theben

KNX manual
Optical presence detector thePixa P360 KNX

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Contents

1 Function description

1.1 Optical presence detector thePixa P360 KNX

Light

The optical presence detector switches or controls up to 6 lighting groups dependent on the presence of persons and the current brightness. The brightness switching value or setpoint is adjusted by means of parameters or objects (brightness setpoint value only).

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

When constant lighting control is active, the brightness is held constant at the brightness setpoint value. The control is started fully automatically or manually via button. Manual switching off and dimming influence or stop the control for the duration of the presence.

HVAC

For each detection zone (max. 6 zones) the presence information can be transmitted, e.g. for heating, ventilation or air conditioning control. Each channel has a switch-on delay and a time delay. The integrated temperature sensor also measures the ambient temperature and can be used for control purposes.

Room occupancy

In each detection zone (max. 6 zones), persons can be counted. This allows an anticipatory regulation, depending on the number of persons. The predefined thresholds (3 thresholds) can be used to control a fan, for example. If the number of persons from different zones is to be added together, it is possible via corresponding links.

1.2 Features

- **General:**
- Optical presence detector for ceiling installation
- KNX Data Secure
- Rectangular detection area with up to 6 flexible detection zones
  (Total area 11.0 x 15.5 m | 171 m^2; at 4,5 m installation height)
- Restriction of the detection area via app (thePixa Plug)
- Automatic presence and brightness-dependent control for lighting and HVAC
- Each detection zone has its own light measurement
- Adjustment of brightness measurements via thePixa Plug app
- Configurable sensitivity of sensor
- Distinction between motion and presence
- Parallel switching of multiple presence detectors (Master/Slave or Master/Master)
- Test mode for checking function and detection area via app (thePixa Plug)
- Output of occupancy rate and occupancy density via telegram
- Integrated temperature sensor
- Ceiling installation in flush-mounting box (2-point-fixing)
- Surface mounting on ceilings possible with surface frame (option)
- thePixa Plug app sor settings and evaluations (iOS/Android)
- KNX firmware update possible (ETS app)
- Sensor firmware update possible (thePixa Plug app)

- **6 channels light, Z1 light – Z6 light:**
- Switching or constant lighting control with 6 independent control systems and standby function (orientation light)
- Switching mode with dimmable lighting
- Free switch object with configuration type switching
- Fully or semi-automatic device
- Brightness switching value configurable in lux by using parameters
- Brightness switching value configurable in lux by using parameters and telegram
- Light time delay configurable by using parameters
- Aura effect for better orientation and greater safety
- Manual override by telegram

- **6 channels HVAC, Z1 HVAC – Z6 HVAC**
- Configurable switch-on delay and time delay
- Sending of operating mode
- Separate block telegram

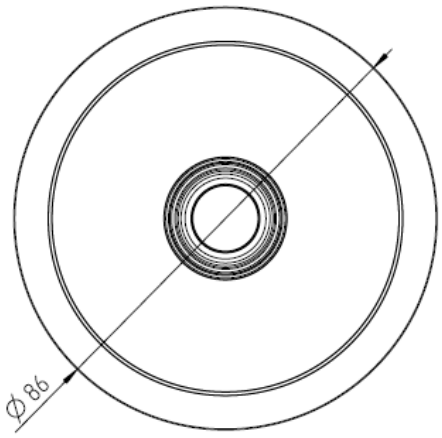
- **6 channels room occupancy, Z1 room occupancy – Z6 room occupancy**
- Output of number of persons
- Control of a fan with up to 3 stages
- 3 configurable thresholds (threshold switch)

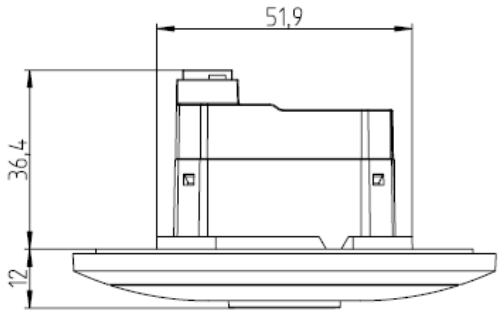
2 Technical data

Recommended installation height	2.5 – 4.5 m (minimum height ≥ 2,5 m)
Max. detection area	15.5 x 11 m | 171 m² moving radially/tangentially
Detection angle	360° horizontal
Operating voltage	230 – 240 V AC (50 Hz)
Input power (230 V)	Day-mode: 0,9 W Night-mode: 1,6 W
KNX operating voltage	21 – 32 V DC
KNX medium	TP1-256
KNX bus power input	< 10 mA
Type of installation	Ceiling installation: flush-mounted, surface mounted, or ceiling installation
Setting range brightness switching value	5 – 3000 lx / measurement off
Setting range brightness setpoint	5 – 3000 lx / light off
Lighting time delay	0 s – 60 min
Standby dimming value light	1 – 25% of the dimming value
Light standby time	0 s – 60 min / permanently on
Switch-on delay HVAC	0 s – 120 min
Time delay HVAC	0 s – 120 min
Runtime standby HVAC	0 s – 120 min
Standby value HVAC	0 - 255
Setting range temperature	-15 – +60° C
Connection type	Screw terminals | bus connection: KNX bus terminal
Protection rating	IP 20 in accordance with EN 60529
Ambient temperature	-5 – +45 °C
Protection class	II subject to designated installation
Pollution degree	2
Rated impulse voltage	4 kV
Radio frequency/transmission power	BLE 2.4 GHz Class 2 (2.5 mW)

Software	Class A

2.1 Dimensions





2.2 Detection area

The rectangular detection area of presence detector thePixa P360 KNX covers a large detection area and can be divided into up to 6 independent zones.

Installation height	Detection area walking	Detection area sitting
2.5 m	54 m² | 6,0 m x 9,0 m	22 m² | 4,0 m x 5,5 m
3.0 m	79 m² | 7,5 m x 10,5 m	35 m² | 5,0 m x 7,0 m
3.5 m	102 m² | 8,5 m x 12,0 m	51 m² | 6,0 m x 8,5 m
4.0 m	128 m² | 9,5 m x 13,5 m	79 m² | 7,5 m x 10,5 m
4.5 m	171 m² | 11,0 m x 15,5 m	102 m² | 8,5 m x 12,0 m

ⓘ Night mode detection: Night mode switches on automatically at low surrounding brightness. In this mode, the detection area may be limited at an installation height of ≥ 4 m, depending on the application.

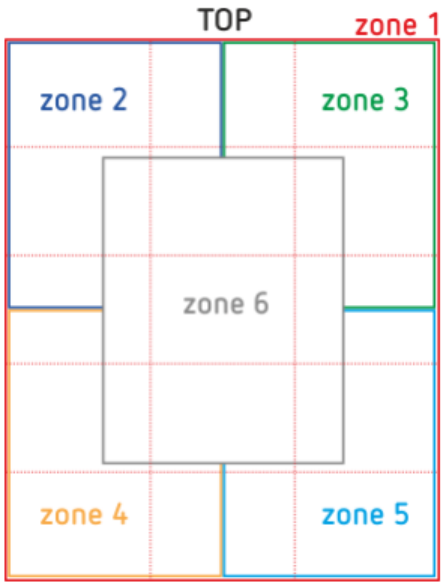
There is no distinction between a radial (frontal) and tangential (transverse) walking direction.

The recommended installation height is 2.5 – 4.5 m. The detection algorithm is designed for these installation heights.

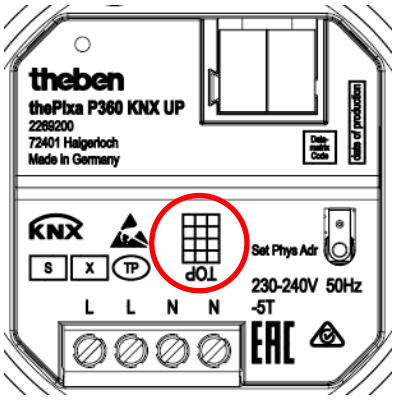
The 6 zones can be positioned either in the ETS, or via the thePixa Plug app. In the app, each zone can then be adjusted separately and individually.

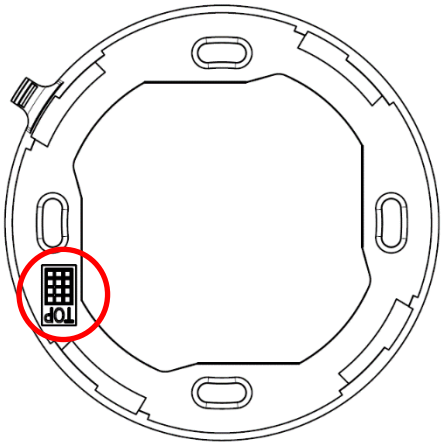
ⓘ If the zones are predefined via the ETS, it is imperative to observe the orientation of the thePixa P360 KNX when installing it.

Label ETS database:



Label thePixa P360 KNX UP WH:





The designation TOP indicates the orientation of the detection area. Also, the area marked with TOP is displayed at the top of the screen on smartphone / tablet.

During installation, it is important to observe the orientation of the TOP symbol on the mounting frame (picture on the right). The sensor can only snap into one position on the mounting frame.

2.2.1 Field of view

For the detection of motion and presence to function correctly, the field of view must be clear. It has to be avoided, for example, that suspended lamps or partitions restrict the detection area.

Example of a lamp in the detector's field of vision:

3 General information about KNX Secure

ETS5 Version 5.5 and higher support secure communication in KNX systems. A distinction is made between secure communication via the IP medium using KNX IP Secure and secure communication via the TP and RF media using KNX Data Secure. The following information refers to KNX Data Secure.

In the ETS catalogue, KNX products supporting "KNX Secure" are clearly identified: 

As soon as a "KNX-Secure" device is included in the project, the ETS requests a project password. If no password is entered, the device is included with Secure Mode deactivated. However, the password can also be entered or changed later in the project overview.

3.1 Start-up with "KNX Data Secure"

For secure communication, the FDSK (Factory Device Setup Key) is required. If a KNX product supporting "KNX Data Secure" is included in a line, the ETS requires the input of the FDSK. This device-specific key is printed on the device label and can either be entered by keyboard or read by using a code scanner or notebook camera.

Example of FDSK on device label:

After entering the FDSK, the ETS generates a device-specific tool key. The ETS sends the tool key to the device to be configured via the bus. The transmission is encrypted and authenticated with the original and previously entered FDSK key. Neither the tool key nor the FDSK key are sent in plain text via the bus.
After the previous action, the device only accepts the tool key for further communication with the ETS. The FDSK key is no longer used for further communication, unless the device is reset to the factory setting: In this case, all set safety-related data will be deleted.
The ETS generates as many runtime keys as needed for the group communication you want to protect. The ETS sends the runtime keys to the device to be configured via the bus. Transmission takes place by encrypting and authenticating them via the tool key. The runtime keys are never sent in plain text via the bus.

The FDSK is saved in the project and can be viewed in the project overview. All keys for this project can also be exported (backup).

During project planning, it can be defined subsequently which functions / objects are to communicate securely. All objects with encrypted communication are identified by the "Secure" icon in the ETS:

3.2 Start-up without "KNX Data Secure"

Alternatively, the device can also be put into operation without KNX Data Secure. In this case, the device is unsecured and behaves like any other KNX device without KNX Data Secure function.
To start up the device without KNX Data Secure, select the device in the 'Topology' or 'Devices' section and set the 'Secure start up' option in the 'Properties' area of the 'Settings' tab to 'Disabled'.

4 Settings via thePixa Plug app

If the presence detector thePixa P360 KNX is paired with thePixa Plug app, the following functions are available:

- **Detection display (grid)**

  The motions (green) or presences (red) the optical presence detector is currently evaluating are displayed. Walking persons are detected as motion, and sitting persons as presence.

  ⓘ Due to safety tracking, a motion may be displayed for a short time longer than it actually exists. This delay time depends on past motions and cannot be changed.

- **Occupancy statistics**

  Graphical display of occupancy rate and occupancy density of the past 7 days, for each zone individually:

  Occupancy rate: zone occupancy per hour in %

  Occupancy density: zone utilisation per hour in %

- **Heat map**

  Graphical display of the recorded motions over a defined period of time. Export as .csv file possible.

- **Parameter**

  The following values are displayed or can be adjusted:

  - Actual temperature / temperature calibration
  - Actual brightness per zone / brightness adjustment per zone
  - Installation height
  - Sensitivity of sensor
  - Room definition

- **Control commands**

  The following functions can be activated:

  - Teach-in function
  - Activation of programming mode
  - Activation of test mode
  - Reset to factory settings
  - Update of presence detector firmware

- **Zones**

  Insertion and editing of up to 6 zones, which can be labelled. An exclusion zone can be inserted in each zone, to suppress existing sources of interference.

ⓘ Access to the presence detector can be protected by assigning a password.

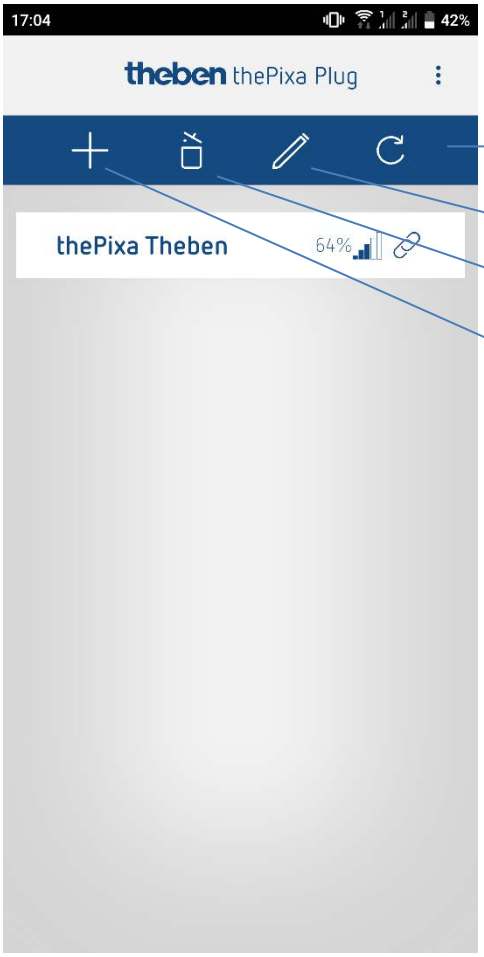
ⓘ A detailed description of the functions can be found in our operating instructions.

4.1 Connecting smartphone/tablet to the presence detector

The connection between thePixa P360 KNX and the app is established directly via Bluetooth.

➢ Download the app thePixa Plug from the App Store or Google Play Store.

➢ Open thePixa Plug and press + in the menu bar.



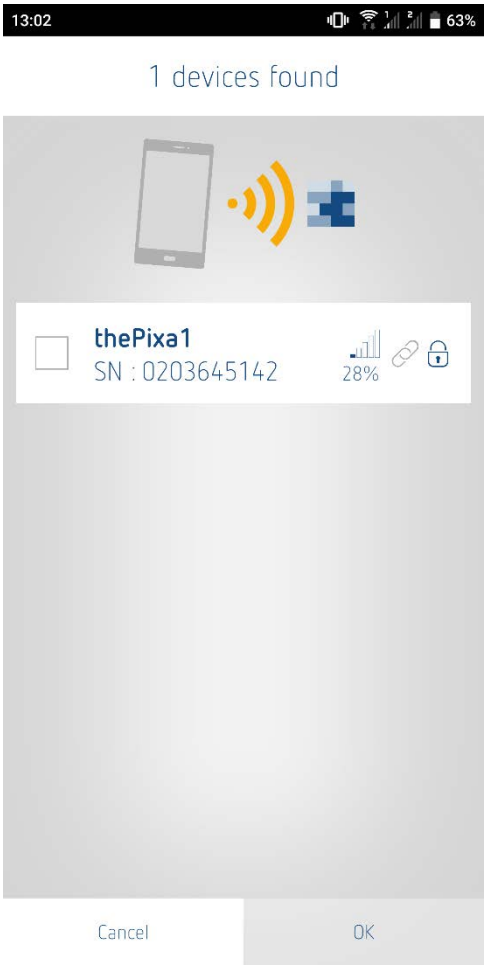
Update

Edit: change password, name

Delete

Search for new devices ...

➔ Device list of available thePixa devices appears



➢ Select device and confirm with OK.

ⓘ A detailed description of the app can be found in our operating instructions.

