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CERTIFIED R&D CENTER OF AUTOMATION

Developer of Uniqueness

ITR415-XXX – KNX Presence Sensors

Product Manual



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1. CONTENT OF THE DOCUMENT

This document contains Interra ITR415-XXX coded KNX Presence Sensor devices' electronic and all essential feature information for programming the products. In each subtitle is explained about 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 ITR415-001 Mid-Range KNX Presence Sensor, ITR415-002 Mid-Range Plus KNX Presence Sensor, ITR415-003 Wide-Range KNX Presence Sensor, ITR415-004 High Bay KNX Presence Sensor and ITR415-005 High Bay Plus KNX Presence Sensor. All of the models have same software functionality so, the features described in this document are applicable 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 installation, programming, commissioning and use of the devices with detailed information.

2. PRODUCT DESCRIPTION

ITR415-XXX series KNX Presence Sensor devices are the newest products of the Interra Technology. The Interra KNX Presence detectors are designed for using at mainly 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 telegram 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 and RGB color control (*).

Temperature measuring through integrated sensor with 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. (*)

Special Note



(*) : The features will be added in second version of the device.

2.1. TECHNICAL INFORMATION

Device	ITR415-001 Mid Range	ITR415-002 Mid Range Plus	ITR415-003 Wide Range	ITR415-004 High Bay	ITR415-005 High Bay Plus
Power Supply	21..30V DC	21..30V DC	21..30V DC	21..30V DC	21..30V 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	3 x Presence 1 x Brightness 5 x Logics	3 x Presence 1 x Brightness 5 x Logics	3 x Presence 1 x Brightness 5 x Logics	3 x Presence 1 x Brightness 5 x Logics	3 x Presence 1 x Brightness 5 x Logics
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 : IP44	Flush : IP 20 Surface : IP44	Flush : IP 20 Surface : IP44	Flush : IP 20 Surface : IP44	Flush : IP 20 Surface : IP44
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	70x41,8 mm (ΦxH)	70x41,8 mm (ΦxH)	70x41,8 mm (ΦxH)	70x48 mm (ΦxH)	70x48 mm (ΦxH)

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 in accordance with these distances.

Mid Range KNX Presence Sensor:

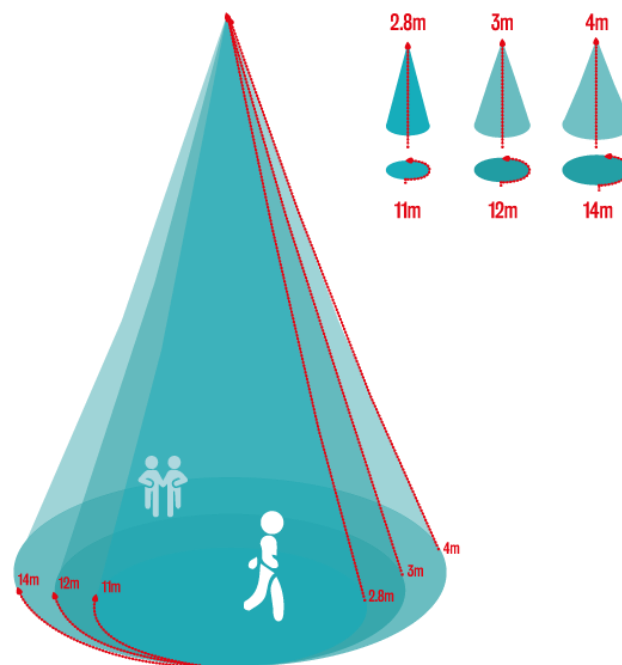


Fig 1 : Mid Range KNX Presence Sensor Detection Range

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:

