC systems with delayed switch-on and switch-off delay
- Separate channel for room monitoring with cyclical report object
- Parallel connection Master-Slave for complete coverage of large areas
- Parallel connection Master-Master for several lighting groups with separate light measurement but joint presence detection
- Separate disable objects for light and presence channel
- Scene control with two scenes
- Scene functionality with scene numbers
- Detection and sending of current brightness
- Adjustable dimming value at standby
- Two brightness level options
- Setting of brightness level via bus object
- SendoPro management remote control (optional)
  - Changing of parameters
- SendoClic user remote control (optional)
  - Lighting groups individual switching and dimming
  - Two programmable scenes
  - Optional control of blinds or external channels

1.3 Special features

The choice between brightness-dependent switching or constant light control, two available light channels, the integrated scene functionality plus the multi-purpose user remote control makes the presence detector into a compact lighting control.

The SendoPro management remote control permits the adjustment and optimisation of defined parameters. For example, the brightness level can be set quickly and reliably via both daylight-dependent switching and constant light control.

In order to achieve the optimum adjustment to the lighting conditions in a room, the current brightness [lux] can be read out via object and optimised using the room correction factor.

1.4 Information on this document

Style

< ..... >	Parameter names
active..	The two dots at the end of the text in a parameter selection indicate that an additional parameter page has been opened.

Terminology

Operating mode	Master
	Slave
Function mode	Fully automatic
	Semi-automatic
Control type	Switching
	Constant light control

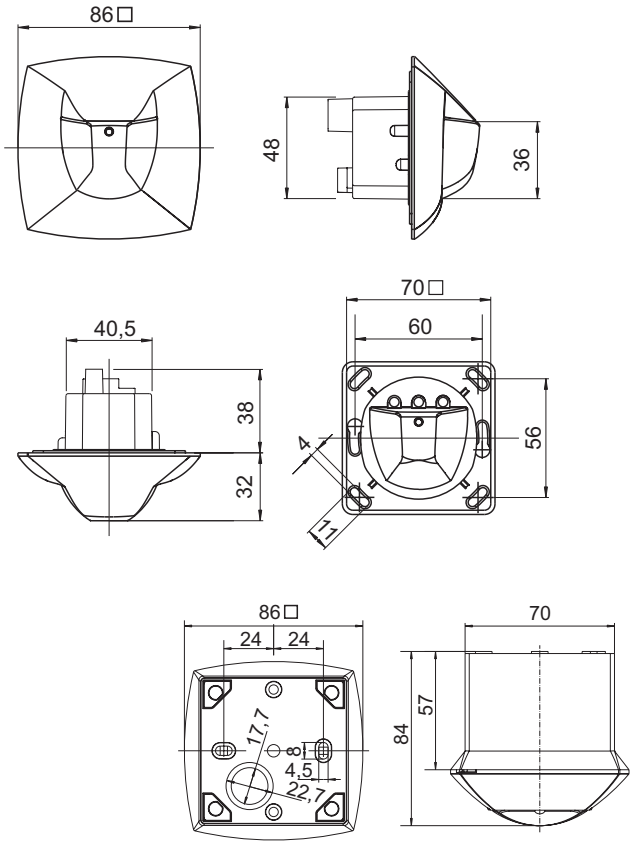
1.5 Technical data

Presence detector	PresenceLight 180x-KNX	Presence-Light 360x-KNX
detection angle horizontal vertical	180°	360° 120°
Recommended installation height	1.6 - 2.2 m	2.0 - 3 m
Detection area	2.2 m installation height: 25 m² (7 x 3.5 m) seated 100 m² (ca. 8 m Radius) moving	3 m installation height: 20 m² (4.5 x 4.5 m) seated 49 m² (7 x 7 m) moving
Light measurement	Mixed light	
Parameter setting		
All settings can be remotely controlled via ETS	described in this document	
Brightness range Light measurement deactivated	approx. 5 - 2000 lux Measurement of (the light channels only switch on if there is presence)	
Switch-off delay time time	30 sec - 60 min	
Standby time light	30 sec - 60 min / on	
Switch-off delay time presence	10 sec - 120 min	
Switch-on delay time presence	10 sec - 30 min / inactive	
Connection terminal	KNX	
Power consumption	13 mA	
Receiving communication data Sending data	IR Radio 868 MHz	
Ambient temperature	-10° – +50° C	
Storage temperature	-25 °C – +60 °C	
Protection rating	IP 40 IP 54 (when installed with gasket set)	
Mounting		
Mounting depth	40 mm	
Mounting diameter	50 mm	
Mounting plate (integrated)	70 x 70 mm	
Size of concealed housing	Size 1, (NIS, PMI)	

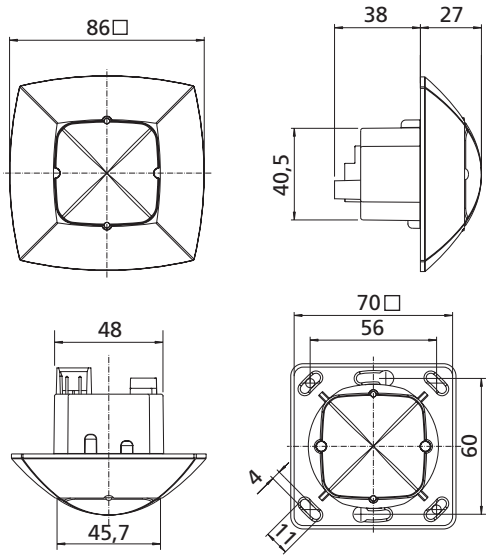
Artikelnummern		
PresenceLight 180A-KNX WH, IP 40, white	IP 40	200 9 051
PresenceLight 180A-KNX BK, IP 40, black	IP 40	200 9 821
PresenceLight 180A-KNX SR, IP 40, silver	IP 40	200 9 822
PresenceLight 180B-KNX WH, IP 54, white	IP 54	200 9 050
PresenceLight 180B-KNX BK, IP 54, black	IP 54	200 9 815
PresenceLight 180B-KNX SR, IP 54, silver	IP 54	200 9 816
PresenceLight 360A-KNX WH, IP 40, white	IP 40	200 9 001
PresenceLight 360A-KNX BK, IP 40, black	IP 40	200 9 818
PresenceLight 360A-KNX SR, IP 40, silver	IP 40	200 9 819
PresenceLight 360B-KNX WH, IP 54, white	IP 54	200 9 000
PresenceLight 360B-KNX BK, IP 54, black	IP 54	200 9 812
PresenceLight 360B-KNX SR, IP 54, silver	IP 54	200 9 813
Surface frame PresenceLight 40WH, IP 40, white		907 0 606
Surface frame PresenceLight 40BK, IP 40, black		907 0 607
Surface frame PresenceLight 40SR, IP 40, silver		907 0 608
Surface frame PresenceLight, incl. gasket set IP 54, white		907 0 513
Surface frame PresenceLight BK, incl. gasket set IP 54, black		907 0 634
Surface frame PresenceLight SR, incl. gasket set IP 54, silver		907 0 635
Gasket set IP 54 for flush-mounting	spare part	907 0 570
Gasket set IP 54 for surface frame	spare part	907 0 520
Management remote control SendoPro 868-A		907 0 675
User remote control SendoClic		907 0 690

1.5.1 Measures

PresenceLight 180x-KNX



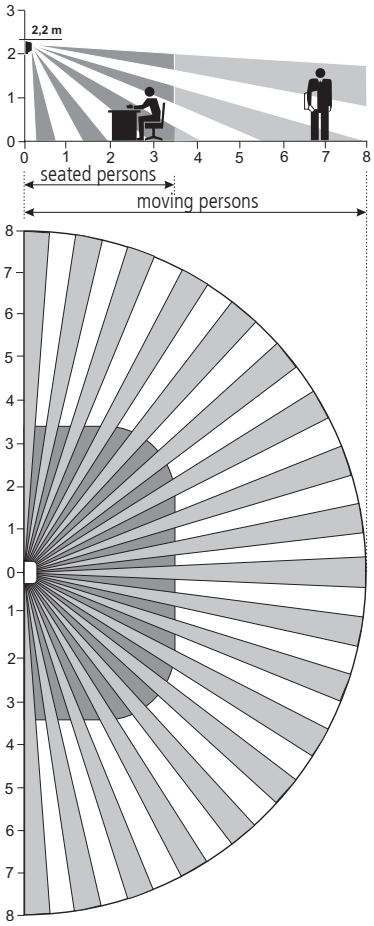
PresenceLight 360x-KNX



1.5.2 Detection area PresenceLight 180x-KNX

Installation height	stationary persons		moving persons	
2.2 m	25 m²	7.0 m x 3.5 m	100 m²	ca. 8 m Radius

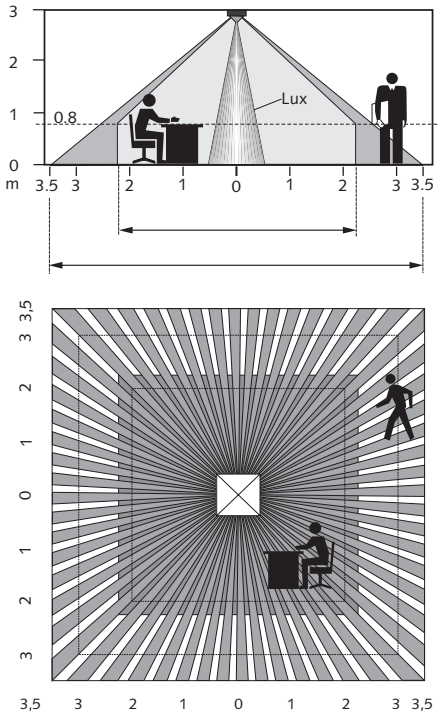
Detection area with an installation height of 2.2 m, side view and layout.



1.5.3 Detection area PresenceLight 360x-KNX

Installation height	stationary persons		moving persons	
2,0 m	9 m^2	3,0m x 3,0m	20 m^2	4,5m x 4,5m ± 0,5m
2,5 m	16 m^2	4,0m x 4,0m	36 m^2	6,0m x 6,0m ± 0,5m
3,0 m	20 m^2	4,5m x 4,5m	49 m^2	7,0m x 7,0m ± 1,0m
3,5 m	---	---	64 m^2	8,0m x 8,0m ± 1,0m

Detection area with an installation height of 3.0 m, side view and layout.



2. The PresenceLight 180/360 KNX application program

2.1 Selection in the product database

	PresenceLight 180x-KNX	PresenceLight 360x-KNX
Manufacturer	Theben HTS AG	
Product family	Physical sensors	
Product type	Presence detector	
Program name	PresenceLight 180-KNX V1.00	PresenceLight 360-KNX V1.00

The KNX databases can be found on our website: http://www.theben-hts.ch or http://www.theben.de

2.2 Parameter pages

Name	Description
General	General settings, e.g. operating mode, sensitivity
Channel functions	Activation of channels
A channel, light	Settings for the lighting control of A channel light
Constant light control	Settings of light control for A channel light
Disabling function light	Settings for disabling of A channel light
B channel, light	Settings for the lighting control of channel B light. The settings are based on A channel light.
G channel, send brightness value	Settings for the current brightness value via the bus
H channel, presence	Channel for the presence-dependent control of other systems such as heating, air conditioning
Disabling function presence	Settings for disabling of H channel presence
J channel, presence	Channel for the presence-dependent control of other systems such as heating, air conditioning
J channel disabling function	Settings for disabling of J channel presence
M channel, room monitoring	Settings for M channel room monitoring
Remote control	Settings for allocation of commands in user remote control
General scenes	Definition of scenes in relation to user remote control
Disabling light channels with external scenes	Definition of external scene numbers, which disable presence detectors
Telegram converter	Settings for telegram converter

2.3 Communication objects

2.3.1 Overview

The PresenceLight 180/360 KNX presence detector has 39 communication objects.

