KNX Ceiling Type Presence Detector

Reference Manual

WRKT32005NC
WRKT32015NC
WRKT32025NC

V 1.01

Contents

1 Product description

1.1 *General information*

The device is a presence detector with integrated brightness sensor. Its power is supplied via KNX. The device can be programmed by ETS to transmit a data telegram when a movement is detected to control the lighting, blinds, or heating, for example. It can be also programmed to control dimmers to adjust the brightness in the room and keep it in a desired level. The device can also measure brightness, temperature, humidity and air quality and send it to another KNX devices (Some of these features depend on the product version, please see Product Version section). The device can be flushed-mounted or surface-mounted and it's designed for interior installation.

1.2 *Main features*

- The PIR sensor on the product has a moving lens (mechanical adjustment) and a shade ring allow users to easily customize the coverage area and detection range.
- RGB Led can be used to indicate movements or/and one of the measurements value.
- Mixed light measurement suitable for fluorescent (FL/PL/ESL), halogen/incandescent lamps and LEDs.
- KNX programming button of the product is under the front cover for easy access.
- Product can be flush mounted installed in ceilings with clamps.
- Ceiling installation is also possible with surface-mounted frame
- 8 independent channels can be used for presence or/and brightness dependent control for lighting, HVAC control etc...
- Test mode for checking function and detection area
- All sensors measurements can be calibrated before ETS programming by parameters or after ETS programming by communication objects
- Additional function for measurements
- Presence dependent channels can work in parallel (Master/ Slave or Master/Master)
- Short presence function reduces the time delay when device detects movement briefly
- Brightness switching value or set point value can be set in lux before ETS programming by parameters or after ETS programming by communication objects
- Channel's presence and brightness sources can be from internal or/and external sensors
- Independent lock function for each channel
- Channels can be programmed to work with manual switching/dimming (by push buttons for example).
- Scenes

1.3 *Technical information*

Supply voltage	21 … 32 V DC via KNX Bus
Operating temperature	-5°C … +45°C
Type of protection	IP 20 to EN60529
Safety class	III to IEC 60664-1
Detectable movement speed	0.3 m/s ~ 1.0 m/s
Detectable temperature difference	More than 4°C
Brightness measurement	1 to 3000 lux
Temperature measurement	0°C to 45°C
Relative humidity	0% to 100%
Air Quality, Equivalent carbon dioxide (eCO2)	400ppm to 8192 ppm.

1.4 *Product versions*

Product Features	WRKT32005NC KNX Ceiling Type Presence Detector A100	WRKT32015NC KNX Ceiling Type Presence Detector A100-T	WRKT32025NC KNX Ceiling Type Presence Detector A100-TA
Presence detection	✓	✓	✓
Brightness Measurement	✓	✓	✓
Temperature Measurement	-	✓	✓
Humidity Measurement	-	✓	✓
Air Quality Measurement	-	-	✓

1.5 *Dimensional drawings*
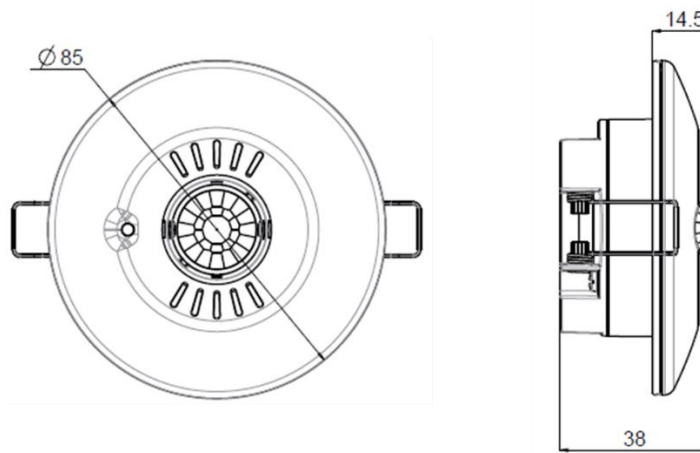
Figure 1 Top and side view of the presence detector
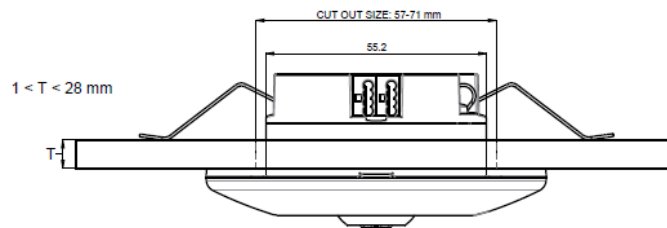
Figure 2 Flushed mounted presence detector
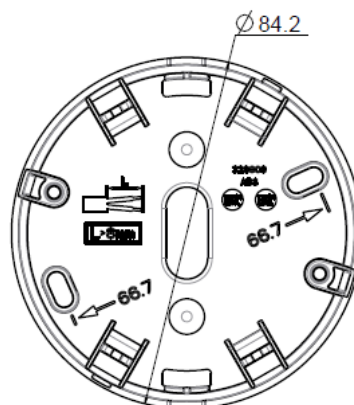
Figure 3 Surface mounting box

1.6 *Detection area*
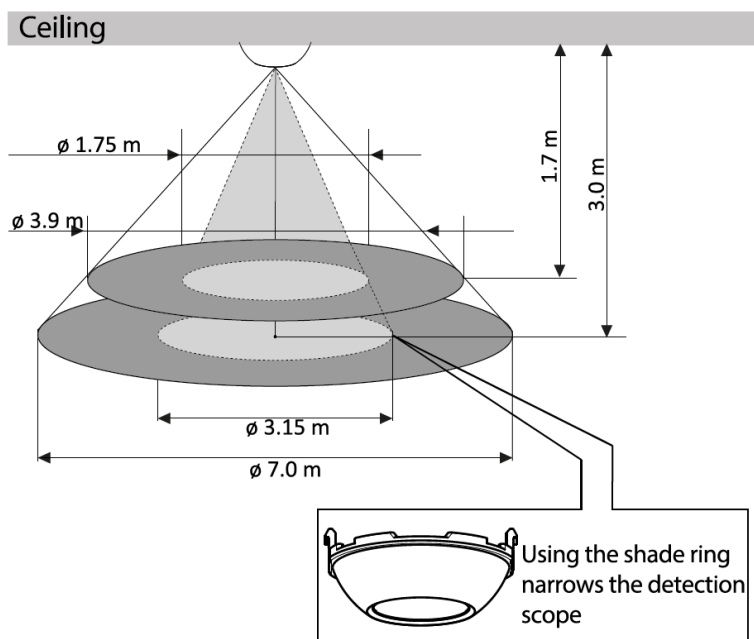
Figure 4 Presence detector - Detection area

The scope of detection is different depending on the height of the ceiling (Unit:m)

The shade ring can be used if the detection range of the motion sensor is wanted to be reduced. It can be mounted to the device by pushing it towards the lens.

Ceiling height	2.4	3.7
Guideline height for detection scope setting	1.7	3.0
Diameter of detection scope without shade ring	Ø 3.9	Ø 7.0
Diameter of detection scope with shade ring	Ø 1.75	Ø 3.15

Remark: The standard of appropriate height is 70 cm from floor or height from floor to hand of human for detection

The lens angle can be freely adjusted within the following range: 360° rotation, ±15° horizontal.
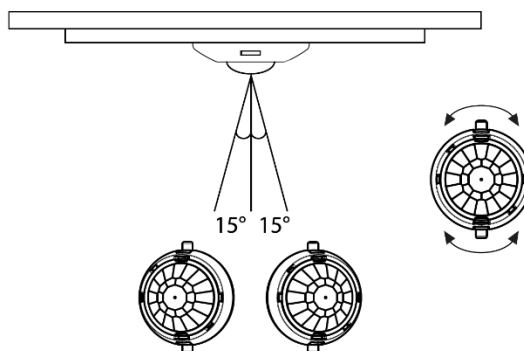
Figure 5 Lens angle adjustment

1.7 *Startup behavior*

- Factory Default
  In the delivered state, the device starts to work after 5 seconds in test mode. While the device is in test mode, the device's RGB LED displays the presence sensor state (flashes blue briefly with motion).
  Test mode can be disabled by ETS. Startup delay can be increased from ETS too. See General page parameters.

- ETS Programming
  User can define the device behavior and connect it to another KNX devices after programming it by ETS. The behavior of the device after programming with the ETS depends on the configuration. The description of the parameters and objects can be found in the next sections.

2 Product database

Manufacturer	Panasonic
Product family	Physical Sensors
Product type	Presence Detector
Product name	Ceiling Type Presence Detector A100 Ceiling Type Presence Detector A100-T Ceiling Type Presence Detector A100-TA

3 Communication objects

3.1 *Overview*

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
0	*Device Status*	Enable/Disable	1 Bit	1.003 DPT Enable	✓	✓	✓	✓	✓
1	*Test Mode*	Start/Stop Test Mode Timer	1 Bit	1.010 DPT Start/Stop	✓		✓		
5	*Brightness Calibration*	Brightness Calibration Input	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
6	*Brightness Value*	Brightness Output	2 Byte	9.004 DPT Brightness (Lux)	✓	✓		✓	
7	*Brightness Additional Function*	Send 1 Bit Send Scene Number Send Percentage Send 1 Byte	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	
7	*Brightness Low Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
8	*Brightness High Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
9	*Brightness Sensor Error*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
13	*Temperature Calibration*	Temperature Calibration Input	2 Byte	9.001 DPT Temperature (C)	✓		✓		
14	*Temperature Value*	Temperature Output	2 Byte	9.001 DPT Temperature (C)	✓	✓		✓	
15	*Temperature Additional Function*	Send 1 Bit Send Scene Number Send Percentage Send 1 Byte	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	
15	*Temperature Low Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
16	*Temperature High Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
17	*Temperature Sensor Error*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
21	*Humidity Calibration*	Humidity Calibration Input	2 Byte	9.007 DPT Humidity (%)	✓		✓		
22	*Humidity Value*	Humidity Output	2 Byte	9.007 DPT Humidity (%)	✓	✓		✓	
23	*Humidity Additional Function*	Send 1 Bit Send Scene Number Send Percentage Send 1 Byte	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	
23	*Humidity Low Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
24	*Humidity High Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
25	*Humidity Sensor Error*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
29	*Air Quality Calibration*	Air Quality Calibration Input	2 Byte	9.008 DPT parts/million (ppm)	✓		✓		
30	*Air Quality Value*	Air Quality Output	2 Byte	9.008 DPT parts/million (ppm)	✓	✓		✓	
31	*Air Quality Additional Function*	Send 1 Bit Send Scene Number Send Percentage Send 1 Byte	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	
31	*Air Quality Low Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	
32	*Air Quality High Level Alarm*	Send Alarm	1 Bit	1.005 DPT Alarm	✓			✓	

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
33	*Air Quality Sensor Error*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
35	*Channel 1 Lock*	*Lock Channel*	1 Bit	1.001 DPT Switch	✓	✓	✓	✓	✓
36	*Channel 1 External Presence Source*	*Presence Input*	1 Bit	1.018 DPT Occupancy	✓		✓	✓	✓
36	*Channel 1 External Presence Output*	*Presence Output*	1 Bit	1.018 DPT Occupancy	✓	✓		✓	
37	*Channel 1 External Presence Trigger*	*Trigger Output*	1 Bit	1.017 DPT Trigger	✓			✓	
37	*Channel 1 External Presence Trigger*	*Trigger Input / Output*	1 Bit	1.017 DPT Trigger	✓		✓	✓	✓
38	*Channel 1 External Brightness Source 1*	*Brightness Input*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓	✓	✓
39	*Channel 1 External Brightness Source 2*	*Brightness Input*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓	✓	✓
40	*Channel 1 Brightness Switch On Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
40	*Channel 1 Brightness Lower Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
40	*Channel 1 Brightness Setpoint*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
41	*Channel 1 Alternative Brightness Switch On Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
41	*Channel 1 Alternative Brightness Lower Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
41	*Channel 1 Alternative Brightness Setpoint*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
42	*Channel 1 Brightness Switch On Value*	*Select (0=Main, 1=Alternative)*	1 Bit	1.001 DPT Switch	✓		✓		
42	*Channel 1 Brightness Lower Value*	*Select (0=Main, 1=Alternative)*	1 Bit	1.001 DPT Switch	✓		✓		
42	*Channel 1 Brightness Setpoint*	*Select (0=Main, 1=Alternative)*	1 Bit	1.001 DPT Switch	✓		✓		
43	*Channel 1 Brightness Setpoint*	*Set Current Brightness Value as Setpoint*	1 Bit	1.001 DPT Switch	✓		✓		
44	*Channel 1 Delay After End of Detection*	*Select Delay Time Set Delay Time*	1 Bit 2 Byte	1.001 DPT Switch 7.005 DPT Time Period Sec	✓		✓	✓	✓
45	*Channel 1 Output A*	*Switch Scene Percentage 1 Byte Value 2 Byte Value Brightness Temperature Humidity Air Quality HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 1 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%) 9.008 DPT parts/million (ppm) 20.102 DPT HVAC Mode	✓			✓	
45	*Channel 1 Switching Output*	*Switch*	1 Bit	1.001 DPT Switch	✓			✓	
46	*Channel 1 Output B*	*Switch Scene Percentage 1 Byte Value 2 Byte Value Brightness Temperature Humidity Air Quality HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%)	✓			✓	

No	Object Name	Function	Size	Datapoint Type	C	R	W	T	U
			2 Byte	9.008 DPT parts/million (ppm)					
			1 Byte	20.102 DPT HVAC Mode					
46	*Channel 1 Dimming Output*	*Absolute Dimming*	1 Byte	5.001 DPT Percentage	✓		✓	✓	✓
47	*Channel 1 Output C*	*Switch* *Scene* *Percentage* *1 Byte Value* *2 Byte Value* *Brightness* *Temperature* *Humidity* *Air Quality* *HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 1 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%) 9.008 DPT parts/million (ppm) 20.102 DPT HVAC Mode	✓			✓	
48	*Channel 1 Output D*	*Switch* *Scene* *Percentage* *1 Byte Value* *2 Byte Value* *Brightness* *Temperature* *Humidity* *Air Quality* *HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 1 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%) 9.008 DPT parts/million (ppm) 20.102 DPT HVAC Mode	✓			✓	
49	*Channel 1 Manual Control Mode*	*Switch Input*	1 Bit	1.001 DPT Switch	✓		✓		
50	*Channel 1 Manual Control Mode*	*Dimming Input 4 Bit*	4 Bit	3.007 DPT Control Dimming	✓		✓		
51	*Channel 1 Manual Control Mode*	*Dimming Input 1 Byte*	1 Byte	5.001 DPT Percentage	✓		✓		
52	*Channel 1 Dimming Feedback*	*Feedback Input*	1 Byte	5.001 DPT Percentage	✓		✓	✓	✓
53	*Channel 1 Brightness Switch Off Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
53	*Channel 1 Brightness Higher Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
229	*Scene Status*	*Enable/Disable*	1 Bit	1.003 DPT Enable	✓	✓	✓	✓	✓
230	*Scene Lock*	*0/1*	1 Bit	1.001 DPT Switch	✓	✓	✓	✓	✓
231	*Scene Input*	*Scene Number*	1 Byte	17.001 DPT Scene Number	✓		✓		

