

KNX manual

Application description

Presence detectors PlanoSpot 360 KNX S



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1. Functional characteristics

1.1 Presence detector PlanoSpot 360 KNX S

The presence detector switches or controls a maximum of three lighting groups depending on the presence of persons and the current brightness. The light outputs can be dynamically faded up and down by the integrator. The brightness switching value or setpoint value can be set via parameters, object, the management remote control or installation remote control.

The lighting switches on with presence and insufficient brightness, and off with absence or sufficient brightness. Manual switching or dimming can be performed with a push button.

When constant light control is active, the brightness is held constant at the brightness setpoint value. Control is started fully automatically or manually via push button or remote control. Manual switching off, dimming and scenes stop control for as long as the presence continues.

Up to 2 additional channels transmit the presence information in the room to further devices such as heating, ventilation, air-conditioning or blind controls. Each channel has a switch-on delay and a time delay.

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

The presence detector also has an integrated scenario component as well as the possibility of processing scene numbers for the 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 to control other external consumers such as lights, blinds, etc.

1.2 Features

- ◆ Passive infrared presence detector for ceiling installation
- ◆ Flat design with interchangeable bezel frame in different colors
- ◆ Square detection area 360° (up to 64 m²) for reliable and easy planning
- ◆ Automatic presence- and brightness-dependent control for lighting and HVAC
- ◆ Two differently sized detection zones for greater flexibility. Adjustable via parameters or remote control.
- ◆ Mixed light measurement suitable for fluorescent lamps (FL/PL/ESL), halogen/incandescent lamps and LEDs
- ◆ 3 directed light measurements
- ◆ 2 lighting channels C1, C2 with two light measurements and additional lighting channel C3 without brightness factor
- ◆ Switching or constant light control with 2 independent control systems and standby function (orientation light)
- ◆ Switching mode with dimmable lighting
- ◆ Fully or semi-automatic
- ◆ Brightness switching value or setpoint value can be set in lux by using parameters, the object or via remote control
- ◆ Teach-in of the brightness switching value or the setpoint value
- ◆ Self-learning lighting time delay can be set using parameters, object or via remote control
- ◆ Reduction of time delay when present briefly (short-term presence)
- ◆ Manual override by telegram or remote control
- ◆ 2 presence channels C4, C5 individually configurable
- ◆ Switch-on delay and time delay presence configurable
- ◆ Room monitoring with selective movement detection
- ◆ Setting the room correction factor for brightness measurement calibration
- ◆ Configurable detection sensitivity
- ◆ Extremely simple setting of the energy-saving response with the new «ECO plus» function
- ◆ Test mode for checking function and detection area
- ◆ Scenes
- ◆ Parallel switching of multiple presence detectors (Master/Slave or Master/Master)
- ◆ Installation in false ceilings with springs
- ◆ Surface mounting on ceilings possible with the back box (optional)
- ◆ Management remote control «SendoPro 868-A» (optional)
- ◆ Installation remote control «theSenda P» (optional)
- ◆ User remote control «theSenda S» (optional)

1.3 Information about 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 will be opened.

Terminology

Operating mode	Master
	Slave
Configuration type	Fully automatic device
	Semi-automatic device
Channel function	Switching
	Constant light control
	Constant light control without influence of presence

1.4 Technical data

Presence detector		PlanoSpot 360 KNX S
Number of light measurements (mixed light)		3
Recommended installation height		2.0 - 3.0 m (minimum height > 1.7 m)
Max. detection area		8 x 8 m (Inst. ht. 3.5 m) / 64 m ² walking 4.5 x 4.5 m (Inst. ht. 3.0 m) / 20 m ² seated
Detection angle horizontal		360°
vertical		120°
Operating voltage		Bus voltage KNX, max. 30 V
Power consumption		approx. 8 mA / 9 mA with LED on
Type of installation		Installation in false ceilings
Brightness switching value / setpoint value setting range		10 – 3000 lux
Lighting time delay		30 s – 60 min.
Presence time delay		10 s – 120 min.
Presence switch-on delay		10 s – 30 min / inactive
Standby dimming value		1 – 25 % of the lamp output
Standby time		30 s – 60 min / inactive / permanently on
Remote control communication		Receiving data IR
Parameter setting		All settings can be remotely controlled via ETS. Described in this document
Connection type		Plug-in terminals, type WAGO 243
Protection rating		IP 20
Ambient temperature		0 °C – 50 °C
CE Declaration of Conformity 		This device conforms to the regulations of the EMC Directive 2014/30/EC
RCM compliance 		This device is compliant with the ACMA guidelines

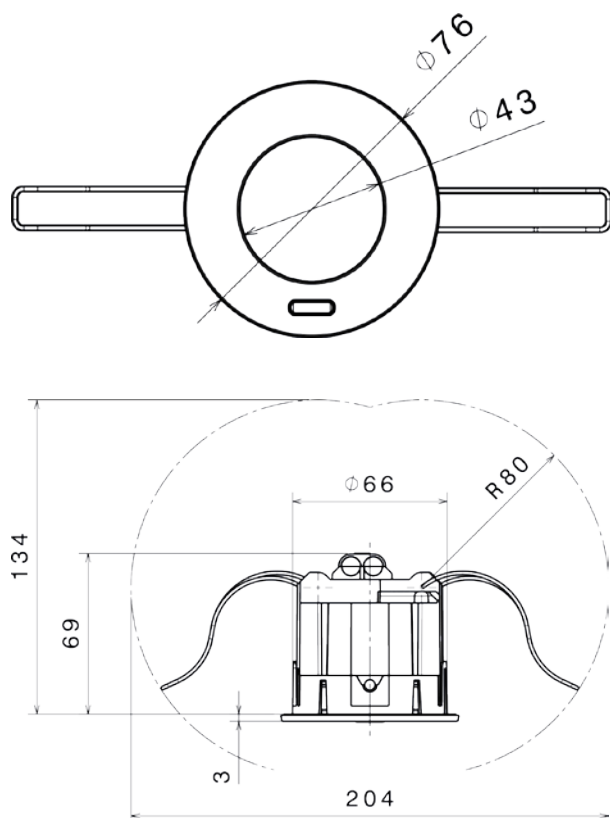
1.4.1 Product overview

Type of installation	Channel	Colour	Type	Item number
Ceiling installation	3 Light 2 HVAC	White	PlanoSpot 360 KNX S DE WH	2039300

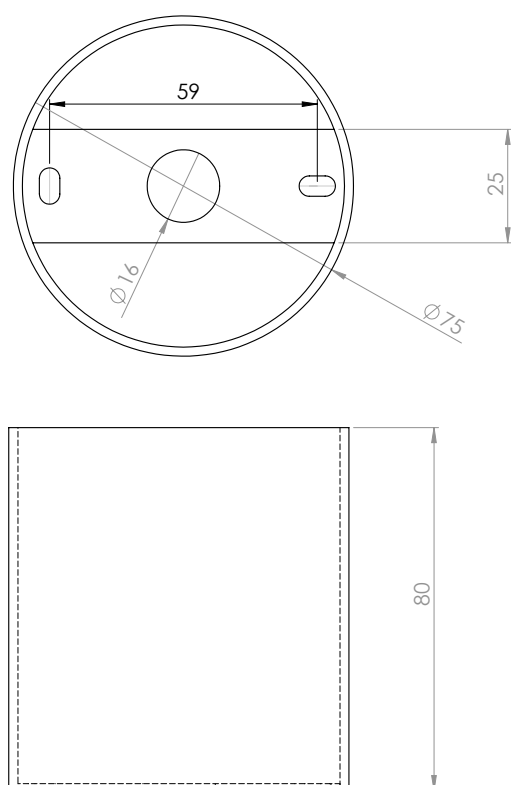
Accessories	Item number
Plano Cover 76 WH	9070976
Plano Cover 76 BK	9070977
Plano Cover 76 SR	9070978
Back box 75A WH	9070949
Back box 75A BK	9070950
Back box 75A SR	9070951
SendoPro 868-A management remote control	9070675
Installation remote control theSenda P	9070910
User remote control theSenda S	9070911

1.4.2 Dimensions

PlanoSpot 360 KNX S



Back box 75 A



1.4.3 Detection area PlanoSpot 360 KNX S

The square detection area of the presence detector guarantees accurate and simple planning. Two detection zones are available; the user can switch between them by means of a parameter or the management remote control «SendoPro 868-A».

Note that seated and moving persons are detected in differently-sized areas.

The recommended installation height is 2 m – 3 m. As installation height increases, the sensitivity of the presence detector decreases. At an installation height of 3 m or higher, walking motions are necessary and the detection areas of several detectors should overlap around the perimeter. The detection range is reduced as the temperature increases.

This sensitivity can be adjusted in 5 levels via a parameter or the remote control.

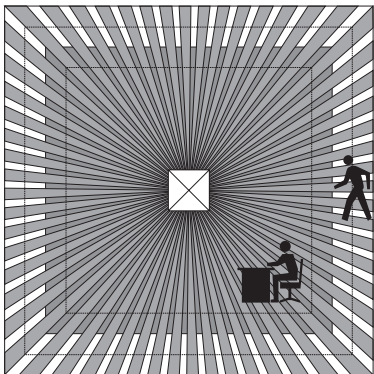
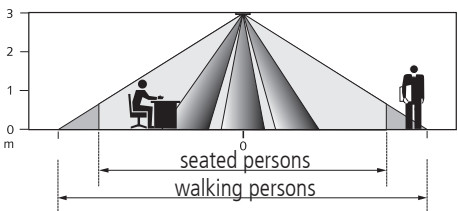
Seated persons:

The presence detector reacts very sensitively to the slightest movements. The information refers to movements at table height (approx. 0.80 m).

Walking persons:

From an installation height of > 3 m, the size and distance between the active and passive zones increase.

More pronounced movements are required for clear detection



Standard detection zone

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

Reduced detection zone

Installation height	seated persons		walking persons	
2,0 m	4,0 m ²	2,0 m x 2,0 m	4,4 m ²	2,1 m x 2,1 m ± 0,5 m
2,5 m	6,3 m ²	2,5 m x 2,5 m	9,0 m ²	3,0 m x 3,0 m ± 0,5 m
3,0 m	9,0 m ²	3,0 m x 3,0 m	14,4 m ²	3,8 m x 3,8 m ± 1,0 m
3,5 m	-	-	22,1 m ²	4,7 m x 4,7 m ± 1,0 m

2. The application programme PlanoSpot 360 KNX S

2.1 Selection in the product database

	PlanoSpot 360 KNX S
Manufacturer	Theben HTS AG
Product family	Physical sensors
Product type	Presence detector
Product name	PlanoSpot 360 KNX S

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, etc.
Settings	Sensitivity, detection zone, etc.
Brightness measurement	Source brightness measurement, room correction factor, settings for sending the current brightness value via the bus
Lighting channel C1	Settings for lighting control of lighting channel C1
Detail settings	Settings for lighting channel C1 - Switching
Detail settings	Settings for lighting channel C1 - Constant light control
Detail settings	Settings for lighting channel C1 - constant light control without depending on presence
Block function light	Settings for blocking light channel C1 / C2
Lighting channel C2	Settings for lighting control of lighting channel C2
Detail settings	Settings for lighting channel C2 - Switching
Detail settings	Settings for lighting channel C2 - Constant light control
Detail settings	Settings for lighting channel C2 - constant light control without depending on presence
Lighting channel C3	Settings for lighting channel C3 - Lighting control without influence of brightness
Presence channel C4	Channel C4 for presence-dependent control of other systems, such as heating, air conditioning
Objects	Setting of telegrams
Block function presence	Settings for blocking presence channel C4
Presence channel C5	Channel C5 for presence-dependent control of other systems, such as heating, air conditioning
Objects	Setting of telegrams
Block function presence	Settings for blocking presence channel C5
Room monitoring channel C6	Settings for room monitoring channel C6
Remote control	Settings for allocation of commands in the user remote control
Scenes	Definition of scenes in relation to user remote control
Scene functions	Definition of scene functions

2.3 Communication objects

2.3.1 Overview

The PlanoSpot P360 KNX S presence detector has 53 communication objects. In switching mode, the designation of setpoint value changes to switching value.

Object Number	Object name	Function	Length	Data type (ID)	Flags				
					C	R	W	T	U
0	Lighting channel C1	Switching	1 bit	1,001	✓		✓	✓	
1	Lighting channel C1	Brighter/darker	4 bit	3,007	✓		✓	✓	
2	Lighting channel C1	Send value	1 byte	5,001	✓		✓	✓	
3	Lighting channel C1	Feedback value	1 byte	5,001	✓		✓	✓	✓
4	Channel C1 brightness setpoint value	Receive value	2 byte	9,004	✓		✓	✓	
5	Channel C1 brightness setpoint value (teach-in)	\$01=call up/ \$81=save	1 byte	18,001	✓		✓		
6	Channel C1 alternative brightness setpoint value	Receive value	2 byte	9,004	✓		✓	✓	
7	(Channel C1) measurement value on lux meter	Receive value	2 byte	9,004	✓		✓		
8	(Channel C1) room correction factor	Call up value	2 byte	9.*	✓	✓		✓	
9	(Channel C1) brightness value	Send lux value	2 byte	9,004	✓	✓		✓	
10	(Channel C1) external brightness value	Receive lux value	2 byte	9,004	✓		✓		
11	Lighting channel C2	Switching	1 bit	1,001	✓		✓	✓	
12	Lighting channel C2	Brighter/darker	4 bit	3,007	✓		✓	✓	
13	Lighting channel C2	Send value	1 byte	5,001	✓		✓	✓	
14	Lighting channel C2	Feedback value	1 byte	5,001	✓		✓	✓	✓
15	Channel C2 brightness setpoint value	Receive value	2 byte	9,004	✓		✓	✓	
16	Channel C2 brightness setpoint value (teach-in)	\$01=call up/ \$81=save	1 byte	18,001	✓		✓		
17	Channel C2 alternative brightness setpoint value	Receive value	2 byte	9,004	✓		✓	✓	
18	Channel C2 measurement value on lux meter	Receive value	2 byte	9,004	✓		✓		
19	Channel C2 - room correction factor	Call up value	2 byte	9.*	✓	✓		✓	
20	Channel C2 brightness value	Send lux value	2 byte	9,004	✓	✓		✓	
21	Channel C2 external brightness value	Receive lux value	2 byte	9,004	✓		✓		
22	Lighting channel C1	Select brightness setpoint value	1 bit	1,003	✓		✓		
23	Lighting channel C2	Select brightness setpoint value	1 bit	1,003	✓		✓		
24	Lighting channel C1, C2	Select constant light control	1 bit	1,003	✓		✓		
24	Lighting channel C1, C2 - constant light control	Activate/deactivate	1 bit	1,003	✓		✓		
25	Lighting channel C1, C2	Standby function	1 bit	1,003	✓		✓		
26	Lighting channel C3	Switching	1 bit	1,001	✓		✓	✓	
27	Channel C1, C2, C3 lighting time delay	Receive value	2 byte	7,005	✓		✓	✓	
28	Lighting channel C1, C2, C3	Disable/enable	1 bit	1,003	✓		✓		
29	Central command	Receive	1 bit	1,001	✓		✓		
30	External scene	Receive	1 byte	18,001	✓		✓		
31	Presence channel C4.1	Switching	1 bit	1,001	✓	✓		✓	
31	Presence channel C4.1	Send value	1 byte	5,010	✓	✓		✓	
31	Presence channel C4.1	Send percentage value	1 byte	5,001	✓	✓		✓	
31	Presence channel C4.1	HVAC operating mode	1 byte	20,102	✓	✓		✓	
31	Presence channel C4.1	Send scene	1 byte	17,001	✓	✓		✓	
32	Presence channel C4.2	Switching	1 bit	1,001	✓	✓		✓	