Object number	Object name	Function	Type	Flags				
				C	R	W	T	U
0	A channel light	Switching	1 bit	✓		✓	✓	
1	A channel light	Brighter/darker	4 bit	✓		✓	✓	
2	A channel light	Send value	1 byte	✓		✓	✓	
3	A channel light	Feedback value	1 byte	✓		✓	✓	✓
4	A brightness level	Receive value	2 bytes	✓		✓	✓	
5	A brightness level (teach-in)	$01=call/ $81=save	1 byte	✓		✓	✓	
6	Alternative brightness level A	Receive value	2 bytes	✓		✓	✓	
7	B channel light	Switching	1 bit	✓		✓	✓	
8	B channel light	Brighter/darker	4 bit	✓		✓	✓	
9	B channel light	Set value	1 byte	✓		✓	✓	
10	B channel light	Feedback value	1 byte	✓		✓	✓	✓
11	A,B channels light	Disable/enable	1 bit	✓		✓		
12	A,B channels light	Selecting brightness level	1 bit	✓		✓		
13	Central command	Receive	1 bit	✓		✓		
14	External scene	Receive	1 byte	✓		✓		
15	G channel brightness	Send lux value	2 bytes	✓	✓		✓	
16	H channel presence	Switching	1 bit	✓			✓	
17	J channel presence	Send value	1 byte	✓			✓	
18	H,J channel, presence	Disable/enable	1 bit	✓		✓		
19	M channel room monitoring	Message	1 bit	✓			✓	
20	M channel room monitoring	Confirmation	1 bit	✓		✓		
21	M channel room monitoring	Sabotage cyclically	1 bit	✓			✓	
22	M channel room monitoring	Enable	1 bit	✓		✓		
23	Parallel connection	Trigger input/output	1 bit	✓		✓	✓	
24	Input	Scenes 1/2	1 bit	✓		✓	✓	
24	Scene output	Scenes 1 / 2 , scene numbers	1 bit / 1 byte	✓			✓	
25	IR external channel 1	Switching	1 bit	✓			✓	
26	IR external channel 1	Brighter/darker	4 bit	✓			✓	
27	IR external channel 2	Switching	1 bit	✓			✓	
28	IR external channel 2	Brighter/darker	4 bit	✓			✓	
29	IR external channel 1	Blinds Up / Down	1 bit	✓			✓	
30	IR external channel 1	Lamella Open / Closed	1 bit	✓			✓	
31	IR external channel 2	Blinds Up / Down	1 bit	✓			✓	
32	IR external channel 2	Lamella Open / Closed	1 bit	✓			✓	
33	Test mode presence	On/Off	1 bit	✓		✓		
34	Test mode brightness	On/Off	1 bit	✓		✓		
35	Diagnosis	Status	1 byte	✓	✓		✓	
36	Input converter 1 bit	Receive	1 bit	✓		✓		
37	Input converter 4 bit	Receive	4 bit	✓		✓		
38	Input converter 1 byte	Receive	1 byte	✓		✓		
39	Output converter 1 byte	Send value	1 byte	✓			✓	

2.3.2 Explanation of the flags

Flag	Flag name	Description
C	Communication	Object can communicate
R	Read	Object value can be read (ETS / display etc.)
W	Write	Object can receive
T	Transmit	Object can send

2.3.3 Object characteristics for lighting control

Object	Object name	Function	Description
Object 0	A channel light	Switching	In the <control type> "switching", the A light switch output sends an ON telegram on detection of movement and insufficient brightness and an OFF telegram on completion of the switch-off delay time or with sufficient brightness: 0 = Absence or sufficient brightness (OFF) 1 = Presence and insufficient brightness (ON)
Object 0 Object 1 Object 2 Object 3	A channel light A channel light A channel light A channel light	Switching Brighter/darker Send value Feedback value	Objects 1 - 3 are available if "constant light control" is selected as the <control type>. In the <control type> "constant light control", objects 0 - 3 are used for constant light control. All four objects must be linked for a functioning constant light control. A different response is produced depending on configuration: **Start control with value telegram:** A value telegram is sent via object 2 on detection of movement and insufficient brightness. The actuator switches and dims up. An ON telegram is sent via object 1 on reaching the set point value. The presence detector sends a request for the current dimming value to the actuator via object 3. Control with 1-byte telegrams to object 2 starts from this dimming value. **Start control with ON telegram:** An On telegram is sent via object 0 on detection of movement and insufficient brightness. The actuator switches on and dims up to the configured value on the actuator. The presence detector sends a request for the current dimming value to the actuator via object 3. Control with 1-byte telegrams via object 2 starts from this dimming value. The presence detector does not have any specific push button inputs but does respond to push button commands sent to objects 0 to 2: See information on push button operation on page 28 chapter 3.
Object 4	A brightness level	Receive value	Object available if "yes" has been selected at <set brightness level via bus>. This enables the adapting of the brightness level during operation. The brightness level value will not be accepted if the received value is outside the value range (5..2000 lux) or the set point value does not match the current room correction factor setting (see setting limit). The value transfer will not be carried out if the received value is outside the value range of the brightness level. Object 4 returns the stored value of the currently active brightness level. When changing the brightness level with the SendoPro, the object 4 returns the new value. If an error occurs, object 35 provides the information for error diagnosis with a 1-byte value. See „Diagnosis“ page 14

Object	Object name	Function	Description
Object 5	A brightness level	call up / teach-in	Object available if "yes" has been selected at <set brightness level via bus>. The presence detector accepts the currently measured brightness value [lux] as a new brightness level with a value telegram $81 (128). Object 4 sends the current brightness level via a value telegram $01 (1). Transfer is made to current active brightness level. For example, if the alternative brightness level is active, the current measured brightness value [lux] is transferred to the alternative brightness level via the value telegram $81 (128). The value transfer will not be carried out if the measured brightness value is outside the value range of the brightness level. Object 4 sends the stored value of the currently active brightness level. If an error occurs, object 35 provides the information for error diagnosis with a 1-byte value. See „Diagnosis“ page 14
Object 6	Alternative brightness level A	Receive value	Object available if "yes" has been selected at <set alternative brightness level via bus>. This enables the adapting of the alternative brightness level during operation. The received brightness level will not be accepted if the received value is outside the value range (5..2000 lux) or the brightness level does not match the current room correction factor setting (see setting limit). The value transfer will not be carried out if the received brightness level is outside the value range of the brightness level. Object 4 sends the stored value of the currently active brightness level. If an error occurs, object 35 provides the information for error diagnosis with a 1-byte value. See „Diagnosis“ page 14
Object 7	B channel light	Switching	If two switching outputs are used, object 4 provides brightness-dependent switching for B channel. Function see object 0: A channel light: Switching.
Object 7 Object 8 Object 9 Object 10	B channel light B channel light B channel light B channel light	Switching Brighter/darker Send value Feedback value	Objects 8 - 10 are available if "constant light control" is selected as the <control type>. If two channels are used, objects 7-10 provide control or constant light control for B channel. Function see objects 0 - 3.
Object 11	A,B channels light	Disable/enable	Object available if "inactive" is NOT selected in <disable light channels>. Both channels are disabled with an ON or OFF telegram. At the start of the disabling process, the light outputs optionally send one of the following telegrams: ON,OFF, no telegram. While disabled, the two channels do not send any telegrams, based neither on presence/absence nor brightness. The light channels are enabled via an ON or OFF telegram in addition to the telegram when setting disable process. When enabled, the detector always sends the current status and thereby continues the brightness-dependent switching or constant light control.
Object 12	A,B channels light	Selecting brightness level	Object available if "active" has been selected at <selecting brightness level>. It is possible to switch between two brightness levels for daylight-dependent switching or constant light control depending on the configuration. - An ON telegram to bus object 12 switches to the alternative brightness level. - An OFF telegram switches back to the original base brightness level as set point value. This applies to both switching and constant light control.

Object	Object name	Function	Description
Object 13	Central command	Receive	An ON telegram switches on A,B channels light. The behaviour of the presence detector is identical as if the user switches on via a push button. The behaviour depends on the selected control type. See chapter 3 page An OFF telegram causes: the switching off of A,B channels light in accordance with the following conditions. - no movement with the last 5 seconds: The light switches off immediately. The ongoing switch-off delay times for A,B channels light and standby are set to 0. The presence detector then returns to normal operation. - Movement up to receipt of OFF telegram: The light stays on. **Fully automatic:** - If further movement is then detected, the light switches on again if there is insufficient brightness. **Presence detector is disabled** - The central command is not carried out.
Object 14	External scene	Receive	Object available if "active.." has been selected at <Disabling light channels with external scenes>. Scene numbers sent straight to the actuator can be directed to the presence detector to maximise the influence on the behaviour of the presence detector. See page 27 chapter 2.4.15
Object 15	G channel brightness	Send lux value	Object available if "active" has been selected on <G channel, send brightness value>. G channel brightness sends the current brightness measurement as 2-byte telegram via object 15. The frequency of telegrams depends on the cycle time and the minimum change in brightness. The 2-byte telegrams via object 15 provide visualisation of a brightness value, but should not be used for an external control. The use of the presence detector's internal constant light control is recommended for that sort of control. The brightness measurement can be adapted to the conditions in a room with the room correction factor. See page 19 chapter 2.4.3

2.3.4 Characteristics of other objects

Object	Object name	Function	Description
Object 16	H channel presence:	Switching	Object available if "active.." has been selected at <H channel presence>. H channel presence sends an ON or OFF telegram or no telegram if there is a presence (independent of brightness after a delay due to configured switch-on delay). An ON or OFF telegram or no telegram is sent after expiry of the switch-off delay.
Object 17	J channel presence:	Send value	Object available if "active.." has been selected at <J channel presence>. J channel presence sends an ON telegram or no telegram if there is a presence (independent of brightness after a delay due to configured switch-on delay)
Object 18	H,J channel presence	Disable/enable	Object available if "inactive" is NOT selected in <Disable presence channels>. The presence channel is disabled via an ON or OFF telegram. At the start of the disabling process, the presence channel optionally sends one of the following telegrams: ON,OFF, no telegram. While disabled, the presence channel does not send any telegrams, based neither on presence/absence nor brightness. The presence channel is enabled via an ON or OFF telegram in addition to the telegram when setting disable process. After the enable process is completed, the presence detector sends its current status.

Object	Object name	Function	Description
Object 19	M channel room monitoring	Message	Objects 19 - 22 available if 'active..' has been selected on <M channel room monitoring>. Depending on the configuration, the presence detector sends the motion information via object 19 with increased security against faulty activation: <Report type>: Switching (On/Off): On detection of movement, the monitoring channel sends an ON telegram and an OFF telegram after expiry of the monitoring switch-off delay. <Report type>: Cyclic with confirmation: The monitoring channel sends an ON telegram on detection of movement. The detector sends another ON telegram if the telegram is not confirmed on object 20 within the configured waiting time. This process is repeated until a confirmation is received.
Object 20	M channel room monitoring	Confirmation	If the monitoring channel is configured to "cyclic with confirmation", the detector expects a 0 or 1 telegram on object 20. It resends the ON telegram in cyclical intervals providing there is no confirmation.
Object 21	M channel room monitoring	Sabotage cyclically	In order to identify the dismantling of the presence detector, object 21 continuously sends OFF telegrams as long as the detector is operating.
Object 22	M channel room monitoring	Enable	The M channel room monitoring can be enabled with an ON telegram on object 22 or disabled with an OFF telegram in both <Report types> during operation. No telegrams are sent via the reporting object (19) while disabled.
Object 23	Parallel connection	Trigger input/output	Object available if 'parallel connection' has been selected at <Master operating mode>. Trigger input/output is required for the parallel connection of more than one presence detector. In configuring the detector, it is only visible as a "Master in parallel connection" or as a "Slave". There are two possible types of switching: Master/Slave parallel connection: A Master receives the movement information from several Slaves in the room and switches or controls the lighting as required. The advantage is uniform switching with a defined brightness value. For applications in corridors for example, the Master is installed in the darkest position. Master/Master parallel connection: Several Masters exchange movement information. The advantage is a zone with uniform presence detection but with several light measurements, for example 3 lighting groups in a room, where the group nearest to the window can be dimmed much darker than the lighting groups in the interior of the room. Each detector sends a maximum of two ON telegrams per minute on detection of movement. The interval (cycle time) between two telegrams can be set to a maximum of four minutes. Please note, the interval between two trigger telegrams is always shorter than the switch-off delay times. See information on parallel connection on page 29 chapter 4
Object 24	Input/output scene		Depending on the chosen configuration, internal scenes can be called up via object 24, scenes can be directly controlled or via an external scene component controlled.
		Scenes 1/2	internal scenes: Object 24 becomes the "input scene" if "internal scenes" is selected in <Scene control>. An OFF telegram to the scene input object calls up scene 1, an ON telegram calls up scene 2. Scene component: Object 24 becomes the 'output scene' if "scene component" is selected in <Scene control>. By pressing scene push button 1 on the user remote control, the scene output object sends an OFF telegram and pressing scene push button 2 sends an ON telegram.
		Scene number	Object 24 becomes the "output scene" if "send scene" is selected in <Scene control>. By pressing the scene push buttons on the remote control, the scene output object sends the selected scene number.