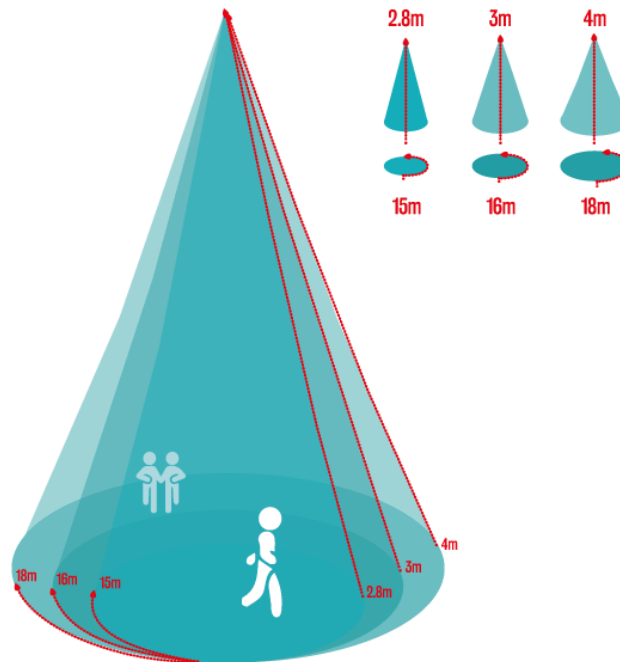


Fig 2 : Mid Range Plus KNX Presence Sensor Detection Range

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:

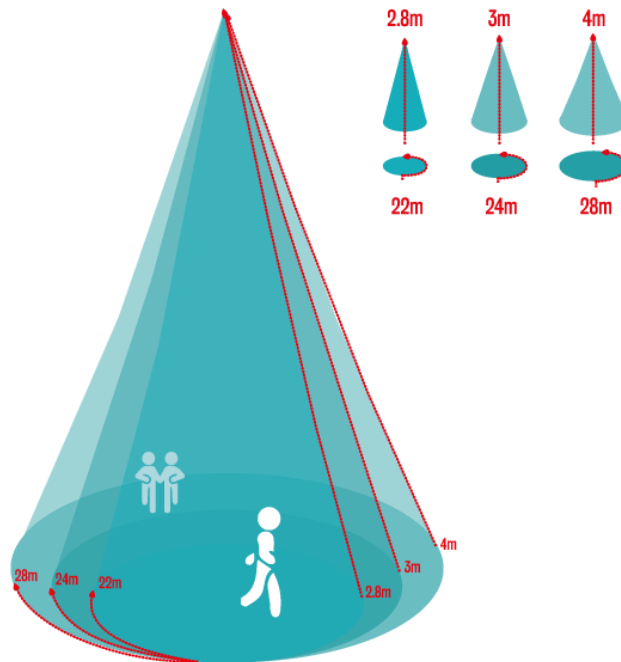


Fig 3 : Wide Range KNX Presence Sensor Detection Range

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 Presence Sensor:

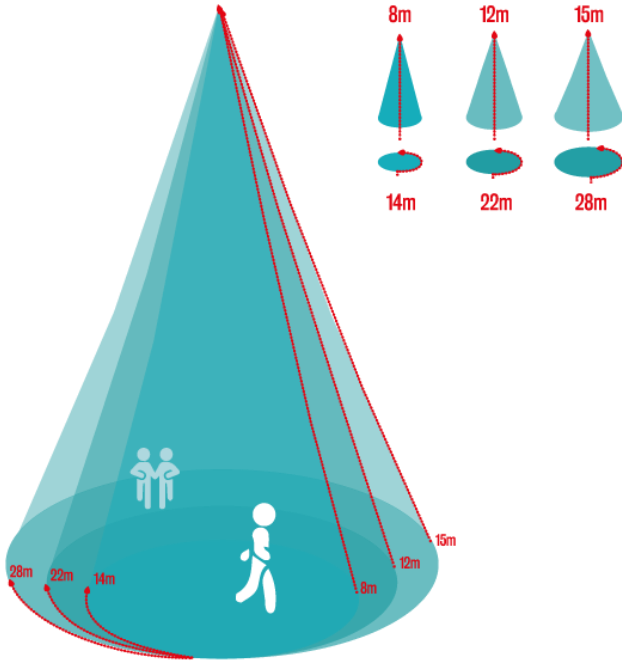


Fig 4 : High Bay KNX Presence Sensor Detection Range

Mounting Height	Walking Across
8 m	14 m
12 m	22 m
15 m	28 m

High Bay Plus KNX Presence Sensor:

