KNX manual

Application description

Presence detector
thePrema S360 KNX

Contents

1. Functional characteristics

1.1 thePrema S360 KNX Presence Detector

Presence detector switches or controls a maximum of two lighting groups dependent 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 set point 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 scenarios 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 scenario 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

- Mixed light measurement suitable for fluorescent lamps (FL/PL/ESL), halogen/incandescent lamps and LEDs.
- Two lighting channels with a common light measurement
- Optional brightness-dependent switching or constant light control with standby function (orientation light)
- Switching mode with dimmable lighting
- Fully or semi-automatic
- Brightness switching value or set point value can be set in lux via parameters, the object or via remote control
- Teaching in of the brightness switching value or the set point value
- Self-learning time delay can be set via parameters, the object or via remote control
- Reduction of time delay when present briefly (short-term presence)
- Manual override by telegram or remote control
- Two separate channels (presence) for controlling other devices such as HVAC systems with switch-on delay and time delay
- Separate channel for room monitoring with cyclical report object
- Master-Slave parallel switching for gap-free coverage of large areas
- Master-Master parallel switching for several lighting groups with separate light measurement, but joint presence detection
- Separate disable objects for light and presence channel
- Scenario control with two scenarios
- Scenario function with scenario numbers
- Detection and sending of current brightness
- Adjustable dimming value on standby
- Setting the room correction factor for brightness measurement comparison
- Adjustable detection sensitivity
- Exceptionally easy configuration of the energy-saving response with the new "eco plus" function
- Test mode for checking function and detection area
- Management remote control SendoPro 868-A (optional)
- installation remote control theSenda P (optional)
- User remote control theSenda S (option)

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

select	Master
	Slave
Configuration type	Fully automatic
	Semi-automatic
Channel function	Switching
	Constant light control
	Constant light control without presence as factor

1.4 Technical data

Presence detector	thePrema S360 KNX
Number of light measurements (mixed light)	1
Recommended installation height	2.0 – 3.0 m (minimum height > 1.7 m)
Detection area	Installation height 3.0 m: 25 m² (5 x 5 m) seated Installation height 3.5 m: 64 m² (8 x 8 m) moving
Detection angle horizontal vertical	360° 120°
Operating voltage	Bus voltage KNX, max. 30 V
Power consumption	approx. 9 mA / 13 mA with LED on
Installation type	Ceiling installation; Flush/surface mounted or ceiling installation
Brightness switching value / set point value setting range	5 – 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
Stand-by 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	WAGO 243 screwless terminals
Flush-mounted socket size	Siz. 1, Ø 55 mm (NIS, PMI)
Protection rating	IP 20 (IP 40 installed)
Ambient temperature	0 °C – 50 °C
CE Declaration of Conformity CE	This device conforms to the regulations of the EMC Directive 2004/108/EC
RCM compliance	This device is compliant with the ACMA guidelines

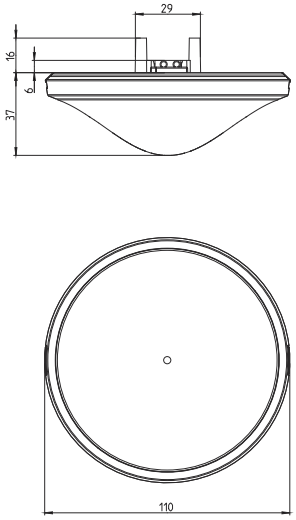
1.4.1 Product overview

Installation type	Channel	Colour	Type	Item No.
Ceiling installation	2 Light | 2 HVAC	White	thePrema S360 KNX UP WH	2079500
Ceiling installation	2 Light | 2 HVAC	Grey	thePrema S360 KNX UP GR	2079501
Ceiling installation	2 Light | 2 HVAC	Special colour in accordance with customer information	thePrema S360 KNX UP SF	2079503

Accessories	Item No.
Back box 110 A	9070912
Ceiling installation box 73A	9070917
SendoPro 868-A management remote control	9070675
Installation remote control theSenda P	9070910
User remote control theSenda S	9070911

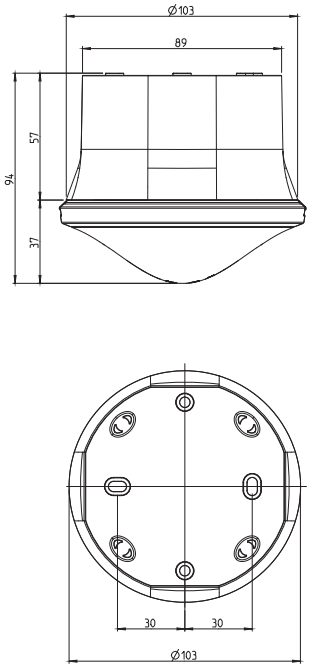
1.4.2 Measures

Flush-mounted



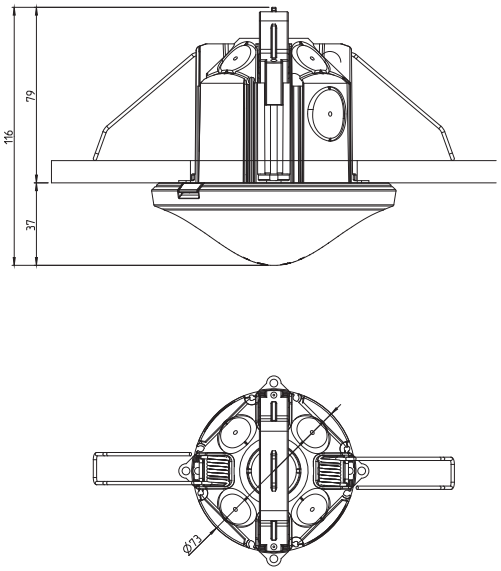
thePrema S360 KNX UP

Surface-mounted



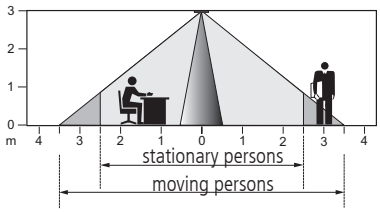
thePrema S360 KNX UP with back box 110 A

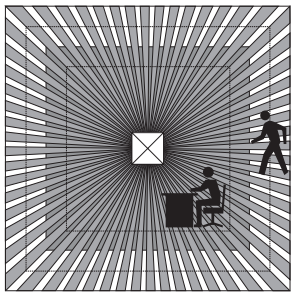
Ceiling installation



thePrema S360 KNX UP with ceiling installation box 73A

1.4.3 Detection area of the thePrema S360 KNX





Installation height	stationary persons		moving 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	25 m^2	5.0 m x 5.0 m	49 m^2	7.0 m x7.0 m ± 1.0 m
3.5 m		-	64 m^2	8.0 m x 8.0 m ± 1.0 m

2. The application programme for thePrema S360 KNX

2.1 Selection in the product database

	thePrema S360 KNX
Manufacturer	Theben HTS AG
Product family	Physical sensors
Product type	Presence detector
Programname	thePrema S360 KNX V1.00

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

2.2 Parameter pages

Name	Description
General	General settings, e.g. operating mode, etc.
Settings	Sensitivity, etc.
Brightness measurement	Source, light measurement selected, room correction factor, settings for sending the current brightness value via the bus
Lighting channel C1	Settings for lighting control by 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 presence as factor
Light blocking function	Settings for blocking lighting channel C1 / C2
Lighting channel C2	Settings for lighting control by 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 presence as factor
Presence channel C4	Channel C4 for the presence-dependent control of other systems such as heating, air conditioning
Objects	Setting for telegrams
Presence blocking function	Settings for blocking presence channel C4
Presence channel C5	Channel C5 for the presence-dependent control of other systems such as heating, air conditioning
Objects	Setting for telegrams
Presence blocking function	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
Scenarios	Definition of scenarios in relation to the user remote control
Scenario functions	Definition of scenario functions

2.3 Communication objects

2.3.1 Overview

The thePrema S360 KNX presence detector has 43 communication objects. In the switching mode, the designation set point 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=retrieve/ $81=save	1 byte	18,001	✓		✓		
6	Channel C1 Alternative brightness setpoint value	Receive value	2 byte	9,004	✓		✓	✓	
7	Measurement value on lux meter	Receive value	2 byte	9,004	✓		✓		
8	Room correction factor	Retrieve value	2 byte	9.*	✓	✓		✓	
9	Brightness value	Send lux value	2 byte	9,004	✓	✓		✓	
10	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	Set value	1 byte	5,001	✓		✓	✓	
14	Lighting channel C2	Feedback value	1 byte	5,001	✓		✓	✓	✓
22	Lighting channel C1, C2	Select brightness setpoint value	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	✓		✓		
27	Channel C1, C2 Lighting time delay	Receive value	2 byte	7,005	✓		✓	✓	
28	Lighting channel C1, C2	Disable/enable	1 bit	1,003	✓		✓		
29	Central command	Receive	1 bit	1,001	✓		✓		
30	External scenario	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 scenario	1 byte	17,001	✓	✓		✓	
32	Presence channel C4.2	Switching	1 bit	1,001	✓	✓		✓	
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 scenario	1 byte	17,001	✓	✓		✓	
33	Presence channel C4	Disable/enable	1 bit	1,003	✓		✓		
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 scenario	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	✓	✓		✓	

Object Number	Object name	Function	Length	Data type (ID)	Flags				
					C	R	W	T	U
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 scenario	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	Scenario input	Scenario 1 / 2	1 bit	1,002	✓		✓		
42	Scenario output	Scenario 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	1,008	✓			✓	
46	IR external 2 switching/dimming	Brighter/darker	4 bit	1,009	✓			✓	
47	IR external blinds 1	Raise / lower blinds	1 bit	1,008	✓			✓	
48	IR external blinds 1	Open / close lamella	1 bit	1,009	✓			✓	
49	IR external blinds 2	Raise / lower blinds	1 bit	1,008	✓			✓	
50	IR external blinds 2	Open / close lamella	1 bit	1,009	✓			✓	
51	Presence test mode	On / Off	1 bit	1,001	✓		✓		
52	Brightness test mode	On / Off	1 bit	1,001	✓		✓		

2.3.2 Explanation of the flags

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

2.3.3 Object characteristics for lighting control

In the switching mode, the designation set point value changes to switching value.