3.2 *Communication object numbers for all channels*

Channel object name	Function	Channel Number							
		1	2	3	4	5	6	7	8
Channel x Lock	*Lock Channel*	35	55	75	95	115	135	155	175
Channel x External Presence Source	*Presence Input*	36	56	76	96	116	136	156	176
Channel x External Presence Output	*Presence Output*	36	56	76	96	116	136	156	176
Channel x External Presence Trigger	*Trigger Output* *Trigger Input / Output*	37	57	77	97	117	137	157	177
Channel x External Brightness Source 1	*Brightness Input*	38	58	78	98	118	138	158	178
Channel x External Brightness Source 2	*Brightness Input*	39	59	79	99	119	139	159	179
Channel x Brightness Switch On Value	*Set Value*	40	60	80	100	120	140	160	180
Channel x Brightness Lower Value	*Set Value*	40	60	80	100	120	140	160	180
Channel x Brightness Setpoint	*Set Value*	40	60	80	100	120	140	160	180
Channel x Alternative Brightness Switch On Value	*Set Value*	41	61	81	101	121	141	161	181
Channel x Alternative Brightness Lower Value	*Set Value*	41	61	81	101	121	141	161	181
Channel x Alternative Brightness Setpoint	*Set Value*	41	61	81	101	121	141	161	181
Channel x Brightness Switch On Value	*Select (0=Main, 1=Alternative)*	42	62	82	102	122	142	162	182
Channel x Brightness Lower Value	*Select (0=Main, 1=Alternative)*	42	62	82	102	122	142	162	182
Channel x Brightness Setpoint	*Select (0=Main, 1=Alternative)*	42	62	82	102	122	142	162	182
Channel x Brightness Setpoint	*Set Current Brightness Value as Setpoint*	43	63	83	103	123	143	163	183
Channel x Delay After End of Detection	*Select Delay Time* *Set Delay Time*	44	64	84	104	124	144	164	184
Channel x Output A	*Switch, Scene, Percentage, 1 Byte Value, 2 Byte Value, Brightness, Temperature, Humidity, Air Quality, HVAC Mode*	45	65	85	105	125	145	165	185
Channel x Switching Output	*Switch*	45	65	85	105	125	145	165	185
Channel x Output B	*Switch, Scene, Percentage, 1 Byte Value, 2 Byte Value, Brightness, Temperature, Humidity, Air Quality, HVAC Mode*	46	66	86	106	126	146	166	186
Channel x Dimming Output	*Absolute Dimming*	46	66	86	106	126	146	166	186
Channel x Output C	*Switch, Scene, Percentage, 1 Byte Value, 2 Byte Value, Brightness, Temperature, Humidity, Air Quality, HVAC Mode*	47	67	87	107	127	147	167	187
Channel x Output D	*Switch, Scene, Percentage, 1 Byte Value, 2 Byte Value, Brightness, Temperature, Humidity, Air Quality, HVAC Mode*	48	68	88	108	128	148	168	188
Channel x Manual Control Mode	*Switch Input*	49	69	89	109	129	149	169	189
Channel x Manual Control Mode	*Dimming Input 4 Bit*	50	70	90	110	130	150	170	190
Channel x Manual Control Mode	*Dimming Input 1 Byte*	51	71	91	111	131	151	171	191
Channel x Dimming Feedback	*Feedback Input*	52	72	92	112	132	152	172	192
Channel x Brightness Switch Off Value	*Set Value*	53	73	93	113	133	153	173	193
Channel x Brightness Higher Value	*Set Value*	53	73	93	113	133	153	173	193

3.3 *General communication objects*

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
0	*Device Status*	*Enable/Disable*	1 Bit	1.003 DPT Enable	✓	✓	✓	✓	✓

Sending disable telegram to this communication objects disables all functions of the device, sending enable reactivates all its functions again.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
1	*Test Mode*	*Start/Stop Test Mode Timer*	1 Bit	1.010 DPT Start/Stop	✓		✓		

This object is used to start the test mode manually. After a start telegram the device will enter the test mode and after test mode time it will return to work normally. A stop telegram forces the device to exit the test mode even if its time isn't elapsed.

3.4 *Measurements communication objects*

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
5	*Brightness Calibration*	*Brightness Calibration Input*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		
13	*Temperature Calibration*	*Temperature Calibration Input*	2 Byte	9.001 DPT Temperature (C)	✓		✓		
21	*Humidity Calibration*	*Humidity Calibration Input*	2 Byte	9.007 DPT Humidity (%)	✓		✓		
29	*Air Quality Calibration*	*Air Quality Calibration Input*	2 Byte	9.008 DPT parts/million (ppm)	✓		✓		

This object is visible only if "Calibration" parameter is set to "Via object" in the related measurement page. The user can use it to calibrate the measurement output by measuring the actual measurement value via an external device like lux meter or temperature meter then writing this value to the related object (ETS -> Diagnostics -> Group Monitoring can be used for writing operation). The presence detector will receive the value and calibrate its measurement output automatically.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
6	*Brightness Value*	*Brightness Output*	2 Byte	9.004 DPT Brightness (Lux)	✓	✓		✓	
14	*Temperature Value*	*Temperature Output*	2 Byte	9.001 DPT Temperature (C)	✓	✓		✓	
22	*Humidity Value*	*Humidity Output*	2 Byte	9.007 DPT Humidity (%)	✓	✓		✓	
30	*Air Quality Value*	*Air Quality Output*	2 Byte	9.008 DPT parts/million (ppm)	✓	✓		✓	

This object is available if "Send value" parameter is set to "On change" or "Cyclically".
The device uses this object to send the measurement value that is measured by the internal sensor after calibrating it. Each measurement value can be calibrated via "Adjustment factor" parameter or via "Calibration" object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
7	*Brightness Additional Function*	*Send 1 Bit* *Send Scene Number* *Send Percentage* *Send 1 Byte*	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	
15	*Temperature Additional Function*	*Send 1 Bit* *Send Scene Number* *Send Percentage* *Send 1 Byte*	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	
23	*Humidity Additional Function*	*Send 1 Bit* *Send Scene Number* *Send Percentage* *Send 1 Byte*	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	
31	*Air Quality Additional Function*	*Send 1 Bit* *Send Scene Number* *Send Percentage* *Send 1 Byte*	1 Bit 1 Byte 1 Byte 1 Byte	1.001 SPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.* DPT 8-bit unsigned value	✓			✓	

This object is visible only if "additional function" parameter is set to "Send 1 bit value", "Send scene number", "Send percentage" or "Send 1 byte value" in the related measurement page.

When the measurement value changes this object sends telegrams with specific type and values according to the additional function parameters that is set by the user in the related measurement page.

No	Object Name	Function	Size	Datapoint Type	C	R	W	T	U
							Flags		
7	*Brightness Low Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
8	*Brightness High Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
15	*Temperature Low Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
16	*Temperature High Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
23	*Humidity Low Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
24	*Humidity High Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
31	*Air Quality Low Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
32	*Air Quality High Level Alarm*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	

These objects are visible only if "additional function" parameter value is "Alarm function" in the related measurement page.

"High Level Alarm" object sends "Alarm" telegram when the measurement value exceeds the high level value and "No Alarm" telegram when the measurement value returns below it.

"Low Level Alarm" object sends "Alarm" telegram when the measurement value goes below the low level value and "No Alarm" telegram when the measurement value returns above it.

A "Hysteresis" value is taken into the account while this function is used.

Low level value, high level value and hysteresis value can be set in the related measurement parameter page.

No	Object Name	Function	Size	Datapoint Type	C	R	W	T	U
							Flags		
9	*Brightness Sensor Error*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
17	*Temperature Sensor Error*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
25	*Humidity Sensor Error*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	
33	*Air Quality Sensor Error*	*Send Alarm*	1 Bit	1.005 DPT Alarm	✓			✓	

This object is used to warn the user when the device isn't able to read measurement value from the related internal sensor.

3.5 *Channels communication objects*

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
35, 55, 75, 95, 115, 135, 155, 175	*Channel x Lock*	*Lock Channel*	1 Bit	1.001 DPT Switch	✓	✓	✓	✓	✓

This object is used to enable or disable the lock function of the channel. The parameter "Lock is active with telegram value" is used to set whether the detector is locked when a "0" is received or when a "1" is received.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
36, 56, 75, 96, 116, 136, 156, 176	*Channel x External Presence Source*	*Presence Input*	1 Bit	1.018 DPT Occupancy	✓		✓	✓	✓

This object is visible only if the channel depends on presence and "Source of presence" parameter value is "External" or "Both".
It is used when an external source will be used as a presence source. Receiving an "Occupied" telegram triggers the channel's function and the control process starts according to the configuration. The control stops when the delay time after end of detection is elapsed after receiving a "Not Occupied" telegram.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
36, 56, 75, 96, 116, 136, 156, 176	*Channel x External Presence Output*	*Presence Output*	1 Bit	1.018 DPT Occupancy	✓	✓		✓	

This object is visible only if the channel function is "Presence detection", its mode is slave and "Use external presence output object" parameter value is "Yes" in "Presence Slave" page.
An "Occupied" telegram is sent as soon as a presence is detected. A "Not occupied" telegram is sent after a delay time when the detection is stopped. If the related channel depends on presence and brightness, the controller takes brightness lower and higher values into account.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
37, 57, 77, 97, 117, 137, 157, 177	*Channel x External Presence Trigger*	*Trigger Output*	1 Bit	1.017 DPT Trigger	✓			✓	

This object is available if the channel function is "Presence detection" and its mode is slave.
This object sends "Trigger" telegrams cyclically to trigger the master as long as a presence is detected. The delay between two trigger telegrams is determined with "Trigger cycle time" parameter.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
37, 57, 77, 97, 117, 137, 157, 177	*Channel x External Presence Trigger*	*Trigger Input / Output*	1 Bit	1.017 DPT Trigger	✓		✓	✓	✓

This object is available if the channel function is "Presence detection" and its mode is Master-Parallel, or if its function is "On-off light control" or "Constant light control", the control depends on presence and "Presence trigger" parameter value is enabled.

The channel can be triggered from external via this object. This means, as soon as the detector receives "Trigger" telegram via this object, channel's control process starts according to the configuration. If the channel has already been triggered and no another trigger telegram is received before the delay time after end of detection, channel's controller stops according to the configuration.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
38, 58, 78, 98, 118, 138, 158, 178	*Channel x External Brightness Source 1*	*Brightness Input*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓	✓	✓
39, 59, 79, 99, 119, 139, 159, 179	*Channel x External Brightness Source 2*	*Brightness Input*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓	✓	✓

These objects are available if the channel control depends on brightness and the brightness source is "External" or "Weighted".

These objects feed values from an external brightness measuring device to be used instead of or along with the internal brightness measurements.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
40, 60, 80, 100, 120, 140, 160, 180	*Channel x Brightness Switch On Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Presence detection" or "On-off light control", the control depends on brightness and "Set brightness switch on value via bus" parameter is set to "Yes".

This object enables changing of "Brightness switch on value" parameter value during operation. The received value will be saved to be used even after a power failure.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
40, 60, 80, 100, 120, 140, 160, 180	*Channel x Brightness Lower Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Presence detection", its mode is slave, the control depends on brightness and "Set brightness lower value via bus" parameter is set to "Yes".

This object enables changing of "Start sending triggers if brightness is lower than" parameter value during operation. The received value will be saved to be used even after a power failure.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
40, 60, 80, 100, 120, 140, 160, 180	*Channel x Brightness Setpoint*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Constant light control" and "Set brightness setpoint value via bus" parameter is set to "Yes".

This object enables changing of "Brightness setpoint value" parameter value during operation. The received value will be saved to be used even after a power failure.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
41, 61, 81, 101, 121, 141, 161, 181	*Channel x Alternative Brightness Switch On Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Presence detection" or "On-off light control", the control depends on brightness and "Set alternative switch on value via bus" parameter is set to "Yes".

This object enables changing of "Alternative brightness switch on value" parameter value during operation. The received value will be saved to be used even after a power failure.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
41, 61, 81, 101, 121, 141, 161, 181	*Channel x Alternative Brightness Lower Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Presence detection", its mode is slave, the control depends on brightness and "Set alternative brightness lower value via bus" parameter is set to "Yes".

This object enables changing of "Alternative brightness lower value" parameter value during operation. The received value will be saved to be used even after a power failure.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
41, 61, 81, 101, 121, 141, 161, 181	*Channel x Alternative Brightness Setpoint*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Constant light control" and "Set alternative setpoint value via bus" parameter is set to "Yes".

This object enables changing of "Alternative brightness setpoint value" parameter value during operation. The received value will be saved to be used even after a power failure.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
42, 62, 82, 102, 122, 142, 162, 182	*Channel x Brightness Switch On Value*	*Select (0=Main, 1=Alternative)*	1 Bit	1.001 DPT Switch	✓		✓		

This object is available if the channel function is "Presence detection" or "On-off light control", the control depends on brightness and "Use alternative brightness switch on value" parameter is set to "Yes".

Depending on the configuration, it is possible to switch between two brightness switch on values. A "1" telegram to this object switches to the alternative brightness switch on value. A "0" telegram switches back to the main brightness switch on value.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
42, 62, 82, 102, 122, 142, 162, 182	*Channel x Brightness Lower Value*	*Select (0=Main, 1=Alternative)*	1 Bit	1.001 DPT Switch	✓		✓		

This object is available if the channel function is "Presence detection", its mode is slave, the control depends on brightness and "Use alternative brightness lower value" parameter is set to "Yes".

Depending on the configuration, it is possible to switch between two brightness lower values. A "1" telegram to this object switches to the alternative brightness lower value. A "0" telegram switches back to the main brightness lower value.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
42, 62, 82, 102, 122, 142, 162, 182	*Channel x Brightness Setpoint*	*Select (0=Main, 1=Alternative)*	1 Bit	1.001 DPT Switch	✓		✓		

This object is available if the channel function is "Constant light control" and "Use alternative setpoint value" parameter is set to "Yes".

Depending on the configuration, it is possible to switch between two brightness setpoints values. A "1" telegram to this object switches to the alternative brightness setpoint value. A "0" telegram switches back to the main brightness setpoint.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
43, 63, 83, 103, 123, 143, 163, 183	*Channel x Brightness Setpoint*	*Set Current Brightness Value as Setpoint*	1 Bit	1.001 DPT Switch	✓		✓		

This object is available if the channel function is "Constant light control" and "Set current brightness as setpoint via object" parameter value is set to "Yes".