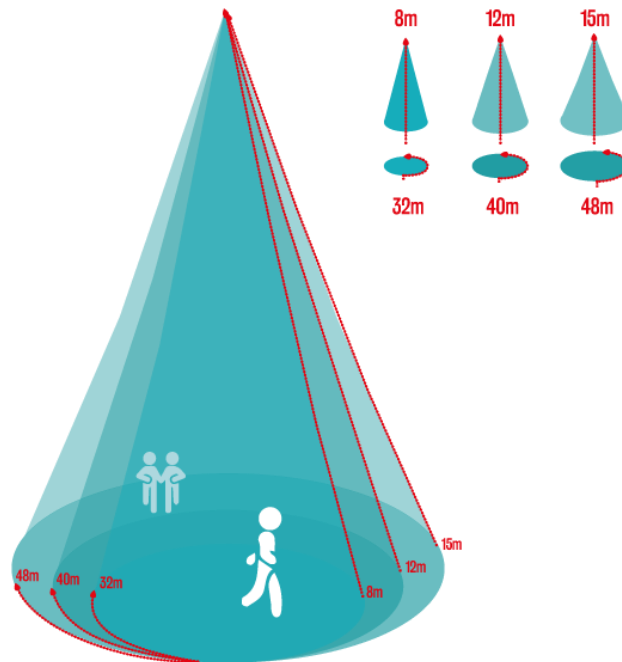


Fig 5 : High Bay Plus KNX Presence Sensor Detection Range

Mounting Height	Walking Across
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-XXX models have same connection layout.

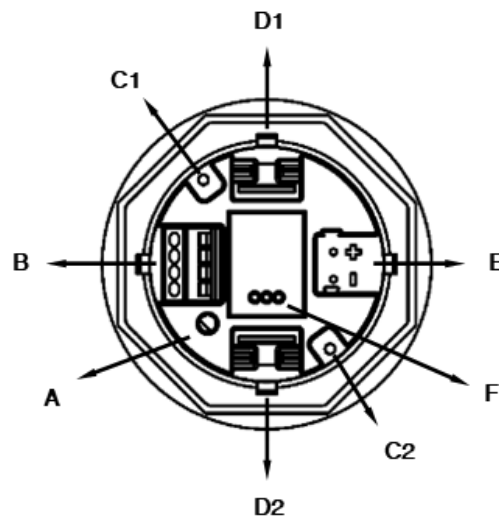


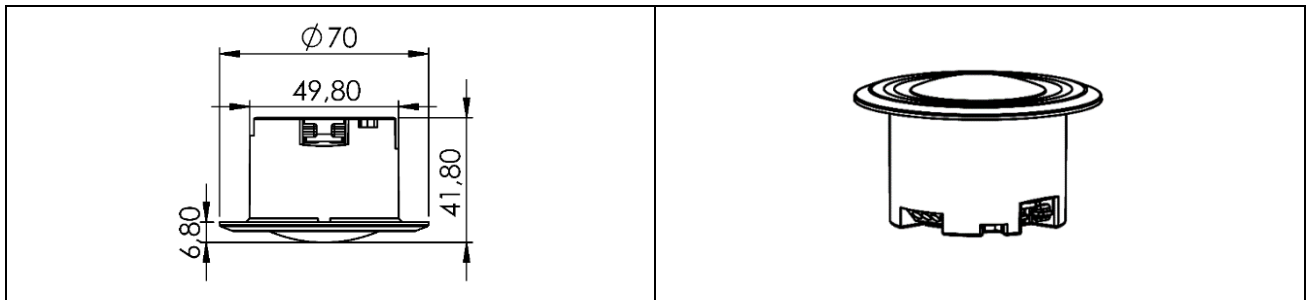
Fig. 6 : Connection Features of KNX Presence Sensor