5 The application programme "thePixa P360 KNX"

5.1 Selection in the product database

Manufacturer	Theben AG
Product family	Physical sensors
Product type	Presence detector
Program names	thePixa P360 KNX

Number of communication objects	170
Number of group addresses	255
Number of associations	255

The ETS database can be found on our website: www.theben.de/downloads

5.2 Overview of communication objects

5.2.1 General objects

No.	Object name	Function	Length	R	W	C	T	U	DPT
2	*Temperature value*	*Send °C value*	2 bytes	R	-	C	T	-	9.001
3	*Central command*	*Receive*	1 bit	R	W	C	T	U	1.001

5.2.2 Zone related objects

No.	Object name	Function	Length	R	W	C	T	U	DPT
10	*Z1 Light output*	*Switching*	1 bit	R	-	C	T	-	1.001
11	*Z1 Light input*	*Switching external button*	1 bit	-	W	C	-	-	1.001
13	*Z1 Light input*	*External button brighter/darker*	4 bit	-	W	C	-	-	3.007
14	*Z1 Light output*	*Send value*	1 byte	R	-	C	T	-	5.001
15	*Z1 Light input*	*Send value external button*	1 byte	-	W	C	-	-	5.001
16	*Z1 Light input*	*Feedback value*	1 byte	-	W	C	-	U	5.001
17	*Z1 free switching*	*Switching*	1 bit	R	-	C	T	-	1.001
18	*Z1 Brightness setpoint value no motion/presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
19	*Z1 Brightness setpoint value motion*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
20	*Z1 Brightness setpoint value presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
21	*Z1 Brightness setpoint value standby*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
22	*Z1 Brightness value*	*Send lux value*	2 bytes	R	-	C	T	-	9.004
24	*Z1 Parallel switching*	*Trigger output*	1 bit	-	-	C	T	-	1.017
24	*Z1 Aura effect*	*Send motion status*	2 bytes	-	-	C	T	-	7.005
25	*Z1 Parallel switching*	*Trigger input*	1 bit	-	W	C	-	-	1.017
25	*Z1 Aura effect*	*Receive motion status*	2 bytes	-	W	C	-	-	7.005
26	*Z1 Aura effect*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
27	*Z1 Light standby function*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
28	*Z1 Light*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
29	*Z1 HVAC*	*Switching*	1 bit	R	-	C	T	-	1.001
29	*Z1 HVAC*	*Send operating mode*	1 byte	R	-	C	T	-	20.102
29	*Z1 HVAC*	*Send value*	1 byte	R	-	C	T	-	5.010
30	*Z1 HVAC*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
31	*Z1 Number of persons*	*Receive number*	1 byte	-	W	C	-	-	5.010
32	*Z1 Number of persons*	*Send number*	1 byte	R	-	C	T	-	5.010
33	*Z1 Threshold switch 1*	*Switching*	1 bit	R	-	C	T	-	1.001
34	*Z1 Threshold switch 2*	*Switching*	1 bit	R	-	C	T	-	1.001
35	*Z1 Threshold switch 3*	*Switching*	1 bit	R	-	C	T	-	1.001
36	*Z1 Ventilation*	*Send value*	1 byte	R	-	C	T	-	5.001
37	*Z1 Room occupancy*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
38	*Z1 Occupancy rate*	*Send value*	1 byte	R	-	C	T	-	5.001

No.	Object name	Function	Length	R	W	C	T	U	DPT
39	*Z1 Occupancy density*	*Send value*	2 bytes	R	-	C	T	-	9.008
40	*Z2 Light output*	*Switching*	1 bit	R	-	C	T	-	1.001
41	*Z2 Light input*	*Switching external button*	1 bit	-	W	C	-	-	1.001
43	*Z2 Light input*	*External button brighter/darker*	4 bit	-	W	C	-	-	3.007
44	*Z2 Light output*	*Send value*	1 byte	R	-	C	T	-	5.001
45	*Z2 Light input*	*Send value external button*	1 byte	-	W	C	-	-	5.001
46	*Z2 Light input*	*Feedback value*	1 byte	-	W	C	-	U	5.001
47	*Z2 free switching*	*Switching*	1 bit	R	-	C	T	-	1.001
48	*Z2 Brightness setpoint value no motion/presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
49	*Z2 Brightness setpoint value motion*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
50	*Z2 Brightness setpoint value presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
51	*Z2 Brightness setpoint value standby*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
52	*Z2 Brightness value*	*Send lux value*	2 bytes	R	-	C	T	-	9.004
54	*Z2 Parallel switching*	*Trigger output*	1 bit	-	-	C	T	-	1.017
54	*Z2 Aura effect*	*Send motion status*	2 bytes	-	-	C	T	-	7.005
55	*Z2 Parallel switching*	*Trigger input*	1 bit	-	W	C	-	-	1.017
55	*Z2 Aura effect*	*Receive motion status*	2 bytes	-	W	C	-	-	7.005
56	*Z2 Aura effect*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
57	*Z2 light standby function*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
58	*Z2 light*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
59	*Z2 HVAC*	*Switching*	1 bit	R	-	C	T	-	1.001
59	*Z2 HVAC*	*Send operating mode*	1 byte	R	-	C	T	-	20.102
59	*Z2 HVAC*	*Send value*	1 byte	R	-	C	T	-	5.010
60	*Z2 HVAC*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
61	*Z2 number of persons*	*Receive number*	1 byte	-	W	C	-	-	5.010
62	*Z2 number of persons*	*Send number*	1 byte	R	-	C	T	-	5.010
63	*Z2 Threshold switch 1*	*Switching*	1 bit	R	-	C	T	-	1.001
64	*Z2 Threshold switch 2*	*Switching*	1 bit	R	-	C	T	-	1.001
65	*Z2 Threshold switch 3*	*Switching*	1 bit	R	-	C	T	-	1.001
66	*Z2 Ventilation*	*Send value*	1 byte	R	-	C	T	-	5.001
67	*Z2 Room occupancy*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
68	*Z2 Occupancy rate*	*Send value*	1 byte	R	-	C	T	-	5.001
69	*Z2 Occupancy density*	*Send value*	2 bytes	R	-	C	T	-	9.008
70	*Z3 Light output*	*Switching*	1 bit	R	-	C	T	-	1.001
71	*Z3 Light input*	*Switching external button*	1 bit	-	W	C	-	-	1.001
73	*Z3 Light input*	*External button brighter/darker*	4 bit	-	W	C	-	-	3.007
74	*Z3 Light output*	*Send value*	1 byte	R	-	C	T	-	5.001
75	*Z3 Light input*	*Send value external button*	1 byte	-	W	C	-	-	5.001
76	*Z3 Light input*	*Feedback value*	1 byte	-	W	C	-	U	5.001
77	*Z3 free switching*	*Switching*	1 bit	R	-	C	T	-	1.001
78	*Z3 Brightness setpoint value no motion/presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
79	*Z3 Brightness setpoint value motion*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004

No.	Object name	Function	Length	R	W	C	T	U	DPT
80	*Z3 Brightness setpoint value presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
81	*Z3 Brightness setpoint value standby*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
82	*Z3 Brightness value*	*Send lux value*	2 bytes	R	-	C	T	-	9.004
84	*Z3 Parallel switching*	*Trigger output*	1 bit	-	-	C	T	-	1.017
84	*Z3 Aura effect*	*Send motion status*	2 bytes	-	-	C	T	-	7.005
85	*Z3 Parallel switching*	*Trigger input*	1 bit	-	W	C	-	-	1.017
85	*Z3 Aura effect*	*Receive motion status*	2 bytes	-	W	C	-	-	7.005
86	*Z3 Aura effect*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
87	*Z3 Light standby function*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
88	*Z3 Light*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
89	*Z3 HVAC*	*Switching*	1 bit	R	-	C	T	-	1.001
89	*Z3 HVAC*	*Send operating mode*	1 byte	R	-	C	T	-	20.102
89	*Z3 HVAC*	*Send value*	1 byte	R	-	C	T	-	5.010
90	*Z3 HVAC*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
91	*Z3 Number of persons*	*Receive number*	1 byte	-	W	C	-	-	5.010
92	*Z3 Number of persons*	*Send number*	1 byte	R	-	C	T	-	5.010
93	*Z3 Threshold switch 1*	*Switching*	1 bit	R	-	C	T	-	1.001
94	*Z3 Threshold switch 2*	*Switching*	1 bit	R	-	C	T	-	1.001
95	*Z3 Threshold switch 3*	*Switching*	1 bit	R	-	C	T	-	1.001
96	*Z3 Ventilation*	*Send value*	1 byte	R	-	C	T	-	5.001
97	*Z3 Room occupancy*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
98	*Z3 Occupancy rate*	*Send value*	1 byte	R	-	C	T	-	5.001
99	*Z3 Occupancy density*	*Send value*	2 bytes	R	-	C	T	-	9.008
100	*Z4 Light output*	*Switching*	1 bit	R	-	C	T	-	1.001
101	*Z4 Light input*	*Switching external button*	1 bit	-	W	C	-	-	1.001
103	*Z4 Light input*	*External button brighter/darker*	4 bit	-	W	C	-	-	3.007
104	*Z4 Light output*	*Send value*	1 byte	R	-	C	T	-	5.001
105	*Z4 Light input*	*Send value external button*	1 byte	-	W	C	-	-	5.001
106	*Z4 Light input*	*Feedback value*	1 byte	-	W	C	-	U	5.001
107	*Z4 free switching*	*Switching*	1 bit	R	-	C	T	-	1.001
108	*Z4 Brightness setpoint value no motion/presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
109	*Z4 Brightness setpoint value motion*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
110	*Z4 Brightness setpoint value presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
111	*Z4 Brightness setpoint value standby*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
112	*Z4 Brightness value*	*Send lux value*	2 bytes	R	-	C	T	-	9.004
114	*Z4 Parallel switching*	*Trigger output*	1 bit	-	-	C	T	-	1.017
114	*Z4 Aura effect*	*Send motion status*	2 bytes	-	-	C	T	-	7.005
115	*Z4 Parallel switching*	*Trigger input*	1 bit	-	W	C	-	-	1.017
115	*Z4 Aura effect*	*Receive motion status*	2 bytes	-	W	C	-	-	7.005
116	*Z4 Aura effect*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
117	*Z4 Light standby function*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003

No.	Object name	Function	Length	R	W	C	T	U	DPT
118	*Z4 Light*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
119	*Z4 HVAC*	*Switching*	1 bit	R	-	C	T	-	1.001
119	*Z4 HVAC*	*Send operating mode*	1 byte	R	-	C	T	-	20.102
119	*Z4 HVAC*	*Send value*	1 byte	R	-	C	T	-	5.010
120	*Z4 HVAC*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
121	*Z4 Number of persons*	*Receive number*	1 byte	-	W	C	-	-	5.010
122	*Z4 Number of persons*	*Send number*	1 byte	R	-	C	T	-	5.010
123	*Z4 Threshold switch 1*	*Switching*	1 bit	R	-	C	T	-	1.001
124	*Z4 Threshold switch 2*	*Switching*	1 bit	R	-	C	T	-	1.001
125	*Z4 Threshold switch 3*	*Switching*	1 bit	R	-	C	T	-	1.001
126	*Z4 Ventilation*	*Send value*	1 byte	R	-	C	T	-	5.001
127	*Z4 Room occupancy*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
128	*Z4 Occupancy rate*	*Send value*	1 byte	R	-	C	T	-	5.001
129	*Z4 Occupancy density*	*Send value*	2 bytes	R	-	C	T	-	9.008
130	*Z5 Light output*	*Switching*	1 bit	R	-	C	T	-	1.001
131	*Z5 Light input*	*Switching external button*	1 bit	-	W	C	-	-	1.001
133	*Z5 Light input*	*External button brighter/darker*	4 bit	-	W	C	-	-	3.007
134	*Z5 Light output*	*Send value*	1 byte	R	-	C	T	-	5.001
135	*Z5 Light input*	*Send value external button*	1 byte	-	W	C	-	-	5.001
136	*Z5 Light input*	*Feedback value*	1 byte	-	W	C	-	U	5.001
137	*Z5 free switching*	*Switching*	1 bit	R	-	C	T	-	1.001
138	*Z5 Brightness setpoint value no motion/presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
139	*Z5 Brightness setpoint value motion*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
140	*Z5 Brightness setpoint value presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
141	*Z5 Brightness setpoint value standby*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
142	*Z5 Brightness value*	*Send lux value*	2 bytes	R	-	C	T	-	9.004
144	*Z5 Parallel switching*	*Trigger output*	1 bit	-	-	C	T	-	1.017
144	*Z5 Aura effect*	*Send motion status*	2 bytes	-	-	C	T	-	7.005
145	*Z5 Parallel switching*	*Trigger input*	1 bit	-	W	C	-	-	1.017
145	*Z5 Aura effect*	*Receive motion status*	2 bytes	-	W	C	-	-	7.005
146	*Z5 Aura effect*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
147	*Z5 Light standby function*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
148	*Z5 Light*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
149	*Z5 HVAC*	*Switching*	1 bit	R	-	C	T	-	1.001
149	*Z5 HVAC*	*Send operating mode*	1 byte	R	-	C	T	-	20.102
149	*Z5 HVAC*	*Send value*	1 byte	R	-	C	T	-	5.010
150	*Z5 HVAC*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
151	*Z5 Number of persons*	*Receive number*	1 byte	-	W	C	-	-	5.010
152	*Z5 Number of persons*	*Send number*	1 byte	R	-	C	T	-	5.010
153	*Z5 Threshold switch 1*	*Switching*	1 bit	R	-	C	T	-	1.001
154	*Z5 Threshold switch 2*	*Switching*	1 bit	R	-	C	T	-	1.001
155	*Z5 Threshold switch 3*	*Switching*	1 bit	R	-	C	T	-	1.001

No.	Object name	Function	Length	R	W	C	T	U	DPT
156	*Z5 Ventilation*	*Send value*	1 byte	R	-	C	T	-	5.001
157	*Z5 Room occupancy*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
158	*Z5 Occupancy rate*	*Send value*	1 byte	R	-	C	T	-	5.001
159	*Z5 Occupancy density*	*Send value*	2 bytes	R	-	C	T	-	9.008
160	*Z6 Light output*	*Switching*	1 bit	R	-	C	T	-	1.001
161	*Z6 Light input*	*Switching external button*	1 bit	-	W	C	-	-	1.001
163	*Z6 Light input*	*External button brighter/darker*	4 bit	-	W	C	-	-	3.007
164	*Z6 Light output*	*Send value*	1 byte	R	-	C	T	-	5.001
165	*Z6 Light input*	*Send value external button*	1 byte	-	W	C	-	-	5.001
166	*Z6 Light input*	*Feedback value*	1 byte	-	W	C	-	U	5.001
167	*Z6 free switching*	*Switching*	1 bit	R	-	C	T	-	1.001
168	*Z6 Brightness setpoint value no motion/presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
169	*Z6 Brightness setpoint value motion*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
170	*Z6 Brightness setpoint value presence*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
171	*Z6 Brightness setpoint value standby*	*Receive lux value*	2 bytes	-	W	C	-	-	9.004
172	*Z6 Brightness value*	*Send lux value*	2 bytes	R	-	C	T	-	9.004
174	*Z6 Parallel switching*	*Trigger output*	1 bit	-	-	C	T	-	1.017
174	*Z6 Aura effect*	*Send motion status*	2 bytes	-	-	C	T	-	7.005
175	*Z6 Parallel switching*	*Trigger input*	1 bit	-	W	C	-	-	1.017
175	*Z6 Aura effect*	*Receive motion status*	2 bytes	-	W	C	-	-	7.005
176	*Z6 Aura effect*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
177	*Z6 Light standby function*	*Activate/deactivate*	1 bit	-	W	C	-	-	1.003
178	*Z6 Light*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
179	*Z6 HVAC*	*Switching*	1 bit	R	-	C	T	-	1.001
179	*Z6 HVAC*	*Send operating mode*	1 byte	R	-	C	T	-	20.102
179	*Z6 HVAC*	*Send value*	1 byte	R	-	C	T	-	5.010
180	*Z6 HVAC*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
181	*Z6 Number of persons*	*Receive number*	1 byte	-	W	C	-	-	5.010
182	*Z6 Number of persons*	*Send number*	1 byte	R	-	C	T	-	5.010
183	*Z6 Threshold switch 1*	*Switching*	1 bit	R	-	C	T	-	1.001
184	*Z6 Threshold switch 2*	*Switching*	1 bit	R	-	C	T	-	1.001
185	*Z6 Threshold switch 3*	*Switching*	1 bit	R	-	C	T	-	1.001
186	*Z6 Ventilation*	*Send value*	1 byte	R	-	C	T	-	5.001
187	*Z6 Room occupancy*	*Block = 0*	1 bit	-	W	C	-	-	1.003
		Block = 1	1 bit	-	W	C	-	-	1.001
188	*Z6 Occupancy rate*	*Send value*	1 byte	R	-	C	T	-	5.001
189	*Z6 Occupancy density*	*Send value*	2 bytes	R	-	C	T	-	9.008

5.3 Description of communication objects

5.3.1 General objects

Object 2: Temperature value - Send °C value
Sends the room temperature in °C, measured with the temperature sensor inside the device, as a 2-byte telegram.

The temperature value is adapted to the conditions in the room with the temperature calibration. The adaptation can be done in thePixa Plug app.

Object available if "yes.." has been selected at <Send temperature on bus>.

Object 3: Central command - Receive
An ON telegram switches the lighting channels Z1 – Z6 on simultaneously and starts the <time delay after presence>. The response is as if the user switches it on via button. The response depends on the selected control type. See chapter 6, page 54.

An OFF telegram switches the lighting channels Z1 – Z6 according to the following conditions:
- no motion when receiving the OFF telegram:
  The light switches off immediately. The running time delays for lighting channels Z1 – Z6 and standby time are set to 0. Afterwards, the detector is in normal operation.
- If <Duration standby> is set to "on", the corresponding lighting channels are not switched off, but instead switch to the set standby operation.
- Motion when receiving the OFF telegram:
  The light remains switched on.

Fully automatic device:
- If further movement is detected subsequently, the light is switched on again if there is insufficient brightness.

Detector is blocked:
- The central command is not executed.

5.3.2 Zone related objects

5.3.2.1 Objects for zone 1

5.3.2.1.1 Light

The following objects are available if "yes.." has been selected at <Activate light>.

Object 10: Z1 Light output – Switching
In "switching" mode, an ON telegram upon detection of motion and insufficient brightness, and an OFF telegram upon the expiration of the time delay (motion/presence) or with sufficient brightness will be sent.
0 = absence or sufficient brightness (OFF)
1 = presence and insufficient brightness (ON)

In the "constant lighting control" function, at least objects 14 and 16 are used for constant lighting control if no external button is involved. Both objects must be linked for a functioning constant lighting control. A different response is produced depending on configuration.
Constant lighting control without motion/presence is also possible.
The response under manual control can be selected as either "school" or "office".

Object 11: Z1 Light input – Switching external button
1-bit input object for manual override of the detector using an external button.
Function: switching

Object 13: Z1 Light input – External button brighter/darker
4-bit input object for manual override of the detector using an external button.
Function: dimming

Object 14: Z1 Light output – Send value
Sends an 8-bit dimming telegram to control the dimming actuator.

