Tebis application software

STCC510S Presence detector 360°

	Product reference	Product designation	TP device RF devices
	TCC510S	Presence detector	

TCC510S

- Presence / absence management

➡

Output module KNX

Load connected

- Presence detection
- Brightness management
- Presence / absence management
- Master / Slave mode
- Lighting control
- Priority
- Scene
- SceneAutomatic and semi-automatic mode
- Override

- Linking

⬌

Input modules KNX

Visualisation system

Remote controls

- Remote control

⬅

Summary

1. Presentation

1.1 Function Description

The software application is used to configure the presence detector.

The TCC510S is a presence detector which detects the slightest movement (e.g. that of a person working in an office). A pyroelectric sensor located under the detection lens is used for detection. The presence sensor constantly measures the brightness in the room and compares it to the brightness level setting.
The brightness level can be set either with an installer remote control or with the ETS or a rotating potentiometer on the device. Different reactions may occur on the KNX bus according to the setting, such as a reaction to the measured luminosity and to presence.

The main functions are the following:

■   Output control by the KNX bus (lighting channel)
The output can be controlled in different ways.

The possible functions are:
- Timer activation,
- Brightness value (%) presence,
- Brightness value (%) presence and absence,
- Activation of the presence scene,
- Activation of the presence and absence scene,
- Priority.

■   Assessment of the brightness
The ambient brightness level value can be set by ETS, the installer remote control or directly on the presence detector using a rotating potentiometer. This threshold value will be used to define the ambient brightness (darkness) based on which a bus telegram will be sent via the **Lighting channel** object in case of movement.

■   Time delay
The time delay is started when switching from presence to absence (no presence) taking into account the ambient brightness. Once the time delay has expired, the movement detector switches to absent mode (no presence). If the brightness level is sufficient, the time delay may be reduced. According to the function selected, a telegram is sent on the bus in case of Presence or of Presence and Absence. The time delay can be set by ETS, an installer remote control or via a setting potentiometer directly on the product.

■   Remote control of the Lighting channel
The remote control is used to trigger the presence detector via the KNX bus or a user remote control (e.g. start it).

The detector can be used in automatic or semi-automatic mode. When semi-automatic mode is selected, the remote control is used for activation (presence), whereas the detector controls deactivation (e.g. switches OFF).

Automatic mode is used to obtain an automatic action according to presence and the brightness conditions (e.g. ON or OFF). Here, the remote control is used to switch from presence mode (e.g. switch on the lights) to absence mode (e.g. switch off the lights).

■   Infrared remote control using the user remote control
The occupancy sensor embeds an infra red receiver. The infra red remote control offers the same functionalities as the KNX push button input (**Remote control** object).

■   Infrared settings adjustment using the installer remote control
Some settings (Remote control, Control type: automatic/semi-automatic, ambient brightness threshold value, Lighting time delay) are possible with the installer remote control. The possibility of using the remote control to adjust settings can be defined or locked by the ETS.
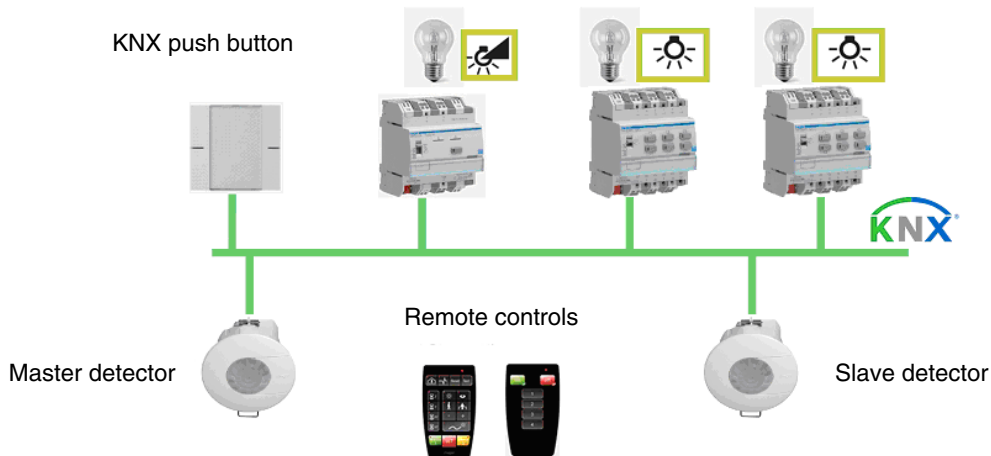
■ Linking Master / Slave

