INTERRA

Developer of Uniqueness

KNX Presence Sensors

Product Manual

Version 1.1

Contents

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1. Content of The Document

This document contains Interra ITR415-XXXX coded KNX Presence Sensor devices' electronic and all essential feature information for programming the products. In each subtitle is explained the characteristics of the device. Modifications of the product and special change requests are only allowed in coordination with product management.

This manual provides detailed technical information concerning ITR415-XXX1 Mid-Range KNX Presence Sensor, ITR415-XXX2 Mid-Range Plus KNX Presence Sensor, ITR415-XXX3 Wide-Range KNX Presence Sensor, ITR415-XXX4 High Bay KNX Sensor and ITR415-XXX5 High Bay Plus KNX Sensor. All the models have the same software functionality so, the features described in this document apply to all versions.

This user manual is intended for use by KNX installers and describes the functions and parameters of the Interra KNX presence sensor family devices and how it is possible to change the settings and configurations using the ETS software tool. This document also describes the installation, programming, commissioning and use of the devices with detailed information.

2. Product Description

ITR415-XXXX series KNX Presence Sensor devices are the newest products of Interra Technology. The Interra KNX Presence detectors are designed for using at mainly in interior areas of buildings.

The range of Interra presence sensors is suitable for ceiling mounting and with flush mount or surface mount optionality.

Interra KNX presence sensors support presence detection, brightness detection, movement detection, temperature detection and external temperature detection.

All versions have a rear connector with 3 digital inputs that can be connected to buttons and used for switch sensor, switch/dimming sensor, shutter sensor, value/forced operation, scene control, RGB colour control and HVAC mode selection control.

Temperature measuring through an integrated sensor, analog input, KNX temperature sensor with the possibility of sending the value on change and periodically to the bus for monitoring the room temperature.

Interra KNX presence sensors have 5 logic function blocks and can be set the logical relation AND/OR/XOR. Each block can control 5 output objects.

2.1. Technical Information

The following table shows the technical information of the KNX Sensors.

Product Name	Mid-Range	Mid-Range Plus	Wide-Range	High Bay	High Bay Plus
Product Code	ITR415-XXX1	ITR415-XXX2	ITR415-XXX3	ITR415-XXX4	ITR415-XXX5
Power Supply	21..30 V DC	21..30 V DC	21..30 V DC	21..30 V DC	21..30 V DC
Current Consumption	5 mA	5 mA	5 mA	5 mA	5 mA
Brightness Detection	1-1200 lux	1-1200 lux	1-1200 lux	1-1200 lux	1-1200 lux
Number of Detectors	1	3	3	3	3
Inputs	2 x Digital 1 x Analog	2 x Digital 1 x Analog	2 x Digital 1 x Analog	2 x Digital 1 x Analog	2 x Digital 1 x Analog
Number of Channels	4 x Presence 1 x Brightness 5 x Logic	4 x Presence 1 x Brightness 5 x Logic	4 x Presence 1 x Brightness 5 x Logic	4 x Presence 1 x Brightness 5 x Logic	4 x Presence 1 x Brightness 5 x Logic
Maximum Air Humidity	%90 RH	%90 RH	%90 RH	%90 RH	%90 RH
Pollution Degree	2	2	2	2	2
Type of Protection	Flush : IP 20 Surface : IP 44	Flush : IP 20 Surface : IP 44	Flush : IP 20 Surface : IP 44	Flush : IP 20 Surface : IP 44	Flush : IP 20 Surface : IP 44
Operation Temperature	-5°C…45°C	-5°C…45°C	-5°C…45°C	-5°C…45°C	-5°C…45°C
Storage Temperature	-10°C…60°C	-10°C…60°C	-10°C…60°C	-10°C…60°C	-10°C…60°C
Dimensions	70 × 41,8 mm (Φ x H)	70 × 41,8 mm (Φ x H)	70 × 41,8 mm (Φ x H)	70 × 48 mm (Φ x H)	70 × 48 mm (Φ x H)

2.2. Detection Ranges

This section provides information about the detection ranges of Interra presence sensor family devices. The motion detection ranges of each different model vary depending on the installation height. Therefore, detection distances should be carefully examined, and device installations should be made by these distances.

Mid-Range KNX Presence Sensor:

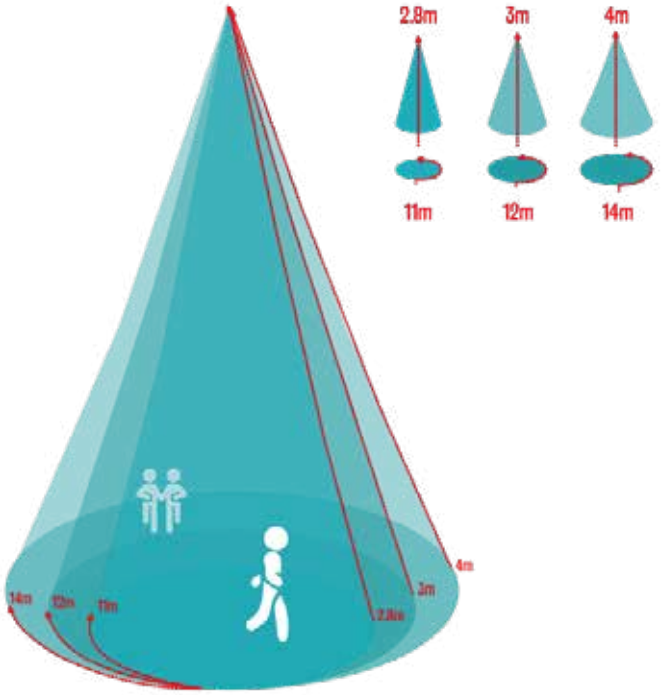


Fig. 1 : Mid-Range KNX Presence Sensor Detection Range

Mounting Height	Seated Activity	Walking Towards	Walking Across
2.8 m	5.5 m	6 m	11 m
3 m	6 m	7 m	12 m
4 m	7 m	8 m	14 m

Mid Range Plus KNX Presence Sensor:

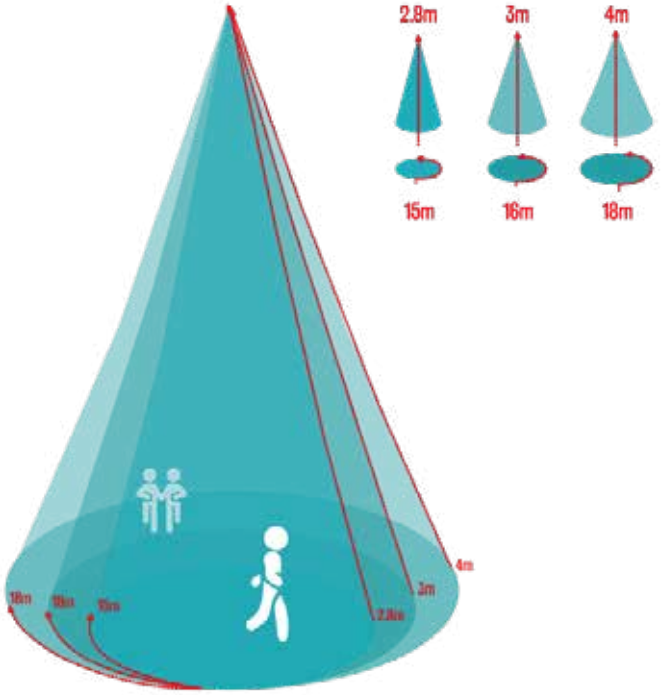


Fig. 2 : Mid Range Plus KNX Presence Sensor Detection Range

Mounting Height	Seated Activity	Walking Towards	Walking Across
2.8 m	6 m	9 m	15 m
3 m	6.5 m	11 m	16 m
4 m	7 m	12 m	18 m

Wide Range KNX Presence Sensor:

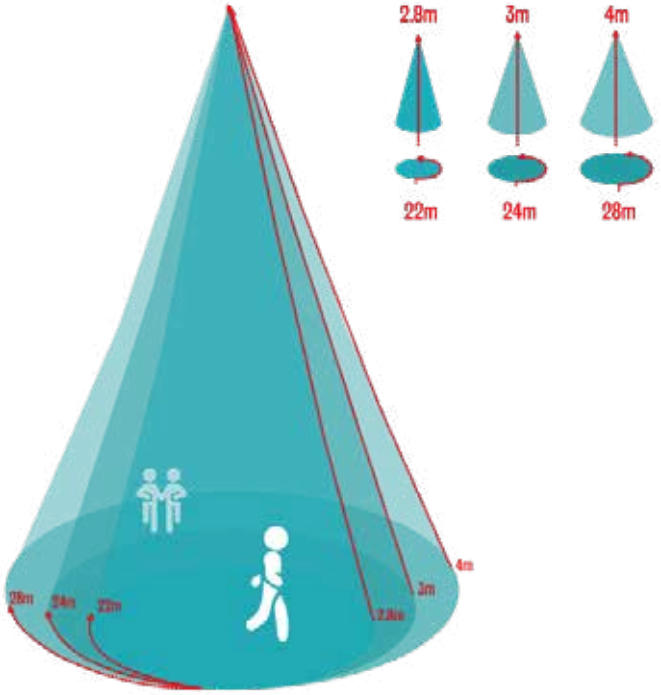


Fig. 3 : Wide Range KNX Presence Sensor Detection Range

Mounting Height	Seated Activity	Walking Towards	Walking Across
2.8 m	6 m	12 m	22 m
3 m	7 m	14 m	24 m
4 m	7.5 m	16 m	28 m

High Bay KNX Sensor:

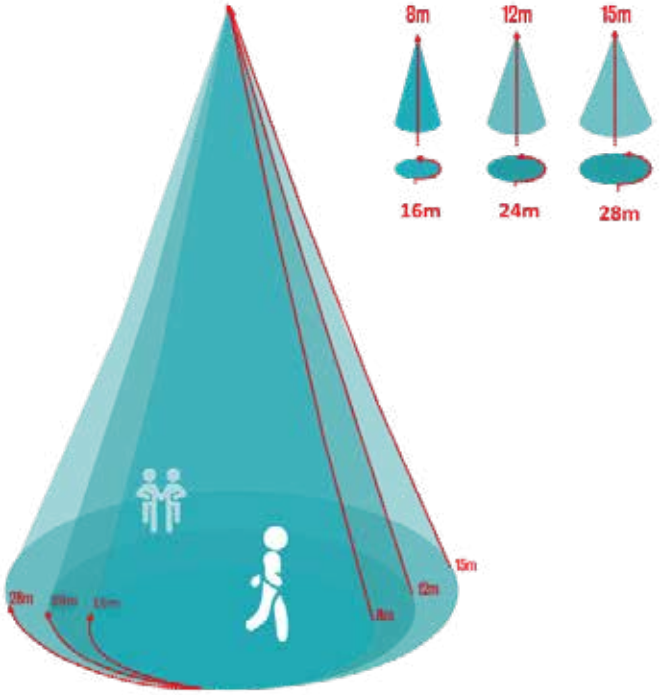


Fig. 4 : High Bay KNX Sensor Detection Range

Mounting Height	Walking Across
4 m	8 m
8 m	16 m
12 m	24 m
15 m	28 m

High Bay Plus KNX Sensor:

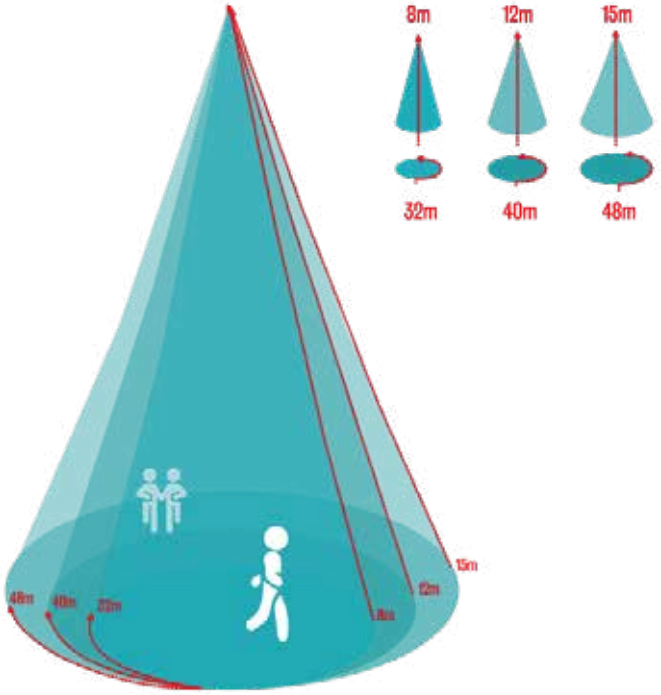


Fig. 5 : High Bay Plus KNX Sensor Detection Range

Mounting Height	Walking Across
4 m	16 m
8 m	32 m
12 m	40 m
15 m	48 m

2.3. Connection Features

The figure below shows the KNX Presence Sensor connectors. All of the ITR415-XXXX models have the same connection layout.

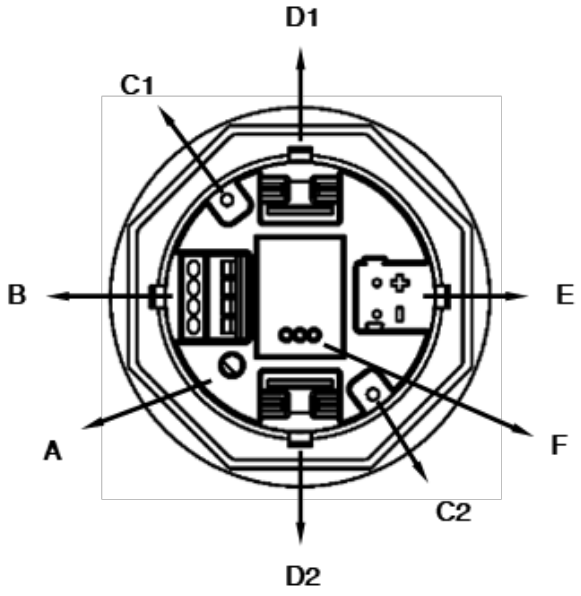


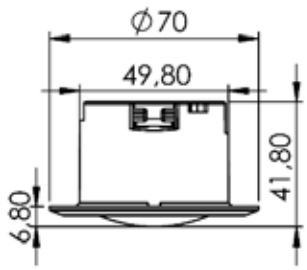
Fig. 6 : Connection Features of KNX Presence Sensor

Letter	Feature
A	KNX Programming Button
B	1 x Analog, 2 x Digital Input
C1	Metal Tab for Junction Box
C2	Metal Tab for Junction Box
D1	Metal Spring
D2	Metal Spring
E	KNX Connector
F	Programming connector

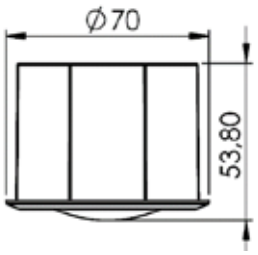
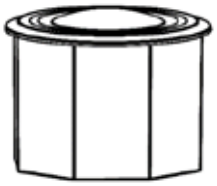
2.4. Dimensions

All values given in the device dimensions are millimetres. Interra KNX Presence Sensors can be used as flush mount or surface mount.

Flush Mounted :

Surface Mounted :

2.5. Functionality

All the Interra KNX Presence Sensors offer various options to ensure that the brightness in the room is maintained at a more pleasant level. To ensure this, constant light switch and constant light control functions are mostly used There is a difference between the functions of the constant light switch and the constant light controller. Both functions ensure that the brightness does not drop below a certain level when persons are in the room. The use of a presence detector is especially practical for work stations in an office since even small movements are detected.

2.5.1. Constant Light Switch

The constant light switch switches on lamps in the room as soon as movement of a person is detected and the desired brightness value is not attained by entering daylight alone. The programmed setpoint minus hysteresis is maintained as long as people are in the detection range. The application detects when entering daylight is sufficient. The lamps are then switched off again to save energy.

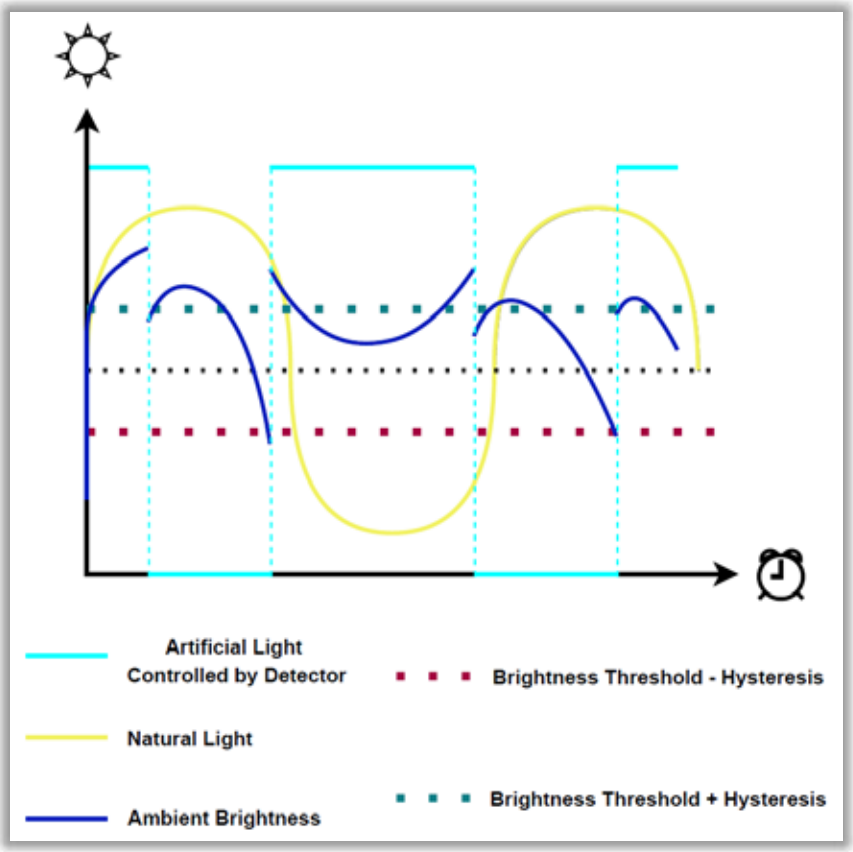


Fig. 7 : Constant Light Switch Operation

2.5.2. Constant Light Control

In contrast to the constant light switch, there is the possibility of switching in several stages. Both the constant light controller and the constant light switch ensure that the level of brightness in the room does not drop below the desired level. However, the brightness controller is additionally able to send telegrams for dimming lamps to the KNX bus. This enables a constant level to be attained due to the dimming of lights brighter and darker, always in dependence on the natural light in the room. And the accuracy of the control increases with the operating time.

The KNX Presence Sensors can operate either in "Automatic" or "Automatic switch-off" mode in the Constant Light Control application. If an automatic switch-off is selected, for example, the light must be switched on manually via a control element. The light remains on as long as movement is detected and daylight is not sufficient. If no movement is detected, the light-on time delay expires. Only then is an OFF telegram sent to the bus via the output. In automatic mode, the movement sensor also takes over the switch-on function as soon as someone enters the room.

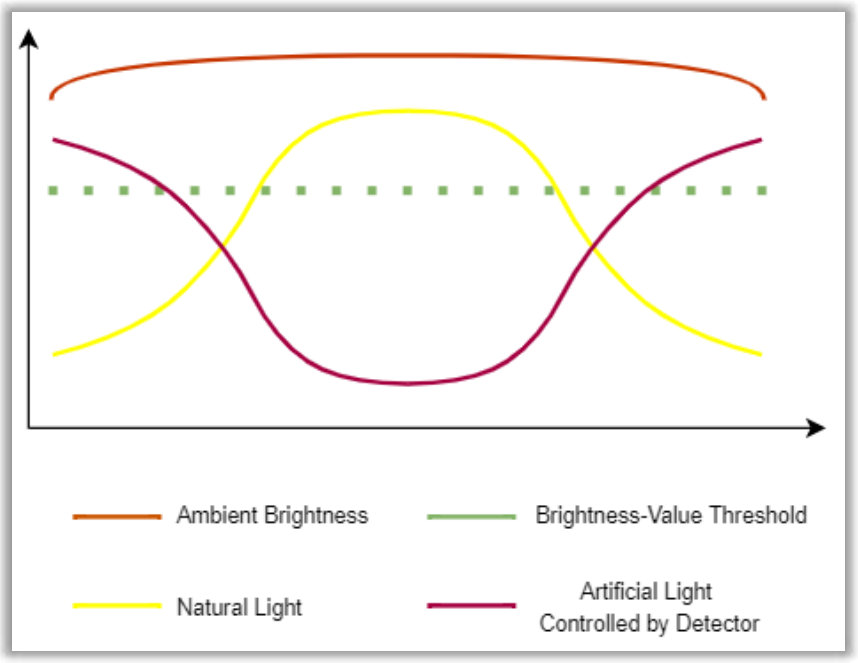


Fig. 8 : Constant Light Control Operation

3. ETS Parameters & Descriptions

In this chapter, the ETS parameters of ITR415-XXXX KNX Presence Sensor devices are described using the parameter pages and options. The parameter pages features are dynamic structures which mean further parameters and parameter pages are enabled depending on the configuration.

The words sensor and detector are used interchangeably in this document to mean 'device'. Therefore, both have the same meaning.

In the ETS parameter configuration pages, each of the parameters has got a default parameter value. These default values are written in bold.

- E.g. : Enable in operation ●**no** yes

3.1. General Page

When the ITR415-XXXX KNX Presence Sensor ETS configuration file is attached to the project from the ETS software, a configuration setting must be made primarily before loading. When entering the “GENERAL” in the parameter page, the configuration screen will be appeared shown below. General settings for the devices are made in this window.