Object available if "yes.." was additionally selected for <Lighting dimmable in switching mode>, or "constant lighting control.." for <Function light>.

Object 15: Z1 Light input – Send value external button
1-byte input object for manual override of the detector using an external button.
Function: dimming

Object 16: Z1 Light input – Feedback value
Receives the current dimming value of the connected actuator via a 1-byte telegram.

Object available if "constant lighting control.." was selected at <Function light>.

Object 17: Z1 free switching – Switching
Free switch object, which sends the configured value to the bus, depending on the light switching status (0 or 1).

Object available if "switch light.." was selected at <Function light>.

Object 18: Z1 Brightness setpoint value no motion/presence – Receive lux value

This enables changing of the brightness setpoint value during operation.

Receives the lux value preset for the following case:
In zone 1, neither motion nor presence is detected. Constant lighting control uses the received value as a permanent new preset. This will overwrite the parameter setting in the device.

Object available if "constant lighting control.." was selected at <Function light>.

Object 19: Z1 Brightness setpoint value motion – Receive lux value

This enables changing of the brightness setpoint value during operation.

Receives the lux value preset for the following case:
Motion is detected in zone 1. Constant lighting control uses the received value as a permanent new preset. This will overwrite the parameter setting in the device.

Object available if "constant lighting control.." was selected at <Function light>.

Object 20: Z1 Brightness setpoint value presence – Receive lux value

This enables changing of the brightness setpoint value during operation.

Receives the lux value preset for the following case:
Presence is detected in zone 1. Constant lighting control uses the received value as a permanent new preset. This will overwrite the parameter setting in the device.

Object available if "constant lighting control.." was selected at <Function light>.

Object 21: Z1 Brightness setpoint value standby – Receive lux value

This enables changing of the brightness setpoint value during operation.

Receives the lux value preset for the following case:
Zone 1 is switched to standby. Constant lighting control uses the received value as a permanent new preset. This will overwrite the parameter setting in the device.

Object available if "constant lighting control.." was selected at <Function light>.

Object 22: Z1 Brightness value – Send lux value

Sends the currently measured brightness value of zone 1 as a 2-byte telegram. The frequency of telegrams depends on the cycle time and the minimum change in brightness.
The telegram is used to visualise the brightness value. Using the internal constant lighting control is recommended for control.

A brightness adjustment made in thePixa Plug app is taken into account when the value is output.

Object available if "yes.." has been additionally selected at <Send brightness value on bus>.

Object 24: Z1 Parallel switching – Trigger output, or Z1 Aura effect – send motion status

The function of the object depends on the parameter <Master operating mode>.

Master operating mode	Function
Parallel switching	Allows sending the detection status of zone 1 to another zone. If a logical 1 is received, the receiving zone behaves as if it had detected a presence itself. A logical 1 is sent if motion or presence is detected in the zone. The interval (cycle time) between two telegrams can be set to a maximum of 5 minutes. Please keep in mind to always select the interval between two trigger telegrams to be shorter than the time delay. Please observe the information on parallel switching in chapter 7, page 57. Object available if "parallel switching" has been additionally selected at <Master operating mode>.

Master/Slave parallel switching:	A Master zone receives the motion information from several Slaves zones in the room and switches or controls the lighting as required on the basis of the brightness measured by the Master. The advantage is uniform switching with a defined brightness value. For applications in corridors for example, the Master is installed in the darkest position.
Master/Master parallel switching:	Several Master zones exchange motion information. Each Master zone has its own brightness measurement, the presence detection is performed together.

Aura effect (light)	With presence and the lighting switched on in the corresponding zone, the detector sends a time value telegram with the set <Cycle time aura effect> to the adjacent detection zones. If standby operation is active, it will be overridden by the aura effect. After the aura effect has ended, standby operation will be resumed. An application example with the aura effect can be found in chapter 8, from page 59. Object available if "aura effect (light)" has been additionally selected at <Master operating mode>.

Object 25: Z1 Parallel switching – Trigger input, or Z1 Aura effect – Receive motion status

The function of the object depends on the parameter <Master operating mode>.

Master operating mode	Function
Parallel switching	Allows zone 1 to receive the detection status another zone. If a logical 1 is received, the receiving zone behaves as if it had detected a presence itself. A logical 1 is sent if motion or presence is detected in the zone. Object available if "parallel switching" has been additionally selected at <Master operating mode>.
Aura effect (light)	If a time value telegram is received in zone 1 and at the same time no one is present in this detection zone (light off), then the aura effect is started, i.e. the lighting will be switched on to the set <Switch-on dimming value at aura>.If the lighting is switched off, the aura effect will only be started in switching mode or in constant lighting control if there is insufficient brightness, or in switching mode always with "Measurement off" for the brightness switching value. If standby operation is active, it will be overridden by the aura effect. After the aura effect has ended, standby operation will be resumed. Object available if "aura effect (light)" has been additionally selected at <Master operating mode>. When using the <Function light> "switching light..." it is imperative that "yes.." is selected for <Lighting dimmable in switching mode>.

Object 26: Z1 Aura effect – Activate/deactivate

Receive object: Enables or disables the aura effect:
0 = deactivate function
1 = activate function

The receiving zone does not execute the aura when the function is deactivated, even if object 25 (motion status) is received.

Object available if "aura effect (light)" has been additionally selected at <Master operating mode>. When using the <Function light> "switching light..." it is imperative that "yes.." is selected for <Lighting dimmable in switching mode>.

Object 27: Z1 Light standby function – Activate/deactivate

Receive object: Activates or deactivates the standby function:
0 = deactivate function
1 = activate function

Object available if "yes.." has been additionally selected at <Activate light standby time>.

Object 28: Z1 Light – Block = 1, Block = 0

The lighting channel is unblocked via an ON or OFF telegram, complementing the telegram when blocking. When unblocking, the detector always sends the current status and thereby continues the brightness-dependent switching or constant lighting control.

5.3.2.1.2 HVAC

The following objects are available if "yes.." has been selected at <Activate HVAC>.

Object 29: Z1 HVAC – Switching, or
Z1 HVAC – Send operating mode, or
Z1 HVAC – Send value

The function of the object depends on the parameter <Type of telegram>.

Type of telegram	Function
Switch command	Sends an ON or OFF telegram. The telegrams can also be deactivated. Object available if "switch command" has been additionally selected at <Type of telegram>.
HVAC operating mode	Sends a telegram with the operating status. The telegrams can also be deactivated. Object available if "HVAC operating mode" has been additionally selected at <Type of telegram>.
Value	Sends a value telegram between 0 ... 255. The telegrams can also be deactivated. Object available if "value" has been additionally selected at <Type of telegram>.

Object 30: Z1 HVAC – Block = 1, Block = 0

The HVAC channel is unblocked via an ON or OFF telegram, complementing the telegram when blocking. When unblocking, the detector always sends the current status.

5.3.2.1.3 Room occupancy

The following objects are available if "yes.." has been selected at <Activate room occupancy>.

Object 31: Z1 Number of persons – Receive number
Receives an 8-bit telegram with the number of dynamic and/or static persons. The received value is added with the number of measured persons in zone 1.

Object 32: Z1 Number of persons – Send number
Sends an 8-bit telegram with the number of dynamic and/or static persons. The object is sent cyclically or when the number of persons changes (+/- 1 person).

Object 33: Z1 Threshold switch 1 – Switching
Sends an ON or OFF telegram when the configured number of persons for thresholds 1-3 has been reached. The telegrams can also be deactivated.

Object available if "yes.." has been additionally selected at <Activate switching>.

Object 34: Z1 Threshold switch 2 – Switching
Sends an ON or OFF telegram when the configured number of persons for thresholds 1-3 has been reached. The telegrams can also be deactivated.

Object available if "yes.." has been additionally selected at <Activate switching>.

Object 35: Z1 Threshold switch 3 – Switching
Sends an ON or OFF telegram when the configured number of persons for thresholds 1-3 has been reached. The telegrams can also be deactivated.

Object available if "yes.." has been additionally selected at <Activate switching>.

Object 36: Z1 Ventilation – Send value
Sends 8-bit telegrams with percentage values, which can be used e.g. for a fan control. Percentage values can also be sent cyclically.

Object available if "yes.." has been additionally selected at <Activate ventilation>.

Object 37: Z1 Room occupancy – Block = 1, Block = 0
The room occupancy channel is unblocked via an ON or OFF telegram, complementing the telegram when blocking. When unblocking, the detector always sends the current status, which depends on the threshold configuration.

Object 38: Z1 Occupancy rate – Send value
Sends the room occupancy rate within the last hour by 8-bit telegram.
Example: If the room was occupied for a total of 45 minutes, the occupancy rate is 75%. See chapter 10, page 61.

Object 39: Z1 Occupancy density – Send value

Sends the average density of room occupancy within zone 1 during the last hour by means of a 16-bit telegram.
Example: If on average half of the area was occupied, the occupancy density is 50%. See chapter 11, page 62.

5.3.2.2 Objects for zone 2

Objects 40..69
The objects 40 to 69 are for zone 2, and they are identical in their function to the objects of zone 1 (objects 10 to 39).

5.3.2.3 Objects for zone 3

Objects 70..99
The objects 70 to 99 are for zone 3, and they are identical in their function to the objects of zone 1 (objects 10 to 39).

5.3.2.4 Objects for zone 4

Objects 100..129
The objects 100 to 129 are for zone 4, and they are identical in their function to the objects of zone 1 (objects 10 to 39).

5.3.2.5 Objects for zone 5

Objects 130..159
The objects 130 to 159 are for zone 5, and they are identical in their function to the objects of zone 1 (objects 10 to 39).

5.3.2.6 Objects for zone 6

Objects 160..189
The objects 160 to 618 are for zone 6, and they are identical in their function to the objects of zone 1 (objects 10 to 39).

5.4 Parameter pages overview

Parameter page	Description
General information	Basic settings: zone allocation, sensitivity, etc.
Zone parameters for zone 1...6	
General zone settings	Zone name, operating mode, use, etc.
Light	General settings for lighting control.
Time delays	Time delays for motion, presence and standby.
Switching	Switching light and free switch object.
Dimming	Dimming values for motion, presence, etc.
Control settings	Parameters for constant lighting control.
HVAC	General settings for heating control.
Time delays	Time delays for motion, presence and standby.
Room occupancy	General settings for person counting and threshold configuration
Ventilation	Fan speed depending on room occupancy thresholds.
Threshold switch 1	Response of the threshold switch objects to exceeding or falling below the room occupancy thresholds.
Threshold switch 2	
Threshold switch 3	

5.5 General parameters

5.5.1 Settings

Designation	Values	Description
General settings		
Installation height of detector	*2.5 m*, ***3.0 m***, *3.5 m, 4.0 m, 4.5 m*	Selection of installation height of detector.
Sensitivity of sensor	*1…**3**…5*	The detector has 5 sensitivity increments: 1 very insensitive 2 insensitive 3 standard 4 sensitive 5 very sensitive
Zone definition	***free via Bluetooth app*** *1 zone* *2 zones 1/2 of the image area vertical* *2 zones 1/2 of the image area horizontal* *3 zones 1/3 of the image area* *4 zones 1/4 of the image area* *5 zones 1/4 of the image area*	Define the zones via Bluetooth app. Allows to divide the area to be monitored into several areas and to assign them to zones. The zone allocation is displayed in the ETS as a sketch. The selected zone definition is taken over by the detector and can be adjusted with the Bluetooth app if required. **Important:** With the predefined zone divisions, zone 1 is always the entire detection area. This must be taken into account for lighting control.
Device name (optional)	*text field*	User-specific designation for this device.
Overwrite parameter on download	*no* ***yes***	The following parameters will not be overwritten on download: - Installation height of detector - Sensitivity of sensor - Zone definition - Security password - Room definition - Brightness switching value / brightness setpoint value (each zone) Settings changed via thePixa Plug app or via bus objects will be retained. All parameters will be overwritten on download. Settings changed via thePixa Plug app or via bus objects will be overwritten.

Designation	Values	Description
Activate security mode	***no***	In thePixa Plug app, the available parameters can be changed without a password: - Entering actual temperature - Light level value per zone - Installation height - Detection sensitivity - Teach-in - Factory settings - Firmware update - Zone editing
	yes..	To adjust the parameters listed above, the security password must always be entered. The safety mode can also be activated subsequently in thePixa Plug app.
Security password[1]	*free text entry (6 characters)*	The parameter is visible if "yes.." has been set at the parameter <Activate security mode>. Security password to allow the settings in safety mode to be changed via thePixa Plug app. The security password must consist of 6 characters; A-Z, 0-9 The security password can also be assigned later in thePixa Plug app.
Room definition	***standard***	Standard room, e.g. office, corridor, etc.
	meeting room	The detector is installed in a meeting room. Therefore, the detection algorithm is adapted to these conditions. The focus is on counting persons. The meeting room mode may only be used for a respective meeting room. **Important:** The room definition refers to all zones.
Send temperature on bus	***no***	The measured temperature value is not transmitted.
	yes..	The measured temperature value is transmitted on the bus. A temperature calibration made in thePixa Plug app is taken into account when the value is output.

[1] Note: The security password can be changed at any time in the ETS or in thePixa Plug app.

Designation	Values	Description
Send temperature cyclically		The parameter is visible if "yes.." has been set at the parameter <Send temperature on bus>.
	no	The measured temperature value is not transmitted cyclically.
	every minute *every 2 minutes* *...* *every 30 minutes*	The measured temperature value is transmitted cyclically at the selected time.
Send temperature in the event of change		The parameter is visible if "yes.." has been set at the parameter <Send temperature on bus>.
	no	The measured temperature value is not transmitted depending on a change in temperature.
	from > 0.2 K *from > 0.5 K* *from > 1.0 K* *from > 1.5 K* *from > 2.0 K* *...* *from > 4.5 K* *from > 5.0 K*	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. If the temperature has remained constant, the temperature value is transmitted again at the latest after expiration of the configured cycle time.

5.6 Zone related parameters

The detection area can be divided into up to 6 independent zones.

5.6.1 General zone settings

Designation	Values	Description
Zone name (optional)	*text field*	For easy distinction of zones, e.g. Office 1. Designation can be changed later in the app.
Operating mode	***master***	The zone controls connected actuators independently, based on the detection of motion/presence and possibly the detection of one or more zone/s in parallel switching.
	slave	The zone is not connected to any actuator, but only provides detection information to one or more zones in "master" operating mode. Only applies to channels light and HVAC. The channel room occupancy is not affected by this setting.
Master operating mode	***individual switching***	Zone operates autonomously.
	parallel switching	Depending on requirements, additional zones are linked together as Master or Slaves for the extension of the detection range. Please observe the information on parallel switching in chapter 7 on page 57.
	aura effect (light)	The light follows the user in the area where he is currently moving. The lighting in the surrounding zones is switched or dimmed to the <Switch-on dimming value at aura>. Please observe the information on the aura effect in chapter 8 on page 59.

Designation	Values	Description
Cycle time parallel switching	*5 s...25 s,* ***30 s****...5 min*	The parameter is visible if "parallel switching" has been set at the parameter <Master operating mode>. The interval between two telegrams can be set to a maximum of 5 minutes. Please keep in mind to always select the interval between two trigger telegrams to be shorter than the time delay.
Cycle time aura effect	*5 s...25 s,* ***30 s****...5 min*	The parameter is visible if "aura effect (light)" has been set at the parameter <Master operating mode>. If the lighting is switched on in the corresponding zone, the detector cyclically sends a time value telegram.
Activate light[2]	***no*** *yes..*	Light function is not used. Light function is used. Activates the parameter page **Light.**
Activate HVAC[3]	***no*** *yes..*	HVAC function is not used. HVAC function is used. Activates the parameter page **HVAC**
Activate room occupancy[4]	***no*** *yes..*	Room occupancy function is not used. Room occupancy function is used. Activates the parameter page **Room occupancy.**

[2] Only with *operating mode = Master*
[3] Only with *operating mode = Master*
[4] Only with *operating mode = Master*

5.6.2 Light

Designation	Values	Description
Light general[5]		
Function light	***switching light..***	The light is switched or dimmed to a defined value depending on motion or presence. It is possible to dim the lighting to a specific value without motion or presence detection. For this purpose, the parameter <Switch-on dimming value at no motion, no presence> is available.
	constant lighting control..	The light is dimmed to a constant brightness value depending on motion or presence. It is possible to control the lighting to a specific value without motion or presence detection. For this purpose, the parameter <Brightness setpoint value no motion, no presence> is available.
Configuration type	*semi-automatic*	In "semi-automatic" <Configuration type>, switching on must always be carried out manually. It is switched off automatically. See chapter 6, page 54.
	fully automatic	In the "fully automatic" <Configuration type>, the lighting channel automatically switches or controls the lighting depending on presence and surrounding brightness. It is switched off automatically.
Send brightness value on bus	***no***	The measured brightness value is not transmitted.
	yes..	The measured brightness value is transmitted on the bus. A brightness adjustment made in thePixa Plug app is taken into account when the value is output.

[5] Parameters are visible if "yes.." has been set at the parameter <Activate light>.

Designation	Values	Description
Send brightness value cyclically		The parameter is visible if "yes.." has been set at the parameter <Send brightness value on bus>.
	no	The measured brightness value is not transmitted cyclically.
	every minute *every 2 minutes* *...* *every 30 minutes*	The measured brightness value is transmitted cyclically at the selected time.
Send brightness value upon change		The parameter is visible if "yes.." has been set at the parameter <Send brightness value on bus>.
	no	The measured brightness value is not transmitted depending on a change in brightness.
	from > 5% *from > 10%* *from > 20%* *from > 30%* *from > 40%* *from > 50%* *from > 60%* *from > 70%* *from > 80%*	The brightness value is sent if the measured value has changed by at least the configured value since the last transmission. This change is independent of the length of time taken for this process. If the brightness remains constant, the brightness value will be resent on completion of the configured cycle time.