Object Number	Object name	Function	Length	Data type (ID)	Flags				
					C	R	W	T	U
32	Presence channel C4.2	Send value	1 byte	5,010	✓	✓		✓	
32	Presence channel C4.2	Send percentage value	1 byte	5,001	✓	✓		✓	
32	Presence channel C4.2	HVAC operating mode	1 byte	20,102	✓	✓		✓	
32	Presence channel C4.2	Send scene	1 byte	17,001	✓	✓		✓	
33	Presence channel C4	Disable/enable	1 bit	1,003	✓		✓		
34	Presence channel C5.1	Switching	1 bit	1,001	✓	✓		✓	
34	Presence channel C5.1	Send value	1 byte	5,010	✓	✓		✓	
34	Presence channel C5.1	Send percentage value	1 byte	5,001	✓	✓		✓	
34	Presence channel C5.1	HVAC operating mode	1 byte	20,102	✓	✓		✓	
34	Presence channel C5.1	Send scene	1 byte	17,001	✓	✓		✓	
35	Presence channel C5.2	Switching	1 bit	1,001	✓	✓		✓	
35	Presence channel C5.2	Send value	1 byte	5,010	✓	✓		✓	
35	Presence channel C5.2	Send percentage value	1 byte	5,001	✓	✓		✓	
35	Presence channel C5.2	HVAC operating mode	1 byte	20,102	✓	✓		✓	
35	Presence channel C5.2	Send scene	1 byte	17,001	✓	✓		✓	
36	Presence channel C5	Disable/enable	1 bit	1,003	✓		✓		
37	Room monitoring channel C6	Message	1 bit	1,005	✓			✓	
38	Room monitoring channel C6	Confirmation	1 bit	1,016	✓		✓		
39	Room monitoring channel C6	Sabotage cyclically	1 bit	1,005	✓			✓	
40	Room monitoring channel C6	Release	1 bit	1,003	✓		✓		
41	Parallel switching	Trigger input/output	1 bit	1,017	✓		✓	✓	
42	Scene input	Scene 1/2	1 bit	1,022	✓		✓		
42	Scene output	Scene number	1 byte	18,001	✓			✓	
43	IR external 1 switching/dimming	Switching	1 bit	1,001	✓			✓	
44	IR external 1 switching/dimming	Brighter/darker	4 bit	3,007	✓			✓	
45	IR external 2 switching/dimming	Switching	1 bit	1,001	✓			✓	
46	IR external 2 switching/dimming	Brighter/darker	4 bit	3,007	✓			✓	
47	IR external blinds 1	Blinds up/down	1 bit	1,008	✓			✓	
48	IR external blinds 1	Open/close slats	1 bit	1,009	✓			✓	
49	IR external blinds 2	Blinds up/down	1 bit	1,008	✓			✓	
50	IR external blinds 2	Open/close slats	1 bit	1,009	✓			✓	
51	Presence test mode	On/Off	1 bit	1,001	✓		✓		
52	Brightness test mode	On/Off	1 bit	1,001	✓		✓		
53	Software version	Send	2 byte	217.001	✓	✓		✓	

2.3.2 Meaning of 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
U	Update	Object can overwrite

2.3.3 Object characteristics for lighting control

In switching mode, the designation of setpoint value changes to switching value.

Object	Object name	Function	Description
Object 0	Lighting channel C1	Switching	In "switching" mode, the light switch output C1 sends an ON telegram upon detection of motion and insufficient brightness, and an OFF telegram upon the expiration of the time delay or with sufficient brightness: 0 = Absence or sufficient brightness (OFF) 1 = Presence and insufficient brightness (ON)
Object 0 Object 1 Object 2 Object 3	Lighting channel C1 Lighting channel C1 Lighting channel C1 Lighting channel C1	Switching Brighter/darker Send value Feedback value	Objects 1 - 3 are available if "yes" has been selected in the "Constant light control" function or in "Switching mode" <Lighting dimmable in switching mode>. In the "Constant light control" function, 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. The constant light control can be started with a value or an ON telegram. For further details see page 22 chapter 2.4.6 In the "Constant light control" or "Constant light control without presence" function, constant light control can also be used when there is no-one in the room. Use regardless of presence can be activated and deactivated via object 24. The presence detector does not have any specific push button inputs, but does respond to push button commands sent to objects 0 to 2. The response under manual control can be selected as either "school" or "office". Please observe the information on push button operation on page 33 chapter 3.
Object 4 Object 15	Channel C1 brightness setpoint value Channel C2 brightness setpoint value	Receive value	Object available if "yes" has been selected at <Set brightness setpoint value via bus>. This enables changing of the brightness setpoint value during operation. The received brightness setpoint value is set to the corresponding limit automatically if it lies outside the value range (10..3000 lux) or the brightness setpoint value does not match the current room correction factor setting (see setting limit). Object 4/15 returns the stored value of the brightness setpoint value. When changing the brightness setpoint value via remote control, the new value is sent. In switching mode, value "0" means "Measurement OFF".
Object 5 Object 16	Channel C1 brightness setpoint value (teach-in) Channel C2 brightness setpoint value (teach-in)	\$01=call up, \$81=save	Object available if "yes" has been selected at <Set brightness setpoint value via bus>. The presence detector accepts the currently measured brightness value [lux] as new brightness setpoint value or the alternative brightness setpoint value (depending on which one is currently active) via a value telegram \$81 (129). For example, if the presence detector switches to the alternative brightness setpoint value, the currently measured brightness value [lux] is transferred to the alternative brightness setpoint value via value telegram \$81 (129). Object 4 or 15 sends the saved value of the currently active brightness setpoint value, or object 6 or 17 sends the alternative brightness setpoint value (depending on which one is currently active). Object 4 or 15, or object 6 or 17 if the alternative brightness setpoint value is active, sends the current brightness setpoint value via value telegram \$01 (1). Transfer is made to the currently active brightness setpoint value.
Object 6 Object 17	Channel C1 alternative brightness setpoint value Channel C2 alternative brightness setpoint value	Receive value	Object available if "yes" has been selected at <Set alternative brightness setpoint value via bus>. This enables resetting of the alternative brightness setpoint value during operation. The received brightness setpoint value is adjusted to the corresponding limit automatically if it lies outside the value range (10..3000 lux) or the brightness setpoint value does not match the current room correction factor setting (see setting limit). Object 6 or 17 returns the stored value of the alternative brightness setpoint value. When changing the alternative brightness set point value via the management remote control "SendoPro 868-A" the new value is sent. In switching mode, value "0" means "Measurement OFF".







Object	Object name	Function	Description
Object 7 Object 18	Channel C1 measurement value on lux meter Channel C2 measurement value on lux meter	Receive value	Object available if "yes" has been selected at <Set brightness measurement value via bus>. The measured lux meter value is needed to calculate the room correction factor. The lux meter is placed on the work surface below the sensor and the measured lux value is entered via object 7/18 or the "SendoPro 868-A" management remote control. The room correction factor is calculated automatically immediately after entry. Object 8/19 sends the stored value (scale factor 100).
Object 8 Object 19	Channel C1 - room correction factor Channel C2 - room correction factor	Call up value	Object available if "yes" has been selected at <Set brightness measurement value via bus>. The room correction factor is calculated automatically following the entry of the lux meter value, or it is entered via ETS. Permissible values lie between 0.05 and 2.0. Calculated or entered values outside the permitted range will be set automatically to the appropriate limit value. For monitoring purposes, the room correction factor can be queried via object 8 for lighting channel C1 or object 19 for lighting channel C2 (scale factor 100).
Object 9 Object 20	(Channel C1) brightness value (Channel C2) brightness value	Send lux value	Object available if "yes" has been selected at <Send brightness value via bus>. The presence detector sends the current brightness measurement value as a 2-byte telegram via object 9/20. The frequency of telegrams depends on the cycle time and the minimum change in brightness. The 2-byte telegrams to object 9/20 are used to visualise a brightness value. Use of the presence detector's internal constant light control function is recommended for control. The brightness value can be adapted to the conditions in a room with the room correction factor. See page 19 chapter 2.4.3
Object 10 Object 21	(Channel C1) external brightness value (Channel C2) external brightness value	Receive lux value	Object available if "external" has been selected at <Brightness measurement source>. As an alternative to internal light measurement, an external brightness value can be used via object 10 for channel C1, or object 21 for channel C2.
Object 11	Lighting channel C2	Switching	If two switch outputs are used, object 11 is used for brightness-dependent switching of lighting channel C2. Function, see object 0: Lighting channel C1: Switching.
Object 11 Object 12 Object 13 Object 14	Lighting channel C2 Lighting channel C2 Lighting channel C2 Lighting channel C2	Switching Brighter/darker Send value Feedback value	Objects 12 - 14 are available if the "Constant light control" function or "yes" in "Switching mode" <Lighting dimmable in switching mode> has been selected. If two channels are used, objects 11 – 14 are used for control or constant light control of lighting channel C2. Function, see objects 0 – 3: Lighting channel C1.
Object 22 Object 23	Lighting channel C1 Lighting channel C2	Select brightness setpoint value Select brightness setpoint value	Object available if "active" has been selected at <Select brightness setpoint value>. Depending on the configuration, it is possible to switch between two brightness setpoint values for daylight-dependent switching or constant light control. <ul style="list-style-type: none">- An ON telegram to bus object 22/23 switches to the alternative brightness setpoint value.- An OFF telegram switches back to the original base brightness setpoint value as setpoint value. This applies to both switching and constant light control.

Object	Object name	Function	Description
Object 24	Lighting channel C1 Lighting channel C1/ C2 Lighting channel C1 constant light control Lighting channel C1/ C2 constant light control	Selection of constant light control Activate/deac- tivate	Object available if <Lighting channel C1 function> "constant light control" has been selected. Response when using "Constant light control": <ul style="list-style-type: none"> - ON telegram to object 24 starts the presence-independent control. The <configuration type> of the lighting channel is automatically switched to "fully automatic device". - OFF telegram to object 24 deactivates the presence-independent control and presence-dependent constant light control is resumed. The set <configuration type> will be restored. Object available if "Constant light control without depending on presence" has been selected at <Lighting channel C1 function>. Response in case of "Constant light control without influence of presence": <ul style="list-style-type: none"> - ON telegram to object 24 starts the control. - OFF telegram to object 24 deactivates the control and switches off lighting. The 2 lighting channels C1/C2 can be switched and dimmed separately.
Object 25	Lighting channel C1 Lighting channel C1/ C2	Standby function	The standby function is available if "active" has been selected at <Lighting standby time>. The standby function can be deactivated and reactivated via object. 25. The standby function is activated by default.
Object 26	Lighting channel C3	Switching	Object available if "active" has been selected using <Lighting channel C3 function>. Lighting channel C3 functions only in response to presence without the influence of brightness, and can be set to semi or fully automatic device.
Object 27	Channel C1 lighting time delay Channel C1/C2 ligh- ting time delay Channel C1/C3 ligh- ting time delay Channel C1/C2/C3 lighting time delay	Receive value	Object available if "yes" has been selected at <Set lighting time delay via bus>. The time delay can be set jointly for lighting channels C1, C2, C3 in a range of 30 s to 60 s via object. 27. The value must be sent in seconds. In the range of 2 to 30 minutes, the lighting time delay is adjusted adaptively, except if <Energy saving mode> is set to "ECO plus".
Object 28	Lighting channel C1 Lighting channel C1/ C2 Lighting channel C1/ C3 Lighting channel C1/ C2/C3	Block/unblock	Object available if "yes" has been selected at <Activate block function>. The lighting channels are blocked jointly with an ON or OFF telegram. At the start of the blocking process, the light outputs optionally send one of the following telegrams: ON, OFF, no telegram, value X%. During the blocking, the channels do not send any telegrams, neither on the basis of presence/absence nor on the basis of brightness. The lighting channels are unblocked via an ON or OFF telegram, in addition to the telegram when blocking. During unblocking, the detector always sends the current status and thereby continues the brightness-dependent switching or constant light control.
Object 29	Central command	Receive	An ON telegram switches on lighting channels C1, C2, C3. The response of the presence detector is identical to that when the user switches it on via a push button. The response depends on the selected control type. See chapter 3 page 33. An OFF telegram switches lighting channels C1, C2, C3 in accordance with the following conditions: <ul style="list-style-type: none"> - no movement within the last 5 seconds: The light switches off immediately. The running time delays for lighting channels C1, C2, C3 and standby time are set to 0. The presence detector then returns to normal operation. - If <Duration of lighting standby time> is set to "on", channels C1, C2, C3 are not switched off, but instead switch to the set standby operation. - Motion when receiving the OFF telegram: The light stays on. Fully automatic device: <ul style="list-style-type: none"> - If further movement is then detected, the light switches on again if there is insufficient brightness. Presence detector is blocked <ul style="list-style-type: none"> - The central command is not carried out.

Object	Object name	Function	Description
Object 30	External scene	Receive	Object available if "inactive" has not been selected at <Lighting channel C1 function>. The behaviour of the presence detector can be controlled with 8 different scene functions. See page 33 chapter 2.4.20.

2.3.4 Characteristics of the other objects

Object	Object name	Function	Description
Object 31 Object 32 Object 34 Object 35	Presence channel C4.1 Presence channel C4.2 Presence channel C5.1 Presence channel C5.2	Switching Send value Send percentage value HVAC operating mode Send scene	Object available if "active.." has been selected at <Presence channel C4.X> or at <Presence channel C5.X>. Presence channel C4, C5 sends the configured telegram (independently of brightness after a potential delay due to the configured switch-on delay) or no telegram if there is a presence. The configured telegram or no telegram at all is sent after the time delay has elapsed. The telegram type is freely selectable.
Object 33 Object 36	Presence channel C4 Presence channel C5	Block/unblock	Object available if "yes" has been selected at <Activate block function>. The presence channel is disabled via an ON or OFF telegram. The response at the start of blocking can be defined as follows: <ul style="list-style-type: none"> - no response - as if presence detected - as at the end of the time delay The presence channel is unblocked via an ON or OFF telegram in addition to the telegram when blocking. After unblocking, the current state is sent.
Object 37	Room monitoring channel C6	Message	Objects 37 – 40 are available if "active" has been selected at <Room monitoring channel C6 function>. Depending on the configuration, the presence detector sends the motion information via object 37 with increased security against faulty activation: <Message type>: Switching (on/off): On detection of motion, the room monitoring channel sends an ON telegram and then an OFF telegram after the time delay has elapsed. <Message type>: Cyclic with confirmation: The monitoring channel sends an ON telegram on detection of motion. The detector sends another ON telegram if the telegram is not confirmed within the configured waiting time on object 38. This process is repeated until a confirmation is received.
Object 38	Room monitoring channel C6	Confirmation	If the monitoring channel is configured to "cyclic with confirmation", the detector expects a 0 or 1 telegram to object 38. It resends the ON telegram in cyclical intervals, as long as there is no confirmation.
Object 39	Room monitoring channel C6	Sabotage cycl.	In order to identify the dismounting of the presence detector, object 39 continuously sends OFF telegrams, as long as the detector is operating.
Object 40	Room monitoring channel C6	Release	Room monitoring channel C6 can be enabled with an ON telegram or disabled with an OFF telegram to object 40 for both <Message types> during operation. During the blocking, no telegrams are transmitted via reporting object (37).