When any value is written to this object, the current measured brightness value – with respect to "Source of brightness" parameter - is saved as the new brightness setpoint of the control.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
44, 64, 84, 104, 124, 144, 164, 184	*Channel x Delay After End of Detection*	*Select Delay Time*	1 Bit	1.001 DPT Switch	✓		✓	✓	✓

This object is available if the channel controller depends on presence and "Delay after end of detection" parameter value is "Two delay times".

Sending "0" selects the preconfigured "Delay time (0)" and sending "1" selects "Delay time (1)" as the delay time after end of detection of the channel.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
44, 64, 84, 104, 124, 144, 164, 184	*Channel x Delay After End of Detection*	*Set Delay Time*	2 Byte	7.005 DPT Time Period Sec	✓		✓	✓	✓

This object is available if the channel controller depends on presence and "Delay after end of detection" parameter value is "Variable delay time".

The user can adjust "Delay time" parameter value from bus via this object.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
45, 65, 85, 105, 125, 145, 165, 185	*Channel x Output A*	*Switch* *Scene* *Percentage* *1 Byte Value* *2 Byte Value* *Brightness* *Temperature* *Humidity* *Air Quality* *HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 1 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%) 9.008 DPT parts/million (ppm) 20.102 DPT HVAC Mode	✓			✓	

This object is visible if channel function is "On-off light control" or "Presence detection" and it's in master mode.

Depending on the settings, this object sends a specific value to the bus at the beginning of the control. The controller can be started when a presence is detected, an external trigger is received or when the brightness value becomes under the switch on value.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
45, 65, 85, 105, 125, 145, 165, 185	*Channel x Switching Output*	*Switch*	1 Bit	1.001 DPT Switch	✓			✓	

This object is visible if the channel function is "Constant right control" and "Control starts and ends with" parameter value is "Switching telegram".

Considering "Control depends on" parameter value, the channel sends an "On" telegram when the control process starts and "Off" telegram when the control process stops to switch the light.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
46, 66, 86, 106, 126, 146, 166, 186	*Channel x Output B*	*Switch* *Scene* *Percentage* *1 Byte Value* *2 Byte Value* *Brightness* *Temperature* *Humidity* *Air Quality* *HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 1 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%) 9.008 DPT parts/million (ppm) 20.102 DPT HVAC Mode	✓			✓	

This object is visible if the channel function is "On-off light control" or "Presence detection" and in master mode and "Send second telegram (B)" parameter value is "Yes".

Depending on the settings, this object sends a specific value to the bus at the beginning of the control. Telegram B is sent after telegram A and the delay time between them is configurable with "Delay before telegram B" parameter.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
46, 66, 86, 106, 126, 146, 166, 186	*Channel x Dimming Output*	*Absolute Dimming*	1 Byte	5.001 DPT Percentage	✓		✓	✓	✓

This object is visible if the channel function is "Constant right control". Via this object the controller sends the dimming values for the main lighting group.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
47, 67, 87, 107, 127, 147, 167, 187	*Channel x Output C*	*Switch* *Scene* *Percentage* *1 Byte Value* *2 Byte Value* *Brightness* *Temperature* *Humidity* *Air Quality* *HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 1 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%) 9.008 DPT parts/million (ppm) 20.102 DPT HVAC Mode	✓			✓	

This object is visible if channel function is "On-off light control" or "Presence detection" and it's in master mode.
Depending on the settings, this object sends a specific value to the bus at the ending of the control.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
48, 68, 88, 108, 128, 148, 168, 188	*Channel x Output D*	*Switch* *Scene* *Percentage* *1 Byte Value* *2 Byte Value* *Brightness* *Temperature* *Humidity* *Air Quality* *HVAC Mode*	1 Bit 1 Byte 1 Byte 1 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 1 Byte	1.001 DPT Switch 17.001 DPT Scene Number 5.001 DPT Percentage 5.010 DPT Value 1 Ucount 7.001 DPT Value 2 Ucount 9.004 DPT Brightness (Lux) 9.001 DPT Temperature (C) 9.007 DPT Humidity (%) 9.008 DPT parts/million (ppm) 20.102 DPT HVAC Mode	✓			✓	

This object is visible if channel function is "On-off light control" or "Presence detection" and it's in master mode and "Send second telegram (D)" parameter value is "Yes".
Depending on the setting, this object sends a specific value to the bus at the ending of the control. Telegram D is sent after telegram C and the delay time between them is configurable with "Delay before telegram D" parameter.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
49, 69, 89, 109, 129, 149, 169, 189	*Channel x Manual Control Mode*	*Switch Input*	1 Bit	1.001 DPT Switch	✓		✓		

This object is visible if the channel isn't in slave mode and "Manual control mode" parameter value isn't "Don't use manual control mode".
This object is used when the presence detector is supposed to work in parallel with a device (push button for example) that controls the same light. In such cases like this, the manual control mode object must be connected to the same group address of the light switching object (Note that A, B, C, D or switching output objects shouldn't be connected to this group address). Any value is sent to this object informs the detector to enter manual control mode or reset its timer if "Exit manual control mode after fixed time" is selected in General parameter page.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
50, 70, 90, 110, 130, 150, 170, 190	*Channel x Manual Control Mode*	*Dimming Input 4 Bit*	4 Bit	3.007 DPT Control Dimming	✓		✓		

This object is visible if the channel isn't in slave mode, "Manual control mode" parameter value isn't "Don't use manual control mode" and "Use with dimmable light" parameter value is "Yes".

This object is used when the presence detector is supposed to work in parallel with a device (push button for example) that controls the same light. In such cases like this, the manual control mode object must be connected to the same group address of the device relative dimming (darker/brighter) object (Note that the channel A, B, C, D objects shouldn't be connected to this group address Any value is sent to this object informs the detector to enter manual control mode or reset its timer if "Exit manual control mode after fixed time" is selected in General parameter page.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
51, 71, 91, 111, 131, 151, 171, 191	*Channel x Manual Control Mode*	*Dimming Input 1 Byte*	1 Byte	5.001 DPT Percentage	✓		✓		

This object is visible if the channel isn't in slave mode, "Manual control mode" parameter value isn't "Don't use manual control mode" and "Use with dimmable light" parameter value is "Yes".

This object is used when the presence detector is supposed to work in parallel with a device (push button for example) that controls the same light. In such cases like this, the manual control mode object must be connected to the same group address of the device absolute dimming (percentage) object (Note that the channel A, B, C, D or dimming objects shouldn't be connected to this group address). Any value is sent to this object informs the detector to enter manual control mode or reset its timer if "Exit manual control mode after fixed time" is selected in General parameter page.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
52, 72, 92, 112, 132, 152, 172, 192	*Channel 1 Dimming Feedback*	*Feedback Input*	1 Byte	5.001 DPT Percentage	✓		✓	✓	✓

This object is visible if the channel function is "Constant light control", or if "Manual control mode" parameter value isn't "Don't use manual control mode" and "Use with dimmable light" parameter value is "Yes".

This object must be linked with the feedback object of the dimmer actuator to keep the detector updated with the light dimming level.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
53, 73, 93, 113, 133, 153, 173, 193	*Channel x Brightness Switch Off Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Presence detection" or "On-off light control, the control depends on brightness and "Set brightness switch off value via bus" parameter is set to "Yes".

This object enables changing of "Brightness switch off value" parameter value during operation. The received value will be saved to be used even after a power failure.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
53, 73, 93, 113, 133, 153, 173, 193	*Channel x Brightness Higher Value*	*Set Value*	2 Byte	9.004 DPT Brightness (Lux)	✓		✓		

This object is available if the channel function is "Presence detection", its mode is slave, the control depends on brightness and "Set brightness higher value via bus" parameter is set to "Yes".

This object enables changing of "Stop sending triggers if brightness is higher than" parameter value during operation. The received value will be saved to be used even after a power failure.

3.6 *Scene communication objects*

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
229	*Scene Status*	*Enable/Disable*	1 Bit	1.003 DPT Enable	✓	✓	✓	✓	✓

This object is visible if "Scene input" parameter value is "Enabled" in "General" page.
This object enables or disables the whole scene function. If the scene function is disabled, any scene number transmitted to "Scene Input" will be ignored.

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
230	*Scene Lock*	*0/1*	1 Bit	1.001 DPT Switch	✓	✓	✓	✓	✓

This object is visible if "Scene input" parameter value is "Enabled" in "General" page.
Sending "0" to this object locks scene functions which its "Lock via object" parameter value is "Yes when object = 0", Sending "1" locks scene functions which its "Lock via object" parameter value is "Yes when object = 1".

No	Object Name	Function	Size	Datapoint Type	Flags				
					C	R	W	T	U
231	*Scene Input*	*Scene Number*	1 Byte	17.001 DPT Scene Number	✓		✓		

This object is visible if "Scene input" parameter value is "Enabled" in "General" page.
The behavior of the presence detector can be changed with 8 different scene functions. The scene function will start when a scene is called with "Scene number" parameter value via this object.

4 Parameters

4.1 *General page parameters*

Name	Values	Description
Test mode	**Disabled** Enabled	This parameter is used to enable or disable test mode. If it's enabled "Test time" parameter is displayed. In test mode a blue led will turn on when a movement is detected, and all device operations will be deactivated temporary. The presence detector enters test mode in two ways: 1- Automatically after the startup delay at every power up. 2- Manually by sending "Start" to "Test Mode" object. The presence detector will stay in test mode until test time is finished.
Test time	1…**5**…255	A started test mode will automatically be ended after expiry of the test time, and the detector will return to operate normally.
Startup Delay	**5**…255 s	This parameter defines the delay time for startup in seconds.
Device status after bus voltage return	**Enabled** Disabled As before bus failure Query via bus	The presence detector can be disabled/enabled from "Device Status" object. This parameter determines the device status after bus voltage return. If "Query via bus" is chosen, the device will send a read request for "Device Status" object. If no response is received, its status will be enabled.
Notification led is used for	**Disabled** Presence only, Red Presence only, Green Presence only, Blue Brightness monitoring only Temperature monitoring only Humidity monitoring only Air quality monitoring only Brightness monitoring and presence Temperature monitoring and presence Humidity monitoring and presence Air quality monitoring and presence	If the notification led is chosen to be used for presence detection only, the led turns on with the selected color when a movement is detected. When the movement stops the led turns off. If the led is chosen to monitor a measurement only, the led will glow in these colors: 1- Green, if the measurement value is under the low level value 2- Orange, if the measurement value is between the low level and the high level values 3- Red, if the measurement value is above the high level value. If the led is chosen to monitor a measurement and presence detection, the led will glow like explained above and will start to flash when a movement is detected. The user can set the low and high levels values in the related measurement page under additional function parameter. Note: Some of this parameter values may not be visible according to the product version. Please see "Product versions" section.
Notification led brightness	1…**50**…100%	This parameter determines the brightness of the notification led if it isn't disabled.

Name	Values	Description
Channel 1…8	Disabled Presence detection On-off light control Constant light control	This parameter is used to select the function of the channel.
Scene Input	**Disabled** Enabled	This parameter is used to activate scene functions and enable scene inputs.
Measurements calibration values at download	Unchanged via download **Overwrite via download**	If "Overwrite via download" is chosen the relevant calibration values in the presence detector will be overwritten, else it will remain unchanged. Note: With the first download (factory setting) or after unloading the detector, valid calibration values must be downloaded first.
Brightness switching, setpoints and hysteresis values at download	Unchanged via download **Overwrite via download**	If "Overwrite via download" is chosen the relevant brightness switching, setpoints and hysteresis values in the presence detector will be overwritten, else it will remain unchanged. Note: With the first download (factory setting) or after unloading the detector, valid values must be downloaded first.
Delay after end of detection values at download	Unchanged via download **Overwrite via download**	If "Overwrite via download" is chosen the relevant delay after end of detection values in the presence detector will be overwritten, else the last used delay values will remain unchanged. Note: With the first download (factory setting) or after unloading the detector, delay time values must be downloaded first.

4.2 *Measurements pages parameters*

4.2.1 Brightness measurement parameters

Name	Values	Description
Calibration	**With Adjustment Factor** Via object	Brightness calibration carried out either via an object (obj no 5) or via an adjustment factor parameter.
Adjustment factor	1…**100**…10000	This parameter is visible only if "Calibration" parameter is set to "With adjustment factor." In this case, the light measured by the light sensor is multiplied by 0.01 of the set adjustment factor. Adjustment factor value can be calculated by this formula: Adjustment factor = (The real value that is read from external sensor / detector output value) ×100
Number of samples for average calculation	1…**10**…100	The internal light sensor measures every 0.1 second. For brightness measurement, the mean value can be formed from several values measured consecutively. The number of values to be used to form the mean value is determined via this parameter.
Send brightness value	**No** On Change Cyclically	This parameter determines whether and when the brightness value will be sent via the bus. "On change" means that 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. "Cyclically" means that the measured brightness value is transmitted cyclically at the selected time.
Send Change of	1…5…100%	This parameter is visible if "Send brightness value" parameter is set to "On change". It determines the amount of change in brightness value that will trigger the detector to send the brightness value via the bus.
Cycle time	3sec…60min	This parameter is visible if "Send brightness value" parameter is set to "Cyclically". It determines at what intervals the brightness value is sent via the bus.
Brightness additional function	**No** Alarm function Send 1 bit value Send scene number Send percentage Send 1 byte value	This parameter is used to determine the additional function of brightness measurement besides sending its value. The brightness measurement can be used to send telegrams with specific type and values when its value changes.
Additional function low level	0…**40**…3000	This parameter determines the low level value of the additional function.

Additional function high level	0…**600**…3000	This parameter determines the high level value of the additional function.
Additional function hysteresis	0…**10**…255	This parameter determines the hysteresis value of the additional function.
If brightness is lower than the low level	**Don't send telegram** Send telegram	This parameter is available if "Brightness additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If brightness is between the low level and the high level	**Don't send telegram** Send telegram	This parameter is available if "Brightness additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If brightness is higher than the high level	**Don't send telegram** Send telegram	This parameter is available if "Brightness additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.

4.2.2 Temperature measurement parameters

Temperature measurement page is only available for some product versions please see Product versions section.