Designation	Values	Description
Block telegram light		Blocking the light output means that the detector in the corresponding zone does not send any light output object telegrams, although motion and brightness continue to be evaluated. **General unblocking** If no presence was detected at the time of unblocking, an OFF telegram and/or a dimming value telegram will be sent. If presence was detected at the time of unblocking, an ON telegram and/or a dimming value telegram will be sent. The lighting is not switched off if presence is detected with insufficient brightness. **Note:** If aura is detected at the time of unblocking, or if standby on is activated (and the brightness is fallen below), the functions are executed.
	block with OFF telegram	0 = block 1 = cancel block
	block with ON telegram	0 = cancel block 1 = block
Activate light standby time	***no***	The light is switched off at the end of the time delay.
	yes..	At the end of the time delay, the light remains temporarily switched on or dimmed to a certain level.
Send aura at		The parameter is visible if "aura effect (light)" has been set at the parameter <Master operating mode>.
	motion	Send or receive motion status on motion.
	presence	Send or receive motion status on presence.
	motion and presence	Send or receive motion status on motion and presence.

Designation	Values	Description
Switching light general[6]		
Brightness switching value	*Measurement off (not dependent on luminance)* *5 lx* *10 lx* *...* *100 lx* *110 lx* *...* *200 lx* *250 lx* *...* ***500 lx*** *...* *1000 lx* *1100 lx* *...* *3000 lx*	The zone switches or dims on motion or presence without taking the ambient brightness into account. The brightness switching value defines the minimum desired brightness. The currently prevailing brightness is determined from the average of the entire zone. If the brightness is below the switching value, the light is switched on if motion or presence is detected. Thanks to adaptive light measurement, the turn-off threshold is determined dynamically by the detector according to the ambient conditions.
Lighting dimmable in switching mode	***no*** *yes..*	The lighting cannot be dimmed. The lighting can be dimmed. Activates the parameter page **Dimming.**

[6] Parameters are visible if "yes.." has been set at the parameter <Activate light>.

5.6.2.1 Time delays[7]

Designation	Values	Description
Delay from motion to presence	*none*	When there is a change from motion to presence in the detector (time not adjustable), the status immediately changes to presence.
	*1 s...**5 s**...60 min*	When there is a change from motion to presence in the detector (time not adjustable), the status is only changed to presence after the selected time.
Time delay after motion	*none*	No time delay after motion.
	*1 s...**1 min**...60 min*	Time to change from motion status to standby status or no motion / no presence.
Time delay after presence	*none*	No time delay after presence.
	*1 s...**10 min**...60 min*	Time to change from presence status to motion, standby status, or no motion / no presence.
Duration standby		The parameter is visible if "yes.." has been set at the parameter <Activate light standby time>.
	none	No standby time for lighting activated.
	1 s...60 min	The standby time causes dimming to the set standby dimming value for the corresponding duration after the time delay has elapsed, instead of switching off.
	on	The lighting remains permanently on standby when no one is present. The parameter <Switching off when there is enough brightness> can be used to switch off when brightness is sufficient.

[7] Parameters are visible if "yes.." has been set at the parameter <Activate light>.

5.6.2.2 Switching[8]

Designation	Values	Description
Switching light		
Switch object light		
Response at start of block	*send 0* *send 1* ***do not send***	An OFF telegram is sent at the start of blocking. An ON telegram is sent at the start of blocking. No telegram is sent at the start of blocking.
Cyclical transmission switch object light	***no*** *every minute* *every 2 minutes* *...* *every 30 minutes*	Switch object light is not sent cyclically. Switch object light is sent cyclically with selected time.
Free switch object		
Switching value free switch object at		
No motion, no presence	***send 0*** *send 1* *do not send*	Switching status as a response to the detected motion status within the zone.
Motion	*send 0* *send 1* ***do not send***	
Presence	*send 0* ***send 1*** *do not send*	
Standby[9]	***send 0*** *send 1* *do not send*	
Block	***send 0*** *send 1* *do not send*	
Cyclical transmission free switch object	***no*** *every minute* *every 2 minutes* *...* *every 30 minutes*	Value is not sent cyclically. Value is sent cyclically with selected time.

[8] Parameters are visible if "yes.." has been set at the parameter <Activate light>.
[9] Parameter is visible if "yes.." has been set at the parameter <Activate light standby time>.

5.6.2.3 Dimming[10]

Designation	Values	Description
Dimming light		
Switch-on dimming value at		
No motion, no presence	***0**...100%*	Dimming value as a response to the detected motion status within the zone.
Motion	*0...**50**...100%*	
Presence	*0...**100%***	
Aura	*1...**10**...25 %*	
Standby	*1...**10**...25 %*	
Block	***0**...100%*	
Cyclical transmission dimming object	***no*** *every minute* *every 2 minutes* *...* *every 30 minutes*	Value is not sent cyclically. Value is sent cyclically with selected time.

[10] Parameters are visible if "yes.." has been set at the parameter <Lighting dimmable in switching mode>.

5.6.2.4 Control settings[11]

Designation	Values	Description
Constant lighting control		
Brightness setpoint value at		
No motion, no presence	***Light off,*** *5…3000 lx*	Desired brightness depending on motion status within the zone.
Motion	*Light off,* *5…**100**…3000 lx*	
Presence	*Light off,* *5…**500**…3000 lx*	
Standby[12]	*Light off,* *5…**50**…3000 lx*	
Switch-on dimming value at		
Aura[13]	*1…**10**…25%*	Fixed dimming value for aura mode.
Block	*do not send,* ***0**…100%*	No dimming value is sent when blocking the light output. Fixed dimming value is sent after blocking the light output.
Cyclical transmission dimming object	***no*** *every minute* *every 2 minutes* *…* *every 30 minutes*	Value is not sent cyclically. Value is sent cyclically with selected time.
Switch-on dimming value	*50…**70**…100%*	When the controller starts, the lighting is switched on to the set <Switch-on dimming value>, and control starts from this value.
Lower control limit	*1…**10**…25%*	Lowest permissible dimming value for control.
Upper control limit	*50…**100%***	Maximum permissible dimming value for control.
Switching off when there is enough brightness	*never switch off,* *5 min…**10 min**…9 h*	If the lighting is controlled down to the lower limit, the lighting will be switched off after the time set at the parameter <Switch off when there is enough brightness>. With the selection „never switch off", the lighting will never be switched off. This behaviour is valid, as long as persons are present.

[11] Parameters are visible if "constant lighting control" is set at the parameter <Functionlight>.
[12] Parameter is visible if "yes.." has been set at the parameter <Activate light standby time>.
[13] Parameter is visible if "aura effect (light)" has been set at the parameter <Master operating mode>.

Designation	Values	Description
Response with manual dimming	***school***	Manual dimming using a 4-bit object ends the control. The manually set dimming value, e.g. 75%, applies until the end of presence.
	office	Manual dimming using a 4-bit object changes the brightness setpoint value for the control. The new brightness setpoint value applies until the end of presence.

5.6.3 Heating - ventilation - air conditioning[14]

Designation	Values	Description
HVAC		
Type of telegram	***switch command*** *HVAC operating mode* *value*	3 telegram types are available for selection.
Output value of HVAC object at		
No motion, no presence	At type of telegram = switch command	
	send 0 *send 1* *do not send*	Send switch-off command. Send switch-on command. No response.
	At type of telegram = HVAC operating mode	
	auto *comfort* ***standby*** *temperature reduction at night* *frost protection* *do not send*	Send HVAC operating mode
	At type of telegram = value	
	0-255	Any value between 0 and 255 can be sent.
Motion	*Type of telegram: See above..*	See above..
Presence	*Type of telegram: See above..*	See above..
Standby	*Type of telegram: See above..*	See above..
Block	*Type of telegram: See above..*	See above..
Block telegram HVAC		By blocking, no more telegrams are sent by the HVAC channel.
	block with OFF telegram	0 = block 1 = cancel block
	block with ON telegram	0 = cancel block 1 = block

[14] Parameters are visible if "yes.." has been set at the parameter <Activate HVAC>.

Designation	Values	Description
Cyclical transmission HVAC object	***no*** *every minute* *every 2 minutes* *...* *every 30 minutes*	Value is not sent cyclically. Value is sent cyclically with selected time.

5.6.3.1 Time delays

Designation	Values	Description
Delay to motion	*none* *1 min...**10 min**...120 min*	No switch-on delay when motion is detected. Time for the switch-on delay when motion is detected to the motion status.
Delay from motion to presence	*none* *1 min...**30 min**...120 min*	When there is a change from motion to presence in the detector (time not adjustable), the status immediately changes to presence. When there is a change from motion to presence in the detector (time not adjustable), the status is only changed to presence after the selected time.
Time delay after motion	*none* *1 min...**60 min**...120 min*	No time delay for the motion status. Time delay for the motion status.
Time delay after presence	*none* *1 min...**60 min**...120 min*	No time delay after presence. Time delay for the presence status.
Duration standby	*none* *1 min...**120 min***	No standby time for HVAC activated. Time for the duration of the standby status.

5.6.4 Room occupancy[15]

The number of persons counted may vary slightly depending on the application and ambient conditions.

Designation	Values	Description
Room occupancy general		
Composition of the persons counted	*only dynamic*	Only the persons who move are counted.
	only static	Only those persons who are not moving are counted (only presence).
	dynamic and static	All persons are counted.
Block telegram room occupancy		By blocking, no more telegrams are sent by the channel room occupancy.
	block with OFF telegram	0 = block 1 = cancel block
	block with ON telegram	0 = cancel block 1 = block
Send number of persons to bus?	***no***	The measured number of persons is not sent.
	yes..	The measured number of persons is sent to the bus depending on the parameter <Composition of the persons counted>. It is possible to add the number of persons from several zones. Please observe the information in chapter 9 on page 60.
Cyclical transmission number of persons		The parameter is visible if "yes.." has been set at the parameter <Send number of persons to bus>.
	no	Value is not sent cyclically.
	every minute *every 2 minutes* *...* *every 30 minutes*	Value is sent cyclically with selected time.

[15] Parameters are visible if "yes.." has been set at the parameter <Activate room occupancy>.

Designation	Values	Description
Send number of persons upon change		The parameter is visible if "Yes.." has been set at the parameter <Send number of persons to bus>.
	no	The measured number of persons is not sent depending on a change in the number of persons.
	yes	The number of persons is sent if the measured value has changed by at least 1 (+/-) since the last transmission (max. every 10 s). This change is independent of the length of time taken for this process. If the number of persons has remained constant, the number of persons will be transmitted again at the latest after expiration of the configured cycle time.
Activate ventilation	***no***	
	yes..	Opens the parameter page ***Ventilation.*** Based on the set <Threshold configuration> predefined value telegrams are sent, e.g. to control a fan.
Activate switching	***no***	
	yes..	Opens the parameter pages ***Threshold switch 1...3.*** Based on the set <Threshold configuration> predefined switching statuses are sent.
Threshold configuration		
Number of thresholds	*none*	Function deactivated.
	1 threshold *2 thresholds* ***3 thresholds***	Number of switching thresholds.
Delay time for threshold change	*none*	No delay when changing thresholds.
	*1 s...**1 min**...60 min*	Time for changing from one threshold to the other.

Designation	Values	Description
Number of persons		
For threshold 1	***1 Person*** ... *5 Personen* ... *10 Personen* ... 50 Personen	Desired number of persons for threshold 1.
For threshold 2	*1 Person* ... ***5 Personen*** ... *10 Personen* ... *50 Personen*	Desired number of persons for threshold 2.
For threshold 3	*1 Person* ... *5 Personen* ... ***10 Personen*** ... *50 Personen*	Desired number of persons for threshold 3.

5.6.5 Ventilation[16]

Designation	Values	Description
Ventilation		
Output value for ventilation object at		
Below threshold 1	*do not send* ***0%****...100%*	No response. Selected value is sent when threshold 1 is fallen below.
Greater or equal threshold 1	*do not send* *0%...**20%**...100%*	No response. Selected value is sent when ≥ threshold 1.
Greater or equal threshold 2	*do not send* *0%...**40%**...100%*	No response. Selected value is sent when ≥ threshold 2.
Greater or equal threshold 3	*do not send* *0%...**60%**...100%*	No response. Selected value is sent when ≥ threshold 3.

[16] Parameters are visible if "yes.." has been set at the parameter <Activate ventilation>.

Block	*do not send* ***0%**...100%*	No response. Selected value is sent when blocking.
Cyclical transmission ventilation object	***no*** *every minute* *every 2 minutes* *...* *every 30 minutes*	Value is not sent cyclically. Value is sent cyclically with selected time.

5.6.6 Threshold switch 1, 2, 3[17]

The room occupancy function has 3 identical threshold switch objects

Designation	Values	Description
Threshold switch object 1		
Output value for threshold switch object 1 at		
Below threshold 1	***send 0*** *send 1* *do not send*	Send switch-off command. Send switch-on command. No response.
Greater or equal threshold 1	***send 0*** *send 1* *do not send*	Send switch-off command. Send switch-on command. No response.
Greater or equal threshold 2	***send 0*** *send 1* *do not send*	Send switch-off command. Send switch-on command. No response.
Greater or equal threshold 3	***send 0*** *send 1* *do not send*	Send switch-off command. Send switch-on command. No response.
Block	***send 0*** *send 1* *do not send*	Send switch-off command. Send switch-on command. No response.

[17] Parameters are visible if "yes.." has been set at the parameter <Activate switching>.

Designation	Values	Description
Cyclical transmission threshold switch object 1	***no***	Value is not sent cyclically.
	every minute *every 2 minutes* *...* *every 30 minutes*	Value is sent cyclically with selected time.

6 Manual operation with push buttons

The detector can be overridden by using buttons or other higher-level commands. For this purpose, the separate button input objects have to be used.
The manual operation only affects the light outputs. The HVAC and room occupancy outputs are not affected by manual operation.

6.1 Manual operation via switching function without dimmable lighting

If the lighting is operated manually in function light <switch light..>, the following response occurs in the corresponding zone:

Example with zone 1:

Push button operation	Response of lighting / detector
ON telegram	The lighting is switched on with an ON telegram of the button. The override is detected via object 11, and the lighting remains on for 30 minutes if the room is occupied. Light measurement is deactivated. The light measurement is reactivated after the 30 minutes. In case of sufficient brightness, an OFF telegram is sent to object 10, and the lighting switches off. If the room is vacated before the 30 minutes have expired, the light will be switched off normally after the completion of the set time delays.
OFF telegram	The lighting is switched off with an OFF telegram of the button. The override is detected via object 11, and the lighting remains on for the duration of the presence. After the room is vacated and the corresponding time delay has expired, the zone is again in normal switching mode.

6.2 Manual operation via switching function with dimmable light

If the lighting is operated manually in configuration type <switch light..> and <Lighting dimmable in switching mode>, the following response occurs in the corresponding zone:

Example with zone 1:

Push button operation	Response of lighting / detector
ON telegram	The lighting is switched on with an ON telegram of the button. The override is detected via object 11, and the lighting remains on for 30 minutes if the room is occupied. Light measurement is deactivated. The light measurement is reactivated after the 30 minutes. In case of sufficient brightness, an OFF telegram is sent to object 10, and the lighting switches off. If the room is vacated before the 30 minutes have expired, the light will be switched off normally after the completion of the set time delays.
Dimming telegram (4 bit)	The lighting is dimmed with a dimming telegram of the button. The override is detected via object 13, and the new dimming value remains until the presence time delay has expired. Afterwards, the existing settings are applied again.
Value telegram (1 byte)	The lighting is dimmed with a value telegram of the button. The override is detected via object 15, and the lighting remains at the transmitted value for the duration of presence until the presence time delay has expired. Afterwards, the original settings are applied again.
OFF telegram	The lighting is switched off with an OFF telegram of the button. The override is detected via object 11, and the lighting remains on for the duration of the presence. After the room is vacated and the corresponding time delay has expired, the zone is again in normal switching mode.

6.3 Manual operation with constant lighting control function

If the lighting is operated manually in function light <constant lighting control..>, the following response occurs in the corresponding zone:

Example with zone 1:

Push button operation	Response of lighting/detector
ON telegram	The lighting is switched on with an ON telegram of the button. The override is detected via object 11 and constant lighting control is activated. In the zone, the lighting is controlled depending on brightness.
Dimming telegram (4 bit)	The lighting is dimmed with a dimming telegram of the button. The override is detected via object 13 and, depending on the set parameter (school/office), the following response occurs: school: Constant lighting control is temporarily interrupted by manual dimming. The brightness setpoint remains unchanged. office: After manual dimming to current brightness level, constant lighting control remains temporarily active as new brightness setpoint. After the time delays have expired, the configured brightness setpoint will be restored.
Value telegram (1 byte)	The lighting is dimmed with a value telegram of the button. The override is detected via object 15, and the lighting remains at the transmitted value for the duration of presence until the presence time delay has expired. Afterwards, the original settings are applied again.
OFF telegram	The lighting is switched off with an OFF telegram of the button. The override is detected via object 11, and the lighting remains on for the duration of the presence. After the room is vacated and the corresponding time delay has expired, the zone is again in normal standard operating mode.