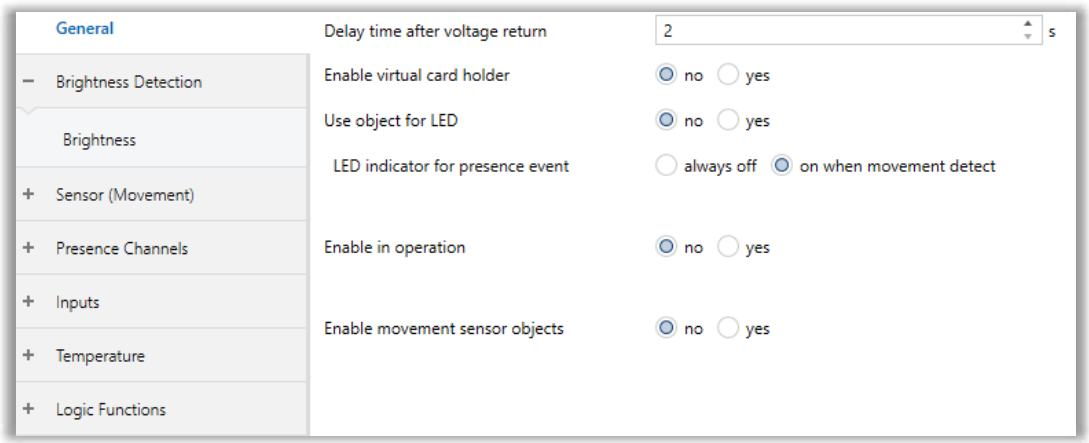


Fig. 9 : General Page Configuration

3.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Delay time after voltage return	This parameter is used to determine the delay time after voltage return in seconds. When in a delayed state, the KNX Presence Sensor does not send any KNX telegrams. Incoming telegrams are received and updated in the background. The updated values are only executed when the wait state ends and then sent according to the parametrization.	**2**...60
Enable Virtual Card Holder	This parameter is used to enable the virtual card hold of the KNX Presence Sensor. If this parameter is activated, a separate parameter page will be opened for configuration.	**No** Yes
Use object for LED	This parameter is used to activate or deactivate the use of LED indicator KNX object during presence detection.	**No** Yes
-> LED indicator for the presence event	This parameter is used to give status information via the blue LED when motion is detected by the KNX presence sensor. **always off:** The blue LED will be off continuously. **on when movement detected:** The blue LED turn on when there is a motion detected by the sensor.	Always off **On when movement detect**
Enable In Operation	This parameter is used to determine the existence of the KNX Presence Sensor on the KNX bus line. The cyclic telegram can be monitored by an external KNX device. If a telegram is not received, the device may be defective or the KNX cable to the transmitting device may be interrupted. **Yes:** The group object is enabled. **No:** The group object is not enabled.	**No** yes
-> In operation send	This parameter is used to determine the send value of the “General - In operation” group object on the KNX bus line.	Value ‘0’ **Value ‘1’**
-> In operation send interval (min)	This parameter is used to set the cyclically sending time interval value of the “General - In operation” group object.	1...**5**...255
Enable Movement Sensor Objects	This parameter is used to enable or disable each integrated presence detectors to send the detected movements to the KNX bus.	**No** Yes

3.2. Brightness Detection

On this parameter page, brightness functionality related configurations are made. Brightness calibration type, brightness measurement algorithm and brightness variation features can be configured on this page.

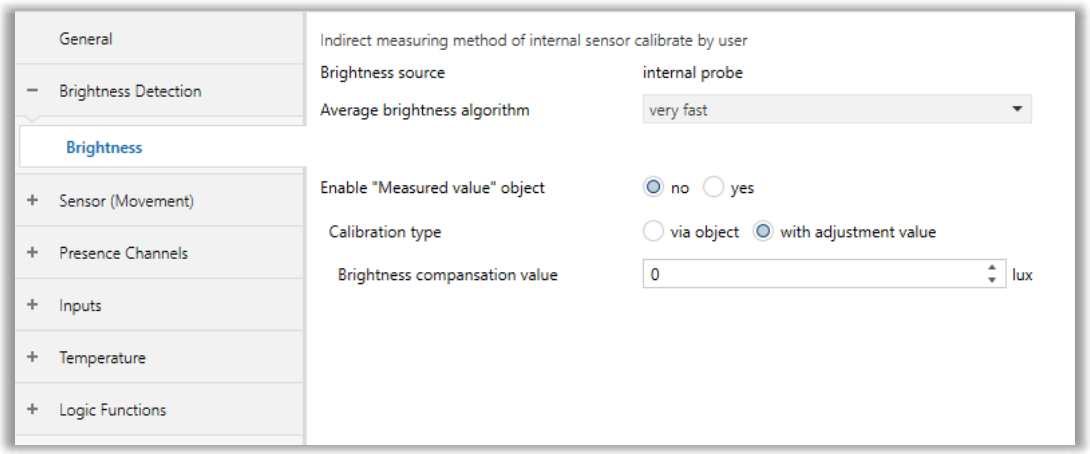


Fig. 10 : Brightness Page Configuration

3.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Calibration type	This parameter is used to determine the brightness sensor calibration method. Brightness calibration must be done after the sensor installation, for the sensor to measure correctly and therefore work ideally with other sensor features. **Via object** : Calibration is made through the KNX communication object. The brightness value measured with lux meter from a point in the sensing range of the sensor (usually just below the location where the sensor is installed) should be written into the KNX calibration object as a new lux value. **With adjustment value** : Calibration is made through the brightness compensation value parameter.	via object **with adjustment value**
-> Brightness compensation value	This parameter is used to determine the brightness compensation value. The entered value is subtracted from the value measured by the sensor or added. **Ex** : The ambient brightness value measured by the sensor is 175 lux. Moreover, with a lux meter, the measured ambient brightness value is 200 lux. In this case, the sensor measures the ambient brightness value 25 lux less. For the sensor to measure accurately, the value 25 should be entered in the brightness compensation value parameter.	-200…**0**…200
Average brightness algorithm	This parameter is used to define the response speed of the controlled output after a measured ambient brightness variation. It defines the calculation speed of the average illuminance value, the faster the algorithm and the faster it reacts to a change in lux level. The "very fast" selection can lead to very frequent switching on and off of the light, the "very slow" selection can introduce delays in switching the light on or off.	**very fast** fast normal slow very slow

Enable "Measured Value" Object	This parameter is used to enable or disable the measured value object. The measured brightness value can be sent to the KNX bus via this object.	**No** Yes
Sending on variation	This parameter is used to determine whether it will be sent to the bus line depending on the change of the ambient brightness value. **do not send:** The brightness value is never sent to the KNX bus line. **xx lux:** If there is a change from the last measured lux value equal to the lux value entered in the parameter, the new measured lux value is sent to the KNX bus line. **Note :** xx means the listed values in the parameter list such as 10 lux, 20 lux, 5 lux etc.	Do not send **5 lux, 10 lux,** **15 lux, 20 lux,** **25 lux, 30 lux,** **35 lux, 40 lux,** **45 lux, 50 lux,** **55 lux, 60 lux,** **65 lux, 70 lux,** **75 lux**
Cyclic sending of brightness	This parameter is used to determine the periodic transmission time of the brightness value to the KNX bus line. The values entered are in hours, minutes and seconds.	00:00:05…**00:00:30** …18:12:15

3.3. Sensor (Movement)

This section describes the parameters for how to use the sensor channel. Since the sensor channel has many features for basic uses in general, it has a simpler parametric structure compared to presence channels. Without the need to configure the presence channels, many basic needs can be set up by simply configuring the sensor channel.

If desired, presence channels can be used for environments with more complex user demands.

3.3.1. Sensor Operation

On this parameter subpage, the basic parameters required for sensor operation are explained in detail. Parameters such as master/slave, motion detection source, brightness level source, light-on time etc. are configured in this section.

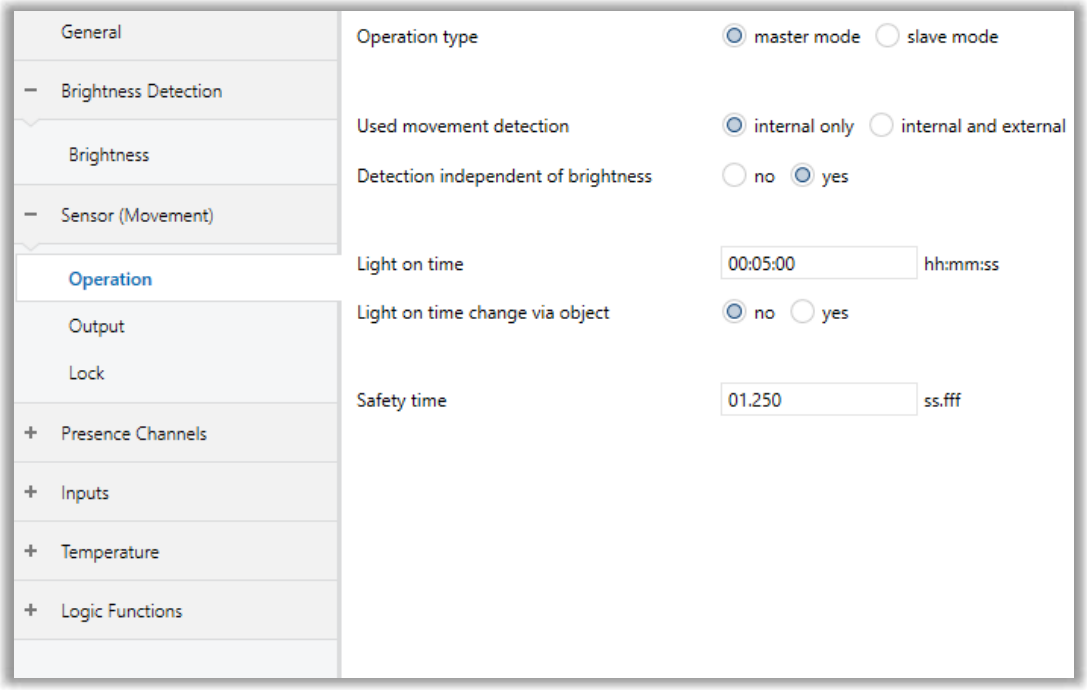


Fig. 11 : Sensor - Operation Page Configuration

3.3.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation type	This parameter is used to determine the operating mode of the sensor. Operation mode is set as master or slave mode. In slave mode, the device can only send periodic ON telegrams depending on motion detection. In slave mode, sensor features can be used in a limited way. In master mode, in addition to motion detection, ON or OFF telegrams can be sent depending on the brightness if desired. Also, unlike slave mode, all features can be used in master mode.	**master mode** slave mode
Used movement detection	This parameter is used to determine the type of source that will be used for motion detection. There are 2 types of motion detection sources: **Internal only** : Motion detection is made only with the built-in detectors inside the sensor. **Internal and external** : Motion detection is done both by the internal detectors inside the sensor and by an external source (slave sensor, a button used for presence).	**Internal only** Internal and external
Detection independent of brightness	This parameter is used to determine whether the motion detection performed by the sensor should be independent of the ambient brightness.	no **yes**
-> Used brightness	This parameter is used to determine the source to be used for measuring the ambient brightness value. There are 2 types of brightness detection sources. **Internal:** It is the internal source of brightness. Ambient brightness is measured with the built-in brightness sensor on the sensor. **External:** It is an external source of brightness. Ambient brightness is determined by sending data from a device that can measure brightness to the relevant KNX object of the sensor.	**internal** external
-> Brightness-value threshold	This parameter is used to specify the lux value at which the sensor is to start to respond. If the detector detects a movement and the measured brightness	1…**400**…1200

	lies above the threshold, no telegram is sent during movement.	
-> Threshold change via object	This parameter is used to change the brightness threshold value via a KNX object. The value is sent to this object in lux. Object type is a 2-byte float.	**no** yes
-> Hysteresis	This parameter is used to determine the hysteresis value. The hysteresis is a percentage value (+/-) that is related to the setpoint in lux. The hysteresis is a tolerance for maintaining the setpoint. The pre-setpoint is sufficient for most applications. Switching threshold = brightness threshold ± hysteresis The hysteresis prevents excessive switching when the current ambient brightness is close to the brightness threshold.	15…**60**…500
Light on time	This parameter is the time between the last movement detected and the sending of the telegram "value for switch-off" by the sensor. The presence detector will switch off the lamps in the room if no movement is detected. A light-on time delay can be set to prevent the lamp from being switched off immediately. This time starts as soon as at the end of motion. If movement is detected again within this period, the light-on time delay is reset.	00:00:10…**00:05:00**…18:12:15
Light on time change via object	This parameter is used to change the light-on time duration via a KNX object. The time entered is in seconds. **Note** : The values which can be sent are between 10 and 65535 seconds. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.	**no** yes
Safety time	This parameter is used to determine the time it takes the detector to perform the detection process again after the light on time has expired. The safety time is started after the detector has been switched off due to the expiry of light on time. The main purpose of safety time is to prevent immediate reactivation.	00.100…**01.250**…59.999

3.3.2. Sensor Output

On this parameter subpage, the sensor channel output related parameters are described. The relevant parameters that need to be configured to control the ambient brightness through the switching are explained. The switching operation for the movement channel is performed over the output object of the presence detector.

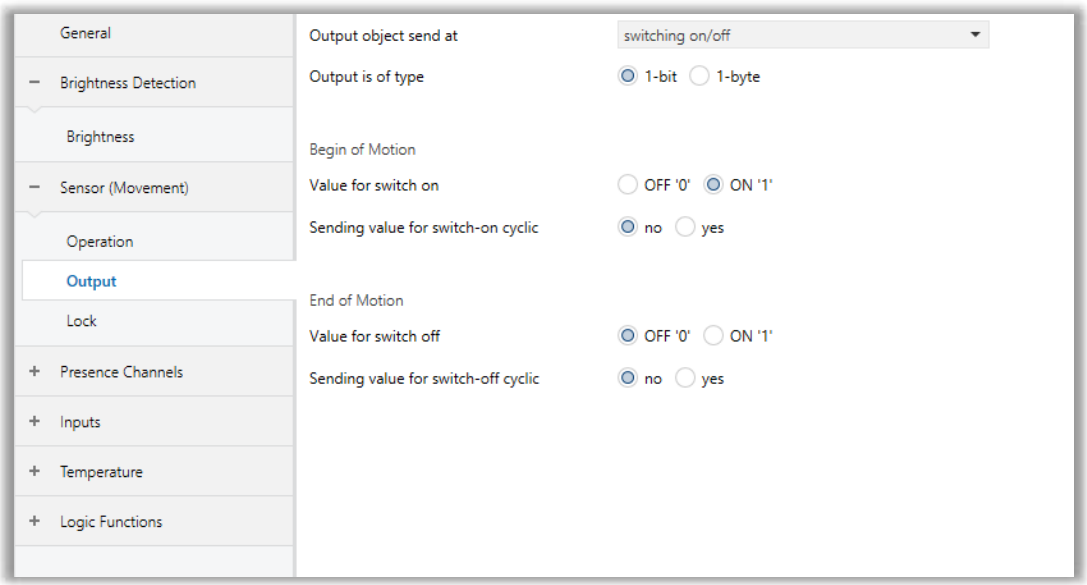


Fig. 12 : Sensor - Output Page Configuration

3.3.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Output is of type	This parameter is used to determine the output type. Output type can be set as 1-bit or 1-byte.	**1-bit** 1-byte
(Begin of Motion) **Value for switch-on**	This parameter is used to determine the switch on the value that will be sent to the KNX bus line when the presence detection is over. 2 types of data are sent according to the output type. **1-byte :** The value between 0% and 100% is sent. **1-bit :** OFF or ON value is sent.	**100% (255),** 99% (252), 98% (250)…. 3% (8), 2% (5), 1% (3)
Sending value for switch-on cyclic	This parameter is used to determine whether the switch on value will be sent to the KNX bus periodically. If the parameter value is selected as "yes", the switch on value will be sent periodically.	**no** yes
(End of Motion) **Used three-stage off (*)**	This parameter is used by the sensor to switch off with 3 different level transitions after the end of motion. The parameters related to this feature are explained in detail in the table below.	**no** yes
Value for switch off	This parameter is used to determine the switch off the value that will be sent to the KNX bus line when the presence detection is over. 2 types of data are sent according to the output type. **1-byte :** The value between 0% and 100% is sent. **1-bit :** OFF or ON value is sent.	**1 byte :** 100% (255), 99% (252), 98% (250)…. 3% (8), 2% (5), 1% (3), **0% (OFF)** **1 bit :** **OFF '0'** ON '1'
Sending value for switch-off cyclic	This parameter is used to determine whether the switch off value will be sent to the KNX bus periodically. If the parameter value is selected as "yes", the switch-off value will be sent periodically.	**no** yes

Cyclical repeating time	This parameter is used to send the switch on and switch off values periodically. The time information to be entered is in hours, minutes and seconds.	00:00:10…**00:00:30**…18:12:15

(*) Three Stage Off

State : It indicates 3 different transition states as A, B and C. When the presence information is no longer detected by the sensor, after the light-on time has elapsed, the sensor will first switch to state A. When the stay at A time has elapsed, it switches to state B. When the stay B time has elapsed, it switches to state C. After the time entered in state C has expired, the sensor sends the switch off value.

Stay Time : This parameter is used to set the transition times of states A, B and C. Time information is configured by entering hours, minutes and seconds.

Value : This parameter is used to adjust the ambient light level in states A, B and C. It is configured by selecting one of the percentage values in the parameter list.

State	Stay Time	Value
Stage A	00:00:05…**00:00:30**…18:12:15	100% (255), 99% (252), 98% (250)…3% (8), 2% (5), 1% (3), **0% (OFF)**
Stage B	00:00:05…**00:00:30**…18:12:15	100% (255), 99% (252), 98% (250)…3% (8), 2% (5), 1% (3), **0% (OFF)**
Stage C	00:00:05…**00:00:30**…18:12:15	100% (255), 99% (252), 98% (250)…3% (8), 2% (5), 1% (3), **0% (OFF)**

3.3.3. Sensor Lock

On the sensor lock parameter page, there are features for the sensor to be locked in various situations. In various cases, users can lock the sensor depending on their wishes and keep the brightness of the lighting devices connected to the sensor output at a certain level.

Special Note

Lock functionality is available separately for the Sensor channel and all Presence channels. For this reason, the lock functionality mentioned in this section is only related to the "Sensor" parameter page.

Special Note

The parametric structure of the lock function is the same as the lock functionality in Presence channels. For this reason, lock parameters are not explained again in the relevant sections.

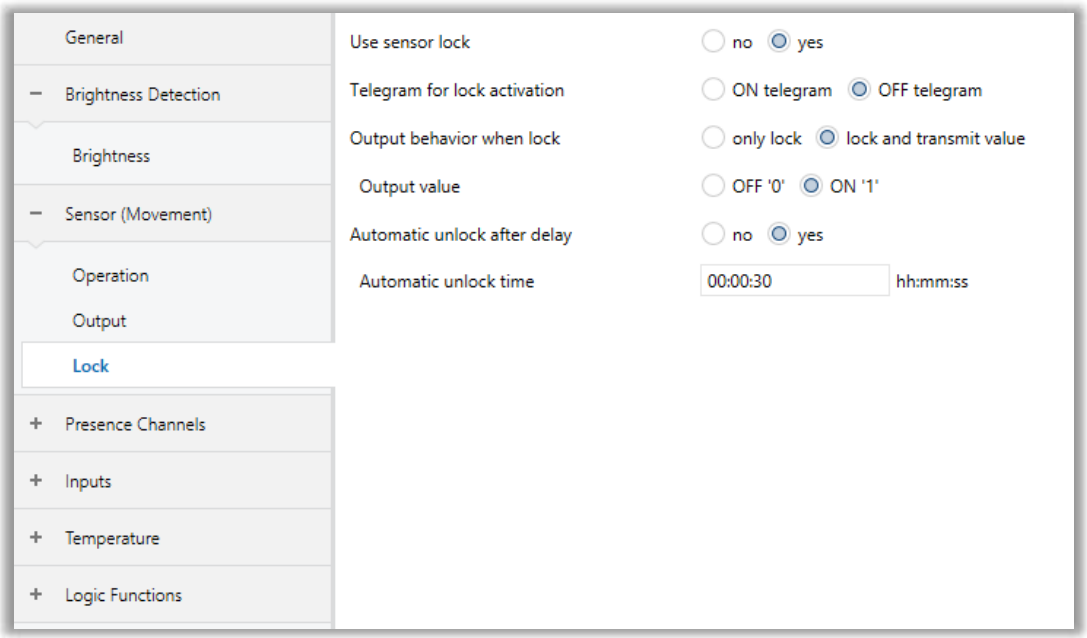


Fig. 13 : Sensor - Lock Page Configuration

3.3.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Use sensor lock	This parameter is used to activate or deactivate the sensor lock feature. When this parameter is selected as "yes", parameters related to the locking feature will be visible on the page.	**no** yes
Telegram for lock activation	This parameter specifies the telegram value that should be used to lock the sensor. For example, if this parameter is selected as "ON telegram", the sensor will be locked when an ON telegram is sent from the KNX bus line to the relevant Lock object. In this state, when the OFF telegram is sent, the sensor lock will be removed. The opposite of this configuration is also valid.	**ON telegram** OFF telegram
Output behaviour when lock	This parameter is used to determine how the output behaviour will be when the sensor is locked.	**only lock** lock and transmit value
-> Output value	This parameter is used to determine the value to be sent to the KNX bus through the output object when the sensor is locked.	100% (255), 99% (252), 98% (250)…. 3% (8), 2% (5), 1% (3), **0% (OFF)**
Automatic unlock after delay	This parameter is used to activate or deactivate the feature of automatically unlocking the sensor after a certain period.	**no** yes
-> Automatic unlock time	This parameter is used to determine the time required to unlock the sensor from the moment the sensor is locked. The time information to be entered is in hours, minutes and seconds.	00:00:10…**00:00:30** …18:12:15

3.4. Presence Channel

KNX presence sensors have 4 different presence channels for controlling the relevant environment based on the presence and/or brightness. These presence channels can be configured independently of each other.