Object	Object name	Function	Description
Object 0	Lighting channel C1	Switching	In the "switching" mode, the light switching output C1 sends an ON telegram on detection of motion and insufficient brightness and an OFF telegram on timeout 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: In the "Constant light control without presence" function, constant light control can be used also without presence. Use independently of presence can be activated and deactivated via object 24. **Start control with value telegram:** A value telegram is sent via object 2 on detection of motion and insufficient brightness. The actuator switches and dims up. A Stop telegram is sent via object 1 on reaching the set point value. The presence detector sends a request for the current dimming value to the actuator via object 3. Control with 1-byte telegrams to object 2 starts from this dimming value. **Start control with ON telegram:** An ON telegram is sent via object 0 on detection of motion and insufficient brightness. The actuator switches on and dims up to the configured value on the actuator. After 3 seconds, the brightness value determines which value telegram is sent to an actuator. A request for the current dimming value is then sent to the actuator via object 3. Control with 1-byte telegrams via object 2 starts from this dimming value. The presence detector does not have any specific push button inputs, but does respond to push button commands sent to objects 0 to 2. The response under manual control can be selected as either "school" or "office". See information on push button operation on page 31 chapter 3
Object 4	Channel C1 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 brightness setpoint value is set to the corresponding limit automatically if the brightness setpoint value received lies outside the value range (5..3000 lux) or the brightness setpoint value does not match the current room correction factor setting (see setting limit). Object 4 returns the stored value of the brightness setpoint value. When changing the brightness setpoint value via the SendoPro, the new value is sent. In the switching mode, the value "0" means "Measurement OFF"

Object	Object name	Function	Description
Object 5	Channel C1 Brightness setpoint value (teach-in)	$01=retrieve, $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 a new brightness setpoint value or alternative brightness setpoint value (depending on which is active at the time) via a value telegram $81 (129). For example, if the presence detector switches to the alternative brightness setpoint value, the current measured brightness value [lux] is transferred to the alternative brightness setpoint value via the value telegram $81 (129). Object 4 sends the saved value of the currently active brightness setpoint value, or object 6 sends the alternative brightness setpoint value (depending on which is active at the time). Object 4, or object 6 if the alternative brightness setpoint value is active, sends the current brightness setpoint value via a value telegram $01 (1). Transfer is made to current active brightness setpoint value.
Object 6	Channel C1 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 set point value is adjusted to the corresponding limit if the received set point value is outside the value range (5..3000 lux) or the set point value does not match the current room correction factor setting (see setting limit). Object 6 returns the stored value of the alternative brightness setpoint value. When changing the alternative brightness setpoint value via the SendoPro, the new value is sent. In the switching mode, the value "0" means "Measurement OFF".
Object 7	Measurement value on lux meter	Receive value	Object available if "yes" has been selected at <Set measured brightness 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 or the "SendoPro 868-A" management remote control. The room correction factor is calculated automatically immediately after entry. Object 8 sends the stored value.
Object 8	Room correction factor	Retrieve value	Object available if "yes" has been selected at <Set measured brightness value via bus>. The room correction factor is calculated automatically following entry of the lux meter value or is entered via the 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 the object 8.
Object 9	Brightness value	Send lux value	Object available if "yes" has been selected at <Send brightness value via bus>. Channel C1 sends the current brightness measurement as a 2-byte telegram via object 9. The frequency of telegrams depends on the cycle time and the minimum change in brightness. The 2-byte telegrams to object 9 are used to visualise the brightness value. Use of the presence detector's internal constant light control function is recommended for control. The brightness measurement can be adapted to the conditions in a room with the room correction factor. See page 19 chapter 2.4.3
Object 10	External brightness value	Receive lux value	Object available if "External" has been selected at <Brightness measurement source>. As an alternative to light measurement, an external brightness value can be used via object 10.
Object 11	Lighting channel C2	Switching	If two switching outputs are used, object 11 provides brightness-dependent switching for channel C2 Light. For operation, see object 0: channel C1 Light: Switching.

Object	Object name	Function	Description
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 provide control or constant light control for channel C2. For operation, see objects 0 – 3: channel C1 Light.
Object 22	Lighting channel C1 Lighting channel C1/ C2	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. - An ON telegram to bus object 22 switches to the alternative brightness setpoint value. - An OFF telegram switches back to the original base brightness setpoint value. This applies to both switching and constant light control.
Object 24	Channel C1 light constant lighting control Channel C1/C2 light constant lighting control	Activate/deactivate	Object available if "Constant light control without presence as factor" has been selected at < Lighting channel C1 function >. Constant light control can be used also without presence and activated or deactivated via object 24. 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 < Llghting standby time >. The standby function can be deactivated and reactivated via object. 25. The standard setting for the standby function is "activated".
Object 27	Channel C1 Lighting time delay Channel C1/C2 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 in a range of 30 s to 60 s via object. 27. The value must be sent in seconds. Over the course 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	Block/unblock	Object available if "yes" has been selected at <Activate blocking 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%. While disabled, the channels do not send any telegrams, neither on the basis of presence/absence nor on the basis of brightness. The lighting channels are enabled via an ON or OFF telegram in addition to the telegram when setting disable process. When enabled, the detector always sends the current status and thereby continues the brightness-dependent switching or constant light control.
Object 29	Central command	Receive	An ON telegram switches on lighting channels C1, C2. 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 31 An OFF telegram switches lighting channels C1, C2 in accordance with the following conditions: - No motion within the last 5 seconds: The light switches off immediately. The running time delays for the lighting channels C1, C2 and standby 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 are not switched off, but instead switch to the set standby operation. - Motion up to receipt of the OFF telegram: The light stays on. **Fully automatic:** - If further motion is then detected, the light switches on again if there is insufficient brightness. **Presence detector is disabled** - The central command is not carried out.

Object	Object name	Function	Description
Object 30	External scenario	Receive	Object available if "inactive" has been selected at <Lighting channel C1 function >. Scenario numbers sent directly to the actuator can be directed to the presence detector to disable/enable the lighting channels of the presence detector, to deactivate/ activate control or to use internal scenario 1/2. See page 31 chapter 2.4.19

2.3.4 Characteristics of 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 scenario	Object available if "active" has been selected at <Presence channel C4.X> or at <Presence channel C5.X>. The 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 programme at all is sent after the time delay elapses. 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 blocking function>. The presence channel is disabled via an ON or OFF telegram. The response at the start of blocking can be defined as follows: - No response - As when presence detected - As at the end of the time delay The presence channel is enabled via an ON or OFF telegram in addition to the telegram when setting disable process. 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 elapses. <Message type>: Cyclic with acknowledgment: 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 providing there is no confirmation.
Object 39	Room monitoring channel C6	Sabotage cyclically	In order to identify the dismantling 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. No telegrams are transmitted via the reporting object (37) while disabled.

Object	Object name	Function	Description
Object 41	Parallel switching	Trigger input/ output	Object available if "Parallel switching" has been selected at <Master operating mode> or <Operating mode> "Slave" has been selected. The trigger input/output is required for parallel switching of more than one presence detector. There are two possible types of switching: Master-Slave parallel switching: A Master receives the motion information from several Slaves in the room and switches or controls the lighting as required on the basis of 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. Master-Master parallel switching: Several Masters exchange the motion information among themselves. The advantage is a zone with uniform presence detection but with several light measurements, for example 3 lighting groups in a room, where the group nearest to the window can be dimmed much darker than the lighting groups in the interior of the room. Each detector sends a maximum of two ON telegrams per minute on detection of motion. The interval (cycle time) between two telegrams can be set to a maximum of four minutes. Please note, the interval between two trigger telegrams is always shorter than the switch-off delay times. See information on parallel switching on page 34 chapter 4.
Object 42	Input/output scenario	 Scenarios 1/2 Scenario number	Depending on the chosen configuration, internal scenarios can be retrieved via object 42, and scenarios can be actuated directly or controlled by an external scenario component. Internal scenarios: Object 42 becomes the "Scenario input" if "Internal scenarios" has been selected at <Scenario controls>. An OFF telegram to the scenario input object retrieves scenario 1, an ON telegram retrieves scenario 2. Object 42 becomes the "Scenario output" if "Send scenario" has been selected at <Scenario controls>. When the scenario push buttons on the user remote control theSenda S are pressed, the scenario output object sends the set scenario number.
Object 43 Object 44	IR external 1 switching/dimming IR external 1 switching/dimming	Switching Brighter/darker	If an IR group address is allocated to the <Left-hand row of buttons on user remote control controls> parameter, objects 43 and 44 assume the following function as soon as a command with the selected IR group address is received: Briefly pressing the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via object 43 Switching. Holding down the ▲ push button on the remote control (theSenda S) causes "Make brighter" to be sent via object 44 and stop when released. Holding down the ▼ push button on the remote control (theSenda S) causes "Make darker" to be sent via object 44 and stop when released.
Object 45 Object 46	IR external 2 switching/dimming IR external 2 switching/dimming	Switching Brighter/darker	If an IR group address is allocated to the <Right-hand row of buttons on user remote control controls> parameter, objects 45 and 46 assume the same function described for object 43 / 44 as soon as a command with the selected IR group address is received.
Object 47 Object 48	IR external blinds 1 IR external blinds 1	Raise / lower blinds Open / close lamella	If an IR group address is allocated to the <Left-hand row of buttons on user remote control controls> parameter, objects 47 and 48 assume the following function as soon as a command with the selected IR group address is received: Briefly pressing the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via the object "Open/close lamella". Holding down the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via the object "Raise/lower blinds".

