thebenHTS

EN Presence detector

theRonda P360 KNX UP WH
2089000
theRonda P360 KNX UP GR
2089001

1. Product characteristics

- Passive infrared presence detector for ceiling installation
- Circular detection area 360°, up to Ø 24 m (452 m²)
- Restriction of detection area with cover clips
- Automatic presence- and brightness-dependent control for lighting and HVAC
- Mixed light measurement suitable for fluorescent (FL/PL/ESL), halogen/incandescent lamps and LEDs
- 2 light channels C1, C2
- Switching operation or constant light control with standby function (orientation light)
- Switching mode with dimmable lighting
- Choice of fully or semi-automatic
- Brightness switching value or set point value can be set in lux by using parameters, the object or via remote control
- Teach-in of the brightness switching value or the set point value
- Reduction of time delay when present briefly (short-term presence)
- Manual override by telegram or remote control
- 2 presence channels C4, C5, individually configurable
- Switch-on delay and time delay configurable

- Setting the room correction factor for brightness measurement comparison
- Adjustable sensitivity
- Test mode for checking function and detection area
- Scenes
- Parallel switching of multiple presence detectors (Master/Slave or Master/Master)
- Ceiling installation in flush-mounted box
- Ceiling installation possible with back box, IP44 (option)
- User remote control «theSenda S» (option)
- Management remote control «SendoPro» (option)
- Installation remote control «theSenda P» (option)

2. Safety

> ⚠ WARNING
>
> **Danger of death through electric shock or fire!**
> ➢ Installation should only be carried out by a professional electrician!

- Work on electrical systems may only be carried out by electricians or by instructed persons under the guidance and supervision of an electrician in accordance with the technical regulations applying to electricity!
- Comply with the country-specific safety regulations for work on electrical systems!
- The device is maintenance-free. If the device is opened or penetrated with any object, the guarantee lapses.

3. Proper use

The presence detector is intended for interior installation. The presence detector is exclusively intended for the use as contractually agreed between the manufacturer and the user. Any other use is considered to be unacceptable. The manufacturer does not accept liability for any resulting damages.

4. Function

The presence detector is primarily used in entrance halls, garages, warehouses, offices and schools for easy and energy-efficient control of lighting as well as HVAC. The lighting is accordingly influenced by switching or constant light control.

Function
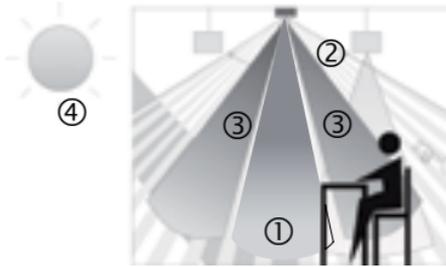
① Mixed light measurement
② Presence detection
③ Artificial light
④ Incident daylight

Light channel C1, C2

The presence detector detects people present based on smallest movements. 1 light sensor simultaneously measures the brightness in the room and can thus smoothly control the lighting or switch it on and off according to the daylight. The light outputs can be dynamically faded up and down by the integrator. The brightness switching value or set point value can be set via parameters, object or the management remote control.

Switching

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

performed with a push button. Manual switching off, dimming and scenes stop the control for the duration of the presence.

Constant light control

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

Time delay

The minimum time delay can be set for all light channels in the range of 30 seconds to 60 minutes. If someone goes into an unoccupied room only briefly and leaves it within 30 seconds, then the light shuts off prematurely after 2 minutes (short-term presence).

Standby

The standby function acts as an orientation light. After the time delay expires, the lighting is set to the standby dimming value (1 - 25%). The standby time can be set between 30 s and 60 min or permanently. The lighting switches off if the brightness level in the room exceeds the brightness switching value / set point value. The lighting switches to the standby dimming value automatically if the room

brightness falls below the brightness switching value/set point value. The standby function can be activated or locked via an object. In conjunction with a time switch, this allows energy-saving solutions to be implemented.