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

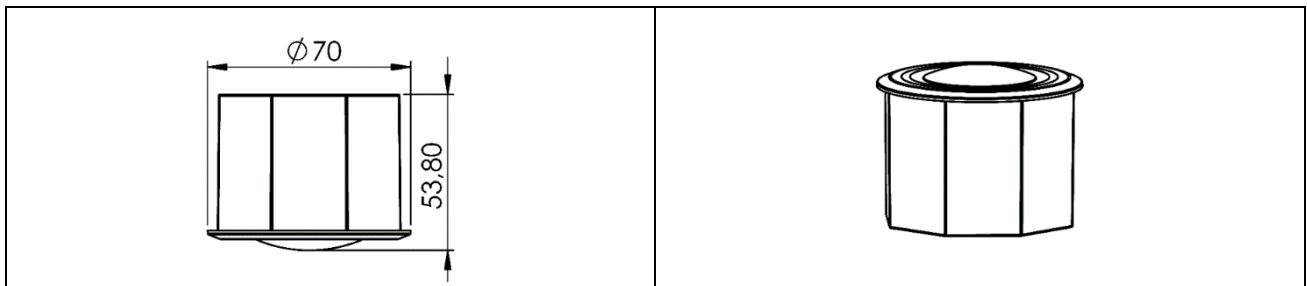
2.4. DIMENSIONS

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

Flush Mounted:



Surface Mounted:



2.5. FUNCTIONALITY

All of 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 the entering daylight alone. The programmed setpoint minus hysteresis is maintained as long as people are in the detection range. The application detects when the entering daylight is sufficient. The lamps are then switched off again to save energy.

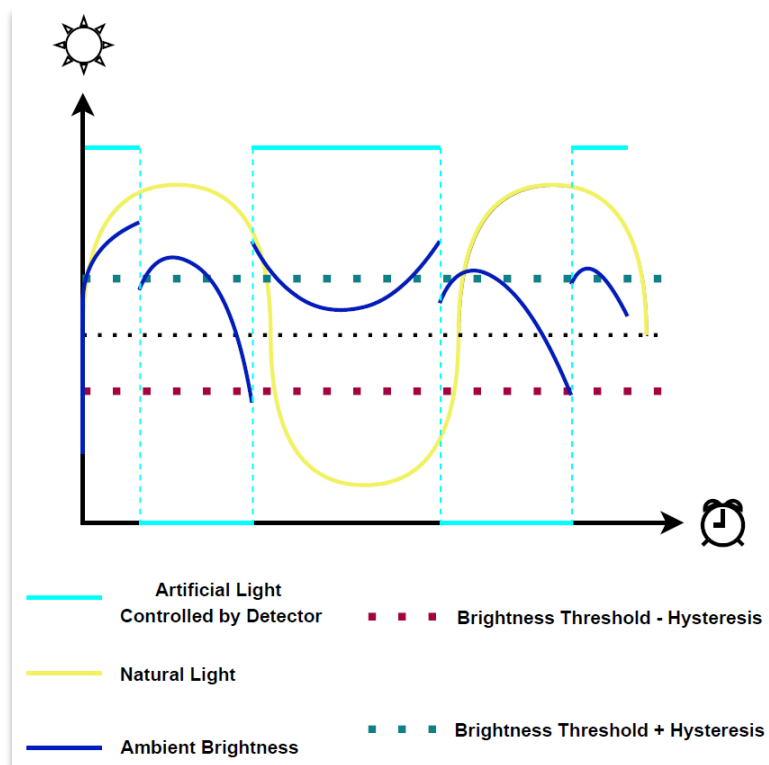


Fig. 7 : Constant Light Switch Operation

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 of 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 Constant Light Control application. If 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.