Object	Object name	Function	Description
Object 49 Object 50	IR external blinds 2 IR external blinds 2	Raise / lower blinds Open / close lamella	If an IR group address is allocated to the <Right-hand row of buttons on user remote control controls> parameter, objects 49 and 50 assume the following function as soon as a command with the selected IR group address is received: Briefly pressing the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via the object "Open/close lamella". Holding down the ▲/▼ push buttons causes a 0 or 1 telegram to be sent via the object "Raise/lower blinds".
Object 51	Presence test mode	On / Off	An ON telegram activates the presence test mode for the duration of the configured time. See page 37 chapter 6.1 for a description of the presence test mode AN OFF telegram ends the presence test mode early and the detector restarts.
Object 52	Brightness test mode	On / Off	An ON telegram activates the brightness test mode for the duration of the configured time. See page 37 chapter 6.2 for a description of the brightness test mode AN OFF telegram ends the lighting test mode early and the detector restarts.

▲ on the remote control theSenda S corresponds to: 

▼ on the remote control theSenda S corresponds to: 

2.4 Parameter

Default values appear in bold.

2.4.1 General

Parameter name	Values	Meaning
select	**Master**	A Master is capable of lighting control (switching or constant light control) and relaying the presence information.
	Slave	Slaves are used to extend the detection area. They supply presence information to the Master. The < Parallel switching cycle time > parameter is displayed. See information on parallel switching in chapter 4 page 34
Master operating mode	**Single unit operation**	Presence detector works as independent device.
	Parallel switching	Parallel switching: If required, the detection area can be extended by connecting additional detectors to a "Master" as "Slaves" or a number of "Masters" can be connected to each other. The < Parallel switching cycle time > parameter is displayed.
Parallel switching cycle time	**30 seconds**	Each detector sends a maximum of two ON telegrams per minute on detection of motion. The interval between two telegrams can be set at up to 4 minutes to reduce the number of telegrams. Please note, the interval between two trigger telegrams must always be shorter than the switch-off delay times.
	1 minute	
	2, 3, 4 minutes	
Lighting channel C1 function	**Switch lights on/off**	Lighting channel C1 switches a lighting group on/off on the basis of the presence of persons and current brightness level.
	Constant light control	Lighting channel C1 controls a lighting group on the basis of the presence of persons and current brightness level.
	Constant light control without presence as factor	Lighting channel C1 controls a lighting group on the basis of the current brightness level.
	inactive	The presence detector is not used for lighting control.
Lighting channel C2 function	Switch lights on/off	Lighting channel C2 switches a lighting group on/off on the basis of the presence of persons and current brightness level.
	Constant light control	Lighting channel C2 controls a lighting group on the basis of the presence of persons and current brightness level.
	Constant light control without presence as factor	Lighting channel C2 controls a lighting group on the basis of the current brightness level.
	inactive	Lighting channel C2 is not used. The associated parameters and objects are not displayed.
Presence channel C4 function	active	The "Presence channel C4" parameter page is displayed. Presence channel C4 switches other devices such as HVAC systems on/off on the basis of presence of persons or delivers the presence information to higher-level systems (independently of brightness).
	inactive	The presence detector is not used for controlling HVAC applications.
Presence channel C5 function	active	The "Presence channel C5" parameter page is displayed. Presence channel C5 switches other devices such as HVAC systems on/off on the basis of presence of persons or delivers the presence information to higher-level systems (independently of brightness).
	inactive	The presence detector is not used for controlling HVAC applications.
Room monitoring channel C6 function	active	The presence detector delivers a presence signal with reduced sensitivity for room monitoring.
	inactive	The presence detector is not used for room monitoring.
Activation of test mode	**via object or remote control, max. 30 min**	An activated test mode will automatically be ended after expiry of the set time. See page 37 chapter 6 for description of the test modes.
	2 – 60 min	

2.4.2 Settings

Parameter name	Values	Meaning
Detection sensitivity	1–5	The detector has 5 sensitivity levels
		1 very insensitive
		2 insensitive
		3 standard
		4 sensitive
		5 very sensitive
		By selecting the operation mode test presence, the set sensitivity level is not changed.
	3 standard	The basic setting is the middle level (3).
Reducing detection sensitivity for room monitoring	1–3	In order to prevent false alarms, the sensitivity can be reduced in stages relative to the basic detection sensitivity.
		1 less
		2 standard
		3 intense
	2 standard	The basic setting is the middle level (2).
Parameter settings with download		The setting affects the following parameters: - Lighting channel C1, C2 brightness setpoint value - Lighting channel C1, C2 alternate brightness setpoint value - Lighting time delay - Room correction factor - Detection sensitivity - Scenario values
	Overwrite via download	The relevant parameter values (see above) in the presence detector are overwritten. Settings modified with the SendoPro 868-A management remote control or via a bus object are lost.
		The parameters set in the ETS are accepted.
	Unchanged via download	The relevant parameter values (see above) in the presence detector are unchanged. Settings modified with the SendoPro 868-A management remote control or via a bus object are retained.
Motion indicated by the LED	**no**	No display of motion. LED is switched off.
	yes	As soon as motion is detected, the LED illuminates. The LED remains on as long as motion is detected.

2.4.3 Brightness measurement

Parameter name	Values	Meaning
Brightness measurement source	**internal**	The presence detector measures the artificial light and daylight by means of an internal light measurement.
	external	The brightness value must be supplied via object 10. The optimal cycle time is about 1 s for changes greater than 5%.
Light measurement selection	**Use average light measurement**	The detector measures the artificial and natural light directly below the detector (beam angle for each approx. ± 25°). This light measurement cannot be changed. The light measurement area maps a rectangle of about 2 x 3.5 m at table height. During installation this rectangle can be adjusted with the help of the marking "window" / "inside" on the base plate.
Room correction factor	0.05–2	The room correction factor is a measure of the difference between brightness measurements at the ceiling and the work area. The brightness value measured at the ceiling is influenced by the installation point, light reception, position of the sun, weather conditions, the reflection properties of the room and furniture. The room correction factor allows the brightness measurement made 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 resonance detector. Standard value, suitable for most applications.
	0.3	**Adjustment of the brightness value measured by the detector** Procedure: 1. Measure the lux value below the presence detector with the aid of a lux meter 2. Send the measured lux value to the detector via the SendoPro 868-A management remote control or object 7. 3. The room correction factor is calculated automatically and saved. 4. For monitoring purposes, the room correction factor can be queried via the object 8. Please note: When the room correction factor is changed, the brightness setpoint value may lie outside the valid range. In this case, the brightness setpoint value is set automatically to the limit.
Set brightness measurement value via bus	yes **no**	Objects 7 measurement value on lux meter and 8 room correction factor are displayed.
Send brightness value on bus	yes	The measured brightness value is sent as a 2-byte telegram via bus object 9. The measured brightness value can be adjusted to the conditions in the room with the aid of the parameter <Room correction factor>. The parameters "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.
	no	The measured brightness value is not transmitted.
Transmit brightness value cyclically	5 s .... 30 min	The measured brightness value is transmitted cyclically at the selected time.
	every 1 min	Standard value
	no	The measured brightness value is not transmitted cyclically
Transmit brightness value upon change	>5% ... >80%	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 five seconds after the last transmission. This time setting cannot be changed.
	of >30%	Standard value
	no	The measured brightness value is not transmitted on the basis of a change in brightness.

2.4.4 Lighting channel C1

Parameter name	Values	Meaning
Configuration type	**Fully automatic**	In the "Fully automatic" <function mode>, the light channel automatically switches or controls the lighting on the basis of presence and surrounding brightness. Switching off occurs automatically.
	Semi-automatic	In the "semi-automatic" <function mode>, switching on must always be initiated manually via push button or remote control. Switching off occurs automatically.
		See also page 31 chapter 3
Brightness switching value Brightness setpoint value		Switch lights: The brightness switching value defines the minimum desired brightness. The current prevailing brightness is measured below the presence detector. If the prevailing brightness is below the switching value, the light switches on as soon as a presence is detected.
		Constant light control: The defined brightness setpoint value is established by controlling/ dimming the lights (objects 1 – 3 as well as 12 – 14).
	5–3000 lx	The brightness switching/setpoint value is adjustable in increments between 5–3000 lx.
	500 lx	Standard value.
	Measurement off (on the basis of presence only)	Switch lights: - The brightness switching value can be deactivated by means of the "Measurement off (on the basis of presence only)" setting.
		The SendoPro 868-A management remote control provides 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	Bus object 4 is visible and can be used.
	no	Bus object 4 is not available.
		Note: The brightness switching/setpoint value can always be set with the remote control.
Lighting time delay	30 s – 60 min	Switch-off delay time can be set for between 30 seconds and 60 minutes. Each detected motion restarts the time delay.
	10 min	
		The time delay adjusts to user behaviour through 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 auto-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 light channels C1, C2.
Set 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 the remote control.
Energy saving mode	**Eco**	The selection "ECO" assures optimal switching response of the presence detector. The time delay adjusts to user behaviour through 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.
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 and semi-automatic function modes)
	inactive	The switch-off delay time is used according to set parameters.
	active	If someone enters an unoccupied room and it is only occupied for up to 45 seconds, the light goes off 2 minutes early. Short-term presence is also applied if a push button is used to switch on the lights.