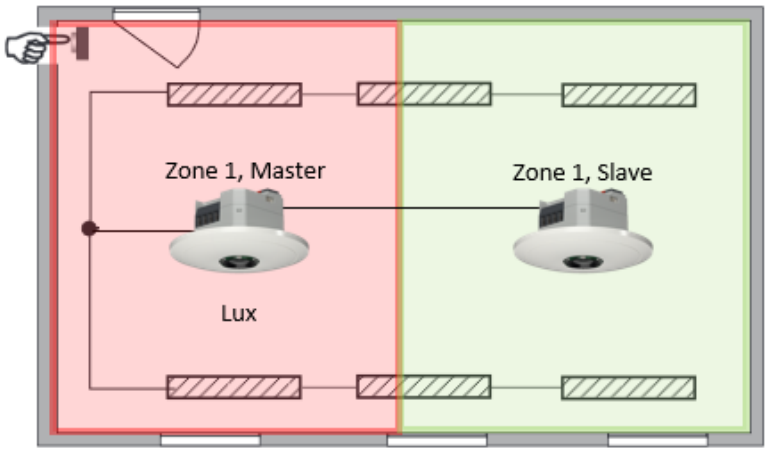
7 Parallel switching

7.1 Master/Slave parallel switching

ⓘ The operating mode (Master or Slave) is configured individually for each zone.

A zone with "Master in parallel switching" can be connected to several "Slave" zones. The zones can come from their own detector, or from another detector.
For this purpose, the trigger outputs of the Slave zones are linked with the trigger input of the Master zone. The Slaves only supply presence information from their detection area. The brightness measurement as well as the management of all parameter settings are carried out at the master zone.

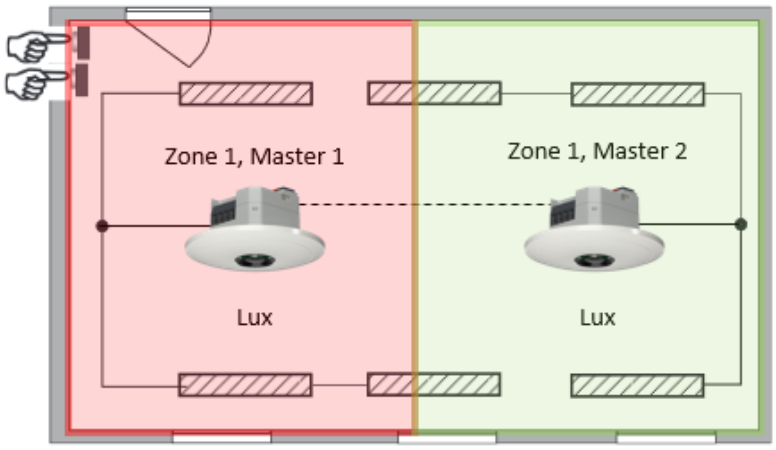
Example of a Master-Slave switching with 2 detectors:



7.2 Master/Master parallel switching

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

Example of a Master-Master switching with 2 detectors:



7.3 Telegram load when using parallel switching

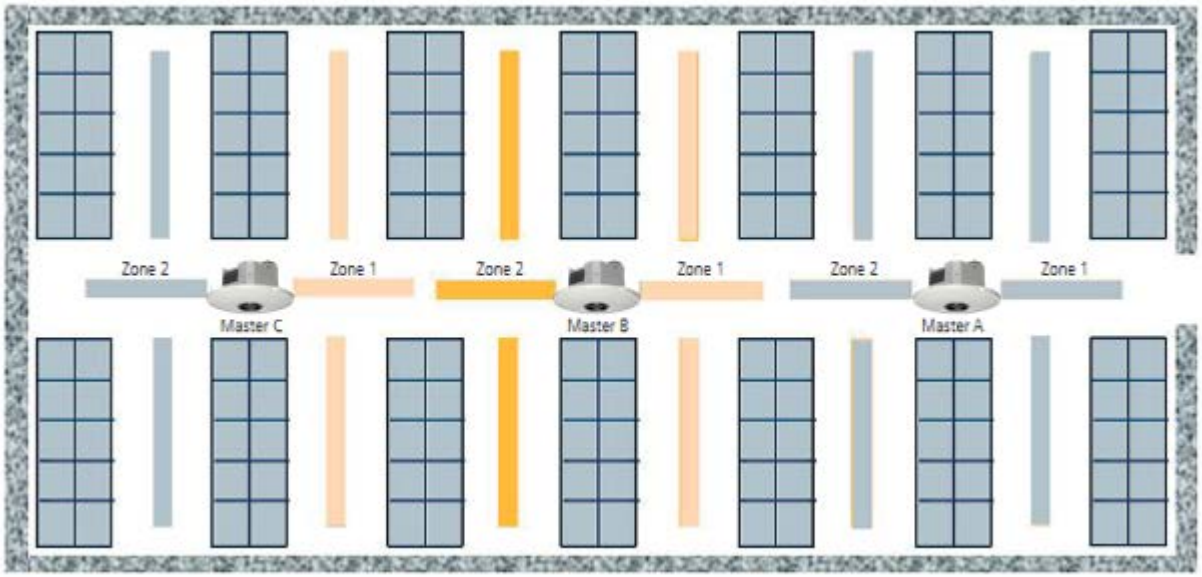
In parallel switching, each Master zone in parallel switching and each Slave zone sends a telegram, as long as a person is in the detection area. The interval between two telegrams can be up to 5 minutes, to reduce the telegram load on the bus. Please note that the time delay can never be shorter than the interval between two telegrams, in order to prevent unintentional switch off.

ⓘ The parallel switching is compatible with all Theben KNX presence detectors.

8 Aura effect function

With the aura effect function, the light follows the users based on the area they are in. The surrounding areas are dimmed up to a set orientation light value. This guarantees better orientation and greater safety. If the person in the room moves, the light accompanies this person like an aura.

Example - warehouse:



Each detector has zone 1 and zone 2 activated. Trigger objects are available for sending and receiving the motion status:

Z1 aura effect send motion status
Z1 aura effect receive motion status
Z2 aura effect send motion status
Z2 aura effect receive motion status

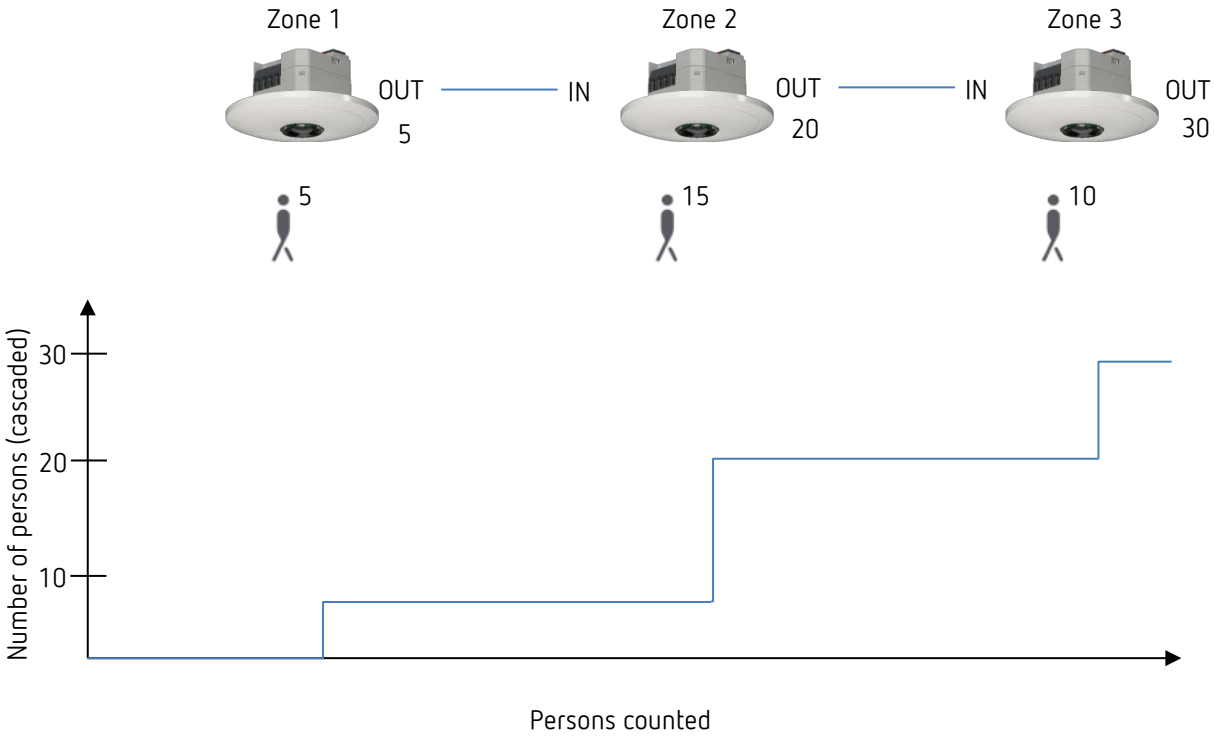
They can be linked up to adjacent zones. As soon as an aura signal is received and no motion was detected in the zone, the lighting channels in these zones will go to the set aura dimming value.
An example of the aura effect with the required object links and parameter settings can be found in chapter 13.9 on page 86.

9 Adding the persons counted

By adding the number of persons from different zones, it is possible to determine the number of persons even for larger areas. The different zones can come from the same as well as from other thePixa. The following communication objects are available for each zone:

Zx number of persons	Receive number
Zx number of persons	Send number

In principle, the number of persons is cascaded from detector to detector:



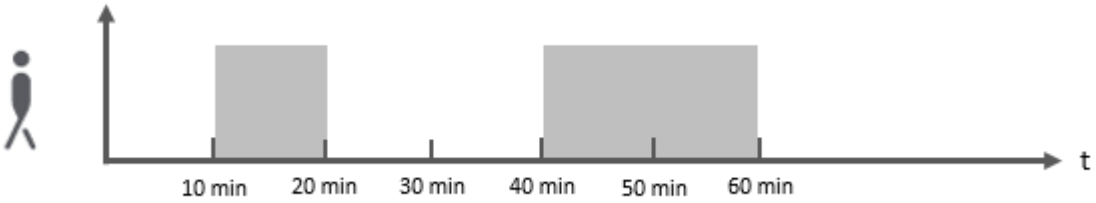
By linking inputs and outputs, the result is the total number of persons.

An example for adding the persons counted with the necessary object links and parameter settings can be found in chapter 13.10 on page 91.

10 Occupancy rate

The occupancy rate indicates how long presence was detected in a zone during one hour (60 min).

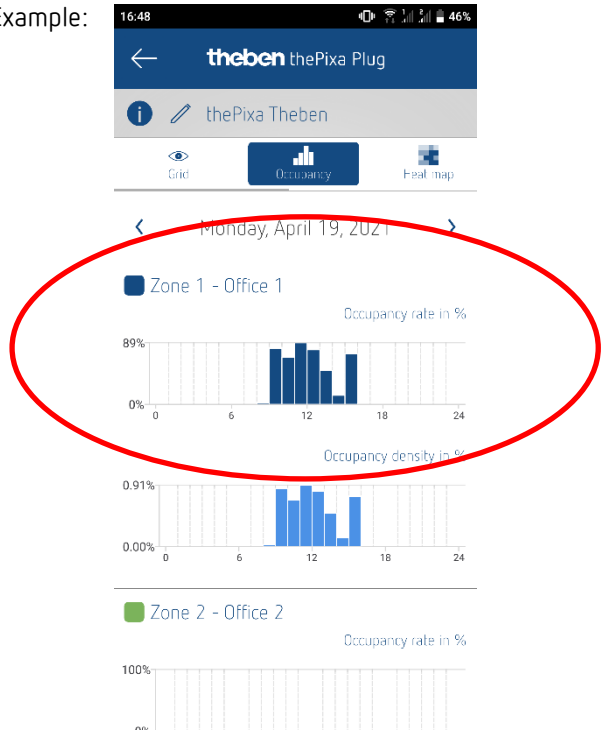
Example for a zone:



In this example, motion or presence was detected during 30 min. Therefore, the detector sends the percentage value of 50% with an 8-bit output object (object 38 for zone 1). The value is transmitted every full hour.

The thePixa Plug app also displays the occupancy rate of the last 7 days graphically.

Example:

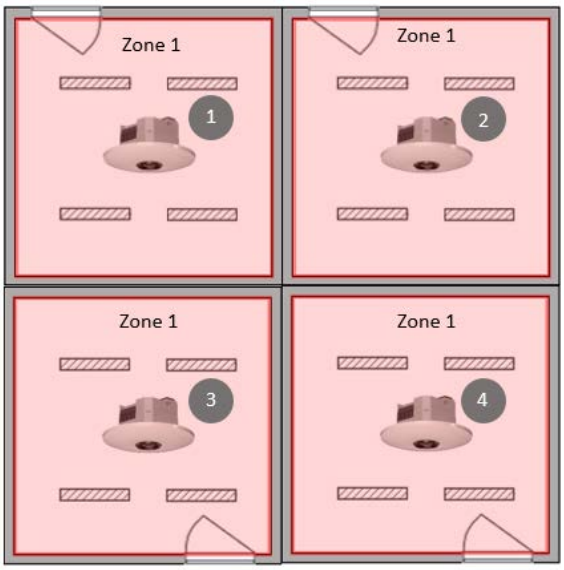


If several zones are active, a separate chart is created for each zone.

11 Occupancy density

The occupancy density indicates the degree of zone utilisation during one hour (60 min) of presence.

Example of 4 identical meeting rooms:

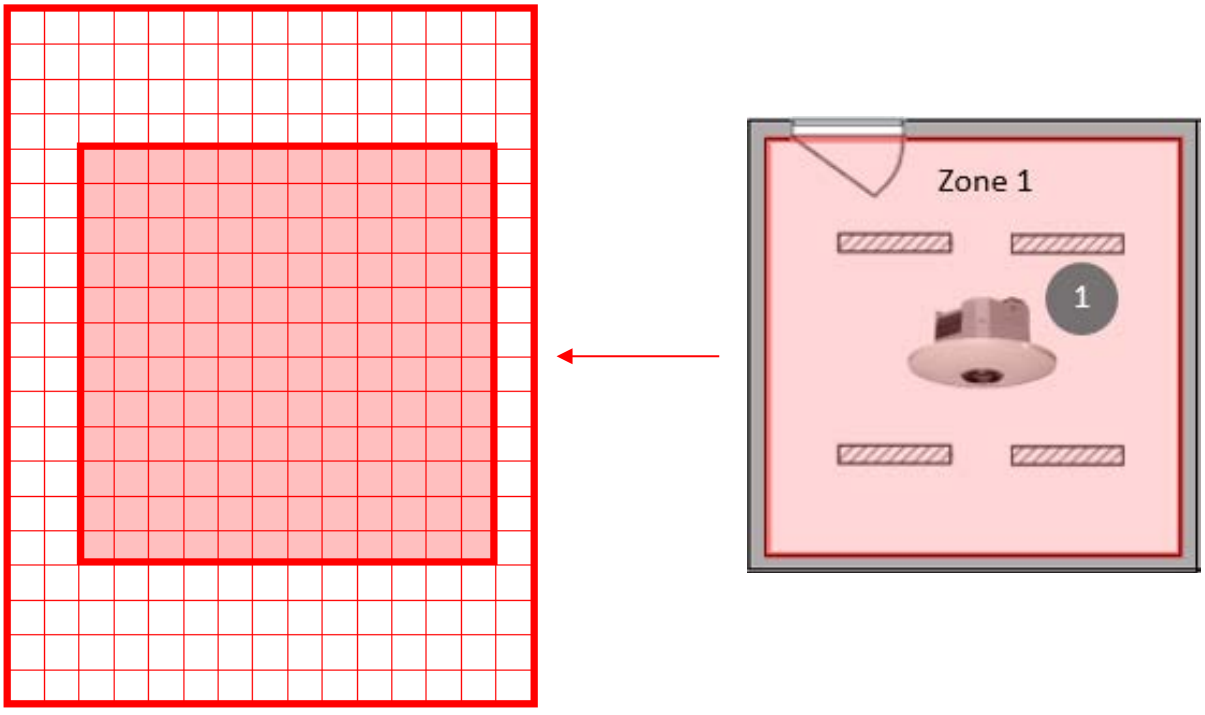


The occupancy density is evaluated in each meeting room. The detectors send the ppm value with a 16-bit output object (object 39 for zone 1), according to the respective utilisation. This ppm value can be used for an individual visualisation.

This allows, for example, to determine which rooms are used to capacity and which are not.

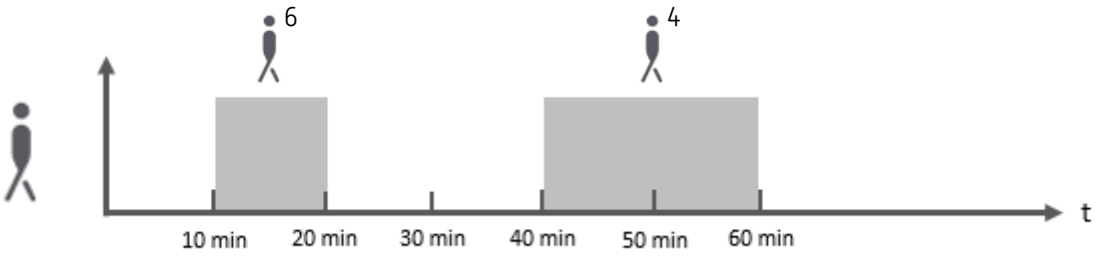
Example of evaluation for a meeting room:

Total detection area (300 grids):



Zone 1 includes 144 grids of the total detection area.

Example:



Each person is counted as a grid.

