Presence detector

PlanoCentro A-KNX

PlanoCentro E . . -A-KNX

PlanoCentro U . . -A-KNX

Art. Nr.
205 9 . . .

thebenHTS

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Operating Manual

Presence detector

PlanoCentro A-KNX
PlanoCentro E . . -A-KNX
PlanoCentro U . . -A-KNX

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Thank you for purchasing a Theben HTS presence detector
and putting your trust in us.

1. Safety

Familiarise yourself with the PlanoCentro A-KNX before assembly and startup by reading this operating instructions.

⚠ **CAUTION!**
The unit requires no maintenance. Opening the unit or inserting foreign bodies into it will invalidate the warranty.

1.1 Designated use

The presence detector is intended for indoor installation.

The presence detector is solely intended for the purpose contractually specified between the manufacturer and the user. Any other or extended use has to be regarded as not complying with the designated use. The manufacturer is not liable for any resulting damage.

ⓘ Confirm the radio frequency 868MHz is legally approved in this application in your country.

2. Function and performance

The presence detector series PlanoCentro is intended for ceiling mounting.

● Installation in suspended ceilings (false ceilings)
● Installation in flush-mounted junction box (set into concrete ceiling)

Devices are available in the delivery unit with matching assembly sets for ceiling installation and flush-mount ceiling installation.

The PlanoCentro A-KNX presence detector detects persons present as a result of the slightest movements. At the same time its light sensor measures the brightness level in the room and compares it with the preset brightness value.

The presence detector PlanoCentro A-KNX is intended for use in offices, schools and residential premises for comfortable and energy efficient control of lighting, HVAC and shading.

● Detection range up to 100m^2 moving and 64 m^2 seated persons at 3.5 m installation height
● Mixed light measurement
● Adjustable sensitivity
● Control of one or two lighting groups
● Switching or constant light control with stand-by function
● Fully or semi-automatic function mode
● Presence channel with switch-off delay and switch-on delay time
● Channel monitoring with manipulation protection
● Channel brightness (Lux)

- Parallel circuit operation of several detectors (Master-Slave, Master-Master)
- Short presence; Reduced switch-off delay time in case of a short presence
- Suitable for fluorescent lamps, compact fluorescent lamps, halogen, incandescent lamps and LEDs.
- Management remote control SendoPro 868-A (optional)
- User remote control SendoClic (optional)

2.1 Control type

Switching

The lighting switches on in case of presence and insufficient brightness, and off in case of absence or sufficient brightness.

Constant Light Control

In Constant Light Control mode, the brightness is constantly maintained at th pre-set value. It can be started fully automatically or manually using the push button or remote control. Manually switching off, dimming or changing the settings stops control mode for the duration of the presence.

2.2 Installation and service support

Helpful functions are available for start up and subsequent maintenance support.

- Changing parameters using the management remote control SendoPro 868-A
- Read-out of data (parameters, actual brightness value and diagnostic data)

The presence detector can send configuration and diagnostic information to the management remote control SendoPro 868-A via radio transmission (868MHz).

2.3 Scope of delivery

**Ceiling installation
(PlanoCentro E . . -A-KNX)**

1 Presence detector with installation protection cover (removable)
2 PlanoFix E (installation frame)
3 Strap, 6 pieces
4 PlanoCover (frame)
5 Template for ceiling cut out
6 Operating Manual
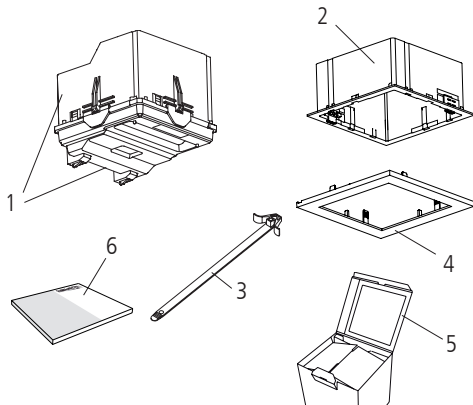
**Flush-mounted installation
(PlanoCentro U . . -A-KNX)**