<table>
<tr><th>Object</th><th>Object name</th><th>Function</th><th>Description</th></tr>
<tr><td>Object 25

Object 26</td><td>IR external channel 1

IR external channel 1</td><td>Switching

Brighter/darker</td><td>If an IR group address is allocated to the <Switching/dimming external 1> parameter, objects 25 and 26 assume the following function as soon as a command is received by the selected IR group address:
Briefly pressing the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via object 25 switching. Holding down the ▲ push button causes "dim brighter" to be sent via object 26 and stop when released. Holding down the ▼ push button causes "dim darker" to be sent via object 26 and stop when released.</td></tr>
<tr><td>Object 27

Object 28</td><td>IR external channel 2

IR external channel 2</td><td>Switching

Brighter/darker</td><td>If an IR group address is allocated to the <Switching/dimming external 2> parameter, objects 27 and 28 assume the same function as with objects 25/26 as soon as a command is received by the selected IR group address:</td></tr>
<tr><td>Object 29

Object 30</td><td>IR external channel 1

IR external channel 1</td><td>Blinds Up / Down

Lamella Open / Closed</td><td>If an IR group address is allocated to the <Blinds external 1> parameter, objects 29 and 30 assume the following function as soon as a command is received by the selected IR group address:
Briefly pressing the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via object lamella open/closed. Holding down the ▲/▼ push buttons causes a 1 or 0 telegram to be sent via object blinds up/down.</td></tr>
<tr><td>Object 31
Object 32</td><td>IR external channel 2
IR external channel 2</td><td>Blinds Up / Down

Lamella Open / Closed</td><td>If an IR group address is allocated to the <Blinds external 2> parameter, objects 29 and 30 assume the following function as soon as a command is received by the selected IR group address:
Briefly pressing the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via object lamella open/closed. Holding down the ▲/▼ push buttons causes a 1 or 0 telegram to be sent via object blinds up/down.</td></tr>
<tr><td>Object 33</td><td>Test mode presence</td><td>Start / stop</td><td>An ON telegram activates the presence test mode for the duration of the configured time.
See page 32 chapter 6.2.1 for a description of the presence test mode
An OFF telegram terminates the presence test mode early.</td></tr>
<tr><td>Object 34</td><td>Test mode brightness</td><td>Start / stop</td><td>An ON telegram activates the test mode brightness for the duration of the configured time.
See page 32 chapter 6.2.2 for a description of the test mode brightness
An OFF telegram terminates the test mode brightness early.</td></tr>
<tr><td>Object 35</td><td>Diagnosis</td><td>Status</td><td>Information on faulty or non-compliant data received is available via object 35.
The object is not sent automatically. It must be actively read and it contains an error code:
<table>
<tr><th>Bit number</th><th>Error</th></tr>
<tr><td>0</td><td>ETS parameter invalid</td></tr>
<tr><td>1</td><td>The combination of brightness level and room correction factor is invalid.</td></tr>
<tr><td>2</td><td>The combination of alternative brightness level and room correction factor is invalid.</td></tr>
<tr><td>3</td><td>Brightness level via bus value is invalid.</td></tr>
<tr><td>4</td><td>Alternative brightness level via bus value is invalid.</td></tr>
<tr><td>5</td><td>Teach-in not possible (current lux brightness level beyond 5..2000 lux)</td></tr>
<tr><td>6</td><td>The brightness level with "measurement off" setting is not possible with constant light control.</td></tr>
</table>
See page 39 chapter 8.1 for details of error codes
The error is deleted after 30 minutes. The object must be actively requested. If a new, correct brightness level is received by command, the status is set to ok (all bits = 0).</td></tr>
</table>

Object	Object name	Function	Description
Object 36	Input converter 1 bit	Receive	Objects 36 - 39 available if "active.." has been selected on <Telegram converter>. See page 17
Object 37	Input converter 4 bit	Receive	If telegrams, regardless of value, are received at the converter inputs, object 39 sends the set value of the <Output value> parameter. The set <Output value> is sent every time a telegram is received at the inputs. See page 27 chapter 2.4.16
Object 38	Input converter 1 byte	Receive	
Object 39	Output converter 1 byte	Send value	

2.4 Parameters

2.4.1 General

Parameter name	Values	Application
Operating mode	**Master**	A Master is capable of lighting control (switching or constant light control) and relaying the presence information.
	Slave	Slaves are used to extend the detection area. They supply presence information to the Master.
		The < Cyclic time parallel circuit operation > parameter is displayed.
		See information on parallel connection in chapter 4 page 29.
Master operating mode	**Single unit operation**	Presence detector works as independent device.
	Parallel connection	Parallel connection: If required, the detection area can be extended by connecting additional detectors as "Slaves" with a "Master in parallel connection" or a number of "Masters in parallel connection" can be connected with each other. The < Cyclic time parallel circuit operation > parameter is displayed.
Parallel connection cycle time	**30 seconds**	Each detector sends a maximum of two ON telegrams per minute on detection of movement. The interval between two telegrams can be set at up to 4 minutes to reduce the number of telegrams.
	1 minute	
	2 minutes	
	4 minutes	Please note, the interval between two trigger telegrams is always shorter than the switch-off delay times.
Automatically end test mode after	2 –60 mins	An activated test mode will automatically be terminated after expiry if the set time. See page chapter 6 for description of the test modes.
	30 mins	
Parameter settings with download		The setting affects the following parameters: - Brightness level A channel light - Room correction factor A channel light - Alternative brightness level A channel light - Detection sensitivity (PIR) - Reduction of detection sensitivity when monitoring
	overwrite via download	The relevant parameter values (see above) in the presence detector are overwritten. Settings amended with the SendoPro management remote control or vis bus object are lost.
		The parameters set in the ETS are accepted.
	unchanged via download	The relevant parameter values (see above) in the presence detector are unchanged. Settings amended with the SendoPro management remote control or vis bus object are retained.
Detection sensitivity	1–5	The detector has 5 sensitivity increments. Sensitivity also applies during the testing modes.
		By selecting the operation mode test presence, the set sensitivity increment is not changed.
		1 very insensitive
		2 insensitive
		3 standard
		4 sensitive
		5 very sensitive
	3 standard	The basic setting is the middle increment (3).
Reduction of detection sensitivity when room monitoring	1–3	In order to prevent false alarms, the sensitivity can be reduced in stages relative to the basic detection sensitivity.
		1 less
		2 standard
		3 intense
	2 standard	The basic setting is the middle increment (2).

Parameter name	Values	Application
Disabling light channels with external scenes		By processing scenes on the actuator, which controls the lights in the presence detector light groups, the presence detector stops controlling. See page 27 chapter 2.4.15
	Inactive	The "Disabling light channels with external scenes" parameter page is faded out. The response to external scenes is switched off.
	active..	The "Disabling light channels with external scenes" parameter page is faded in.
Telegram converter	**Inactive**	The "Telegram converter" parameter page is faded out.
	active..	The "telegram converter" parameter page is faded in. See page 27 chapter 2.4.16

2.4.2 Channel functions

Parameter name	Values	Application
A channel, light		Presence detector switches or controls a lighting group dependent on the presence of persons and current prevalent brightness. The switching or constant light control functions are selected via the "Control type A / B channel light" parameter.
	Active	The "A channel light" parameter page, the "control type" parameter and the associated objects are faded in. The second B channel light can be activated for a second lighting group.
	Inactive	The presence detector is not used for lighting control.
B channel, light	Active	Presence detector switches or controls the second lighting group dependent on A channel light.
	Inactive	B channel light is not used. The associated parameters and objects are not displayed.
Control type A / B channel light	**Switching**	The light channel sends an ON telegram on detection of movement and insufficient light. An OFF telegram is sent on completion of the switch-off delay or with sufficient brightness.
	Constant light control	On detection of movement and insufficient brightness, the light channel controls the lighting to a set desired brightness level and keeps it constant with variations in external light sources (e.g. daylight). The lighting is switched off on completion of the switch-off delay time (or with sufficient brightness if the lighting is already dimmed to the minimum). The second B channel light can be controlled with a difference in brightness. Note: If the two A,B channels light are active, both channels will be in control or switching operating mode. It is not possible to combine control and switching operating modes.
G channel, send brightness value	Active	Presence detector sends the brightness measured below the presence detector via bus object. Object 15 is available.
	Inactive	The presence detector is not used as a brightness sensor. Object 15 is not faded in.
H channel, presence	Active	The presence detector switches other devices such as HVAC systems dependent on presence of persons or delivers the presence information to higher-level systems (independent of brightness) The "H channel presence" parameter page is blended in. See page 23 chapter 2.4.8
	Inactive	The presence detector is not used for controlling HVAC applications.
J channel, presence		J channel presence is available if H channel presence is active.
	Active	The "J channel presence" parameter page is blended in. See page 24 chapter 2.4.10
	Inactive	J channel presence is not used. The associated parameters and objects are not displayed.
M channel, room monitoring	Active	The presence detector delivers a presence signal with reduced sensitivity for room monitoring.
	Inactive	The presence detector is not used for room monitoring.

2.4.3 A channel light

Parameter name	Values	Application
Function mode	**Fully automatic**	In "fully automatic" function mode the light channel automatically switches or controls the lighting dependent on presence and ambient brightness. Switch off occurs automatically.
	Semi-automatic	In "semi-automatic" function mode "switching" the switching on must always be completed manually via push button or remote control. Switch off occurs automatically. • Switching (On/Off): The presence detector switches the lighting on or off. • Constant light control: The presence detector controls or switches off according to the set brightness level. See page 28 chapter 3
Brightness level		<Control type> = switching: The brightness level defines the minimum required brightness. The current prevailing brightness is measured below the presence detector. If the prevailing brightness is below the set point , the light switches on as soon as a presence is detected. <Control type> = constant light control: The defined brightness level is set via the control/dimming of the lights (objects 1 - 3 and 8 - 9)
	5–2000 lx	The brightness level can be set in stages between 5–2000 lux.
	500 lx	If setting values for brightness <= 2.5 **and** switch-off delay time light <= 2 min: faster response to changes in actual brightness when in operating mode switching of one lighting row The preset value is 500 lux.
	Measurement off (depending on presence only)	<Control type> switching: - The brightness level can be deactivated using the 'no measurement, only dependent on presence' setting. The SendoPro management remote control provides support with setting the brightness level.
Room correction factor	0.05–10	The room correction factor is a dimension for the difference of the brightness measurements on the ceiling and the work area. The brightness value measured on the ceiling is influenced by the installation point, light reception, position of the sun, weather conditions, the reflection properties of the room and furniture. The brightness value measured by the presence detector is adjusted to the conditions in the room using the room correction factor and can therefore be aligned to the lux meter value measured in the area below the presence detector.
	0.3	Standard value, suitable for most applications. Adjustment of the detector brightness measured value Procedure: 1. Determine the lux values below the presence detector with the lux meter 2. Read-out the actual brightness value via object 15 3. Compare lux values 4. Change and send room correction factor (table 1) 5. Read-out the actual brightness value via object 15 6. Compare lux value and, if necessary, repeat the procedure **Table 1** for higher brightness measured value of presence detector → select lower room correction factor for lower brightness measured value of presence detector → select higher room correction factor **Setting limit** Set the room correction factor so that the room correction factor x brightness level is between 5 lux and 13000 lux. x = multiply
Set brightness level via bus	**no**	Bus object 4 is not available.
	yes	Bus object 4 is visible and can be used.

Parameter name	Values	Application
Switch-off delay time time	30 s – 60 mins **10 mins**	Switch-off delay time can be set for between 30 seconds and 60 minutes. Each detected movement restarts the switch-off delay time. The switch-off delay time adjusts to users behaviour through auto-learning. It can increase automatically to 30 minutes or return to the set minimum time. The switch-off delay time does not change through auto-learning with a setting <= 2 minutes or >= 30 minutes. If setting values for switch-off delay time light <= 2 min **and** brightness <= 2.5: faster response to changes in actual brightness when in operating mode switching of one lighting row The switch-off delay time applies to both light channels.
Short presence	 Inactive **Active**	The switch-off delay time of A channel light can be switched off sooner if a room is only occupied for a short time. (In fully automatic and semi-automatic function modes) The switch-off delay time is used according to set parameters. If someone enters an unoccupied room and it is only occupied for up to 30 seconds, the light goes off after 2 minutes. Monitoring applies in combination with the self-learning switch-off delay time. Short presence is also applied if a push button is used to switch on.
Selecting brightness level	**Inactive** Active	Only the brightness level (base) is available as a brightness level. A second, alternative brightness level can be configured. Both of these brightness levels can be used during normal operation. Bus object 12 is visible and can be used. - An ON telegram to the relevant bus object switches to the alternative brightness level. - An OFF telegram restores the original value (base). This applies to both switching and constant light control. Example: Implementation of day and night operation with two different brightness levels.
Alternative brightness level	 5–2000 lx **400 lx** no measurement (only dependent on presence)	The parameter is visible if <selecting brightness level> is active. During operation, bus object 12 can be used to switch between the brightness levels. The alternative brightness level can be set in stages between 5–2000 lux. The preset value is 400 lux. <Control type> = switching: - The brightness level can be deactivated using the 'no measurement, only dependent on presence' setting.
Set Set brightness level via bus	 **no** yes	Parameter only available if "active" has been selected at <Selecting brightness level>. Bus object 6 is not available. Bus object 6 is visible and can be used.