Calculation formula:

$$\frac{\text{Ø number of persons or grids}}{\text{Number of grids in the zone}} \times \frac{\text{Occupancy time in min.}}{\text{60 min}} \times 1'000'000 = \text{Occupancy density in ppm}$$

$$\frac{\text{6 persons or grids}}{\text{144 grids}} \times \frac{\text{10 min}}{\text{60 min}} \times 1'000'000 = \text{6'944.44 ppm}$$

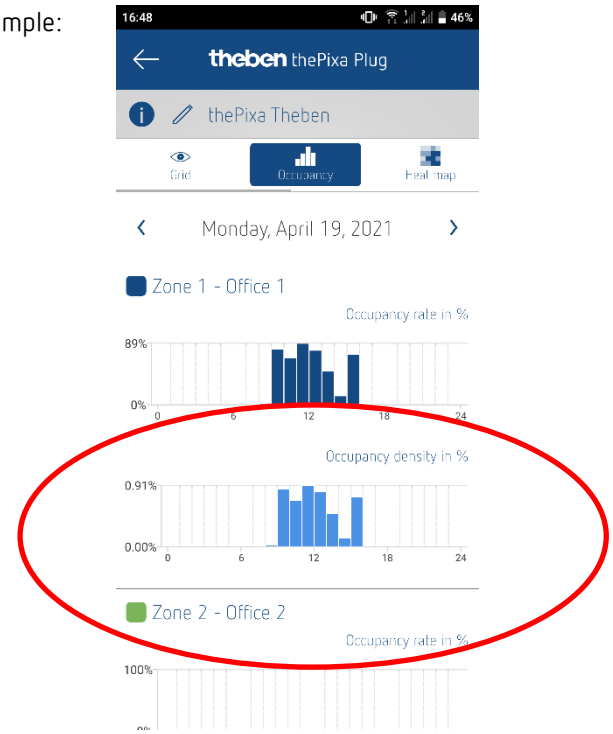
$$+$$

$$\frac{\text{4 persons or grids}}{\text{144 grids}} \times \frac{\text{20 min}}{\text{60 min}} \times 1'000'000 = \text{9'259.26 ppm}$$

16'203.70 ppm

The thePixa Plug app also displays the occupancy density of the last 7 days graphically.

Example:



If several zones are active, a separate chart is created for each zone.

The displayed value in the app is %.

12 Update-Tool

An ETS app is available for the KNX firmware update, which can be downloaded free of charge. For more detailed information on the procedure, please refer to the following document:
https://www.theben.de/knx-update

13 Typical applications

These application examples are designed to aid planning and are not to be considered an exhaustive list. They can be extended and updated as required.
Standard or customer-defined parameter settings apply for the parameters not listed here.

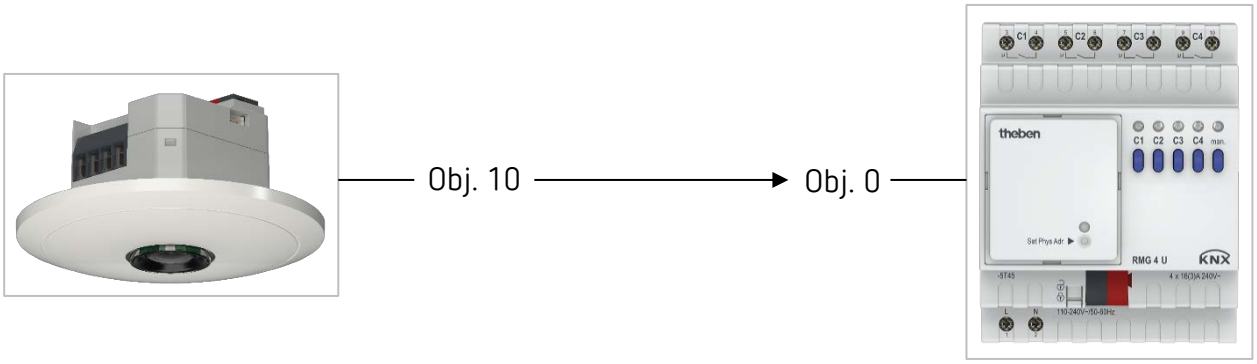
13.1 Presence and brightness-dependent switching of light, 1 zone

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

13.1.1 Devices

- thePixa P360 KNX (2269200)
- RMG 4 U (4930223)

13.1.2 Overview



13.1.3 Objects and links

Links

No.	thePixa P360 KNX Object name / function	No.	RMG 4 U Object name / function	Comment
10	*Z1 Light output / Switching*	0	*RMG 4 U channel C1 / switch object*	Switching lighting on and off

13.1.4 Important parameter settings

thePixa P360 KNX

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate light	*yes..*
Light	*Function light*	*switch light..*
	Configuration type	*Fully automatic*
	Brightness switching value	*500 lx (as per customer specification)*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*

RMG 4 U

Parameter page	Parameter	Setting
RMG 4 U channel C1... C4: configuration options	*Function*	*Switching On/Off*
	Activation of function via	*Switch object*

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

ⓘ If desired, zone 1 can be adjusted to suit the specific application in thePixa Plug app.

13.2 Presence and brightness-dependent switching of light, additional control of heating, 1 zone

In addition to presence and daylight-dependent switching of a lighting group, the presence detector also controls the heating control. Depending on the status of the detected presence (motion, presence, standby), the corresponding HVAC operating mode will be sent. The output is configured with a switch-on delay.

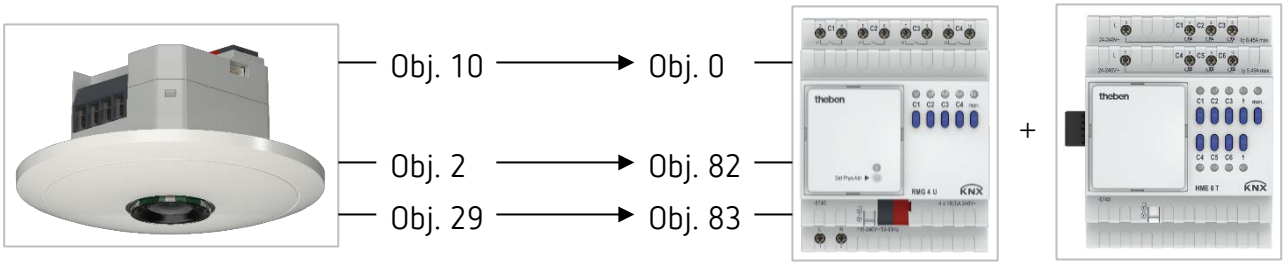
The integrated temperature sensor measures the ambient temperature in order to regulate to the desired setpoint temperature.

13.2.1 Devices

- thePixa P360 KNX (2269200)
- RMG 4 U (4930223)
- HME 6 T (4930245)

} Mix combination

13.2.2 Overview



13.2.3 Objects and links

Links

No.	thePixa P360 KNX Object name / function	No.	Mix combination Object name / function	Comment
10	*Z1 Light output / Switching*	0	*RMG 4 U channel C1 / switch object*	Switching lighting on and off
2	*Temperature value / Send °C value*	82	*EM1 HME 6 T channel H1 / actual value*	Transmission of actual temperature
29	*Z1 HVAC / Send operating mode*	83	*EM1 HME 6 T channel H1 / operating mode preset*	Adjustment of the operating mode

13.2.4 Important parameter settings

thePixa P360 KNX

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
	Send temperature on bus	*yes..*
	Send temperature cyclically	*every 10 minutes*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate light	*yes..*
	Activate HVAC	*yes..*
Light	*Function light*	*Switch light..*
	Configuration type	*fully automatic*
	Brightness switching value	*500 lx (as per customer specification)*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*
HVAC	*Type of telegram*	*HVAC operating mode*
	Output value of HVAC object at...	*as per customer specification*
HVAC / Time delays	*Delay to motion*	*10 min (as per customer specification)*
	Delay from motion to presence	*30 min (as per customer specification)*
	Time delay after motion	*60 min (as per customer specification)*
	Time delay after presence	*60 min (as per customer specification)*
	Duration standby	*120 min (as per customer specification)*

Mix combination RMG 4 U and extension module HME 6 T

Parameter page	Parameter	Setting
General information	*Type of basic module*	*RMG 4 U..*
	Type of 1st extension module	*HME 6 T..*
RMG 4 U channel C1: configuration options	*Function*	*Switching On/Off*
	Activation of function via	*Switch object*
HME 6 T channel H1: configuration options	*Channel function*	*Heating controller*
HME 6 T channel H1: setpoints	*div. parameters*	*as per customer specification*

ⓘ If desired, zone 1 can be adjusted to suit the specific application in thePixa Plug app.

13.3 Presence and brightness-dependent switching of light, additional manual override via push button, 4 zones

The presence detector switches the lighting independently for each zone based on presence. The lighting can also be switched either on or off manually.

When the light is switched on via push button, the user has 30 minutes of light if the room is occupied before the presence detector takes control again. When the light is switched off via a push button, the lighting remains switched off as long as the presence detector detects presence in the corresponding zone. The presence detector takes control only after the time delay has elapsed.

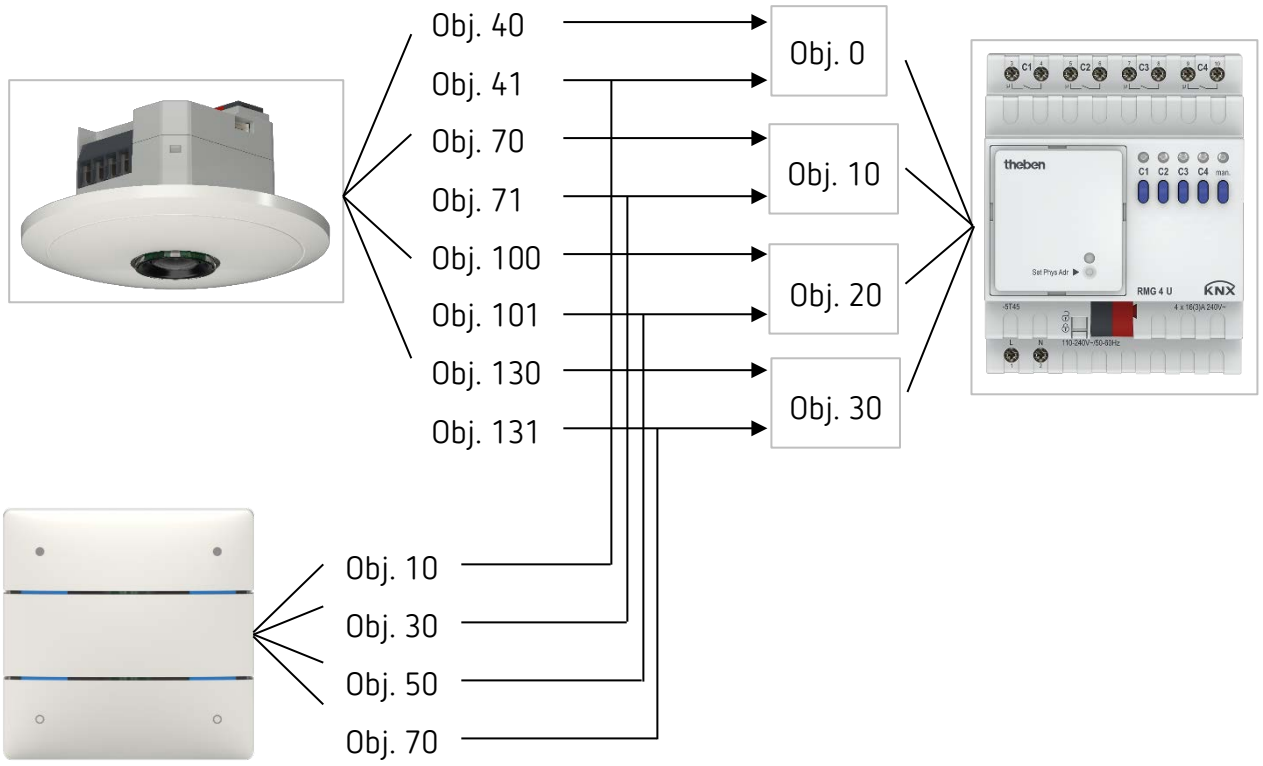
As an option, the presence detector can be operated as a semi-automatic device. In this case, the lighting must always be switched on manually. The detector does not switch the lighting on automatically. The presence detector switches off the lighting as usual if there is sufficient daylight or if the room is unoccupied.

ⓘ For the zone definition, the template *4 zones per 1/4 of the image area* is used in the ETS database, for example.

ⓘ **Important:** With the predefined zone divisions, zone 1 is always the entire detection area. This must be taken into account for lighting control.

13.3.1 Devices

- thePixa P360 KNX (2269200)
- iON 104 (4969234)
- RMG 4 U (4930223)



13.3.2 Objects and links

Links

No.	thePixa P360 KNX Object name / function	No.	RMG 4 U Object name / function	No.	iON 104 Object name / function
40	*Z2 Light output / Switching*	0	*RMG 4 U channel C1 / switch object*		
41	*Z2 Light input / Switching external button*			10	*Button T1.1 / switching*
70	*Z3 Light output / Switching*	10	*RMG 4 U channel C2 / switch object*		
71	*Z3 Light input / Switching external button*			30	*Button T2.1 / switching*
100	*Z4 Light output / Switching*	20	*RMG 4 U channel C3 / switch object*		
101	*Z4 Light input / Switching external button*			50	*Button T3.1 / switching*
130	*Z5 Light output / Switching*	30	*RMG 4 U channel C4 / switch object*		
131	*Z5 Light input / Switching external button*			70	*Button T4.1 / switching*

13.3.3 Important parameter settings

thePixa P360 KNX

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*4 zones 1/4 of the image area*
Zone 2... 5		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate light	*yes..*
Light	*Function light*	*Switch light..*
	Configuration type	*fully automatic*
	Brightness switching value	*500 lx (as per customer specification)*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*

iON 104

Parameter page	Parameter	Setting
Button T1... T4	*Function*	*Push-button*
Button object 1... 4	*Object type*	*Switching*
	Send after short operation	*Send telegram*
	Telegram	*Change over*

RMG 4 U

Parameter page	Parameter	Setting
RMG 4 U channel C1... C4: configuration options	*Type of basic module*	*RMG 4 U..*
	Function	*Switching On/Off*
	Activation of function via	*Switch object*

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

ⓘ If desired, the zones can be adjusted to suit the specific application in thePixa Plug app.

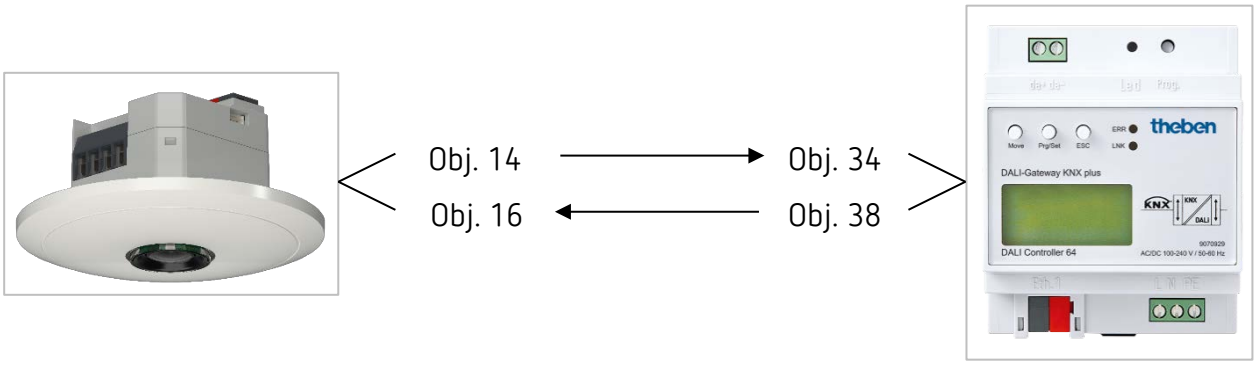
13.4 Constant lighting control, 1 zone

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

13.4.1 Devices

- thePixa P360 KNX (2269200)
- DALI Gateway KNX plus (9070929)

13.4.2 Overview



13.4.3 Objects and links

Links

No.	thePixa P360 KNX Object name / function	No.	DALI Gateway KNX plus Object name	Comment
14	*Z1 Light output / Send value*	34	*Group 1 / set value*	
16	*Z1 Light input / Feedback value*	38	*Group 1 / status value*	

13.4.4 Important parameter settings

thePixa P360 KNX

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate light	*yes..*
Light	*Function light*	*constant lighting control..*
	Configuration type	*fully automatic*
	Activate light standby time	*yes..*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*
	Duration standby	*20 min (as per customer specification)*
Light / Control settings	*Brightness setpoint value at motion*	*100 lx (as per customer specification)*
	Brightness setpoint value at presence	*500 lx (as per customer specification)*
	Brightness setpoint value at standby	*50 lx (as per customer specification)*

DALI Gateway KNX plus

Parameter page	Parameter	Setting
Group 1		
General information	*Operating mode*	*Normal operation*
	Function of additional object	*no Object*
	Enabled for panic mode	*No*
Behaviour	*Switch-on value*	*100%*
	Switch-on behaviour	*Dim to value in 10 s*
	Switch-off value	*0%*
	Switch-off behaviour	*Apply value immediately*
	Behaviour on value setting	*Dim to value in 10 s*
	Time for dimming	*10 seconds*
	Max. value for dimming	*100%*
	Min. value for dimming	*0%*
	Min/max values apply to	*Dimming object*
	Switch-on via dimming	*No*

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

ⓘ If desired, zone 1 can be adjusted to suit the specific application in thePixa Plug app.