This function extends the presence detector's detection zone by combining it with other detectors.
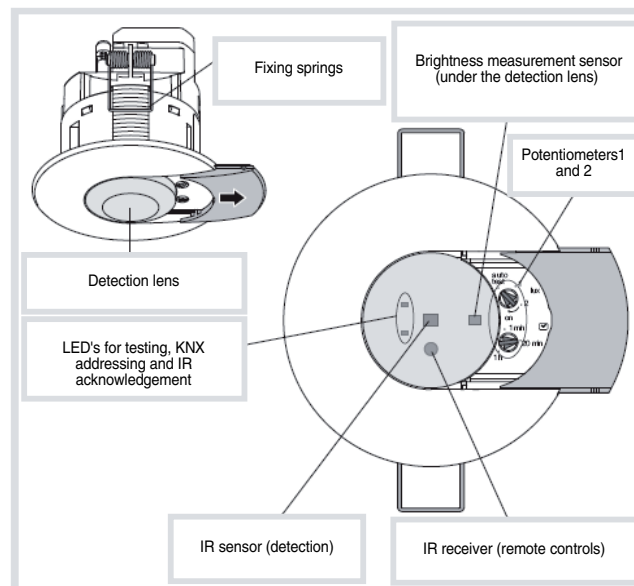Two different relations are possible for this purpose:
- Master
  The detector operates in its own detection zone according to presence and the level of light,
- Slave
  The detector operates in its own detection zone according to presence and transmits the presence information to a master.
Operation of the presence detector is defined by an ETS parameter.

1.2 General outline

KNX push button

Master detector

Remote controls

Slave detector

1.3 Description of the product

Fixing springs

Brightness measurement sensor (under the detection lens)

Potentiometers1 and 2

Detection lens

LED's for testing, KNX addressing and IR acknowledgement

IR sensor (detection)

IR receiver (remote controls)

2. Configuration and General parameters

2.1 General parameters

2.1.1 Objects List

| Designation	No	Name	Function of the object	Length	C	R	W	T
Master detector	6	Lighting channel	Remote control*	1 bit	C	R	W	T
	7	Lighting channel	Slave detection*	1 bit	C	R	W	T
Slave detector	0	Slave Input 1	Slave output**	1 bit	C	R	W	T

* The **Remote control** and **Slave detection** are available when the presence detector is used as a master detector. These objects allow slave detectors to be integrated to extend the detection zone.

** This object is only available if the presence detector is used as a slave detector. The **Slave output** is used to transmit information concerning presence to the master detector. In this case, the slave detector is used to extend the detection zone of the master detector.

2.1.2 Setting parameters

In the **General** parameter area, it is possible to configure the main settings of the operating mode.

→ Parameter Setting screen
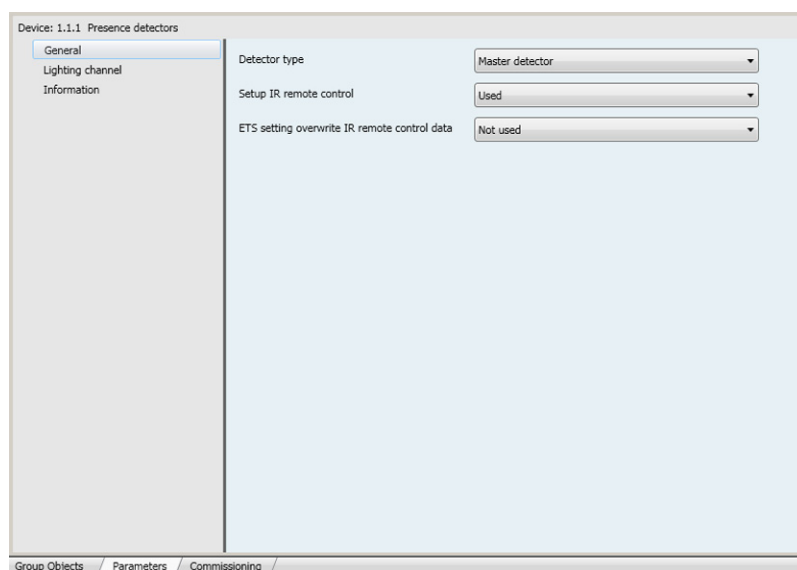
Screen 1

■ Detector type

This function extends the presence detector's detection zone by combining it with other detectors.
Two different relations are possible.