2.4.4 Constant light control

The parameter page is visible if constant light control is set at the <Control type> parameter. See page 16 chapter 2.4.1

Parameter name	Values	Application
Behaviour at start of control	**Value telegram**	Control is started with a value telegram. The actuator dims up at the set <Dimming time of 0 % to 100 %>. The detector measures the rising brightness and stops the dimming process once the brightness level has been reached. Control starts at this point.
	ON telegram	Control is started with an ON telegram. The actuator switches on and jumps or dims up to the configured value. The switching behaviour is significantly determined by the setting on the actuator. Example: If a switch-on value of 70% is configured on the actuator, control starts with this switch-on value, regardless of whether this value is above or below the set point value.
Behaviour of the control		This parameter is used to change the increment of the sent dimming value.
	Standard	Behaviour is set to its optimum level. The change happens gradually and is almost imperceptible.
	Average	The change happens more quickly.
	Fast	The change happens more quickly.
Standby light	**Inactive**	The standby function for A,B channels light is not available.
	Active	The standby function for A,B channels light is available and the parameters are faded in.
Standby time light	30 s – 60 mins	Standby time can only be set with constant light control. This causes both lighting groups to dim to the set standby dimming value instead of switching off on completion of the switch-off delay time. The standby time can be set for between 30 seconds and 60 minutes.
	on	The lighting stays permanently on standby with standby **on**. The lighting switches off after 10 minutes if the brightness level in the rooms exceeds the set brightness level. The lighting returns to the standby value independently without presence if the room brightness falls below the set brightness level. This guarantees a minimum level of lighting in darkness.
Standby dimming value	5 % – 10 %	The available dimming values for standby range from 5 % to 10 %.
	10 %	The preset value is 10%.

2.4.5 Disabling function light

The disabling function light parameter page is always visible.

Parameter name	Values	Application
Disabling light channels		Disabling light outputs means that the presence detector does not send telegrams via objects 0 to 3 and 7 to 10 although the evaluation of movement and brightness continues. The following channels are not affected by the disabling of A,B channels light: - H,J channels presence - M channel room monitoring - G channel brightness value Note: SendoClic can still be used for switching and dimming. **General enabling** All switch-off delay times are set to 0 when enabling. The causes the lighting to switch off immediately if the room is unoccupied. The lighting is not switched off if movement is detected with insufficient brightness.
	Inactive	The disabling function of A,B channels light is not available.
	with ON telegram	Both A,B channels light are simultaneously disabled with an ON telegram to the disable object. All telegrams are suppressed for the duration of the disabling. The A,B channels light are enabled via an OFF telegram. After enabling, the detector sends the current status and continues the constant light control.
	with OFF telegram	Both light outputs are disabled with OFF telegram and enabled with ON telegram.
Behaviour at start of disabling	**ON telegram**	No telegram is sent at the start of the disabling.
	OFF telegram	An ON telegram is sent at the start of the disabling.
	no telegram	An OFF telegram is sent at the start of the disabling. The current status is always sent after enabling or an ON telegram with absence and insufficient brightness in switching mode.

2.4.6 B channel light

Parameter name	Values	Application
Brightness difference to A channel light		The brightness difference sets the varying light requirements of lighting group B in comparison to lighting group A. Application: Two lighting groups are installed in an office with daylight. Lighting group A is near the window, lighting group B in the interior of the room.
	+10 % – +120 %	A positive value means that there is less daylight in the area of lighting group B (more artificial light is required).
	synchronous (0 %)	Synchronous means both lighting groups are switched or controlled together.
	–10 % – –60 %	A negative value means that there is more daylight in the area of lighting group B (less artificial light is required).

2.4.7 G channel send brightness value

Parameter name	Values	Application
Transmit brightness value cyclically		G channel brightness sends the measured brightness value as 2-byte telegram via object 15. The measured brightness value can be adjusted to the conditions in the room using the <Room correction factor> parameter. Note: The lux value emitted from G channel brightness is not suitable for use as external control. Please use constant light control for A,B channels light for this purpose.
	15 s – 30 mins	The brightness value is sent after completion of the configured cycle time at the latest.
	1 min	Standard value
	do not send	The measured brightness value is not sent cyclically.
Send brightness value on change	10 % – 90 %	The brightness value is sent if the measured value has changed by at least the configured value since the last transmission. This change is independent of the length of time taken for this process. If the brightness remains constant, the brightness value will be resent on completion of the configured cycle time. With frequent changes in brightness, the value is sent at least 5 seconds after the last transmission. This time setting cannot be changed.
	30 %	Standard value
	do not send	The measured brightness value is not sent dependent on a change.

2.4.8 H channel presence

Parameter name	Values	Application
Switch-on delay time presence	**Inactive**	An inactive switch-on delay means the presence channel switches immediately on detection of movement.
	10 s – 30 mins	A switch-on delay of 10 seconds to 30 minutes can be set for the presence channel. The presence channel does not switch immediately on detection of movement but only after completion of the switch-on delay. The switch-on delay applies to both presence channels. Example: A switch-on delay of 2 minutes can be set if the presence channel is used for controlling a fan in a toilet. The fan does not switch on if the toilet is briefly occupied, a longer presence of over 1 minute switches the fan on.
Switch-off delay time presence	10 s – 120 mins **15 mins**	The switch-off delay time presence can be set for between 10 seconds and 120 minutes. It is restarted with every new movement. The switch-off delay applies to both presence channels.
Behaviour at start of presence		H channel presence is only switched on by presence without the influence of brightness.
	Send ON telegram	An ON telegram is sent as standard on detection of movement.
	Send OFF telegram	An OFF telegram can be sent on detection of movement.
	Do not send telegram	No telegrams are sent on detection of movement.
Behaviour at end of presence	Send ON telegram	An ON telegram can be sent on completion of the switch-off delay time.
	Send OFF telegram	An OFF telegram is sent as standard on completion of the switch-off delay time.
	Do not send telegram	No telegrams are sent on completion of the switch-off delay time.

2.4.9 Disabling function presence

Parameter name	Values	Application
Disable presence channels		Disabling presence channels stops the sending of their telegrams. H,J channels presence are not disabled as standard. The telegrams are sent on detection of movement and after completion of switch-off delay time according to configuration. The following channels are not affected by the disabling of H,J channels presence: - A,B channels light - M channel room monitoring - G channel brightness value
	Inactive	The disabling function of H, J channels presence is not available.
	with ON telegram	Both H, J channels presence are disabled via an ON telegram and enabled with an OFF telegram. The presence detector sends its current status after the enable process is completed.
	with OFF telegram	The H, J channels presence are disabled with OFF telegram and enabled with ON telegram. The presence detector sends its current status after the enable process is completed.
Behaviour at start of disabling	Do not send telegram	No telegram is sent at the start of the disabling.
	Send ON telegram	An ON telegram is sent at the start of the disabling. The detector sends its current status after the enable process is completed.
	Send OFF telegram	An OFF telegram is sent at the start of the disabling. The detector sends its current status after the enable process is completed.

2.4.10 J channel presence

Switch-on delay and switch-off delay time are dependent on the settings on H channel presence.

Parameter name	Values	Application
Behaviour at start of presence	no telegram	No telegram is sent at the start of presence and the end of disabling.
	Send telegram	The < Value at start of presence > parameter is displayed
Value at start of presence	0–255 **1**	J channel presence sends the set value as a 1 byte telegram vis object 17 at the start of presence. The value is also sent if presence is detected after enabling.
Behaviour at end of presence	no telegram	No telegram is sent at the end of presence and the end of disabling.
	Send telegram	The < Value at end of presence > parameter is displayed
Value at end of presence	0–255 **255**	J channel presence sends the set value as a 1 byte telegram vis object 17 at the end of presence. The value is also sent if no presence is detected after enabling.

2.4.11 J channel disabling function

The disabling functions are dependent on the H channel presence settings.

Parameter name	Values	Application
Behaviour at start of disabling	Do not send telegram	No telegram is sent at the start of the disabling.
	Send telegram	The < Value at start of disabling > parameter is displayed and the set value sent.
Value at start of disabling	0–255 **128**	J channel presence sends the set value as a 1 byte telegram via object 17 at the start of disabling. The presence detector sends the set value after enabling. See page < Value at start of presence > / < Value at end of presence > parameter

2.4.12 M channel room monitoring

Parameter name	Values	Application
Type of report	Switching (On/Off)	The < Behaviour at start / end of presence > parameter is displayed. On detection of movement, the M channel room monitoring channel sends an ON telegram and an OFF telegram after completion of the monitoring switch-on delay.
	Cyclic with confirmation	The M channel room monitoring sends an ON telegram on detection of movement. It resends the ON telegram in cyclical intervals providing there is no confirmation.
Behaviour at start/end of presence	Send ON and OFF telegram	Both ON and OFF telegrams are sent on selection of the 'switching (On / Off)' <Type of report>.
	Only send ON telegram	The OFF telegram is not sent at the end of presence.
Switch-off delay time room monitoring	30 s – 30 mins **5 mins**	Switch-off delay time is restarted with each movement on selection of 'switching (On / Off)' <Type of report>.
Waiting time for confirmation	30 s – 30 mins **5 mins**	The ON telegram is cyclically repeated on selection of the 'cyclic with confirmation' <Type of report> if no confirmation is received within the configured waiting time.
Behaviour at return of bus voltage	Monitoring output disabled	M channel room monitoring is disabled at a restart after loss of bus voltage.
	Monitoring output enabled	M channel room monitoring is enabled at a restart after loss of bus voltage.
Sabotage cyclically	**Active**	The < Cyclic time sabotage > parameter is displayed. The sabotage object cyclically sends OFF telegrams to reveal unauthorised removal of the detector or a bus interruption.
	Inactive	Sabotage monitoring is not used.
Cyclic time sabotage	30 s – 30 mins **4 mins**	If the sabotage object is activated, the telegrams are sent with a cycle time between 30 seconds and 30 minutes.

2.4.13 Remote control

Parameter name	Values	Application
Teach-in brightness level via user remote control	**disabled** enabled	This function is not available with the SendoClic user remote control.
Switching/dimming A Switching/dimming B External 1 switching/dimming External 2 switching/dimming External blinds 1 External blinds 2		The IR group addresses of the presence detector and the SendoClic must correspond so that lighting groups or external channels can be operated. For detailed information on the application of IR group addresses see chapter 7 „Benutzer-Fernbedienung SendoClic integrieren“ page <?> The same specification of IR group addresses is to be defined in the ETS, which were set using the coding switch on the SendoClic user remote control.
	Inactive	The relevant channel is not allocated an IR group address and cannot be influenced by the user remote control.
	I , II , III	The relevant challenge is allocated an IR group address. The channel reacts to the commands from the user remote control.

2.4.14 Scenes

Parameter name	Values	Application
Scene control		The presence detector has a simple, internal scene component. On a scene are values for the light outputs stored (On, Off with switching operating mode, percentage values with constant light control). **End** - Absent - ON / OFF with the SendoClic user remote control
	internal scenes	The <Define scenes with> parameter is faded in. The scenes can be called up by pressing the scene buttons on the SendoClic user remote control or via a telegram to the scene object.
	Send scene	The <Scene number key scene 1> and <Scene number key scene 2> parameters are faded in. Scene numbers can be allocated to the scene 1 and scene 2 keys on the SendoClic user remote control.
	Scene component	This enables the control of an external scene component. This requires the use of the SendoClic user remote control. An OFF telegram is sent when scene key 1 on the SendoClic is pressed and pressing scene key 2 raises an ON telegram.
Scene number key scene 1 Scene number key scene 2	**Inactive**	No scene number is sent.
	1–64	The set scene number is sent via object 24 (1 byte) by pressing the scene keys on the SendoClic user remote control. The scene statuses can be stored with the SendoClic. See the SendoClic operating instructions.
Define scenes with	**ETS**	The following parameters are faded in: - <Output value scene 1, light A> - <Output value scene 2, light A> - <Output value scene 1, light B> - <Output value scene 2, light B> The output values are fixed by the values configured in the ETS.
	Remote control	The output values are stored with the user remote control. See the SendoClic operating instructions.

Parameter name	Values	Application
Output value scene 1, light A	Off, On Off , 1 % – 100 %	Value of scene 1, A channel in switching mode. Value of scene 1, A channel in constant light control.
Output value scene 2, light A	Off, On Off , 1 % – 100 %	Value of scene 2, A channel in switching mode. Value of scene 2, A channel in constant light control.
Output value scene 1, light B	Off, On Off , 1 % – 100 %	Value of scene 1, B channel in switching mode. Value of scene 1, B channel in constant light control.
Output value scene 2, light B	Off, On Off , 1 % – 100 %	Value of scene 2, B channel in switching mode. Value of scene 2, B channel in constant light control.

2.4.15 Disabling light channels with external scenes

Without disabling via external scenes

If a scene number is sent to the actuator and thereby influences the lighting group controlled by the presence detector, the presence detector is not disabled and continues controlling.

With disabling via external scenes

The receipt and concurrence of a scene number makes it possible to disable the presence detector and continue to influence the behaviour.