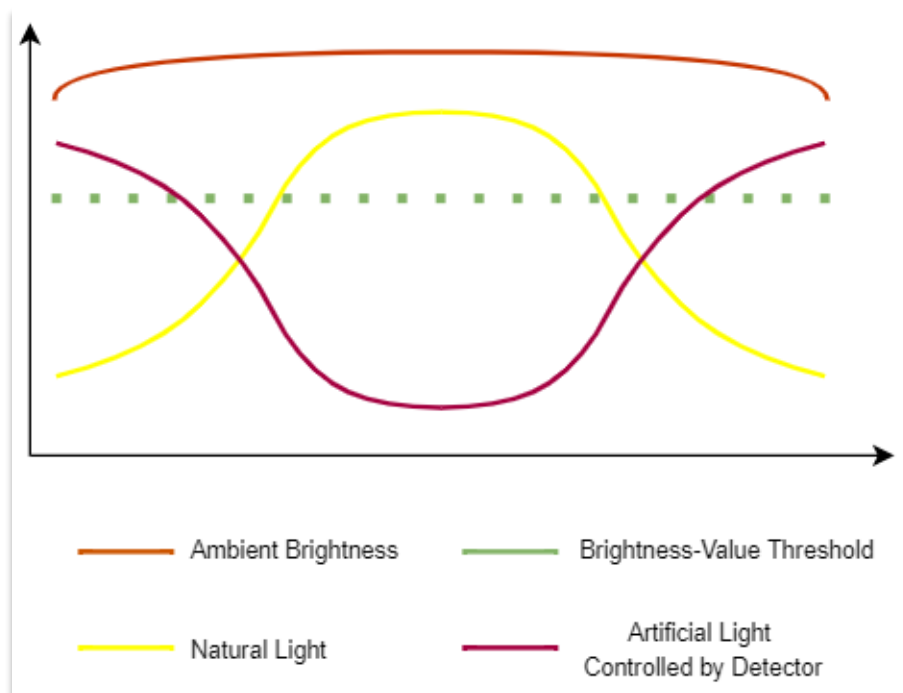


Fig. 8 : Constant Light Control Operation


3.1. GENERAL PAGE

When the ITR415-XXX 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 delay 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 wait state ends and then sent according to the parametrization.	2...60
Enable dry contact input (*)	This parameter, is used to enable the dry contact inputs of the KNX Presence Sensor. If this	no yes

	parameter is activated, a separate parameter page will be opened for configuration.	
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 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 detect : The blue LED turn on when there is a motion detect 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
Limit number of KNX telegrams	This parameter, is used to limit the KNX Presence Sensors to ease the bus load. This limit concerns all of KNX telegrams sent by the KNX Presence Sensors.	No Yes
-> Maximum number of sent telegrams	This parameter, is used to set the maximum number of sent telegrams by the device.	1...20...255
-> Telegram Sending Period	This parameter defines the number of telegrams sent by the device within a certain period of time. The telegrams are sent as quickly as possible at the start of a period.  As soon as the maximum number of sent telegrams is reached, no further telegrams are sent on the KNX until the end of the period. A new	50 ms 100 ms 200 ms 500 ms 1 s

	period commences at the end of the previous period. The telegram counter is reset to zero, and sending of telegrams is allowed again. The current group object value at the time of sending is always sent.	2 s 3 s 10 s 30 s 1 min
Enable Movement Objects	This parameter, is used to enable or disable for 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	via object with adjustment value

	<p>installation, in order for the sensor to measure correctly and therefore work ideally with other sensor features.</p> <p>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.</p> <p>With adjustment value : Calibration is made through the brightness compensation value parameter.</p>	
-> Brightness compensation value	<p>This parameter is used to determine the brightness compensation value. The entered value is subtracted from the value measured by the sensor or added.</p> <p>Ex : The ambient brightness value measured by the sensor is 175 lux. Moreover, with luxmeter the measured ambient brightness value is 200 lux. In this case, the sensor measures the ambient brightness value 25 lux less. In order for the sensor to measure accurately, the value 25 should be entered in the brightness compensation value parameter.</p>	-200... 0 ...200
Average brightness algorithm	<p>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.</p>	very fast fast normal slow very slow
Enable "Measured Value" Object	<p>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.</p>	No Yes
Sending on variation	<p>This parameter is used to determine whether it will be sent to the bus line depending on the change of the ambient brightness value.</p>	Do not send 5 lux, 10 lux,

	<p>do not send: The brightness value is never sent to the KNX bus line.</p> <p>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.</p> <p>Note : xx means the listed values in the parameter list such as 10 lux, 20 lux, 5 lux etc.</p>	<p>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</p>
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

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 setup 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.