- Master detector

The lighting channel of the master detector switches on as soon as one of the 25 slave detectors indicates a presence in the detection zone.

- Slave detector

A slave detector informs periodically the master if there is somebody in its area, the luminosity of its area is not taken into account to issue this information.

2.2 Setup IR remote control

The functional parameters linked to the presence detector application can be determined via the ETS parameters or using the installer remote control.
Setting the parameters by the remote control can be activated or deactivated. When parameter setting is activated by the remote control, it is possible to define whether the settings are overwritten by ETS or not.

Installer remote control

Designation	Description	Value
Setup IR remote control	The possibility to set the parameters by an installer remote control can be activated or deactivated.	Used, Not used Default value: Not used
ETS setting overwrite IR remote control data*	This parameter is used to define whether the parameter set by the remote control in the presence detector can be overwritten or not by the parameter set in the ETS.	Used, Not used Default value: Not used

* This parameter is only visible if the **Setting parameters by IR remote control** parameter has the following value: Used.

3. Configuration and parameters of the lighting channel

3.1 Objects List

Designation	No	Name	Function of the object	Length	C	R	W	T
ON / OFF, Timer, Priority, Brightness value, Brightness value Presence / Absence	0	Lighting channel	Info ON / OFF	1 bit	C	R	W	-
ON / OFF	1	Lighting channel	ON / OFF	1 bit	C	R	-	T
Timer	2	Lighting channel	Timer	1 bit	C	R	-	T
Priority	3	Lighting channel	Priority	2 bit	C	R	-	T
Brightness value	4	Lighting channel	Absolute dimming	1 byte	C	R	-	T
Brightness value Presence / Absence	4	Lighting channel	Absolute dimming	1 byte	C	R	-	T
Scene	5	Lighting channel	Scene	1 byte	C	R	-	T
Scene Presence / Absence	5	Lighting channel	Scene	1 byte	C	R	-	T

3.2 Setting parameters

➜ Parameter Setting screen
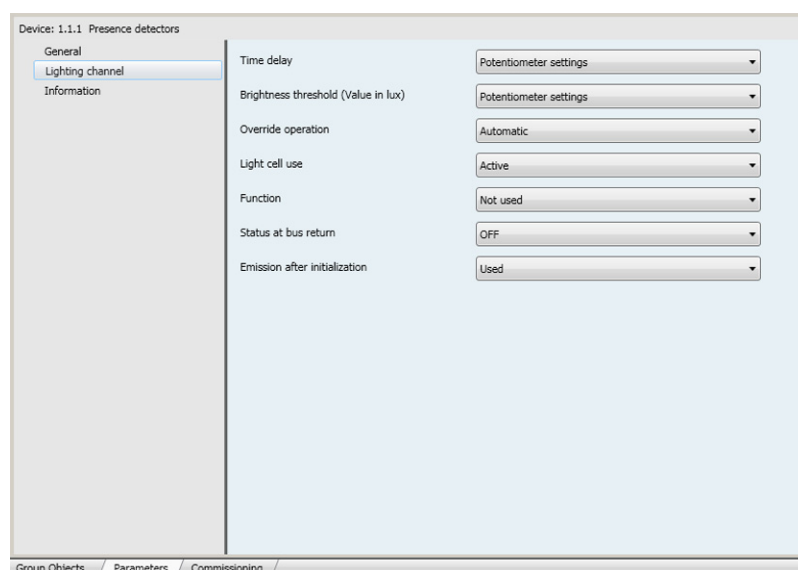
Screen 2

3.2.1 Value of the brightness threshold

The setting of the brightness threshold value is used to define the ambient brightness (darkness) from which recognition of a movement is analysed as a presence by the presence detector, a bus control is sent and the local relay output is controlled.

The value of the brightness threshold can be set by the ETS, the rotating potentionmeter on the detector or by the installer remote control.