Object	Object name	Function	Description
Object 41	Parallel switching	Trigger input/output	<p>Object available if "Parallel switching" has been selected at <Master operating mode>, or if <Operating mode> "Slave" has been selected.</p> <p>The trigger input/output is required for parallel switching of several presence detectors. There are two possible types of switching:</p> <p>Master-Slave parallel switching: A Master receives the motion information from several Slaves in the room and switches or controls the lighting needs-oriented according to the brightness measured by the Master. The advantage is uniform switching with a defined brightness value. For applications in corridors for example, the Master is installed in the darkest position.</p> <p>Master-Master parallel switching: Several Masters exchange the motion information among each other. 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.</p> <p>Each detector sends a maximum of two ON telegrams per minute on detection of motion. The interval (cycle time) between two telegrams can be set to a maximum of 4 minutes. Please keep in mind to always select the interval between two trigger telegrams to be shorter than the time delay.</p> <p>Please observe the information on parallel switching on page 36 chapter 4.</p>
Object 42	Input/output scene	Scenes 1/2 Scene number	<p>Depending on the chosen configuration, internal scenes can be called up via object 42, or scenes can be directly triggered.</p> <p>Internal scenes: Object 42 becomes the "Scene input" if "Use internal scenes" has been selected at <Scene controls>.</p> <p>An OFF telegram to the scene input object calls up scene 1, an ON telegram calls up scene 2.</p> <p>Object 42 becomes the "Scene output" if "Send scene number to bus" has been selected at <Scene controls>.</p> <p>When the scene buttons  on the user remote control theSenda S are pressed, the scene output object sends the set scene number.</p>
Object 43 Object 44	IR external 1 switching/dimming IR external 1 switching/dimming	Switching Brighter/Darker	<p>The parameter <Upper button row theSenda S controls> has a permanently assigned group address I. If during configuration "Switching/dimming external 1" is set to the parameter <Upper button row theSenda S controls> and a command is received with the IR group address I, objects 43 and 44 assume the following function:</p> <p>Briefly pressing the  push buttons causes a ON telegram (1) or an OFF telegram (0) to be sent via object 43 switching. Holding down the  button on the remote control causes "dim brighter" to be sent via object 44, and "stop" when released. Holding down the  button on the remote control causes "dim darker" to be sent via object 44, and "stop" when released.</p>
Object 45 Object 46	IR external 2 switching/dimming IR external 2 switching/dimming	Switching Brighter/Darker	<p>The parameter <Lower button row theSenda S controls> has a permanently assigned group address II. If during configuration "Switching/dimming external 2" is set to the parameter <Lower button row theSenda S controls> and a command with IR group address II is received, objects 45 and 46 assume the same function as described for objects 43 and 44.</p>
Object 47 Object 48	IR external blinds 1 IR external blinds 1	Blinds up/down Open/close slats	<p>The parameter <Upper button row theSenda S controls> has a permanently assigned group address I. If during configuration "Blinds external 1" is set to the parameter <Upper button row theSenda S controls> and a command is received with the IR group address I, objects 47 and 48 assume the following function:</p> <p>Briefly pressing the  buttons causes a 0 or 1 telegram to be sent via the object "Open/close slats". Holding down the  buttons causes a 0 or 1 telegram to be sent via the object "Blinds up/down".</p>
Object 49 Object 50	IR external blinds 2 IR external blinds 2	Blinds up/down Open/close slats	<p>The parameter <Lower button row theSenda S controls> has a permanently assigned group address II. If during configuration "Blinds external 2" is set to the parameter <Lower button row theSenda S controls> and a command with IR group address II is received, objects 49 and 50 assume the same function as described for objects 47 and 48.</p>
Object 51	Presence test mode	On/Off	<p>An ON telegram activates the presence test mode for the duration of the configured time. See page 39 chapter 6.1 for a description of the presence test mode</p> <p>An OFF telegram ends the presence test mode early and the detector restarts.</p>

Object	Object name	Function	Description																								
Object 52	Brightness test mode	On/Off	An ON telegram activates the brightness test mode for the duration of the configured time. See page 39 chapter 6.2 for a description of the brightness test mode AN OFF telegram ends the brightness test mode early and the detector restarts.																								
Object 53	Software version	Send	<div>The software version of the presence detector can be queried via this object. The format of the queried software version corresponds to data type 217.001.</div> <table><tr><th>Info (DPT 217.001)</th><th>Software Version</th></tr><tr><td>08 00</td><td>1.00</td></tr><tr><td>08 40</td><td>1.01</td></tr><tr><td>08 80</td><td>1.02</td></tr><tr><td>08 C0</td><td>1.03</td></tr><tr><td>09 00</td><td>1.04</td></tr><tr><td>09 40</td><td>1.05</td></tr><tr><td>09 80</td><td>1.06</td></tr><tr><td>09 C0</td><td>1.07</td></tr><tr><td>0A 00</td><td>1.08</td></tr><tr><td>0A 40</td><td>1.09</td></tr><tr><td>0A 80</td><td>1.10</td></tr></table> <div>Presence detectors with software version 0.00 (00 00) do not support object 53.</div>	Info (DPT 217.001)	Software Version	08 00	1.00	08 40	1.01	08 80	1.02	08 C0	1.03	09 00	1.04	09 40	1.05	09 80	1.06	09 C0	1.07	0A 00	1.08	0A 40	1.09	0A 80	1.10
Info (DPT 217.001)	Software Version																										
08 00	1.00																										
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08 C0	1.03																										
09 00	1.04																										
09 40	1.05																										
09 80	1.06																										
09 C0	1.07																										
0A 00	1.08																										
0A 40	1.09																										
0A 80	1.10																										

2.4 Parameter

Default values appear in **bold**.

2.4.1 General

Parameter name	Values	Meaning
Operating mode	Master Slave	<p>A Master is capable of lighting control (switching or constant light control) and forwarding the presence information.</p> <p>Slaves are used to extend the detection area. They supply presence information to the Master.</p> <p>The <Parallel switching cycle time> parameter is displayed.</p> <p>Please observe the information on parallel switching in chapter 4 page 36.</p>
Master operating mode	Individual switching Parallel switching	<p>Presence detector works as an independent device.</p> <p>Parallel switching: If required, the detection area can be extended by connecting additional detectors to a "Master" as "Slaves", or several "Masters" can be connected with each other.</p> <p>The <Parallel switching cycle time> parameter is displayed.</p> <p>Please observe the information on parallel switching in chapter 4 page 36.</p>
Parallel switching cycle time	30 seconds 1 minute 2, 3, 4 minutes	<p>Each detector sends a maximum of two ON telegrams per minute when detecting motion. The interval between two telegrams can be set at up to 4 minutes to reduce the number of telegrams.</p> <p>Please keep in mind to always select the interval between two trigger telegrams to be shorter than the time delay.</p>
Lighting channel C1 function	Switching light Constant light control Constant light control without influence of presence inactive	<p>Lighting channel C1 switches a lighting group depending on the presence of persons and the current brightness level.</p> <p>Lighting channel C1 controls a lighting group depending on the presence of persons and the current brightness level.</p> <p>Lighting channel C1 controls a lighting group depending on the current brightness level.</p> <p>The presence detector is not used for lighting control.</p>
Lighting channel C2 function	Switching light Constant light control Constant light control without influence of presence inactive	<p>Lighting channel C2 switches a lighting group depending on the presence of persons and the current brightness level.</p> <p>Lighting channel C2 controls a lighting group depending on the presence of persons and the current brightness level.</p> <p>Lighting channel C2 controls a lighting group depending on the current brightness level.</p> <p>Lighting channel C2 is not used. The associated parameters and objects are not displayed.</p>
Lighting channel C3 function	Switching light inactive	<p>Lighting channel C3 switches a lighting group depending on the presence of persons without the influence of brightness.</p> <p>Lighting channel C3 is not used. The associated parameters and objects are not displayed.</p>
Presence channel C4 function	active inactive	<p>The "Presence channel C4" parameter page is displayed. Presence channel C4 switches other devices such as HVAC systems depending on the presence of persons, or it delivers the presence information to higher-level systems (independently of brightness).</p> <p>The presence detector is not used for controlling HVAC applications.</p>
Presence channel C5 function	active inactive	<p>The "Presence channel C5" parameter page is displayed. Presence channel C5 switches other devices such as HVAC systems depending on the presence of persons, or it delivers the presence information to higher-level systems (independently of brightness).</p> <p>The presence detector is not used for controlling HVAC applications.</p>
Room monitoring channel C6 function	active inactive	<p>The presence detector delivers a presence signal with reduced sensitivity for room monitoring.</p> <p>The presence detector is not used for room monitoring.</p>

2.4.3 Brightness measurement

Parameter name	Values	Meaning
Brightness measurement source	internal external	The presence detector measures the artificial light and daylight by means of an internal light measurement. The brightness value must be supplied via object 10/21. The optimal cycle time is about 1 s for changes greater than 5 %.
Light measurement selection	Use light measurement centre Use light measurement interior Use light measurement window Use light measurement integral	If only lighting channel C1 is used, the light measurement can be selected freely. The choices available are interior, centre, window, or integral. Integral forms the average of the 3 light measurements interior, centre, and window. Note: During installation, pay attention to the orientation of the presence detector! Further information can be found in the operating manual.
Light measurement selection channel C1 Light measurement selection channel C2	Use light measurement window Use light measurement interior	If lighting channels C1 and C2 are used, the window light measurement is assigned directly to channel C1 and the interior light measurement directly to channel C2. This setting cannot be changed. Note: During installation, pay attention to the orientation of the presence detector! Further information can be found in the operating manual.
Room correction factor	0.05–2 0.3	The room correction factor is a measurement for the difference between brightness measurements at the ceiling and on the work area. The brightness measurement value at the ceiling is influenced by the installation location, incidence of light, position of the sun, weather conditions, the reflection properties of the room, and the furniture. The room correction factor allows the brightness measurement taken by the presence detector to be adapted to the conditions in the room. In this way, the brightness value measured by the presence detector can be scaled to the lux meter value measured on the surface below the presence detector. Separate room correction factors are available for each light measurement. Standard value, suitable for most applications. Adjustment of the brightness measurement value by the detector Procedure: 1. Measure the lux value below the presence detector with the lux meter 2. Send the lux measurement value to the detector via the SendoPro 868-A management remote control or object 7/18. 3. The room correction factor will be calculated automatically and saved. 4. For monitoring purposes, the room correction factor can be read out via object 8 or 19 (scale factor 100). When required, the room correction factor will be shifted to the limit value if the combination with the brightness setpoint value is not within the valid value range. If an invalid combination of room correction factor and brightness setpoint value is down-loaded, the brightness setpoint value will be shifted to the limit value.
Set the brightness measurement value via bus	yes no	Objects 7/18 measurement value on lux meter and objects 8/19 room correction factor are displayed.
Send brightness value on bus	yes no	The measured brightness value is sent as a 2-byte telegram via bus object 9/20. The measured brightness value can be adjusted to the conditions in the room with the aid of the parameter <Room correction factor>. The parameter pages "Transmit brightness value cyclically" and "Transmit brightness value upon change" are displayed. Note: If the brightness value is used for external control, please note that <Transmit brightness value cyclically> and <Transmit brightness value upon change> are set to 5 s and >5%, respectively. The measured brightness value is not transmitted.

Parameter name	Values	Meaning
Transmit brightness value cyclically	5 s ... 30 min. every 1 min. no	The measured brightness value is transmitted cyclically at the selected time. Standard value The measured brightness value is not transmitted cyclically
Transmit brightness value upon change	>5 % ... >80 % from >30 % no	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 not earlier than 5 seconds after the last transmission. This time setting cannot be changed. Standard value The measured brightness value is not transmitted depending on a change in brightness.

2.4.4 Lighting channel C1

Parameter name	Values	Meaning
Configuration type	Fully automatic device Semi-automatic device	In the "fully automatic device" <configuration type>, the lighting channel automatically switches or controls the lighting depending on presence and surrounding brightness. Switching off occurs automatically. In the "semi-automatic device" <configuration type>, switching on must always be initiated manually via push button or remote control. Exception: If motion is detected within 10 seconds after the time delay has expired and the light has gone off, the light comes on automatically. Switching off occurs automatically. See also page 33 chapter 3.
Brightness switching value Brightness setpoint value	10–3000 lx 500 lx Measurement off (depending on presence only)	Switching lights: The brightness switching value defines the minimum desired brightness. The currently prevailing brightness is measured below the presence detector. If the prevailing brightness is below the switching value, the light is switched on as soon as a presence is detected. Constant light control: The defined brightness setpoint value is achieved by controlling/dimming the lamps (objects 1 - 3). The brightness switching/setpoint value is adjustable in increments between 10–3000 lx. Standard value. Switching lights: - The brightness switching value can be deactivated by means of the setting "Measurement off (depending on presence only)". The "SendoPro 868-A" management remote control or "theSenda P" installation remote control provide assistance when setting the brightness switching/setpoint value. Note: If the brightness switching/setpoint value does not match the currently set room correction factor (see setting limit), the brightness switching/setpoint value is set to the corresponding limit automatically.
Set brightness switching/setpoint value via bus	yes no	Bus objects 4 and 5 are visible and can be used. Bus objects 4 and 5 are not available. Note: The brightness switching/setpoint value can always be set with the remote control.
Lighting time delay	30 s – 60 min. 10 min.	The time delay can be set between 30 seconds and 60 minutes. Each detected motion restarts the time delay. The time delay adjusts to the user behaviour by self-learning. It can increase automatically to max. 30 minutes or decrease back to the set minimum time. The time delay does not change through self-learning with a setting <=2 minutes or >=30 minutes, or if <Energy saving mode> is set to "ECO plus". The time delay applies jointly to all lighting channels C1, C2, C3.

Parameter name	Values	Meaning
Setting lighting time delay via bus	yes	The time delay can be set via the bus. Bus object 27 is available.
	no	The time delay can be set only via remote control.
Energy saving mode	Eco	The selection "ECO" assures optimal switching response of the presence detector. The time delay adjusts to the user behaviour by self-learning. It does not drop below the set value.
	ECO plus	The selection "ECO plus" assures maximum energy savings. The set time delay remains unchanged; no self-learning effect. The control speed is increased.
Short-term presence		The lighting channel time delay can be switched off sooner if a room is occupied for only a short time. (In fully automatic device and semi-automatic device configuration type)
	inactive	The time delay is used according to the set parameter.
	active	If someone enters an unoccupied room and it is only occupied for up to 30 seconds, the light is switched off earlier, after 2 minutes. Short-term presence is also applied if a push button is used to switch on the lights.
Selection of brightness switching/setpoint value	inactive	There is only one brightness switching/setpoint value (basis) available.
	active	A second, alternative brightness setpoint value can be configured. Both of these brightness setpoint values can be used during normal operation. Bus object 22 is visible and can be used. - An ON telegram to the relevant bus object switches to the alternative brightness setpoint value. - An OFF telegram restores the original value. This applies to both switching and constant light control. Example: Implementation of day and night operation with two different brightness levels.
Alternative brightness switching/setpoint value		The parameter is visible if <Selecting brightness switching/setpoint value> is active. During operation, bus object 22 can be used to switch between the brightness switching/setpoint values.
	10–3000 lx 400 lx	The alternative brightness switching/setpoint value can be set in increments between 10–3000 lux. Standard value Note: If the alternative brightness switching/setpoint value does not match the currently set room correction factor (see setting limit), the alternative brightness switching/setpoint value is set to the corresponding limit automatically.
	Measurement off	The presence detector operates only depending on presence. (possible only with the "Switch lights on/off" function)
Alt. Set brightness switching/setpoint value via bus		Parameter only available if "active" has been selected at <Selecting brightness switching/setpoint value>.
	yes	Bus object 6 is visible and can be used.
	no	Bus object 6 is not available. Note: The brightness switching/setpoint value can always be set with the remote control.