Parameter name	Values	Meaning
Select 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 appropriate 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 <Select brightness switching/setpoint value> is active. During operation, bus object 22 can be used to switch between the brightness switching/setpoint values.
	5–3000 lx **400 lx**	The alternative brightness switching/setpoint value can be set in stages between 5–3000 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 on the basis of presence. (possible only with the "Switch lights on/off" function)
Set Set brightness switching/setpoint value via bus		Parameter only available if "active" has been selected at <Select 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 in switching mode	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 timed out**	The set dimming value applies until the time delay elapses. Automatic operation then starts.
	15 min - 120 min	The set dimming value applies until the set time or the time delay elapses. Automatic operation then starts.
Lighting standby time	**inactive**	The standby function is not available.
	active	The standby function is available and the parameters are displayed.
Duration of lighting standby time	30 s – 60 min	The standby time causes both lighting groups to dim to the set standby dimming value instead of switching off when the time delay elapses. The standby time can be set for between 30 seconds and 60 minutes.
	30 min	Standard value
	on	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.

Parameter name	Values	Meaning
Standby dimming value	1 % – 25 % **10 %**	The dimming values for standby can be selected in stages 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. * all values except "OFF"
Activate blocking function	yes **no**	Disabling 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
Response at start of control	**value telegram**	Control is started with a value telegram. The actuator turns up the lights at the 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.
	ON telegram	Control is started with an ON telegram. The actuator switches on and turns up the lights abruptly or gradually to the value configured on the actuator. The switching response is significantly determined by the setting on the actuator. Example: If a switch-on value of 70% is configured on the actuator, control starts with this switch-on value, regardless of whether this value is above or below the setpoint value.
Control speed		This parameter is used to change the increment of the sent dimming value.
	Standard	Response is set to its optimum level. The change happens gradually and is almost imperceptible.
	moderate	The change happens with a somewhat larger increment.
	fast	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**	Control range:10% to 100%.
	User-defined	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
Response with manual dimming	office	Constant light control remains active temporarily after manual dimming to the current brightness value as the new setpoint value. After the time delay elapses, the originally configured setpoint value applies again.
	school	Constant light control is interrupted temporarily via manual dimming. The setpoint value remains unchanged.
Lighting standby time	**inactive**	The standby function is not available.
	active	The standby function is available and the parameters are displayed.

Parameter name	Values	Meaning
Duration of lighting stand-by time	30 s – 60 min	The standby time causes both lighting groups to dim to the set standby dimming value instead of switching off when the time delay elapses. The standby time can be set for between 30 seconds and 60 minutes.
	30 min	Standard value
	on	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 %	The dimming values for standby can be selected in stages from 1% to 25%.
	10 %	Standard value.
Activate blocking function	yes	Disabling 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.
	no	Standard value

2.4.7 Detail settings - Lighting channel C1 - Constant light control without presence as factor

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

Parameter name	Values	Meaning
Response at start of control	**value telegram**	Control is started with a value telegram. The actuator turns up the lights at the 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.
	ON telegram	Control is started with an ON telegram. The actuator switches on and jumps or dims up to the configured value. The switching response is significantly determined by the setting on the actuator. Example: If a switch-on value of 70% is configured on the actuator, control starts with this switch-on value, regardless of whether this value is above or below the setpoint value.
Control speed		This parameter is used to change the increment of the sent dimming value.
	Standard	Response is set to its optimum level. The change happens gradually and is almost imperceptible.
	moderate	The change happens with a somewhat larger increment.
	fast	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**	Control range:10% to 100%.
	User-defined	The upper and lower limits of the control range can be user-defined. The parameter page for "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
Response with manual dimming	office	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 applies again.
	school	Constant light control is interrupted temporarily by manual dimming until the controller is activated again via object. 24. The setpoint value remains unchanged.
Activate blocking function	yes	Disabling 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.
	no	Standard value

2.4.8 Lighting channel C1 - Blocking function

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

Parameter name	Values	Meaning
Lock telegram		Disabling the channel C1 light outputs means that the presence detector does not send telegrams via objects 0 to 2 although the evaluation of motion and brightness continues. The following channels are not affected by the disabling of lighting channel C1. - Presence channels C4, C5 - Room monitoring channel C6 Note: Switching on/off and dimming are still possible with the user remote control. **General enabling** All time delays are set to 0 when enabling. This causes the lighting to switch off immediately if the room is unoccupied. The lighting is not switched off if motion is detected with insufficient brightness.
	block with ON telegram	Lighting channel C1 is disabled with an ON telegram to the disable object. All telegrams are suppressed for the duration of the disabling. Lighting channel C1 is enabled with an OFF telegram. After being enabled, the detector sends the current status or continues the constant light control.
	block with OFF telegram	The C1 light output is disabled with an OFF telegram and enabled with an ON telegram.
Response at start of blocking	ON telegram	An ON telegram is sent at the start of blocking.
	OFF telegram	An OFF telegram is sent at the start of blocking.
	no telegram	No telegram is sent at the start of blocking.
	send X% value	A value between 10% and 100% can be sent in the switching mode with dimmable lighting or in the constant light control mode. The current status is always sent after enabling, for instance, an ON telegram with absence and insufficient brightness in switching mode.
The current status is sent at the end of the block. Notice: Blocking / unblocking also possible with scenes.		

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 C1 is adopted for lighting channel C2.
Brightness difference to channel C1		The brightness difference sets the varying light requirements of lighting group C2 in comparison to lighting group C1. Application: Two lighting groups are installed in an room with daylight. Lighting group C1 is near the window, lighting group C2 in the interior of the room.
	5%...120%	A positive value means that in the area of lighting group C2 more artificial light is required.
	0% synchronous	Synchronous means both lighting groups are switched or controlled together.
	-5%...-60%	A negative value means that in the area of lighting group C2 less artificial light is required than in the area of lighting group C1.
		See Chapter 2.4.4. Lighting channel C1, brightness switching value / setpoint value parameter.
Lighting time delay	same as lighting channel C1	The lighting time delay for lighting channel C2 is adopted from lighting channel C1.

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 in switching mode	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Switching" chapter, "Lighting dimmable in switching mode" parameter
Lighting standby time	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Switching" chapter, "Lighting standby time" parameter
Transmit channel C2 output value cyclically	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Switching" chapter, "Transmit channel C1 output value cyclically" parameter
Activate blocking function	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Switching" chapter, "Activate blocking function" parameter

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
Response at start of control	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control" chapter, "Response at start of control" parameter
Control speed	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control" chapter, "Control speed" parameter
Control range	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control" chapter, "Control range" parameter
Response with manual dimming	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control" chapter, "Response with manual dimming" parameter
Lighting standby time	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control" chapter, "Lighting standby time" parameter
Activate blocking function	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control" chapter, "Activate blocking function" parameter

2.4.12 Detail settings - Lighting channel C2 - Constant light control without presence as factor

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

Parameter name	Values	Meaning
Response at start of control	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control without presence as factor" chapter, "Response at start of control"parameter
Control speed	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control without presence as factor" chapter, "Control speed" parameter
Control range	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control without presence as factor" chapter, "Control range" parameter
Response with manual dimming	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control without presence as factor" chapter, "Response with manual dimming" parameter
Activate blocking function	are adopted from lighting channel C1	See "Detail settings - Lighting channel C1 - Constant light control without presence as factor" chapter, "Activate blocking function"parameter

2.4.13 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**	An inactive switch-on delay means the presence channel switches immediately on detection of motion.
	10 s – 30 min	A switch-on delay of 10 seconds to 30 minutes can be set for the presence channel. The presence channel does not switch immediately on detection of motion, but only after the switch-on delay elapses. 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.
Presence time delay	10 s – 120 min **15 min**	The switch-off delay time presence can be set for 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.

2.4.14 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	**Switching command** Value percentage value HVAC operating mode Scenario	Five telegram types are available
When presence detected At the end of the time delay		Presence channel C4, C5 is switched on only by presence without the influence of brightness.
	Do not send telegram	No telegram is sent on detection of motion or at the end of the time delay.
	send following telegram once	A telegram is sent once on detection of motion or at the end of the time delay (standard response).
	send cyclically	A telegram is sent cyclically on detection of motion or at the end of the time delay.
Telegram with switching command	OFF **ON**	Select at <Telegram type> "Switching command" Standard value
Telegram with value	0...255 **255**	Select at <Telegram type> "Value" Standard value
Telegram with percent value	0% ... 100% **100%**	Select at <Telegram type> "Percent value" Standard value
Telegram with HVAC	Comfort **Standby** temperature reduction at night frost / heat protection	Select at <Telegram type> "HVAC operating mode". These have the following byte values: Comfort: 1; Standby: 2; temperature reduction at night: 3; frost / heat protection: 4.
Telegram with scenario	Scenario 1 ... 64 **scenario 1** **scenario 2**	Select at <Telegram type> "Scenario" Standard value of telegram C4.1 or C5.1 Standard value of telegram C4.2 or C5.2
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.
Activate blocking function	yes.. **no**	Disabling presence channels C4 and C5 stops transmission of their telegrams. Presence channels C4, C5 are not disabled as standard. The telegrams are transmitted on detection of motion and after time delay elapses according to the configuration.