Push button control

The lighting can be manually switched or dimmed at any time via a push button. If the light is switched on manually, the light will remain on during switching operation for at least 30 minutes provided people are present. It then switches off when there is enough brightness. The light is forced off after a preset time delay if the room was (previously) vacated. If artificial lighting is switched off manually, the lighting remains switched off as long as the room is occupied. The lighting switches again automatically after the time delay has expired.

Fully or semi-automatic

Lighting control via the presence detector operates fully automatically for increased comfort or semi-automatically for greater energy savings. In «fully automatic» the lights switch on and off automatically. In «semi-automatic», the lighting must always be switched on manually. The lighting is switched off automatically.

Presence channel C4, C5

The presence channels are typically used for HVAC control. According to the selection, a telegram will only be sent due to presence, completely independently of the brightness and after expiry of the switch-on delay. The time delay will be restarted at every movement. The presence channel is not influenced by push buttons.

Switch-on delay

The switch-on delay prevents instantaneous switching on. The telegram is sent only on expiry of the switch-on delay, provided that people are present at this time.

Time delay

The time delay enables delayed switching off of HVAC devices and systems after the room is vacated.
If selected, a telegram can be sent after the expiry of the presence time delay (once or cyclical).

5. Detection area

The circular detection area of theRonda presence detector covers a large detection area and permits a good room coverage with many applications. Note that seated and moving persons can be detected in

differently-sized areas. The recommended installation height is 2.0 m − 6.0 m. As installation height increases, the sensitivity of the presence detector decreases. Walking motions are necessary from installation heights of 3.5 m, and the detection areas of several detectors should overlap in the marginal zones. The detection range is reduced as the temperature increases.

Seated persons:

The details relate to smallest movements at table height (approx. 0.8 m).

Moving persons:

At installation heights between 5 and 10 m, the extent and distance between the active and passive zones increase.
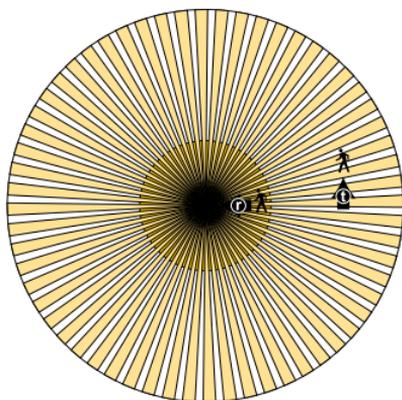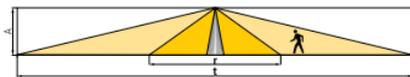
Instal-lation height (A)	moving persons Frontal (r)		moving persons Across (t)		seated persons (s)	
2,0 m	28 m²	Ø 6 m	380 m²	Ø 22 m	16 m²	Ø 4,5 m
2,5 m	38 m²	Ø 7 m	415 m²	Ø 23 m	24 m²	Ø 5,5 m
3,0 m	50 m²	Ø 8 m	452 m²	Ø 24 m	28 m²	Ø 6 m
3,5 m	50 m²	Ø 8 m	452 m²	Ø 24 m	38 m²	Ø 7 m
4,0 m	50 m²	Ø 8 m	452 m²	Ø 24 m	–	–
5,0 m	50 m²	Ø 8 m	452 m²	Ø 24 m	–	–
6,0 m	50 m²	Ø 8 m	452 m²	Ø 24 m	–	–
10,0 m	50 m²	Ø 8 m	491 m²	Ø 25 m	–	–

All figures are guidance values.

Brightness measurement

The presence detector measures artificial light and daylight that is reflected below the detector. The light measurement area maps a rectangle of about 2 x 3.5 m at table height. The installation location is the reference point for the lighting level. If the brightness measurement is deactivated, the light channel only switches depending on the presence.