There are 2 main functions in the presence channels. These:

- Constant Light Switch
- Constant Light Controller

The constant light switch is the same as the 'sensor' channel. Therefore, the explanations for the parameters are not made in this section. For detailed information about the parameters, see the "sensor" page. Detailed parameter descriptions for the use of constant light control are explained in this section, in 5 different subsections.

3.4.1. Constant Light-Controller – Operation

On this parameter subpage, the basic parameters required for constant light control are explained in detail. Since the presence channels are the same, only the parameters related to the presence 1 channel are explained. When other channels are used, this section can be referenced for the relevant presence channel.

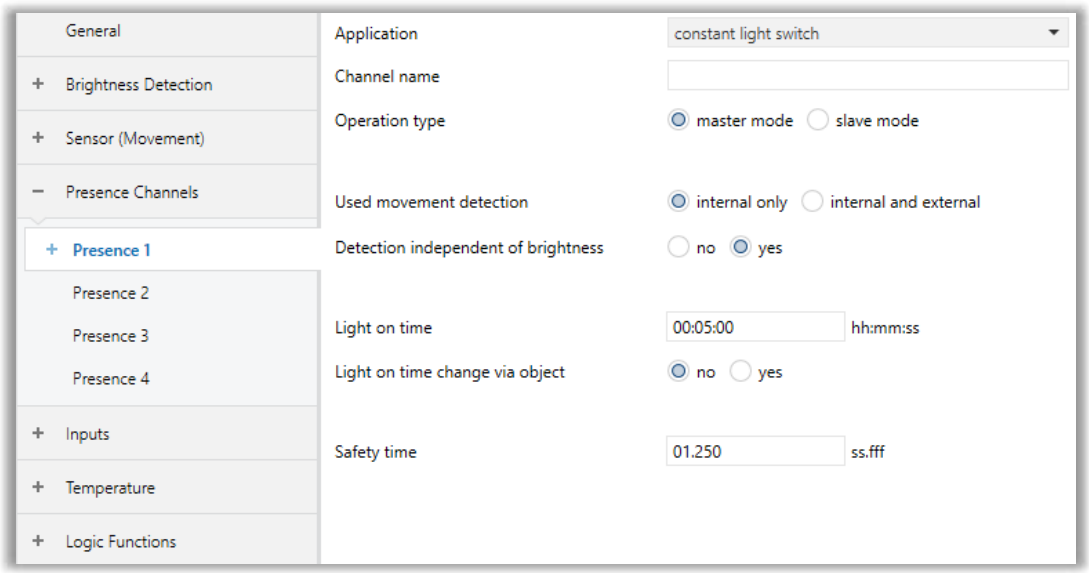


Fig. 14 : Constant Light-Controller - Operation Page Configuration

3.4.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Application	This parameter is used to determine the presence of channel functionality. **Inactive:** The presence channel is disabled. **Constant light switch:** The presence channel application is selected as the constant light switch. **Constant light control:** The presence channel application is selected as constant light control.	**Inactive** constant light switch constant light control
Presence depending	This parameter is used to determine whether constant light control will be performed based on presence.	no **yes**
- > Operation mode	This parameter is used to determine the operating mode of constant light control based on presence. **Automatic:** Automatic switch-on and automatic switch-off. In "Automatic" mode, in case it is too dark, the presence detector switches on automatically when detecting a movement. The switch off is affected when the set light-on time delay is expired. **Automatic Switch Off**: Manual switch-on and automatic switch off. In "Automatic switch-off" mode, the presence detector must be switched on manually using the manual control objects (‘Absolute dimming’, ‘Relative dimming’ etc.). The switch-off is affected automatically under consideration of the light-on time delay.	**automatic** automatic switch off
Setpoint brightness value	This parameter is used to set the desired brightness of the room. Below this threshold - hysteresis the presence detector switched at movement. The presence detector switches off again when the measured brightness is above the brightness-value threshold + hysteresis.	1…**400**…1200
Setpoint change by bus	This parameter is used to enable or disable the brightness-value threshold object.	**no** yes

	This object can be used to change the switching threshold of the presence sensor. The value is sent to this object in lux.	
Hysteresis	This parameter is used to determine the hysteresis value. By hysteresis value, the switching threshold of the KNX presence sensor is configured. Switching threshold = brightness threshold ± hysteresis The hysteresis prevents excessive switching when the current ambient brightness is close to the brightness threshold.	15…**100**…500
Used brightness	This parameter is used to specify the source to be used for ambient brightness measurement. **Internal**: Built-in brightness measurement sensor is used for brightness measurement **External**: The brightness values are received from an external source via the KNX bus line.	**internal** external
Used movement detection	This parameter is used to specify the source to be used for movement detection. **Internal only**: Built-in movement measurement sensor is used for movement detection. **Internal and external**: Both internal movement detection sensor and external movement detection source (such as another KNX presence sensor configured as a slave) are used.	**Internal only** Internal and external
Light on time	This parameter is the period between the last movement detected and the sending of the telegram "value for switch-off" by the sensor. The presence detector will switch off or dim the lamps in the room if no movement is detected. A light-on time delay can be set to prevent the lamp from being switched off immediately. This time starts as soon as at the end of motion. If movement is detected again within this period, the light-on time delay is reset.	00:00:10…**00:05:00**…18:12:15
Enable forced operation	This parameter is used to enable or disable the forced operation feature of the KNX presence sensor.	**no** yes

3.4.2. Constant Light-Controller – Output

On this parameter subpage, the relevant parameters that need to be configured to control the ambient brightness through the dimming are explained. The dimming operation for the selected presence channel is performed over the output object of the presence detector. For this reason, separate parameter settings should be made for each presence channel to be used.

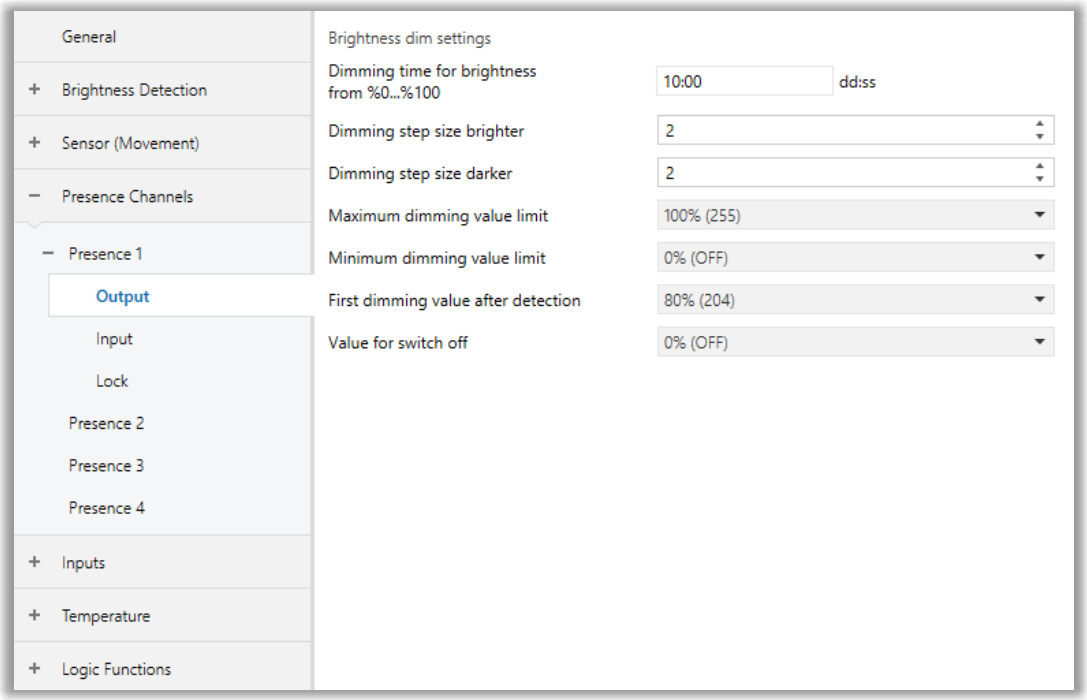


Fig. 15 : Constant Light-Controller - Output Page Configuration

3.4.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Dimming time for brightness from %0…%100	This parameter is used to determine how long it takes for the output object value to go from 0% to 100% during manual dimming. For example, let the lighting in the environment be completely off (that is, the output is at 0%) and the value entered in this parameter is 20 seconds. In this state, when the presence detector detects a movement, the brightness of the lighting unit controlled in the environment will be 100% after 20 seconds.	02:30..**10:00**..20:00
Dimming step size brighter	This parameter is used to specify the step size to be used for dimming upwards (dimming brighter).	1…**2**…15
Dimming step size darker	This parameter is used to specify the step size to be used for downward dimming (dimming darker).	1…**2**…15
Maximum dimming value limit	This parameter is used to determine the minimum dimming value that can be sent while the presence detector is dimming. A value higher than this value set in the parameter cannot be sent to the bus line.	**100% (255),** 99% (252), 98% (250)…. 3% (8), 2% (5), 1% (3), 0% (OFF)
Minimum dimming value limit	This parameter is used to determine the minimum dimming value that can be sent while the presence detector is dimming. A value lower than this value set in the parameter cannot be sent to the bus line.	100% (255), 99% (252), 98% (250)…. 3% (8), 2% (5), 1% (3), **0% (OFF)**
First dimming value after detection	This parameter is used to set the initial value at which the presence detector will start dimming. For example, when a motion is detected by the presence detector in an environment where there is constant light control based on motion, the dimming process is started with this value.	100% (255), 99% (252), 98% (250)…. **80% (204)**….3% (8), 2% (5), 1% (3), 0% (OFF)
Value for switch off	This parameter is used to determine the value to be sent from the output object of the relevant present channel to the KNX bus line after the light-on time expires.	100% (255), 99% (252), 98% (250)…. 3% (8), 2% (5), 1% (3), **0% (OFF)**

3.4.3. Constant Light-Controller – Input

On this parameter subpage, the parameters for manually controlling the detector when the KNX presence detector is set up to operate in constant light control mode is described. Manual control is naturally carried out via external sources (e.g., a device on the KNX bus with pushbutton control).

For this reason, to perform manual control objects of the detector for manual control must be connected to the relevant objects of external devices.

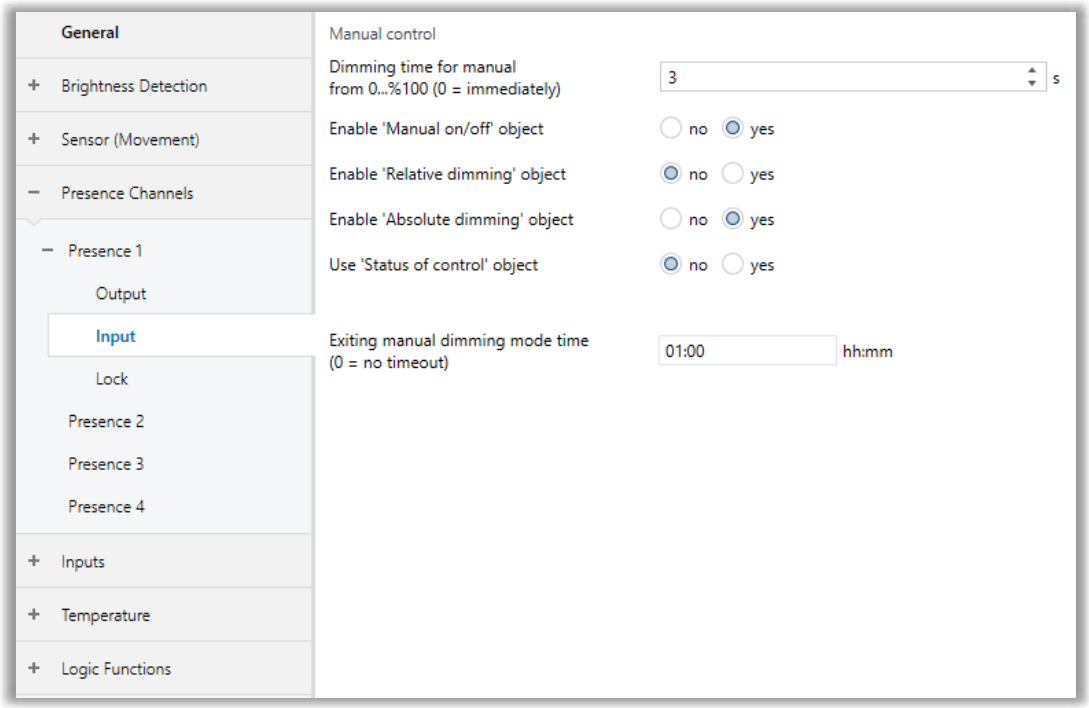


Fig. 16 : Constant Light-Controller - Input Page Configuration

3.4.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Dimming time for manual from 0…%100 (0 = immediately)	This parameter is used to determine how long it takes for the output object value to go from 0% to 100% during manual dimming. For example, let the lighting in the environment be completely off (that is, the output is at 0%) and the value entered in this parameter is 20 seconds. In this state, when an ON telegram is sent to the 'manual on/off' object from the KNX bus line, the brightness of the lighting unit controlled in the environment will be 100% after 20 seconds. In another case, let this parameter be configured as 20 seconds. When the output is at 50%, the time required for it to reach 100% will be 10 seconds.	0…**3**…59
Enable 'Manual on/off' object	This parameter is used to activate or deactivate the 'manual on/off' object, which is used to manually control the presence detector while in constant light control mode. For detailed usage of this object, information checks section 4.	no **yes**
Enable 'Relative dimming' object	This parameter is used to activate or deactivate the 'Relative dimming' object, which is used to manually control the presence detector while in constant light control mode. For detailed usage of this object, information checks section 4.	**no** yes
Enable 'Absolute dimming' object	This parameter is used to activate or deactivate the 'Absolute dimming' object, which is used to manually control the presence detector while in constant light control mode. For detailed usage of this object, information checks section 4.	no **yes**
Use 'status of control' object	This parameter is used to activate or deactivate the status object, which is used to determine whether the KNX presence detector is operating in manual or automatic mode.	**no** yes
Exiting manual dimming mode time **(0 = no timeout)**	This parameter is used to switch back to automatic mode from manual control mode. Depending on the time entered in this parameter, the detector will exit the manual mode and switch to the automatic state. Only when the '0' value is entered into this parameter, the detector will remain in manual mode permanently.	00:00..**01:00**..12:00

3.4.4. Constant Light Controller – Lock

On this parameter subpage, the parameters for locking the corresponding presence channel are described. Since the locking parameters are the same as the parameters in the “sensor” channel, for a more detailed explanation the parameter properties can be viewed in the sensor channel lock section (3.3.3).

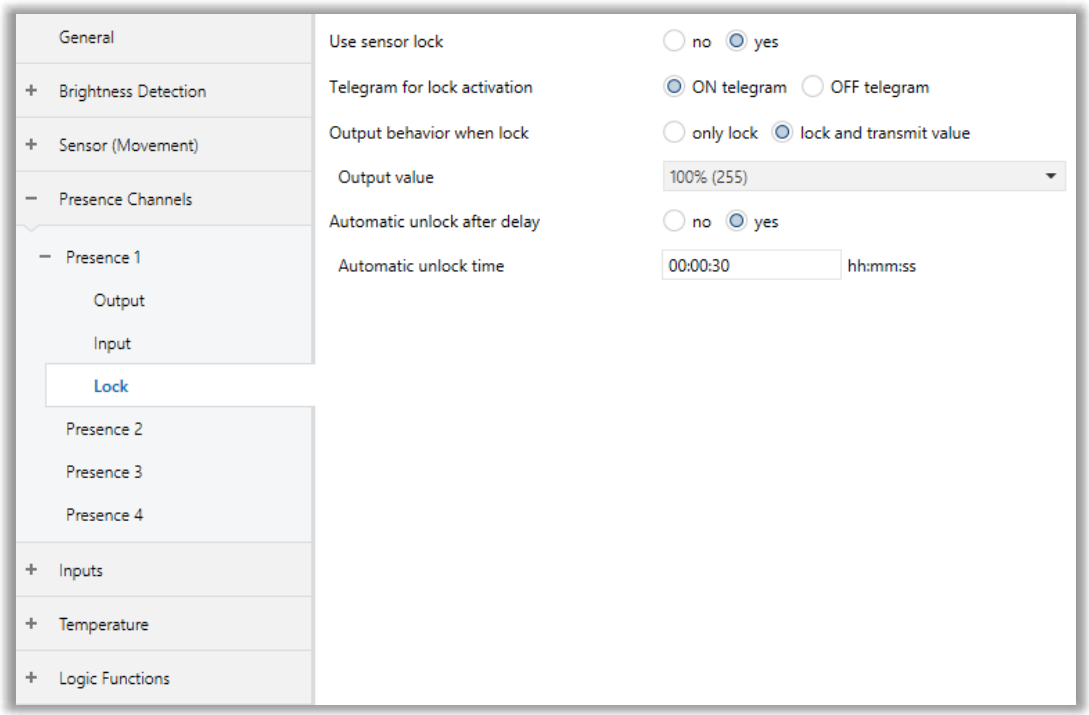


Fig. 17 : Constant Light-Controller – Lock Page Configuration

3.4.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Use sensor lock	Same as sensor lock	Same as sensor lock
Telegram for lock activation	Same as sensor lock	Same as sensor lock
Output behaviour when lock	Same as sensor lock	Same as sensor lock
-> Output value	Same as sensor lock	Same as sensor lock
Automatic unlock after delay	Same as sensor lock	Same as sensor lock
-> Automatic unlock time	Same as sensor lock	Same as sensor lock

3.4.5. Constant Light-Controller – Forced Operation

In this section, parameters for forcing the output of the relevant detector channel to remain at a constant value while the detector operates the constant light control are explained. Since the other presence channels are the same, only the parameters for the presence 1 channel are described. When other channels are used, this section can be referenced for the usage of relevant presence channels.

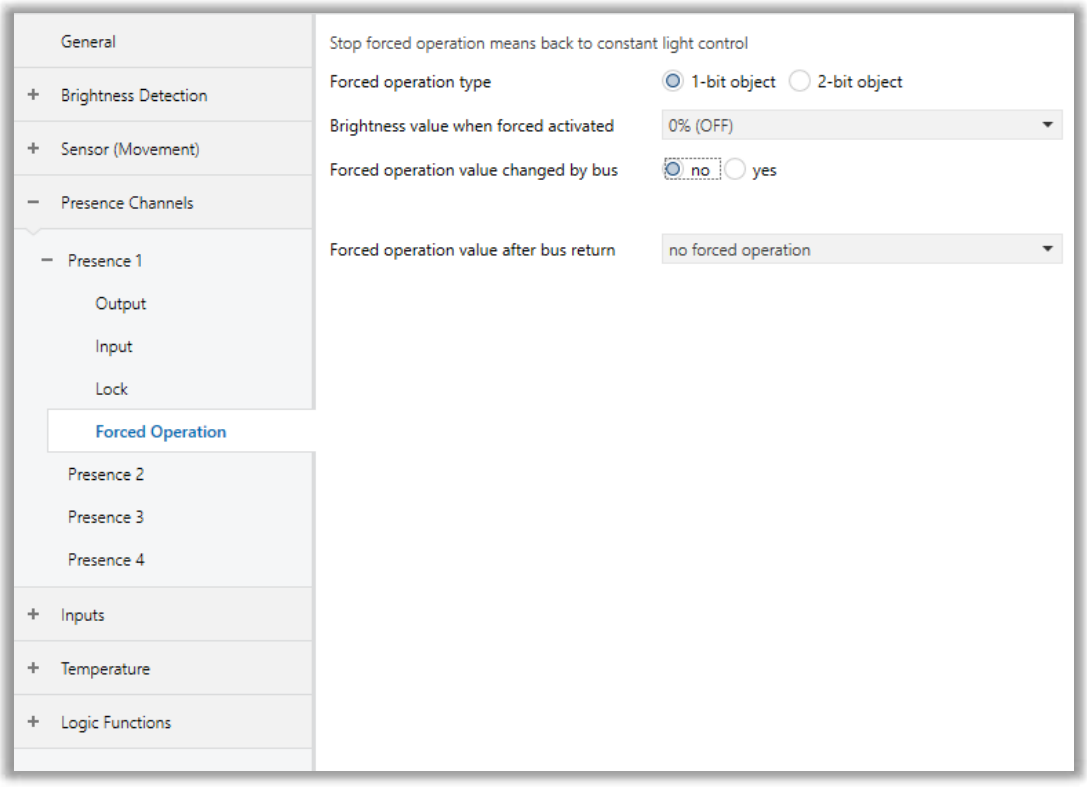


Fig. 18 : Constant Light-Controller – Forced Operation Page Configuration

3.4.5.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Forced operation type	This parameter is used to determine the object type to trigger the detector from constant light control to forced operation state.	**1-bit object** 2-bit object
Brightness value when forced activated	This parameter is used to determine the brightness value of the output when the detector disables the constant light control and enters the forced operation state.	100% (255), 99% (252), 98% (250)…. 3% (8), 2% (5), 1% (3), **0% (OFF)**
Forced operation value changed by bus	This parameter is used to change the output brightness value over the KNX bus line when the detector goes into a forced operation state.	**no** yes
Forced operation value after bus return	This parameter is used to determine whether there will be forced operation after the KNX bus line voltage is restored. **No forced operation :** The detector will operate in the default state. **Forced on :** The detector will operate as a force on the state. **Forced off :** The detector will operate in constant light controller mode. **Position before failure** : The detector will operate at the last state(before bus voltage break) after bus voltage return.	**no forced operation** forced on forced off position before failure

3.4.6. Presence Channels Priority List

Presence channels' functions as explained in previous points. Also, all of the regarding functions have their different priority levels. "Constant Light Switch" is "Lock" prioritized first and "General Operation" prioritized second. Then, "Constant Light Controller" has "Lock" prioritized first, "Forced Operation" prioritized second, "Manuel Operation" prioritized third and "General Operation" prioritized fourth and last. Priority levels are also explained in the block diagram in Figure 19.