2.4.5 Detail settings - Lighting channel C1 - Switching

The parameter page is visible if "Switch lights on/off" is set at the parameter <Lighting channel C1 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Lighting dimmable when in switching operation	yes	The lighting can be dimmed manually. The parameter "Duration of manual override" is displayed. Bus objects 1 – 3 are visible and can be used.
	no	The lighting cannot be dimmed manually.
Duration of manual override	until lighting time delay has expired	The parameter is visible if "yes" has been set at the parameter <Lighting dimmable when in switching operation>. The set dimming value applies until the time delay has elapsed. Afterwards, automatic operation will start.
	15 min. - 120 min.	The set dimming value applies until the set time or the time delay has elapsed. Afterwards, automatic operation will start.

Parameter name	Values	Meaning
Lighting standby time	inactive active	The parameter is visible if "yes" has been set at the parameter <Lighting dimmable when in switching operation>. The standby function is not available. The standby function is available and the parameters are displayed.
Duration of lighting standby time	30 s – 60 min. 30 min. on	The parameter is visible if "active" has been set at the parameter <Lighting standby time>. The standby time causes both lighting groups to dim to the set standby dimming value instead of switching off, when the time delay has elapsed. The standby time can be set between 30 seconds and 60 minutes. Standard value With standby on , the lighting remains permanently on standby. If the brightness level in the rooms exceeds the brightness setpoint value, the lighting is switched off after 10 minutes in <Energy saving mode> on "ECO", and after 5 minutes in <Energy saving mode> on "ECO plus". Without presence, the lighting automatically returns to the standby value if the room brightness falls below the brightness setpoint value. This guarantees a minimum level of lighting in darkness.
Standby dimming value	1% – 25% 10%	The parameter is visible if "active" has been set at the parameter <Lighting standby time>. The dimming values for standby can be selected in increments from 1 % to 25 %. Standard value
Transmit channel C1 output value cyclically	every 1 min. ... 60 min. no	Current channel C1 output value is sent cyclically at the selected time. Note: If the lighting is dimmed brighter/darker (dimmable lighting) or manually switched off with a push button or with the remote control, the output value will NOT be transmitted cyclically anymore!
Activate block function	yes no	Blocking lighting channel C1 means that the presence detector does not send telegrams via objects 0 to 3, although the evaluation of motion and brightness continues. Standard value

2.4.6 Detail settings - Lighting channel C1 - Constant light control

The parameter page is visible if "Constant light control" is set at the parameter <Lighting channel C1 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Start of control with	Value telegram ON telegram	Control is started with a value telegram. The actuator dims up the lights at the set dimming time. Control is started with an ON telegram. The actuator switches on and jumps to, or dims up to the value configured on the actuator.
Start behaviour of control	with 4 bit stop telegram without 4 bit stop telegram	If a „value telegram“ has been selected at <Start of control with>, a value telegram with the maximum value of the parameter „control range“ will be sent. The actuator dims up the lights at its set dimming time. If an „ON telegram“ has been selected at <Start of control with>, an ON telegram will be sent. The actuator dims up the lights to its switch-on value, at its set dimming time. The detector measures the rising brightness and stops the dimming process once the brightness setpoint value has been reached. Control starts at this point. If a „value telegram“ has been selected at <Start of control with>, control starts with the set parameter value „switch-on dimming value“. If an „ON telegram“ has been selected at <Start of control with>, control starts with the switch-on value set 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 setpoint value.

Parameter name	Values	Meaning
Switch-on dimming value	30% ... 100% 70%	The parameter is visible if parameter <Start of control with> is set to „value telegram“, and parameter <Start behaviour of control> to „without 4 bit stop telegram“. When the controller starts, the lighting is switched on to the set <switch-on dimming value>, and control starts from this value. Standard value
Control speed	Standard Moderate Fast	This parameter is used to change the increment of the sent dimming value. Response is set to its optimum level. The change happens gradually and is almost imperceptible. The change happens with a somewhat larger increment. The change happens with a large increment. The increment size depends on the brightness actual value and brightness setpoint value. The maximum increment size is 2 % for standard, 3 % for moderate and 8 % for fast.
Control range	Standard User-defined	Control range: 10 % to 100 %. The upper and lower limits of the control range can be user-defined. The parameters <Lower control limit> and <Upper control limit> are displayed.
Lower control limit	1 % .. 25 % 10 %	Standard value
Upper control limit	70 % .. 100 % 100 %	Standard value
Switch off when there is enough brightness	never switch off after 5 min ... 9 h after 10 min	If the lighting is controlled down to the lower limit, the lighting will be switched off after the time set at the parameter <Switch off when there is enough brightness>. With the selection „never switch off“, the lighting will never be switched off. This behaviour is valid, as long as people are present. Standard value
Response with manual dimming	Office School	Constant light control remains active temporarily after manual dimming to the current brightness value as the new setpoint value. After the time delay has expired, the originally configured setpoint value is restored. Constant light control is interrupted temporarily via manual dimming. The setpoint value remains unchanged.
Lighting standby time	inactive active	The standby function for lighting channel C1 is not available. The standby function for lighting channel C1 is available and the parameters are displayed.
Duration of lighting standby time	30 s – 60 min. 30 min. on	The standby time causes both lighting groups to dim to the set standby dimming value instead of switching off when the time delay has elapsed. The standby time can be set between 30 seconds and 60 minutes. Standard value With standby on , the lighting remains permanently on standby. The lighting switches off after 10 minutes if the brightness level in the rooms exceeds the brightness setpoint value. The lighting returns to the standby value independently without presence if the room brightness falls below the brightness setpoint value. This guarantees a minimum level of lighting in darkness.
Standby dimming value	1% – 25% 10%	The dimming values for standby can be selected in increments from 1 % to 25 %. Standard value.
Transmit channel C1 output value cyclically	every 1 min. ... 60 min. no	Current channel C1 output value is sent cyclically at the selected time. Note: If the lighting is dimmed brighter/darker (dimnable lighting) or manually switched off with a push button or with the remote control, the output value will NOT be transmitted cyclically anymore!
Activate block function	yes no	Blocking lighting channel C1 means that the presence detector does not send telegrams via objects 0 to 3, although the evaluation of motion and brightness continues. Standard value

2.4.7 Detail settings - Lighting channel C1 - Constant light control without depending on presence

The parameter page is visible if "Constant light control without depending on presence" is set at the parameter <Lighting channel C1 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Start of control with	Value telegram ON telegram	Control is started with a value telegram. The actuator dims up the lights at the set dimming time. Control is started with an ON telegram. The actuator switches on and jumps to, or dims up to the value configured on the actuator.
Start behaviour of control	with 4 bit stop telegram without 4 bit stop telegram	If a „value telegram“ has been selected at <Start of control with>, a value telegram with the maximum value of the parameter „control range“ will be sent. The actuator dims up the lights at its set dimming time. If an „ON telegram“ has been selected at <Start of control with>, an ON telegram will be sent. The actuator dims up the lights to its switch-on value, at its set dimming time. The detector measures the rising brightness and stops the dimming process once the brightness setpoint value has been reached. Control starts at this point. If a „value telegram“ has been selected at <Start of control with>, control starts with the set parameter value „switch-on dimming value“. If an „ON telegram“ has been selected at <Start of control with>, control starts with the switch-on value set 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 setpoint value.
Switch-on dimming value	30% ... 100% 70%	The parameter is visible if parameter <Start of control with> is set to „value telegram“, and parameter <Start behaviour of control> to „without 4 bit stop telegram“. When the controller starts, the lighting is switched on to the set <switch-on dimming value>, and control starts from this value. Standard value
Control speed	Standard Moderate Fast	This parameter is used to change the increment of the sent dimming value. Response is set to its optimum level. The change happens gradually and is almost imperceptible. The change happens with a somewhat larger increment. The change happens with a large increment. The increment size depends on the brightness actual value and brightness setpoint value. The maximum increment size is 2 % for standard, 3 % for moderate and 8 % for fast.
Control range	Standard User-defined	Control range: 10 % to 100 %. The upper and lower limits of the control range can be user-defined. The parameter page <Lower control limit> and <Upper control limit> is displayed.
Lower control limit	1 % .. 25 % 10 %	Standard value
Upper control limit	70 % .. 100 % 100 %	Standard value
Switch off when there is enough brightness	never switch off after 5 min ... 9 h after 10 min	If the lighting is controlled down to the lower limit, the lighting will be switched off after the time set at the parameter <Switch off when there is enough brightness>. With the selection „never switch off“, the lighting will never be switched off. This behaviour is valid, as long as people are present. Standard value
Response with manual dimming	Office School	Constant light control remains active after manual dimming to the new setpoint value. After the controller has been deactivated via object 24, the originally configured setpoint value is restored. Constant light control is interrupted temporarily by manual dimming until the controller is activated again via object 24. The setpoint value remains unchanged.

Parameter name	Values	Meaning
Transmit channel C1 output value cyclically	every 1 min. ... 60 min. no	Current channel C1 output value is sent cyclically at the selected time. Note: If the lighting is dimmed brighter/darker (dimnable lighting) or manually switched off with a push button or with the remote control, the output value will NOT be transmitted cyclically anymore!
Activate block function	yes no	Blocking lighting channel C1 means that the presence detector does not send telegrams via objects 0 to 3, although the evaluation of motion and brightness continues. Standard value

2.4.8 Lighting channel C1 - Block function

The parameter page is visible if "yes" has been set at the channel C1 detail settings parameter <Activate block function>.

Parameter name	Values	Meaning
Block telegram	 Blocking with ON telegram Blocking with OFF telegram	Disabling the lighting channel C1 outputs means that the presence detector does not send telegrams via objects 0 to 3 although the evaluation of motion and brightness continues. Note: Switching on/off and dimming are still possible with the user remote control. General unblocking If no person is present in the room and in the last 30 seconds no trigger telegram has been received via parallel switching object 41, the lighting time delay is set to 0 upon unblocking. This causes the lighting to be switched off immediately or to be dimmed to the standby dimming value (standby time active). If no person is present in the room and in the last 30 seconds a trigger telegram has been received via parallel switching object 41, the lighting time delay is set to 30 seconds upon unblocking. If no more movements are detected, the lighting is switched off once the time delay expires or is set to the standby dimming value (standby time active). The lighting is not switched off if motion is detected with insufficient brightness. Lighting channel C1 is blocked with an ON telegram to the disable object. All telegrams are suppressed for the duration of the blocking. Lighting channel C1 is unblocked with an OFF telegram. After unblocking, the detector sends the current status or continues the constant light control. The lighting C1 output is blocked with an OFF telegram and unblocked with an ON telegram.
Response at start of blocking	ON telegram OFF telegram no telegram send X % value	An ON telegram is sent at the start of blocking. An OFF telegram is sent at the start of blocking. No telegram is sent at the start of blocking. Moreover, a value between 10 % and 100 % can be sent in switching mode with dimmable lighting or in constant light control mode. The current status is always sent after unblocking, for instance, an ON telegram with absence and insufficient brightness in switching mode.
Note: Response of lighting channel C3		An "ON telegram" is sent if "Send X % value" has been set at parameter <Response at the start of blocking>.

2.4.9 Lighting channel C2

The parameter page is visible if "inactive" is not set at the parameters <Operating mode> "Master" and <Lighting channel C2 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Configuration type	same as lighting channel C1	The configuration type for lighting channel C2 is adopted from lighting channel C1.
Brightness switching value Brightness setpoint value	10–3000 lx 500 lx Measurement off (depending on presence only)	<p>Switching lights: The brightness switching value defines the minimum desired brightness. The currently prevailing brightness is measured below the presence detector. If the prevailing brightness is below the switching value, the light is switched on as soon as a presence is detected.</p> <p>Constant light control: The defined brightness setpoint value is set by controlling/dimming the lamps (objects 12 - 14)</p> <p>The brightness switching/setpoint value is adjustable in increments between 10–3000 lx. Standard value.</p> <p>Switching lights:</p> <ul style="list-style-type: none"> - The brightness switching value can be deactivated by means of the setting "Measurement off (depending on presence only)". <p>The SendaPro 868-A management remote control or the Senda P installation remote control provide assistance when setting the brightness switching/setpoint value.</p> <p>Note: If the brightness switching/setpoint value does not match the currently set room correction factor (see setting limit), the brightness switching/setpoint value is set to the corresponding limit automatically.</p>
Set brightness switching/setpoint value via bus	yes no	<p>yes: Bus objects 15 and 16 are visible and can be used.</p> <p>no: Bus objects 15 and 16 are not available.</p> <p>Note: The brightness switching/setpoint value can always be set with the remote control.</p>
Lighting time delay	same as lighting channel C1	The lighting time delay for lighting channel C2 is adopted from lighting channel C1.
Selection of brightness switching/setpoint value	inactive active	<p>inactive: There is only one brightness switching/setpoint value (basis) available.</p> <p>active: A second, alternative brightness setpoint value can be configured. Both of these brightness setpoint values can be used during normal operation.</p> <p>Bus object 23 is visible and can be used.</p> <ul style="list-style-type: none"> - An ON telegram to the relevant bus object switches to the alternative brightness setpoint value. - An OFF telegram restores the original value. This applies to both switching and constant light control. <p>Example: Implementation of day and night operation with two different brightness levels.</p>
Alternative brightness switching/setpoint value	10–3000 lx 400 lx Measurement off	<p>The parameter is visible if <Selecting brightness switching/setpoint value> is active.</p> <p>During operation, bus object 23 can be used to switch between the brightness switching/setpoint values.</p> <p>The alternative brightness switching/setpoint value can be set in increments between 10–3000 lux. Standard value</p> <p>Note: If the alternative brightness switching/setpoint value does not match the currently set room correction factor (see setting limit), the alternative brightness switching/setpoint value is set to the corresponding limit automatically.</p> <p>Measurement off: The presence detector operates only depending on presence. (possible only with the "Switch lights on/off" function)</p>

Parameter name	Values	Meaning
Alt. Set brightness switching/setpoint value via bus		Parameter only available if "active" has been selected at <Selecting brightness switching/setpoint value>.
	yes	Bus object 17 is visible and can be used.
	no	Bus object 17 is not available.
		Note: The brightness switching/setpoint value can always be set with the remote control.