The presence detector can be disabled by a determinate maner:

- For a defined length of time
- Until the presence detector is enabled

See parameter <Validity of disabling>

Parameter name	Values	Application
1. Scene number for disabling 2. Scene number for disabling 3. Scene number for disabling 4. Scene number for disabling 5. Scene number for disabling 6. Scene number for disabling 7. Scene number for disabling 8. Scene number for disabling	 **Inactive** 1–63 64	The presence detector can be disabled using 8 different scene numbers. No scene number has been defined, which disables the presence detector. The presence detector is disabled if a received scene number corresponds to a defined scene number. Push button operation is still possible. The light channels are enabled on receipt of scene number 64 on bus object 14.
Validity of disabling	1 h – 12 h **4 h** Until enabled	The presence detector remains disabled during the set time. Manual enabling is possible at any time: - Receipt of scene number 64 on bus object 14 - Enable command of light channels on bus object 11 Light channels enabled via: - Receipt of scene number 64 on bus object 14 - Enable command of light channels on bus object 11

2.4.16 Telegram converter

Parameter name	Values	Application
Output value	0–255 **1**	If telegrams, regardless of values, are received by the converter inputs (bus objects 36-38), bus object 39 sends the set output value. The output value is sent every time a telegram is received at the inputs.

3. Manual operation with push buttons

The presence detector can be overridden using push buttons or by other commands. It is important to know that no separate push button input objects are required. On the contrary, the presence detector responds to telegrams sent directly to the actuators by the push buttons or superior functions. In addition, the same group address is used for the push button output, the detector output and the actuator input.

For examples see

- 9.1.2 „Presence and brightness-dependent switching of light, additional manual override via push button" page 41
- 9.1.6 „Constant light control, additional manual override via push button" page 46

Manual operation applies exclusively to the light outputs. The presence, monitoring and brightness outputs are not affected by manual operation.

3.1 Manual operation with switching control type

If the lighting is manually operated using the switching control type, the presence detector shows the following behaviour:

Push button operation	Behaviour of lighting / presence detector
ON telegram	The lighting remains switched on for 30 minutes if the room is occupied. The light measurement is reactivated after the 30 minutes. An OFF telegram is sent at sufficient brightness. If the room is vacated before the 30 minutes has expired, the light will switch off normally after the completion of the set switch-off delay time.
OFF telegram	The lighting remains switched off while the room is occupied. The detector returns to normal switching mode after the room is vacated and after expiry of the switch-off delay.

3.2 Manual operation with constant light control control type

If the lighting is manually operated using the constant light control control type, the presence detector shows the following behaviour:

Push button operation	Behaviour of lighting / presence detector
ON telegram	The constant light control is activated. The presence detector controls the lighting dependent on brightness.
Dimming telegram (4 bit) Value telegram (1 byte)	The control remains switched off while the room is occupied. The detector returns to standard operating mode after the room is vacated and after expiry of the switch-off delay.
OFF telegram	The lighting remains switched off while the room is occupied. The detector returns to normal standard operating mode after the room is vacated and after expiry of the switch-off delay.

3.3 Manual operation using two light outputs A, B.

A separate push button with separate group address is used for each of the two light channels for manual override if the two A,B channels light are used.

Each of the two A,B channels light can be switched on or off separately with the <control type> "switching".

With the <control type> "constant light control" both A,B channels always switch on if one of the two push buttons is pressed. It is not possible to switch on just one of the two lighting groups. On the other hand, each channel can be separately switched off using constant light control.

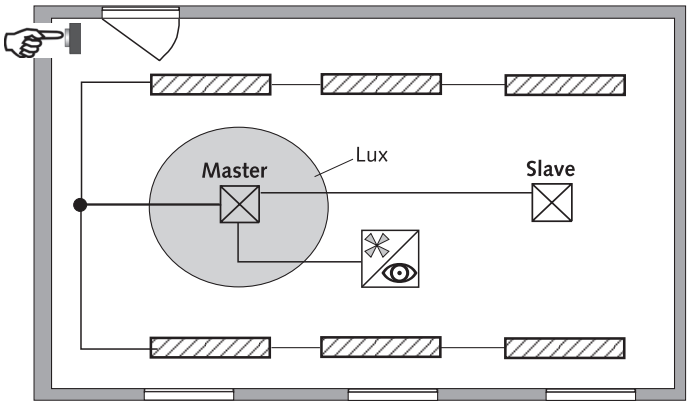
A,B channels can be separately dimmed.

4. Parallel connection

A number of detectors can be connected in parallel in larger rooms. This makes it possible to extend the overall presence detection area.

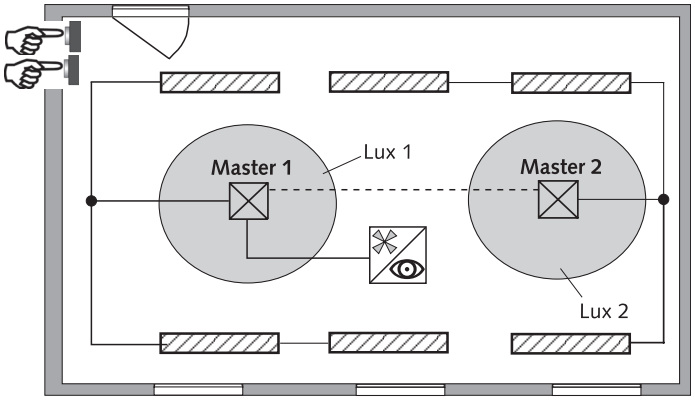
4.1 Master/Slave parallel connection

A "Master in parallel connection" can be connected to several "Slaves". The trigger inputs/outputs are connected with each other here.
The Slaves only supply presence information from their detection area. The Master completes the brightness measurement and the administration of all parameter settings.



4.2 Master/Master parallel connection

Several "Masters in parallel connection" can be linked to each other. Presence detection is completed jointly while light measurement, parameter settings and lighting control are individually processed by each Master. This produces more light outputs with their own light measurement but with joint presence detection.



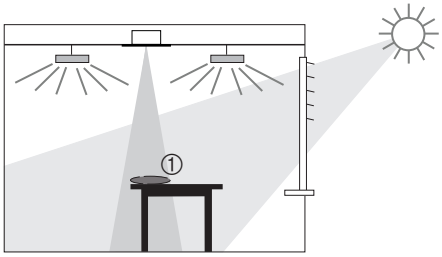
4.3 Telegram load using parallel connection

With parallel connection, each master sends in parallel connection and each Slave a maximum of twice a minute provided there is somebody in the detection area. The interval between two telegrams can be increased to 4 minutes to reduce the telegram load. It must be borne in mind that the switch-off delay can never be shorter than the interval between two telegrams in order to prevent unintentional switch off.

The parallel connection is compatible with all Theben HTS KNX presence detectors.

5. Brightness level / constant light control

5.1 Setting the brightness level



The brightness level defines the minimum required brightness. The current prevailing brightness is measured below the presence detector. If the prevailing brightness is below the set point , the light switches on as soon as a presence is detected.

The room correction factor is a dimension for the difference of the brightness measurements on the ceiling and the work area.

The brightness value measured on the ceiling is influenced by the installation point, light reception, position of the sun, weather conditions, the reflection properties of the room and furniture.

The brightness value by the presence detector is adjusted to the conditions in the room using the room correction factor and can therefore be aligned to the lux meter value ① measured in the area below the presence detector. See parameter „Room correction factor“ page 19

The standard value of the room correction factor is 0.3 and is suitable for most applications.
The sensitivity of the light sensor to brightness changes will be affected when adjusting the room-correction factor.

Procedure:

1. Determine the lux values below the presence detector with the lux meter
2. Read-out the actual brightness value via object 15
3. Compare lux values
4. Change and send room correction factor (table 1)
5. Read-out the actual brightness value via object 15
6. Compare lux value and, if necessary, repeat the procedure
7. Set the desired brightness level by using the ETS

Table

for higher brightness measured value of presence detector	→	select lower room correction factor
for lower brightness measured value of presence detector	→	select higher room correction factor

Setting limit

Set the room correction factor so that

the room correction factor x brightness level is between 5 lux and 13000 lux.

x = multiply

5.2 Configuration of switching/dimming actuators for constant light control

5.2.1 Recommended configuration

The following configuration of the actuators is recommended for the optimum functioning of the constant light control:

Time for running through dimming range (0%-100%)	10 seconds
Jump to or dim to dimming values	Soft on
Immediately accept dimming values	immediately
Can be switched off by dimming	No
Can be switched on by dimming	Yes
Lower dimming value	Minimum
Upper dimming value	Maximum
Switch-off behaviour: Switching or dimming off	Switch off
Brightness value at switch on (optional)	as required, approx. 50 %
Send status value of the dimming value	only via read request

Note: The parameter designations can vary according to the model of the dimming actuator, switching/dimming actuators or DALI Gateway.
The actuator does not need to generate automatic status reports. The detector acquires this information itself.

5.2.2 Actuators with separate object for status feedback (value)

Numerous actuators and gateways have a separate object for status feedback (1 byte value), for example:

- Theben DMG 2 S / DME 2 S Universal dimming actuator
- Theben SMG 2 S / SME 2 S control device for dimmable electronic series devices

They are connected with the PresenceLight 180/360 KNX, as follows, to ensure perfect constant light control.

Actuator group addresses				C	R	W	T	Act.
0	On/Off	⇦	10/0/1	✓		✓	Leave default	
1	Dimming	⇦	10/0/2	✓		✓		
2	Set value	⇦	10/0/3	✓		✓		
5	Status (value)	⇨	10/0/7	✓	✓			

PresenceLight 180/360 KNX group addresses			
0	Switching	⇨	10/0/1
1	Brighter/darker	⇨	10/0/2
2	Send value	⇨	10/0/3
3	Feedback value	⇦	10/0/7

5.2.3 Actuators without separate object for status feedback (value)

Some actuators do not have a separate object for status feedback. They are connected with the PresenceLight 180/360 KNX, as follows, to ensure perfect constant light control:

Actuator group addresses					C	R	W	T	Act.
x	On/Off	⇦	10/0/1		✓		✓	Leave default	
x	Dimming	⇦	10/0/2		✓		✓		
x	Set value	⇦ ⇨	10/0/7 *)	10/0/3	✓	✓ **)	✓		

PresenceLight 180/360 KNX group addresses			
0	Switching	⇨	10/0/1
1	Brighter/darker	⇨	10/0/2
2	Send value	⇨	10/0/3
3	Feedback value	⇦	10/0/7

*) set to sending.

**) The read flag has to be set manually with some actuators

x) Object in accordance with used product

Note: If a number of actuators are connected to the detector light output, attention must be paid to an identical configuration of the actuators.
Exception: the read flag can only be set on one of the actuators per lighting group.

6. Test modes

The PresenceLight 180/360 KNX has two test modes.

- Test mode presence, page 32 chapter 6.2.1
- Test mode light, page 32 chapter 6.2.2

The test modes can only be started if the device is switched on.

6.2.1 Test presence

The test presence serves to test presence detection and parallel connection.

Activation	- Test presence "On" with the SendoPro 868-A management remote control - via bus object 33 The test mode presence can be activated at anytime.
End	With subsequent restart: - Test presence "Off" command with the SendoPro 868-A management remote control - Power failure and power up - Automatically according to the time set with the ETS - via bus object 33 Without restart: - Activation of test light with SendoPro 868-A management remote control

LED display Status channels	Description
On	With movement (LED on) the A channels light and H channels presence close.
Off	When the room is unoccupied (LED off) both channels open after 15 seconds.

Test response

- Deactivate brightness measurement, light output does not react to brightness
- The detector reacts as in fully automatic function mode even if semi-automatic is set.
- The control type changes to switching if the control type is set to constant light control. The light is not controlled.
- Light «On» with movement; light «Off» with absence of movement.
- A channel light and H channel presence have a fixed switch-off delay of 15 seconds.
- Room monitoring reacts unchanged as in normal operating mode.
- Switch-on delay H channel and J presence is set to 0 seconds.

Commands and other parameters

The following commands are possible with the management remote control in test mode presence

- End test presence
- Activate test light

The selected detection sensitivity (1–5), see page 16, is unchanged on activation of test presence.

The presence detector performs a reset after the end of the test mode.

6.2.2 Test light

The test light serves to monitor the brightness level (brightness threshold).

Activation	- Test light "On" with the SendoPro 868-A management remote control - via bus object 34 Test light can be activated at anytime.
End	With subsequent restart: - Test light "Off" with the SendoPro 868-A management remote control - Power failure and power up - Automatically according to the time set with the ETS - via bus object 34 Without restart: - Activation of test presence with SendoPro 868-A management remote control

LED display	Description
Flashing, 3 seconds On 0.3 seconds Off	The LED flashes as long as the test light is active.

Test response
The presence detector responds 100 % as in normal operating mode, only the reaction to bright/dark is faster. This makes it possible to test the brightness threshold and the adaptive response.

All selected functions and parameters remain unchanged

Commands and other parameters
The following commands are possible with the management remote control in test mode brightness:
- End test light
- Change brightness level A channel light
- Activate test presence

The presence detector performs a reset after the end of the test mode.