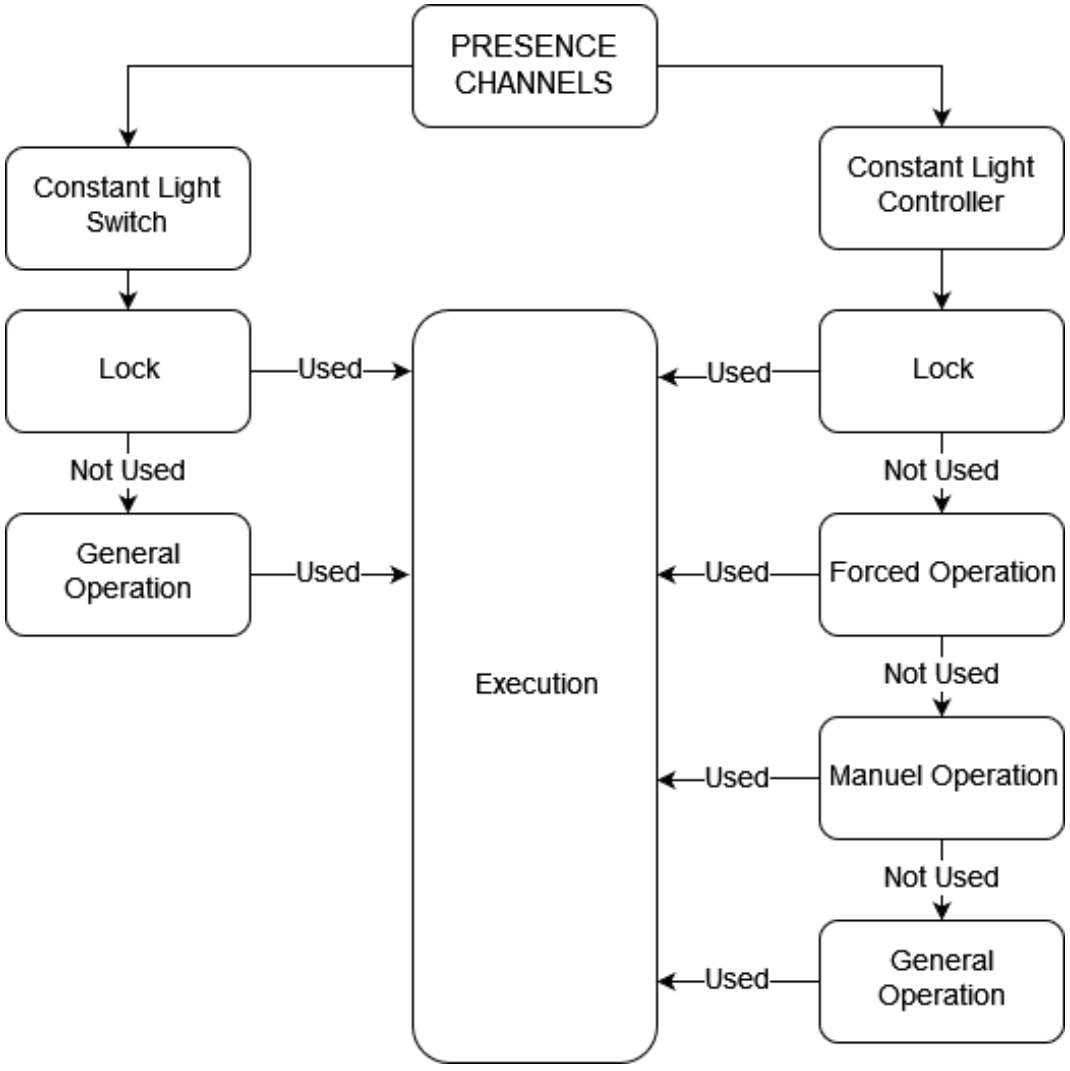


Fig. 19 : Presence Channels' Priority Levels

3.5. Inputs

Interra KNX presence sensor has 2 digital inputs and 1 analog input. By connecting buttons to digital inputs, you can choose the lighting, curtains/blinds, RGB LEDs, dim devices etc. you want to control. You can control the devices by making the necessary configurations via the KNX sensor. However, by connecting an NTC temperature sensor to the analog input, you can obtain temperature information from further distances from the KNX presence sensor.

3.5.1. Input – Switch Sensor

In this section, it is explained how to control the related automation unit via the KNX presence sensor by switching via buttons connected to digital inputs. Detailed information on the relevant parameter configurations is described in the table below.

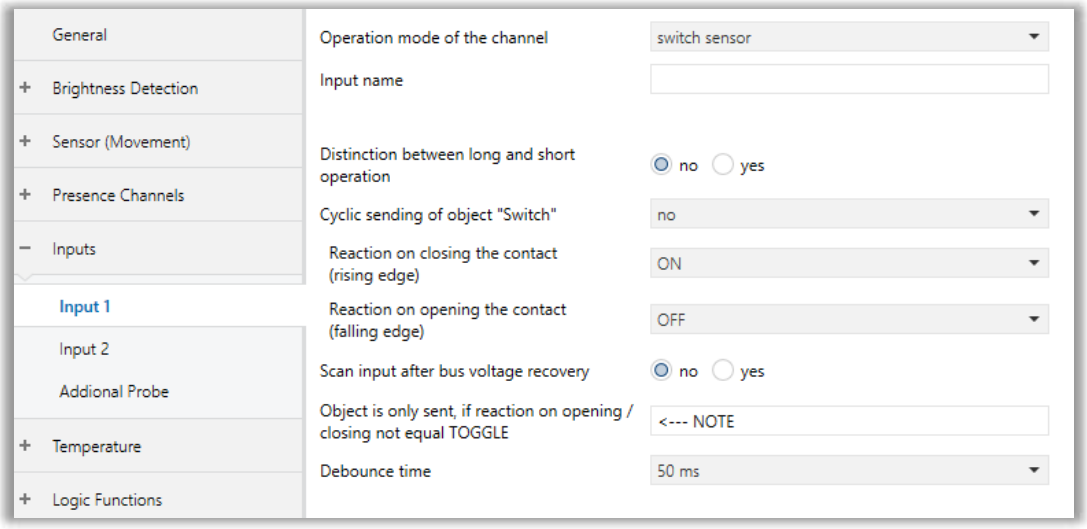


Fig. 20 : Input – Input Switch Sensor

3.5.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can consist of up to 40 characters.	**40 bytes allowed**
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contact, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
-> Cyclic sending of object “Switch”	This parameter is visible if there is no distinction between short and long operations. The communication object “Switch” can be sent cyclically. If the parameter “always” is set, the object sends cyclically on the bus, regardless of its value. Should the parameter value “if telegram switch = ON” or “if telegram switch = OFF” be set, the corresponding object value is sent cyclically.	**No** If “Switch” = OFF If “Switch” = ON always
-> Reaction on closing the contact **(rising edge)**	This parameter is visible if there is no distinction between short and long operations. For each edge, you can set if the object value is to be switched ON, OFF or TOGGLE, or if no reaction should occur. If cyclical sending has been parameterized, it is possible by setting the parameter value “terminate cyclic sending” with an operation of the input, to stop cyclic sending without a new object value being sent.	No reaction **ON** OFF TOGGLE

-> Reaction on opening the contact **(Falling edge)**	This parameter is visible if there is no distinction between short and long operations. For each edge, you can set if the object value is to be switched ON, OFF or TOGGLE, or if no reaction should occur. If cyclical sending has been parameterized, it is possible by setting the parameter value “terminate cyclic sending” with an operation of the input, to stop cyclic sending without a new object value being sent.	No reaction ON **OFF** TOGGLE
-> Telegram is repeated every	This parameter is visible if the cyclical transmission is active. The send cycle time describes the time used between two cyclically transmitted telegrams	**00:00:05…00:00:30…18:12:15**
Scan input after bus voltage recovery	This parameter is used to determine the scanning of the inputs when the bus voltage has been recovered.	**No** Yes
Object is only sent, if reaction on opening / closing not equal TOGGLE	NOTE	NOTE
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Sensor input x.	Normally closed **Normally open**
Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	No reaction **ON** OFF TOGGLE
Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	No reaction **ON** OFF TOGGLE
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**…01:05.000
Number of object for short/long operation	This parameter is used to determine the object count to use for short and long operations.	**1 object** 2 object

	1 object: short and long operations will proceed with the same object. **2 object**: Short and long operations will proceed with 2 different objects.	
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.5.2. Input – Switch / Dimming Sensor

In this section, it is explained how to control the unit of a lighting unit through the KNX presence sensor, both by switching and dimming, via the buttons connected to the digital inputs. Detailed information on the relevant parameter configurations is described in the table below. Make sure that the lighting unit to be controlled has a dimming feature.

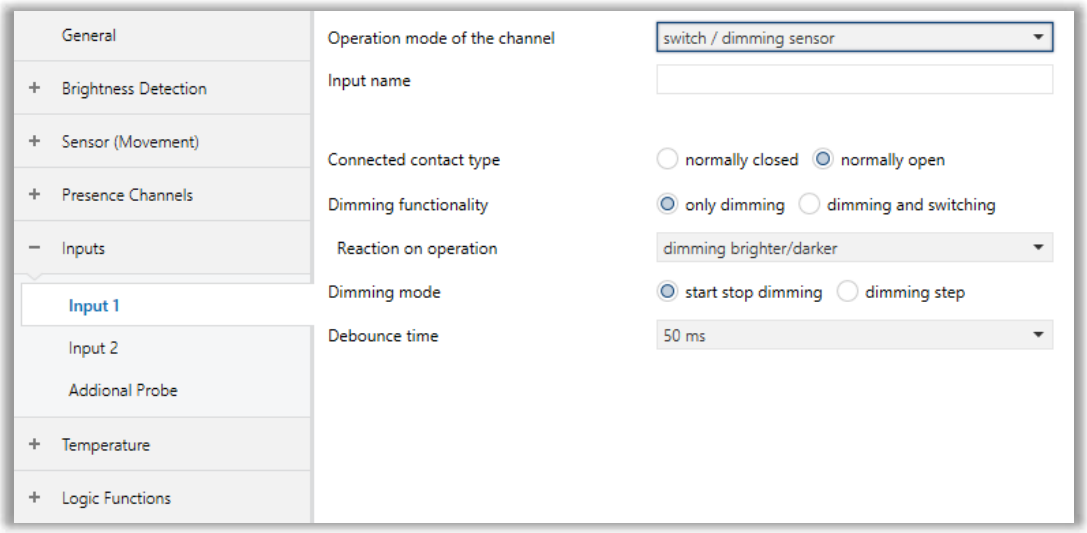


Fig. 21 : Input – Input Switch / Dimming Sensor

3.5.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Sensor input x.	Normally closed **Normally open**
Dimming functionality	This parameter is used to define if the lighting can only be dimmed “Only dimming” or if additional switching is also permitted “Dimming and switching”. In this case, a long button press dims and a short button push switch.	**Only dimming** Dimming and switching
Reaction on operation	This parameter is visible if “Only dimming” dimming functionality is set. A distinction is not made between short and long operations here.	Dimming brighter Dimming darker **Dimming brighter/darker**
Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	No reaction **ON** OFF TOGGLE
Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	Dimming brighter Dimming darker **Dimming brighter/darker**

Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**…01:05.000
Dimming mode	This parameter is used to determine the dimming mode. Normal “Start-stop-dimming” starts the dimming process with a telegram BRIGHTER or DARKER and ends the dimming process with a STOP telegram. Cyclic sending of the telegram is not necessary in this case. With “Dimming steps”, the dimming telegram is sent cyclically during a long operation. The STOP telegram ends the dimming process at the end of the operation.	**Start-stop dimming** Dimming step
Brightness change on every sent telegram	This parameter is only visible with “Dimming steps”. This parameter is set to change the brightness (in per cent), which is cyclically sent with every dimming telegram.	**%100** %50 %25 %12.5 %6.25 %3.13 %1.56
Sending cycle time : Telegram is repeated every	This parameter is used to determine the sending cycle time. The dimming telegram is sent cyclically during a long operation if “Dimming steps” is set. The cycle time for sending corresponds with the time interval between two telegrams during cyclical sending.	0.3s, 0.4s, **0.5s**, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.5.3. Input – Shutter Sensor

In this section, it is explained how to control a shutter/blind unit via the buttons connected to the digital inputs via the KNX presence sensor. Detailed information on the relevant parameter configurations is described in the table below.

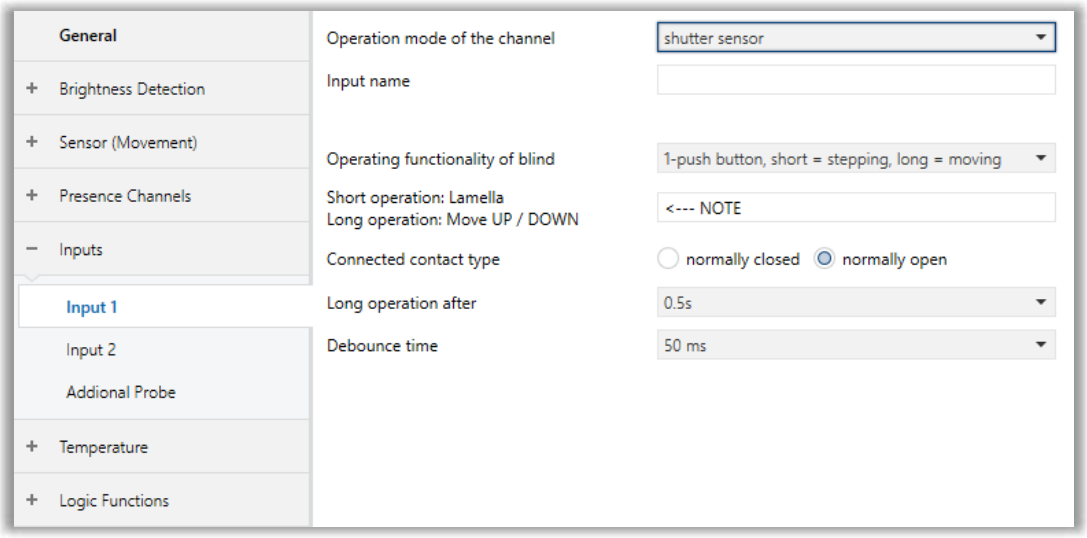


Fig. 22 : Input – Input Shutter Sensor

3.5.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Operation Functionality of blind	This parameter is used to define the type of blind operation. An overview of the operating modes is described below.	**1-push-button, short = stepping, long = moving** 1-push-button, short = moving, long = stepping 1-push-button-operation 1-switch button operation 2-push-button, standard 2-switch-operation, moving 2-push-button, moving 2-push-button, stepping
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Sensor input x.	Normally closed **Normally open**
1-push-button, short = stepping, long = moving		
Short Operation : Lamella	NOTE	NOTE

Long Operation : Move UP / DOWN		
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	0.3s, 0.4s, **0.5s**, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
1-push-button, short = moving, long = stepping		
Short Operation : Move UP / DOWN **Long Operation : Lamella**	NOTE	NOTE
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	0.3s, 0.4s, **0.5s**, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
"STOP/Lamella adj." is repeated every	This parameter is used to determine the time between two telegrams is set. This parameter is visible in operations in which the object "STOP/lamella adjustment" is sent cyclically on the bus during a long operation.	0.3s, **0.4s**, 0.5s, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
1-push button operation		
On Every operation in success: **UP – STOP – DOWN - STOP**	NOTE	NOTE
1-switch button operation		
On operation : UP – DOWN **End of operation : STOP**	NOTE	NOTE
2-push button, standard		
Short Operation : STOP – Lamella UP / DOWN **Long Operation : Move UP / DOWN**	NOTE	NOTE
Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**Stop / lamella up** Stop / lamella down

Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**Move up** Move down
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	0.3s, 0.4s, **0.5s**, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
2-switch operation, moving		
On Operation : Moving **End of Operation : STOP**	NOTE	NOTE
Reaction on operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Move up** Move down
2-push button operation, moving		
On Operation : Moving **End of Operation : STOP**	NOTE	NOTE
Reaction on operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Move up** Move down
2-push-button, stepping		
On Operation : Stepping	NOTE	NOTE
Reaction on operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Stop / Lamella up** Stop / Lamella down
“STOP/Lamella adj.” is repeated every	This parameter is used to determine the time between two telegrams is set. This parameter is visible in operations in which the object “STOP/lamella adjustment” is sent cyclically on the bus during a long operation.	0.3s, **0.4s**, 0.5s, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g. due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms

		50 ms 70 ms 100 ms 150 ms

3.5.3.2. The Functionality of Each Function

1 push button: Short Press = stepping, Long Press = moving	
Short Operation	Stop/ Lamella Adjustment
Long Operation	Toggle between “Move Up” and “Move Down”
1 push button: Short Press = moving, Long Press = stepping	
Short Operation	Toggle between “Move Up” and “Move Down”
Long Operation	Stop/Lamella Adjustment (Sent Cyclically as the button is kept pressed)
1 push button: Press: moving, Long Press Disabled	
On Operation	Following signals are sent in order on each press. → Move UP → Stop/Lamella Adj. Up → Move Down → Stop/Lamella Adj. Down →
1 switch Operation: Moving, Long Press Disabled	
Press Operation	Toggle between “Move Up” and “Move Down”
Release Operation	Stop/Lamella Adjustment
2 Push Button Operation: Standard	
Short Operation	“Stop/Lamella Adj. Down” or Stop/Lamella Adj. Up (Whichever is chosen as the parameter)
Long Operation	“Move Up” or “Move Down” (Whichever is chosen as the parameter)
2 Switch Operation: Moving, Long Press Disabled	
Press Operation	“Move Up” or “Move Down” (Whichever is chosen as the parameter)
Release Operation	“Stop/Lamella Adj. Down” or “Stop/Lamella Adj. Up” (Whichever is chosen)
2 Push Button Operation: Moving, Long Press Disabled	
On Operation	Whichever sequence is selected as the parameter; “ → Move Up → Stop/Lamella Adj. Up → “ or “ → Move Down → Stop/Lamella Adj. Down → “
2 Push Button Operation: Stepping, Long Press Disabled	

On Operation	Whichever signal is selected as the parameter, is sent cyclically as the button is kept pressed; “Stop/Lamella Adj. Up” or “Stop/Lamella Adj. Down”

3.5.4. Input Value / Forced Operation

In this section, it is explained how to control an automation unit via KNX presence sensor via a value/forced via buttons connected to digital inputs. Detailed information on the relevant parameter configurations is described in the table below.

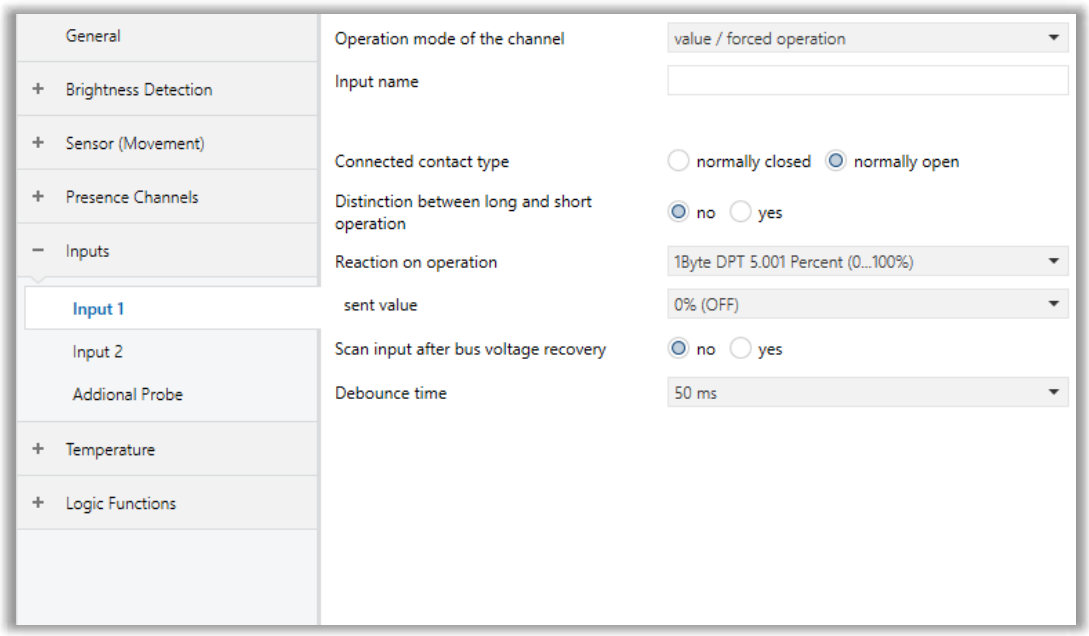


Fig. 23 : Input – Input Value / Forced Operation

3.5.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Sensor input x.	Normally closed **Normally open**
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contact, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	2-bit DPT 2.001 Switch Control **1-byte DPT 5.001 Percent (0…100%)** 1-byte DPT 5.005 Decimal factor (0…255) 1-byte DPT 17.001 Scene Number 2-byte DPT 7.600 Color temperature(Kelvin) 2-byte DPT 9.001 Color temperature (˚C) 2-byte DPT 9.004 Brightness (Lux)

		3-byte DPT 232.600 RGB value 3x (0…255)
-> sent value	This parameter is used to determine the sending value to the bus when a short operation occurs.	Values depends on DPT selection.
Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	2-bit DPT 2.001 Switch Control **1-byte DPT 5.001 Percent (0…100%)** 1-byte DPT 5.005 Decimal factor (0…255) 1-byte DPT 17.001 Scene Number 2-byte DPT 7.600 Color temperature(Kelvin) 2-byte DPT 9.001 Color temperature (˚C) 2-byte DPT 9.004 Brightness (Lux) 3-byte DPT 232.600 RGB value 3x (0…255)
-> sent value	This parameter is used to determine the sending value to the bus when a long operation occurs.	Values depends on DPT selection.
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.400**…01:05.000
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.5.5. Input – Control Scene

In this section, it is explained how to control the related automation unit via the KNX presence sensor by triggering a scenario via buttons connected to digital inputs. Detailed information on the relevant parameter configurations is described in the table below.