2 m
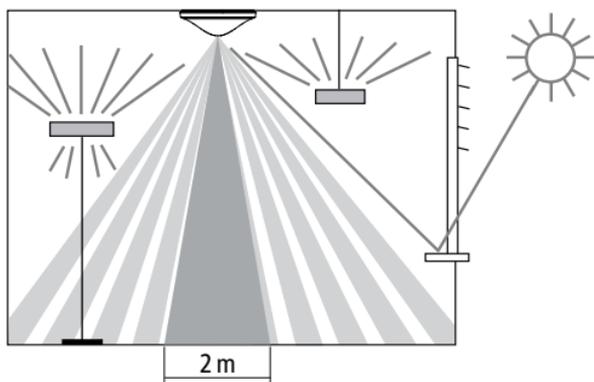
Switching

Direct light influences the light measurement. The placement of the floor lamps or suspended lighting directly below the detector is to be avoided.

Constant light control

The detector must be positioned in such a way that it only detects artificial light that it controls itself. Artificial light that is controlled by other detectors, or manually switched work lighting, influence the brightness measurement of the detector. Direct artificial light on the detector must be avoided.

Suitable lamps

The presence detector is designed for the operation of fluorescent, compact fluorescent, halogen and incandescent lamps as well as LEDs.

6. Installation

Flush-mounted fitting

The presence detector is flush-mounted using a size 1 standard flush-mounting installation socket.
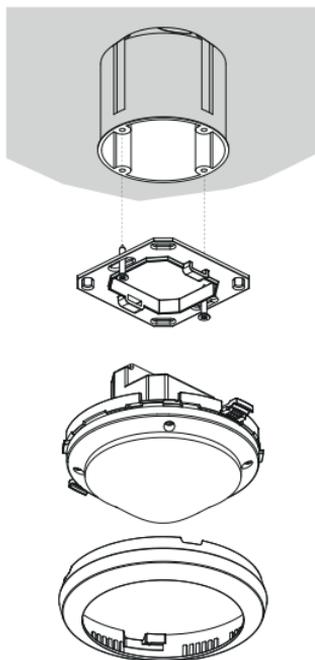
Ceiling installation

A ceiling installation unit 73A is available for simplified ceiling installation of the presence detector (see accessories). This also ensures cord grip and contact protection. The installation diameter is 72 mm (drill diameter 73 mm).
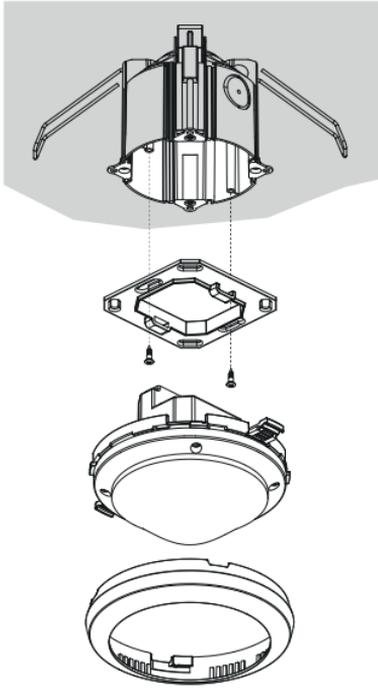
Surface-mounted installation

A back box 110A, protection rating IP44, is available for surface mounted installation (see accessories).
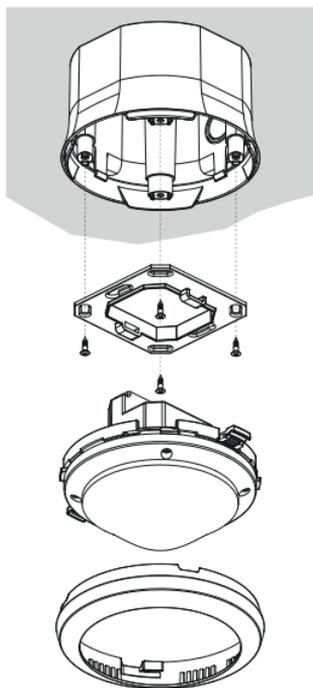
7. Start-up

7. Settings

All settings are made via ETS. See document «KNX manual theRonda» (application description).
The «SendoPro 868-A» management remote control or the installation remote control «theSenda P» are optionally available for start-up support. The «SendoPro 868-A» can be used to query, adjust and optimise the parameters. Parameters can only

be adjusted with the «theSenda P». In this sense, the remote controls serve as set-up aids. A range of alterable parameters is available for adjustment with the remote control (see chapter «Parameters via remote control»).