Do not use a torch to switch the presence detector. The presence detector will learn this and thereby distort the adaptive light thresholds and hysteresis values.
In order to simulate this behaviour, the area below the presence detector should be illuminated or the blinds operated.
Reactivate the test light for a new test.

7. Integrate SendoClic user remote control

See the SendoClic operating instructions

7.1 SendoClic performance characteristics

The SendoClic infrared remote control makes it easy to switch and dim lighting using the PresenceLight 180/360 KNX presence detector. SendoClic has two channels for controlling lighting groups, blinds or external channels with switching and dimming. SendoClic provides the option of saving two different lighting scenes which can be retrieved anytime at the key-press.

7.2 Combination of the presence detector and SendoClic

The presence detector channels and the SendoClic channels are linked via an IR group address. Three IR group addresses are available for linking.

The operation of a lighting group requires that the presence detector channel IR group address and the SendoClic channel correspond.

Selection of IR group addresses enables the separation of neighbouring detectors controlled by the SendoClic user remote control.

Procedure:
Set the coding switch in the battery compartment of the SendoClic (see table below) so that the IR group addresses, previously set on the "remote control" parameter page (see page 26 chapter 2.4.13), are allocated to the SendoClic channels.

Coding switch position	IR group address		Keys Scene 1 and 2
	Channel 1 ▲/▼ (SendoClic)	Channel 2 ▲/▼ (SendoClic)	
0	All	All	All
1	I	I	I
2	I	I I	I + I I
3	I	I I I	I + I I I
4	I I	I	I + I I
5	I I	I I	I I
6	I I	I I I	I I + I I I
7	I I I	I	I + I I I
8	I I I	I I	I I + I I I
9	I I I	I I I	I I I

7.3 Examples of set IR group addresses

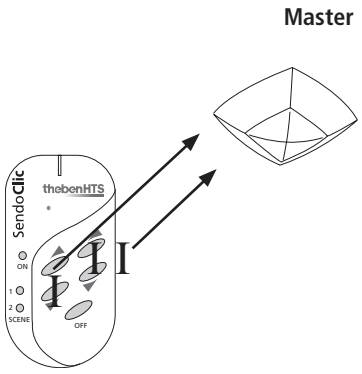
Subject	Chapter / page
One presence detector, two light channels	7.3.1 / 34
Two presence detectors, each with one light channel and blinds	7.3.2 / 35
Two presence detectors with internal and external light channels	7.3.3 / 36
Two presence detectors with one and two internal light channels	7.3.4 / 37

7.3.1 One presence detector, two light channels

Description	Two light channels can be manually controlled by one presence detector using a SendoClic remote control. A channel light of the presence detector is controlled by channel 1 on the SendoClic. B channel light of the presence detector is controlled by channel 2 on the SendoClic.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) SendoClic (Order no. 907 0 690)

Overview



Parameters

PresenceLight 180/360 KNX Master 1		
Parameter page	Parameter	Setting
Remote control	Switching/dimming A	I
	Switching/dimming B	II
Scenes	Scene control	internal scenes
SendoClic		
Control element	Setting	Comment
Coding switch	2	The allocation of the SendoClic channels is interchanged via setting 4.

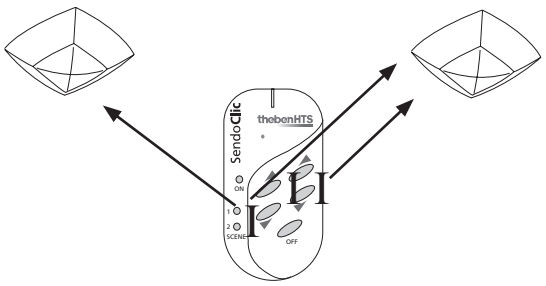
7.3.2 Two presence detectors, each with one light channel and blinds

Description	One light channel for each of two presence detectors as well as the blinds channel of one presence detector can be manually controlled using a SendoClic user remote control. The relevant A channels light of the two presence detectors are controlled by channel 1 on the SendoClic. As both light channels are controlled by the same IR group address, it is possible to jointly influence the light channels. The user remote control must be aimed directly at the appropriate presence detector. Furthermore, the IR signals can be diverted in the room and therefore received by other presence detectors. The blinds are controlled via the presence detector Master 2 using channel 2 on SendoClic. Channel 2 commands are ignored by Master 1.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) SendoClic (Order no. 907 0 690)

Overview

IR group addr.	Channel	Master 1	Master 2	Channel	IR group addr.
I	A channel light			A channel light	I
				External blinds 1	II



Parameter

PresenceLight 180/360 KNX Master 1		
Parameter page	Parameter	Setting
Remote control	Switching/dimming A	I
Scenes	Scene control	internal scenes

PresenceLight 180/360 KNX Master 2		
Parameter page	Parameter	Setting
Remote control	Switching/dimming A	I
	External blinds 1	II
Scenes	Scene control	internal scenes

SendoClic		
Control element	Setting	Comment
Coding switch	2	The allocation of the SendoClic channels is interchanged via setting 4.

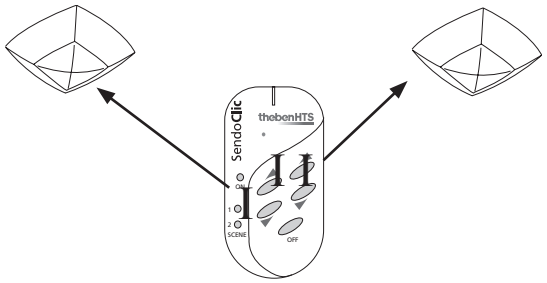
7.3.3 Two presence detectors with internal and external light channels

Description	One light channel can be manually controlled by two presence detectors using a SendoClic remote control. A channel light of the presence detector Master 1 is controlled by channel 1 on the SendoClic. A channel light of the presence detector Master 2 is controlled by channel 2 on the SendoClic. The presence detector light channels are not mutually influenced by the SendoClic commands.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) SendoClic (Order no. 907 0 690)

Overview

IR group addr.	**Channel**	**Master 1**	**Master 2**	**Channel**	**IR group addr.**
I	A channel light			A channel light	II



Parameter

PresenceLight 180/360 KNX Master 1		
Parameter page	Parameter	Setting
Remote control	Switching/Dimming A	I
Scenes	Scene control	internal scenes

PresenceLight 180/360 KNX Master 2		
Parameter page	Parameter	Setting
Remote control	Switching/Dimming A	II
Scenes	Scene control	internal scenes

SendoClic		
Control element	Setting	
Coding switch	2	The allocation of the SendoClic channels is interchanged via setting 4.

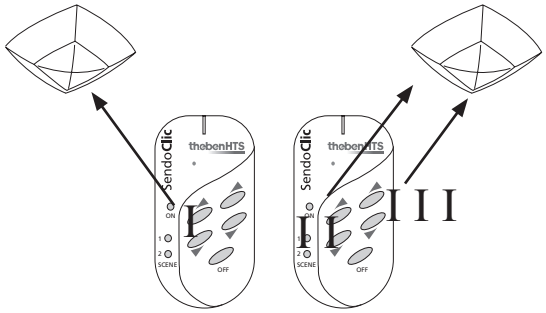
7.3.4 Two presence detectors with one and two internal light channels

Description	The light channels on two presence detectors are separately influenced by two SendoClic user remote controls. A channel light of the presence detector Master 1 is controlled by channel 1 on the first SendoClic. A channel light of the presence detector Master 1 is controlled by channel 2 on the second SendoClic. B channel light of the presence detector Master 2 is controlled by channel 2 on the second SendoClic. The presence detector light channels are not mutually influenced by the commands from the two SendoClics.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) SendoClic (Order no. 907 0 690)

Overview

IR group addr.	Channel	Master 1	Master 2	Channel	IR group addr.
I	A channel light			A channel light	II
				B channel light	III



SendoClic 1 SendoClic 2

Parameter

PresenceLight 180/360 KNX
Master 1

Parameter page	Parameter	Setting
Remote control	Switching/Dimming A	I
Scenes	Scene control	internal scenes

PresenceLight 180/360 KNX
Master 2

Parameter page	Parameter	Setting
Remote control	Switching/Dimming A	II
	Switching/Dimming B	III
Scenes	Scene control	internal scenes

SendoClic 1

Control element	Setting	
Coding switch	1	

SendoClic 2

Control element	Setting	Comment
Coding switch	6	The allocation of the SendoClic channels is interchanged via setting 8.

8. Troubleshooting

Fault / error	Cause
Light does not switch on and/or switches off if presence is detected and in darkness	Lux value is set too low; detector set on semi-automatic; light was switched off manually via push button or SendoClic; person not within detection range; obstruction(s) interfere with detection; switch-off time set too short
Light stays on with detection of presence despite sufficient brightness	Lux value is set too high; the light was just switched on manually via push button or SendoClic (wait 30 minutes); detector is in test mode
Light does not switch off and/or light switches spontaneously on when no one is present	Wait for switch-off delay (self-learning); thermal sources of interruption in the detection area: Fan heater, incandescent lamps / halogen spotlight, moving objects (e.g. curtains hanging in an open window); start up does not run smoothly.
Error flashing (4 x per second)	Malfunction during start-up phase or during operation; device is not fully functional!
Diagnosis bit no. 0 ETS parameter invalid	The combination of brightness level and room correction factor is invalid.
Diagnosis bit no. 1 The combination of brightness level and room correction factor is invalid.	The parameters are outside the setting limits, see parameter „Continuation of room correction factor" page 19
Diagnosis bit no. 2 The combination of alternative brightness level and room correction factor is invalid.	The parameters are outside the setting limits, see parameter „Continuation of room correction factor" page 19
Diagnosis bit no. 3 Brightness level via bus value is invalid.	The received value is outside the value range of the brightness level of 5..2000 lux.
Diagnosis bit no. 4 Alternative brightness level via bus value is invalid.	The received value is outside the value range of the brightness level of 5..2000 lux.
Diagnosis bit no. 5 Teach-in is not possible	The current measured brightness value is outside the value range of the brightness level of 5–2000 lux. ; <Control type> switching: The brightness level to be acquired is not possible in combination with the set <Brightness difference to A channel light> on B channel light.
Diagnosis bit no. 6 The brightness level with "measurement off" setting is not possible with constant light control.	The brightness level zero (0) is received via bus object.

8.1 Evaluation of error codes (diagnosis bits)

Telegram		Diagnosis bit							
Dec.	Hex.	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	$00	Not used	0	0	0	0	0	0	0
1	$01		0	0	0	0	0	0	1
2	$02		0	0	0	0	0	1	0
3	$03		0	0	0	0	0	1	1
4	$04		0	0	0	0	1	0	0
5	$05		0	0	0	0	1	0	1
6	$06		0	0	0	0	1	1	0
7	$07		0	0	0	0	1	1	1
8	$08		0	0	0	1	0	0	0
9	$09		0	0	0	1	0	0	1
10	$0A		0	0	0	1	0	1	0
11	$0B		0	0	0	1	0	1	1
12	$0C		0	0	0	1	1	0	0
13	$0D		0	0	0	1	1	0	1
14	$0E		0	0	0	1	1	1	0
15	$0F		0	0	0	1	1	1	1
16	$10		0	0	1	0	0	0	0
17	$11		0	0	1	0	0	0	1
18	$12		0	0	1	0	0	1	0
19	$13		0	0	1	0	0	1	1
20	$14		0	0	1	0	1	0	0
21	$15		0	0	1	0	1	0	1
22	$16		0	0	1	0	1	1	0
23	$17		0	0	1	0	1	1	1
24	$18		0	0	1	1	0	0	0
25	$19		0	0	1	1	0	0	1
26	$1A		0	0	1	1	0	1	0
27	$1B		0	0	1	1	0	1	1
28	$1C		0	0	1	1	1	0	0
29	$1D		0	0	1	1	1	0	1
30	$1E		0	0	1	1	1	1	0
31	$1F		0	0	1	1	1	1	1
32	$20		0	1	0	0	0	0	0
33	$21		0	1	0	0	0	0	1
34	$22		0	1	0	0	0	1	0
35	$23		0	1	0	0	0	1	1
36	$24		0	1	0	0	1	0	0
37	$25		0	1	0	0	1	0	1
38	$26		0	1	0	0	1	1	0
39	$27		0	1	0	0	1	1	1
40	$28		0	1	0	1	0	0	0
41	$29		0	1	0	1	0	0	1
42	$2A		0	1	0	1	0	1	0
43	$2B		0	1	0	1	0	1	1
44	$2C		0	1	0	1	1	0	0
45	$2D		0	1	0	1	1	0	1
46	$2E		0	1	0	1	1	1	0
47	$2F		0	1	0	1	1	1	1
48	$30		0	1	1	0	0	0	0
49	$31		0	1	1	0	0	0	1
50	$32		0	1	1	0	0	1	0
51	$33		0	1	1	0	0	1	1
52	$34		0	1	1	0	1	0	0
53	$35		0	1	1	0	1	0	1
54	$36		0	1	1	0	1	1	0
55	$37		0	1	1	0	1	1	1
56	$38		0	1	1	1	0	0	0
57	$39		0	1	1	1	0	0	1
58	$3A		0	1	1	1	0	1	0
59	$3B		0	1	1	1	0	1	1
60	$3C		0	1	1	1	1	0	0
61	$3D		0	1	1	1	1	0	1
62	$3E		0	1	1	1	1	1	0
63	$3F		0	1	1	1	1	1	1
64	$40		1	0	0	0	0	0	0