1 Presence detector with installation protection cover (removable)
2 PlanoFix U (installation plate)
3 PlanoCover (frame)
4 4 screws
5 Operating Manual
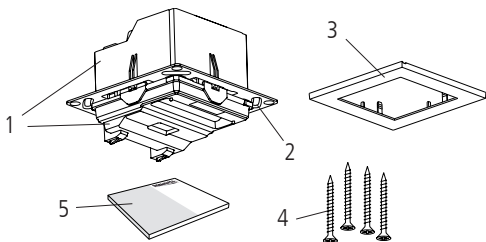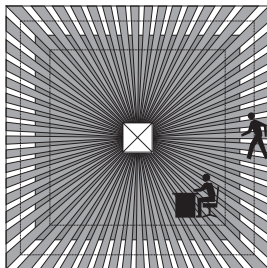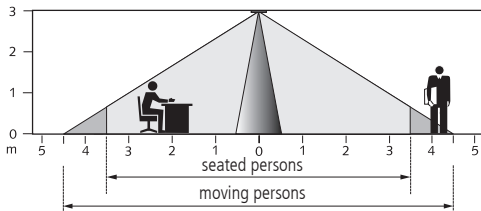
3. Installation

3.1 Presence detection

The ideal installation height is between 2.0 - 3.5 m. The sensitivity of the detector reduces with higher installation heights. The presence detector requires a clear view of people in order to clearly detect people. Offices, mobile partition walls, plants, hanging lighting etc. can hinder (shadowing) the presence detector.

| install. height	seated persons		moving persons	
2.0 m	20 m^2	4,5 m x 4,5 m	36 m^2	6,0 m x 6,0 m ± 0.5 m
2.5 m	36 m^2	6,0 m x 6,0 m	64 m^2	8,0 m x 8,0 m ± 0.5 m
3.0 m	49 m^2	7,0 m x 7,0 m	81 m^2	9,0 m x 9,0 m ± 1.0 m
3.5 m	64 m^2	8,0 m x 8,0 m	100 m^2	10,0 m x 10,0 m ± 1.0 m

Detection range (installation height 3.0 m)

3.2 Light measurement

The detector measures artificial and daylight that is reflected directly below the detector (aperture ± 30°).

The surface brightness below the installation site is used as a lighting level reference.
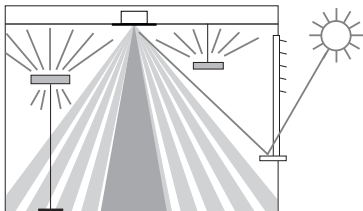
Switching

With indirect lighting, the artificial light at the detector installation site must not exceed 2000 Lux (with brightness value >200 Lux).

Constant light control

The detector must be positioned so that it only receives artificial light that it controls itself. Artificial light controlled by other detectors or manually operated work lights affect the brightness measurement of the detector. Direct artificial light on the detector should be avoided.

3.3 Ceiling installation

Ceiling installation of the presence detector takes place via the PlanoFix E installation frame and straps in the cut out ceiling element.

PlanoFix E installation frame

1. Draw ceiling cut out ①
   (A hinge is integrated into the top of the packaging)
2. Cut out the drawn form according to the materials with suitable tools, 100 x 100 mm ± 1mm ②
3. Insert 4 straps into the PlanoFix E ③
4. Insert the PlanoFix E into the ceiling cut out with the straps ④
5. By pulling on the straps and pushing against the PlanoFix E, the PlanoFix E is snapped securely into the ceiling element. ⑤
6. Cut the ends of the 4 straps ⑥
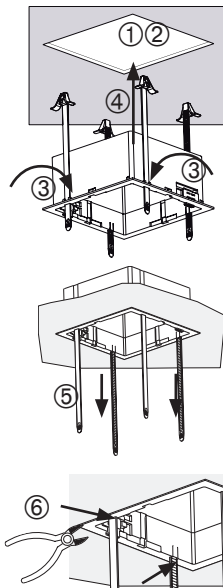
Monitoring the presence detector