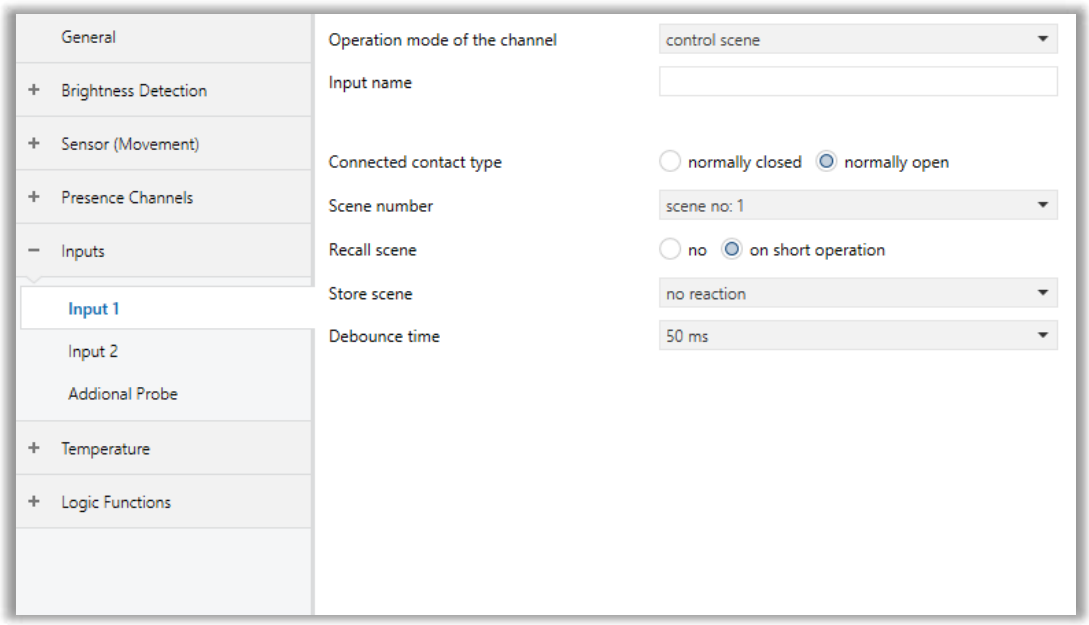


Fig. 24 : Input – Control Scene

3.5.5.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Sensor input x.	Normally closed **Normally open**
Scene Number	This parameter is used to configure the scene number to send to the KNX when a short press operation occurs.	**Scene no.1**…Scene no.64
Recall scene	This parameter is used to determine the recalling of the scene. If this parameter is selected as “on short operation” the configured scene number will be called.	No **On short operation**
Store Scene	This parameter is used to determine to store or not to store the related scene. **On long operation** : The scene will be stored after a long operation. **With “Store scene” obj. value = 1** : The scene will be stored on operation if the Store scene object value is 1. **On long operation (“Store scene” obj. value = 1)** : The scene will be stored on long operation if the Store scene object is 1.	**No reaction** On long operation With “Store scene” obj value = 1 On long operation (“Store scene” obj value = 1)
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**…01:05.000

Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.5.6. Input – RGB Colour Control

In this section, it is explained how to control an RGB LED device through the buttons connected to the digital inputs via the KNX presence sensor. Detailed information on the relevant parameter configurations is described in the table below.

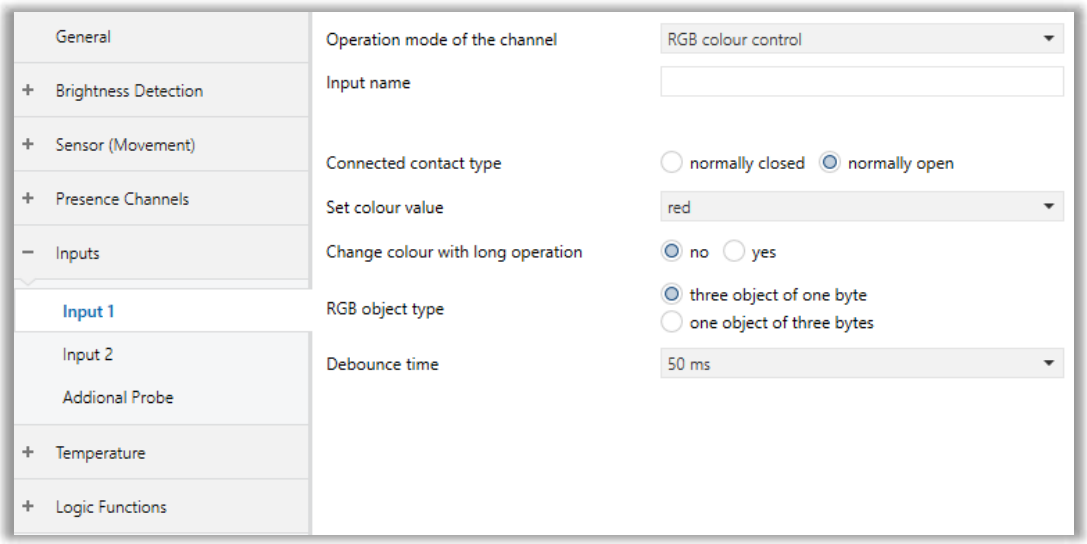


Fig. 25 : Input – RGB Colour Control

3.5.6.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Sensor input x.	Normally closed **Normally open**
Set colour value	This parameter is used to set RGB colours according to the configured values.	**Red** Orange Yellow Green-yellow Green Green-cyan Cyan Blue-cyan Blue Blue-magenta Red-magenta white
Change colour with long operation	This parameter is used to enable or disable the colour changing with long press operation.	**No** Yes
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**…01:05.000
RGB object type	This parameter is used to determine the RGB colour object type.	**Three object of one byte**

		one object of three bytes
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.5.7. Input – Mode Selection

In this section, it is explained how to control the operating modes of an HVAC unit via the buttons connected to the digital inputs via the KNX presence sensor. Detailed information on the relevant parameter configurations is described in the table below.

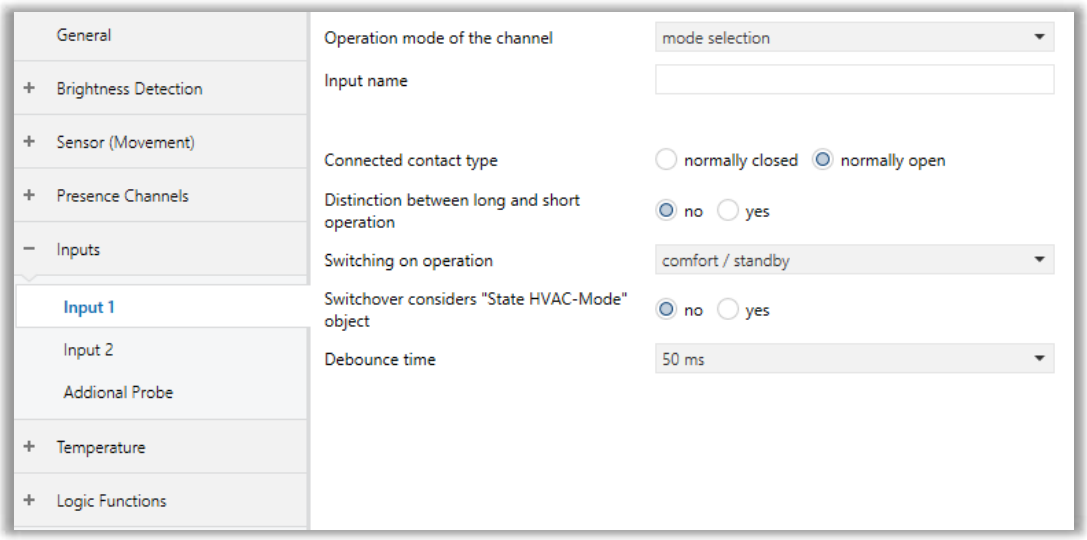


Fig. 26 : Input – Mode Selection

3.5.7.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contact, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
-> Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**Comfort / standby** Comfort / economy Comfort / standby / economy Comfort / standby / economy / frost
-> Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**Comfort / standby** Comfort / economy Comfort / standby / economy Comfort / standby / economy / frost
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.200…**00:00.500**…01:05.000

Switchover considers "State HVAC-Mode" object	This parameter is used to enable the HVAC-Mode state object to change the current HVAC mode via KNX.	**No** Yes
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.5.8. Input – Additional Probe

This section describes how to configure a parameter for an NTC sensor that can be connected to the analog input of the KNX presence sensor. After obtaining the necessary information about the NTC sensor to be connected from the relevant document, you should configure it.

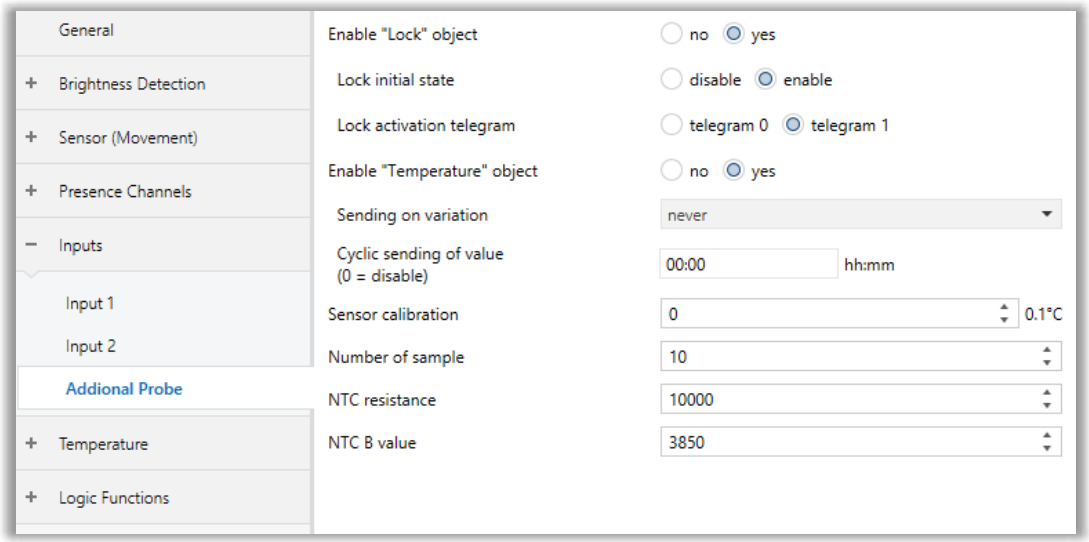


Fig. 27 : Input – Additional Probe

3.5.8.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Enable "Lock" Object	This parameter is used to enable or disable the lock object.	**No** Yes
-> Initial enable state	This parameter is used to determine the initial state of the lock status. If it is selected as enable, the initial status of the lock will be enabled.	**Disable** Enable
-> Enable Activation Telegram	This parameter is used to determine the telegram value to activate the lock. E.g., if it is selected as telegram 1, a "1" value telegram will lock and a "0" value telegram will unlock. Vice versa also applies.	Telegram 0 **Telegram 1**
Enable "Temperature" Object	This parameter is used to enable or disable the Temperature object to send the measured temperature values of the ambient to the bus.	**No** Yes
-> Sending On Variation	This parameter is used to determine the temperature variation value. If it is selected as never, the current value will be sent.	**Never** 0.1 ˚C 0.2 ˚C 0.3 ˚C 0.4 ˚C 0.5 ˚C 0.6 ˚C 0.7 ˚C 0.8 ˚C 0.9 ˚C 1.0 ˚C 1.1 ˚C 1.2 ˚C 1.3 ˚C 1.4 ˚C 1.5 ˚C
-> Cyclic sending of value (0 = disable)	This parameter is used to determine the cyclic sending period value of the measured temperature value.	**00:00**…23.59

Sensor Calibration	This parameter is used to determine the calibration value of the analogue probe. E.g., the Measured value is 25 ˚C, and the calibration value is selected as 10. The calibrated value is 25 – (10 x 0.1) = 24 ˚C. 0.1 is a constant factor value.	**-**100…**0**…100
Number of Sample	This parameter is used to determine the number of samples of the temperature values to calculate the ambient temperature.	0…**10**…255
NTC resistance	This parameter is used to determine the NTC resistance value that will be connected to the analogue input of the KNX sensor.	0…**10000**…65535
NTC B value	This parameter is used to determine the NTC B value that will be connected to the analogue input of the KNX sensor.	0…**3850**…65535

3.6. Temperature

Temperature is a quantity that should always be measured for a comfortable life in building automation systems. Temperature measurements can be made from a variety of sources. Interra KNX valence sensor temperature measurement can be made with the internal temperature sensor, an external NTC sensor that can be connected to its analog input, or the values obtained over the KNX bus line.

3.6.1. Temperature Info

This section provides information on configuring temperature parameters and what they mean. Detailed information about the parameters is given in the table below.

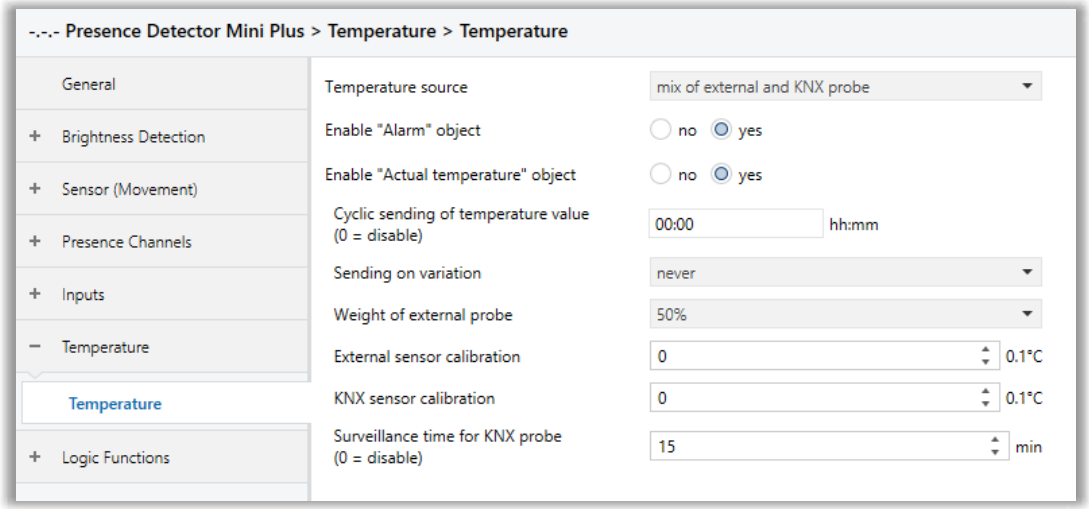


Fig. 28 : Temperature – Temperature Info

3.6.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Temperature source	This parameter is used to determine the temperature source for measuring the ambient temperature. **Several options can be made** : you can choose a single source or also a mix of 2 different sources according to needs.	**Internal probe** External probe Mix of internal and external probe KNX probe Mix of internal and KNX probe Mix of external and KNX probe
Enable "Alarm" Object	This parameter is used to enable the "Alarm" object to define a threshold value for alarm information.	**No** Yes
Enable "Actual Temperature" Object	This parameter is used to enable the "Actual Temperature" object to send the actual ambient temperature value to the bus.	**No** Yes
-> Cyclic sending of temperature value (0 = disable)	This parameter is used to determine the cyclic sending period time of the current temperature value. If it is selected as 00:00, the cyclic sending will be disabled.	**00:00**…23.59
-> Sending on variation	This parameter is used to determine the temperature variation value. If it is selected as never, the current value will be sent.	**Never** 0.1 ˚C 0.2 ˚C 0.3 ˚C 0.4 ˚C 0.5 ˚C 0.6 ˚C 0.7 ˚C 0.8 ˚C 0.9 ˚C 1.0 ˚C 1.1 ˚C 1.2 ˚C 1.3 ˚C

		1.4 ˚C 1.5 ˚C
Weight Of External Probe	This parameter is used to determine the weight of the external probe. E.g., the temperature source is selected as Mix of the internal and external probe. The external probe weight is selected as %50. So, the calculated temperature value will be : Calculated Temperature : Internal Temperature * 0.5 + External Temperature * 0.5.	%10, %20, %30, %40, **%50**, %60, %70, %80, %90
Internal Sensor Calibration	This parameter is used to determine the calibration value of the internal sensor. E.g., the Measured value is 23 ˚C, and the calibration value is selected as -10. The calibrated value is 23 – (10 x 0.1) = 22 ˚C. 0.1 is a constant factor value.	-100…**0**…100
External Sensor Calibration	This parameter is used to determine the calibration value of the external sensor. E.g., the Measured value is 26 ˚C, and the calibration value is selected as -20. The calibrated value is 26 – (20 x 0.1) = 24 ˚C.	-100…**0**…100
KNX Sensor Calibration	This parameter is used to determine the calibration value is received from the KNX Probe temperature object. E.g., the Measured value is 20 ˚C, and the calibration value is selected as 20. The calibrated value is 20 + (20 x 0.1) = 22 ˚C.	-100…**0**…100
Surveillance time for KNX probe **(0 = disable)**	This parameter is used to determine the surveillance time for the KNX probe. E.g., if this parameter is configured as 10. Every 10 min the received value from KNX is taken into account for temperature calculation.	0…**15**…255

3.7. Virtual Card Holder

In this section, the 'virtual card holder' feature, which is intended to be provided by the KNX presence sensor and which is the equivalent of the card holder systems used in hotels, is explained. In addition, scenarios such as 'welcome scenario' customers when the relevant hotel room is taken and 'good bye scenario' scenarios, when they leave the room, can also be realized with the 'virtual card holder' feature. With this feature, you can remove the Holder for access control. This logical module provides a set of parameters and communication objects that, suitably configured, allow you to set up whether or not a person is occupying the room.

3.7.1. Virtual Card Holder – General

In this section, the general parameters of the 'virtual card holder' feature, which is the equivalent of the card holder systems used especially in hotels, are explained.

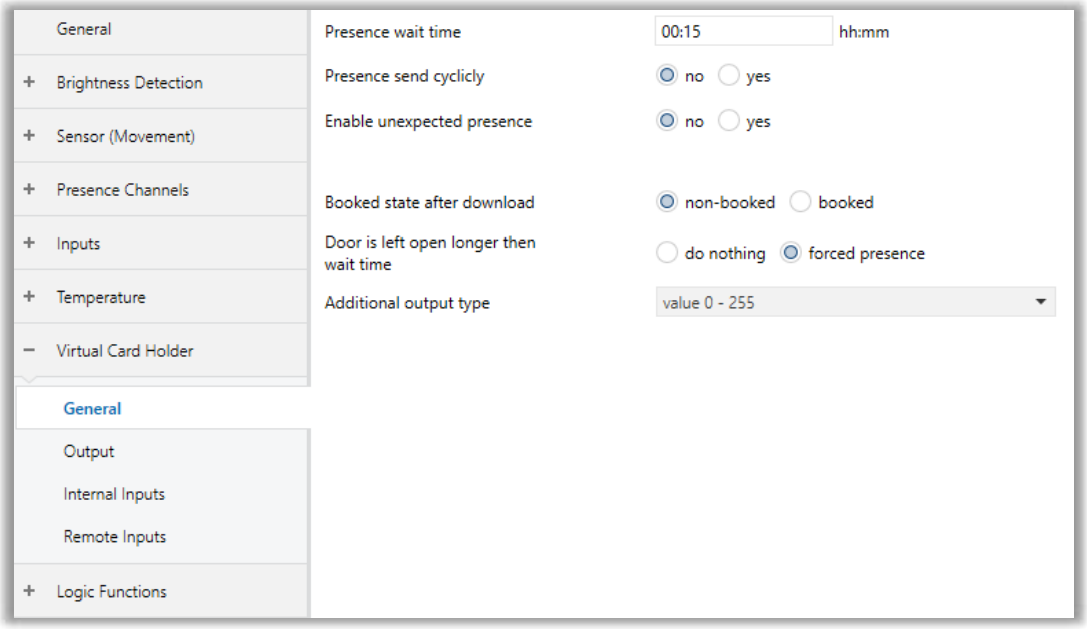


Fig. 29 : Virtual Card Holder – General

3.7.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Presence wait time	This parameter is used to set the “wait time” for the virtual holder module. The “wait time” is the time triggered by the opening and consequent closing of the door. During this time the room is in “wait mode and after this can go in “occupied” or “non occupied” status.	00:05…00:15…06:00
Presence send cyclically	This parameter is used to determine the sending the presence status or not.	**No** Yes
-> Cyclical Send time	This parameter is used to determine the cyclical sending time of the virtual holder presence output.	1…**5**…60
Enable unexpected presence	This parameter enables the sensor to sense the unexpected presence	**no** yes
->Send welcome on unexpected presence	This parameter is used to define the behaviour when the virtual holder module detects a presence inside the room and is in “not occupied” status 'unexpected presence'. It’s possible to send or not the welcome event	**Contact closed with door closed** Contact closed with door open
->Enable Unexpected Presence Object	This parameter creates the “unexpected presence” object, which gives the value “1” when the sensor senses the unexpected presence	**No** Yes
Booked state after download	This parameter is used to set the initial value for the object virtual holder room booked	**Non-booked** Booked
Door is left open longer than wait time	When the parameter is set to the forced presence and if the door is kept open longer than the “Presence waits time”, the virtual cardholder will automatically act as if it has detected presence.	Do Nothing **Forced Presence**
Additional output type	This parameter is used to enable an additional object to transmit on the bus a command linked to presence or absence events	**Value 0 – 255** Value 0 – 100% scene

3.7.2. Virtual Card Holder – Output

In this section, the output parameters of the 'virtual card holder' feature, which is the equivalent of the cardholder systems used especially in hotels, are explained.