2.4.15 Presence channel C4, C5 - Blocking function

The parameter page is visible if "yes" has been set at the parameter <Activate blocking function>. See page 27 chapter 2.4.14

Parameter name	Values	Meaning
Lock telegram	**block with ON telegram**	Both presence channels C4, C5 are disabled via an ON telegram and enabled with an OFF telegram. The presence detector sends its current status after the enable process is completed.
	block with OFF telegram	Both presence channels C4, C5 are disabled via an OFF telegram and enabled with an ON telegram. The presence detector sends its current status after the enable process is completed.
Response at start of blocking	**No response**	No response after blocking.
	As when presence detected	Once the channels are disabled, the presence detector responds as when presence is detected.
	As at the end of the time delay	Once the channels are disabled, the presence detector responds as at the end of the time delay.

2.4.16 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)	On detection of motion, the room monitoring channel C6 sends an ON telegram and then an OFF telegram or no telegram after the time delay elapses.
	Cyclic with confirmation	The room monitoring channel C6 sends an ON telegram on detection of motion. It resends the ON telegram in cyclical intervals providing there is no confirmation.
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	Both ON and OFF telegrams are transmitted on selection of the 'switching (On / Off)' <Type of report>.
	Only send ON telegram	The OFF telegram is not transmitted at the end of presence.
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.
Response upon return of bus voltage	Room monitoring channel blocked	Room monitoring channel C6 is disabled at a restart after loss of bus voltage.
	Room monitoring channel unblocked	Room monitoring channel C6 is enabled at a restart after loss of 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 telegrams are transmitted with a cycle time between 30 seconds and 30 minutes.

2.4.17 Remote control

Parameter name	Values	Meaning
Allocation of IR group addresses		The IR group address of the presence detector and theSenda S user remote control must correspond so that lighting channels or external channels can be operated. For detailed information on the application of IR group addresses see chapter 7 „Integrating theSenda S user remote control" page 38 The IR group address defined in the ETS must be the same as the one set on theSenda S user remote control.
The left-hand row of buttons on the user remote control is used to control	**Lighting channel C1** Lighting channel C2 External 1 switching/dimming External blinds 1 inactive	Switching or dimming of lighting group C1 (visible when channel C1 is activated) Switching or dimming of lighting group C2 (visible when channel C2 is activated)
IR group address of the left-hand row of buttons	**I** II III All	An IR group address is allocated to each individual channel. The channel reacts to the commands from the user remote control.
The right-hand row of buttons on the user remote control is used to control	Lighting channel C1 **Lighting channel C2** External 2 switching/dimming External blinds 2 inactive	Switching or dimming of lighting group C1 (visible when channel C1 is activated) Switching or dimming of lighting group C2 (visible when channel C2 is activated)
IR group address of the right-hand row of buttons	I **II** III All	An IR group address is allocated to each individual channel. The channel responds to the commands from the user remote control

2.4.18 Scenarios

Parameter name	Values	Meaning
Scenario controls		The presence detector has a simple, internal scenario component. A scenario is used to store values (On, Off in the switching operating mode, percentage values in the constant light control operating mode) for the light outputs.
		End - Absent - ON with theSenda S user remote control (possible only for channels C1 and C2)
	Use internal scenarios	The <Set scenarios with> parameter is displayed.
		The scenarios can be retrieved by pressing the scenario buttons on theSenda S user remote control or via a telegram to the scenario object 42 (1 bit).
	send scenario number on bus	The <Scenario number button scenario 1> and <Scenario number button scenario 2> parameters are displayed.
		Scenario numbers can be allocated to the scenario 1 and scenario 2 buttons on theSenda S user remote control.
	inactive	Scenario controls are not supported.
Scenario number on user remote control Scenario button 1 Scenario number on user remote control Scenario button 2	**inactive**	No scenario number is sent.
	Scenarios 1-64	The set scenario number is sent via object 42 (1 byte) by pressing the scenario buttons on theSenda S user remote control.
Define scenarios with	**ETS**	This parameter is visible if the parameter <Scenario controls> is set to "Use internal scenarios". The following parameters are displayed: - <Scenario 1 output value, C1 lighting> - <Scenario 2 output value, C1 lighting> - <Scenario 1 output value, C2 lighting> - <Scenario 2 output value, C2 lighting>
		The output values are fixed by the values configured in the ETS.
	Remote control	The output values are stored with the user remote control. See theSenda S operating manual.
User remote control output value, scenario 1, channel C1	**Off**, On	Value of scenario 1, channel C1 in switching mode.
	Off, 1 % – 100 %, **30%**	Value of scenario 1, channel C1 in constant light control mode.
User remote control output value, scenario 2, channel C1	Off, **On**	Value of scenario 2, channel C1 in switching mode.
	Off, 1 % – 100 %, **70%**	Value of scenario 2, channel C1 in constant light control mode.
User remote control output value, scenario 1, channel C2	**Off**, On	Value of scenario 1, channel C2 in switching mode.
	Off, 1 % – 100 %, **30%**	Value of scenario 1, channel C2 in constant light control mode.
User remote control output value, scenario 2, channel C2	Off, **On**	Value of scenario 2, channel C2 in switching mode.
	Off, 1 % – 100 %, **70%**	Value of scenario 2, channel C2 in constant light control mode.

2.4.19 Scenario functions

Without disabling via external scenarios
If a scenario number is sent to the actuator and thereby influences the lighting group controlled by the presence detector, the presence detector is not disabled and continues controlling.

With disabling via external scenarios
Various functions of the presence detector can be disabled and the response affected in other ways on reception of a matching scenario number.

The presence detector can be disabled in a defined manner:

- for a defined period time
- until the presence detector is enabled

See parameter <Validity of block>

Parameter name	Values	Meaning
Scenario function 1 Scenario function 2 Scenario function 3 Scenario function 4 Scenario function 5 Scenario function 6 Scenario function 7 Scenario function 8		The presence detector can be disabled using 8 different scenario numbers.
	inactive	No scenario number that disables the presence detector is defined.
	Block lighting channels	Presence detector disabled. Push button operation is still possible.
	Unblock lighting channels	Presence detector enabled.
	Use internal scenario 1 / 2 output values	Use additional selection of internal scenarios.
	deactivate control	Control is stopped, object 2 / 13 no longer transmits telegrams. An OFF telegram is transmitted via object 0 / 11 after the time delay elapses.
	activate control	The constant light control is activated. The presence detector controls the lighting on the basis of the brightness.
Scenario number	1 .. 64	
Validity of block	1 h – 9 h	The presence detector remains disabled during the set time. Manual enabling is possible at any time: - Receipt of corresponding scenario number on bus object 30 - Enable command for lighting channels on bus object 28
	Until enabled	

3. Manual operation with push buttons

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

Manual operation apples 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 the "Switch lights" channel function, the presence detector responds as follows:

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

3.2 Manual operation via the switching function with dimmable lighting

If the lighting is operated manually via the "Switch lights" <Lighting channel C1/2 function> 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 remains switched on for 30 minutes if the room is occupied. The light measurement is reactivated after the 30 minutes. An OFF telegram is sent at sufficient brightness. If the room is vacated before the 30 minutes have expired, the light will switch off normally after the completion of the set switch-off delay time.
Dimming telegram (4 bit)	The lighting remains at the set dimming value for the configured time <Duration of manual override>.
Value telegram (1 byte)	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 elapses.
OFF telegram	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 elapsed.

3.3 Manual operation via constant light control control type

If the lighting is operated manually via the "Constant light control" <Lighting channel C1/2 function>, the presence detector responds as follows:

Push button operation	Response of lighting / presence detector
ON telegram	The constant light control is activated. The presence detector controls the lighting on the basis of the brightness. The two channels C1/C2 are always switched simultaneously.
Dimming telegram (4 bit)	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 elapses, the originally configured setpoint value applies again.
Value telegram (1 byte)	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 switch-off delay.
OFF telegram	The lighting remains switched off while the room is occupied. The detector returns to normal standard operating mode after the room is vacated and after expiry of the switch-off delay.

3.4 Manual operation via constant light control without presence as factor

If the lighting is operated manually via the "Constant light control without presence as factor" <Lighting channel C1/2 function>, the presence detector responds as follows:

Push button operation	Response of lighting / presence detector
ON telegram	The constant light control is activated. The presence detector controls the lighting on the basis of the brightness. The two channels C1/C2 are always switched simultaneously.
Dimming telegram (4 bit)	school: Constant light control is interrupted temporarily by manual dimming until the controller is activated again via object. 24. 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, the originally configured setpoint value applies again:
Value telegram (1 byte)	The lighting remains at the transmitted value until control is deactivated via object. 24.
OFF telegram	The lighting remains off until control is deactivated via object. 24.