13.5 Constant lighting control, additional monitoring of room occupancy to control ventilation, 1 zone

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

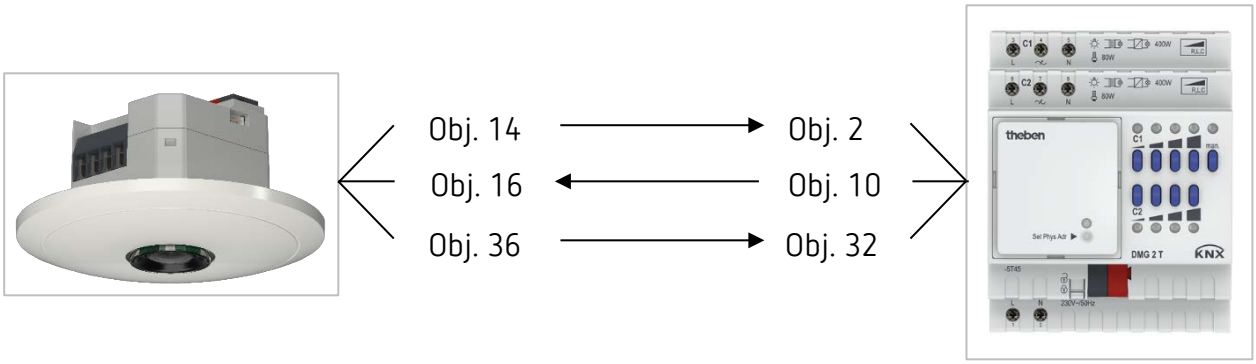
In addition, the ventilation is controlled according to the number of persons. With the 3 configurable thresholds, the ventilation can be controlled according to the number of persons, so the air always has the desired quality.

ⓘ It is also possible to send the number of persons cyclically on the bus.

13.5.1 Devices

- thePixa P360 KNX (2269200)
- DMG 2 T KNX (4930270)

13.5.1 Overview



13.5.2 Objects and links

Links

No.	thePixa P360 KNX Object name / function	No.	DMG 2 T Object name	Comment
14	*Z1 Light output / Send value*	2	*DMG 2 T channel C1 / dimming value*	Dimming value for lighting
16	*Z1 Light input / Feedback value*	10	*DMG 2 T channel C1 / feedback in %*	
36	*Z1 Ventilation*	32	*DMG 2 T channel C2 / dimming value*	Dimming value for ventilation

13.5.3 Important parameter settings

thePixa P360 KNX

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate light	*yes..*
	Activate room occupancy	*yes..*
Light	*Function light*	*constant lighting control..*
	Configuration type	*fully automatic*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*
Light / Control settings	*Brightness setpoint value at motion*	*100 lx (as per customer specification)*
	Brightness setpoint value at presence	*500 lx (as per customer specification)*
Room occupancy	*Activate ventilation*	*yes..*
	Number of thresholds	*3 thresholds*
	Delay time for threshold change	*1 min (as per customer specification)*
	Number of persons for threshold 1	*1 person (as per customer specification)*
	Number of persons for threshold 2	*3 persons (as per customer specification)*
	Number of persons for threshold 3	*5 persons (as per customer specification)*
Room occupancy / Ventilation	*Output value for ventilation object at greater or equal threshold 1*	*20% (as per customer specification)*
	Output value for ventilation object at greater or equal threshold 2	*60% (as per customer specification)*
	Output value for ventilation object at greater or equal threshold 3	*100% (as per customer specification)*

DMG 2 T

Parameter page	Parameter	Setting
General information	*Type of basic module*	*DMG 2 T..*
DMG 2 T channel C1: dimming response	*Load selection*	*automatic*
DMG 2 T channel C2: dimming response	*Load selection*	*Fan (soft switching deactivated)*

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

ⓘ If desired, zone 1 can be adjusted to suit the specific application in thePixa Plug app.

13.6 Constant lighting control, additional manual override vis push button, 4 zones

The presence detector controls the lighting independently for each zone. The lighting can also be switched and dimmed manually.

Dimming via push button ends the control (only in school mode). The presence detector remains at the set dimming value while the room is occupied. When the light is switched off via a push button, the lighting remains switched off as long as the presence detector detects that the room is occupied. The presence detector takes control only after the time delay has elapsed.

It is also possible to operate the presence detector as a semi-automatic device. This can be adjusted individually for each zone. In this case, the lighting must always be switched on by hand, the detector does not switch on the lighting automatically.

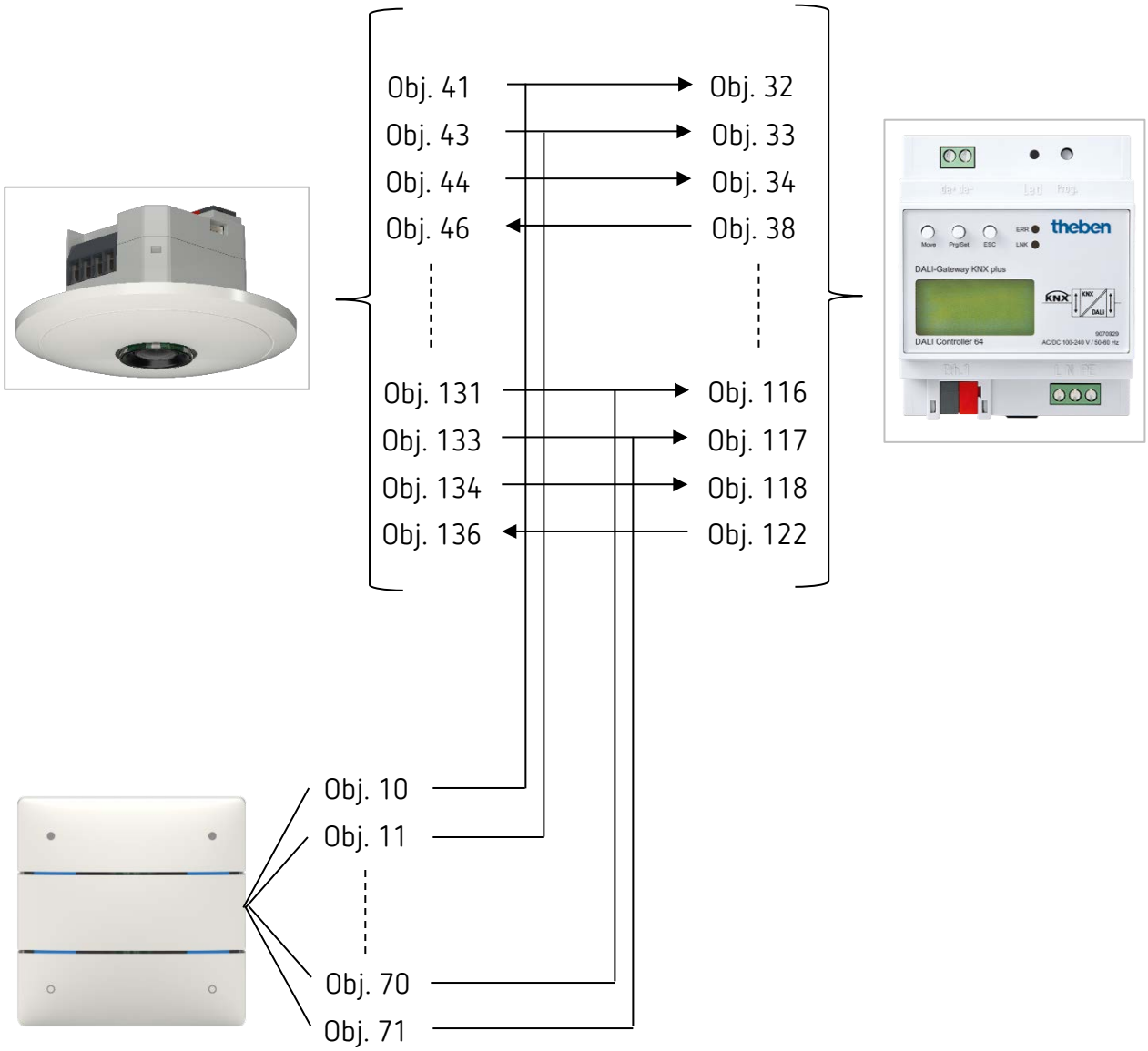
For the zone definition, the template *4 zones per 1/4 of the image area* is used in the ETS database, for example.

Important: With the predefined zone divisions, zone 1 is always the entire detection area. This must be taken into account for the lighting control.

13.6.1 Devices

- thePixa P360 KNX (2269200)
- DALI Gateway KNX plus (9070929)

13.6.2 Overview



13.6.3 Objects and links

Links

No.	thePixa P360 KNX Object name / function	No.	DALI Gateway KNX plus Object name / function	No.	iON 104 Object name / function
41	*Z2 Light input / Switching external button*	32	*G1, switching / On/Off*	10	*Button T1 / switching*
43	*Z2 Light input / External button brighter/darker*	33	*G1, dimming / brighter/darker*	11	*Button T1 / brighter/darker*
44	*Z2 Light output / Send value*	34	*G1, set value / value*		
46	*Z2 Light input / Feedback value*	38	*G1, status / value*		
71	*Z3 Light input / Switching external button*	60	*G2, switching / On/Off*	30	*Button T2 / switching*
73	*Z3 Light input / External button brighter/darker*	61	*G2, dimming / brighter/darker*	31	*Button T2 / brighter/darker*
74	*Z3 Light output / Send value*	62	*G2, set value / value*		
76	*Z3 Light input / Feedback value*	66	*G2, status / value*		
101	*Z4 Light input / Switching external button*	88	*G3, switching / On/Off*	50	*Button T3 / switching*
103	*Z4 Light input / External button brighter/darker*	89	*G3, dimming / brighter/darker*	51	*Button T3 / brighter/darker*
104	*Z4 Light output / Send value*	90	*G3, set value / value*		
106	*Z4 Light input / Feedback value*	94	*G3, status / value*		
131	*Z5 Light input / Switching external button*	116	*G4, switching / On/Off*	70	*Button T4 / switching*
133	*Z5 Light input / External button brighter/darker*	117	*G4, dimming / brighter/darker*	71	*Button T4 / brighter/darker*
134	*Z5 Light output / Send value*	118	*G4, set value / value*		
136	*Z5 Light input / Feedback value*	122	*G4, status / value*		

13.6.4 Important parameter settings

thePixa P360 KNX

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*4 zones 1/4 of the image area*
Zone 2...5		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate light	*yes..*
Light	*Function light*	*constant lighting control..*
	Configuration type	*fully automatic*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*
Light / Control settings	*Brightness setpoint value at motion*	*100 lx (as per customer specification)*
	Brightness setpoint valu at presence	*500 lx (as per customer specification)*

DALI Gateway KNX plus

Parameter page	Parameter	Setting
Group 1...4		
General information	*Operating mode*	*Normal operation*
	Function of additional object	*no Object*
	Enabled for panic mode	*No*
Behaviour	*Switch-on value*	*100%*
	Switch-on behaviour	*Dim to value in 10 s*
	Switch-off value	*0%*
	Switch-off behaviour	*Apply value immediately*
	Behaviour on value setting	*Dim to value in 10 s*
	Time for dimming	*10 seconds*
	Max. value for dimming	*100%*
	Min. value for dimming	*0%*
	Min/max values apply to	*Dimming object*
	Switch-on via dimming	*No*

iON 104

Parameter page	Parameter	Setting
Button T1... T4	*Function*	*Dimming*
(Button T1...T4) dimming	*Response to long / short*	*One button operation*

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

ⓘ If desired, the zones can be adjusted to suit the specific application in thePixa Plug app.

13.7 Master/Slave parallel switching

To cover larger areas, such as open-plan offices or corridors, several presence detectors or zones are linked together. One presence detector or zone is used as Master, the others as Slaves.

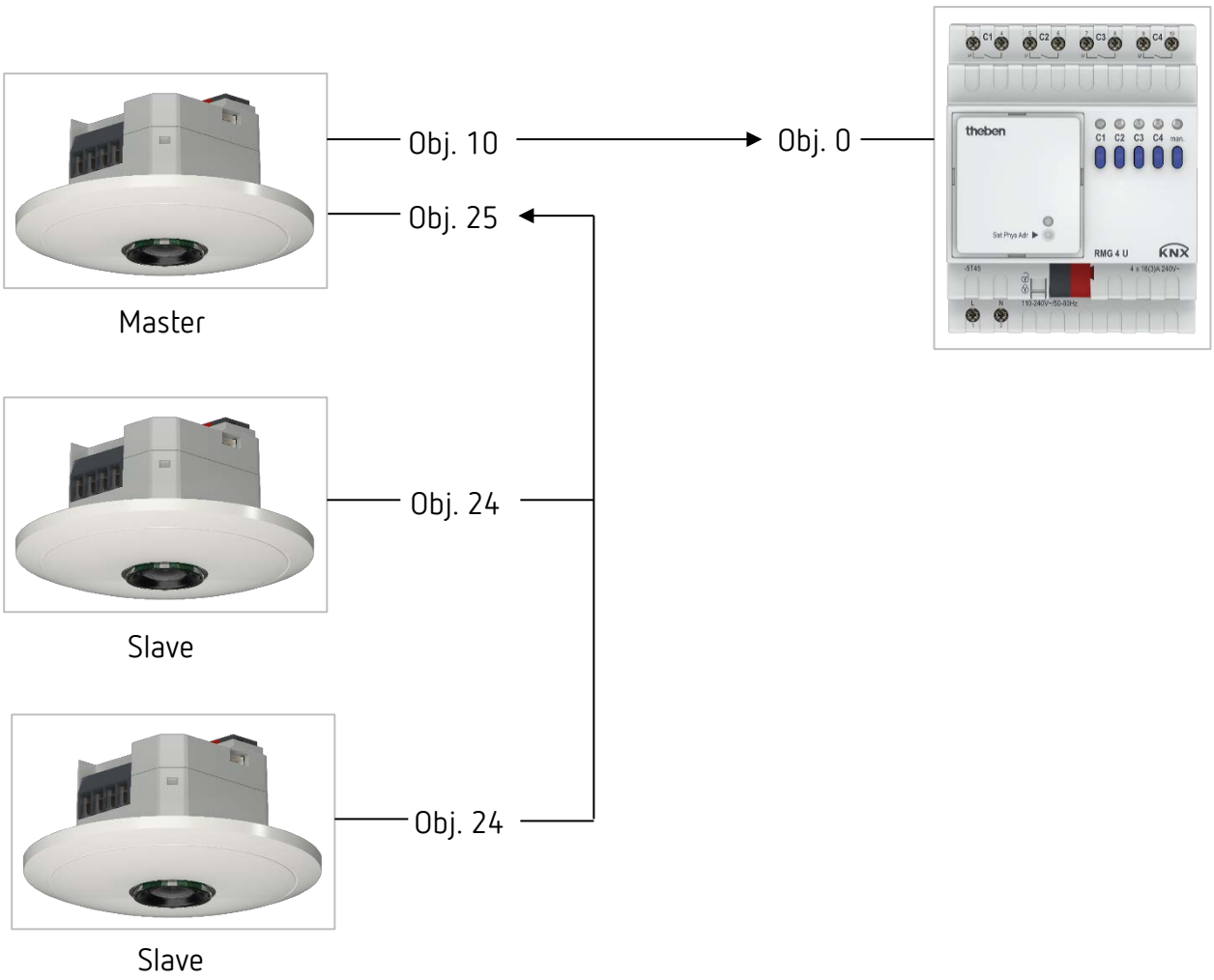
The Slaves trigger the Master when motion is detected. All settings, as delay times and brightness thresholds, are configured on the Master.

The trigger signal acts on the light and on the HVAC channel of the Master.

13.7.1 Devices

- thePixa P360 KNX (2269200)
- RMG 4 U (4930223)

13.7.2 Overview



Instead of 3 different detectors, a Master-Slave parallel switching can also be implemented with just one thePixa, e.g. by configuring zone 2 as Master and zones 3+4 as Slaves.

13.7.3 Objects and links

Links

No.	thePixa P360 KNX (Master) Object name / function	No.	RMG 4 U Object name / function	Comment
10	*Z1 Light output / Switching*	0	*RMG 4 U channel C1 / switch object*	Switching lighting on and off

No.	thePixa P360 KNX (Master) Object name / function	No.	thePixa P360 KNX (Slaves) Object name / function	Comment
25	*Z1 Parallel switching / Trigger input*	24	*Z1 Parallel switching / Trigger output*	Connection between Master and Slaves

13.7.4 Important parameter settings

thePixa P360 KNX (Master)

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*parallel switching*
	Activate light	*yes..*
Light	*Function light*	*switch light..*
	Configuration type	*fully automatic*
	Brightness switching value	*500 lx (as per customer specification)*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*

thePixa P360 KNX (Slaves)

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*slave*

RMG 4 U

Parameter page	Parameter	Setting
RMG 4 U channel C1... C4: configuration options	*Function*	*Switching On/Off*
	Activation of function via	*Switch object*

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

ⓘ If desired, the zones can be adjusted to suit the specific application in thePixa Plug app.

13.8 Master/Master parallel switching

To cover larger areas with different lighting conditions, such as open-plan offices, several Master presence detectors or Master zones are linked together.