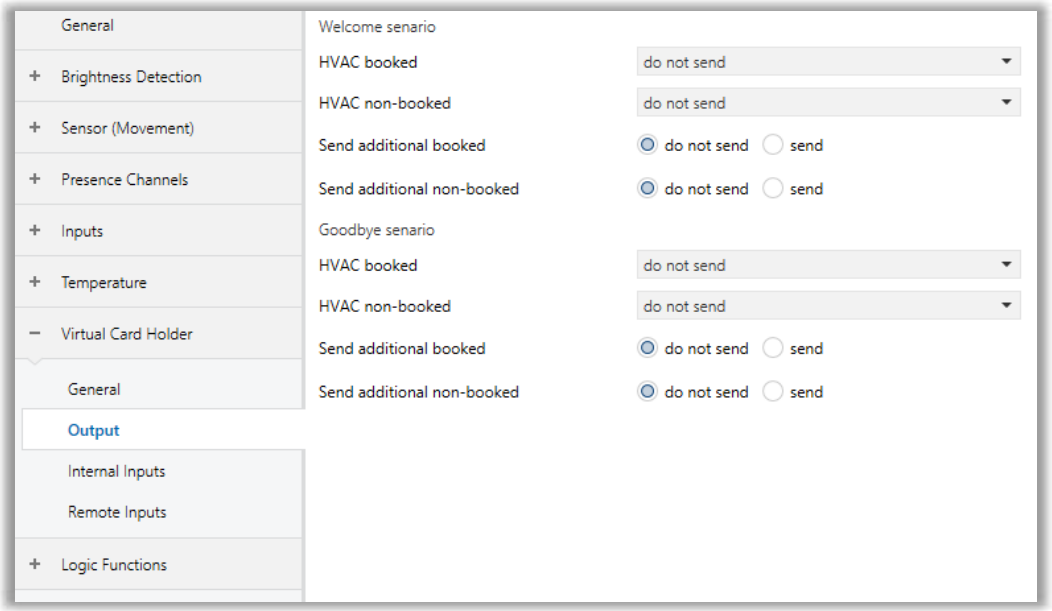


Fig. 30 : Virtual Card Holder – Output

3.7.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Welcome scenario		
HVAC booked	This parameter is used to determine the HVAC status of the welcome scenario when the room is booked.	**Do not send** Comfort Standby Economy Building Protection
HVAC Non-booked	This parameter is used to determine the HVAC status of the welcome scenario when the room is non-booked.	**Do not send** Comfort Standby Economy Building Protection
Send additional booked	This parameter is used to determine sending or not sending a value within the welcome scenario to the bus while the room is additionally booked.	**Do not send** send
-> Value additional booked	This parameter is used to determine the sending value within the welcome scenario if the room is additionally booked.	**%0**…%100
Send additional non-booked	This parameter is used to determine sending or not sending a value within the welcome scenario to the bus while the room is additional non-booked.	**Do not send** send
-> Value additional non-booked	This parameter is used to determine the sending value within the welcome scenario if the room is additional non-booked.	**%0**…%100
Goodbye scenario		
HVAC booked	This parameter is used to determine the HVAC status of the goodbye scenario when the room is booked.	**Do not send** Comfort Standby Economy Building Protection
HVAC Non-booked	This parameter is used to determine the HVAC status of the goodbye scenario when the room is non-booked.	**Do not send** Comfort Standby Economy

		Building Protection
Send additional booked	This parameter is used to determine sending or not sending a value within the goodbye scenario to the bus while the room is additionally booked.	**Do not send** send
-> Value additional booked	This parameter is used to determine the sending value within the goodbye scenario if the room is additionally booked.	**%0**…%100
Send additional non-booked	This parameter is used to determine sending or not sending a value within the goodbye scenario to the bus while the room is additional non-booked.	**Do not send** send
-> Value additional non-booked	This parameter is used to determine the sending value within the goodbye scenario if the room is additional non-booked.	**%0**…%100

3.7.3. Virtual Card Holder – Internal Inputs

In this section, the internal input parameters used to realize the 'virtual card holder' feature, which is the equivalent of the cardholder systems used in hotels, are mentioned. Internal inputs are the inputs on the KNX presence sensor.

Note: At least one of the input types of total inputs must be selected as the door for sake of the functionality.

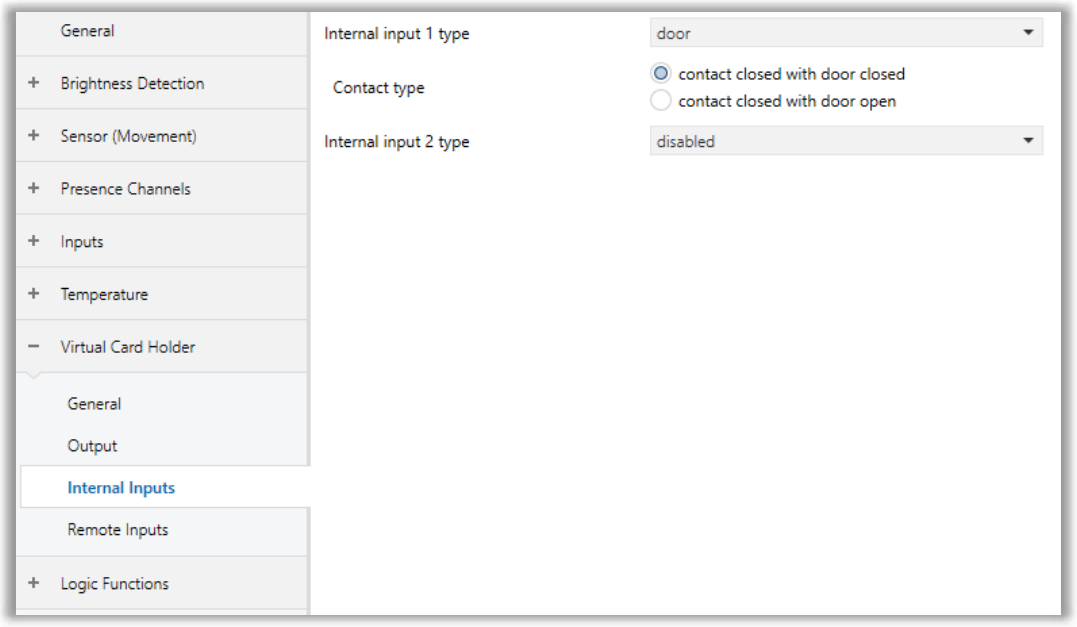


Fig. 31 : Virtual Card Holder – Internal Inputs

3.7.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Internal input type 1	This parameter is used to connect the internal inputs of the KNX presence sensor to the door or conventional presence sensor. **Door** : Internal input is connected to a door contact **Presence Sensor** : Internal input is connected to a conventional presence detector.	Disabled **Door** Presence Sensor
-> Contact type	This parameter is used to determine the contact type that will the door contact is closed with door open or close.	**Contact closed with door closed** Contact closed with door open
-> Contact type	This parameter is used to determine the connected contact type as normally closed or normally open.	**Normally closed** Normally open
Internal input type 2	This parameter is used to connect the internal inputs of the KNX presence sensor to the door or conventional presence sensor. **Door**: Internal input is connected to a door contact **Presence Sensor**: Internal input is connected to a conventional presence detector.	**Disabled** Door Presence Sensor
-> Contact type	This parameter is used to determine the contact type that will the door contact is closed with door open or close.	**Contact closed with door closed** Contact closed with door open
-> Contact type	This parameter is used to determine the connected contact type as normally closed or normally open.	**Normally closed** Normally open

3.7.4. Virtual Card Holder – Remote Input

In this section, the remote input parameters used to realize the 'virtual card holder' feature, which is the equivalent of the cardholder systems used in hotels, are mentioned. When you need to consider 2 adjacent rooms as separated or joined as if they were a single room (suite room) you can use remote inputs. To handle this situation both "Virtual Holder" modules of the 2 single rooms must be activated and configured. The principle is to connect the sensors (door or presence) of room 1 to room 2 and vice versa; however, the "Subordinate to Remote Inputs Enable" parameter for every single Remote Input should be properly configured.

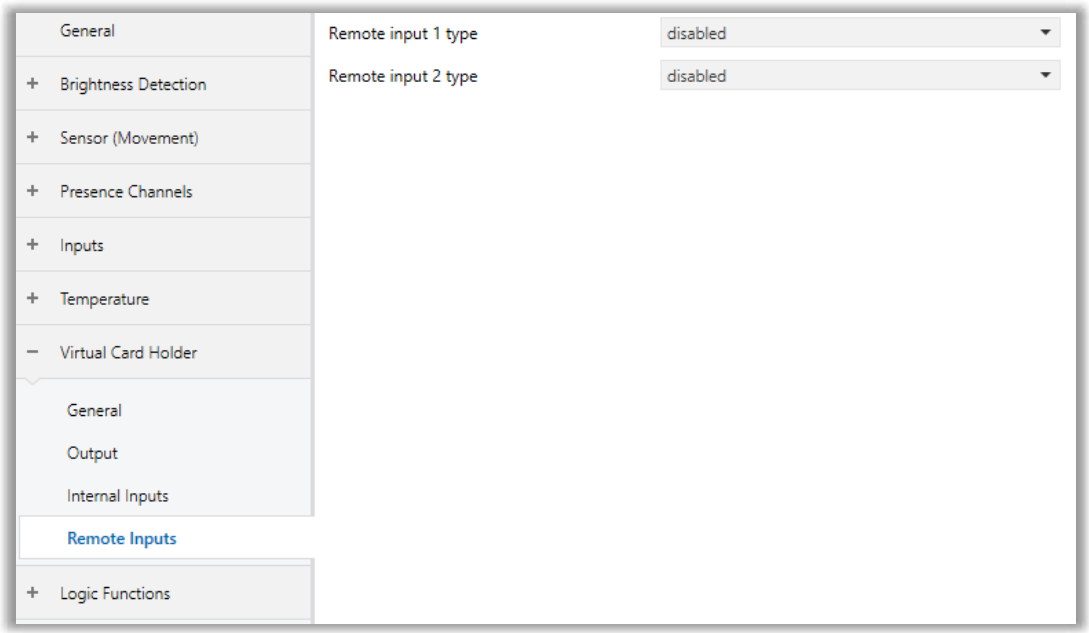


Fig. 32 : Virtual Card Holder – Remote Input

3.7.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Remote input type 1	This parameter is used to enable or disable the remote input type 1. If it is selected as disabled, there will be no input 1. **Door** : The remote input is connected to door contact. **Presence Sensor** : The remote input is connected to the presence sensor.	**Disabled** Door Presence Sensor
-> Subordinate to remote input enables	This parameter is used to determine the subordinate or not subordinate relation of the related room. For sensors located in Room 1, this parameter must be set to "not subordinate" on room 1 "Virtual Holder" while should be “subordinated” to room 2 Virtual Holder The same principle must be applied to room 2 sensors that are "subordinate" only for the connections to room 1.	**Not subordinate** Subordinate
Remote input type 2	This parameter is used to enable or disable the remote input type 2. If it is selected as disabled, there will be no input 2. **Door** : The remote input is connected to door contact. **Presence Sensor** : The remote input is connected to the presence sensor.	**Disabled** Door Presence Sensor
-> Subordinate to remote input enables	This parameter is used to determine the subordinate or not subordinate relation of the related room. For sensors located in Room 1, this parameter must be set to "not subordinate" on room 1 "Virtual Holder" while should be “subordinated” to room 2 Virtual Holder The same principle must be applied to room 2 sensors that are "subordinate" only for the connections to room 1.	**Not subordinate** Subordinate

3.8. Logic Functions

This section describes the logical function modules of the Interra KNX presence sensor. With the logical function blocks on the KNX presence sensor, a logical expression can be created with the ambient temperature, the brightness level of the environment, whether there is a presence detection in the environment, the data coming through the local digital inputs or external inputs, and various 'TRUE' or 'FALSE' results can be obtained. actions can be taken and scenarios can be triggered.

3.8.1. Logic Functions – General

This section describes the general parameters of the logical association module of the Interra KNX presence sensor. Parameters must be configured separately for each logic block.

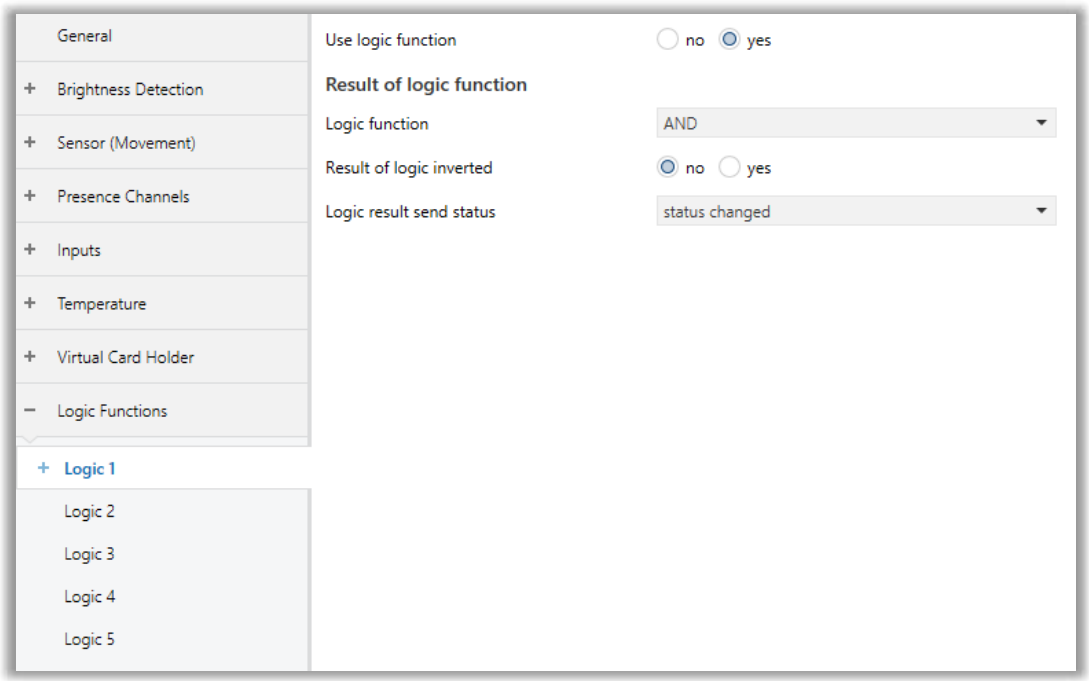


Fig. 33 : Logic Functions – General

3.8.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Use Logic Function	This parameter is used to enable or disable the related logic function gate.	**No** Yes
Logic Function	This parameter is used to determine the logical relation of the parameterized logic inputs. **AND**: All inputs are put into the 'AND' operation. **OR**: All inputs are put into the 'OR' operation. **XOR**: All inputs are put into the 'XOR' operation.	**AND** OR XOR
Result of Logic Inverted	This parameter is used to invert or not invert the calculated logic function block. If it is selected as yes for example, when the logic function gate output is 'TRUE', the output will be 'FALSE'. Vice versa also applies.	**No** Yes
Logic result send status	This parameter is used to determine the logic function block result sending status to the KNX bus.	**Status changed** Status is TRUE Status is FALSE Status changed and periodically Status is TRUE periodically Status is FALSE periodically

3.8.2. Logic Functions - Input

This section describes the input parameters of the logical association module of the Interra KNX presence sensor.

Parameters must be configured separately for each logic block.

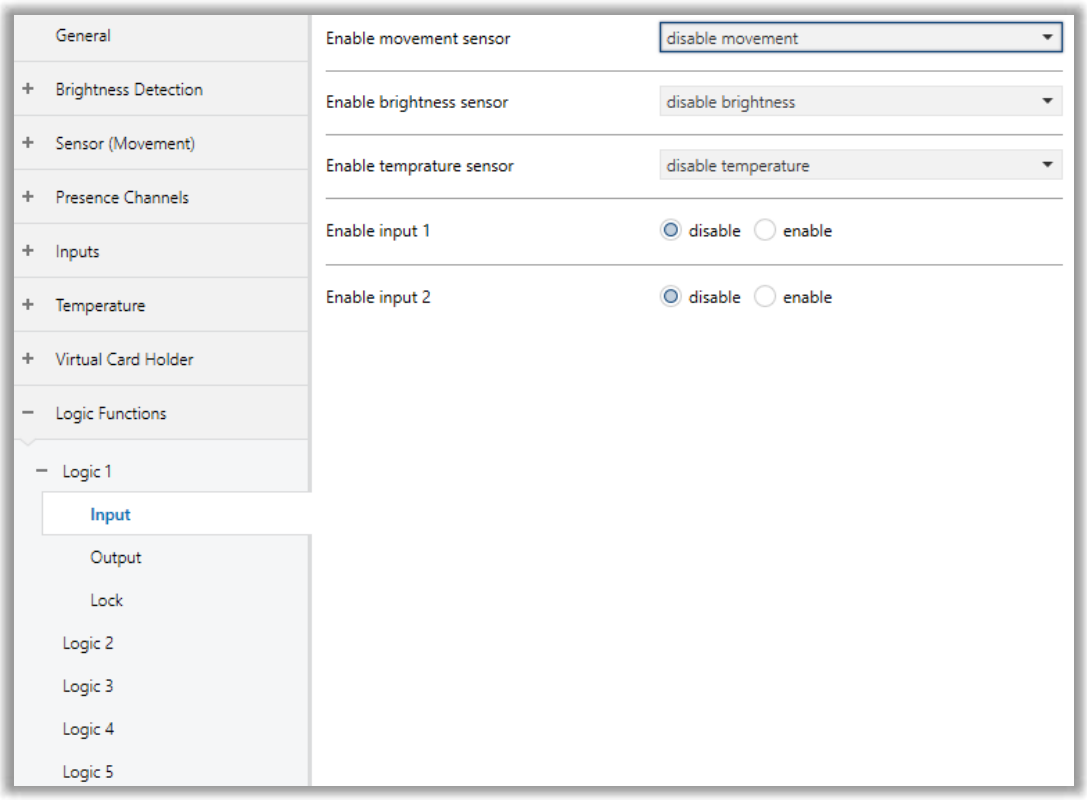


Fig. 34 : Logic Functions – Input

3.8.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Enable Movement Sensor	This parameter is used to enable or disable the movement sensor: **Internal movement**: The internal movement sensor will be used as movement logic input. **External movement**: The external movement information will be used for movement detection.	**Disable movement** Internal movement External movement
-> Internal Movement Sensor Status	This parameter is used to determine when the internal movement sensor detects a movement is accounted as TRUE or FALSE.	Movement sensor detected is FALSE else is TRUE **Movement sensor detected is TRUE else is FALSE**
Enable Brightness Sensor	This parameter is used to enable or disable the brightness sensor. **Internal Brightness** : The internal brightness sensor will be used as brightness logic input. **External Brightness** : The external brightness sensor will be used as brightness logic input.	**Disable Brightness** Internal Brightness External Brightness
-> Threshold brightness lower	This parameter is used to determine the lower threshold brightness value.	1…**100**…1200
-> Threshold brightness upper	This parameter is used to determine the upper threshold brightness value.	1…**300**…1200
-> Brightness status	This parameter is used to determine when the ambient brightness value is accounted as TRUE or FALSE.	**In range is TRUE, else FALSE** Out range is TRUE, else FALSE Under lower is TRUE, above upper is FALSE Under lower is FALSE, above upper is TRUE
-> Change brightness threshold via bus	This parameter is used to change the brightness threshold value via a KNX bus object.	**No** yes

Enable Temperature Sensor	This parameter is used to enable or disable the temperature sensor. **Temperature**: The temperature chosen in the sensor's temperature function. **KNX temperature**: The external temperature sensor will be used as temperature logic input.	**Disable Temperature** Internal temperature External temperature
-> Threshold temperature upper	This parameter is used to determine the lower threshold temperature value.	**-**300…**260**…700
-> Threshold temperature lower	This parameter is used to determine the upper threshold temperature value.	-300…**220**…700
-> Temperature status	This parameter is used to determine when the ambient temperature value is accounted as TRUE or FALSE.	**In range is TRUE, else FALSE** Out range is TRUE, else FALSE Under lower is TRUE, above upper is FALSE Under lower is FALSE, above upper is TRUE
-> Change temperature threshold via bus	This parameter is used to change the temperature threshold value via a KNX bus object.	**No** yes
Enable Input 1	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable
-> Select Input Source	This parameter is used to determine the input source as an internal or external object.	**External object** Internal object
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
->> External input type	This parameter is used to determine the external input type of the enabled input 1 object.	**1-bit value('1'/'0')** 1-byte value(0...255)

		2-byte threshold(0 …65535) 2-byte float threshold(-50C …100C) 4-byte threshold(0…4294967295)
->> External input status	This parameter is used to determine the input status as TRUE or FALSE according to the value. (This is visible if the input is selected as 1 bit)	**'1' is TRUE, '0' is FALSE** '1' is FALSE, '0' is TRUE
->> External Input value	This parameter is used to determine the external input threshold value to evaluate the input status as TRUE or FALSE.	0…**100**…255 0…**1000**…65535 -50…**0**…100 0…**10000**…4294967295
->> External input status	This parameter is used to determine the input status as TRUE or FALSE according to the value. (This is visible if the input is not selected as 1 bit)	**TRUE if input value >= threshold else FALSE** TRUE if input value <= threshold else FALSE
->> Default status after bus voltage recovery	This parameter is used to determine the logic status after bus voltage recovery.	**False** True recovery
Enable Input 2	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
-> Select Input Source	This parameter is used to determine the input source as an internal or external object.	**External object** Internal object
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE

->> External input type	This parameter is used to determine the external input type of the enabled input 2 object.	**1-bit value('1'/'0')** 1-byte value(0..255) 2-byte threshold(0…65535) 2-byte float threshold(-50C…100C) 4-byte threshold(0…4294967295)
->> External input status	This parameter is used to determine the input status as TRUE or FALSE according to the value. (This is visible if the input is selected as 1 bit)	**'1' is TRUE, '0' is FALSE** '1' is FALSE, '0' is TRUE
->> External Input value	This parameter is used to determine the external input threshold value to evaluate the input status as TRUE or FALSE.	0…**100**…255 0…**1000**…65535 -50…**0**…100 0…**10000**…4294967295
->> External input status	This parameter is used to determine the input status as TRUE or FALSE according to the value. (This is visible if the input is not selected as 1 bit)	**TRUE if input value >= threshold else FALSE** TRUE if input value <= threshold else FALSE
->> Default status after bus voltage recovery	This parameter is used to determine the logic status after bus voltage recovery.	**False** True recovery

3.8.3. Logic Functions – Output General

This section describes the general parameters of the logic output functions. The property of each respective output channel is set by configuring the parameters in this section. Also, repetitive sending of output values can be set here.