1. Connect wires, see technical data page 90.
2. Fix cable to clip
3. Make sure the locks on the PlanoFix E are open ①
4. Insert the presence detector into the PlanoFix E ②
5. Close the locks on the PlanoFix E ③
6. Remove installation protection
7. Attach the PlanoCover
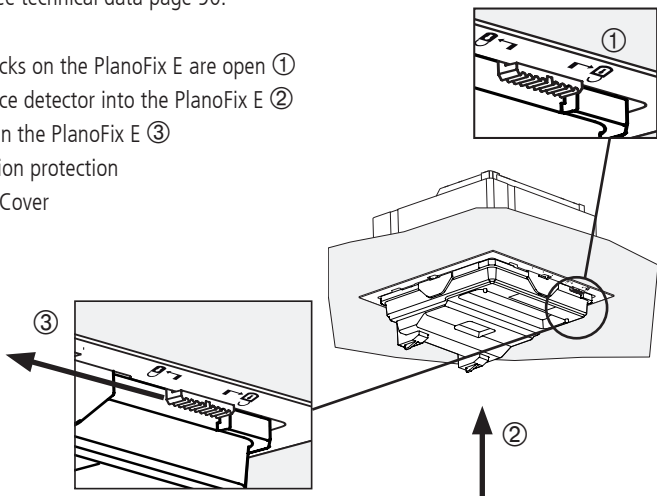
The technical data is to be followed during assembly and installation.
See page 90 and following.

3.4 Flush-mounted ceiling installation

Flush-mounted ceiling installation of the presence detector takes place via PlanoFix U in a flush mounted socket. Details about the flush mounted socket can be found in the technical data page 90, section flush mount installation. The screws included are intended for installation in the flush-mounted socked. Suitable pan head screws are to be used for the installation of other materials.

Install presence detector with PlanoFix U

1. Connect wires, see technical data page 90.
2. Insert the presence detector into the flush-mounted junction box (check the wire progression)
3. Screw the PlanoFix U metal plate tightly to the flush-mounted junction box
4. Remove installation protection
5. Attach the PlanoCover
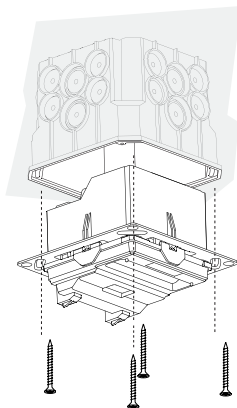
4. Start-up

4.1 Settings

All settings are adjusted using ETS. See 'KNX handbook PlanoCentro A-KNX' document (application description).

The management remote control SendoPro 868-A is optionally available for support during the installation. The SendoPro 868-A can be used to select, adjust and optimise parameters. In this respect, the SendoPro 868-A helps with setting up. A range of alterable parameters is available for adjustment with the SendoPro 868-A (see chapter 5 page 79).

See chapter 4.6 page 78 for parameters to read-out but not changed.

By means of control commands, the behaviour during installation can be changed via the SendoPro 868-A (see chapter 8 page 87).

4.2 Programming mode

The programming mode can be set using the program button on the back of the presence detector or via the management remote control SendoPro 868-A without dismantling the presence detector.

4.3 Set device to original condition

The presence detector is supplied with a factory setting. This factory setting can be restored as desired.

Activation	Description
Powerup	Press and hold the program button while switching on the bus voltage.

4.4 Operation mode

The PlanoCentro has 3 operation modes

- Normal
- Test presence (page 84)
- Test light (page 86)

4.5 Switch-on behaviour

After every time the bus voltage is switched or the parameters are downloaded by ETS, the detector runs through its start-up phase (indicated by LED).