Telegram		Diagnosis bit							
Dec.	Hex.	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
65	$41	Not used	1	0	0	0	0	0	1
66	$42		1	0	0	0	0	1	0
67	$43		1	0	0	0	0	1	1
68	$44		1	0	0	0	1	0	0
69	$45		1	0	0	0	1	0	1
70	$46		1	0	0	0	1	1	0
71	$47		1	0	0	0	1	1	1
72	$48		1	0	0	1	0	0	0
73	$49		1	0	0	1	0	0	1
74	$4A		1	0	0	1	0	1	0
75	$4B		1	0	0	1	0	1	1
76	$4C		1	0	0	1	1	0	0
77	$4D		1	0	0	1	1	0	1
78	$4E		1	0	0	1	1	1	0
79	$4F		1	0	0	1	1	1	1
80	$50		1	0	1	0	0	0	0
81	$51		1	0	1	0	0	0	1
82	$52		1	0	1	0	0	1	0
83	$53		1	0	1	0	0	1	1
84	$54		1	0	1	0	1	0	0
85	$55		1	0	1	0	1	0	1
86	$56		1	0	1	0	1	1	0
87	$57		1	0	1	0	1	1	1
88	$58		1	0	1	1	0	0	0
89	$59		1	0	1	1	0	0	1
90	$5A		1	0	1	1	0	1	0
91	$5B		1	0	1	1	0	1	1
92	$5C		1	0	1	1	1	0	0
93	$5D		1	0	1	1	1	0	1
94	$5E		1	0	1	1	1	1	0
95	$5F		1	0	1	1	1	1	1
96	$60		1	1	0	0	0	0	0
97	$61		1	1	0	0	0	0	1
98	$62		1	1	0	0	0	1	0
99	$63		1	1	0	0	0	1	1
100	$64		1	1	0	0	1	0	0
101	$65		1	1	0	0	1	0	1
102	$66		1	1	0	0	1	1	0
103	$67		1	1	0	0	1	1	1
104	$68		1	1	0	1	0	0	0
105	$69		1	1	0	1	0	0	1
106	$6A		1	1	0	1	0	1	0
107	$6B		1	1	0	1	0	1	1
108	$6C		1	1	0	1	1	0	0
109	$6D		1	1	0	1	1	0	1
110	$6E		1	1	0	1	1	1	0
111	$6F		1	1	0	1	1	1	1
112	$70		1	1	1	0	0	0	0
113	$71		1	1	1	0	0	0	1
114	$72		1	1	1	0	0	1	0
115	$73		1	1	1	0	0	1	1
116	$74		1	1	1	0	1	0	0
117	$75		1	1	1	0	1	0	1
118	$76		1	1	1	0	1	1	0
119	$77		1	1	1	0	1	1	1
120	$78		1	1	1	1	0	0	0
121	$79		1	1	1	1	0	0	1
122	$7A		1	1	1	1	0	1	0
123	$7B		1	1	1	1	0	1	1
124	$7C		1	1	1	1	1	0	0
125	$7D		1	1	1	1	1	0	1
126	$7E		1	1	1	1	1	1	0
127	$7F		1	1	1	1	1	1	1

9. Appendix

9.1 Typical applications

Subject	Chapter / page
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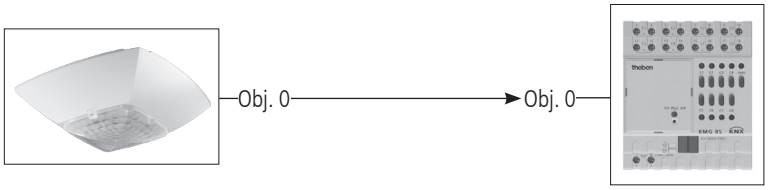
9.1.1 Presence and brightness-dependent switching of light

Description	The classic function of a presence detector is switching lights on if a room is occupied and there is insufficient natural daylight. The lighting is automatically switched off if the room is vacated or the share of daylight increases.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) RMG 8 S KNX (Order No. 493 0 220)

Overview



Links	PresenceLight 180/360 KNX		RMG 8 S		Comments
	No.	Object name	No.	Object name	
	0	A channel light: Switching	0	RMG 8 S channel C1	Switching lighting on and off

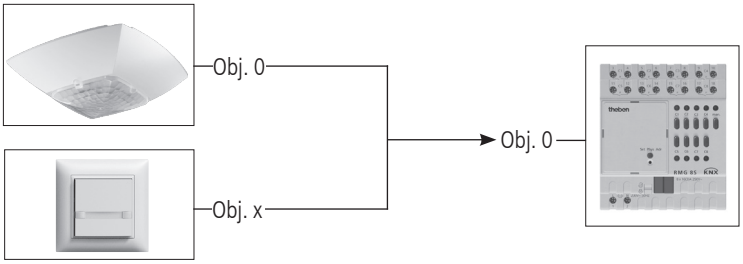
Parameter	PresenceLight 180/360 KNX		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Single unit operation
	Channel functions	A channel , light	active..
		B channel , light	Inactive
		Control type	Switching
	A channel light	Brightness level	500 lux (e.g. for an office)
		Switch-off delay time	10 min
	RMG 8 S		
	Parameter page	Parameter	Setting
	RMG 8 S channel 1: Functions	Function of channel	Switching On/Off
	Standard or customer-defined parameter settings apply for unlisted parameters.		

9.1.2 Presence and brightness-dependent switching of light, additional manual override via push button

Description	The presence detector switches the lighting. The lighting can also be switched on and off manually. When the light is switched on via push button, the user has 30 minutes light if the room is occupied before the presence detector takes control again. When the light is switched off via push button the lighting remains switched off while the room is unoccupied. The presence detector only takes control after the switch-off delay time has expired. It is also possible to operate the presence detector in semi-automatic mode. In this case, the lighting must always be switched on by hand; the detector does not switch the lighting on independently. The presence detector switches off the lighting as usual if there is sufficient daylight or if the room is unoccupied.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) RMG 8 S KNX (Order No. 493 0 220)

Overview



Links

PresenceLight 180/360 KNX		RMG 8 S		Comments
No.	Object name	No.	Object name	
0	A channel light: Switching	0	RMG 8 S channel C1	Switching lighting on and off

any KNX push button		RMG 8 S		Comments
No.	Object name	No.	Object name	
x	e.g. key 1	0	RMG 8 S channel C1	Manual switching on and off via push button

Parameter

PresenceLight 180/360 KNX		
Parameter page	Parameter	Setting
General	Operating mode	Master
	Master operating mode	Single unit operation
Channel functions	A channel , light	active..
	B channel , light	Inactive
	Control type	Switching
A channel light	Brightness level	500 lux (e.g. for an office)
	Switch-off delay time	10 mins

KNX push button (example)		
Parameter page	Parameter	Setting
Rocker 1 left	Telegram on pressing the key	On
	Telegram when released	no telegram
Rocker 1 right	Telegram on pressing the key	Off
	Telegram when released	no telegram

RMG 8 S		
Parameter page	Parameter	Setting
RMG 8 S channel C1: Functions	Function of channel	Switching On/Off

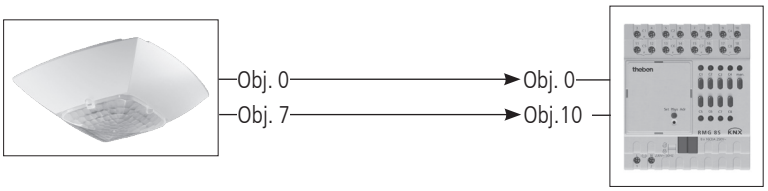
Standard or customer-defined parameter settings apply for unlisted parameters.

9.1.3 Presence and brightness-dependent switching of light with two lighting groups in a small room

Description	The available daylight can be used to maximum effect with two lighting groups. The presence detector switches two lighting groups; one near the window and the second in the interior of the room. The lighting group near the window is switched on by the presence detector before the one in the interior of the room due to the greater amount of daylight.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) RMG 8 S KNX (Order No. 493 0 220)

Overview



Links

PresenceLight 180/360 KNX		RMG 8 S		Comments
No.	Object name	No.	Object name	
0	A channel light: Switching	0	GM RMG 8 S channel C1	Switching lighting near the window on and off
7	B channel light: Switching	10	GM RMG 8 S channel C2	Switching lighting in the interior of the room on and off

Parameter

PresenceLight 180/360 KNX		
Parameter page	Parameter	Setting
General	Operating mode	Master
	Master operating mode	Single unit operation
Channel functions	A channel , light	active..
	B channel , light	active..
	Control type	Switching
A channel light	Brightness level	500 lux (e.g. for an office)
	Switch-off delay time	10 mins
B channel light	Brightness difference to A channel light	+ 20 %

RMG 8 S		
Parameter page	Parameter	Setting
RMG 8 S channel C1: Functions	Function of channel	Switching On/Off
RMG 8 S channel C2: Functions	Function of channel	Switching On/Off

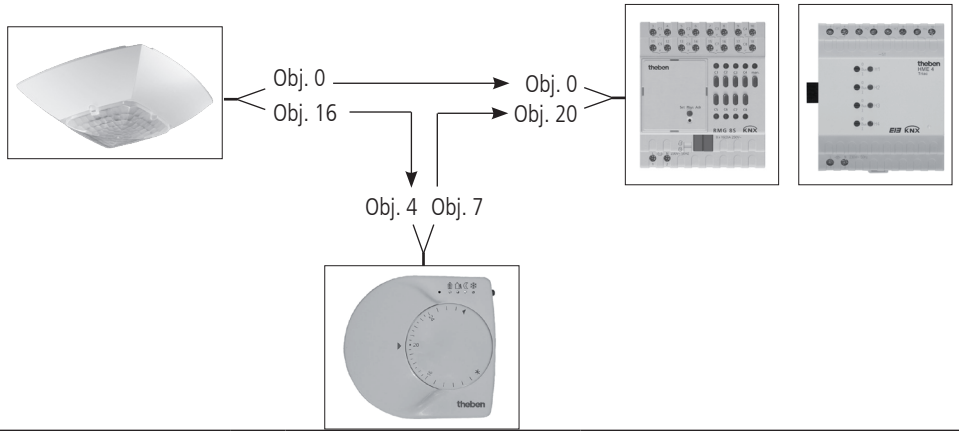
Standard or customer-defined parameter settings apply for unlisted parameters.

9.1.4 Presence and brightness-dependent switching with additional heating control

Description	The presence output on the detector is also used for heating control in addition to the presence and daylight-dependent switching of one or two lighting groups. The output is configured with a switch-on delay. In large rooms this switching can be extended with additional presence detectors (Master or Slave).

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) Mix combination: RMG 8 S + upgrade module HME 4 (Order No. 493 0 220 + 491 0 211) Ramses 713 S KNX (Order no. 713 9 201)

Overview



Links

PresenceLight 180/360 KNX		MiX combination		Comments
No.	Object name	No.	Object name	
0	A channel light: Switching	0	GM RMG 8 S channel 1	Switching lighting on and off

PresenceLight 180/360 KNX		RAM 713 S		Comments
No.	Object name	No.	Object name	
16	H Channel presence: Switching	4	Presence	If the presence object is set, RAM 713 S changes to comfort mode.

RAM 713 S		HME 4		Comments
No.	Object name	No.	Object name	
7	Channel 1 switching	80	EM HME4 Channel 1	RAM 713 sends the heating control variable to the heating actuator

Parameter	PresenceLight 180/360 KNX		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Single unit operation
	Channel functions	A channel , light	active..
		B channel , light	active..
		Control type	Switching
		H channel presence	active..
	A channel light	Brightness level	500 lux (e.g. for an office)
		Switch-off delay time	10 mins
	H channel presence	Switch-on delay time presence	as per customer specification
		Switch-off delay time presence	as per customer specification
	RAM 713 S		
	Parameter page	Parameter	Setting
	Operating mode	Objects for determining the operating mode	new: Operating mode, presence, window status
		Operating mode after reset	Standby
		Presence sensor type (to obj. 4)	Presence detector
	Heating control [1]	Type of control	Continuous control
	MiX combination RMG 8 S and upgrade module HME 4		
	Parameter page	Function	Setting
	General	Type of basic module	1 upgrade module / 2 upgrade modules [2]
		Type of first upgrade module	HME 4...
	RMG 8 S channel C1: Functions	Function	Switching On/Off
	HME 4 channel H1: Functions	Type of actuating value	Continuous...
	Standard or customer-defined parameter settings apply for unlisted parameters.		