Name	Values	Description
Calibration	**With Adjustment Factor** Via object	Temperature calibration carried out either via an object (obj no 13) or via an adjustment factor parameter.
Adjustment factor	1…**100**…10000	This parameter is visible only if "Calibration" parameter is set to "With adjustment factor." In this case, the temperature measured by the temperature sensor is multiplied by 0.01 of the set adjustment factor. Adjustment factor value can be calculated by this formula: Adjustment factor = (The real value that is read from external sensor / detector output value) ×100
Number of samples for average calculation	1…**10**…100	The internal temperature sensor measures every 0.1 second. For temperature measurement, the mean value can be formed from several values measured consecutively. The number of values to be used to form the mean value is determined via this parameter.
Send temperature value	**No** On Change Cyclically	This parameter determines whether and when the temperature value will be sent via the bus. "On change" means that the temperature 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. "Cyclically" means that the measured temperature value is transmitted cyclically at the selected time.
Send Change of	1…**5**…100%	This parameter is visible if "Send temperature value" parameter is set to "On change". It determines the amount of change in temperature value that will trigger the detector to send the temperature value via the bus.
Cycle time	**3 sec**…60min	This parameter is visible if "Send temperature value" parameter is set to "Cyclically". It determines at what intervals the temperature value is sent via the bus.
Temperature additional function	**No** Alarm function Send 1 bit value Send scene number Send percentage Send 1 byte value	This parameter is used to determine the additional function of temperature measurement besides sending its value. The temperature measurement can be used to send telegrams with specific type and values when its value changes.
Additional function low level	0…**18**…45	This parameter determines the low level value of the additional function.
Additional function high level	0…**30**…45	This parameter determines the high level value of the additional function.

Additional function hysteresis	0...**2**...10	This parameter determines the hysteresis value of the additional function.
If temperature is lower than the low level	**Don't send telegram** Send telegram	This parameter is available if "Temperature additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If temperature is between the low level and the high level	**Don't send telegram** Send telegram	This parameter is available if "Temperature additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If temperature is higher than the high level	**Don't send telegram** Send telegram	This parameter is available if "Temperature additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.

4.2.3 Humidity measurement parameters

Humidity measurement page is only available for some product versions please see Product Versions section.

Name	Values	Description
Calibration	**With Adjustment Factor** Via object	Humidity calibration carried out either via an object (obj no 21) or via an adjustment factor parameter.
Adjustment factor	1...**100**...10000	This parameter is visible only if "Calibration" parameter is set to "With adjustment factor." In this case, the humidity measured by the humidity sensor is multiplied by 0.01 of the set adjustment factor. Adjustment factor value can be calculated by this formula: Adjustment factor = (The real value that is read from external sensor / detector output value) ×100
Number of samples for average calculation	1...**10**...100	The internal humidity sensor measures every 0.1 second. For humidity measurement, the mean value can be formed from several values measured consecutively. The number of values to be used to form the mean value is determined via this parameter.
Send humidity value	**No** On Change Cyclically	This parameter determines whether and when the humidity value will be sent via the bus. "On change" means that the humidity 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. "Cyclically" means that the measured humidity value is transmitted cyclically at the selected time.
Send Change of	1...**5**...100%	This parameter is visible if "Send humidity value" parameter is set to "On change". It determines the amount of change in humidity value that will trigger the detector to send the humidity value via the bus.
Cycle time	**3 sec**...60min	This parameter is visible if "Send humidity value" parameter is set to "Cyclically". It determines at what intervals the humidity value is sent via the bus.
Humidity additional function	**No** Alarm function Send 1 bit value Send scene number Send percentage Send 1 byte value	This parameter is used to determine the additional function of humidity measurement besides sending its value. The humidity measurement can be used to send telegrams with specific type and values when its value changes.
Additional function low level	0...**30**...100	This parameter determines the low level value of the additional function.
Additional function high level	0...**70**...100	This parameter determines the high level value of the additional function.

Additional function hysteresis	0…**5**…25	This parameter determines the hysteresis value of the additional function.
If humidity is lower than the low level	**Don't send telegram** Send telegram	This parameter is available if "Humidity additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If humidity is between the low level and the high level	**Don't send telegram** Send telegram	This parameter is available if "Humidity additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If humidity is higher than the high level	**Don't send telegram** Send telegram	This parameter is available if "Humidity additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.

4.2.4 Air quality measurement parameters

Air quality measurement page is only available for one product version please see Product Versions section.

Name	Values	Description
Calibration	**With Adjustment Factor** Via object	Air quality calibration carried out either via an object (obj no 29) or via an adjustment factor parameter.
Adjustment factor	1...**100**...10000	This parameter is visible only if "Calibration" parameter is set to "With adjustment factor." In this case, the air quality measured by the air quality sensor is multiplied by 0.01 of the set adjustment factor. Adjustment factor value can be calculated by this formula: Adjustment factor = (The real value that is read from external sensor / detector output value) ×100
Number of samples for average calculation	1...**10**...100	The internal air quality sensor measures every second. For air quality measurement, the mean value can be formed from several values measured consecutively. The number of values to be used to form the mean value is determined via this parameter.
Send air quality value	**No** On Change Cyclically	This parameter determines whether and when the air quality value will be sent via the bus. "On change" means that the air quality 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. "Cyclically" means that the measured air quality value is transmitted cyclically at the selected time.
Send change of	1...**5**...100%	This parameter is visible if "Send air quality value" parameter is set to "On change". It determines the amount of change in air quality value that will trigger the detector to send the air quality value via the bus.
Cycle time	**3 sec**...60min	This parameter is visible if "Send air quality value" parameter is set to "Cyclically". It determines at what intervals the air quality value is sent via the bus.
Air quality additional function	**No** Alarm function Send 1 bit value Send scene number Send percentage Send 1 byte value	This parameter is used to determine the additional function of air quality measurement besides sending its value. The air quality measurement can be used to send telegrams with specific type and values when its value changes.
Additional function low level	0...**1000**...8000	This parameter determines the low level value of the additional function.
Additional function high level	0...**2000**...8000	This parameter determines the high level value of the additional function.

Additional function hysteresis	0…**50**…255	This parameter determines the hysteresis value of the additional function.
If air quality is lower than the low level	**Don't send telegram** Send telegram	This parameter is available if "Air quality additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If air quality is between the low level and the high level	**Don't send telegram** Send telegram	This parameter is available if "Air quality additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.
If air quality is higher than the high level	**Don't send telegram** Send telegram	This parameter is available if "Air quality additional function" is set to send 1 bit, scene number, percentage or 1 byte. If this parameter is set to "Send telegram" another parameter will appear so the user can enter the value.

4.3 *Channels pages parameters*

4.3.1 Presence detection channels parameters

4.3.1.1 Master mode parameters

- General page

Name	Values	Description
Mode	**Master** Slave	A Master is capable of presence detecting, controlling and sending multiple telegrams. Slaves are used to extend the detection area. They only supply presence information to the Master.
Select master mode	**Individual** Parallel	If the device is intended to be used as an independent device "Individual" should be selected. If the detection area is wanted to be extended, several slave channels from other detectors can be connected to one master channel, or several master channels can be connected with each other. In this case "Parallel" mode should be selected.
Trigger cycle time	5s…**15s**…30min	This parameter is visible if the master mode is parallel. A master channel can send a trigger telegram cyclically to another master channels as long as a motion is detected. This parameter value determines the time interval between two trigger telegrams. Please keep in mind to select the interval between two trigger telegrams to be shorter than the delay after end of detection.
Control depends on	**Presence only** Presence & brightness	If "Presence only" is selected the presence channel will start control (sending telegrams) according to the presence state only. If "Presence & brightness" is selected the presence channel will start control (sending telegrams) according to the presence state and the brightness value.
Source of presence	**Internal** External Both	This parameter determines which presence source is used for analyzing the occupancy. If this parameter is set to "Internal value" the value of the internal presence sensor is used. If this parameter value is set to "External value," the value from the communication object is used. If "Both" is selected, then the controller assumes the room is occupied if the internal sensor recognizes a movement or an "Occupied" telegram is received from the communication object.
Source of brightness	**Internal** External Weighted	This parameter is visible if control depends on brightness. The brightness value can be measured at the device or fed to the device by objects via the bus. In addition, weighted measuring is also available, in which the weighted average of up to three brightness values (1 x internal, 2 x external) is calculated and used as an input value for control.

Name	Values	Description
		If Weighted is selected the brightness value of the channel is calculated by this formula: Brightness value = (internal brightness value * internal brightness weight) + (external brightness 1 value * external brightness 1 weight) + (external brightness 2 value * external brightness 2 wright)
Weighting of internal brightness (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the internal measurement
Weighting of external brightness 1 (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 1
Weighting of external brightness 2 (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 2
Short presence	**Disabled** Enabled	When short presence feature is enabled the channel controller can be switched off sooner if a room is occupied for a short time only. In other words, if someone enters an unoccupied room and it is only occupied for less than "Short presence time", the light is switched off earlier, after 15 seconds of "Short presence time".
Short presence time	1…**30**…255 sec.	This parameter determines the time that will be used in short presence feature. Note: "Delay after end of detection" parameter must be at least 15 seconds more than this parameter value, so the short presence feature takes effect.
Manual control mode	**Don't use manual control mode** Exit manual control mode after room is not occupied Exit manual control mode after fixed time	If the channel isn't intended to work with push button then "Don't use manual control mode" should be selected, else the other options should be selected. Manual control mode is used to deactivate the channel controller temporary when the light is controlled externally from another device (push button for example). The channel enters manual control mode when it receives any value from its manual control mode objects. This parameter offers two ways to exit the manual control mode and reactivate the controller.
Exit manual control mode after	1…**30**…65535 min.	This parameter is available if "Manual control mode" parameter is set to "Exit manual control mode after fixed time". If manual control mode objects receive any value, the channel enters the manual control mode or resets its timer if it has already entered before.
Use with dimmable light	**No** Yes	This parameter is visible if manual control mode is used. If "Yes" is selected two dimming input objects will be available to be linked with dimming controllers' objects (push buttons for example) and a dimming feedback object will be available to be linked with a dimmer feedback object. The feedback object is used to monitor the light status (on – off) and take the right action when exiting manual control mode.

- Lock page

Name	Values	Description
Locking type	**Channel** Outputs	This parameter defines the behavior of the lock: Channel: When 'locked', the channel itself is disabled. If the timer of the delay after end of detection has already been started (channel switched on), the timer will be paused, and when the channel 'unlocked' the timer will resume. Outputs: When 'locked' the output communication objects of the detector (A-B-C-D) can be controlled. The channel itself will not be disabled and it will still recognize movement, triggers etc.… only some of its outputs' telegrams may not be sent according to the configuration.
Lock channel output objects	No output object A output B output C output D output A-B outputs A-C outputs A-D outputs B-C outputs B-D outputs C-D outputs A-B-C outputs A-B-D outputs A-C-D outputs B-C-D outputs **A-B-C-D outputs**	This parameter is visible only if "Locking type" parameter is set to "Outputs". This parameter determines which outputs will be locked when lock function is activated.
Lock presence trigger object	**No** Yes	This parameter is visible if the channel master mode is parallel and "Locking type" parameter is set to "Outputs". If "Yes" is selected the channel will not send trigger telegrams when lock function is activated.
Lock is active with telegram value	0 **1**	The lock function will be activated when lock object receives the selected value and deactivated when it receives the other one.
When lock is enabled send	**No telegram** A-B telegrams C-D telegrams	This parameter determines which telegrams will be sent when the lock function is activated.
When lock is disabled send	**No telegram** Current status (A-B or C-D**)**	This parameter determines which telegrams will be sent when the lock function is deactivated. If the channel locking type is set to "Channel", the channel status before locking telegram is received will be sent. Else if the locking type is "Outputs", the channel status when unlocking telegram is received will be sent.
Lock status after bus voltage return	**Unlocked** Locked As before bus failure Query via bus	This parameter determines the status of the lock function after bus voltage return. If "Query via bus" is selected, the device will send a read request for the lock object of the channel, if no response is received the channel will be unlocked.

- Presence Detection page

Name	Values	Description
Brightness switch on value	0…**90**…3000 Lux	This parameter is visible if the control depends on brightness. The brightness switch on value defines the minimum desired brightness. If the prevailing measured brightness is below the switch on value, (A) output telegram is sent as soon as a presence is detected. Note: brightness switch on value should be lower than brightness switch off value.
Set brightness switch on value via bus	**No** Yes	If "Yes" is selected a "Brightness Switch On Value – Set Value" object will be enabled. This object enables changing of "Brightness switch on value" parameter during operation via KNX bus.
Use alternative brightness switch on value	**No** Yes	If "Yes" is selected a second alternative brightness switch on value can be configured. Both of these brightness switch on values can be used during normal operation. "Channel x Brightness Switch On Value – Select" object is visible and can be used. • "1" telegram to the relevant bus object switches to the alternative brightness switch on value. • "0" telegram restores the original value. Example: Implementation of day and night operation with two different brightness levels.
Alternative brightness switch on value	0…**150**…3000 Lux	This parameter is visible if "Use alternative brightness switch on value" parameter is set to "Yes".
Set alternative brightness switch on value via bus	**No** Yes	This parameter is visible only if "Use alternative brightness switch on value" parameter is set to "Yes". If this parameter is set to "Yes", "Alternative Brightness Switch On Value – Set Value" object will be enabled. This object enables changing of "Alternative brightness switch on value" parameter during operation.
Brightness switch off value	0…**700**…3000 Lux	This parameter is visible if the control depends on brightness. The brightness switch off value defines the maximum desired brightness. If the prevailing measured brightness is above this parameter value, then the controller won't start even if a presence is detected. If the prevailing measured brightness is above this parameter value and the controller has already been started (A-B output objects has been sent before), C output telegram is sent with delay after end of detection. Note: brightness switch off value should be higher than brightness switch on value.
Set brightness switch off value via bus	**No** Yes	If "Yes" is selected a "Brightness Switch Off Value – Set Value" object will be enabled. This object enables changing of "Brightness switch off value" parameter during operation via KNX bus.
Begin of control send (A)	No telegram **Switch** Scene	This parameter determines whether a telegram (A) is sent when the control process starts and what format the telegram has.

Name	Values	Description
	Percentage 1 byte value 2 byte value Measurement value HVAC mode	According to "Control depends on" parameter value, the control starts: • When a presence is detected if the control depends on presence only • When a presence is detected while the measured brightness value is below the brightness switch on value if the control depends on presence and brightness
Send second telegram (B)	Yes **No**	This parameter determines whether a second telegram (B) is sent after a delay to the first telegram (A).
Send (B)	**No telegram** Switch Scene Percentage 1 byte value 2 byte value Measurement value HVAC mode	This parameter is visible only if the preceding parameter "Send second telegram (B)" is set to "Yes." This parameter determines what format the telegram B has.
Delay before telegram B	**00.00.00**…18.12.15	This parameter is visible only if the preceding parameter "Send second telegram (B)" is set to "Yes." This determines the time interval between sending the first telegram (A) and the second telegram (B).
Delay after end of detection	**One delay time** Two delay times Variable delay time	When the detection of a presence is finished, the controller sets a delay timer, and when its time is elapsed the controller sends C-D telegrams. If a movement is detected while the timer is running, then the timer is restarted. This parameter determines whether the delay after end of detection time is always the same ("One delay time") or can be changed via a bus telegram "Channel x Delay After End of Detection". If "Two delay times" are set, then delay time (0) or delay time (1) can be selected via the telegram, and if "Variable delay time" is set, then the delay time is determined by the telegram value.
Delay time (0)	00.00.01…**00:01:00**…18.12.15	This parameter determines the default delay after end of detection time that will be used.
Delay time (1)	00.00.01…**00:02:00**…18.12.15	This parameter is visible if "Delay after end of detection" parameter is set to "Two delay times". This parameter determines the alternative delay after end of detection time. The user can switch between the default delay time and the alternative one by "Channel x Delay After End of Detection" object.
End of control send (C)	No telegram **Switch** Scene Percentage 1 byte value 2 byte value Measurement value HVAC mode	This parameter determines whether a telegram or which telegram is sent, when the control stops. According to "Control depends on" parameter value, the control stops: • When no further movement has been detected by the end of the delay time if the control depends on presence only • When no further movement has been detected by the end of the delay time or when the measured brightness value goes above the brightness switch off value if the control depends on presence and brightness.