2.4.10 Detail settings - Lighting channel C2 - Switching

The parameters are visible if "Switch lights on/off" is set at the parameter <Lighting channel C2 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Lighting dimmable when in switching operation	are adopted from lighting channel C1	See page 21 chapter 2.4.5 "Detail settings - Lighting channel C1 - Switching" parameter <Lighting dimmable in switching mode>
Lighting standby time	are adopted from lighting channel C1	See page 21 chapter 2.4.5 "Detail settings - Lighting channel C1 - Switching" parameter <Lighting standby time>
Transmit channel C2 output value cyclically	are adopted from lighting channel C1	See page 21 chapter 2.4.5 "Detail settings - Lighting channel C1 - Switching" parameter <Transmit channel C1 output value cyclically>
Activate block function	are adopted from lighting channel C1	See page 21 chapter 2.4.5 "Detail settings - Lighting channel C1 - Switching" parameter <Activate block function>

2.4.11 Detail settings - Lighting channel C2 - Constant light control

The parameters are visible if "Constant light control" is set at the parameter <Lighting channel C2 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Start of control with	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Start of control with>
Start behaviour of control	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Start behaviour of control>
Control speed	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Control speed>
Control range	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Control range>
Switch off when there is enough brightness	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Switch off when there is enough brightness>
Response with manual dimming	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Response with manual dimming>
Lighting standby time	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Lighting standby time>
Transmit channel C2 output value cyclically	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Transmit channel C1 output value cyclically>
Activate block function	are adopted from lighting channel C1	See page 22 chapter 2.4.6 "Detail settings - Lighting channel C1 - Constant light control" parameter <Activate block function>

2.4.12 Detail settings - Lighting channel C2 - Constant light control without depending on presence

The parameters are visible if "Constant light control without depending on presence" is set at the parameter <Lighting channel C2 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Start of control with	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control without depending on presence" parameter <Start of control with>
Start behaviour of control	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control without depending on presence" parameter <Start behaviour of control>
Control speed	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control without depending on presence" parameter <Control speed>
Control range	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control without depending on presence" parameter <Control range>
Switch off when there is enough brightness	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control without depending on presence" parameter <Switch off when there is enough brightness>
Response with manual dimming	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control without depending on presence" parameter <Response with manual dimming>
Transmit channel C2 output value cyclically	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control" parameter <Transmit channel C1 output value cyclically>
Activate block function	are adopted from lighting channel C1	See page 24 chapter 2.4.7 "Detail settings - Lighting channel C1 - Constant light control without depending on presence" parameter <Activate block function>

2.4.13 Lighting channel C3

The parameters are visible if "Switch lights on/off" is set at the parameter <Lighting channel C3 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Configuration type	Fully automatic device Semi-automatic device	In the "Fully automatic device" <configuration type>, lighting channel C3 automatically switches the lighting depending on presence. Switching off occurs automatically. In the "semi-automatic device" <configuration type>, switching on must always be initiated manually via push button or remote control. Switching off occurs automatically. See page 33 chapter 3.
Lighting time delay	same as lighting channel C1	The lighting time delay for lighting channel C3 is adopted from lighting channel C1.
Transmit channel C3 output value cyclically	same as lighting channel C1	Is adopted from lighting channel C1 setting.
Activate block function	same as lighting channel C1	Is adopted from lighting channel C1 setting.

2.4.14 Presence channels C4, C5

The parameter page is visible if "active" is set at the parameter <Presence channel C4 function> or <Presence channel C5 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Presence switch-on delay	inactive 10 s – 30 min	An inactive switch-on delay means the presence channel switches immediately when detecting motion. A switch-on delay between 10 seconds and 30 minutes can be set for the presence channel. The presence channel does not switch immediately upon detection of motion, but only after the switch-on delay has expired. The switch-on delay can be set separately for each channel C4, C5. 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 2 minutes switches the fan on.

Parameter name	Values	Meaning
Presence time delay	10 s – 120 min. 15 min.	The presence switch-off time delay can be set between 10 seconds and 120 minutes. It is restarted with every new motion. The time delay can be set separately for each channel C4, C5.

2.4.15 Objects - Presence channels C4, C5

The parameter page is visible if "active" is set at the parameter <Presence channel C4 function> or <Presence channel C5 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Telegram type C4.1, C4.2 Telegram type C5.1, C5.2	Switch command Value Percentage value HVAC operating mode Scene	5 telegram types are available
When presence detected At the end of the time delay	Send cyclically Send following telegram once Do not send telegram	Presence channel C4, C5 is switched on only by presence without the influence of brightness. A telegram is sent cyclically on detection of motion or at the end of the time delay. By default, a telegram is sent once on detection of motion or at the end of the time delay No telegram is sent on detection of motion or at the end of the time delay.
Telegram with switch command	OFF ON OFF	Select at <Telegram type C4.1, C4.2, C5.1, C5.2> "Switch command" Standard value (when presence detected) Standard value (at the end of the time delay)
Telegram at value	0...255 255 0	Select at <Telegram type C4.1, C4.2, C5.1, C5.2> "Value" Standard value (when presence detected) Standard value (at the end of the time delay)
Telegram with percentage value	0% ... 100 % 100 % 0%	Select at <Telegram type C4.1, C4.2, C5.1, C5.2> "Percentage value" Standard value (when presence detected) Standard value (at the end of the time delay)
Telegram with HVAC operating mode	Comfort Standby Temperature reduction at night Frost/heat protection	Select at <Telegram type C4.1, C4.2, C5.1, C5.2> "HVAC operating mode". These have the following byte values: comfort: 1; standby: 2; temperature reduction at night: 3; frost/heat protection: 4. Standard value (when presence detected) Standard value (at the end of the time delay)
Telegram with scene	Scene 1 ... 64 Scene 1 Scene 2	Select at <Telegram type C4.1, C4.2, C5.1, C5.2> "Scene" Standard value telegram (when presence detected) Standard value telegram (at the end of the time delay)
Should a second telegram be sent?	no yes	Standard value In addition to telegram C4.1 or C5.1, a second telegram C4.2 or C5.2 is sent. The telegrams and parameters available are the same as for C 4.1 and C 5.1.
Cycle time (if used)	every 1 ... 60 min. every 60 min.	Select the cycle time for cyclical transmission. Standard value
Activate block function	yes.. no	Disabling presence channels C4 and C5 stops transmission of their telegrams. Presence channels C4, C5 are not disabled by default. The telegrams are transmitted on detection of motion and after time delay elapses according to the configuration.

2.4.16 Presence channel C4, C5 - Block function

The parameter page is visible if "yes" has been set at the parameter <Activate block function>. See page 29 chapter 2.4.15.

Parameter name	Values	Meaning
Block telegram	Blocking with ON telegram	Both presence channels C4, C5 are blocked via an ON telegram and unblocked with an OFF telegram. The presence detector sends its current status after unblocking.
	Blocking with OFF telegram	Both presence channels C4, C5 are blocked via an ON telegram and unblocked with an OFF telegram. The presence detector sends its current status after unblocking.
Response at start of blocking	no response	No response after blocking.
	as if presence detected	Once the channels are blocked, the presence detector responds as when presence is detected.
	as at the end of the time delay	Once the channels are blocked, the presence detector responds as at the end of the time delay.

2.4.17 Room monitoring channel C6



The parameters are visible if "active" is set at the parameter <Room monitoring channel C6 function>. See page 17 chapter 2.4.1.

Parameter name	Values	Meaning
Type of report	Switching (On/Off) Cyclic with confirmation	The parameters <Room monitoring time delay> and <Response at start/end of presence> parameter is displayed. On detection of motion, room monitoring channel C6 sends an ON telegram and then an OFF telegram or no telegram after the time delay has elapsed. The room monitoring channel C6 sends an ON telegram on detection of motion. It resends the ON telegram in cyclical intervals, as long as there is no confirmation.
Waiting time for confirmation	30 s – 30 min. 5 min.	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.
Room monitoring time delay	30 s – 30 min. 5 min.	The time delay is restarted with each motion on selection of "Switching (On / Off)" <Type of report>.
Response at start/end of presence	Send ON and OFF telegram Only send ON telegram	Both ON and OFF telegrams are transmitted on selection of the "switching (On / Off)" <Type of report>. The OFF telegram is not transmitted at the end of presence.
Response upon return of bus voltage	Monitoring output blocked	Room monitoring channel C6 is blocked at a restart after loss of the bus voltage.
	Monitoring output enabled	Room monitoring channel C6 is enabled at a restart after loss of the bus voltage.
Sabotage cyclically	active	The <Sabotage cycle time> 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.
Cycle time sabotage	30 s – 30 min. 4 min.	If the sabotage object is activated, the OFF telegrams are transmitted with a cycle time between 30 seconds and 30 minutes.

2.4.18 Remote control

Parameter name	Values	Meaning
Allocation of IR group addresses		<p>The IR group address of the presence detector and theSenda S user remote control must match so that lighting channels or external channels can be operated.</p> <p>For detailed information on the application of IR group addresses, see page 40 chapter 7 „User remote control theSenda S“.</p> <p>In the ETS, the same IR group address must be defined as the one set on theSenda S user remote control.</p>
Upper button row theSenda S controls	<p>Lighting channel C1</p> <p>Lighting channel C2</p> <p>Lighting channel C3</p> <p>External 1 switching/dimming</p> <p>External blinds 1</p> <p>inactive</p>	<p>Switching or dimming of lighting group C1 (visible when channel C1 is activated)</p> <p>Switching or dimming of lighting group C2 (visible when channel C2 is activated)</p> <p>Switching or dimming of lighting group C3 (visible when channel C3 is activated)</p> <p>Further information, see 2.3.4 „Characteristics of the other objects“ page 14, object 43/44.</p> <p>Further information, see 2.3.4 „Characteristics of the other objects“ page 14, object 47/48.</p> <p>The presence detector cannot be controlled with the upper button row of theSenda S.</p>
IR group address upper button row theSenda S	<p>I</p> <p>II</p> <p>III</p> <p>All</p>	<p>On theSenda S, IR group address I is permanently assigned to the upper button row. This is why the IR group address has to be set to I, when using theSenda S.</p> <p>The presence detector responds to group addresses I, II, and III.</p> <p>Note: Free assignment of IR group addresses is only possible with the Sendo-Clic user remote control.</p>
Lower button row theSenda S controls	<p>Lighting channel C1</p> <p>Lighting channel C2</p> <p>Lighting channel C3</p> <p>External 2 switching/dimming</p> <p>External blinds 2</p> <p>inactive</p>	<p>Switching or dimming of lighting group C1 (visible when channel C1 is activated)</p> <p>Switching or dimming of lighting group C2 (visible when channel C2 is activated)</p> <p>Switching or dimming of lighting group C3 (visible when channel C3 is activated)</p> <p>Further information, see 2.3.4 „Characteristics of the other objects“ page 14, object 45/46.</p> <p>Further information, see 2.3.4 „Characteristics of the other objects“ page 14, object 49/50.</p> <p>The presence detector cannot be controlled with the lower button row of theSenda S.</p>
IR group address lower button row theSenda S	<p>I</p> <p>II</p> <p>III</p> <p>All</p>	<p>On theSenda S, IR group address II is permanently assigned to the lower button row. This is why the IR group address has to be set to II, when using theSenda S.</p> <p>The presence detector responds to group addresses I, II, and III.</p> <p>Note: Free assignment of IR group addresses is only possible with the Sendo-Clic user remote control.</p>

2.4.19 Scenes

Parameter name	Values	Meaning
Scene controls	<p>Using internal scenes</p> <p>Send scene number on bus</p> <p>inactive</p>	<p>The presence detector has a simple, internal scene component. One scene is used to store values (On, Off with switching operating mode, percentage values with constant light control) for the light outputs.</p> <p>End</p> <ul style="list-style-type: none"> - Absent - Switching light on with remote control or push button (with theSenda S user remote control only channels C1 and C2 are possible) <p>The <Set scenes with> parameter is displayed.</p> <p>The scenes can be called up by pressing the scene buttons on theSenda S user remote control or via a telegram to the scene object 30 (1 byte) / 42 (1 bit).</p> <p>The <Scene number button scene 1> and <Scene number button scene 2> parameters are displayed.</p> <p>Scene numbers can be assigned to the Scene 1  1 and Scene 2  2 buttons on theSenda S user remote control.</p> <p>Scene controls are not supported.</p>
Scene number user remote control button scene 1 Scene number user remote control button scene 2	<p>inactive</p> <p>Scene 1-64</p>	<p>The parameters are visible if the parameter <Scene controls> is set to "Send scene number on bus".</p> <p>No scene number is sent.</p> <p>The set scene number is sent via object 42 (1 byte) by pressing the scene buttons on theSenda S user remote control.</p> <p>By holding the button (approx. 3 s) of the respective scene, the current scene will be saved.</p>
Define scenes with	<p>ETS</p> <p>Remote control</p>	<p>This parameter is visible if the parameter <Scene controls> is set to "Use internal scenes".</p> <p>The following parameters are displayed:</p> <ul style="list-style-type: none"> - <Output value user remote control scene 1, channel C1> - <Output value user remote control scene 2, channel C1> - <Output value user remote control scene 1, channel C2> - <Output value user remote control scene 2, channel C2> - <Output value user remote control scene 1, channel C3> - <Output value user remote control scene 2, channel C3> <p>The output values are fixed by the values configured in the ETS.</p> <p>The output values are stored with the user remote control. See theSenda S operating manual.</p>
Output value user remote control scene 1, lighting channel C1	<p>Off, On</p> <p>Off, 1 % – 100 %, 30 %</p>	<p>Value of scene 1, channel C1 in switching mode.</p> <p>Value of scene 1, channel C1 in constant light control mode.</p>
Output value user remote control scene 2, lighting channel C1	<p>Off, On</p> <p>Off, 1 % – 100 %, 70 %</p>	<p>Value of scene 2, channel C1 in switching mode.</p> <p>Value of scene 2, channel C1 in constant light control mode.</p>
Output value user remote control scene 1, lighting channel C2	<p>Off, On</p> <p>Off, 1 % – 100 %, 30 %</p>	<p>Value of scene 1, channel C2 in switching mode.</p> <p>Value of scene 1, channel C2 in constant light control mode.</p>
Output value user remote control scene 2, lighting channel C2	<p>Off, On</p> <p>Off, 1 % – 100 %, 70 %</p>	<p>Value of scene 2, channel C2 in switching mode.</p> <p>Value of scene 2, channel C2 in constant light control mode.</p>
Output value user remote control scene 1, lighting channel C3	<p>Off, On</p>	<p>Value of scenario 1, channel C3 (only in switching mode).</p> <p>Possible only with SendaClic user remote control.</p>
Output value user remote control scene 2, lighting channel C3	<p>Off, On</p>	<p>Value of scenario 2, channel C3 (only in switching mode).</p> <p>Possible only with SendaClic user remote control.</p>

2.4.20 Scene functions

The lighting channels of the presence detector can be blocked, or the response affected further, when receiving and matching with a scene number. The presence detector can be blocked in a defined manner:

- for a defined period of time
- until the presence detector is unblocked

See parameter <Validity of block>

Parameter name	Values	Meaning
Scene function 1 Scene function 2 Scene function 3 Scene function 4 Scene function 5 Scene function 6 Scene function 7 Scene function 8	<p>inactive</p> <p>Block lighting channels</p> <p>Unblock lighting channels</p> <p>Use internal scene 1/2 output values</p> <p>Deactivate control</p> <p>Activate control</p>	<p>The behaviour of the presence detector can be controlled with 8 different scene functions.</p> <p>No scene number that blocks the presence detector is defined.</p> <p>Blocking of lighting channels C1/C2/C3.</p> <p>Push button operation is still possible.</p> <p>Unblocking of lighting channels C1/C2/C3.</p> <p>Use additional selection of internal scenarios.</p> <p>Control is stopped, object 2/13 no longer transmits telegrams. An OFF telegram is transmitted via object 0/11 after the time delay has expired.</p> <p>The constant light control is activated. The presence detector controls the lighting depending on brightness.</p>
Scene number	1 .. 64	
Validity of block	<p>1 h – 9 h</p> <p>Until unblocking</p>	<p>Lighting channels remain disabled during the set time.</p> <p>Manual unblocking of the lighting channels is possible any time:</p> <ul style="list-style-type: none"> - Reception of corresponding scene number on bus object 30 - Unblock command on bus object 28.