Designation	Description	Value
Brightness threshold (Value in lux)	This operating threshold defines the ambient brightness (darkness) from which the detection of a movement is analysed as a presence, a control is sent by the **Lighting channel** object. The switching OFF threshold is defined by the detector itself, it takes into account daylight filtering and brightness variation.	Potentiometer settings, Brightness measurement inactive, 5 lux, 50 lux, 100 lux, 200 lux, 300 lux, 400 lux, 500 lux, 600 lux, 700 lux, 800 lux, 900 lux, 1000 lux Default value: Potentiometer settings

3.2.2 Time delay

The time delay is triggered when the lighting channel switches from absence (no movement) to presence (movement) by the lighting channel (**Bus** object). On this occasion, the ambient brightnes is also taken into account (see the value of the brightness threshold).

The presence sensor switches to absence mode either when the time delay expires or when the ambient brightness is sufficient (no movement). According to the function set for this channel, a telegram is sent on the bus in case of Presence and / or Absence. If presence is detected, the time delay is automatically restarted. The time delay can be set by ETS, an installer remote control or via a setting potentiometer directly on the product.

Designation	Description	Value
Time delay	The time delay determines the time the output requires to switch on (presence) after a presence is detected (brightness less than the threshold value).	Potentiometer settings, 5 s, 15 s, 30 s, 1 min, 2 min, 3 min, 4 min, 5 min, 10 min, 15 min, 30 min, 1 h, 2 h, 3 h, 4 h, 8 h Default value: Potentiometer settings

3.2.3 Override operation

The **Remote control** object is used to control the lighting channel without taking into account either movement or the brightness threshold value.

The type of function (Automatic or Semi-Automatic) is selected by an ETS parameter or by the installer remote control.

■ Semi-automatic - Manual switching

In this mode the sensor must be set to Presence by an infrared user remote control or by a KNX message (**Remote control** object). As long as the presence detector recognises a presence and for the duration of the time delay, it switches on the lighting. When the presence detector switches back to Absence, it must be reactivated by a KNX message or the remote control. In this mode, a KNX message or a control by IR remote control is always required to switch on the lighting or activate the detector. Maximum energy savings can be achieved with this control type. With an ON control on the **Remote control** object, the presence detector switches to the current presence status (presence/absence).

If it is used with the remote control, an ON control during the time delay restarts it (re-triggering).

■ Automatic

In this mode, the lighting is controlled according to presence and the ambient brightness. If a presence is detected and if the ambient brightness is less than the setpoint threshold value, the presence detector switches to Presence (the lighting switches on). As long as a presence is detected and the time delay has not expired (Lighting channel parameter, Time delay), the lighting stays on.

When the presence detector switches off the lighting, a new presence detection is necessary, taking into account the ambient brightness, to switch back to Presence. The mode used by the IR remote control can be modified (the default mode is Automatic).

The remote control is used here (by KNX message or IR user remote control) to switch from Presence to Absence.

By an ON control on the **Remote control** object, you switch from:
- Absence to Presence and from,
- Presence to Absence.

With an OFF control on the **Remote control** object, the presence detector switches to automatic mode.

Designation	Description	Value
Override operation	This parameter allows you to define the remote changeover function on the presence detector. This concerns both the **Remote control KNX** object and the remote control.	Automatic, Semi-automatic - manual switching Default value: Automatic

User remote control

3.2.4 Light cell use

The presence detector can control the ambient brightness in two different ways.
The Active cell setting is mainly used for presence detector applications (offices). In this type of project, the brightness is measured continuously; the brightness threshold value defines the switching on condition, whereas the brightness level for switching OFF (artificial light and daylight filters) is defined by calculation. With this setting, in spite of Presence, the presence detector switches the light OFF if the ambient brightness exceeds the brightness setpoint during presence.

The Passive cell setting is particularly useful for corridors. Switching on the light is defined according to the brightness threshold value, and switching off depends on presence and the duration of the disconnection time delay. In this mode, the occupancy detector works like a classical motion detector. With this setting, the presence detector **does not switch off** if the ambient brightness exceeds the brightness setpoint threshold value during presence.