3.5 Manual operation using two light outputs C1, C2

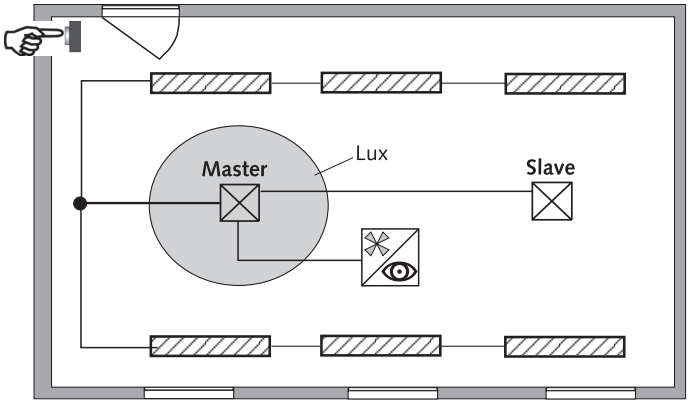
A separate push button with separate group address is used for for manual override each of the two lighting channels if the two lighting channels C1, C2 are used.
Each of the two lighting channels C1, C2 can be switched on or off separately with the switching type of control.
With the constant light control control type both A,B channels always switch on if one of the two push buttons is pressed. It is not possible to switch on just one of the two lighting groups. On the other hand, each channel can be switched off separately when using constant light control.
Channels C1, C2 can be dimmed separately.

4. Parallel switching

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

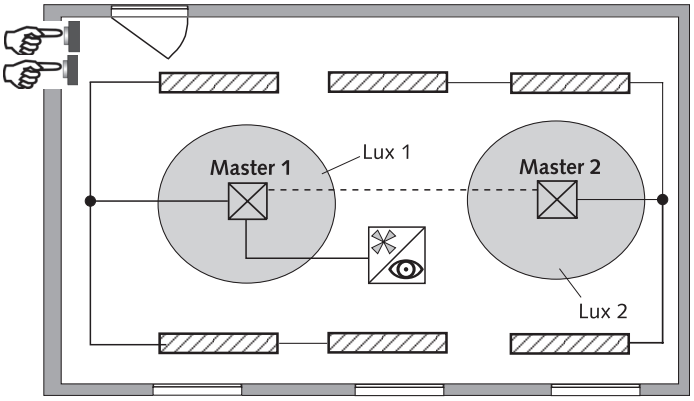
4.1 Master/Slave parallel connection

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



4.2 Master/Master parallel connection

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



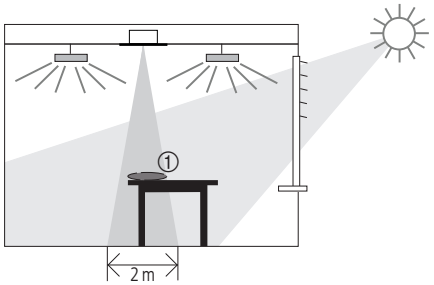
4.3 Telegram load using parallel connection

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

Parallel switching is supported by 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 current prevailing brightness is measured below the presence detector. If the prevailing brightness is below the set point , the light switches on as soon as a presence is detected.

The room correction factor is a measure of the difference between brightness measurements at the ceiling and the work area.

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

The room correction factor allows the brightness measurement made 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 ① measured on the surface below the resonance detector.

See <Room correction factor> parameter see page 19

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

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 (measured brightness value C1 or via object 7).
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 be automatically 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.

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 value	minimum
Upper dimming value	maximum
Switching-off response: 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 thePrema S360 KNX as follows to ensure perfect constant light control:

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

thePrema S360 KNX group addresses			
0	Switching	⇨	10/0/1
1	Brighter/darker	⇨	10/0/2
2	Send value	⇨	10/0/3
3	Feedback value	⇦	10/0/7

5.2.3 Actuators without separate object for status feedback (value)

Some actuators do not have a separate object for status feedback. They are connected to the thePrema S360 KNX as follows to ensure perfect constant light control:

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

thePrema S360 KNX group addresses			
0	Switching	⇨	10/0/1
1	Brighter/darker	⇨	10/0/2
2	Send value	⇨	10/0/3
3	Feedback value	⇦	10/0/7

*) set to sending.

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

x) Object in accordance with used product

NOTE: If a number of actuators are connected to the detector's light output, it is necessary to ensure identical configuration of the actuators. Exception: The read flag can be set on only one of the actuators per lighting group.

6. Test modes

The thePrema S360 KNX has two test modes.

- Presence test, page 37 chapter 6.1
- Light test, page 37 chapter 6.2

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

6.1 Presence test

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

Activation	- Presence test «On» control command via the "SendoPro 868-A" management remote control or the "Presence test" button on "theSenda P" installation remote control - A telegram via bus object (51) The presence test mode can be activated at anytime.
End	With subsequent restart: - Presence test «Off» control command via the "SendoPro 868-A" management remote control - Off telegram via bus object (51) - Power failure and power up - Automatically according to the time set with the ETS - Control command "Restart" (SendoPro) - Reset with theSenda P Without restart: - 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 close.
Off	After the movement stops, the LED is off and the channels C1, C2 open after approx. 10 s.

Test response

- Deactivate brightness measurement, light output does not react to brightness.
- The detector reacts as in fully automatic function mode even if semi-automatic is set.
- The control type changes to switching if the control type is set to constant light control. The light is not controlled.
- Light "On" during motion; light "Off" during absence
- Channels C1 and C2 have a fixed time delay of 10 s.
- The response of the presence and room monitoring channels remains unchanged as in normal operating mode.

Commands and other parameters

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

- End test presence
- Activate test light
- Change detection sensitivity

The selected detection sensitivity (1 . . 5) is unchanged on activation of the presence test. Sensitivity can be adjusted during the test. The presence detector performs a restart after the end of the test mode.

6.2 Test light

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

Activation	- Light test "On" control command via the "SendoPro 868-A" management remote control - A telegram via bus object (52) The light test mode can always be activated at anytime
End	With subsequent restart: - Light test "Off" control command via the "SendoPro 868-A" management remote control - Off telegram via bus object (52) - Power failure and power up - Automatically according to the time set with the ETS - Control command "Restart" (SendoPro) Without restart: - Activation of test presence with "SendoPro 868-A" management remote control

LED display	Description
Flashing, 5 s On/ 0.3 s Off	The LED flashes as long as the test light is active.

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

All selected functions and parameters remain unchanged

Commands and other parameters
The following commands are possible with the "SendoPro 868-A" management remote control in the light test mode:
- End test light
- Lighting channel C1 brightness setpoint value
- Activate test presence
- Brightness measurement value C1

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

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

7. Integrating theSenda S user remote control

See theSenda S operating manual as well

7.1 Performance characteristics of theSenda S

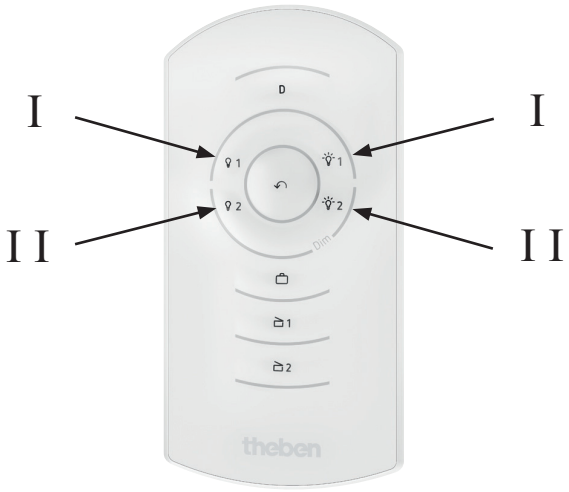
With theSenda S infrared remote control, lighting can be switched on/off and dimmed easily with thePrema S360 presence detector. theSenda S has two channels for controlling light groups, blinds or external channels with switching and dimming. theSenda S has the ability to store two different lighting scenarios that can be retrieved at the push of a button at any time.

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. Two 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.

Selection of 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 and cannot be changed. Further information can be found in the operating manual for theSenda S.



7.3 Examples of set IR group addresses

7.3.1 One presence detector, two lighting channels

Description	Using a theSenda S user remote control, two lighting channels can be controlled manually by one presence detector. Lighting channel C1 of the presence detector is controlled by channel 1 on theSenda S. Lighting channel C2 of the presence detector is controlled by channel 2 on theSenda S.

Devices	thePrema S360 KNX (Item No. 2079500) theSenda S (item No. 9070911)

Overview

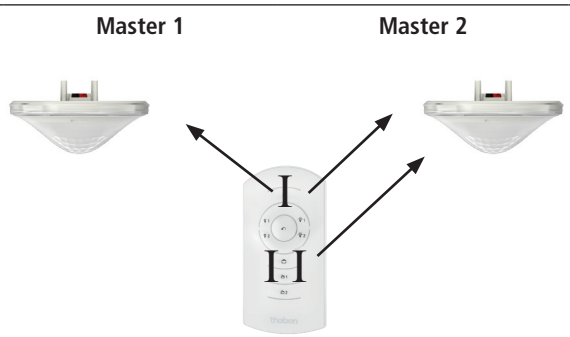
Parameter	thePrema S360 KNX Master		
	Parameter page	Parameter	Setting
	Remote control	The left-hand row of buttons on the user remote control is used to control	Lighting channel C1
		IR group address of the left-hand row of buttons	T
		The right-hand row of buttons on the user remote control is used to control	Lighting channel C2
		IR group address of the right-hand row of buttons	II

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

Description	One lighting channel on each of two presence detectors as well as the blinds channel on one presence detector can be controlled manually by a theSenda S user remote control. The respective C1 lighting channels on the two presence detectors are controlled by channel 1 on 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. The blinds are controlled by the Master 2 presence detector via channel 2 on theSenda S. Channel 2 commands are ignored by Master 1.