3. Manual operation with push buttons

The presence detector can be overridden by using push buttons or other overriding commands. It is important to know that no separate push button input objects are required for this. 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. Manual operation applies exclusively to the light outputs. The presence, monitoring and brightness outputs are not affected by manual operation.

3.1 Manual operation via the switching function without dimmable lighting

If the lighting is operated manually via <Lighting channel C1/C2 function> "Switch lights", the presence detector responds as follows:

Push button operation	Response of lighting/presence detector
ON telegram	<p>The lighting is switched on with an ON telegram to object 0/11. The lighting remains switched on for 30 minutes if the room is occupied. Light measurement is deactivated.</p> <p>The light measurement is reactivated after the 30 minutes. An OFF telegram is sent in case of sufficient brightness.</p> <p>If the room is vacated before the 30 minutes have expired, the light will be switched off normally after the completion of the set time delay.</p>
OFF telegram	<p>The lighting is switched off with an OFF telegram to object 0/11. The lighting remains switched off while the room is occupied. The detector returns to the normal switching mode after the room is vacated and the time delay has expired.</p>

3.2 Manual operation via the switching function with dimmable lighting

If the lighting is operated manually via the <Lighting channel C1/C2 function> "Switch lights" and <Lighting dimmable in the switching mode> "yes", the presence detector responds as follows:

Push button operation	Response of lighting/presence detector
ON telegram	The lighting is switched on with an ON telegram to object 0/11. The lighting remains switched on for 30 minutes if the room is occupied. Light measurement is deactivated. The light measurement is reactivated after the 30 minutes. An OFF telegram is sent in case of sufficient brightness. If the room is vacated before the 30 minutes have expired, the light will be switched off normally after the completion of the set time delay.
Dimming telegram (4 bit)	The lighting is switched off with a dimming telegram to object 1/12. The lighting remains at the set dimming value for the configured time <Duration of manual override>.
Value telegram (1 byte)	The lighting is dimmed with a value telegram to object 2/13. The lighting remains at the transmitted value while the room is occupied. The detector returns to the normal switching mode after the room is vacated and the time delay has expired.
OFF telegram	The lighting is switched off with an OFF telegram to object 0/11. The lighting remains switched off while the room is occupied. The detector returns to the normal switching mode after the room is vacated and the time delay has expired.

3.3 Manual operation with constant light control function

If the lighting is operated manually via <Lighting channel C1/C2 function> "Constant light control", the presence detector responds as follows:

Push button operation	Response of lighting/presence detector
ON telegram	The lighting is switched on with an ON telegram to object 0/11. The constant light control is activated. The presence detector controls the lighting depending on brightness.
Dimming telegram (4 bit)	The lighting is switched off with a dimming telegram to object 1/12. School: Constant light control is interrupted temporarily via manual dimming. The setpoint value remains unchanged. Office: Constant light control remains active temporarily after manual dimming to the current brightness value as the new setpoint value. After the time delay has expired, the originally configured setpoint value is restored.
Value telegram (1 byte)	The lighting is dimmed with a value telegram to object 2/13. The lighting remains at the transmitted value while the room is occupied. The detector returns to normal standard operating mode after the room is vacated and after expiry of the time delay.
OFF telegram	The lighting is switched off with an OFF telegram to object 0/11. 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 time delay.

3.4 Manual operation with constant light control function without depending on presence

If the lighting is operated manually via the <Lighting channel C1/C2 function> "Constant light control without depending on presence", the presence detector responds as follows:

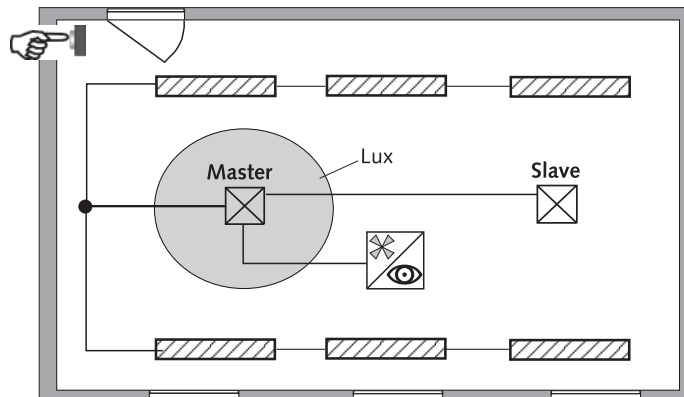
Push button operation	Response of lighting/presence detector
ON telegram	The lighting is switched on with an ON telegram to object 0/11. The constant light control is activated. The presence detector controls the lighting depending on the brightness.
Dimming telegram (4 bit)	The lighting is switched off with a dimming telegram to object 1/12. School: Constant light control is interrupted temporarily by manual dimming until the controller is activated again via object 24 or 30. The setpoint value remains unchanged. Office: Constant light control remains active after manual dimming to the new setpoint value. After the controller has been deactivated via object 24 or 30, the originally configured setpoint value is restored
Value telegram (1 byte)	The lighting is dimmed with a value telegram to object 2/13. The lighting remains at the transmitted value until control is activated via object 24 or 30.
OFF telegram	The lighting is switched off with an OFF telegram to object 0/11. The lighting remains off until control is activated via object 24 or 30.

4. Parallel switching

In larger rooms, several detectors can be connected in parallel. This extends the overall presence detection area.

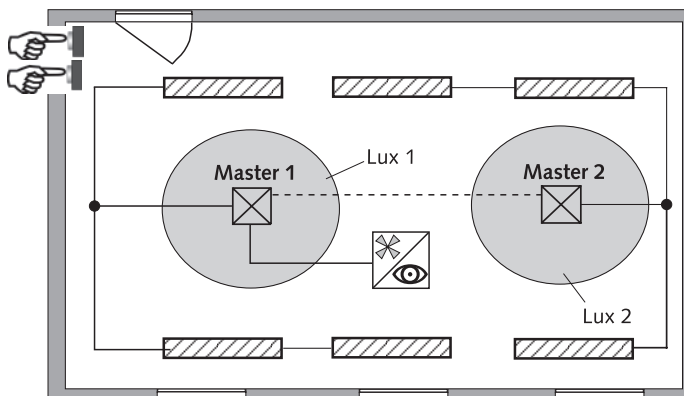
4.1 Master/Slave parallel switching

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



4.2 Master/Master parallel switching

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



4.3 Telegram load when using parallel switching

With parallel switching, each Master in parallel switching and each Slave sends a maximum of two telegrams per 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. Please note that the time delay can never be shorter than the interval between two telegrams in order to prevent unintentional switch off.

Parallel switching is compatible with all ThebenHTS KNX presence detectors.

5. Brightness setpoint value/constant light control

5.1 Setting the brightness setpoint value

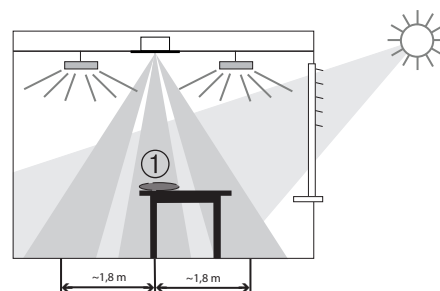
The brightness setpoint value defines the minimum required brightness. The currently prevailing brightness is measured below the presence detector. If the prevailing brightness is below the set point, the light switches on as soon as a presence is detected.

The room correction factor is a measurement for the difference between brightness measurements at the ceiling and on the work area.

The brightness measurement value at the ceiling is influenced by the installation location, incidence of light, position of the sun, weather conditions, the reflection properties of the room, and the furniture.

The room correction factor allows the brightness measurement taken by the presence detector to be adapted to the conditions in the room. In this way, the brightness value measured by the presence detector is scaled to the lux meter value ① on the surface below the presence detector.

See <Room correction factor> parameter on page 19.



$$\text{Room correction factor} = \frac{\text{Brightness value at the ceiling}}{\text{Brightness value on the work surface}}$$

Procedure:

1. The lux meter is placed on the work surface below the sensor, and the measured lux value is transmitted to the presence detector via the "SendoPro 868-A" management remote control or via objects 7/18 (brightness measurement value C1 and/or brightness measurement value C2).
2. The room correction factor is calculated from this automatically. Values between 0.05 and 2.0 are permitted. Calculated or entered values outside the permitted range will automatically be set to the appropriate limit value.
3. The calculated room correction factor will be applied immediately. For monitoring purposes, the room correction factor can be queried via the object 8/19 (scale factor 100).



The standard value of the room correction factor is 0.3 and is suitable for most applications.
The sensitivity of the light sensor to changes in brightness is affected by the change in the room correction factor.

5.2 Configuration of switching/dimming actuators and DALI gateways for constant light control

5.2.1 Recommended configuration

The following configuration of the actuators is recommended for the optimum functioning of 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 limit	minimum
Upper dimming limit	maximum
Switch off behaviour: Switch off or dim until 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 T / DME 2 T universal dimming actuator
- Theben SMG 2 S / SME 2 S control device for dimmable electronic ballasts

They are connected to the PlanoSpot 360 KNX S 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	✓		✓		
10	Status (value)	⇒	10/0/7	✓	✓			

PlanoSpot 360 KNX S 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 to the PlanoSpot 360 KNX S 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	✓	✓ **)	✓	

PlanoSpot 360 KNX S 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's light output, it is necessary to ensure identical configuration of the actuators. Exception: The read flag may be set on only one of the actuators per lighting group.

6. Test modes

The PlanoSpot 360 KNX S has two test modes.

- Presence test, page 39 chapter 6.1
- Light test, page 39 chapter 6.2

6.1 Presence test

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

Activation	<ul style="list-style-type: none"> - Presence test «On» control command via the "SendoPro 868-A" management remote control or the button on "theSenda P" installation remote control ☑ - ON telegram via bus object 51 <p>The presence test mode can be activated anytime.</p>
End	<p>With subsequent restart:</p> <ul style="list-style-type: none"> - Presence test «Off» control command via the "SendoPro 868-A" management remote control - OFF telegram via bus object 51 - Mains failure and thus power up - Automatically according to the time set in the ETS, parameter <Activation of test mode> - Control command "Restart" (SendoPro 868-A) - Reset with theSenda P button ↺ <p>Without restart:</p> <ul style="list-style-type: none"> - Activation of test light with the "SendoPro 868-A" management remote control
LED display Status channels	Description
On	When movement occurs, the LED goes on and channels C1, C2, C3 switch on.
Off	After the movement stops, the LED is off, and channels C1, C2, C3 switch off after approx. 10 s.

Test response

- Deactivated brightness measurement, light output does not react to brightness.
- The detector reacts as in configuration type fully automatic device, even if semi-automatic device 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» during motion; light «Off» during absence
- Lighting channels C1, C2 and C3 have a fixed time delay of 10 s.
- The response of the presence C4, C5 and room monitoring channels C6 remains unchanged as in normal operating mode.

Commands and adjustable parameters

The following commands are possible with the "SendoPro 868-A" management remote control in the presence test mode:

- End presence test
- Activating the light test
- Changing detection sensitivity

The selected detection sensitivity (1 . . 5) is unchanged on activation of the presence test. The sensitivity can be adjusted during the test, and will remain unchanged after a restart.

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

6.2 Light test

The "light test" test mode is used to monitor the brightness setpoint level (brightness threshold).

Activation	<ul style="list-style-type: none"> - Control command light test «On» with the "SendoPro 868-A" management remote control - ON telegram via bus object 52 <p>The light test mode can be activated anytime.</p>
End	<p>With subsequent restart:</p> <ul style="list-style-type: none"> - Light test "Off" control command via the "SendoPro 868-A" management remote control - OFF telegram via bus object 52 - Mains failure and thus power up - Automatically according to the time set in the ETS, parameter <Activation of test mode> - Control command "Restart" (SendoPro 868-A) - Reset with theSenda P button ↺ <p>Without restart:</p> <ul style="list-style-type: none"> - Activation of test presence with "SendoPro 868-A" management remote control

LED display	Description
Flashing, 5 s Off / 0.3 s On	The LED flashes as long as the light test 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 adjustable parameters

The following commands are possible with the "SendoPro 868-A" management remote control in the light test mode:

- End test lighting
- Change lighting channel C1/C2 brightness setpoint value
- Activate presence test
- Brightness measurement value C1/C2

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 teach-in this and thereby distort the adaptive light thresholds and hysteresis values. In order to simulate this response, the area below the presence detector should be illuminated or the blinds be operated. Reactivate the light test for a new test.

7. User remote control theSenda S

See also theSenda S operating manual.

7.1 Performance characteristics of theSenda S

theSenda S user remote control makes it easy to switch and dim lighting using the PlanoSpot 360 KNX S presence detector. theSenda S has two channels for controlling lighting groups, blinds or external channels with switching and dimming. theSenda S also provides the option of saving two different lighting scenarios which can be retrieved anytime at the touch of a button.

7.2 Combining the presence detector and theSenda S

The presence detector channels and the theSenda S channels are linked via an IR group address. 2 IR group addresses are available for linking.

Operation of a lighting group requires that the presence detector channel IR group address and that of theSenda S channel match.

The selection of the IR group addresses enables the separation of neighbouring detectors controlled by the theSenda S user remote control. IR group addresses I and II are allocated permanently to 4 buttons on theSenda S user remote control, and cannot be changed. Further information can be found in the operating manual of theSenda S.