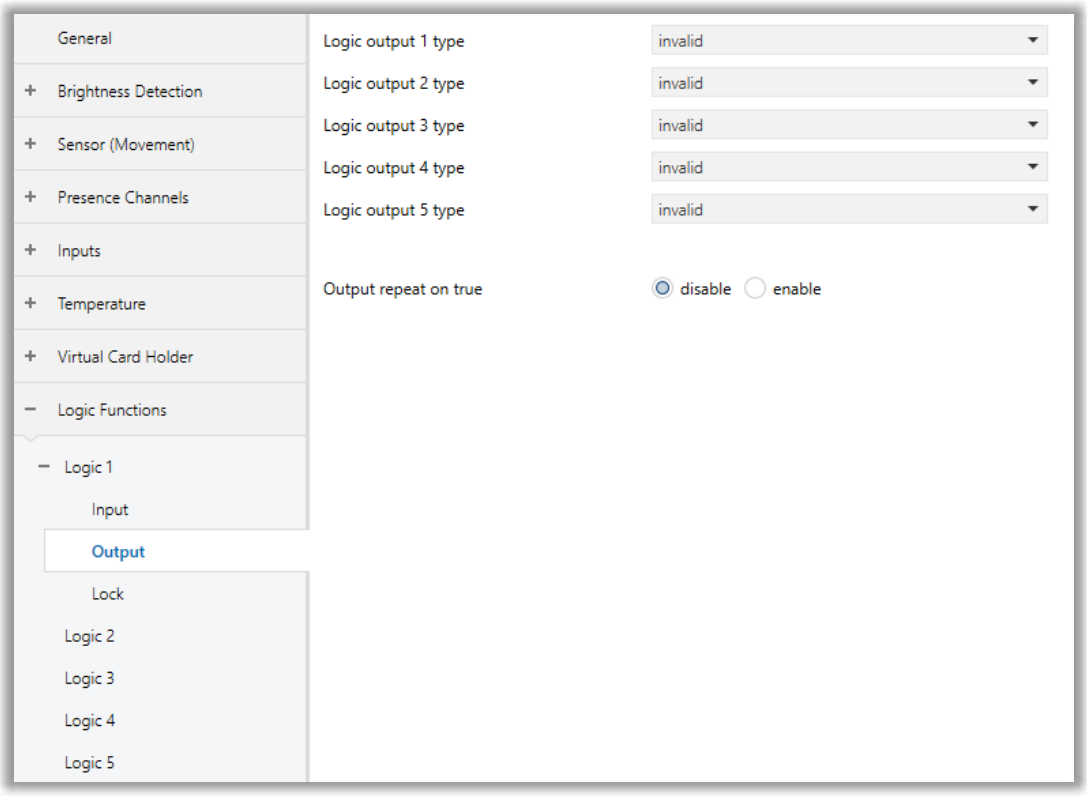


Fig. 35 : Logic Functions – Output General

3.8.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Logic Output X type (1...5)	This parameter is used to specify the related logic output x channel functionality. If this parameter is selected as invalid, the related output channel will not be used. Other selected options will be configured separately.	**Invalid** Switch controller Absolute dimming controller Shutter controller Alarm controller Percentage control. Sequence control. Scene controller String controller Threshold controller
Output repeat on true	This parameter is used to enable or disable the output repeating time for all output channels when the logic gate state is true.	**On telegram** Off telegram
-> Repeated time interval	This parameter is used to determine the repeated time for all enabled output channels to send output channel values when the logic gate state is true.	0…**120**…65535

3.8.4. Logic Functions – Outputs 1-5

This section describes parameter configurations for each logic output channel. Although the working principle is the same for all output channels, only the type of values to be sent changes depending on the selected output functionality. For this reason, parameters are described in a common table about only one feature.

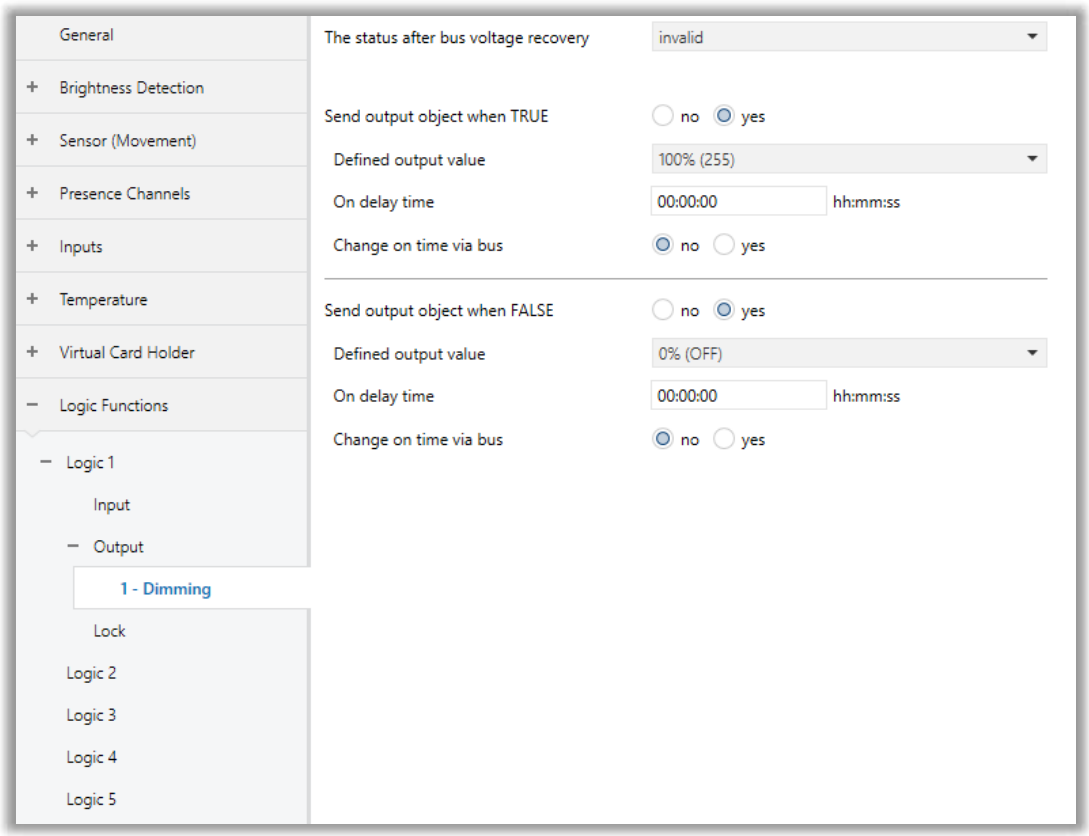


Fig. 36 : Logic Functions – Output: Dimming

3.8.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
The status after bus voltage recovery	This parameter is used to determine the logic output channel x status after bus voltage recovery.	**invalid** Recovery Defined
-> Recovery Defined Value	This parameter is used to determine the output channel x value when the bus voltage has been recovered.	**On**…Off **%0**…%100 **Up**…Down **No alarm**…alarm **Stop**…start **Scene no.1**…scene no64 14 bytes string 0…**1000**…65535
Send output object when TRUE	This parameter is used to enable or disable the sending output object when the logic gate is true.	**No** yes
-> Defined Output Value	This parameter is used to determine the logic output channel x defined value when the logic gate is true.	**On**…Off **%0**…%100 **Up**…Down **No alarm**…alarm **Stop**…start **Scene no.1**…scene no64 14 bytes string 0…**1000**…65535
-> On Delay Time	This parameter is used to determine the on-delay time of the related logic output channel x when the logic gate is true.	**00:00:00…18:12:15**
-> Change on Time Via Bus	This parameter is used to enable or disable the on-delay time object for changing the delay time on the true state.	**No** yes
Send output object when FALSE	This parameter is used to enable or disable the sending output object when the logic gate is false.	**No** yes

-> Defined Output Value	This parameter is used to determine the logic output channel x defined value when the logic gate is false.	**On**…Off **%0**…%100 **Up**…Down **No alarm**…alarm **Stop**…start **Scene no.1**…scene no64 14 bytes string 0…**1000**…65535
-> On Delay Time	This parameter is used to determine the on-delay time of the related logic output channel x when the logic gate is false.	**00:00:00…18:12:15**
-> Change on Time Via Bus	This parameter is used to enable or disable the on-delay time object for changing the delay time on the false state.	**No** yes

3.8.5. Logic Functions – Lock

In this section, the locking feature of the logic functions is mentioned. The locking feature is for each logic function gate and is configured separately. Since there are 5 different logic function gates in the KNX sensor device, a separate configuration is required for each. Since the parameter page for each section is the same, only 1 is explained in this section.

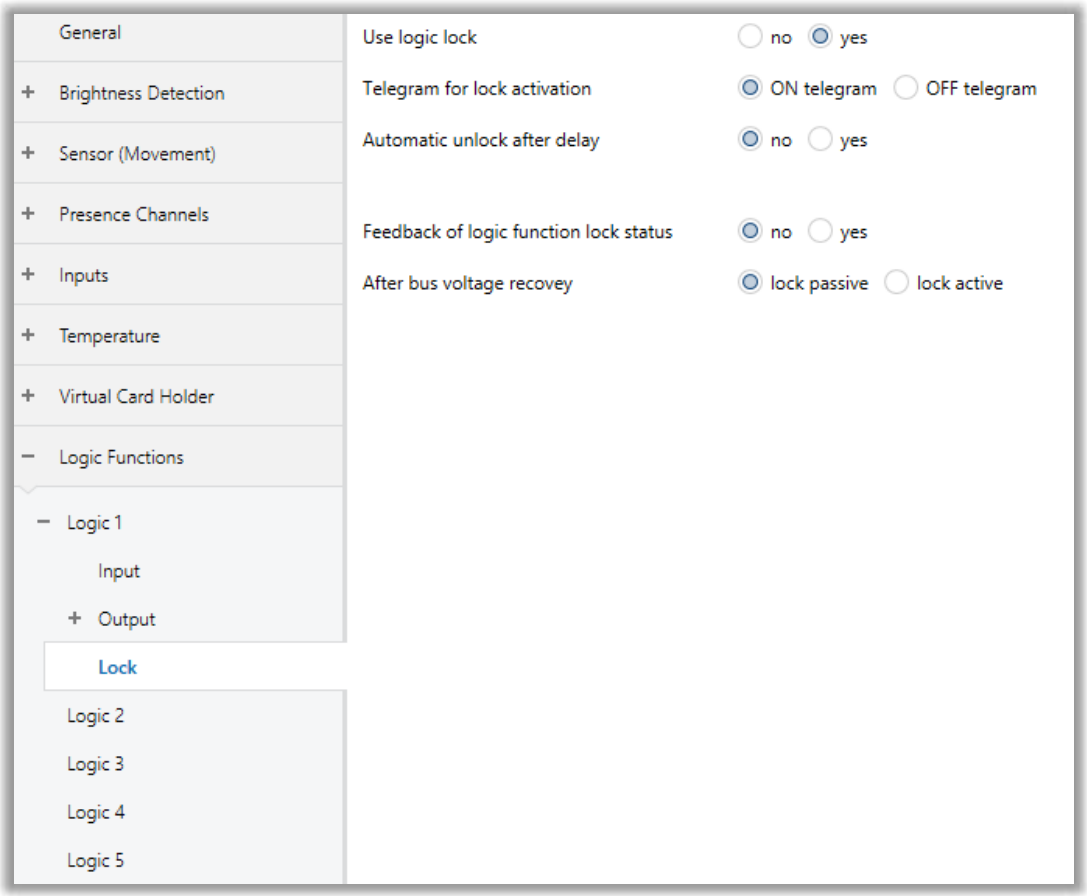


Fig. 37 : Logic Functions – Lock

3.8.5.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Use Logic Lock	This parameter is used to lock the related logic function gate.	**no** yes
Telegram for Lock Activation	This parameter is used to determine the telegram value that locks the related logic function gate.	**On telegram** Off telegram
Automatic Unlock After Delay	This parameter is used to enable or disable the automatic unlock to unlock the logic gate after a while.	**no** yes
Automatic unlock time	This parameter is used to determine the automatically unlock period to unlock the logic function gate.	00:00:05…**00:00:30** ...18:12:15
Feedback of logic function lock status	This parameter is used to enable or disable the feedback of the logic lock status object.	**No** yes
After Bus Voltage Recovery	This parameter is used to determine the logic function gate lock status after the bus voltage recovery.	**Lock Passive** Lock Active

4. ETS Objects List & Descriptions

The Interra KNX Presence Sensors can communicate via the KNX bus line. In this section, the group objects of the Interra KNX Presence Sensors are described. All of the communication objects listed below are available to the presence detector. Which of these group objects are visible and capable of being linked with group addresses are explained in sub-sections.

No	Name	Function	DTP Type	Length	Flags				
					C	R	W	T	U
1	General	In operation	1.002	1 bit	X			X	
2	General	LED indicator	1.003	1 bit	X	X	X	X	
3	General	Movement Sensor 1	1.001	1 bit	X	X		X	
4	General	Movement Sensor 2	1.001	1 bit	X	X		X	
5	General	Movement Sensor 3	1.001	1 bit	X	X		X	
10	Input x: Switch function	Block	1.003	1 bit	X		X		
	Input x: Switch/Dim function				X		X		
	Input x: Shutter function				X		X		
	Input x: Value/Forced op.				X		X		
	Input x: Scene function				X		X		
	Input x: RGB control				X		X		
11	Input x: Switch function	Switch	1.001	1 bit	X			X	
	Input x: Switch/Dim function	Switch	1.001	1 bit	X			X	
	Input x: Shutter function	Up/Down	1.008	1 bit	X		X	X	

	Input x: Value/Forced op.	Value-1, switch	1.001	1 bit	X			X	
	Input x: Value/Forced op.	Value-1, forced operation	2.001	2 bits	X			X	
	Input x: Value/Forced op.	Value-1, unsigned	5.010	1 byte	X			X	
	Input x: Value/Forced op.	Value-1, unsigned	8.001	2 bytes	X			X	
	Input x: Value/Forced op.	Value-1, signed	7.001	2 bytes	X			X	
	Input x: Value/Forced op.	Value-1, floating point	9.001	2 bytes	X			X	
	Input x: Value/Forced op.	Value-1, unsigned	12.001	4 bytes	X			X	
	Input x: Scene function	8-bit Scene	18.001	1 byte	X			X	
	Input x: RGB control	Red colour	5.010	1 byte	X	X		X	
		RGB colour	232.600	3 bytes					
12	Input x: Switch function	Switch-long	1.001	1 bit	X		X	X	
	Input x: Switch/Dim function	Dimming	3.007	4 bits	X			X	
	Input x: Shutter function	Stop/Slat adjustment	1.007	1 bit	X			X	
	Input x: Value/Forced op.	Value-2, switch	1.001	1 bit	X			X	
	Input x: Value/Forced op.	Value-2, forced operation	2.001	2 bits	X			X	
	Input x: Value/Forced op.	Value-2, unsigned	5.010	1 byte	X			X	

	Input x: Value/Forced op.	Value-2, unsigned	8.001	2 bytes	X			X	
	Input x: Value/Forced op.	Value-2, signed	7.001	2 bytes	X			X	
	Input x: Value/Forced op.	Value-2, floating point	9.001	2 bytes	X			X	
	Input x: Value/Forced op.	Value-2, unsigned	12.001	4 bytes	X			X	
	Input x: Scene function	Store scene	1.003	1 bit	X		X	X	
	Input x: RGB control	Green colour	5.010	1 byte	X	X		X	
13	Input x: Shutter function	Upper limit operation	1.002	1 bit	X		X		
	Input x: RGB control	Blue colour	5.010	1 byte	X	X		X	
14	Input x: Shutter function	Lower limit operation	1.002	1 bit	X		X		
15-19	Input a...b								
20	Additional Prob	Lock	1.003	1 bit	X		X		
21	Additional Prob	Temperature	9.001	2 bytes	X	X		X	
25	Brightness	Measured value	9.004	2 bytes	X	X		X	
26	Brightness	Calibration value	9.004	2 bytes	X		X		
27	Sensor	Lock	1.003	1 bit	X		X		
28	Sensor	Presence output	1.001	1 bit	X		X	X	X
			5.001	1 byte					
29	Sensor	Light-on time	7.005	2 bytes	X		X		X
30	Sensor	External Movement(Slave)	1.001	1 bit	X		X		X
31	Sensor	External brightness	9.004	2 bytes	X		X		X
32	Sensor	Brightness-value threshold	9.004	2 bytes	X	X	X	X	X
33	Presence 1	Lock	1.003	1 bit	X		X		X
34	Presence 1	Presence output	1.001	1 bit	X		X	X	X
			5.001	1 byte					

35	Presence 1	Light-on time	7.005	2 bytes	X		X		X
36	Presence 1	External movement	1.001	1 bit	X		X		
37	Presence 1	External brightness	9.004	2 bytes	X		X		
38	Presence 1	Brightness-value threshold	9.004	2 bytes	X	X	X	X	X
39	Presence 1	Manual on/off	1.001	1 bit	X		X		
40	Presence 1	Relative dimming	3.007	4 bits	X		X		X
41	Presence 1	Absolute dimming	5.001	1 byte	X		X		X
42	Presence 1	Status of control	1.001	1 bit	X	X		X	
43	Presence 1	Forced operation	1.010	1 bit	X	X	X		X
			2.001	2 bits	X	X	X		X
44	Presence 1	Forced operation value	5.001	1 byte	X	X	X		X
45-84	Presence 2...4								
85	Temperature	Alarm	1.005	1 bit	X	X		X	
86	Temperature	Actual Temperature	9.001	2 bytes	X	X		X	
87	Temperature	KNX Probe Temperature	9.001	2 bytes	X		X		
88	Virtual Holder	Room Booked	1.002	1 bit	X		X		
89	Virtual Holder	Presence Output	1.002	1 bit	X	X		X	
90	Virtual Holder	Unexpected Presence			X	X		X	
91	Virtual Holder	HVAC Output	20.102	1 byte	X	X		X	
92	Virtual Holder	Additional Output	5.001	1 byte	X			X	
93	Virtual Holder	Remote Input 1	1.002	1 bit	X		X		
94	Virtual Holder	Remote Input 2	1.002	1 bit	X		X		
95	Logic x:	Block function	1.003	1 bit	X		X		
96	Logic x:	Feedback of block	1.003	1 bit	X	X		X	
97	Logic x: Input	External movement	1.001	1 bit	X		X	X	X
98	Logic x: Input	External brightness	9.004	2 bytes	X		X	X	X
99	Logic x: Input	Brightness threshold lower	9.004	2 bytes	X		X	X	X
100	Logic x: Input	Brightness threshold upper	9.004	2 bytes	X		X	X	X
101	Logic x: Input	External temperature	9.001	2 bytes	X		X		
102	Logic x: Input	Temperature threshold lower	9.001	2 bytes	X		X	X	X
103	Logic x: Input	Temperature threshold upper	9.001	2 bytes	X		X	X	X
104	Logic x: Input	External input-1 (1 bit)	1.001	1 bit	X		X		X
		External input-1 (1-byte threshold)	5.004	1 byte	X		X		X
		External input-1 (2 bytes threshold)	7.001	2 bytes	X		X		X

		External input-1 (2 bytes float threshold)	9.001	2 bytes	X		X		X
		External input-1 (4 bytes threshold)	7.001	4 bytes	X		X		X
105	Logic x: Input	External input-2 (1 bit)	1.001	1 bit	X		X		X
		External input-2 (1-byte threshold)	5.004	1 byte	X		X		X
		External input-2 (2 bytes threshold)	7.001	2 bytes	X		X		X
		External input-2 (2 bytes float threshold)	9.001	2 bytes	X		X		X
		External input-2 (4 bytes threshold)	7.001	4 bytes	X		X		X
106	Logic x: Output	Result status	1.002	1 bit	X	X		X	
107	Logic x: Output: y	Switch	1.001	1 bit	X	X		X	
		Dimming	3.007	4 bits	X	X		X	
		Shutter	1.008	1 bit	X	X		X	
		Alarm	1.005	1 bit	X	X		X	
		Percentage	5.001	1 byte	X	X		X	
		Sequence	1.010	1 bit	X	X		X	
		Scene recall	17.001	1 byte	X	X		X	
		String (14 bytes)	16.000	14 bytes	X	X		X	
		Threshold	7.001	2 bytes	X	X		X	
108	Logic x: Output: y	Delay time on the TRUE state	7.005	2 bytes	X		X	X	
109	Logic x: Output: y	Delay time on FALSE state	7.005	2 bytes	X		X	X	
109 - 153	Logic 2...5								

4.1. General Objects

This section describes the "general" group objects and their properties. General group objects, as the name suggests, indicate the general characteristics of the KNX Presence Sensor.

Object Name	Function	Type	Flags
General	In operation	1 bit	CT
This object is used to monitor the presence of the device on the KNX bus line regularly. However, monitoring telegrams can be sent cyclically on the KNX bus line. **DPT** : 1.002 (boolean)			
General	LED Indicator	1 bit	CRWT
This object is used in place of the blue LED used to indicate that motion detection has occurred. When a motion in the detector's sensing angle is detected by the sensor, a 1-bit telegram is sent over this object. This object is usually used during installation to quickly and easily determine the detection range of the sensor. **DPT** : 1.003 (enable)			

4.2. Brightness Objects

This section describes the "brightness" group objects and their properties. Brightness group objects, as the name suggests, indicates the brightness configuration of the KNX Presence Sensor. Brightness sensor objects are directly related to both the sensor and presence channels.