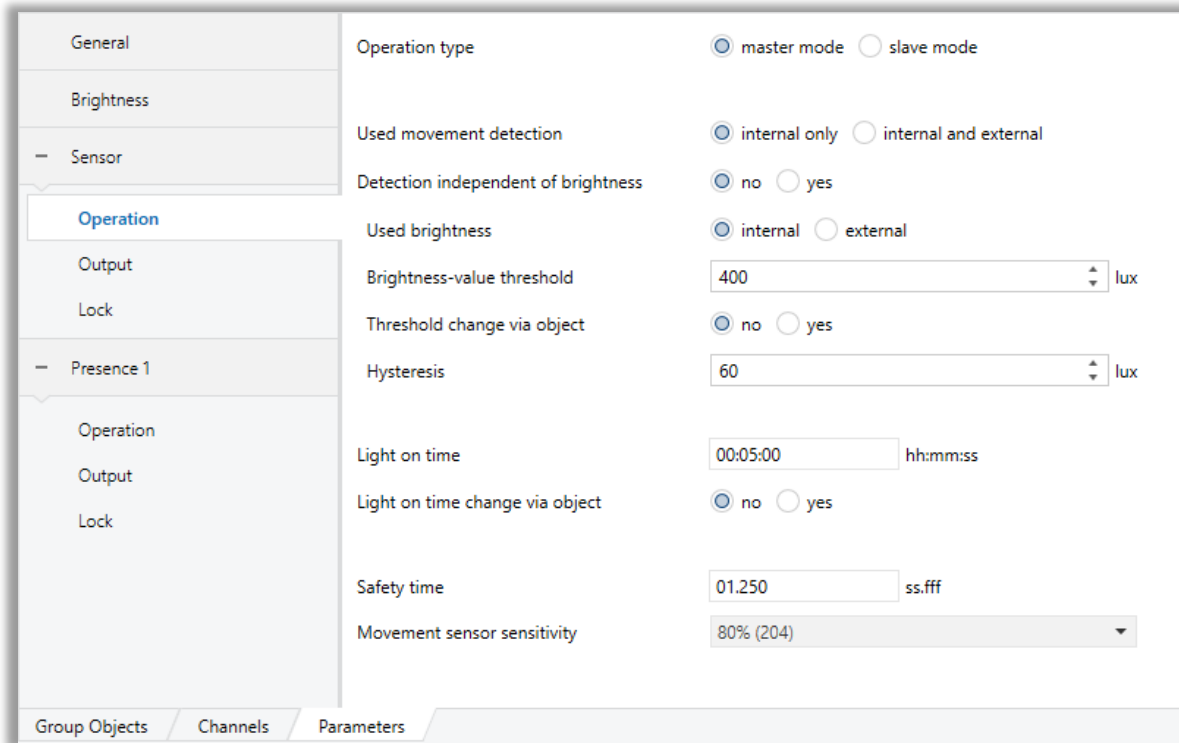


Fig. 11 : Sensor - Operation Page Configuration

3.3.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation type	<p>This parameter is used to determine the operating mode of the sensor. Operation mode is set as master or slave mode.</p> <p>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.</p> <p>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.</p>	<p>master mode</p> <p>slave mode</p>
Used movement detection	<p>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:</p>	<p>Internal only</p> <p>Internal and external</p>

	<p>Internal only : Motion detection is made only with the built-in detectors inside the sensor.</p> <p>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).</p>	
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	<p>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.</p> <p>Internal: It is the internal source of brightness. Ambient brightness is measured with the built-in brightness sensor on the sensor.</p> <p>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.</p>	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 lies above the threshold, no telegram is sent during movement.	1... 400 ...1200
-> Threshold change via object	<p>This parameter, is used to change the brightness threshold value via a KNX object.</p> <p>The value is sent to this object in lux. Object type is 2 byte float.</p>	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.	15... 60 ...500

	<p>Switching threshold = brightness threshold ± hysteresis</p> <p>The hysteresis prevents excessive switching when the current ambient brightness is close to the brightness threshold.</p>	
Light on time	<p>This parameter is the time period between the last movement detected and the sending of the telegram "value for switch-off" by the sensor.</p> <p>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.</p>	00:00:10...00:05:00 ...18:12:15
Light on time change via object	<p>This parameter is used to change the light-on time duration via a KNX object. The time entered is in seconds.</p> <p>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.</p>	no yes
Safety time	<p>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 expiry of light on time. The main purpose of safety time is to prevent an immediate reactivation.</p>	00.100...01.250... 59.999
Movement sensor sensitivity	<p>This parameter is used to adjust the movement sensor sensitivity. It can be configured by selecting the appropriate value from the parameter value list.</p>	100%, 99%, 98%.... 3%, 2%, 1%

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 in order to control the ambient brightness through the switching are explained. The switching operation for the sensor channel is performed over the output object of the presence detector.