Devices	thePrema S360 KNX (Item No. 2079500) theSenda S (item No. 9070911)

Overview



Parameter

thePrema S360 KNX Master 1		
Parameter page	Parameter	Setting
Remote control	The left-hand row of buttons on the user remote control is used to control	Lighting channel C1
	IR group address of the left-hand row of buttons	T
thePrema S360 KNX Master 2		
Parameter page	Parameter	Setting
Remote control	The left-hand row of buttons on the user remote control is used to control	Lighting channel C1
	IR group address of the left-hand row of buttons	T
	The right-hand row of buttons on the user remote control is used to control	External blinds 2
	IR group address of the right-hand row of buttons	II

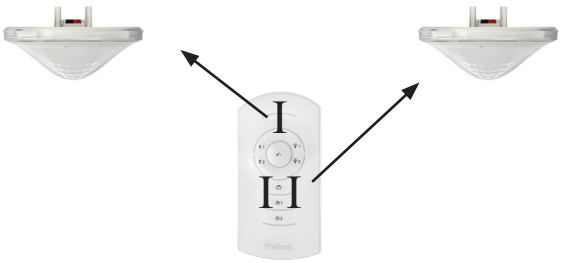
7.3.3 Two presence detectors with internal and external lighting channels

Description	One lighting channel each on two presence detectors can be controlled manually by a theSenda S user remote control. Lighting channel C1 on the Master 1 presence detector is controlled by channel 1 on theSenda S. Lighting channel C1 on the Master 2 presence detector is controlled by channel 2 on theSenda S. The lighting channels on the presence detectors are not influenced mutually by theSenda S commands.

Devices	thePrema S360 KNX (Item No. 2079500) theSenda S (item No. 9070911)

Overview

IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.
T	Lighting channel C1			Lighting channel C1	II



Parameter

thePrema S360 KNX Master 1		
Parameter page	Parameter	Setting
Remote control	The left-hand row of buttons on the user remote control is used to control	Lighting channel C1
	IR group address of the left-hand row of buttons	T
thePrema S360 KNX Master 2		
Parameter page	Parameter	Setting
	The right-hand row of buttons on the user remote control is used to control	Lighting channel C1
	IR group address of the right-hand row of buttons	II

7.3.4 Two presence detectors with one and two internal lighting channels

Description	The lighting channels on two presence detectors are influenced separately by two theSenda S user remote controls. Lighting channel C1 on the Master 1 presence detector is controlled by channel 1 on theSenda S 1. Lighting channel C1 on the Master 2 presence detector is controlled by channel 1 on theSenda S 2. Lighting channel C2 on the Master 2 presence detector is controlled by channel 2 on theSenda S 2.

Devices	thePrema S360 KNX (Item No. 2079500) theSenda S (item No. 9070911)

Overview

IR Grp. Addr.	Channel	Master 1	Master 2	Channel	IR Grp. Addr.
T	Lighting channel C1			Lighting channel C1	II
				Lighting channel C2	II

theSenda S 1 theSenda S 2

Parameter

thePrema S360 KNX
Master 1

Parameter page	Parameter	Setting
Remote control	The left-hand row of buttons on the user remote control is used to control	Lighting channel C1
	IR group address of the left-hand row of buttons	T

thePrema S360 KNX
Master 2

Parameter page	Parameter	Setting
Remote control	The left-hand row of buttons on the user remote control is used to control	Lighting channel C1
	IR group address of the left-hand row of buttons	II
	The right-hand row of buttons on the user remote control is used to control	Lighting channel C2
	IR group address of the right-hand row of buttons	II

For this example to function, Master 2 must not respond to the group address "I".

8. Troubleshooting

Fault / error	Cause
Light does not switch on and/or switches off if presence is detected and in darkness	Lux value is set too low; detector set on semi-automatic; light was switched off manually via push button or theSenda S; person not within detection range; obstruction(s) interrupting detection; time delay set too short
Light stays on with detection of presence despite sufficient brightness	Lux value is set too high; the light was just switched on manually via push button or remote control (wait 30 minutes); detector is in test mode
Light does not switch off and/or light switches on spontaneously when no one is present	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)	Malfunction during start-up phase or during operation; device is not fully functional!

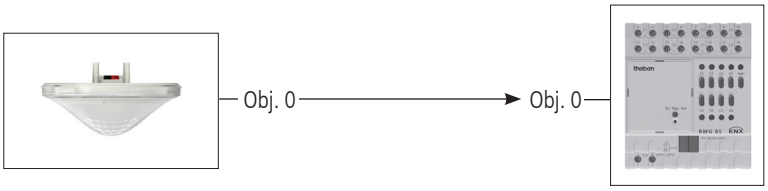
9. Appendix

9.1 Typical applications

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 share of daylight increases.

Devices	thePrema S360 KNX (Item No. 2079500) RMG 8 S KNX (Item No. 4930220)

Overview	

Links	thePrema S360 KNX		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

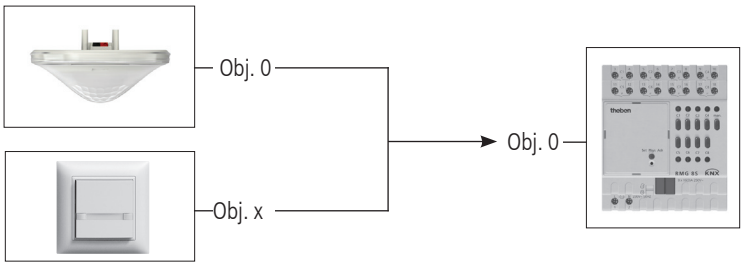
Parameter	thePrema S360 KNX		
	Parameter page	Parameter	Setting
	General	select	Master
		Master operating mode	Single unit operation
		Lighting channel C1 function	Switch lights on/off..
		Lighting channel C2 function	inactive
	Lighting channel C1	Configuration type	Fully automatic
		Brightness switching 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 function selection	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	The presence detector switches the lighting. The lighting can also be switched on and off manually. When the light is switched on via push button, the user has 30 minutes 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 detects that the room is occupied. The presence detector takes control only after the time delay has elapsed. It is also possible to operate the presence detector in semi-automatic mode. In this case, the lighting must always be switched on by hand; the detector does not switch the lighting on independently. The presence detector switches off the lighting as usual if there is sufficient daylight or if the room is unoccupied.

Devices	thePrema S360 KNX (Item No. 2079500) RMG 8 S KNX (Item No. 4930220)

Overview



Links

thePrema S360 KNX		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. key 1	0	RMG 8 S channel C1	Manual switching on and off via push button

Parameter

thePrema S360 KNX		
Parameter page	Parameter	Setting
General	select	Master
	Master operating mode	Single unit operation
	Lighting channel C1 function	Switch lights on/off..
	Lighting channel C2 function	inactive
Lighting channel C1	Configuration type	Fully automatic / semi-automatic
	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 function selection	Channel function	Switching On/Off

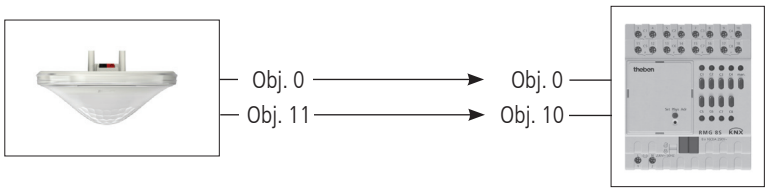
Standard or customer-defined parameter settings apply to unlisted parameters.

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.

Devices	thePrema S360 KNX (Item No. 2079500) RMG 8 S KNX (Item No. 4930220)

Overview



Links

thePrema S360 KNX		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

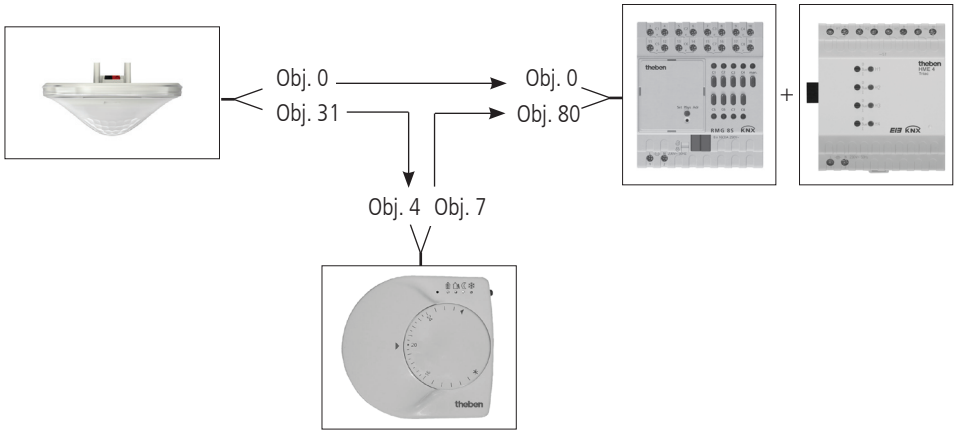
thePrema S360 KNX		
Parameter page	Parameter	Setting
General	select	Master
	Master operating mode	Single unit operation
	Lighting channel C1 function	Switch lights on/off..
	Lighting channel C2 function	Switch lights on/off..
Lighting channel C1	Configuration type	Fully automatic
	Brightness switching value	500 lx (e.g. for office application)
	Lighting time delay	10 min (as per customer specification)
Lighting channel C2	Brightness difference to channel C1	+ 20% (as per customer specification)
RMG 8 S		
Parameter page	Parameter	Setting
RMG 8 S channel C1 function selection	Channel function	Switching On/Off
RMG 8 S channel C2 function selection	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	The presence output on the detector is also used for heating control in addition to the presence and daylight-dependent switching of one or two lighting groups. The output is configured with a switch-on delay. In large rooms this switching can be extended with additional presence detectors (Master or Slave).