Designation	Description	Value
Light cell use	Use of the brightness sensor can be defined using this parameter.	Active, Passive Default value: Active

3.2.5 Functions of the lighting channel

When movement is detected, the Presence control is sent on the bus according to the ambient brightness. If no more movement is detected, the Absence control is sent on the bus at the end of the time delay (if it is set). The **Function** parameter can be used to chose which controls or values can be sent on the bus in case of presence or absence.
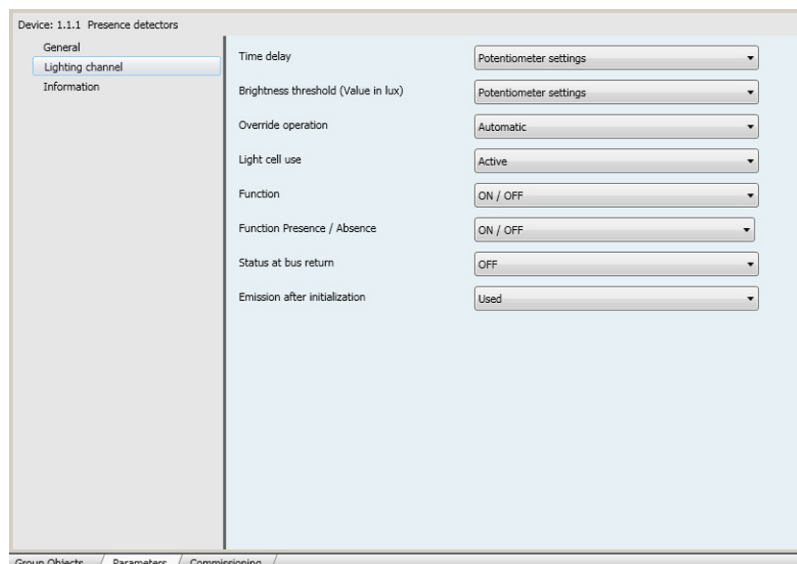
■ ON / OFF function

The ON / OFF function is used to set a control output (for the lighting cycle) to a value (ON or OFF) which is predefined in the parameters in case of presence and respectively in case of absence.
ON / OFF function sends controls by the **ON / OFF** object on the bus.

Description:
Depending on the parameter settings, an ON or OFF control is sent on the bus by the **ON / OFF** object when Absence switches to Presence. At the end of the time delay, no OFF or ON control will be sent.

➔ Parameter Setting screen

Screen 3

Designation	Description	Value
Function Presence / Absence	This parameter defines the control sent after presence or absence detection. The control in case of absence is sent at the end of the time delay.	OFF, ON, OFF / ON, ON / OFF Default value: ON / OFF

■ Timer function

The Timer function is used to trigger an output (lighting) for an adjustable duration in case of presence. The Timer function sends controls by the **Timer** object.
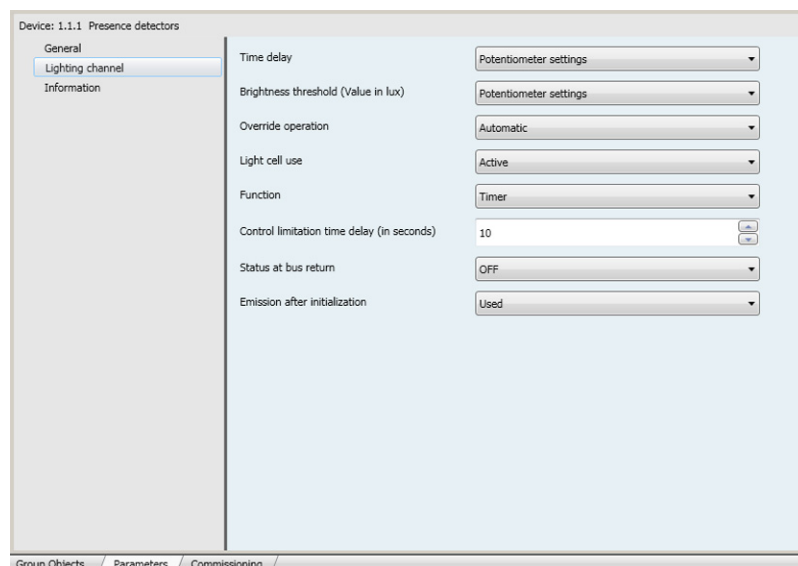
Description:
After presence detection, the movement detector sends an ON control by the **Timer** object on the bus. Then sending of controls is locked for the time set in the **Control limitation time delay** parameter.

This means that no control will be sent even if presence is detected during this period. At the end of this period, the movement detector will sendan ON control again on the bus if presence is detected and the locked period will restart.