1. Start-up phase (30 seconds)

- LED blinks once per second
- Switching: outlet light receives an ON telegram irrespective of brightness
- Constant light control: control is inactive, lighting is maximum dimmed (Value telegram 100 %).
- If there is no presence or sufficient brightness, an OFF telegram is sent after 30 sec. (Light off).

2. Operation mode normal

- The detector is ready for use (LED off)

3. Event of malfunction

- LED flashes rapidly
- The light is switched on and does not switch off as long as there is a malfunction
- Troubleshooting see page 88

4.6 Parameters to be red-out via remote control

Parameter		Alterable *
Actual brightness value channel A light	Measured brightness value in lux.	
Function mode	Fully-automatic / semi-automatic	
Operating mode	Master / Slave	
Operating mode master	Single unit operation / parallel operation	
Brightness level channel A light	Value range in lux	x
Room correction factor channel A light	Value range	x
Alternativ brightness level channel A light	Value range in lux	x
Difference in brightness channel B and channel A	Differential as a percentage [%]	
Switch-off delay time channel A light	Value range in seconds / minutes	
Short presence channel A light	On / Off	
Stand-by time light	Active / inactive	
Detection sensitivity (PIR)	Value range in increments	x
Switch-on delay channel H presence	Value range in seconds / minutes	
Switch-off delay time channel H presence	Value range in seconds / minutes	
Reduction of detection sensitivity when monitoring	Value range in increments	x
Switching/dimming A	IR-group-address allocation	
Switching/dimming B	IR-group-address allocation	
Switching/dimmingexternal 1	IR-group-address allocation	
Switching/dimming external 2	IR-group-address allocation	
External blinds 1	IR-group-address allocation	
External blinds 2	IR-group-address allocation	

* Alterable via remote control

5. Alterable parameters via remote control

The following parameters can be adjusted and optimised via the management remote control SendoPro 868-A for support during installation as well as servicing.

> ⓘ   This adjustment of parameters does not change the settings in ETS.

Parameter		Chapter / Page
Brightness level channel A light	Value range in lux	5.2 / 80
Room correction factor channel A light	Value range	5.4 / 81
Alternativ brightness level channel A light	Value range in lux	5.3 / 80
Detection sensitivity (PIR)	Value range in increments	5.5 / 83
Reduction of detection sensitivity when monitoring	Value range in increments	5.6 / 83

5.1 Adjustment with the remote control

Parameters are sent to the presence detector via infrared with the SendoPro 868-A. The parameters can be read-out before changes take place. Changed parameters are immediately accepted and applied by the detector.

LED	Description
Flickering during 3 sec	After pressing the send function on the management remote control, the presence detector displays correct receiving by flickering for 3 sec.
Lights up shortly	The command/parameter sent from the management remote control via infrared is rejected by the presence detector. The command is not valid. Check the selected detector type and the sent parameters.

5.2 Brightness level channel A light

Brightness level define the minimum brightness required. Current prevalent brightness is measured below the presence detector. If the prevalent brightness is below the setpoint value, the light will switch on as long as presence is detected (with function mode fully-automatic).

Value range

Lux value (The current measured brightness level can be adopted by the SendoPro command Teach-in)	5 - 2000 Lux
- Deactivation of brightness measurement (Brightness has no influence) - Channel A lighting only switches on according to presence/absence.	Measurement off

5.3 Alternativ brightness level channel A light

The alternative brightness level value can be used to set a second different brightness set point value. For example, a day and night mode with two different brightness levels can be set up in combination with the brightness set point value channel A light. The alternative brightness set point value is activated or changed via a bus object.
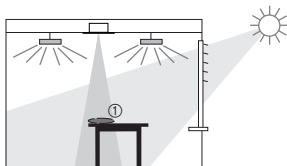
Value range

Lux value (The current measured brightness level can be adopted by the SendoPro command Teach-in.)	5 - 2000 Lux

5.4 Room correction factor channel A light

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

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

The presence detector's brightness actual values is adjusted to the room properties with the room correction factor and thus, the area under the presence detector can be ① compared to the measured lux meter value.