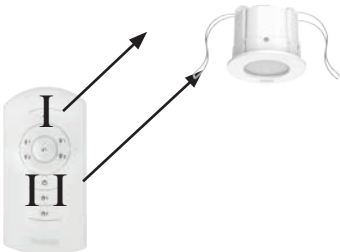
7.3 Examples of set IR group addresses

Subject	Chapter/page
One presence detector, two lighting channels	7.3.1 page 41
Two presence detectors, each with one lighting channel and blinds	7.3.2 page 42
Two presence detectors, two lighting channels	7.3.3 page 43
Two presence detectors with one and two internal lighting channels	7.3.4 page 44

7.3.1 One presence detector, two lighting channels

Description	<p>Using one theSenda S user remote control, two lighting channels are controlled by one presence detector.</p> <p>Lighting channel C1 of the presence detector is controlled by channel 1 of theSenda S.</p> <p>Lighting channel C2 of the presence detector is controlled by channel 2 of theSenda S.</p>
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) theSenda S (Order No. 9070911)
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Overview	Master	Channel	IR Grp. Addr.
		Lighting channel C1	I
		Lighting channel C2	II

Parameter	PlanoSpot 360 KNX S Master		
	Parameter page	Parameter	Setting
	Remote control	Upper button row theSenda S controls	Lighting channel C1
		IR group address upper button row theSenda S	I
		Lower button row theSenda S controls	Lighting channel C2
IR group address lower button row theSenda S		II	



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

Description	<p>One lighting channel on each of two presence detectors as well as the blinds channel on one presence detector are controlled manually by a theSenda S user remote control.</p> <p>The respective channels C1 on the two presence detectors are controlled by channel 1 of theSenda S. As both lighting channels are controlled by the same IR group address, a mutual interaction between the lighting channels is possible. 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.</p> <p>The blinds are controlled by the Master 2 presence detector via channel 2 of theSenda S. Channel 2 commands are ignored by Master 1.</p>
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) theSenda S (Order No. 9070911)
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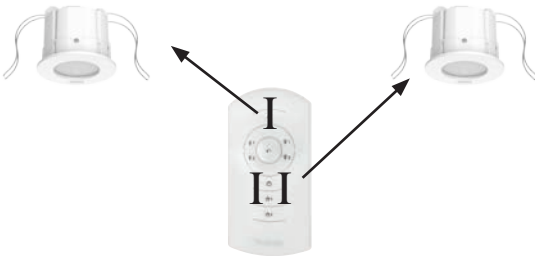
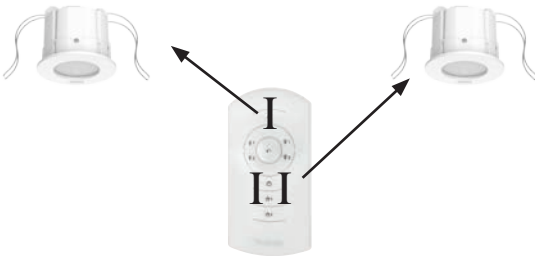
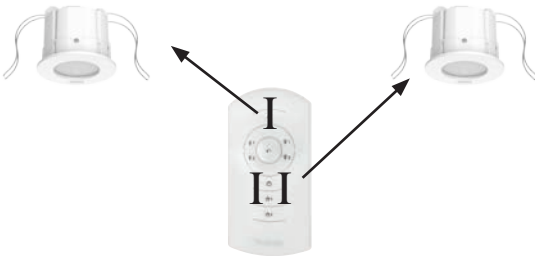
Overview	<table><tr><th>IR Grp. Addr.</th><th>Channel</th><th>Master 1</th><th>Master 2</th><th>Channel</th><th>IR Grp. Addr.</th></tr><tr><td>I</td><td>Lighting chan- nel C1</td><td rowspan="3"></td><td></td><td>Lighting channel C1</td><td>I</td></tr><tr><td></td><td></td><td></td><td>External blinds 2</td><td>II</td></tr></table>						IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.	I	Lighting chan- nel C1			Lighting channel C1	I				External blinds 2	II
IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.																		
I	Lighting chan- nel C1			Lighting channel C1	I																		
				External blinds 2	II																		

Parameter	PlanoSpot 360 KNX S		
	Master 1		
	Parameter page	Parameter	Setting
	Remote control	Upper button row theSenda S controls	Lighting channel C1
		IR group address upper button row theSenda S	I
	PlanoSpot 360 KNX S		
	Master 2		
	Parameter page	Parameter	Setting
	Remote control	Upper button row theSenda S controls	Lighting channel C1
		IR group address upper button row theSenda S	I
		Lower button row theSenda S controls	External blinds 2
		IR group address lower button row theSenda S	II

7.3.3 Two presence detectors, two lighting channels

Description	One lighting channel each on two presence detectors is controlled manually by a theSenda S user remote control. Lighting channel C1 on the Master 1 presence detector is controlled by channel 1 of theSenda S. Lighting channel C1 on the Master 2 presence detector is controlled by channel 2 of theSenda S. The lighting channels on the presence detectors are not influenced mutually by theSenda S commands.
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) theSenda S (Order No. 9070911)
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Overview	<table><tr><td>IR Grp. Addr.</td><td>Channel</td><td>Master 1</td><td>Master 2</td><td>Channel</td><td>IR Grp. Addr.</td></tr><tr><td>I</td><td>Lighting channel C1</td><td></td><td></td><td>Lighting channel C1</td><td>II</td></tr></table>	IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.	I	Lighting channel C1			Lighting channel C1	II
IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.								
I	Lighting channel C1			Lighting channel C1	II								

Parameter	PlanoSpot 360 KNX S Master 1		
	Parameter page	Parameter	Setting
	Remote control	Upper button row theSenda S controls	Lighting channel C1
		IR group address upper button row theSenda S	I
	PlanoSpot 360 KNX S Master 2		
	Parameter page	Parameter	Setting
		Lower button row theSenda S controls	Lighting channel C1
		IR group address lower button row theSenda S	II

7.3.4 Two presence detectors with one and two internal lighting channels

Description	The lighting channels of two presence detectors are influenced separately by two theSenda S user remote controls. Lighting channel C1 of the Master 1 presence detector is controlled by channel 1 of theSenda S 1. Lighting channel C1 of the Master 2 presence detector is controlled by channel 1 of theSenda S 2. Lighting channel C2 of the Master 2 presence detector is controlled by channel 2 of theSenda S 2.
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) theSenda S (Order No. 9070911)
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Overview	<table><tr><th>IR Grp. Addr.</th><th>Channel</th><th>Master 1</th><th>Master 2</th><th>Channel</th><th>IR Grp. Addr.</th></tr><tr><td>I</td><td>Lighting channel C1</td><td></td><td></td><td>Lighting channel C1 Lighting channel C2</td><td>I II</td></tr><tr><td></td><td></td><td>theSenda S 1</td><td>theSenda S 2</td><td></td><td></td></tr></table>	IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.	I	Lighting channel C1			Lighting channel C1 Lighting channel C2	I II			theSenda S 1	theSenda S 2		
IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.														
I	Lighting channel C1			Lighting channel C1 Lighting channel C2	I II														
		theSenda S 1	theSenda S 2																

Parameter	PlanoSpot 360 KNX S Master 1		
	Parameter page	Parameter	Setting
	Remote control	Upper button row theSenda S controls	Lighting channel C1
		IR group address upper button row theSenda S	I
	PlanoSpot 360 KNX S Master 2		
	Parameter page	Parameter	Setting
	Remote control	Upper button row theSenda S controls	Lighting channel C1
		IR group address upper button row theSenda S	I
		Lower button row theSenda S controls	Lighting channel C2
		IR group address lower button row theSenda S	II

8. Troubleshooting

Fault/error	Cause
Light does not switch on or switches off during presence and darkness	Lux value is set too low; detector set on semi-automatic; light was switched off manually via push button or theSenda S; person not within detection area; obstruction(s) interrupting detection; time delay set too short
Light stays on during presence despite sufficient brightness	Lux value is set too high; the light was just switched on manually via push button or remote control (wait 30 minutes); detector is in test mode
Light does not switch off or light switches on spontaneously during absence	Wait for time delay (self-learning); thermal sources of interference in the detection area: fan heaters, incandescent lamps/halogen spotlights, moving objects (e.g. curtains hanging in an open window); the startup phase was not problem-free.
Error flashing (3 x per second)	Error during start-up phase or during operation: <ul style="list-style-type: none">- With the first download (factory setting) or after discharging the detector, valid parameter values have to be downloaded first, otherwise error flashing will be displayed.- Device not functional.

9. Appendix


9.1 Typical applications

Subject	Chapter/page
Presence and brightness-dependent switching of light	9.1.1 page 46
Presence and brightness-dependent switching of light, additional manual override via push button	9.1.2 page 47
Presence and brightness-dependent switching of light with two lighting groups in a room	9.1.3 page 48
Presence and brightness-dependent switching with additional heating control	9.1.4 page 49
Constant light control	9.1.5 page 51
Constant light control, additional manual override via push button	9.1.6 page 52
Constant light control with two lighting groups	9.1.7 page 54
Master - Slave parallel switching	9.1.8 page 56
Master - Master parallel switching	9.1.9 page 57

9.1.1 Presence and brightness-dependent switching of light

Description	The classic function of a presence detector is switching lights on only if a room is occupied and there is insufficient natural daylight. The lighting is automatically switched off if the room is vacated or the amount of daylight increases.
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) RMG 8 S KNX (Order No. 4930220)
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Overview	
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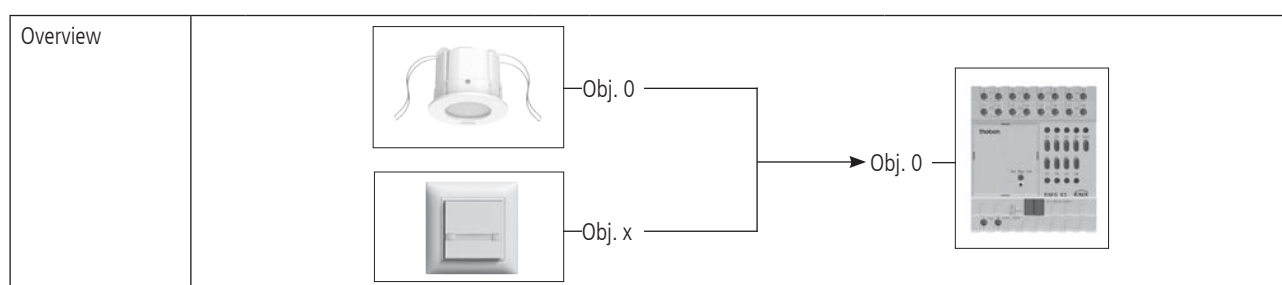
Links	PlanoSpot 360 KNX S		RMG 8 S		Comment
	No.	Object name / Function	No.	Object name	
	0	Lighting channel C1 / Switching	0	RMG 8 S channel C1	

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Switching light..
		Lighting channel C2 function	inactive
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness switching value	500 lx (e.g. for office application)
		Lighting time delay	10 min (as per customer specification)
	RMG 8 S		
	Parameter page	Parameter	Setting
	RMG 8 S channel C1: configuration options	Channel function	Switching On/Off
Standard or customer-defined parameter settings apply to unlisted parameters.			

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

Description	<p>The presence detector switches the lighting. The lighting can also be switched on and off manually.</p> <p>When the light is switched on via push button, the user has 30 minutes of 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 as long as the presence detector detects that the room is occupied. The presence detector takes control only after the time delay has elapsed.</p> <p>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 on the lighting automatically. The presence detector switches off the lighting as usual if there is sufficient daylight or if the room is unoccupied.</p>
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) RMG 8 S KNX (Order No. 4930220)
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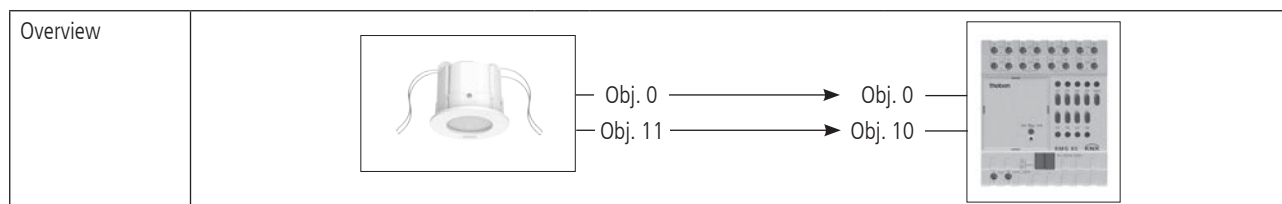
Links	PlanoSpot 360 KNX S		RMG 8 S		Comment
	No.	Object name / Function	No.	Object name	
	0	Lighting channel C1 / Switching	0	RMG 8 S channel C1	Switching lighting on and off
	any KNX push button		RMG 8 S		Comment
	No.	Object name	No.	Object name	
	x	e.g. button 1	0	RMG 8 S channel C1	Manual switching on and off via push button

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Switching light..
		Lighting channel C2 function	inactive
	Lighting channel C1	Configuration type	Fully automatic device / semi-automatic device
		Brightness switching value	500 lx (e.g. for office application)
		Lighting time delay	10 min (as per customer specification)
	KNX push button (example)		
	Parameter page	Parameter	Setting
	Rocker 1 left	Telegram on pressing the button	On
		Telegram when released	no telegram
	Rocker 1 right	Telegram on pressing the button	Off
		Telegram when released	no telegram
	RMG 8 S		
	Parameter page	Parameter	Setting
	RMG 8 S channel C1: configuration options	Channel function	Switching On/Off
Standard or customer-defined parameter settings apply to unlisted parameters.			

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

Description	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 off by the presence detector before the one in the interior of the room due to the greater amount of daylight, making it possible to save energy.
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) RMG 8 S KNX (Order No. 4930220)
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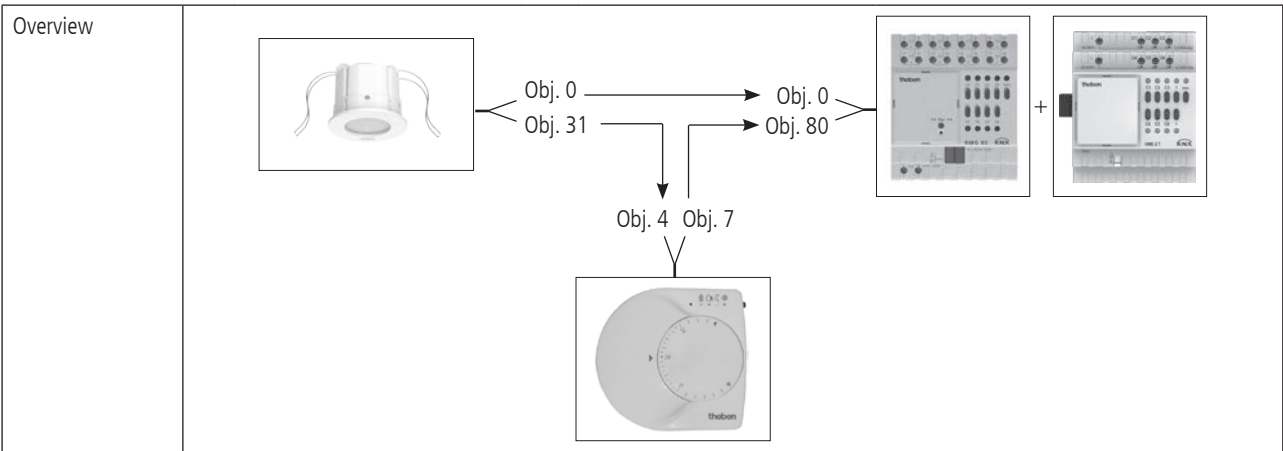
Links	PlanoSpot 360 KNX S		RMG 8 S		Comment
	No.	Object name / Function	No.	Object name	
	0	Lighting channel C1 / Switching	0	RMG 8 S channel C1	Switching lighting near the window on and off
	11	Lighting channel C2 / Switching	10	RMG 8 S channel C2	Switching lighting in the interior of the room on and off

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Switching light..
		Lighting channel C2 function	Switching light..
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness switching value	500 lx (e.g. for office application)
		Lighting time delay	10 min (as per customer specification)
	Lighting channel C2	Brightness switching value	500 lx (e.g. for office application)
	RMG 8 S		
	Parameter page	Parameter	Setting
	RMG 8 S channel C1: configuration options	Channel function	Switching On/Off
	RMG 8 S channel C2: configuration options	Channel function	Switching On/Off
Standard or customer-defined parameter settings apply to unlisted parameters. Bear in mind the direction of the light measurement, see installation manual.			