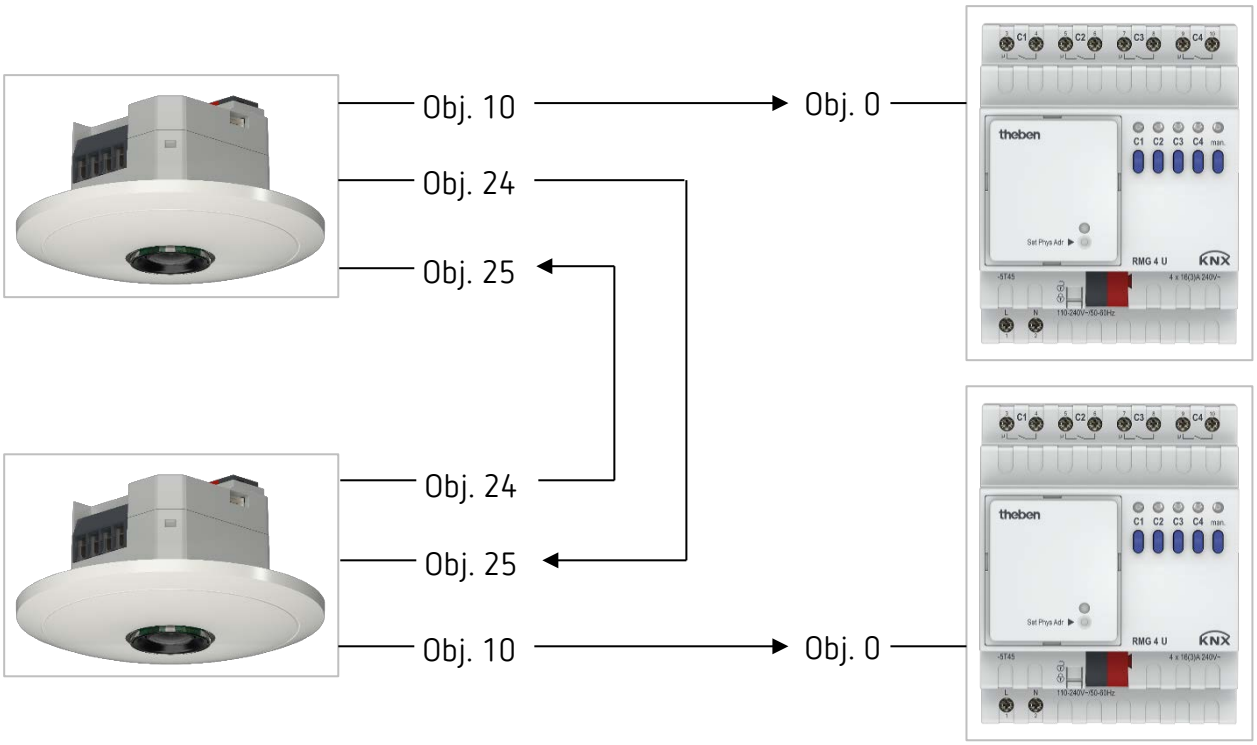
Each Master operates its lighting group according to its light measurement and settings. They exchange presence among each other. This extends the detection area. It should be noted that each Master can only detect the light switched or controlled by itself.

Master/Master parallel switching can be used independently of whether the Master is configured for switching or constant lighting control.

13.8.1 Devices

- thePixa P360 KNX (2269200)
- RMG 4 U (4930223)

13.8.2 Overview



Instead of 2 different detectors, a Master-Master parallel switching can also be implemented with just one thePixa, by configuring both zones as Master.

13.8.3 Objects and links

Links

No.	thePixa P360 KNX Object name / function	No.	RMG 4 U Object name / function	Comment
10	*Z1 Light output / Switching*	0	*RMG 4 U channel C1 / switch object*	Switching lighting on and off

No.	thePixa P360 KNX Object name / function	No.	thePixa P360 KNX Object name / function	Comment
24	*Z1 Parallel switching / Trigger output*	25	*Z1 Parallel switching / Trigger input*	Connection between Master and Master
25	*Z1 Parallel switching / Trigger input*	24	*Z1 Parallel switching / Trigger output*	Connection between Master and Master

13.8.4 Important parameter settings

thePixa P360 KNX (Master)

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*parallel switching*
	Activate light	*yes..*
Light	*Function light*	*switch light..*
	Configuration type	*fully automatic*
	Brightness switching value	*500 lx (as per customer specification)*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*

RMG 4 U

Parameter page	Parameter	Setting
RMG 4 U channel C1... C4: configuration options	*Function*	*Switching On/Off*
	Activation of function via	*Switch object*

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

ⓘ If desired, the zones can be adjusted to suit the specific application in thePixa Plug app.

13.9 Aura effect

During the aura effect, the light surrounds the user while he is moving. The light in the surrounding detection zones is switched or dimmed to the <Switch-on dimming value at aura>. It follows an example of 3 presence detectors and 6 lighting groups. Each Master has two zones and controls two lighting groups accordingly.

Procedure:

① Make settings at Master A, B and C.

② Assign an own group address to the aura effect object (Master A, B and C).

③ On each Master, connect the aura effect objects of the two zones with each other.
Example: Connect object 54 with object 85, and object 55 with object 84.

④ Connect the aura effect objects of the adjacent zones of the individual Master devices.
Example: Connect Master A, object 84 with Master B, object 55.

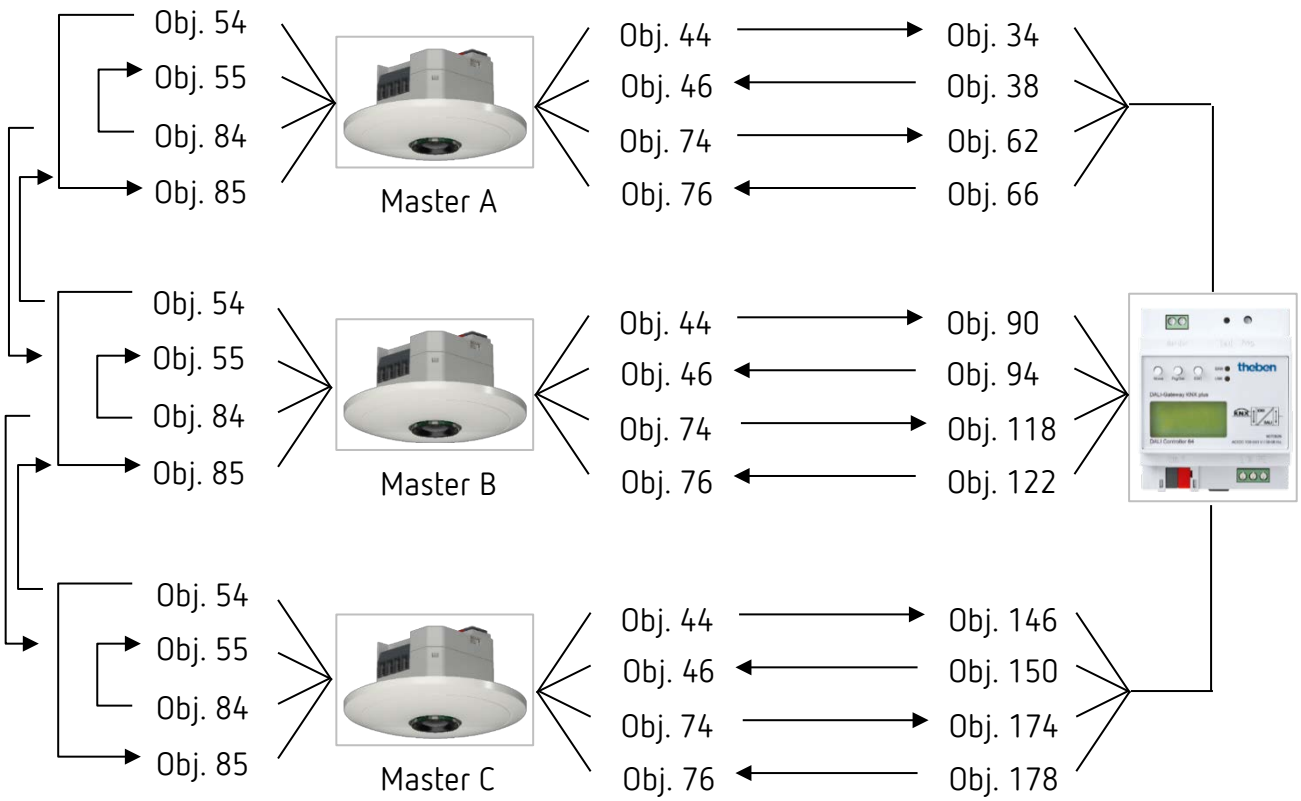
ⓘ For the zone definition, the template *4 zones per 1/4 of the image area* is used in the ETS database, for example.

ⓘ **Important:** With the predefined zone divisions, zone 1 is always the entire detection area. This must be taken into account for the lighting control.

13.9.1 Devices

- thePixa P360 KNX (2269200)
- DALI Gateway KNX plus (9070929)

13.9.2 Overview



13.9.3 Objects and links

Links

No.	thePixa P360 KNX / Master A, B, C Object name / function	No.	DALI Gateway KNX plus Object name	Comment
44	*Z2 Light output / Send value*	34, 90, 146	*Group 1, 3, 5 / set value*	
46	*Z2 Light input / Feedback value*	38, 94, 150	*Group 1, 3, 5 / status value*	
74	*Z3 Light output / Send value*	62, 118, 174	*Group 2, 4, 6 / set value*	
76	*Z3 Light input / Feedback value*	66, 122, 178	*Group 2, 4, 6 / status value*	

Links ③

No.	thePixa P360 KNX / Master A Object name / function	No.	thePixa P360 KNX / Master A Object name	Comment
54	*Z2 Aura effect / Send motion status*	85	*Z3 Aura effect / Receive motion status*	Object link Master A
55	*Z2 Aura effect / Receive motion status*	84	*Z3 Aura effect / Send motion status*	

Links ③

No.	thePixa P360 KNX / Master B Object name / function	No.	thePixa P360 KNX / Master B Object name	Comment
54	*Z2 Aura effect / Send motion status*	85	*Z3 Aura effect / Receive motion status*	Object link Master B
55	*Z2 Aura effect / Receive motion status*	84	*Z3 Aura effect / Send motion status*	

Links ③

No.	thePixa P360 KNX / Master C Object name / function	No.	thePixa P360 KNX / Master C Object name	Comment
54	*Z2 Aura effect / Send motion status*	85	*Z3 Aura effect / Receive motion status*	Object link Master C
55	*Z2 Aura effect / Receive motion status*	84	*Z3 Aura effect / Send motion status*	

Links ④

No.	thePixa P360 KNX / Master A Object name / function	No.	thePixa P360 KNX / Master B Object name	Comment
84	*Z3 Aura effect / Send motion status*	55	*Z2 Aura effect / Receive motion status*	Object link Master A – Master B

Links ④

No.	thePixa P360 KNX / Master B Object name / function	No.	thePixa P360 KNX / Master A Object name	Comment
54	*Z2 Aura effect / Send motion status*	85	*Z3 Aura effect / Receive motion status*	Object link Master B – Master A

Links ④

No.	thePixa P360 KNX / Master B Object name / function	No.	thePixa P360 KNX / Master C Object name	Comment
84	*Z3 Aura effect /* *Send motion status*	55	*Z2 Aura effect /* *Receive motion status*	Object link Master B – Master C

Links ④

No.	thePixa P360 KNX / Master C Object name / function	No.	thePixa P360 KNX / Master B Object name	Comment
54	*Z2 Aura effect /* *Send motion status*	85	*Z3 Aura effect /* *Receive motion status*	Object link Master C – Master B

13.9.4 Important parameter settings

thePixa P360 KNX

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*2 zones, each ½ of the image area, horizontal*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*aura effect (light)*
	Activate light	*yes..*
Light	*Function light*	*constant lighting control..*
	Configuration type	*fully automatic*
	Send aura at	*motion and presence*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*
Light / Control settings	*Brightness setpoint value at motion*	*100 lx (as per customer specification)*
	Brightness setpoint value at presence	*500 lx (as per customer specification)*
	Switch-on dimming value at aura	*10%*

DALI Gateway KNX plus

Parameter page	Parameter	Setting
Group 1...6		
General information	*Operating mode*	*Normal operation*
	Function of additional object	*no Object*
	Enabled for panic mode	*No*
Behaviour	*Switch-on value*	*100%*
	Switch-on behaviour	*Dim to value in 10 s*
	Switch-off value	*0%*
	Switch-off behaviour	*Apply value immediately*
	Behaviour on value setting	*Dim to value in 10 s*
	Time for dimming	*10 seconds*
	Max. value for dimming	*100%*
	Min. value for dimming	*0%*
	Min/max values apply to	*Dimming object*
	Switch-on via dimming	*No*

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

ⓘ If desired, the zones can be adjusted to suit the specific application in thePixa Plug app

13.10 Adding the persons counted

Due to the room area, 3 detectors are installed in a large meeting room. It may be necessary to limit a meeting room to a certain number of persons. Since 3 zones have to be used for counting persons due to the large area, the total value can easily be determined by cascading.

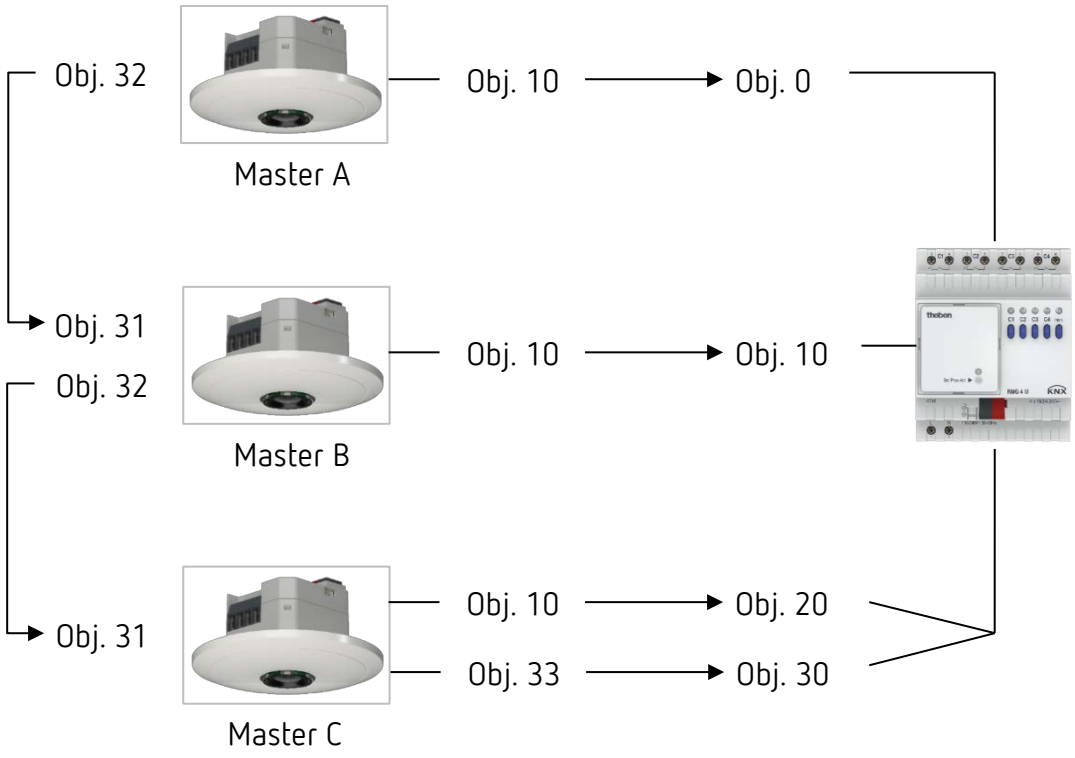
With the information of the effective number of persons, a red warning light can be controlled, for example.

In addition, the lighting of the entire meeting room is divided into 3 lighting groups (switching).

13.10.1 Devices

- thePixa P360 KNX (2269200)
- RMG 4 U (4930223)

13.10.2 Overview



13.10.3 Objects and links

Links

Nr.	thePixa P360 KNX Master A Object name / function	Nr.	thePixa P360 KNX Master B Object name / function	Comment
32	*Z1 Number of persons / Send number*	31	*Z1 Number of persons / Receive number*	Cascading

Nr.	thePixa P360 KNX Master B Object name / function	Nr.	thePixa P360 KNX Master C Object name / function	Comment
32	*Z1 Number of persons / Send number*	31	*Z1 Number of persons / Receive number*	Cascading

Nr.	thePixa P360 KNX Master A Object name / function	Nr.	RMG 4 U Object name / function	Comment
10	*Z1 Light output / Switching*	0	*RMG 4 U channel C1 / switch object*	Switching lighting on and off

Nr.	thePixa P360 KNX Master B Object name / function	Nr.	RMG 4 U Object name / function	Comment
10	*Z1 Light output / Switching*	10	*RMG 4 U channel C2 / switch object*	Switching lighting on and off

Nr.	thePixa P360 KNX Master C Object name / function	Nr.	RMG 4 U Object name / function	Comment
10	*Z1 Light output / Switching*	20	*RMG 4 U channel C3 / switch object*	Switching lighting on and off
33	*Z1 Threshold switch 1 / Switching*	30	*RMG 4 U channel C4 / switch object*	Switching warning light on and off

13.10.4 Important parameter settings

thePixa P360 KNX / Master A

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 2...3		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate room occupancy	*yes..*
Room occupancy	*Composition of the persons counted*	*dynamic and static*
	Send number of persons to bus?	*yes..*
	Send number of persons upon change	*yes*

thePixa P360 KNX / Master B

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate room occupancy	*yes..*
Room occupancy	*Composition of the persons counted*	*dynamic and static*
	Send number of persons to bus?	*yes..*
	Send number of persons upon change	*yes*

thePixa P360 KNX / Master C

Parameter page	Parameter	Setting
General	*Installation height of detector*	*3.0 m (according to effective installation height)*
	Zone definition	*1 zone*
Zone 1		
General zone settings	*Operating mode*	*master*
	Master operating mode	*individual switching*
	Activate light	*yes..*
	Activate room occupancy	*yes..*
Light	*Function light*	*switch light..*
	Configuration type	*Fully automatic device*
	Brightness switching value	*500 lx (as per customer specification)*
Light / Time delays	*Time delay after motion*	*1 min (as per customer specification)*
	Time delay after presence	*10 min (as per customer specification)*
Room occupancy	*Composition of the persons counted*	*dynamic and static*
	Activate switching	*yes..*
	Number of threshold	*1 treshold*
	Delay time for threshold change	*1 min*
	Number of persons for threshold 1	*20 persons (as per customer specification)*
Threshold switch 1	*Output value for threshold switch object 1 at below threshold 1*	*send 0*
	Output value for threshold switch object 1 at greater or equal threshold 1	*send 1*

RMG 4 U

Parameter page	Parameter	Setting
RMG 4 U channel C1... C4: configuration options	*Function*	*Switching On/Off*
	Activation of function via	*Switch object*

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

ⓘ If desired, zone 1 can be adjusted to suit the specific application in thePixa Plug app.