Name	Values	Description
Send second telegram (D)	**No** Yes	This parameter determines whether a second telegram (D) is sent after a delay to telegram (C).
Send (D)	**No telegram** Switch Scene Percentage 1 byte value 2 byte value Measurement value HVAC mode	This parameter is visible only if the preceding parameter "Send second telegram (D)" is set to "Yes." This parameter determines what format the telegram D has.
Delay before telegram D	**00.00.00**…18.12.15	This parameter is visible only if the preceding parameter "Send second telegram (D)" is set to "Yes." This determines the time interval between sending telegram (C) and telegram (D).
Dead time after end of control	**00.00.00**…18.12.15	The dead time is used to protect the actuator that is connected to the motion detector. It starts when the control stops (after sending C telegram). If a presence occurs during the dead time, the channel controller does not switch on or start control. Note: The dead time should be longer than the delay time between telegrams C and D, otherwise telegram D may fail.

4.3.1.2 **Slave mode parameters**

- General page

Name	Values	Description
Mode	**Master** Slave	A Master is capable of presence detecting, controlling and sending multiple telegrams. Slaves are used to extend the detection area. They only supply presence information to the Master.
Trigger cycle time	5s...**15s**...30min	A device in slave mode can send "Trigger" telegrams to the master as long as a presence is detected. This parameter determines the delay between two trigger telegrams. A repeated trigger telegram is sent if a presence is detected in the last 15 seconds of trigger cycle time. Please keep in mind to select the interval between two trigger telegrams to be shorter than the delay after end of detection of the master.
Control depends on	**Presence only** Presence & brightness	If "Presence only" is selected the presence channel will send trigger telegrams according to the presence state only. If "Presence & brightness" is selected the presence channel will send trigger telegrams according to the presence state and the measured brightness value.
Source of brightness	**Internal** External Weighted	This parameter is visible if control depends on brightness. The brightness value can be measured at the device or fed to the device by objects via the bus. In addition, weighted measuring is also available, in which the weighted average of up to three brightness values (1 x internal, 2 x external) is calculated and used as an input value for control. If Weighted is selected the brightness value of the channel is calculated by this formula: Brightness value = (internal brightness value * internal brightness weight) + (external brightness 1 value * external brightness 1 weight) + (external brightness 2 value * external brightness 2 wright)
Weighting of internal brightness (%)	**0**...100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the internal measurement
Weighting of external brightness 1 (%)	**0**...100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 1
Weighting of external brightness 2 (%)	**0**...100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 2

- Presence Lock page

Name	Values	Description
Locking type	**Channel** Outputs	For slave mode channels this parameter is visible only if "Use external presence output object" parameter in "Presence Slave" page is set to "Yes". This parameter defines the behavior of the lock: Channel: When 'locked', the channel itself is disabled. If the timer of the delay after end of detection has already been started (channel switched on), the timer will be paused, and when the channel 'unlocked' the timer will resume. Outputs: When 'locked' the output communication objects of the detector (trigger & presence) can be controlled. The channel itself will not be disabled and it will still recognize movement but only some of its outputs' telegrams may not be sent according to the configuration.
Lock channel output objects	Trigger output Presence output **Trigger & presence outputs**	This parameter is visible only if "Use external presence output object" parameter in "Presence Slave" page is set to "Yes" and "Locking type" parameter is set to "Outputs". This parameter determines which outputs will be locked when lock function is activated.
Lock is active with telegram value	0 **1**	The lock function will be activated when lock object receives the selected value and deactivated when it receives the other one.
When lock is enabled send	**No telegram** Trigger Occupied Not occupied Trigger & occupied Trigger & not occupied	The last 4 values of this parameter are available if "Use external presence output object" parameter in "Presence Slave" page is set to "Yes". This parameter determines which telegrams will be sent when the lock function is activated.
When lock is disabled send	**No telegram** Trigger Occupied Not occupied Trigger & occupied Trigger & not occupied	The last 4 values of this parameter are available if "Use external presence output object" parameter in "Presence Slave" page is set to "Yes". This parameter determines which telegrams will be sent when the lock function is deactivated.
Lock status after bus voltage return	**Unlocked** Locked As before bus failure Query via bus	This parameter determines the status of the lock function after bus voltage return. If "Query via bus" is selected, the device will send a read request for the lock object of the channel, if no response is received the channel will be unlocked.

- Presence Slave page

Name	Values	Description
Send trigger if brightness is lower than	0...**90**...3000 Lux	This parameter is visible if the control depends on brightness. If the prevailing measured brightness is below this parameter value, the detector starts sending trigger telegrams cyclically as long as presence is detected. The detector stops sending triggers only if no presence is detected anymore or if the prevailing brightness becomes above the higher value. Note: brightness lower value should be lower than brightness higher value.
Set brightness lower value via bus	**No** Yes	If "Yes" is selected a "Brightness Lower Value – Set Value" object will be enabled. This object enables changing of "Send trigger if brightness is lower than" parameter during operation via KNX bus.
Use alternative brightness lower value	**No** Yes	If "Yes" is selected a second alternative brightness lower value can be configured. Both of these lower values can be used during normal operation. "Channel x Brightness Lower Value – Select" object is visible and can be used. • "1" telegram to the relevant bus object switches to the alternative brightness lower value. • "0" telegram restores the original value. Example: Implementation of day and night operation with two different brightness levels.
Alternative brightness lower value	0...**150**...3000 Lux	This parameter is visible if "Use alternative brightness lower value" parameter is set to "Yes".
Set alternative brightness lower value via bus	**No** Yes	This parameter is visible only if "Use alternative brightness lower value" parameter is set to "Yes". If this parameter is set to "Yes", "Alternative Brightness Lower Value – Set Value" object will be enabled. This object enables changing of "Alternative brightness lower value" parameter during operation.
Don't send trigger if brightness is higher than	0...**700**...3000 Lux	This parameter is visible if the control depends on brightness. If the prevailing measured brightness is above this parameter value, the detector stops sending triggers and prevents sending triggers even if a presence is detected. Note: brightness higher value should be higher than brightness lower value.
Set brightness higher value via bus	**No** Yes	If "Yes" is selected a "Brightness Higher Value – Set Value" object will be enabled. This object enables changing of "Brightness higher value" parameter during operation via KNX bus.

Name	Values	Description
Use external presence output object	**No** Yes	If "Yes" is selected "Channel x External Presence Output" object will be available. The controller sends "Occupied" telegram as soon as a presence is detected and a "Not occupied" after a delay time when the detection is stopped. If the related channel depends on presence & brightness, the controller takes brightness lower and higher values into accounts.
Delay after end of detection	**One delay time** Two delay times Variable delay time	This parameter is visible only if "Use external presence output object" parameter in "Presence Slave" page is set to "Yes". When the detection of a presence is finished, the controller sets a delay timer, and when its time is elapsed the controller sends a "Not occupied" telegram. If a movement is detected while the timer is running, then the timer is restarted. This parameter determines whether the delay after end of detection time is always the same ("One delay time") or can be changed via a bus telegram "Channel x Delay After End of Detection". If "Two delay times" are set, then delay time (0) or delay time (1) can be selected via the telegram, and if "Variable delay time" is set, then the delay time is determined by the telegram value.
Delay time (0)	00.00.01...**00:01:00**...18.12.15	This parameter determines the default delay after end of detection time that will be used.
Delay time (1)	00.00.01...**00:02:00**...18.12.15	This parameter is visible if "Delay after end of detection" parameter is set to "Two delay times". This parameter determines the alternative delay after end of detection time. The user can switch between the default delay time and the alternative one by "Channel x Delay After End of Detection" object.

4.3.2 On-off light control parameters

- General page

Name	Values	Description
Control depends on	Presence only **Brightness only** Presence & brightness	If "Presence only" is selected the channel starts control (sending telegrams) according to the presence state only. If "Brightness only" is selected the channel starts control (sending telegrams) according to the brightness value only. If "Presence & brightness" is selected the channel starts control (sending telegrams) according to the presence state and the brightness value.
Source of presence	**Internal** External Both	This parameter is visible if control depends on presence. This parameter determines which presence source is used for analyzing the occupancy. If this parameter is set to "Internal value", the value of the internal presence sensor is used. If this parameter value is set to "External value," the value from the communication object is used. If "Both" is selected, then the controller assumes the room is occupied if the internal sensor recognizes a movement or an "Occupied" telegram is received from the communication object.
Short presence	**Disabled** Enabled	This parameter is visible if control depends on presence. When short presence feature is enabled the channel controller can be switched off sooner if a room is occupied for a short time only. In other words, if someone enters an unoccupied room and it is only occupied for less than "Short presence time", the light is switched off earlier, after 15 seconds of "Short presence time".
Short presence time	1…**30**…255 sec.	This parameter determines the time that will be used in short presence feature. Note: "Delay after end of detection" parameter must be at least 15 seconds more than this parameter value, so the short presence feature takes effect.
Presence trigger	**Disabled** Enabled	This parameter is visible if control depends on presence. If this parameter is set to "Enabled" an input/output trigger object will be available. The channel can be triggered from other detectors via this object. The channel can send triggers cyclically to other detectors via this object too.
Trigger cycle time	5s…**15s**…30min	This parameter is visible if "Presence trigger" parameter is set to "enabled". A channel can send a trigger telegram to another channels cyclically as long as a motion is detected. This parameter value determines the time interval between two trigger telegrams. Please keep in mind to select the interval between two trigger telegrams to be shorter than the delay after end of detection.

Name	Values	Description
Source of brightness	**Internal** External Weighted	This parameter is visible if control depends on brightness. The brightness value can be measured at the device or fed to the device by objects via the bus. In addition, weighted measuring is also available, in which the weighted average of up to three brightness values (1 x internal, 2 x external) is calculated and used as an input value for control. If Weighted is selected the brightness value of the channel is calculated by this formula: Brightness value = (internal brightness value * internal brightness weight) + (external brightness 1 value * external brightness 1 weight) + (external brightness 2 value * external brightness 2 wright)
Weighting of internal brightness (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the internal measurement
Weighting of external brightness 1 (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 1
Weighting of external brightness 2 (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 2
Manual control mode	**Don't use manual control mode** Exit manual control mode after room is not occupied Exit manual control mode after fixed time	If the channel isn't intended to work with push button then "Don't use manual control mode" should be selected, else the other options should be selected. Manual control mode is used to deactivate the channel controller temporary when the light is controlled externally from another device (push button for example). The channel enters manual control mode when it receives any value from its manual control mode objects. This parameter offers two ways to exit the manual control mode and reactivate the controller. Note: "Exit manual control mode after room is not occupied" option is visible only if the control depends on presence.
Exit manual control mode after	1…**30**…65535 min.	This parameter is available if "Manual control mode" parameter is set to "Exit manual control mode after fixed time". If manual control mode objects receive any value, the channel enters the manual control mode or resets its timer if it has already entered before.
Use with dimmable light	**No** Yes	This parameter is visible if manual control mode is used. If "Yes" is selected two dimming input objects will be available to be linked with dimming controllers' objects (push buttons for example) and a dimming feedback object will be available to be linked with a dimmer feedback object. The feedback object is used to monitor the light status (on – off) and take the right action when exiting manual control mode.

- Lock page

Name	Values	Description
Locking type	**Channel** Outputs	This parameter defines the behavior of the lock: Channel: When 'locked', the channel itself is disabled. If the timer of the delay after end of detection has already been started (channel switched on), the timer will be paused, and when the channel 'unlocked' the timer will resume. Outputs: When 'locked' the output communication objects of the detector (A-B-C-D) can be controlled. The channel itself will not be disabled and it will still recognize movement, triggers etc… only some of its outputs' telegrams may not be sent according to the configuration.
Lock channel output objects	No output object A output B output C output D output A-B outputs A-C outputs A-D outputs B-C outputs B-D outputs C-D outputs A-B-C outputs A-B-D outputs A-C-D outputs B-C-D outputs **A-B-C-D outputs**	This parameter is visible only if "Locking type" parameter is set to "Outputs". This parameter determines which outputs will be locked when lock function is activated.
Lock presence trigger object	**No** Yes	This parameter is visible if the control depends on presence, "Locking type" parameter is set to "Outputs" and "Presence trigger" is "Enabled". If "Yes" is selected the channel will not send trigger telegrams when lock function is activated.
Lock is active with telegram value	0 **1**	The lock function will be activated when lock object receives the selected value and deactivated when it receives the other one.
When lock is enabled send	**No telegram** A-B telegrams C-D telegrams	This parameter determines which telegrams will be sent when the lock function is activated.
When lock is disabled send	**No telegram** Current status (A-B or C-D**)**	This parameter determines which telegrams will be sent when the lock function is deactivated. If the channel locking type is set to "Channel", the channel status before locking telegram is received will be sent. Else if the locking type is "Outputs", the channel status when unlocking telegram is received will be sent.
Lock status after bus voltage return	**Unlocked** Locked As before bus failure Query via bus	This parameter determines the status of the lock function after bus voltage return. If "Query via bus" is selected, the device will send a read request for the lock object of the channel, if no response is received the channel will be unlocked.

- On-off light control page

Name	Values	Description
Brightness switch on value	0…**90**…3000 Lux	This parameter is visible if the control depends on brightness. The brightness switch on value defines the minimum desired brightness. If the prevailing measured brightness is below the switch on value, (A) output telegram is sent immediately if the control depends on brightness only and as soon as a presence is detected if the control depends on presence and brightness. Note: brightness switch on value should be lower than brightness switch off value.
Set brightness switch on value via bus	**No** Yes	If "Yes" is selected a "Brightness Switch On Value – Set Value" object will be enabled. This object enables changing of "Brightness switch on value" parameter during operation via KNX bus.

Use alternative brightness switch on value	**No**
	Yes
		If "Yes" is selected a second alternative brightness switch on value can be configured. Both of these brightness switch on values can be used during normal operation.
		
		"Channel x Brightness Switch On Value – Select" object is visible and can be used.
		  • "1" telegram to the relevant bus object switches to the alternative brightness switch on value.
		  • "0" telegram restores the original value.
		
		Example: Implementation of day and night operation with two different brightness levels.