The response during operation can be changed via the remote control's control commands.

8. Programming mode

The programming mode can be activated using the programming button on the back of the presence detector or, without dismounting the presence detector, via the «SendoPro 868-A» management remote control or «theSenda P» installation remote control.
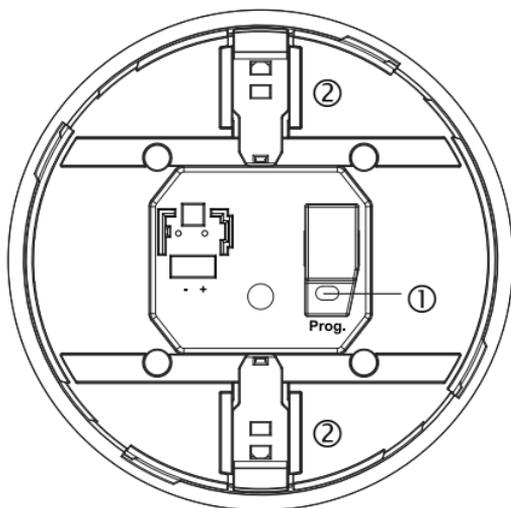
① Programming mode push button
② Mechanical safety lock

9. Setting the device to the factory setting

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

Activation	Description
Powerup	Hold down the programming button while switching on bus voltage.

10.Operation mode

The theRonda P360 KNX knows 3 operating modes
- Normal   • test-presence   •test-light

11.Switching behaviour

After the bus voltage is switched on or the parameters are downloaded via the ETS, the detector first runs through the start-up phase of 30 s, then it changes into normal operation. An LED displays the current status.

4. Start-up phase (30 s)
- The LED flashes in one second intervals.
- Switching: Light outputs send an ON telegram regardless of brightness
- Constant light control: control inactive, the lighting will be dimmed up to the maximum (value telegram max. control value).
- When no one is present or there is sufficient brightness, an OFF telegram is sent after 30 s (light off).

5. Operation mode normal
- The detector is ready for operation (LED off).

6. In the event of malfunction
- LED flashes rapidly
- For troubleshooting, see chapter «Troubleshooting»

8. Parameters via remote control

The following parameters can be queried or changed via the remote control for support during installation as well as servicing:

Parameter	Description	Can be queried SendoPro	Can be changed SendoPro	Can be changed theSenda P
Brightness set point value C1	Value range in lux	x	x	x
Alternative brightness set point value C1	Value range in lux	x	x	
Brightness measurement value C1	Lux meter brightness value in lux		x	
Brightness actual value C1	Measured brightness value in lux	x		

Parameter	Description	Can be queried SendoPro	Can be changed SendoPro	Can be changed theSenda P
Lighting time delay	Value ranges in seconds/ minutes		x	x
Detection sensitivity (PIR)	Value range in levels		x	x

With the «SendoPro 868-A» management remote control, parameters can be queried by sending values level-by-level to the detector. If the sent values are below the set parameter, the LED illuminates briefly. If the sent values are equal or above the set parameter, the LED flickers for 2 seconds. This adjustment of parameters does not change the settings in ETS.

9. Alterable parameters via remote control

1. Adjustment with the remote control

The parameters are sent to the presence detector with the «SendoPro 868-A» management remote control or with «theSenda P» installation remote control via infra-red. Changed parameters are immediately applied and used by the detector.

LED description

Flickering for 2 s

After activating the send function on the management remote control or pressing the corresponding push button on the theSenda P, the presence detector indicates the correct reception by flickering for 2 s.

Lighting up briefly

The parameter/command sent from the remote control was rejected by the presence detector. The command is not valid.

Check selected detector type and sent parameters with management remote control.

2. Brightness switching value/set point value channel C1 light

The brightness switching value/set point value defines the minimum desired brightness. The currently prevailing brightness is measured below the presence detector. If the prevailing brightness is below the switching value/set point value, the light is switched on when a presence is detected (in configuration type fully automatic).