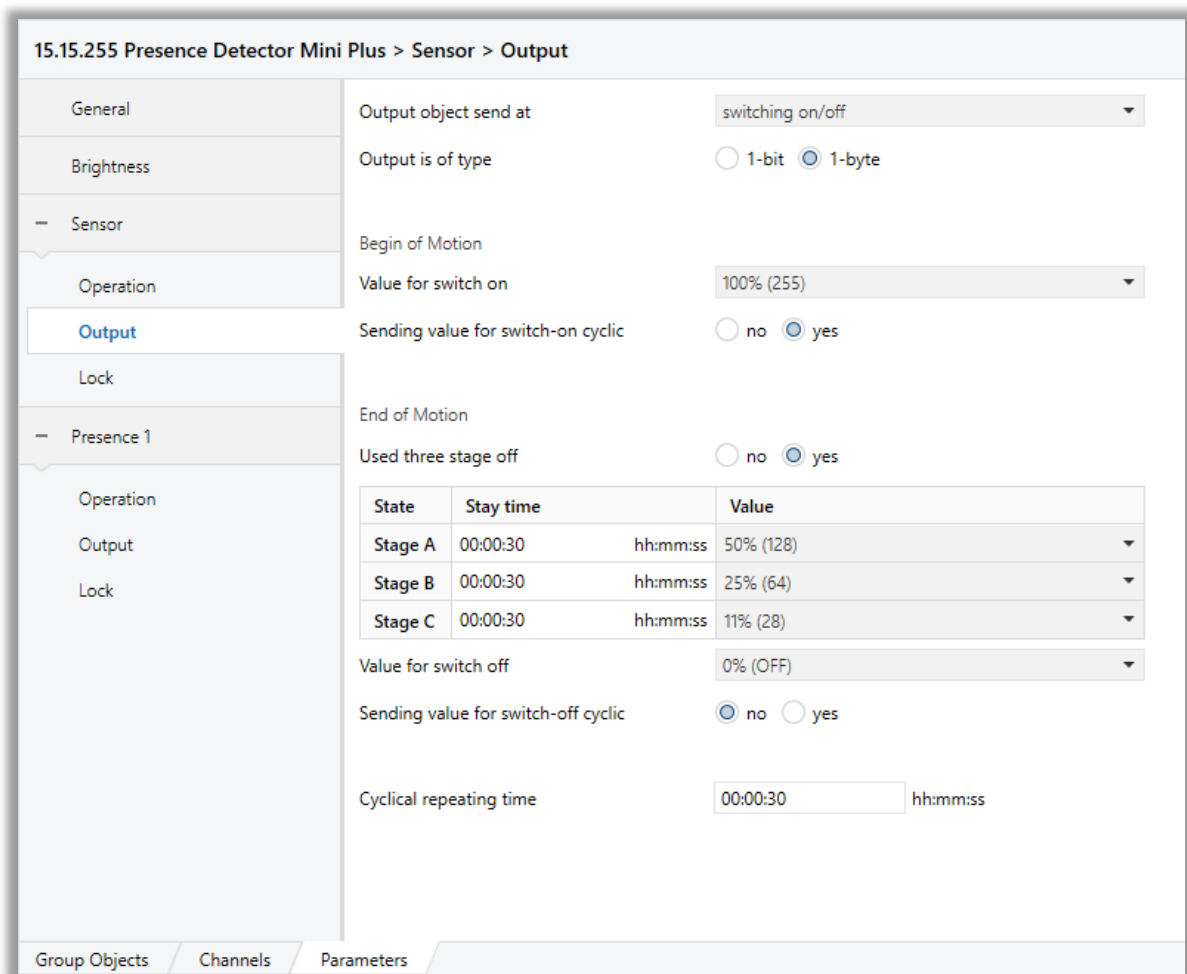


Fig. 12 : Sensor - Output Page Configuration

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 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 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 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 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, sensor will first switch to state A. When the stay at A time has elapsed, it switches to the 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 in 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

In 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 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 functionality is exactly the same as the lock functionality in Presence channels. For this reason, lock parameters are not explained again in the relevant sections.