> ⚠ The standard value is 0.3 and is suitable for most applications.
> Changes only make sense in extreme situations.

Value range

Adjustable values	0.05 - 10
Standard value, suitable for most applications.	0.3

Adjustment of the detector brightness actual value

Procedure:

1. Determine the lux values below the presence detector with the lux meter
2. Brightness actual value is read from the detector
3. Compare lux values
4. Change and send room correction factor (table 1)
5. Brightness actual value is read from the detector
6. Compare lux value and if necessary repeat the procedure

Table 1

| for higher detector brightness actual value | → | select lower room correction factor |
| for lower detector brightness actual value | → | select higher room correction factor |

Setting limits

Set the room correction factor in such a way that
room correction factor x brightness actual value is between 5 Lux and 13,000 Lux.

5.5 Detection sensitivity

The detector has 5 sensitivity levels. The basic setting is the middle level (3). A level can be selected with the management remote control SendoPro 868-A. Sensitivity also applies during the test-modes.

By selecting the operation mode test presence, the set sensitivity level is not changed.

The parameter can be changed during test presence.

Level	Sensitivity
1	less sensitive
2	Interim value
3	Standard
4	Interim value
5	very sensitive

5.6 Reducing sensitivity with room monitoring

In order to prevent false alarms, the sensitivity is reduced in levels relative to the base detection sensitivity.

Level	Reduction
1	less
2	Standard
3	intense

6. Read-out data

By means of the management remote control SendoPro 868-A the actual brightness value A as well as parameters can be read-out.

The actual brightness value A is displayed in the parameter list, together with the brightness set point A.

Additional information can be found in the SendoPro 868-A operation manual.

7. Test-Mode

The PlanoCentro has two test modes.

- Test presence, page 84
- Test lighting, page 86

The test mode can only be started with voltage.

7.1 Test presence

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

Activate	- "Test presence on" with the management remote control SendoPro 868-A - via bus object (33) The test mode presence can always be activated.
Terminate	With subsequent restart: - Command "Test presence off" with the management remote control SendoPro 868-A - Power outage and thus power up - Automatically according to the time set with the ETS Without restart: - Activation of test lighting with the management remote control SendoPro 868-A

LED display channel status	Description
On	With movement (LED on) close channels A lighting and H presence.
Off	With absence (LED off) open both channels after 15 sec.

Test response

- Deactivate brightness measurement, light output does not react to brightness
- Detector does not respond as in fully-automatic function mode, also if semi-automatic is set.
- The control type changes to switching if the control type is set to constant light control. The light is not controlled.
- Light «On» with movement; light «Off» with absence or no movement
- Channel A lighting and H presence have a fixed switch-off delay time of 15 sec.
- Room monitoring responds normally as in normal mode.
- Switch-on delay time channel H and J presence is set fixed to 0 sec.

Commands and adjustable parameters

During test mode the following commands are possible with the management remote control SendoPro 868-A:
- Terminate test presence
- Activate test lighting
- Change detection sensitivity
- Change reducing sensitivity with room monitoring

The selected detection sensitivity (1 .. 5), see page 83, is not changed with the test presence activation. Sensitivity can be adjusted during the test.

The presence detector resets after test mode has terminated.

7.2 Test lighting

The test mode test light serves to monitor the brightness set point value (brightness threshold).

Activate	- Test lighting «On» with the management remote control SendoPro 868-A - via bus object (34) The test lighting can always be activated.
Terminate	With subsequent restart: - Test lighting «Off» with the management remote control SendoPro 868-A - Power outage and thus power up - Automatically according to the time set with the ETS Without restart: - Activation of test presence with management remote control SendoPro 868-A

LED display	Description
Blinking, 3 sec On 0.3 sec Off	The LED blinks, as long as the test lighting is active.

Test response

The presence detector behaves 100% as in normal operation, only the reaction to light/dark is faster. Thus the brightness threshold and the adaptive response is tested.

All selected functions and parameters remain unchanged.