Object Name	Function	Type	Flags
Brightness	Measured value	2 bytes	CRT
This object is used to send the values measured by the brightness sensor on the detector to the KNX bus line. Depending on the parameter configuration, the measured data can be sent to the bus line periodically or according to the amount of change. **Note**: Brightness sensor calibration is required for the measurements to be healthier and more accurate. **DPT** : 9.004 (lux)			
Brightness	Calibration Value	2 bytes	CW
This object is used for brightness sensor calibration. In general, sensor calibration is required to accurately measure the ambient brightness by the detector. In the environment where the sensor is installed, a suitable reference point is selected (for example, right under the sensor) and the ambient brightness is measured with a lux meter. Then, the measured value is sent to this calibration object as the value and the calibration process is completed. **DPT** : 9.004 (lux)			

4.3. Sensor

This section contains information about KNX objects and their properties related to the sensor channel. The types, flags and properties of the objects are explained in detail below.

Object Name	Function	Type	Flags
Sensor	Lock	1 bit	CW

This object is used to lock the sensor channel. It becomes visible when the "use sensor lock" parameter is set to yes. Depending on the parameter setting, when an ON or OFF telegram is sent to this object, the corresponding presence channel is locked.

For example, when "ON telegram" is selected in the parameter page for locking, it will be locked when an ON telegram is received from the KNX bus line, and when an OFF telegram is received, the sensor channel will be unlocked. Depending on the parameter configuration, an output value can also be sent when the locking operation is performed.

DPT : 1.003 (enable)

Sensor	Presence output	1 bit 1 byte	CWTU

This object is used to determine the output value of the sensor channel. The parameterized value during movement is sent to the actuator via the output when the parameterized brightness threshold including the hysteresis is exceeded or falls short. The value set in the "value for switch on" parameter is sent to the KNX bus line when detection occurs. After the detection process is finished (i.e., after the light-on time expires), the "value for switch off" value is sent to the KNX bus line.

If the "detection independent of brightness" parameter is set to yes, the output value is sent to the KNX bus line when a motion is detected regardless of the ambient brightness.

DPT : 1.001 (switch), 5.001 (percentage)

Sensor	Light-on time	2 bytes	CWU

This object is used to change the duration of the sensor channel light-on time. The light-on time is the time between the end of motion detection and the sending of the telegram "Value for switch off". If movement is detected again within this period, the light-on time timer is started again. When a 2-byte time value is sent from the KNX bus line, this sent value will be used instead of the light-on time set via the parameter. Until a new time value is sent to this object, the last value sent will be used as the light-on period.

Note : The values which can be sent are between **10-65535** seconds. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 7.005 (time)

Sensor	Slave input	1 bit	CWU

This object is used to obtain presence information from detectors set as slaves. When the ON telegram comes to this object over the KNX bus line, the master detector decides 'motion detected' and takes the necessary actions. Typically, the output object of the detectors set as the slave is connected to the slave input object of the master detector. With this method, the detection area to be controlled can be expanded.

DPT : 1.001 (switch)

Sensor	External brightness	2 bytes	CWU

This object is used to send the brightness value to the detector’s sensor channel via external sources. The value read on this object is compared with the brightness value threshold and operations are performed by the detector. For instance, if the brightness value is higher or lower than the hysteresis band, the detector will switch the lights.

Note: If the brightness value will be used over external sources, it is recommended to send the ambient brightness values to this object periodically so that the detector can make accurate evaluations.

DPT : 9.004 (lux)

Sensor	Brightness-value threshold	2 bytes	CRWTU

This object is used to change the switching threshold for the sensor channel, at which the detector is activated. The value is sent to this object in lux. This value is used as the new switching threshold. The current switching threshold can be read via this communication object. Until a new brightness threshold value is sent to this object, the last value sent will be used as the brightness-value threshold.

Note : The values which can be sent are between **1-1200** lux. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 9.004 (lux)

4.4. Presence

This section contains information about KNX objects and their properties related to the sensor channel. The types, flags and properties of the objects are explained in detail below. There are 4 presence channels with identical features in the KNX presence sensor. For this reason, only objects for presence 1 channel are described in this section. These objects and their descriptions can be referenced when the other channels will be used.

Object Name	Function	Type	Flags
Presence 1	Lock	1 bit	CWU
This object is used to lock the presence channel. It becomes visible when the "use presence lock" parameter is set to yes. Depending on the parameter setting, when an ON or OFF telegram is sent to this object, the corresponding presence channel is locked. For example, when "ON telegram" is selected in the parameter page for locking, it will be locked when an ON telegram is received from the KNX bus line, and when an OFF telegram is received, the presence channel will be unlocked. Depending on the parameter configuration, an output value can also be sent when the locking operation is performed. **DPT** : 1.003 (enable)			
Presence 1	Presence output	1 bit 1 byte	CWTU
This object is used to determine the output value of the present channel. The parameterized value during movement is sent to the actuator via the output when the parameterized brightness threshold including the hysteresis is exceeded or falls short. The value set in the "value for switch on" parameter is sent to the KNX bus line when detection occurs. After the detection process is finished (i.e., after the light-on time expires), the "value for switch off" value is sent to the KNX bus line. If the application is selected as Constant Light Switch and If the "detection independent of brightness" parameter is set to yes, the output value is sent to the KNX bus line when a motion is detected regardless of the ambient brightness. If the Application Constant Light Controller is selected and the “Presence depending” parameter is set to no, the output value according to the brightness threshold is sent to the KNX bus line regardless of motion detection.			

DPT : 1.001 (switch), 5.001 (percentage)

Presence 1	Light-on time	2 bytes	CWU

This object is used to change the duration of the presence channel light-on time. The light-on time is the period between the end of motion detection and the sending of the telegram "Value for switch off". If movement is detected again within this period, the light-on time timer is started again. When a 2-byte time value is sent from the KNX bus line, this sent value will be used instead of the light-on time set via the parameter. Until a new time value is sent to this object, the last value sent will be used as the light-on period.

Note : The values which can be sent are between **10-65535** seconds. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 7.005 (time)

Presence 1	External movement	1 bit	CW

This object is used to inform the detector by external sources that a movement has occurred in the environment to be controlled by the detector. For this object to be visible, the "used movement detection" parameter must be selected "internal and external". When the ON telegram comes to this object from the KNX bus line, the detector determines motion detection and performs the relevant actions.

For instance, this object can be used when detectors are installed that will operate as a master-slave in the same environment. Typically, the output of sensors operating in slave mode is connected to this object of the sensor operating in master mode. Thus, the detection distance to be controlled is extended.

DPT : 1.001 (switch)

Presence 1	External brightness	2 bytes	CW

This object is used to send the brightness value to the detector’s related presence channel via external sources. The value read on this object is compared with the brightness value threshold and operations are performed by the detector. For instance, if the brightness value is higher or lower than the hysteresis band, the detector will be dim or switch the lights (according to application : constant light control or constant light switch).

Note: If the brightness value will be used over external sources, it is recommended to send the ambient brightness values to this object periodically so that the detector can make accurate evaluations.

DPT : 9.004 (lux)

Presence 1	Brightness-value threshold	2 bytes	CRWTU

This object is used to change the switching threshold for the related presence channel, at which the detector is activated. The value is sent to this object in lux. This value is used as the new switching threshold. The current switching threshold can be read via this communication object. Until a new brightness threshold value is sent to this object, the last value sent will be used as the brightness-value threshold.

Note : The values which can be sent are between **1-1200** lux. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 9.004 (lux)

Presence 1	Manual on/off	1 bit	CW

This object is used to dim the lights manually to on (value for switch on) and off (value for switch off) values. The object becomes visible when the "Enable 'Manual on/off' object" parameter in the input section of the presence page is selected as yes. When a telegram is sent to this object via the KNX bus, the constant light control will be disabled until the manual dim mode time expires. After the detector exits the manual mode, if there is no presence detection in the relevant environment, the value set in the "value for switch off" parameter is sent to the KNX bus line through the output object.

Note : The dimming operation will proceed according to the “Dimming time for manual from 0…%100 (0 = immediately)” parameter.

DPT : 1.001 (switch)

Presence 1	Relative dimming	4 bits	CWU

This object is used to dim manually with the relative dim method. The object becomes visible when the "Enable 'Relative dimming' object" parameter in the input section of the presence page is selected as yes. When a telegram is sent to this object via the KNX bus, the constant light control will be disabled until the manual dim mode time expires. After the detector exits the manual mode, if there is no presence detection in the relevant environment, the value set in the "value for switch off" parameter is sent to the KNX bus line through the output object.

Possible object values : %1, %3, %6, %12, %25, %50, %100 (increase or decrease direction)

Note : The dimming operation will proceed according to the “Dimming time for manual from 0…%100 (0 = immediately)” parameter.

DPT : 3.007 (dimming control)

Presence 1	Absolute dimming	1 byte	CWU

This object is used to dim manually with the absolute dim method. The object becomes visible when the "Enable 'Absolute dimming' object" parameter in the input section of the presence page is selected as yes. When a telegram is sent to this object via the KNX bus, the constant light control will be disabled until the manual dim mode time expires. After the detector exits the manual mode, if there is no presence detection in the relevant environment, the value set in the "value for switch off" parameter is sent to the KNX bus line through the output object.

Possible object values : %0…%100

Note : The dimming operation will proceed according to the “Dimming time for manual from 0…%100 (0 = immediately)” parameter.

DPT : 5.001 (percentage)

Presence 1	Status of control	1 bit	CRT

This object is used to detect whether the detector is operating in manual or automatic mode. During the mode transitions, the detector sends a telegram to the KNX bus line through this object. Sending an ON telegram to the KNX bus line means that the detector is in automatic mode, sending an OFF telegram means that the detector is in manual mode.

DPT : 1.001 (switch)

Presence 1	Forced operation	1 bit 2 bits	CRWU

This object is used to force the detector operating in constant light control mode out of this mode and to stay it at a constant output value. For example, when an ON telegram is sent to the object selected as 1 bit via KNX, the detector will exit the constant light control mode and transmit the value determined through the "Brightness value when forced activated" parameter to the output object and the detector switches to forced status. An OFF telegram must be sent to this object to activate the constant light control again and remove the detector from this forced state.

DPT : 2.001 (switch control)

Presence 1	Forced operation value	1 byte	CRWU

This object is used to determine what the fixed output value will be when the detector is forced out of constant light control mode and remains at a constant output value. When a telegram is sent to this object via KNX, the new forcing state brightness value will now be this value instead of the value in the "Brightness value when forced activated" parameter. Until a new value is sent, the last sent value is used as the forced status constant output value.

DPT : 5.001 (percentage)

4.5. Inputs

This section contains information about KNX objects and their properties related to the input channels. The types, flags and properties of the objects are explained in detail below. There are 2 digital inputs channels with the same functionality and an additional probe channel. In this section, digital inputs objects are described only for one channel due to the identical.

Object Name	Function	Type	Flags
Input x	Block	1 bit	CW
This object is used to lock the sensor channel. It becomes visible when the "use sensor lock" parameter is set to yes. Depending on the parameter setting, when an ON or OFF telegram is sent to this object, the corresponding presence channel is locked. For example, when "ON telegram" is selected in the parameter page for locking, it will be locked when an ON telegram is received from the KNX bus line, and when an OFF telegram is received, the sensor channel will be unlocked. Depending on the parameter configuration, an output value can also be sent when the locking operation is performed. **DPT** : 1.003			
Input x: XXX function	YYY operation	1 bit / 2 bit / 1 byte / 2 byte / 3 byte / 4 byte	CT / CWT / CRT
This communication object changes in functionality depending on the selected input function. Depending on the configuration, the data type of this object changes. RGB colour value adjustment, switching, blind control, value/force value determination, scenario call operations can be performed on this object. **DPT** : According to parameter selection			
Input x: XXX function	YYY operation	1 bit / 1 byte / 2 byte / 3 byte	CW / CWT / CT / CRT
This communication object changes in functionality depending on the selected input function. Depending on the configuration, the data type of this object changes. Switching, dimming, lamella adjustment, scenario saving, RGB colour value adjustment, blind control, value/force value determination, scenario call operations can be performed on this object.			

DPT : According to parameter selection

Input x: Shutter function /RGB control	Upper limit operation / Blue colour	1 bit / 1 byte	CWU

This object is used to make upper limit operation for shutter usage or set blue colour setting. According to the input configuration on the ETS parameter page, the object usage changes. If the shutter function is selected, '0' is no upper limit operation, '1' upper-end operation. If the RGB control is selected, a 1-byte blue colour value is set via this object.

DPT : 1.001 / 5.010

Input x: Shutter function	Lower limit operation	1 bit	CWU

This object is used for the shutter actuator indicates if it is in the lower limit position ("shutter/blind closed"). The object is intended for a 1-button operation. '0' is no lower limit operation, '1' lower end operation.

Note: If the brightness value will be used over external sources, it is recommended to send the ambient brightness values to this object periodically so that the detector can make accurate evaluations.

DPT : 1.002

Additional Probe	Lock	1 bit	CW

This object is used to lock the external probe that is connected to the analog input of the KNX presence sensor. According to the ETS parameter configuration, '1' or '0' values can lock or unlock the Additional Probe.

DPT : 1.003

Additional Probe	Temperature	2 bytes	CRT

This object is used to send temperature values to the KNX bus line. The temperature value can be also sent to the KNX bus line periodically or according to the configured variation parameter.

Note: For more accurate results, the NTC sensor parameter values and sensor calibration should be configured correctly

DPT : 9.001

4.6. Temperature

This section contains information about KNX objects and their properties related to the temperature channel. The types, flags and properties of the objects are explained in detail below.

Object Name	Function	Type	Flags
Temperature	Alarm	1 bit	CRT
This object is used to send the alarm temperature value calculated by the KNX Presence Sensor to the KNX bus line. Also, temperature measuring sources (internal, external and KNX) can be configured via ETS parameters. **Note**: Temperature sensor calibration is required for the measurements to be healthier and more accurate. **DPT** : 1.005			
Temperature	Actual Temperature	2 bytes	CRT
This object is used to send the actual temperature value calculated by the KNX Presence Sensor to the KNX bus line. Depending on the parameter configuration, the measured data can be sent to the bus line periodically or according to the amount of change. Also, temperature measuring sources can be configured via ETS parameters. **Note**: Temperature sensor calibration is required for the measurements to be healthier and more accurate. **DPT** : 9.001			
Temperature	KNX Probe Temperature	2 bytes	CW
This object is used to receive the temperature value from the KNX bus line. This value can be used as a single temperature source or mixing part for the temperature calculation by the KNX Presence sensor. **DPT** : 9.001			

4.7. Virtual Card Holder

This section contains information about KNX objects and their properties related to the virtual cardholder channel. The types, flags and properties of the objects are explained in detail below.

Object Name	Function	Type	Flags
Virtual Holder	Room Booked	1 bit	CW
This object is used to receive the room booked information. By setting this communication object to “1” the status of the virtual holder is set to “room booked”; when set to “0” the status is “room not booked”. The virtual holder module can have different behaviour if the room is booked or not; the default value for this status can be set using the “Booked state after download” parameter. **DPT** : 1.002			
Virtual Holder: Output	Presence Output	1 bit	CRT
This object is used to receive the room booked information. By setting this communication object to “1” the status of the virtual holder is set to “room booked”; when set to “0” the status is “room not booked”. The virtual holder module can have different behaviour if the room is booked or not; the default value for this status can be set using the “Booked state after download” parameter. **DPT** : 1.002			
Virtual Holder: Output	Unexpected Presence	1 bit	CT
This object is used to send “1” when the sensor detects an unexpected Presence. **DPT** : 1.005			
Virtual Holder: Output	Additional Output	1 byte	CT
This object is used to send commands in event of presence and absence. Commands can be set different if the room is booked or not and if the person who enters the room is a guest, service or maintenance. **DPT** : 5.010			
Virtual Holder: Remote Input 1	Door / Presence	1 bit	CW

This object is used when you need to consider 2 adjacent rooms as separated or joined as if they were a single room (suite room). This possibility must be considered during installation, so communication objects must be connected as described below if you want to switch runtime from one configuration (2 single rooms) to another (one double room) and vice versa.

Note : A Remote Input communication object (type door) must be connected only to one single door contact on/off a telegram.

A Remote Input communication object (type presence) must be connected only to one single device with a presence on/off a telegram.

DPT : 1.002

Virtual Holder: Remote Input 2	Door / Presence	1 bit	CW

This object is used when you need to consider 2 adjacent rooms as separated or joined as if they were a single room (suite room). This possibility must be considered during installation, so communication objects must be connected as described below if you want to switch runtime from one configuration (2 single rooms) to another (one double room) and vice versa.

Note : A Remote Input communication object (type door) must be connected only to one single door contact on/off a telegram.

A Remote Input communication object (type presence) must be connected only to one single device with a presence on/off a telegram.

DPT : 1.002

4.8. Logic Function

This section contains information about KNX objects and their properties related to the logic function channels. The types, flags and properties of the objects are explained in detail below. There are 5 identical logic channels in the KNX Presence sensor, so only one logical channel is described here. The x values can be between 1…5 and y values also can be 1…5. Please do not forget to take this into account.

Object Name	Function	Type	Flags
Logic x:	Block function	1 bit	CW
This object is used to lock the related logic channel x. It becomes visible when the "use logic lock" parameter is set to yes. Depending on the parameter setting, when an ON or OFF telegram is sent to this object, the corresponding logical channel is locked. For example, when "ON telegram" is selected in the parameter page for locking, it will be locked when an ON telegram is received from the KNX bus line, and when an OFF telegram is received, the logic channel will be unlocked. **DPT** : 1.003			
Logic x:	Feedback of block	1 bit	CRT
This object is used to send feedback on the lock status for the related logic channel x. It becomes visible when the "use logic lock" parameter is set to yes. If a status change occurs on the lock function, the changed statue value will be sent from this object. **DPT** : 1.003			
Logic x: Input	External movement	1 bit	CW
This object is used to receive movement information from the KNX bus line. According to the ETS parameter configuration, the ‘0’ or ‘1’ value is accounted as there is a movement detection occurs. **DPT** : 1.001			
Logic x: Input	External brightness	2 bytes	CWTU
This object is used to obtain a brightness value from the KNX bus line. The received brightness value will be used to evaluate the input status according to the brightness thresholds.			

DPT : 9.004

Logic x: Input	Brightness threshold lower	2 bytes	CWTU

This object is used to receive the brightness threshold lower value from the KNX bus line. The value read on this object is will be used as a new brightness threshold lower value. This object becomes visible when the "Change brightness threshold via bus" parameter is set to yes

Note : The values which can be sent are between **1-1200** lux. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 9.004

Logic x: Input	Brightness threshold upper	2 bytes	CWTU

This object is used to receive the brightness threshold upper value from the KNX bus line. The value read on this object is will be used as a new brightness threshold upper value. This object becomes visible when the "Change brightness threshold via bus" parameter is set to yes

Note : The values which can be sent are between **1-1200** lux. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 9.004

Logic x: Input	External temperature	2 bytes	CW

This object is used to obtain temperature values from the KNX bus line. The received temperature value will be used to evaluate the input status according to the temperature thresholds.

DPT : 9.001

Logic x: Input	Temperature threshold lower	2 bytes	CWTU

This object is used to receive the temperature threshold lower value from the KNX bus line. The value read on this object is will be used as a new temperature threshold lower value. This object becomes visible when the "Change temperature via bus" parameter is set to yes

Note : The values which can be sent are between **-30 ˚C - 70 ˚C**. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 9.001

Logic x: Input	Temperature threshold upper	2 bytes	CWTU

This object is used to receive the temperature threshold upper value from the KNX bus line. The value read on this object is will be used as a new temperature threshold upper value. This object becomes visible when the "Change temperature via bus" parameter is set to yes

Note : The values which can be sent are between **-30 ˚C - 70 ˚C**. If a value that is too small or too large is sent, the value is automatically adjusted to the limit value.

DPT : 9.001

Logic x: Input	External input-1	1 bit / 1 byte / 2 byte / 4 byte	CWU

This object is used to obtain external input 1 information from the KNX bus line. According to the ETS parameter configuration, the received values are accounted as TRUE or FALSE for this external input. For 1 bit configuration, there is only '1' or '0' values for calculating the input status. But for other input (such as 1 byte, etc.) the received value is compared to the external input value parameter.

DPT : According to parameter selection, DPT changes.

Logic x: Input	External input-2	1 bit / 1 byte / 2 byte / 4 byte	CWU

This object is used to obtain external input 2 information from the KNX bus line. According to the ETS parameter configuration, the received values are accounted as TRUE or FALSE for this external input. For 1 bit configuration, there is only '1' or '0' values for calculating the input status. But for other input (such as 1 byte, etc.) the received value is compared to the external input value parameter.

DPT : According to parameter selection, DPT changes.

Logic x: Output	Result status	1 bit	CT

This object is used to send the related logic function block's result status to the KNX bus line. According to the ETS parameter configuration, this value can be sent periodically, on change or only configured value(TRUE or FALSE).

DPT : 1.002

Logic x: Output: y	Switch …. Threshold	1 bit / 1 byte / 2 bytes	CRT

This object is used to send the related output object's value to the KNX bus line. When the logic function block's status changes, the sending value also can be configured separately. In addition, according to the output type, the object's value type will be changed.

DPT : According to parameter selection

Logic x: Output: y	Delay time on the TRUE state	2 bytes	CWT

This object is used to receive the 'delay time on TRUE state' value from the KNX bus line. When a new value is received from this object, the received value is used as the output on delay time for the TRUE state value. The configured parameter value will not be used anymore. This object becomes visible when the "Change on time via bus" parameter is set to yes

DPT : 7.005

Logic x: Output: y	Delay time on FALSE state	2 bytes	CWT

This object is used to receive the 'delay time on FALSE state' value from the KNX bus line. When a new value is received from this object, the received value is used as the output on delay time for the FALSE state value. The configured parameter value will not be used anymore. This object becomes visible when the "Change on time via bus" parameter is set to yes

DPT : 7.005

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