Devices	thePrema S360 KNX (Item No. 2079500) Mix combination: RMG 8 S + extension module HME 4 (item Nos. 4930220 + 4910211) Ramses 713 S KNX (Item No. 7139201)

Overview



Links

thePrema S360 KNX		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

thePrema S360 KNX		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 4 channel 1	RAM 713 sends the actuating value for heating to the heating actuator

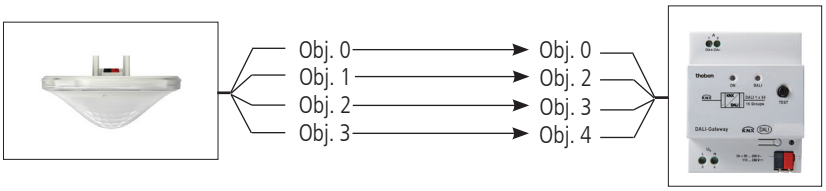
Parameter	thePrema S360 KNX		
	Parameter page	Parameter	Setting
	General	select	Master
		Master operating mode	Single unit operation
		Lighting channel C1 function	Switch lights on/off..
		Lighting channel C2 function	inactive
		Presence channel C4 function	active..
	Lighting channel C1	Configuration type	Fully automatic
		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
	select	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 4		
	Parameter page	Function	Setting
	General	Number of basic modules	RMG 8 S
		Type of 1st extension module	HME 4...
	RMG 8 S channel C1 function selection	Function	Switching On/Off
	HME 4 channel H1: Function selection	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 controls control lighting dependent on natural daylight if the room is occupied. Artificial light is automatically dimmed up with reducing levels of daylight, and with increasing levels of daylight the artificial light automatically dims down and finally switches off. The lighting is automatically switched off if the room is vacated.

Devices	thePrema S360 KNX (Item No. 2079500) DALI Gateway KNX (Item No. 9070722)

Overview



Links

thePrema S360 KNX		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

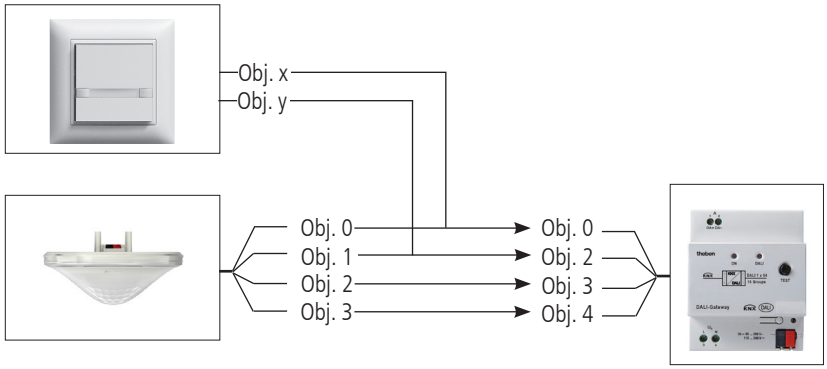
thePrema S360 KNX		
Parameter page	Parameter	Setting
General	select	Master
	Master operating mode	Single unit operation
	Lighting channel C1 function	Constant light control..
Lighting channel C1	Configuration type	Fully automatic
	Brightness setpoint value	500 lx (e.g. for office application)
	Time delay	10 min (as per customer specification)
Lighting channel C1 / Detail settings	Lighting standby time	active..
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
	transmit	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	The presence detector controls the lighting (see example of use, page 49 chapter 9.1.5). The lighting can also be switched and dimmed manually. Dimming via push button ends the control. The presence detector remains at the set dimming value while the room is occupied. When the light is switched off via push button, the lighting remains switched off as long as the presence detects that the room is occupied. The presence detector takes control only after the time delay has elapsed. It is also possible to operate the presence detector in semi-automatic mode. In this case, the lighting must always be switched on by hand; the detector does not switch the lighting on independently.

Devices	thePrema S360 KNX (Item No. 2079500) DALI Gateway KNX (Item No. 9070722)

Overview



Links

thePrema S360 KNX		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

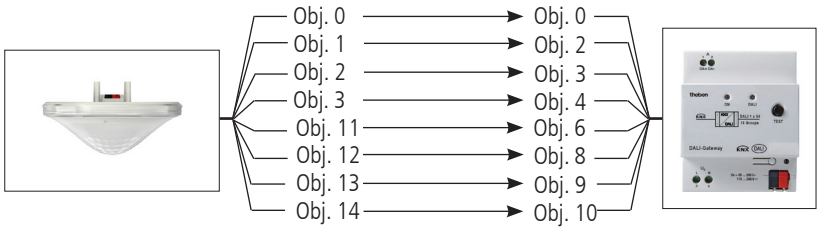
Parameter	thePrema S360 KNX		
	Parameter page	Parameter	Setting
	General	select	Master
		Master operating mode	Single unit operation
		Lighting channel C1 function	Constant light control..
	Lighting channel C1	Configuration type	Fully automatic
		Brightness setpoint value	500 lx (e.g. for office application)
		Time delay	10 min (as per customer specification)
	Lighting channel C1 / Detail settings	Lighting standby time	active..
	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
		transmit	on request
	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
	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 day light (see example 9.1.6). 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.

Devices	thePrema S360 KNX (Item No. 2079500) DALI Gateway KNX (Item No. 9070722)

Overview



Links

thePrema S360 KNX		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	

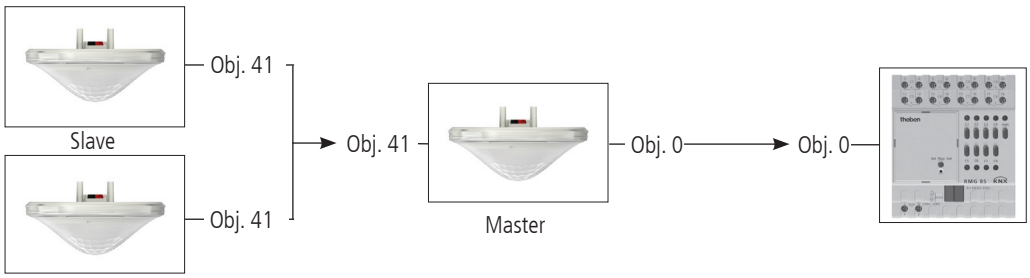
Parameter	thePrema S360 KNX		
	Parameter page	Parameter	Setting
	General	select	Master
		Master operating mode	Single unit operation
		Lighting channel C1 function	Constant light control..
		Lighting channel C2 function	Constant light control..
	Lighting channel C1	Configuration type	Fully automatic
		Brightness setpoint value	500 lx (e.g. for office application)
		Time delay	10 min (as per customer specification)
	Lighting channel C1 / Detail settings	Lighting standby time	active..
	Lighting channel C2	Brightness difference to channel C1	+ 20% (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
		transmit	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
		transmit	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 connection:

Description	A number of presence detectors can be linked together to provide coverage of large areas such as offices or corridors. One device is used as Master, the others as Slaves. The slaves trigger the master when motion is detected. All settings, possible delay times and brightness thresholds are configured on the Master. Master-Slave parallel switching can be used independently of whether the Master switches one or two lighting groups or operates in constant light control mode.

Devices	thePrema S360 KNX (Item No. 2079500) RMG 8 S (Item No. 4930220)

Overview



Links

thePrema S360 KNX		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

thePrema S360 KNX (Slaves)		thePrema S360 KNX (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

thePrema S360 KNX (Master)		
Parameter page	Parameter	Setting
General	select	Master
	Master operating mode	Parallel switching
	Lighting channel C1 function	Switch lights on/off..
	Lighting channel C2 function	inactive..
Lighting channel C1	Configuration type	Fully automatic
	Brightness setpoint value	500 lx (e.g. for office application)
	Time delay	10 min (as per customer specification)

thePrema S360 KNX (Slaves)		
Parameter page	Parameter	Setting
General	select	Slave

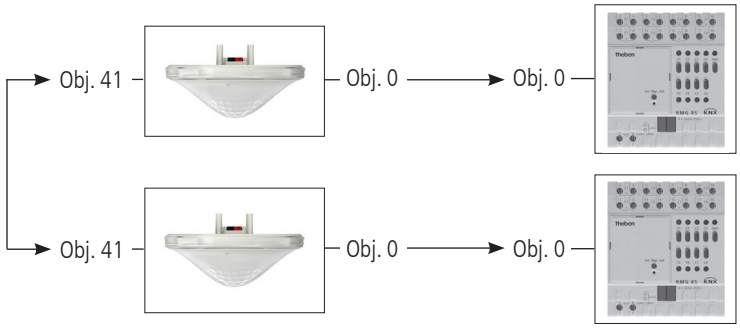
RMG 8 S		
Parameter page	Parameter	Setting
RMG 8 S channel C1 function selection	Channel function	Switching On/Off
Standard or customer-defined parameter settings apply to unlisted parameters.		

9.1.9 Master - Master parallel connection:

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

Devices	thePrema S360 KNX (Item No. 2079500) RMG 8 S (Item No. 4930220)

Overview



Links

thePrema S360 KNX		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

thePrema S360 KNX		thePrema S360 KNX		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

thePrema S360 KNX		
Parameter page	Parameter	Setting
General	select	Master
	Master operating mode	Parallel switching
	Lighting channel C1 function	Switch lights on/off..
	Lighting channel C2 function	inactive..
Lighting channel C1	Configuration type	Fully automatic
	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 function selection	Channel function	Switching On/Off

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