Alternative brightness switch on value	0…**150**…3000 Lux	This parameter is visible if "Use alternative brightness switch on value" parameter is set to "Yes".
Set alternative brightness switch on value via bus	**No** Yes	This parameter is visible only if "Use alternative brightness switch on value" parameter is set to "Yes". If this parameter is set to "Yes", "Alternative Brightness Switch On Value – Set Value" object will be enabled. This object enables changing of "Alternative brightness switch on value" parameter during operation.
Brightness switch off value	0…**700**…3000 Lux	This parameter is visible if the control depends on brightness. The brightness switch off value defines the maximum desired brightness. If the prevailing measured brightness is above this parameter value, then the controller won't start even if a presence is detected. If the prevailing measured brightness is above this parameter value and the controller has already been started (A-B output objects has been sent before), C output telegram is sent immediately if the control depends on brightness only and after the delay after end of detection if the control depends on brightness and presence. Note: brightness switch off value should be higher than brightness switch on value.

Name	Values	Description
Set brightness switch off value via bus	**No** Yes	If "Yes" is selected a "Brightness Switch Off Value – Set Value" object will be enabled. This object enables changing of "Brightness switch off value" parameter during operation via KNX bus.
Begin of control send (A)	No telegram **Switch** Scene Percentage 1 byte value 2 byte value Measurement value HVAC mode	This parameter determines whether a telegram (A) is sent when the control process starts and what format the telegram has. According to "Control depends on" parameter value, the control starts: • When a presence is detected if the control depends on presence only • When the measured brightness value goes below the brightness switch on value if the control depends on brightness only • When the two situations above are occurred simultaneously if the control depends on presence & brightness.
Send second telegram (B)	Yes **No**	This parameter determines whether a second telegram (B) is sent after a delay to the first telegram (A).
Send (B)	**No telegram** Switch Scene Percentage 1 byte value 2 byte value Measurement value HVAC mode	This parameter is visible only if the preceding parameter "Send second telegram (B)" is set to "Yes." This parameter determines what format the telegram B has.
Delay before telegram B	**00.00.00**…18.12.15	This parameter is visible only if the preceding parameter "Send second telegram (B)" is set to "Yes." This determines the time interval between sending the first telegram (A) and the second telegram (B).
Delay after end of detection	**One delay time** Two delay times Variable delay time	This parameter is visible if the control depends on presence. When the detection of a presence is finished, the controller sets a delay timer, and when its time is elapsed the controller sends C-D telegrams. If a movement is detected while the timer is running, then the timer is restarted. This parameter determines whether the delay after end of detection time is always the same ("One delay time") or can be changed via a bus telegram "Channel x Delay After End of Detection". If "Two delay times" are set, then delay time (0) or delay time (1) can be selected via the telegram, and if "Variable delay time" is set, then the delay time is determined by the telegram value.
Delay time (0)	00.00.01…**00:01:00**…18.12.15	This parameter is visible if the control depends on presence. This parameter determines the default delay after end of detection time that will be used.
Delay time (1)	00.00.01…**00:02:00**…18.12.15	This parameter is visible if "Delay after end of detection" parameter is set to "Two delay times". This parameter determines the alternative delay after end of detection time. The user can switch between the default delay time and the alternative one by "Channel x Delay After End of Detection" object.

Name	Values	Description
End of control send (C)	No telegram **Switch** Scene Percentage 1 byte value 2 byte value Measurement value HVAC mode	This parameter determines whether a telegram or which telegram is sent, when the control stops. According to "Control depends on" parameter value, the control stops: • When no further movement has been detected by the end of the delay time if the control depends on presence only • When the measured brightness value goes above the brightness switch off value if the control depends on brightness only • When any of the above situations occurs before if the control depends on presence and brightness.
Send second telegram (D)	**No** Yes	This parameter determines whether a second telegram (D) is sent after a delay to telegram (C).
Send (D)	**No telegram** Switch Scene Percentage 1 byte value 2 byte value Measurement value HVAC mode	This parameter is visible only if the preceding parameter "Send second telegram (D)" is set to "Yes." This parameter determines what format the telegram D has.
Delay before telegram D	**00.00.00**…18.12.15	This parameter is visible only if the preceding parameter "Send second telegram (D)" is set to "Yes." This determines the time interval between sending telegram (C) and telegram (D).
Dead time after end of control	**00.00.00**…18.12.15	The dead time is used to protect the actuator that is connected to the detector. It starts when the control stops (after sending C telegram). If a presence is detected or the measured brightness goes below the brightness switch on value during the dead time, the channel controller does not switch on or start control. Note: The dead time should be longer than the delay time between telegrams C and D, otherwise telegram D may fail.

4.3.3 Constant light control parameters

- General page

Name	Values	Description
Control depends on	**Brightness only** Presence & brightness	If "Brightness only" is selected the channel starts to control the light at the startup according to the measured brightness value. The controller doesn't stop, it always stays monitoring the environment brightness and adjust the light to keep the measured brightness near to the setpoint. If "Presence & brightness" is selected the channel starts to control the light when a presence is detected. The control stops after delay time if no presence has been detected any more.
Source of presence	**Internal** External Both	This parameter is visible if control depends on presence. This parameter determines which presence source is used for analyzing the occupancy. If this parameter is set to "Internal value" the value of the internal presence sensor is used. If this parameter value is set to "External value," the value from the communication object is used. If "Both" is selected, then the controller assumes the room is occupied if the internal sensor recognizes a movement or an "Occupied" telegram is received from the communication object.
Short presence	**Disabled** Enabled	This parameter is visible if control depends on presence. When short presence feature is enabled the channel controller can be switched off sooner if a room is occupied for a short time only. In other words, if someone enters an unoccupied room and it is only occupied for less than "Short presence time", the light is switched off earlier, after 15 seconds of "Short presence time".
Short presence time	1…**30**…255 sec.	This parameter determines the time that will be used in short presence feature. Note: "Delay after end of detection" parameter must be at least 15 seconds more than this parameter value, so the short presence feature takes effect.
Presence trigger	**Disabled** Enabled	This parameter is visible if control depends on presence. If this parameter is set to "Enabled" an input/output trigger object will be available. The channel can be triggered from other detectors via this object. The channel can send triggers cyclically to other detectors via this object too.
Trigger cycle time	5s…**15s**…30min	This parameter is visible if "Presence trigger" parameter is set to "enabled". A channel can send a trigger telegram to another channels cyclically as long as a motion is detected. This parameter value determines the time interval between two trigger telegrams. Please keep in mind to select the interval between two trigger telegrams to be shorter than the delay after end of detection.

Name	Values	Description
Source of brightness	**Internal** External Weighted	The brightness value can be measured at the device or fed to the device by objects via the bus. In addition, weighted measuring is also available, in which the weighted average of up to three brightness values (1 x internal, 2 x external) is calculated and used as an input value for control. If Weighted is selected the brightness value of the channel is calculated by this formula: Brightness value = (internal brightness value * internal brightness weight) + (external brightness 1 value * external brightness 1 weight) + (external brightness 2 value * external brightness 2 wright)
Weighting of internal brightness (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the internal measurement
Weighting of external brightness 1 (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 1
Weighting of external brightness 2 (%)	**0**…100	This parameter is visible only if "Source of brightness" parameter is set to "Weighted". It specifies the weighting of the external measurement 2
Manual control mode	**Don't use manual control mode** Exit manual control mode after room is not occupied Exit manual control mode after fixed time	If the channel isn't intended to work with push button then "Don't use manual control mode" should be selected, else the other options should be selected. Manual control mode is used to deactivate the channel controller temporary when the light is controlled externally from another device (push button for example). The channel enters manual control mode when it receives any value from its manual control mode objects. This parameter offers two ways to exit the manual control mode and reactivate the controller. Note: "Exit manual control mode after room is not occupied" option is visible only if the control depends on presence.
Exit manual control mode after	1…**30**…65535 min.	This parameter is available if "Manual control mode" parameter is set to "Exit manual control mode after fixed time". If manual control mode objects receive any value, the channel enters the manual control mode or resets its timer if it has already entered before.
Use with dimmable light	**No** Yes	This parameter is visible if manual control mode is used. If "Yes" is selected two dimming input objects will be available to be linked with dimming controllers objects (push buttons for example). Note: A dimming feedback object is used to monitor the light status (on – off) and take the right action when exiting manual control mode.
Use the brightness value as a temporary setpoint	**No** Yes	This parameter is visible if manual control mode is used and "Use with dimmable light" parameter is set to "Yes".

Name	Values	Description
after dimming the light manually		If this parameter is set to "Yes", when a manual dimming operation occurs (via push buttons for example) the channel will use the measured brightness value as a temporary setpoint instead of deactivating the controller, the controller, in turn, will adjust the light dimming value to keep the environment brightness near this temporary setpoint. When the channel exits manual control mode, the originally configured setpoint value is restored. Note: the channel reads the new brightness value after 1 second when a "break" telegram is received and after 3 seconds when a "dimming percentage" telegram is received. For this reason, the dimmer must dim immediately to the received dimming value.

- Lock page

Name	Values	Description
Locking type	**Channel** Outputs	This parameter defines the behavior of the lock: Channel: When 'locked', the channel itself is disabled. If the timer of the delay after end of detection has already been started (channel switched on), the timer will be paused, and when the channel 'unlocked' the timer will resume. Outputs: When 'locked' the output communication objects of the detector (switching & dimming) can be controlled. The channel itself will not be disabled and it will still recognize movement, triggers etc.… only some of its outputs' telegrams may not be sent according to the configuration.
Lock channel output objects	No output object Switching output Dimming output **Switching & dimming outputs**	This parameter is visible only if "Locking type" parameter is set to "Outputs". This parameter determines which outputs will be locked when lock function is activated. Note: Switching output locking takes a place if "Control starts and ends with" parameter in "Constant Light Control" page is set to "Switching telegram".
Lock presence trigger object	**No** Yes	This parameter is visible if the control depends on presence, "Locking type" parameter is set to "Outputs" and "Presence trigger" is "Enabled". If "Yes" is selected the channel will not send trigger telegrams when lock function is activated.
Lock is active with telegram value	0 **1**	The lock function will be activated when the lock object receives the selected value and deactivated when it receives the other one.
When lock is enabled send	**No telegram** Switch on telegram Switch off telegram Dimming telegram Switch on and dimming telegrams Switch off and dimming telegrams	This parameter determines which telegrams will be sent when the lock function is activated.

Name	Values	Description
Dimming value	**0**...100	This parameter is available if the lock function sends dimming telegram when it is enabled. It determines the dimming value the channel will send when it is locked.
When lock is disabled send	**No telegram** Switch on telegram Switch off telegram Dimming telegram Switch on and dimming telegrams Switch off and dimming telegrams	This parameter determines which telegrams will be sent when the lock function is deactivated.
Dimming value	0...**10**...100	This parameter is available if the lock function sends dimming telegram when it is disabled. It determines the dimming value the channel will send when it is unlocked.
Lock status after bus voltage return	**Unlocked** Locked As before bus failure Query via bus	This parameter determines the status of the lock function after bus voltage return. If "Query via bus" is selected, the device will send a read request for the lock object of the channel, if no response is received the channel will be unlocked.

Name	Values	Description
Brightness setpoint value	0...**100**...3000 Lux	This parameter determines the desired brightness of the room. If the current brightness is below or above this value –taking hysteresis value into account-, the detector starts the controller to adjust the light until the setpoint is reached again. Note: brightness setpoint value should be higher than the hysteresis value.
Set brightness setpoint value via bus	**No** Yes	If "Yes" is selected a "Brightness Setpoint Value – Set Value" object will be enabled. This object enables changing of "Brightness setpoint" parameter during operation via KNX bus.
Use alternative brightness setpoint	**No** Yes	If "Yes" is selected a second alternative brightness setpoint value can be configured. Both of these brightness setpoint values can be used during normal operation. "Channel x Brightness Setpoint Value – Select" object is visible and can be used. • "1" telegram to the relevant bus object switches to the alternative brightness setpoint value. • "0" telegram restores the original value. Example: Implementation of day and night operation with two different brightness levels.
Alternative brightness setpoint value	0...**150**...3000 Lux	This parameter is visible if "Use alternative brightness setpoint value" parameter is set to "Yes".

Name	Values	Description
Set alternative brightness setpoint value via bus	**No** Yes	This parameter is visible only if "Use alternative brightness setpoint value" parameter is set to "Yes". If this parameter is set to "Yes", "Alternative Brightness Setpoint Value – Set Value" object will be enabled. This object enables changing of "Alternative brightness setpoint value" parameter during operation.
Brightness hysteresis	0...**10**...3000 Lux	This parameter determines the setpoint thresholds of the controller. Threshold = brightness setpoint ± hysteresis If the current brightness value isn't between the thresholds the controller starts to dim the light up/down until the measured brightness becomes between them (close to the setpoint). Note: brightness hysteresis value should be lower than the brightness setpoint value.
Set current brightness as setpoint via object	**No** Yes	If "Yes" is selected a "Brightness Setpoint – Set Current Brightness Value as Setpoint" object will be enabled. When any value is written to this object the current measured brightness value – with respect to "Source of brightness" parameter - is saved as the new brightness setpoint of the control. Note: the received setpoint value can overwrite the alternative setpoint if it has been selected.
Control starts and ends with	Switching telegram **Value telegram**	If "Switching telegram" is selected, the control starts with an "On" telegram. The actuator switches on and jumps to or dims up to the value configured on the actuator. The control stops with "Off" telegram. If "Value telegram" is selected, the control starts with a value telegram determined with "Start control from" parameter. The control stops with "0%" telegram.
Start control from	**Query via bus** Last value before switching off 10% 20% 30% 40% 50%	This parameter is available if "Control starts and ends with" parameter is set to "Value telegram". If "Query via bus" is selected a read request to the dimming feedback object will be sent. If no response is received the control starts from the last value is sent before it stopped (Last value before switching off). If the received value is out of dimming limits, the control starts from the nearest dimming limit.
Lower dimming limit	0...**10**...50 %	This value determines the minimum dimming value could be sent.
Upper dimming limit	51...**100 %**	This value determines the maximum dimming value could be sent.
Dimming step	1...**2**...100 %	This parameter determines the difference between two dimming values the controller will send sequentially. Note: The dimming step should be chosen such that a change of the dimming value does not change the illumination more than the configured hysteresis of the setpoint.
Control speed	1...**10**...59 %	This parameter determines the period between two sequential dimming values the controller will send.