Remark:
In the case of control outputs, when another ON control is received on the **Timer** object in the first 10 seconds, the lighting time delay is multiplied.

➜ Parameter Setting screen

Screen 4

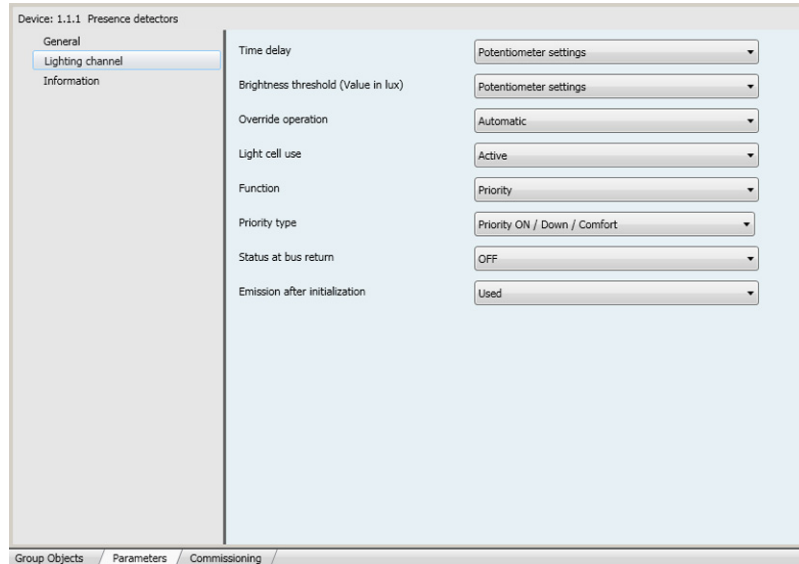| Designation	Description	Value
Control limitation time delay (in seconds)	This parameter is used to predetermine the minimum possible time between two **Timer** object messages.	From 1 to 30 in intervals of 1 Default value: 10 s

■ Priority operating mode

The Priority function sends priority-start or priority-stop controls.
The Priority action depends on the type of application controlled : Lighting, shutters / blinds, heating, etc..
The Priority function emits the **Priority** object.

➜ Parameter Setting screen

Screen 5

Designation	Description	Value
Priority	Allows selecting a Priority mode. The action depends on the type of application.	Priority ON / Down / Comfort Priority OFF / Up / Frost protection Basic ON / Down / Comfort setting

■ Brightness value and Brightness value in case of Presence / Absence functions

The Brightness value Presence function sets a dimming output to a predefined value (%) in the case of a presence.
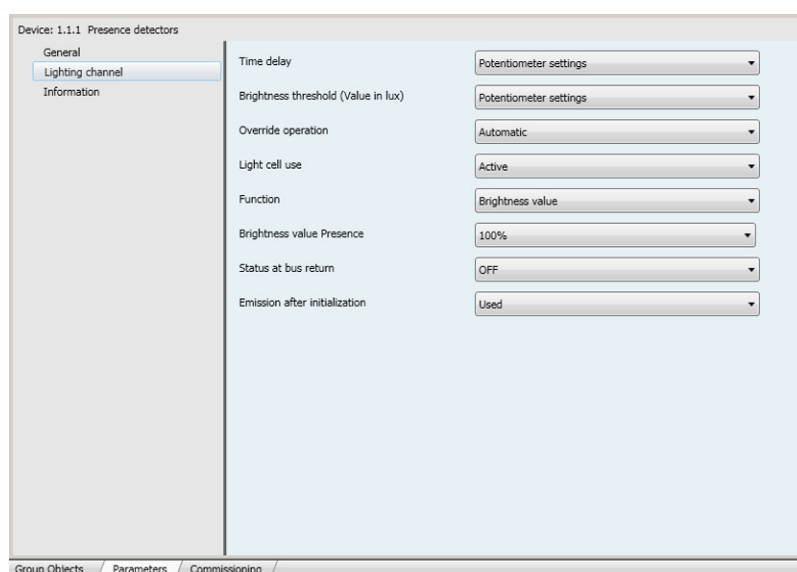
The Brightness value Presence/Absence function sets a dimming output to a value in the case of a presence and to another level value in the case of an absence.

The Brightness value in case of Presence and Brightness value in case of Presence and Absence functions send controls by the **Absolute dimming** object.