Value range

- Lux values with «SendoPro 868-A» management remote control: 10-3000 lux

- In the «theSenda P» installation remote control, the following values are available: 10, 15, 300, 500, 800 lux
- The currently measured brightness value (lux) can be adopted with the «SendoPro 868-A» management remote control, with the teach-in control command or with the «theSenda P» installation remote control via the teach-in button. Values outside the permitted range will automatically be set to the appropriate limit value.

- Deactivating the brightness measurement (the brightness has no influence)	
- The light channels only switch according to presence/absence.	Measurement off
Possible with «SendoPro 868-A» management remote control or «theSenda P» installation remote control	Button ⟨

3. Alternative brightness switching value / set point value channel C1 light

The alternative brightness switching value / set point value can be used to define a second, different brightness switching / set point value. For example, a day and night mode with two different brightness levels can be set up in combination with the brightness switching value / set point value channel C1 light. The alternative brightness switching value / set point value is activated or switched via bus object.

Value range

cf. 2. Brightness switching value / set point value channel C1 light

4. Room correction factor C1

The room correction factor is a measurement for the difference of the brightness measurement on the ceiling and the work area. The brightness measurement value at the ceiling is influenced by the installation location, light reception, position of the sun, weather conditions, the reflection properties of the room and the furniture.

The brightness measurement value of the corresponding lighting channel is adjusted to the conditions in the room using the room correction factor and can therefore be adapted to the lux meter value measured in the area below the presence detector ①.
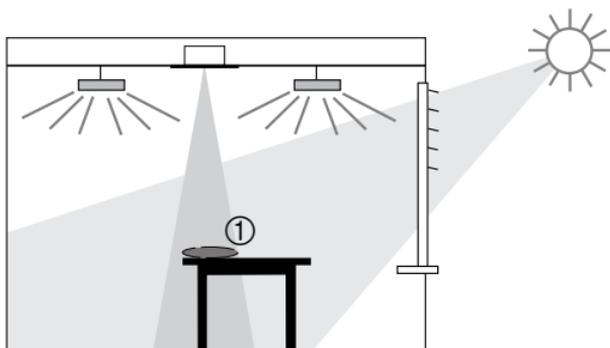
$$\text{Room correction factor} = \frac{\text{Brightness value at the ceiling}}{\text{Brightness value on the work surface}}$$

➤ Please observe the «KNX manual theRonda» concerning the calibration of light measurements or setting the room correction factor.

  • The lux meter is placed on the work surface below the sensor and the measured lux value is entered via the management remote control «SendoPro 868-A», parameter «brightness measurement value C1».
  • The room correction factor is calculated from this automatically. Values between 0.05 and 2.0 are permitted. Calculated or entered values outside the permitted range will automatically be set to the appropriate limit value.

The calculated room correction factor will be applied immediately. For monitoring purposes, the room correction factor can be queried via the object 8.

> ⚠ The room correction factor can be changed directly only via the ETS. The standard value is 0.3 and is suitable for most applications. Changes are only sensible in sharply varying situations.

5. Lighting time delay

Value range

Adjustable values with «SendoPro 868-A» management remote control	30 s - 60 min
In the «theSenda P» installation remote control, the following values are available	30 s, 60 s, 2 min, 10 min, 20 min, 60 min

6. Detection sensitivity

The detector has 5 sensitivity increments. The basic setting is the middle increment (3). By selecting the test presence operation mode, the set sensitivity increment is not changed. With the «SendoPro 868-A» management remote control, increments 1 to 5 can be selected and sent to the detector. With the «theSenda P» installation remote control, the sensitivity can be reduced or increased by one increment with every button press.