Name	Values	Description
Delay after end of detection	**One delay time** Two delay times Variable delay time	This parameter is visible if the control depends on presence. When the detection of a presence is finished, the controller sets a delay timer, and when its time is elapsed the controller sends "Off" or "0%" telegram. If a movement is detected while the timer is running, then the timer is restarted. This parameter determines whether the delay after end of detection time is always the same ("One delay time") or can be changed via a bus telegram "Channel x Delay After End of Detection". If "Two delay times" are set, then delay time (0) or delay time (1) can be selected via the telegram, and if "Variable delay time" is set, then the delay time is determined by the telegram value.
Delay time (0)	00.00.01…**00:01:00**…18.12.15	This parameter is visible if the control depends on presence. This parameter determines the default delay after end of detection time that will be used.
Delay time (1)	00.00.01…**00:02:00**…18.12.15	This parameter is visible if "Delay after end of detection" parameter is set to "Two delay times". This parameter determines the alternative delay after end of detection time. The user can switch between the default delay time and the alternative one by "Channel x Delay After End of Detection" object.
Dead time after end of control	**00.00.00**…18.12.15	The dead time is used to protect the actuator that is connected to the detector. It starts when the control stops (after sending "Off" or "0%" telegram). If a presence or a drop in the measured brightness occurs in the dead time, the channel controller does not switch on or start control.

4.4 *Scene parameters*

Scene - General page

Name	Values	Description
Scene status after bus voltage return	**Enabled** Disabled As before bus failure Query via bus	The presence detector's scene functions can be disabled/enabled from "Scene Status" object. This parameter determines scene functions status after bus voltage return. If "Query via bus" is chosen, the device will send a read request for "Scene Status" object. If no response is received, its status will be enabled.
Scene lock value after bus voltage return	**0** 1 As before bus failure Query via bus	Some of scene functions can be locked with "Scene Lock" object. This parameter determines the value of this lock. If "Query via bus" is chosen, the device will send a read request for "Scene Lock" object. If no response is received, its value will be 0.

Scene - Functions pages

Name	Values	Description
Scene number	1…64	The scene function will start when a scene is called with this value via "Scene Input – Scene Number" object.
Lock via object	**No** Yes when object = 0 Yes when object = 1	This parameter determines whether a scene function can be locked via "Scene Lock" object and with which object value it will be locked.
Parameter 1-4 effects on	**Nothing** Channel 1-8	This parameter determines which channel will be affected when this scene function is called.
Action	**Lock** Unlock Change brightness switch on value Change brightness switch off value Change brightness setpoint value Change brightness hysteresis Change delay time after end of detection	This parameter determines the action that will be taken for the selected channel when the scene function is called.

5 Functional description

5.1 *Test mode*

Test mode is used to check the detection range of the detector especially at the installation stage. The installer technician can use test mode to indicate if any adjustment is necessary to the angel of the detector's lens or to the shade ring.

In test mode a blue led will turn on when a movement is detected, and all device operations will be deactivated.

If no application has been loaded to the detector, the detector will work in test mode permanently.

If an application has already been loaded to the detector, the presence detector enters test mode in two ways:
1- Automatically after the startup delay at every power up.
2- Manually by sending "Start" to "Test Mode" object (obj no 1).

The detector exits a started test mode in two ways:
1- Automatically after expiry of the test time.
2- Manually by sending a "Stop" telegram to "Test Mode" object (obj no 1).

5.2 *Measurements calibrations and calculation*

If the device is intended to give accurate measurements values, for example in order to maintain a specified brightness level or to send temperature to other devices on the KNX bus, a calibration process for the sensors is needed.

After measuring the actual measurement value via an external sensor like lux meter or temperature meter the user can calibrate the device in two ways:

1- By calculating the adjustment factor and write it to "Adjustment factor" parameter. Adjustment factor value can be calculated by this formula:

Adjustment factor = (The real value that is read from external sensor / detector output value) ×100

2- By sending the measured actual measurement value to the detector via the calibration object. The presence detector will receive the value and calibrate its measurement output automatically. ETS -> Diagnostics -> Group Monitoring can be used for sending operation.

5.2.1 Brightness calibration

The brightness measurement value at the ceiling is influenced by the installation location, incidence of light, position of the sun, weather conditions, the reflection properties of the room, and the furniture.
The adjustment factor allows the brightness measurement taken by the presence detector to be adapted to the conditions in the room. In this way, the brightness value measured by the presence detector can be scaled to the lux meter value measured on the surface below the presence detector.

Adjustment of the brightness measurement value by the detector procedure:

1- Measure the lux value below the presence detector with the lux meter
2- Send the lux measurement value to the detector via object 5 ("Calibration" parameter must be set to "Via object" in "Brightness measurement" page).
3- The adjustment factor will be calculated automatically and saved.

Manual calibration is also available via "Adjustment factor" parameter.

Notes:
The calibration of the brightness sensor must be in an environment with normal sufficient light. The calculation works all the better for bigger measurements values.

Similarly, the calibration procedure of the temperature sensor must be done when the measured temperature is near to the room temperature.

Air quality measurement values start to be more accurate 1 hour after first time power up, and 30 minutes after every restart, and its calibration procedure must be done after these periods.

5.3 *Measurements additional function*

Besides sending the measurement value to the bus, the presence detector can be used to send telegrams with specific type and values when the measured values changes.

There are five functions can be used as an additional function:
- Alarm function
- Send 1 bit value
- Send scene number
- Send percentage
- Send 1 byte value

If "Alarm function" is selected, two alarm objects "High Level Alarm" and "Low Level Alarm" will be available to be linked.
"High Level Alarm" object sends "Alarm" telegram when the measurement value exceeds the high level value and "No Alarm" telegram when the measurement value returns below it.
"Low Level Alarm" object sends "Alarm" telegram when the measurement value goes below the low level value and "No Alarm" telegram when the measurement value returns above it.

The other functions send 1 bit, scene number, percentage or 1 byte telegrams via "Additional function" object when the measured value becomes below the low level, above the high level or between them. The user can specify the sent value for each case in the related measurement page.

A "Hysteresis" value is taken into the account while these functions are used.

5.4 *Presence detection function*

Presence detection function's main task is sending specific telegrams according to the presence status.
This function has 4 output objects A, B, C, and D. A and B telegrams are sent at the beginning of the detection.
C and D telegrams are sent after a delay time if no presence has been detected any more.
A, B, C, D telegrams types and values can be set to do very useful actions.
The dead time is used to protect the actuator that is connected to the presence detector. It starts when the control stops (after sending C telegram). If a presence occurs during the dead time, the channel controller does not switch on or start control.
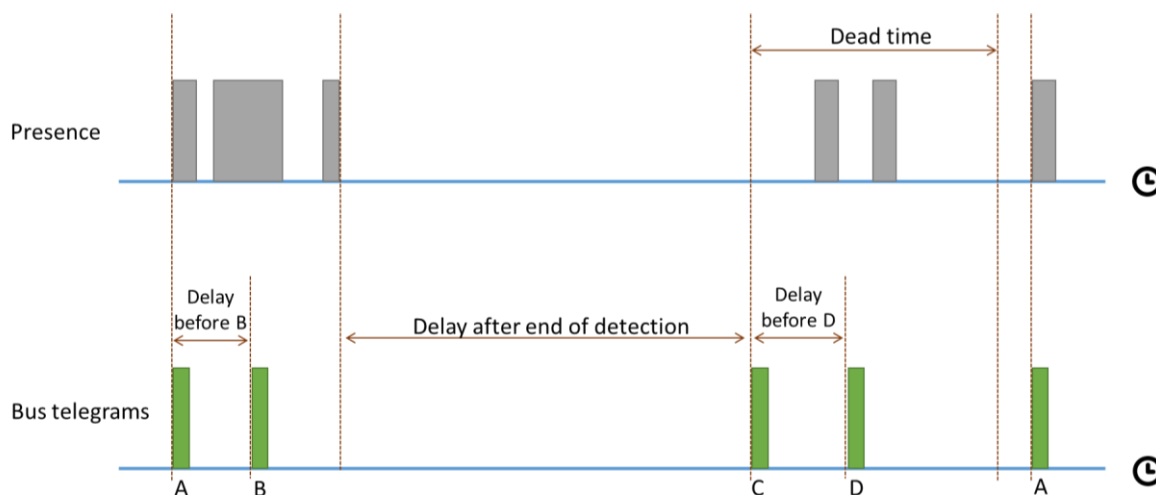
Figure 6 Presence detection function's telegrams – Control depends on presence only

The control can depends on brightness too. In this situation the control starts only if the measured brightness is lower than brightness switch on value when a presence is detected. If the measured brightness is higher than brightness switch off value the control stops after "Delay after end of detection" time.
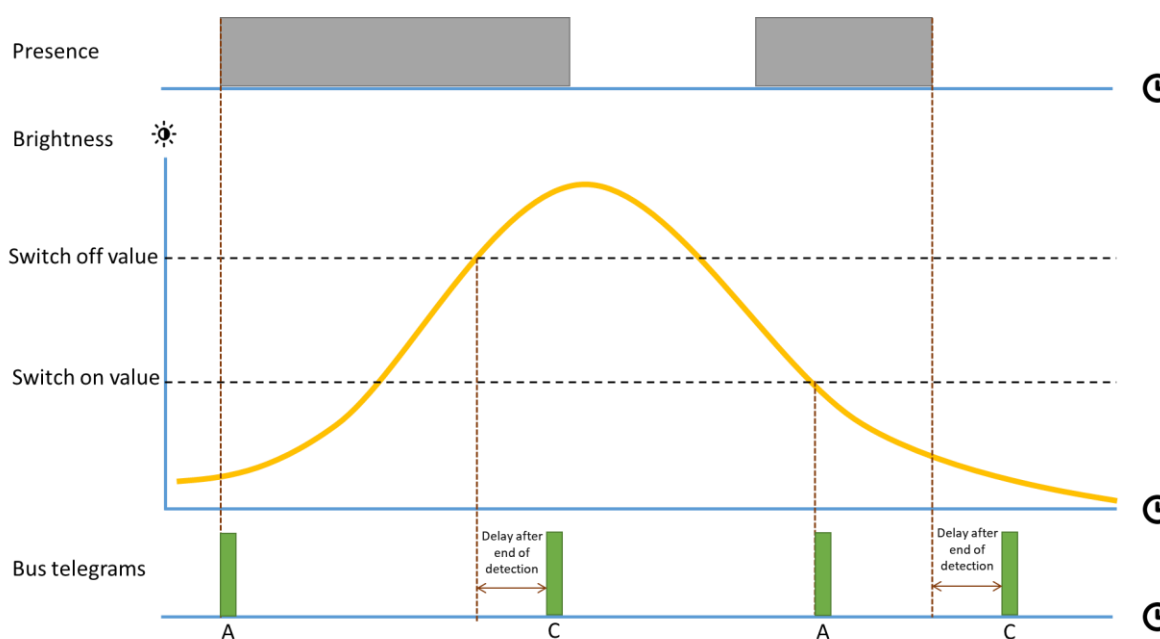
Figure 7 Presence detection function's telegrams – Control depends on presence and brightness

5.4.1 Presence detection modes

There are three possible modes in presence detection function:

1- Master-Individual: The device is intended to be used as an independent device.

2- Master-Parallel switching: Can be used in two ways:

   a. Several masters exchange the motion information among each other. The advantage is a zone with uniform presence detection but with several light measurements, for example 3 lighting groups in a room, where the group nearest to the window can be dimmed much darker than the lighting groups in the interior of the room.

   b. Master receives the motion information from several slaves in the room and switches or controls the lighting needs-oriented according to the brightness measured by the master. The advantage is uniform switching with a defined brightness value. For applications in corridors for example, the master is installed in the darkest position.

3- Slave: The device will not control the lights. It will only send presence information to another master device.

5.5 *On-off light control function*

On-off light control function's main task is switching the lights according to the measured brightness level, presence status or both of them. This function is very similar to presence detection function except that in on-off light control function, the control can depend on brightness only while the other one can't.
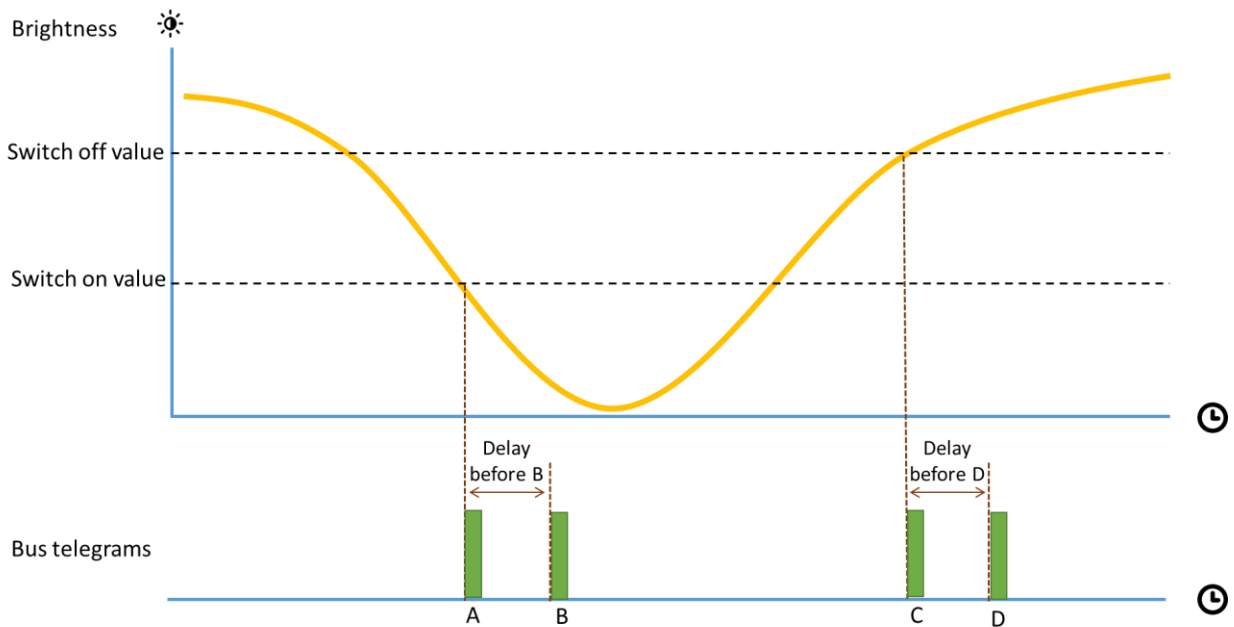

Figure 8 On-off light control function's telegrams – Control depends on brightness only

5.6 *Constant light control function*

Constant light control function's main task is to hold the brightness in the room constant at a desired level (brightness setpoint). If the measured brightness is below or above the setpoint, the detector starts to dim the lights up/down until the measured brightness reaches it.