Commands and adjustable parameters

During test mode the following commands are possible with the management remote control SendoPro 868-A:
- Terminate test lighting
- Change detection sensitivity

- Change brightness set point channel A light
- Activate test presence

The presence detector resets after the test mode has terminated.

⚠ Do not get the presence detector to switch by means of a flash light. The presence detector will learn this and thus falsify the adaptive threshold settings and and the hysteresis.
In order to simulate this response, it is ideal to light the area below the presence detector or open the blinds. Reactivate test brightness for a new test.

8. Control commands

The following control commands are available with the management remote control SendoPro 868-A:

Programming mode	Activating the programming mode
Teach-in channel A	The actual measured brightness value is applied to the brightness level channel A. Transfer is made to current active brightness set point value. That is, if the alternative brightness set point value is switched to, the current measured brightness value [lux] is transferred to the alternative brightness set point value via the teach-in command. The value transfer is not carried out if the measured brightness value is outside the value range of the brightness set point value (displayed via LED).
Switching light	The switching output light can be switched on and off. Select <On> or <Off> with the function keys.
Test presence	See chapter 7.1 page 84
Test lighting	See chapter 7.2 page 86
Restart	The detector restarts. Setting values are retained.

9. Troubleshooting

Fault	Cause
Light does not switch on and/or off when presence and darkness	Lux value is set too low; detector set on semi-automatic; light was switched off manually via push-buttonor or with SendoClic; person not within detection range; obstruction(s) interrupting detection; switch-off delay time set too short
Light stays on with presence even though it is bright enough	Lux value is set too high; light was switched off manually via push-button or with SendoClic (wait 30 min.); detector is in testing mode
Light does not switch off and/or light switches spontaneously on when no one is present	Wait for the switch-off delay time (self-learning); thermal interruption source in the detection range: Fan heater, incandescent lamps / halogen spotlight, moving objects (e.g. curtains hanging in an open window); Start up does not run smoothly.
Malfunction blinking (4x per second)	Malfunction during start-up phase or during operation; device is not fully functional!

9.1 LED display

LED	Description
Blinking in 1 second tact	The presence detector is in the start-up phase. See page 77.
Flickering during 3 sec	The command sent from the management remote via infrared is rejected by the presence detector.
Lights up shortly	The command sent from the management remote via infrared is rejected by the presence detector. The command is not valid. Check the detector type selected in the SendoPro 868-A.
Fast blinking	Error blinking; The presence detector has found an error. See page 88
Blinking, 3 sec On 0.3 sec Off	The presence detector is in test lighting. See page 86
Lights or flickers irregularly	The presence detector is in test presence see page 84. The LED displays detection of movement.

10. Technical data

Presence detector	PlanoCentro A-KNX
Detection angle horizontal / vertical	360° / 120°
Recommended installation height	2.5 - 3.5m
Detection range 3.5 m installation height	64 m² (8 x 8 m) seated persons 100 m² (10 x 10 m) moving persons
Light measurement	Mixed light
Brightness range Light measurement deactivated	approx. 5 - 2000 Lux Measurement off
All settings can be set remotely	see KNX handbook PlanoCentro A-KNX
"Light" switch-off delay time	30 sec. - 60 min.
"Presence" switch-off delay time	10 sec. - 120 min.
"Presence" switch-on delay	10 sec. - 30 min. / inactive
Terminals	KNX
Power consumption	~ 16mA
Communication receiving data sending data	IR Radio 868 MHz
Ambient temperature	0° - +50°C
Storage temperature	-25° - +60°C
Protection rating	IP 20
Protection rating when fitted	IP 40