Increment	Sensitivity
1	very insensitive
2	insensitive
3	standard
4	sensitive
5	very sensitive

Control commands

The following control commands can be triggered with the remote control:

Control command	Description	Can be triggered SendoPro	Can be triggered theSenda P
Programming mode	Activation of programming mode	x	x
Teach-in channel C1		x	x
Master/Slave query	Master/Slave	x	
Switching light	All lighting groups can be switched on and off.	x	x
Presence test	On/Off	x	x
Test light	On/Off	x	
Restart	Restart detector	x	x

Teach-in

The currently measured brightness value will be accepted as the brightness set point value. Transfer is made to the currently active brightness setpoint value. That is, if the alternative brightness set point value is switched to, the currently measured brightness value [lux] is transferred to the alternative brightness set point value via the teach-in command. Values outside the permitted range will automatically be set to the appropriate limit value.

Test mode

The theRonda P360 KNX has two test modes.

- Presence test
- Light test

1. Presence test

The presence test is used for checking the detection area and the parallel switching.

Activation	Control command presence test «On» with the management remote control «SendoPro 868-A» or installation remote control «theSenda P» button «Test». . ON telegram via bus object (51). The presence test can be activated anytime.
End	With subsequent restart: Control command presence test «Off» via the «SendoPro 868-A» management remote control. OFF telegram via bus object (51) Power failure and thus power up Automatically according to the time set with the ETS, without restart: Activation of light test with the «SendoPro 868-A» management remote control.

Indication of LED status channels	Description
On	When movement occurs, the LED goes on and channels C1, C2 switch on.
Off	After the movement stops, the LED is off and the channels C1, C2 switch after approx. 10 s.

Test response

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

Commands and adjustable parameters

In the presence test, the following commands are possible with «SendoPro 868-A» management remote control and «theSenda P» installation remote control:

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

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

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

2. Light test

The light test is used to check the brightness switching value / set point value.

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

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

Test response

The presence detector responds 100 % like in normal operation, only the reaction to bright/ dark is faster. This makes it possible to test the brightness threshold and the adaptive response. The control is also faster. All selected functions and parameters remain unchanged.

Commands and adjustable parameters

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

- End light test
- Change brightness switching value/set point value channel C1 light
- Activate presence test

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

⚠ Do not use a pocket lamp to switch the presence detector. The presence detector will learn this and thereby distort the adaptive light thresholds and hysteresis values.

In order to simulate this behaviour, the area below the presence detector should be illuminated or the blinds operated. Reactivate the light test for a new test.

Troubleshooting

Fault	Potential cause
Light does not switch on or switches off if presence is detected and in darkness	Lux value is set too low; detector set on semi-automatic; light was switched off manually via push button or with remote control; person not within detection range; obstruction(s) interrupting detection; time delay set too short.

Light stays on when someone is present despite sufficient brightness	Lux value is set too high; light was recently switched on manually via push button or by remote control (wait 30 min during switching operation); detector is in test mode.
Light does not switch off or light switches on spontaneously when no one is present	Wait for time delay (self-learning); thermal sources of interference in the detection area: fan heaters, incandescent lamps/halogen spotlights, moving objects (e.g. curtains hanging in an open window).
Error flashing (3 x per second)	Error in self-test; Invalid parameter values in the detector (see KNX manual theRonda P360 KNX Chapter 2.4.2 Settings, parameter settings with download). Device not properly functional!

LED display

LED	Description
Flashing at one second intervals	The presence detector is in the start-up phase.
Flickering for 2 s	The command sent from the remote control via infrared was accepted by the presence detector.
Lighting up briefly	The command sent from the remote control via infrared was rejected by the presence detector. The command is not valid. Check the selected detector type or parameters on the SendoPro.
Error flashing (3 x per second)	Error flashing; The presence detector has found an error.
Flashing, 5 s On 0.3 s Off	The presence detector is in light test mode.

Lights up or flickers irregularly	The presence detector is in presence test mode or "LED display movement" is activated. The LED indicates the detection of movements.