The brightness setpoint may be configured via a parameter or set via a communication object.
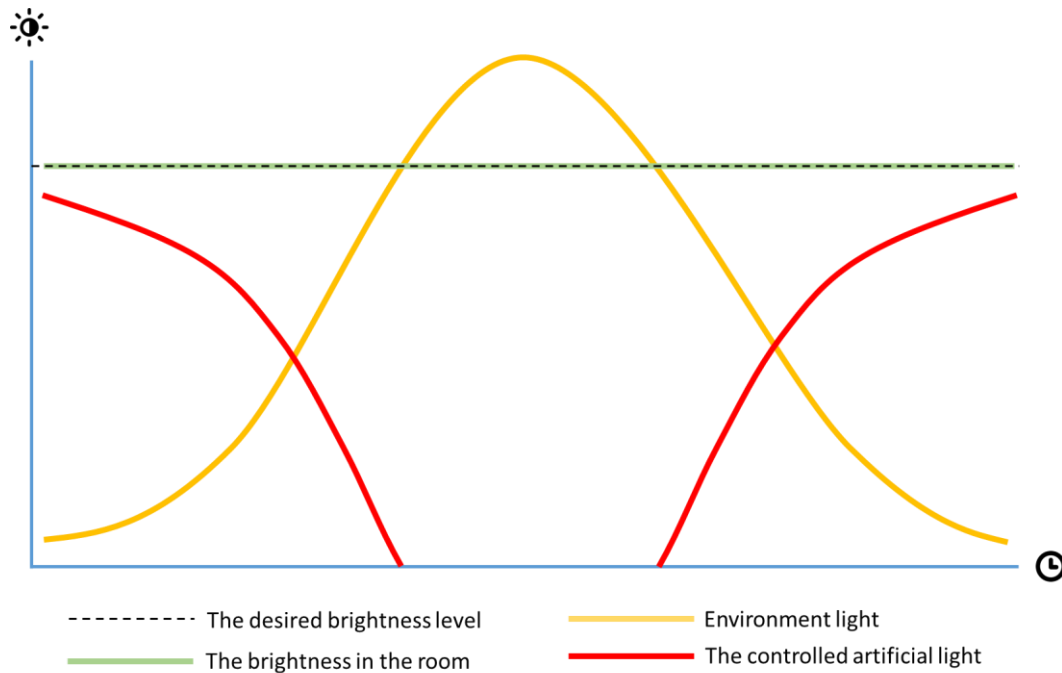
Figure 7 Constant light control influence

The control can depends on presence along with the brightness so the detector starts to control the lights only when a presence is detected and stops after delay time if no presence has been detected any more.

5.7 *Short presence*

When short presence feature is enabled the channel controller can be switched off sooner if a room is occupied for a short time only. In other words, if someone enters an unoccupied room and it is only occupied for less than "Short presence time", the light is switched off earlier, after 15 seconds of "Short presence time".

Example:
Channel function: Presence detection
Short presence time: 30 seconds
Delay after end of detection: 2 minuets

The device will start control (Send A telegram) as soon as a presence is detected.

- Status 'a': The presence is detected less than 30 sec -> Control stops (sends C telegram) and the light is turned off at second 45.

- Status 'b': The presence is detected more than 30 seconds -> Control stops (Sends C telegram) and the light is turned off 2 minutes after the end of detection.
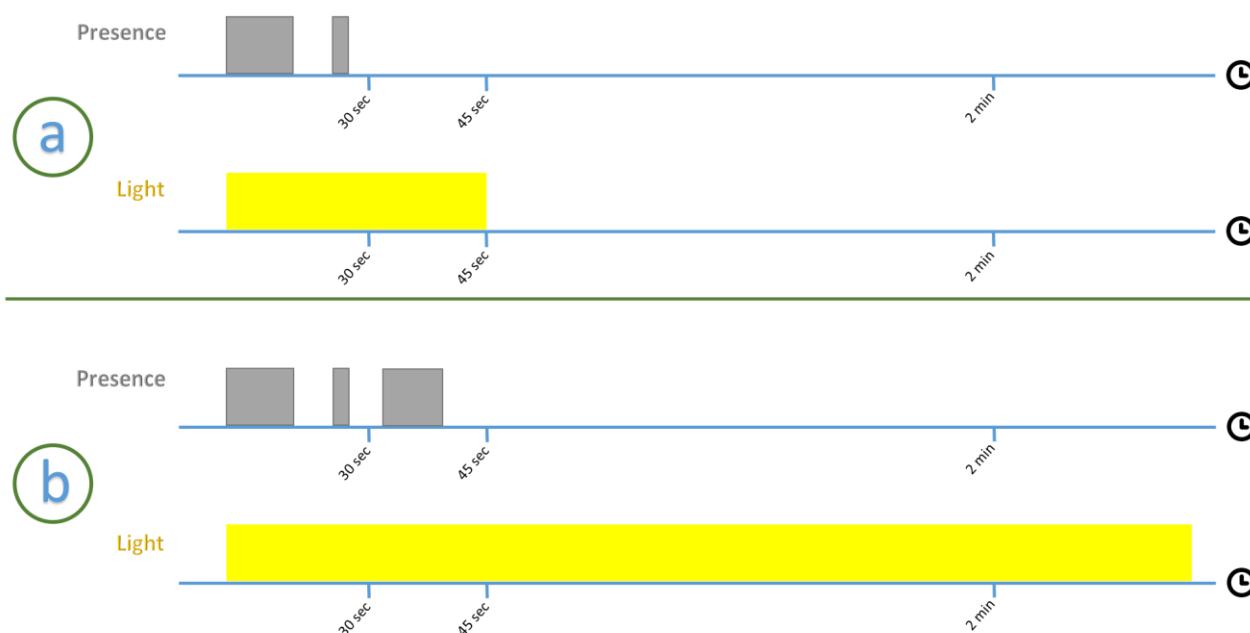
Figure 2 An example of short presence feature operation

5.8 *Manual control mode*

Manual control mode is used to deactivate the channel controller temporary when the light is controlled externally from another device (push button for example).

The channel enters manual control mode when it receives any value from its manual control mode objects. It is important to know that manual control mode objects are separated from channel's output objects.

There are two ways to exit the manual control mode and reactivate the controller:
- Exiting manual control mode after room is not occupied
- Exiting manual control mode after fixed time

When the channel controller exits manual control mode it reacts properly according to the presence status and the measured brightness if it depends on them.
For example:

- A presence detection channel enters the manual control mode when it receives "On" telegram from a push button. This channel is programmed to exit the manual control mode after 5 minutes. The channel will exit manual control mode after 5 minutes and it will check the presence status in the room. If it detects a presence within 15 seconds the channel won't send anything because the lights are already switched on. If it doesn't detect a presence within 15 seconds it will send C-D telegrams.

- A presence detection channel enters the manual control mode when it receives "Off" telegram from a push button. This channel is programmed to exit the manual after the room isn't occupied. The channel will exit manual control mode when it doesn't detect a presence for **delay time after end of detection** and it won't send any telegram because the lights are already switched off.

6 Some examples of typical applications

6.1 *Presence-dependent light & thermostat operation mode control*

It's possible to control another device along with the lights e.g. thermostat.
If the room is occupied the detector switches the lights on and changes the thermostat operation mode to "Comfort". If the room is not occupied for 5 minutes the detector switches the lights off and changes the thermostat operation mode to "Standby".

Used devices	KNX Ceiling type presence detector (WRKT32005NC) KNX Switching/Blind actuator 4/2 gang (WRKT4504E) KNX Standard thermostat (WRKT3300)
Linking	
KNX Ceiling type presence detector parameters	• Channel 1: Presence detection • Channel 1 – Mode: Master Individual • Channel 1 – Control depends on: Presence only • Channel 1 – Begin of control send (A): Switch (On) • Channel 1 – Send 2. telegram (B) : Yes, HVAC mode (Comfort) • Channel 1 – Delay after end of detection: One delay time (00:05:00) • Channel 1 – End of control send (C): Switch (Off) • Channel 1 – Send 2. telegram (D) : Yes, HVAC mode (Standby)
KNX Switching Blind actuator parameters	• Channel 1 and Channel 2 Function: Switching
	The unmentioned parameters can be the default or user defined parameters

6.2 *Presence & brightness-dependent on-off light control with manual control mode*

The detector switches the lights on/off automatically according to the presence status and the measured brightness. The desired brightness level is 75 lux, so when the detector detects a presence it will switch the lights only if the measured brightness is less than 75 lux.
The user can override the detector operation via push button.

Used devices	KNX Ceiling type presence detector (WRKT32005NC) KNX Switching/Blind actuator 4/2 gang (WRKT4504E) KNX Modular switch 1 gang (WRKT6121)
Linking	
KNX Ceiling type presence detector parameters	• Channel 1: On-off light control • Channel 1 – Control depends on: Presence & brightness • Channel 1 – Manual control mode: Exit manual control mode if room is not occupied • Channel 1 – Brightness switch on value: 75 • Channel 1 – Begin of control send (A): Switch (On) • Channel 1 – End of control send (C): Switch (Off)
KNX Switching Blind actuator parameters	• Channel 1 and Channel 2 Function: Switching
KNX Modular switch parameters	• General – Function of Rocker 1: switching • Rocker 1 – Object type for 1st object of rocker: switching (1bit)
	The unmentioned parameters can be the default or user defined parameters
Notes:	The output objects of the detector and the rocker should be linked to the switching object of the actuator with **different** group addresses. Manual control mode object should be linked to the output object of the rocker.

6.3 *Presence & brightness-dependent constant light control with manual control mode*

The detector starts to control the light to hold the brightness in the room constant at a brightness level = 100 lux only when a presence is detected. It stops (switches off) after delay time if no presence has been detected any more.

The user can override the detector operation and dim the lights manually via push button. The new brightness level will be used as a setpoint for 1 hour.

Used devices	KNX Ceiling type presence detector (WRKT32005NC) KNX Dimming Actuator 2- gang 300W (WRKT5502E) KNX Modular switch 1 gang (WRKT6121)
Linking	
KNX Ceiling type presence detector parameters	• Channel 1: Constant light control • Channel 1 – Control depends on: Presence & brightness • Channel 1 – Manual control mode: Exit manual control mode if fixed time • Channel 1 – Exit manual control mode after: 60 min • Channel 1 – Use with dimmable light: Yes • Channel 1 – Use the brightness value as a temporary setpoint after dimming the light manually: Yes • Channel 1 – Brightness setpoint: 100 • Channel 1 – Control starts and ends with: Value telegram
KNX Dimming Actuator parameters	• K1 – General – Dimming behaviour after receipt of a brightness value: jumping to • K1 – Enabled function – Feedback telegrams: enabled • K1 – Feedback brightness value: feedback object is active signalling object
KNX Modular switch parameters	• General – Function of Rocker 1: dimming
	The unmentioned parameters can be the default or user defined parameters

KNX Ceiling Type Presence Detector

6.4 *Master slave parallel switching*

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 switch on/off values are configured on the master.

Used devices	KNX Ceiling type presence detector (WRKT32005NC) KNX Switching/Blind actuator 4/2 gang (WRKT4504E)
Linking	
KNX Ceiling type presence detector parameters (Master)	• Channel 1: Presence detection • Channel 1 – Mode: Master – Parallel • Channel 1 – Begin of control send (A): Switch (On) • Channel 1 – End of control send (C): Switch (Off)
KNX Ceiling type presence detector parameters (Slaves)	• Channel 1: Presence detection • Channel 1 – Mode: Slave
KNX Switching Blind actuator parameters	• Channel 1 and Channel 2 Function: Switching
	The unmentioned parameters can be the default or user defined parameters
Notes:	The delay time after end of the detection in the master should be longer than the trigger cycle time in the slaves

6.5 *Constant light control with alternative absence setpoint*

The detector can be used to hold the brightness at a high level (e.g. 150 lux) when it detects a motion, and at a low level (e.g. 15 lux) in case of absence of the motion.

Used devices	KNX Ceiling type presence detector (WRKT32005NC) KNX Dimming Actuator 2- gang 300W (WRKT5502E)
Linking	
KNX Ceiling type presence detector parameters	• Channel 1: Constant light control • Channel 1 – Control depends on: Brightness only • Channel 1 – Brightness setpoint: 15 lux • Channel 1 – Use alternative brightness setpoint: Yes, 150 lux • Channel 1 – Brightness hysteresis: 5 lux • Channel 2: Presence detection • Channel 2 – Mode: Master Individual • Channel 2 – Control depends on: Presence only • Channel 2 – Begin of control send (A): Switch (On) • Channel 2 – End of control send (C): Switch (Off)
KNX Dimming Actuator parameters	• K1 – Enabled function – Feedback telegrams: enabled • K1 – Feedback brightness value: feedback object is active signalling object
	The unmentioned parameters can be the default or user defined parameters

6.6 *Presence-dependent semi-automatic light control*

It is possible to operate the presence detector in semi-automatic mode. In this case, the light must always be switched on by hand, the detector does not switch on the lighting automatically. The presence detector switches off the lighting as usual if the room is unoccupied.

Used devices	KNX Ceiling type presence detector (WRKT32005NC) KNX Switching/Blind actuator 4/2 gang (WRKT4504E) KNX Modular switch 1 gang (WRKT6121)
Linking	
KNX Ceiling type presence detector parameters	• Channel 1: Presence detection • Channel 1 – Control depends on: Presence only • Channel 1 – Begin of control send (A): No telegram • Channel 1 – End of control send (C): Switch (Off)
KNX Switching Blind actuator parameters	• Channel 1 and Channel 2 Function: Switching
KNX Modular switch parameters	• General – Function of Rocker 1: switching • Rocker 1 – Object type for 1st object of rocker: switching (1bit) • Rocker 1 – Upper key operation for 1st obj.: On
	The unmentioned parameters can be the default or user defined parameters

6.7 *Fan level control by measurement additional function*

Besides its presence & brightness dependent control functions, the detector can be used to control something depending on its measurements values.

For example in a parking garage, the detector can be used to control lights according to the presence status. Additionally it can be used to control a fan according to the measured air quality to provide enough dilution air to keep the automobile exhaust at acceptable levels.

If the measured air quality is at acceptable level the detector stops the fan. If the air quality isn't good the detector runs the fan at medium speed. If the air is too polluted the detector runs the fun at full speed.

Used devices	KNX Ceiling type presence detector (WRKT32005NC) KNX Fancoil Actuator (WRKT71445NC)
Linking	Air Quality Additional Function obj. Man. fan lev. specification obj.
KNX Ceiling type presence detector parameters	In Air Quality Measurement page: • Air quality additional function: Send 1 byte value • Additional function low level: 1000 ppm • Additional function high level: 2000 ppm • Additional function hysteresis: 50 ppm • If air quality is lower than the low level: Send telegram (0) • If air quality is between the low level and the high level: Send telegram (1) • If air quality is higher than the high level: Send telegram (2)
KNX Fancoil actuator parameters	• C1 – fan configuration – Number of fan levels: 2 • C1 – manual fan control – Manual fan control: enabled • C1 – manual fan control – Activation of manual fan control: via object "Man. fan. lev. specification" • C1 – manual fan control – Fan level change-over in case of manual specification via: value object (1 byte) • C1 – manual fan control – Manual fan control only with active heating?: no • C1 – manual fan control – Activate manual fan control after bus or main vltg. return?: yes
	The unmentioned parameters can be the default or user defined parameters