Ceiling installation (false ceilings)	
Installation type	PlanoFix E installation frame
Ceiling cut out	100 x 100 mm ± 1 mm
Ceiling strength	up to approx. 26 mm
Flush-mounted installation (concrete ceiling)	
Installation type	PlanoFix U, flush-mounted junction box
Flush-mounted junction box, Agro/Kaiser	115 x 115 x 100 mm, 9908.01/1298-07
PlanoFix U (installation plate)	Metal 118 x 118 mm

| Item numbers	
PlanoCentro EWH-A-KNX, Installation set, white	205 9 102
PlanoCentro EBK-A-KNX, Installation set, black	205 9 103
PlanoCentro ESR-A-KNX, Installation set, silver	205 9 104
PlanoCentro UWH-A-KNX, flush-mounted installation set, white	205 9 202
PlanoCentro UBK-A-KNX, flush-mounted installation set, black	205 9 203
PlanoCentro USR-A-KNX, flush-mounted installation set, silver	205 9 204
PlanoCentro A-KNX (spare part)	205 9 000
Management remote control SendoPro 868-A	907 0 675
SendoClic user remote control	907 0 690
PlanoCover EWH-112x112, white	907 0 677
PlanoCover EBK-112x112, black	907 0 678
PlanoCover ESR-112x112, silver	907 0 679
PlanoCover UWH-123x123, white	907 0 680
PlanoCover UBK-123x123, black	907 0 681
PlanoCover USR-123x123, silver	907 0 682

CE declaration of conformity

$C \in$

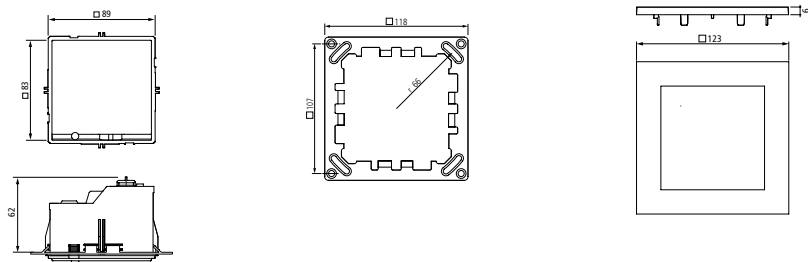This device complies with the protection regulations of the EMC directive 2004/108/EC.

11. Dimension drawings

11.1 Ceiling installation PlanoCentro E . . -A-KNX

□89

□83

73

100 x 100 ± 1

□112
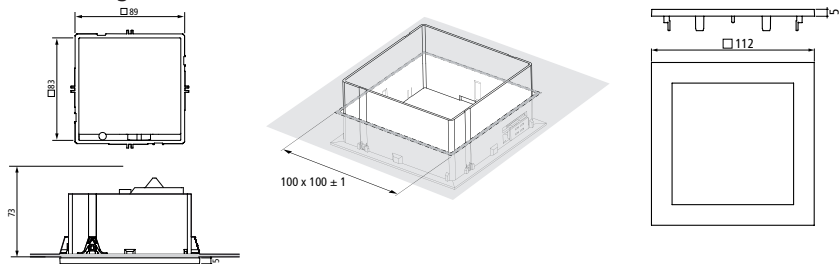
11.2 Flush-mount installation PlanoCentro U . . -A-KNX

□89

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□123

12. Warranty declaration

Theben HTS presence detectors are manufactured and tested for quality with greatest of care and most modern technology. Theben HTS AG thus guarantees smooth function with correct use. Should a malfunction appear, Theben HTS AG guarantees within the scope of the General Terms and Conditions:

Please notice specifically:

- that the warranty is valid for 24 months from date of manufacture.
- that the warranty becomes void if you or a third party makes modifications or repairs to the devices.
- that, as long as the presence detector is connected to a software controlled system, the warranty for this connection is only valid if the interface specifications are adhered to.

We are obligated to improve or replace as quickly as possible all damaged or unusable parts within the scope of delivery, proven insufficient materials, faulty construction or lacking models up to the end of the guarantee period.

Dispatching

For cases covered by the guarantee, send the device, together with the shipping order and a short description of the problem to the responsible specialised dealer.

Industrial property rights

Concept, as well as hard and software of this device are copyrighted.

Subject to alteration and printing errors.

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