Dimensions diagrams
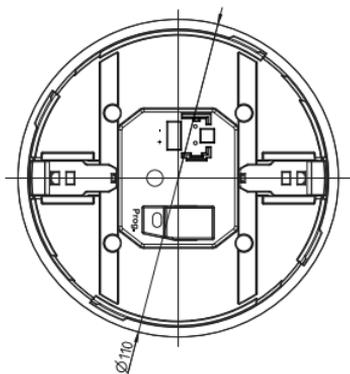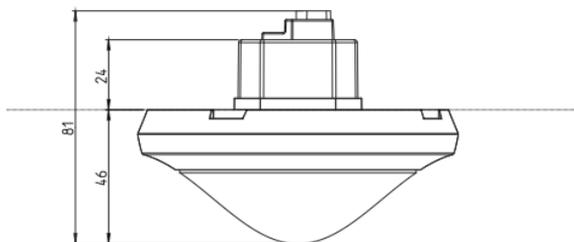
10. Technical data

Operating voltage	Bus voltage KNX, max. 30 V
Power consumption	approx. 8 mA / 9 mA with LED on
Type of installation	Ceiling installation; Flush / surface mounted or ceiling installation
Recommended installation height	2.0 − 6.0 m (minimum height > 1.7 m) (max. 10.0 m)
Detection area horizontal vertical	360° 150°
Maximum range	Ø 8 m (Mh. 3 m) / 50 m² radially moving Ø 24 m (Mh. 3 m) / 452 m² tangentially moving
Setting range of brightness switching value / set point value	approx. 10 − 3000 lux / measurement OFF
Lighting time delay	30 s − 60 min
Presence time delay	10 s − 120 min
Presence switch-on delay	10 s − 30 min / inactive
Standby dimming value	1 − 25% of the lamp output
Standby time	30 s − 60 min / inactive / permanently on
All settings are remotely configurable	see KNX manual
Connection type	Plug-in terminals, type WAGO 243
Size of flush-mounted box	Size 1, Ø 55 mm (NIS, PMI)
Protection rating	IP 20 (IP 40 installed)
Ambient temperature	-15 °C − +50 °C
CE Declaration of Conformity	This device conforms to the safety regulations of the EMC Directive 2004 / 108 / EC
RCM compliance	This device is compliant with the ACMA guidelines

Product overview

Type of installation	Channel	Colour	Type	Item number
Ceiling installation	2 Light | 2 HVAC	White	theRonda P360 KNX UP WH	2089000
Ceiling installation	2 Light | 2 HVAC	Grey	theRonda P360 KNX UP GR	2089001
Ceiling installation	2 Light | 2 HVAC	Special colour in accordance with customer information	theRonda P360 KNX UP SF	2089003

Guarantee

ThebenHTS presence detectors are manufactured with the utmost care and using state-of-the-art technology and are quality-tested. Theben HTS AG therefore guarantees perfect operation when used correctly. Should a fault occur, Theben HTS AG will fulfil the guarantee within the scope of the general terms and conditions.

Please note in particular:
- that the guarantee period lasts 24 months from the date of manufacture.
- that the guarantee is invalidated if you, or a third party, make changes or undertake repairs to the devices.

- that, insofar as the presence detectors are connected to a software-controlled system, the guarantee for this connection is only valid when the indicated interface specification is complied with.

We undertake to repair or replace as quickly as possible all components of the delivered device that have become defective or unusable through demonstrably poor material, faulty construction or incomplete delivery up to the end of the guarantee period.

Returns

In the event of a guarantee claim, please return the device to the relevant dealer together with the delivery note and a brief description of the fault.

Industrial property rights

The design as well as hardware and software of these devices are protected by copyright.

11. Accessories

Back box 110A WH
Item No.: 9070912
Details> www.theben.de / www.theben-hts.ch

Back box 110A GR
Item No.: 9070913
Details> www.theben.de / www.theben-hts.ch

DE (ceiling installation) box 73A
Item No.: 9070917
Details> www.theben.de / www.theben-hts.ch

Covering clip for area restriction
Item No.: 9070921
Details> www.theben.de / www.theben-hts.ch

SendoPro 868-A
Item No.: 9070675
Details> www.theben.de / www.theben-hts.c'

theSenda S
Item No.: 9070911
Details> www.theben.de / www.theben-hts.ch

theSenda P
Item No.: 9070910
Details> www.theben.de / www.theben-
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