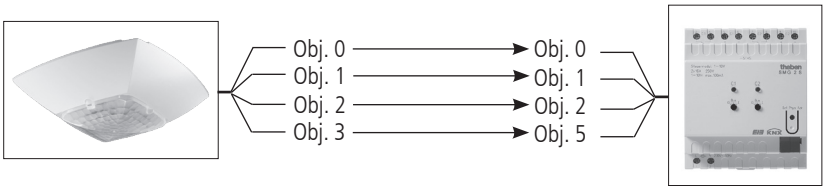
1) This setting is only required if a user-defined control is selected on the Settings parameter page.
2) Depending on application.

9.1.5 Constant light control

Description	Presence detectors with constant light controls control lighting dependent on natural daylight if the room is occupied. Artificial light is automatically dimmed up with reducing levels of daylight, and with increasing levels of daylight the artificial light automatically dims down and finally switches off. The lighting is automatically switched off if the room is vacated.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) SMG 2 S (Order No. 491 0 273)

Overview



Links

PresenceLight 180/360 KNX		SMG 2 S		Comments
No.	Object name	No.	Object name	
0	A channel light: Switching	0	GM SMG 2 S Channel 1: Switching ON/OFF	
1	A channel light: Brighter/darker	1	GM SMG 2 S Channel 1: Brighter/darker	
2	A channel light: Send value	2	GM SMG 2 S Channel 1: Dimming value	
3	A channel light: Feedback value	5	GM SMG 2 S Channel 1: Feedback in %	

Parameter

PresenceLight 180/360 KNX		
Parameter page	Parameter	Setting
General	Operating mode	Master
	Master operating mode	Single unit operation
Channel functions	A channel , light	active..
	Control type	Constant light control
A channel light	Brightness level	500 lux (e.g. for an office)
	Switch-off delay time	10 mins

Dimmer SMG 2 S		
Parameter page	Parameter	Setting
SMG 2 S Channel 1 C1.1	Minimum brightness	5 %
	Dimming time from 0 % to 100 %	10 seconds
	When receiving a dimming value/scene no.	Soft on

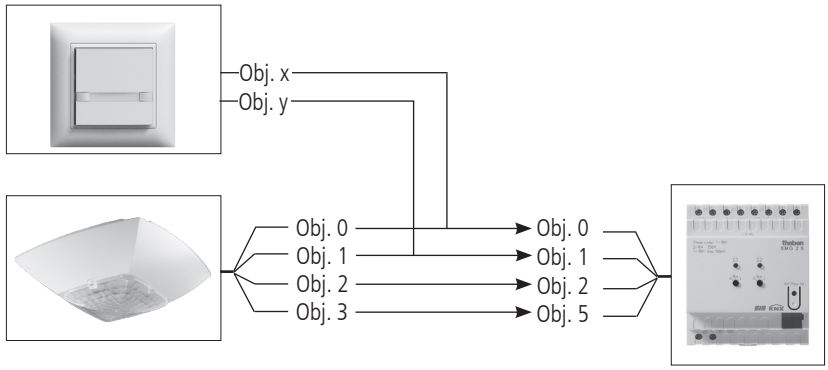
Standard or customer-defined parameter settings apply for unlisted parameters.

9.1.6 Constant light control, additional manual override via push button

Description	The presence detector controls the lighting (see example 3.1.5). The lighting can also be switched and dimmed manually. Dimming via push button ends the control. The presence detector remains at the set dimming value while the room is cupied. When the light is switched off via push button the lighting remains switched off while the room is unoccupied. The presence detector only takes control after the switch-off delay time has expired. It is also possible to operate the presence detector in semi-automatic mode. In this case, the lighting must always be switched on by hand; the detector does not switch the lighting on independently.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) SMG 2 S (Order No. 491 0 273)

Overview



Links

PresenceLight 180/360 KNX		SMG 2 S		Comments
No.	Object name	No.	Object name	
0	A channel light: Switching	0	GM SMG 2 S channel 1: Switching ON/OFF	
1	A channel light: Brighter/darker	1	GM SMG 2 S channel 1: Brighter/darker	
2	A channel light: Send value	2	GM SMG 2 S channel 1: Dimming value	
3	A channel light: Feedback value	5	GM SMG 2 S channel 1: Feedback in %	

any KNX push button		SMG 2 S		Comments
No.	Object name	No.	Object name	
x	e.g. push button 1: Switching	0	GM SMG 2 S channel 1: Switching ON/OFF	Switching on and off via push button
y	e.g. push button 1: Brighter/darker	1	GM SMG 2 S channel 1: Brighter/darker	Dimming via push button

Parameter

PresenceLight 180/360 KNX		
Parameter page	Parameter	Setting
General	Operating mode	Master
	Master operating mode	Single unit operation
Channel functions	A channel , light	active..
	Control type	Constant light control
A channel light	Brightness level	500 lux (e.g. for an office)
	Switch-off delay time	10 mins

Dimmer SMG 2 S		
Parameter page	Parameter	Setting
SMG 2 S channel 1 C1.1	Minimum brightness	5 %
	Dimming time from 0 % to 100 %	10 seconds
	When receiving a dimming value/scene no.	Soft on

KNX push button (example)		
Parameter page	Parameter	Setting
Rocker 1 left	Telegram on pressing the key	On
	Telegram when released	no telegram
Rocker 1 right	Telegram on pressing the key	Off
	Telegram when released	no telegram

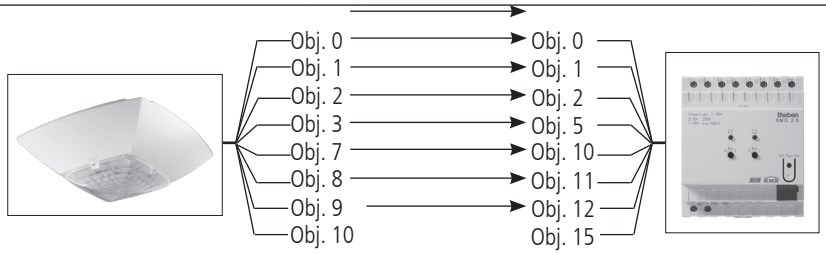
Standard or customer-defined parameter settings apply for unlisted parameters.

9.1.7 Constant light control with two lighting groups

Description	The constant light control controls the lighting dependent on natural day light (see example 3.1.6). The lighting is divided into two lighting groups to make maximum use of the daylight near the window. The two lighting groups are always switched on together. The lighting group near the window is controlled with an offset in comparison to the lighting group in the interior of the room.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) SMG 2 S (Order No. 491 0 273)

Overview



Links

PresenceLight 180/360 KNX		SMG 2 S		Comments
No.	Object name	No.	Object name	
0	A channel light: Switching	0	GM SMG 2 S channel 1: Switching ON/OFF	
1	A channel light: Brighter/darker	1	GM SMG 2 S channel 1: Brighter/darker	
2	A channel light: Send value	2	GM SMG 2 S channel 1: Dimming value	
3	A channel light: Feedback value	5	GM SMG 2 S channel 1: Feedback %	
7	B channel light: Switching	10	GM SMG 2 S channel 2: Switching ON/OFF	
8	B channel light: Brighter/darker	11	GM SMG 2 S channel 2: Brighter/darker	
9	B channel light: Send value	12	GM SMG 2 S channel 2: Dimming value	
10	B channel light: Feedback value	15	GM SMG 2 S channel 2: Feedback %	

Parameter

PresenceLight 180/360 KNX		
Parameter page	Parameter	Setting
General	Operating mode	Master
	Master operating mode	Single unit operation
Channel functions	A channel , light	active..
	Control type	Constant light control
A channel light	Brightness level	500 lux (e.g. for an office)
	Switch-off delay time	10 mins
B channel light	Brightness difference to A channel light	approx. + 20 %

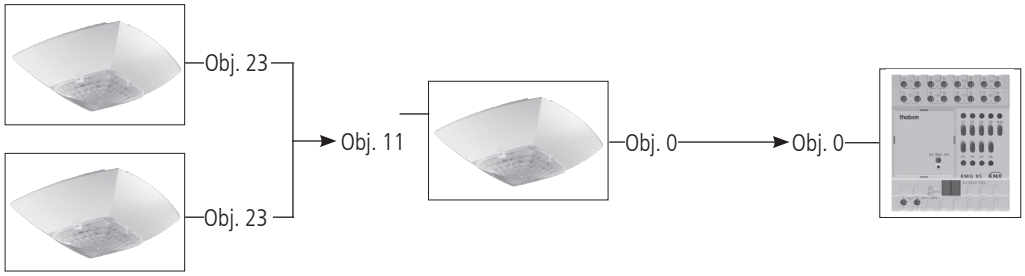
Dimmer SMG 2 S		
Parameter page	Parameter	Setting
SMG 2 S channel 1 S1	Minimum brightness	5 %
	Dimming time from 0 % to 100 %	10 seconds
	When receiving a dimming value/scene no.	Soft on
SMG 2 S channel 2 S1	Minimum brightness	5 %
	Dimming time from 0 % to 100 %	10 seconds
	When receiving a dimming value/scene no.	Soft on

9.1.8 Master - Slave parallel connection:

Description	A number of presence detectors can be linked together to provide coverage of large areas such as offices or corridors. One device is used as Master, the others as Slaves. In order to maintain an overview, no more than 10 Slaves should be connected to one Master. The slaves trigger the master when movement is detected. All settings, possible delay times and brightness thresholds are configured on the Master. Master-Slave parallel connection can be used independently of whether the Master switches one or two lighting groups or operates in constant light control.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) RMG 8 S (Order No. 490 0 220)

Overview



Links

PresenceLight 180/360 KNX		RMG 8 S		Comments
No.	Object name	No.	Object name	
0	Output light A: Switching	0	GM RMG 8 S channel C1	Switching lighting on and off

PresenceLight 180/360 KNX (Slaves)		PresenceLight 180/360 KNX (Master)		Comments
No.	Object name	No.	Object name	
23	Parallel connection: Trigger input/output	23	Parallel connection: Trigger input/output	Connection between Master and Slave

Parameter

PresenceLight 180/360 KNX (Master)		
Parameter page	Parameter	Setting
General	Operating mode	Master
	Master operating mode	Single unit operation
Channel functions	A channel , light	active..
	Control type	Switching
A channel light	Brightness level	500 lux (e.g. for an office)
	Switch-off delay time	10 mins

PresenceLight 180/360 KNX (Slaves)		
Parameter page	Parameter	Setting
General	Operating mode	Slave

RMG 8 S		
Parameter page	Parameter	Setting
RMG 8 S channel C1	Function	Switching On/Off

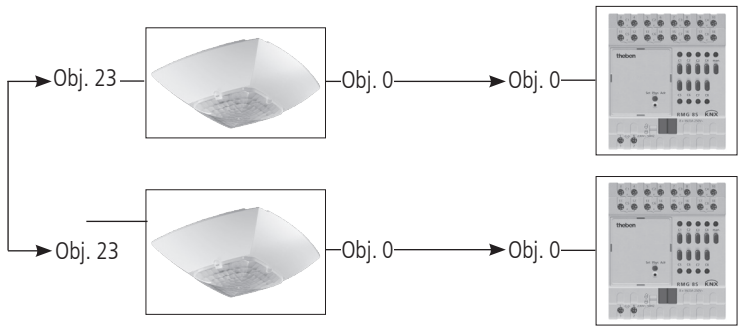
Standard or customer-defined parameter settings apply for unlisted parameters.

9.1.9 Master - Master parallel connection:

Description	A number of Master presence detectors can be connected together to cover large areas with varying lighting conditions such as offices. Each Master operates its lighting group according to its measurements and settings. They exchange presence with each other. This extends the detection area. Master-master parallel connections permit several lighting groups to operate with their own light measurement. It should be noted that every Master can only detect light switched or controlled by itself. The Master-Master parallel connection can be used independently of whether the Master is configured for switching or constant light control.

Devices	PresenceLight 180x-KNX (Order no. 200 9 ...) PresenceLight 360x-KNX (Order no. 200 9 ...) RMG 8 S / (Order No. 490 0 220)

Overview



Links

PresenceLight 180/360 KNX		RMG 8 S		Comments
No.	Object name	No.	Object name	
0	Output light A: Switching	0	GM RMG 8 S channel C1	Switching lighting on and off

PresenceLight 180/360 KNX		PresenceLight 180/360 KNX		Comments
No.	Object name	No.	Object name	
23	Parallel connection: Trigger input/output	23	Parallel connection: Trigger input/output	Connection between Master and Slave

Parameter

PresenceLight 180/360 KNX		
Parameter page	Parameter	Setting
General	Operating mode	Master in parallel connection
	Outputs light	Output light A active:
Channel functions	A channel , light	active..
	Control type	Switching
A channel light	Brightness value	500 lux (e.g. for an office)
	Switch-off delay time	10 mins

RMG 8 S		
Parameter page	Parameter	Setting
RMG 8 S channel C1: Functions	Function of channel	Switching On/Off

Standard or customer-defined parameter settings apply for unlisted parameters.