Description:
If Absence switches to Presence, a brightness value (Presence) in % is sent on the bus by the **Absolute dimming** object. Presence and ambient brightness are taken into account for presence detection. If the time delay has expired (or if the ambient brightness is sufficient), no control or the lighting value in % is sent on the bus.

➜ Parameter Setting screen

Screen 6

Designation	Description	Value
Brightness value Presence	This parameter defines the Brightness value in case of Presence.	0% to 100% in 1% steps Default value: 100%
Brightness value Absence*	This parameter defines the Brightness value in case of absence (at the end of the time delay or if the ambient brightness is sufficient).	0% to 100% in 1% steps Default value: 0%

* This parameter is only visible if the **Function** parameter has following value: Brightness value Presence / Absence.

3.2.5.1 Scene and Scene Presence / Absence functions

The Scene function is used to call a scene in case of presence (e.g. various ON lighting cycles, other dimming, heating ON).

The Scene Presence / Absence function allows calling one scene in the case of a presence and another scene in the case of an absence.

The Scene in Presence and Scene in Presence/Absence functions send controls by the **Scene** object both in case of presence and absence.

Description:
According to the configuration, the scene number for Presence is sent on the bus by the scene object when absence switches to presence. At the end of the time delay (or if the ambient light is sufficient), no control or the scene number for Absence is sent on the bus.

➡ Parameter Setting screen
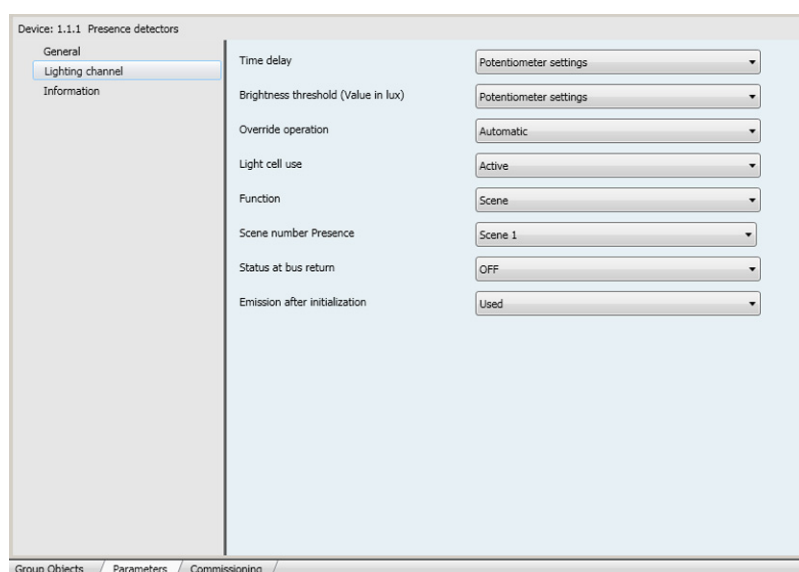
Screen 7

Designation	Description	Value
Scene number Presence	This parameter defines the scene in Presence mode.	Scene 1 to Scene 32 Default value: Scene 1
Scene number Absence*	This parameter defines the scene in Absence mode.	Scene 1 to Scene 32 Default value: Scene 2

* This parameter is only visible if the **Function** parameter has following value: Scene Presence / Absence.

3.2.6 Status at bus return

The input status after start-up can be defined via a parameter, the start-up status can be defined as ON or OFF after bus return. This behaviour can be defined via the ETS parameters or using the installer remote control.