9.1.4 Presence and brightness-dependent switching with additional heating control

Description	<p>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.</p> <p>In large rooms, this switching can be extended with additional presence detectors (Master or Slave).</p>
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Devices	<p>PlanoSpot 360 KNX S (Order No. 2039300)</p> <p>Mix combination: RMG 8 S + extension module HME 6 T (Order No. 4930220 + 4930245)</p> <p>Ramses 713 S KNX (Order No. 7139201)</p>
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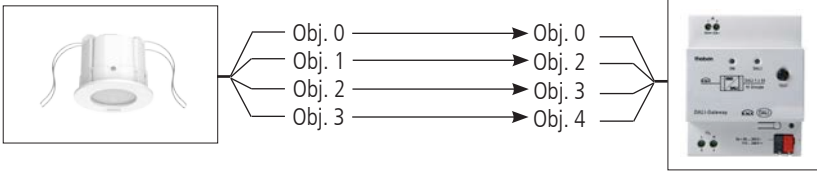
Links	PlanoSpot 360 KNX S		MiX combination		Comment
	No.	Object name / Function	No.	Object name	
	0	Lighting channel C1 / Switching	0	RMG 8 S channel C1	Switching lighting on and off
	PlanoSpot 360 KNX S		RAM 713 S		Comment
	No.	Object name / Function	No.	Object name	
	31	Presence channel C4.1 / Switching	4	Presence	If the presence object is set, RAM 713 S changes to comfort mode.
	RAM 713 S		MiX combination		Comment
	No.	Object name	No.	Object name	
	7	Channel 1 switching	80	EM HME 6 T Channel 1	RAM 713 sends the actuating value for heating to the heating actuator

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Switching light..
		Lighting channel C2 function	inactive
		Presence channel C4 function	active..
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness switching value	500 lx (e.g. for office application)
		Lighting time delay	10 min (as per customer specification)
	Presence channel C4	Presence switch-on delay	as per customer specification
		Presence time delay	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 (on obj. 4)	Presence detector
	Heating control ¹⁾	Type of control	Continuous control
	1) This setting is only required if a user-defined control is selected on the Settings parameter page.		
	MiX combination RMG 8 S and extension module module HME 6 T		
	Parameter page	Function	Setting
	General	Number of basic modules	RMG 8 S
		Type of 1st extension module	HME 6 T...
	RMG 8 S channel C1: configuration options	Function	Switching On/Off
	HME 6 T Channel H1: configuration options	Type of actuating value	Continuous
	Standard or customer-defined parameter settings apply to unlisted parameters.		

9.1.5 Constant light control

Description	Presence detectors with constant light control 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 amount of daylight the artificial light automatically dims down and finally switches off. The lighting is automatically dimmed to the standby dimming value if the room is vacated.
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) DALI Gateway KNX (Order No. 9070722)
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Overview	
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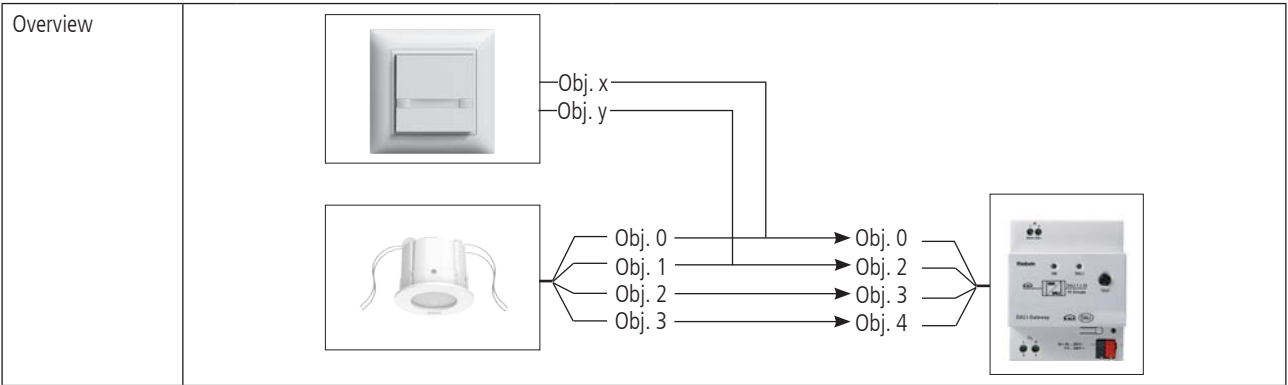
Links	PlanoSpot 360 KNX S		DALI Gateway KNX		Comment
	No.	Object name / Function	No.	Object name / Function	
	0	Lighting channel C1 / Switching	0	Group 1 / Switching	
	1	Lighting channel C1 / Brighter/ Darker	2	Group 1 / Relative dimming	
	2	Lighting channel C1 / Send value	3	Group 1 / Brightness value	
	3	Lighting channel C1 / Feedback value	4	Group 1 / Brightness value status	

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Constant light control..
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office application)
		Time delay lighting	10 min (as per customer spec.)
Lighting channel C1 / Detail settings	Lighting standby time	active..	
DALI Gateway KNX			
	Parameter page	Parameter	Setting
	G1 Group	Minimum dimming value	adjustable
		Maximum dimming value	adjustable
		Allowing switching on via dimming	no
		Dimming time until switch-on/switch-off value reached	Recommendation: 4 s to 11.5 s
		Dimming time until brightness value reached	Recommendation: 4 s to 11.5 s
	G1 status	Brightness value status report for the group	yes: via separate "Brightness value status" object
		Send	on request
Standard or customer-defined parameter settings apply to unlisted parameters.			

9.1.6 Constant light control, additional manual override via push button

Description	<p>The presence detector controls the lighting (see example of use, page 51 chapter 9.1.5). The lighting can also be switched and dimmed manually.</p> <p>Dimming via push button ends the control. The presence detector remains at the set dimming value while the room is occupied. When the light is switched off via push button, the lighting remains switched off as long as the presence detector detects that the room is occupied. The presence detector takes control only after the time delay has elapsed. (Only with school mode, see 2.4.6 „Detail settings - Lighting channel C1 - Constant light control“ page 22.)</p> <p>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 on the lighting automatically.</p>
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Devices	<p>PlanoSpot 360 KNX S (Order No. 2039300)</p> <p>DALI Gateway KNX (Order No. 9070722)</p>
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Links	PlanoSpot 360 KNX S		DALI Gateway KNX		Comment
	No.	Object name	No.	Object name	
	0	Lighting channel C1 / Switching	0	Group 1 / Switching	
	1	Lighting channel C1 / Brighter/ Darker	2	Group 1 / Relative dimming	
	2	Lighting channel C1 / Send value	3	Group 1 / Brightness value	
	3	Lighting channel C1 / Feedback value	4	Group 1 / Brightness value status	
	any KNX push button		DALI Gateway KNX		Comment
	No.	Object name	No.	Object name	
	x	e.g., button 1: Switching	0	Group 1 / Switching	Switching on and off via push button
	y	e.g. button 1: Brighter/darker	2	Group 1 / Relative dimming	Dimming via push button

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Individual switching
	Lighting channel C1	Lighting channel C1 function	Constant light control..
		Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office application)
		Time delay	10 min (as per customer specification)
	DALI Gateway KNX		
	Parameter page	Parameter	Setting
	G1 Group	Minimum dimming value	adjustable
		Switch on maximum dimming value	adjustable
		Allowing switching on via dimming	no
		Dimming time until switch-on/switch-off value reached	Recommendation: 4 s to 11.5 s
		Dimming time until brightness value reached	Recommendation: 4 s to 11.5 s
	G1 status	Brightness value status report for the group	yes: via separate "Brightness value status" object
		Send	on request
	Standard or customer-defined parameter settings apply to unlisted parameters.		

9.1.7 Constant light control with two lighting groups

Description	The constant light control controls the lighting dependent on natural daylight (see example 9.1.5). The lighting is divided into two lighting groups to make maximum use of the daylight near the window. The two lighting groups can be switched separately and are controlled independently.
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) DALI Gateway KNX (Order No. 9070722)
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Overview	
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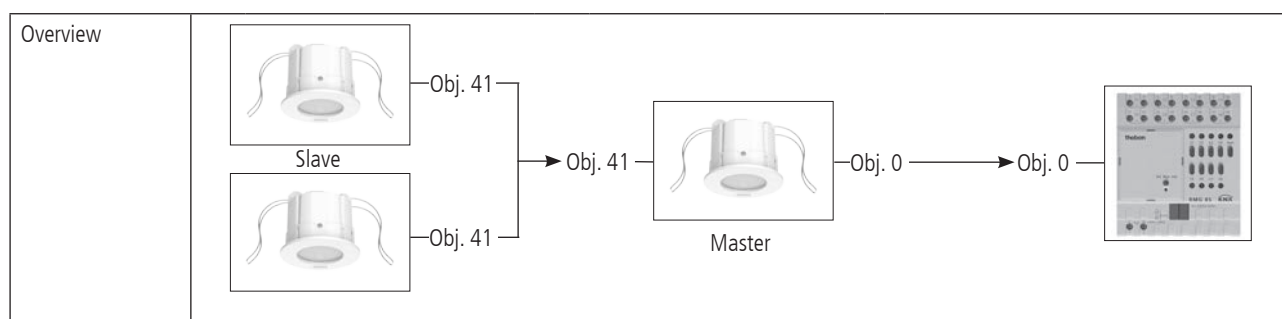
Links	PlanoSpot 360 KNX S		DALI Gateway KNX		Comment
	No.	Object name / Function	No.	Object name / Function	
	0	Lighting channel C1 / Switching	0	Group 1 / Switching	
	1	Lighting channel C1 / Brighter/ Darker	2	Group 1 / Relative dimming	
	2	Lighting channel C1 / Send value	3	Group 1 / Brightness value	
	3	Lighting channel C1 / Feedback value	4	Group 1 / Brightness value status	
	11	Lighting channel C2 / Switching	6	Group 2 / Switching	
	12	Lighting channel C2 / Brighter/ Darker	8	Group 2 / Relative dimming	
	13	Lighting channel C2 / Send value	9	Group 2 / Brightness value	
	14	Lighting channel C2 / Feedback value	10	Group 2 / Brightness value status	

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Individual switching
		Lighting channel C1 function	Constant light control..
		Lighting channel C2 function	Constant light control..
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office application)
		Time delay	10 min (as per customer specification)
	Lighting channel C2	Brightness setpoint value	500 lx (e.g. for office application)
	DALI Gateway KNX		
	Parameter page	Parameter	Setting
	G1 Group	Minimum dimming value	adjustable
		Switch on maximum dimming value	adjustable
		Allowing switching on via dimming	no
		Dimming time until switch-on/switch-off value reached	Recommendation: 4 s to 11.5 s
		Dimming time until brightness value reached	Recommendation: 4 s to 11.5 s
	G1 status	Brightness value status report for the group	yes: via separate "Brightness value status" object
		Send	on request
	G2 Group	Minimum dimming value	adjustable
		Switch on maximum dimming value	adjustable
		Allowing switching on via dimming	no
		Dimming time until switch-on/switch-off value reached	Recommendation: 4 s to 11.5 s
		Dimming time until brightness value reached	Recommendation: 4 s to 11.5 s
	G2 status	Brightness value status report for the group	yes: via separate "Brightness value status" object
		Send	on request
	Standard or customer-defined parameter settings apply to unlisted parameters.		
	Bear in mind the direction of the light measurement, see installation manual.		

9.1.8 Master - Slave parallel switching

Description	<p>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.</p> <p>The Slaves trigger the Master when motion is detected. All settings, possible delay times and brightness thresholds are configured on the Master.</p> <p>Master-Slave parallel switching can be used independently of whether the Master switches one or two lighting groups or operates in constant light control.</p>
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Devices	PlanoSpot 360 KNX S (Order No. 2039300) RMG 8 S (Order No. 4930220)
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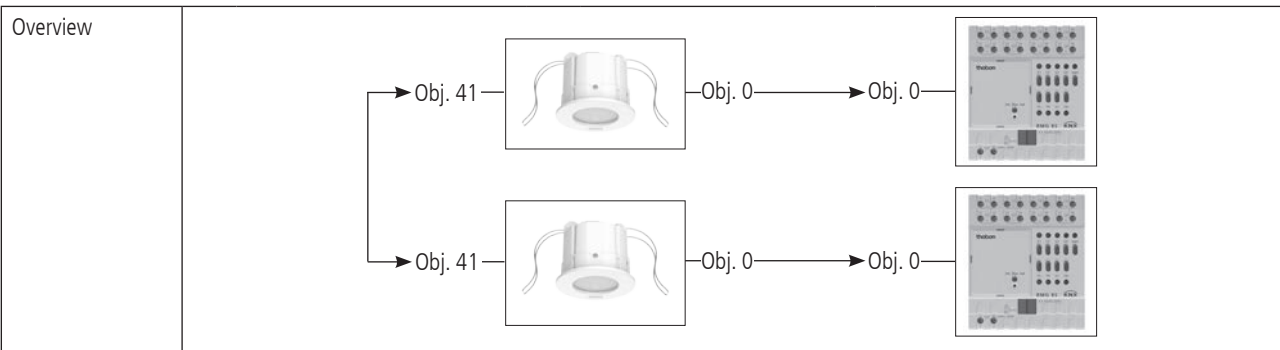
Links	PlanoSpot 360 KNX S		RMG 8 S		Comment
	No.	Object name	No.	Object name	
	0	Lighting channel C1 / Switching	0	RMG 8 S channel 1	Switching lighting on and off
	PlanoSpot 360 KNX S (Slaves)		PlanoSpot 360 KNX S (Master)		Comment
	No.	Object name	No.	Object name	
	41	Parallel switching: Trigger input/output	41	Parallel switching: Trigger input/output	Connection between Master and Slave

Parameter	PlanoSpot 360 KNX S (Master)		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Parallel switching
		Lighting channel C1 function	Switching light..
		Lighting channel C2 function	inactive..
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office application)
		Time delay	10 min (as per customer specification)
	PlanoSpot 360 KNX S (Slaves)		
	Parameter page	Parameter	Setting
	General	Operating mode	Slave
	RMG 8 S		
	Parameter page	Parameter	Setting
RMG 8 S channel C1: configuration options	Channel function	Switching On/Off	
Standard or customer-defined parameter settings apply to unlisted parameters.			

9.1.9 Master - Master parallel switching

Description	<p>A number of Master presence detectors can be connected together to cover large areas with varying lighting conditions such as open-plan offices.</p> <p>Each Master operates its lighting group according to its measurements and settings. They exchange presence among each other. This extends the detection area. Master-Master parallel switchings 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.</p> <p>The Master-Master parallel switching can be used independently of whether the Master is configured for switching or constant light control.</p>
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Devices	<p>PlanoSpot 360 KNX S (Order No. 2039300)</p> <p>RMG 8 S (Order No. 4930220)</p>
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Links	PlanoSpot 360 KNX S		RMG 8 S		Comment
	No.	Object name / Function	No.	Object name	
	0	Lighting channel C1 / Switching	0	RMG 8 S channel 1	Switching lighting on and off
	PlanoSpot 360 KNX S		PlanoSpot 360 KNX S		Comment
	No.	Object name	No.	Object name	
	41	Parallel switching: Trigger input/output	41	Parallel switching: Trigger input/output	Connection between Master and Master

Parameter	PlanoSpot 360 KNX S		
	Parameter page	Parameter	Setting
	General	Operating mode	Master
		Master operating mode	Parallel switching
		Lighting channel C1 function	Switching light..
		Lighting channel C2 function	inactive..
	Lighting channel C1	Configuration type	Fully automatic device
		Brightness setpoint value	500 lx (e.g. for office application)
		Time delay	10 min (as per customer specification)
	RMG 8 S		
	Parameter page	Parameter	Setting
	RMG 8 S channel C1: configuration options	Channel function	Switching On/Off
	Standard or customer-defined parameter settings apply to unlisted parameters.		