→ Parameter Setting screen
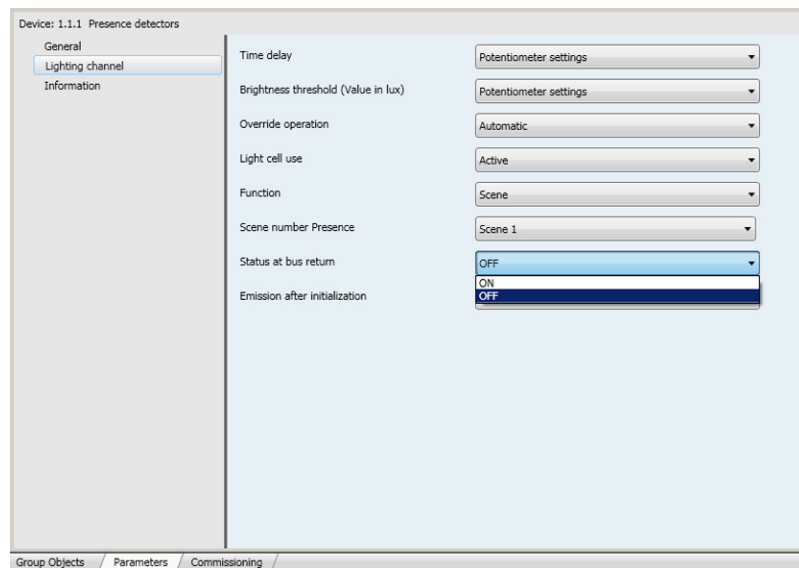
Screen 8

Designation	Description	Value
Status at bus return	This parameter defines the status of the input after bus return.	OFF, ON Default value: ON

3.2.7 Emission after initialization

The **Emission after initialisation** parameter defines whether the presence detector sends the current status (depending on the defined function ON/OFF, the scene number or the luminosity) via the Regulation Channel after power is restored. Sending the status can e. g. be helpful when synchronizing a visualization.

➜ Parameter Setting screen
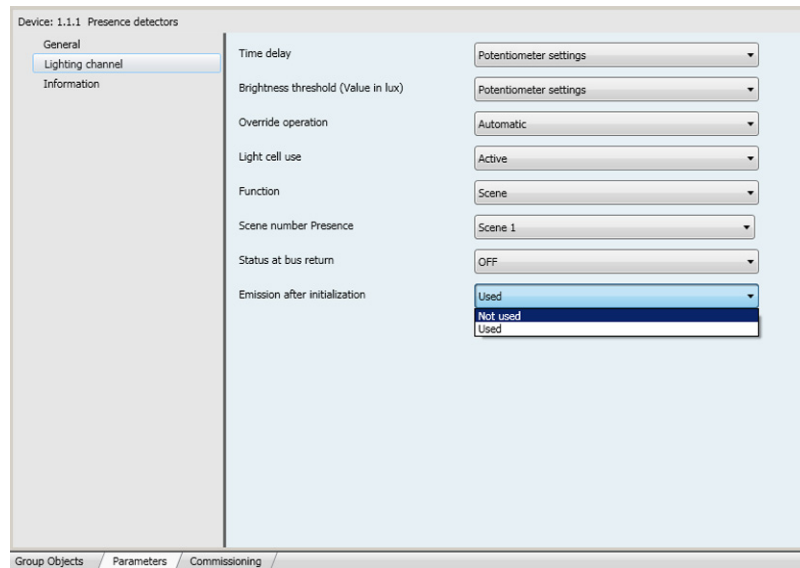
Screen 9

Designation	Description	Value
Emission after initialization	This parameter defines whether the current status must be sent or not after a bus failure.	Not used, Used Default value: Used

4. Physical addressing

The detector can be passed into the KNX addressing mode via the local potentiometers or by the aid of the remote control .

Move the potentiometer 2 to "Adr" or use **remote control** (long push > 5 s on the SET key), the red lend behind the lenses is switched-ON to indicate the **addressing mode**.
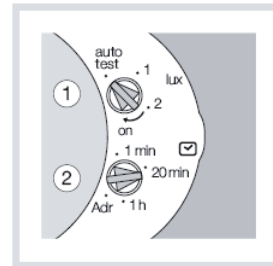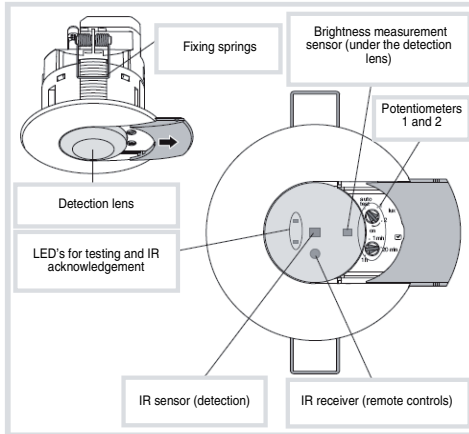
Installer remote control

5. Main characteristics

	TCC510S
Max. number of group addresses	254
Max. number of links	255

6. Appendix

	Order number	Designation
	EEK001 / EE807	Installer remote control
	EEK002 / EE808	User remote control