The screenshot shows the configuration page for the 'Sensor Lock' of a '15.15.255 Presence Detector Mini Plus'. The page is divided into a left sidebar and a main configuration area.

Left Sidebar:

- General
- Brightness
- Sensor
 - Operation
 - Output
 - Lock (highlighted in blue)
- Presence 1
 - Operation
 - Output
 - Lock

Main Configuration Area:

- Use sensor lock:** no yes
- Telegram for lock activation:** ON telegram OFF telegram
- Output behavior when lock:** only lock lock and transmit value
- Output value:** 100% (255) (dropdown menu)
- Automatic unlock after delay:** no yes
- Automatic unlock time:** 00:00:30 (input field) hh:mm:ss

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 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 behavior when lock	This parameter is used to determine how the output behavior 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 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 of time.	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 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 exactly 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 exactly 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.

15.15.255 Presence Detector Mini Plus > Presence 1 > Operation		
General	Application	constant light controller
Brightness	Presence depending	<input type="radio"/> no <input checked="" type="radio"/> yes
Sensor	Operation mode	<input type="radio"/> automatic <input checked="" type="radio"/> automatic switch off
Operation	Setpoint brightness value	400 lux
Output	Setpoint change by bus	<input checked="" type="radio"/> no <input type="radio"/> yes
Lock	Hysteresis	100 lux
Presence 1	Used brightness	<input checked="" type="radio"/> internal <input type="radio"/> external
Operation	Used movement detection	<input type="radio"/> internal only <input checked="" type="radio"/> internal and external
Output	Light on time	00:05:00 hh:mm:ss
Input	Additional function	
Lock	Enable forced operation	<input type="radio"/> no <input checked="" type="radio"/> yes
Forced Operation		

Fig. 14 : Constant Light Controller - Operation Page Configuration

3.4.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Application	<p>This parameter, is used to determine the presence channel functionality.</p> <p>Inactive: The presence channel is disabled.</p> <p>Constant light switch: The presence channel application is selected as constant light switch.</p> <p>Constant light control: The presence channel application is selected as constant light control.</p>	<p>Inactive</p> <p>constant light switch</p> <p>constant light control</p>
Presence depending	<p>This parameter is used to determine whether constant light control will be performed based on presence.</p>	<p>no</p> <p>yes</p>
- > Operation mode	<p>This parameter is used to determine the operating mode of constant light control based on presence.</p> <p>Automatic: Automatic switch-on and automatic switch-off.</p> <p>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 set light-on time delay is expired.</p> <p>Automatic Switch Off: Manual switch-on and automatic switch off.</p> <p>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.</p>	<p>automatic</p> <p>automatic switch off</p>
Setpoint brightness value	<p>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 from the brightness-value threshold + hysteresis.</p>	<p>1...400...1200</p>
Setpoint change by bus	<p>This parameter, is used to enable or disable the brightness-value threshold object.</p>	<p>no</p> <p>yes</p>

	<p>This object can be used to change the switching threshold of the presence sensor. The value is sent to this object in lux.</p>	
Hysteresis	<p>This parameter, is used to determine the hysteresis value. By hysteresis value the switching threshold of the KNX presence sensor is configured.</p> <p>Switching threshold = brightness threshold ± hysteresis</p> <p>The hysteresis prevents excessive switching when the current ambient brightness is close to the brightness threshold.</p>	15...100...500
Used brightness	<p>This parameter is used to specify the source to be used for ambient brightness measurement.</p> <p>Internal: Built-in brightness measurement sensor is used for brightness measurement</p> <p>External: The brightness values are received from an external source via the KNX bus line.</p>	internal external
Used movement detection	<p>This parameter is used to specify the source to be used for movement detection.</p> <p>Internal only: Built-in movement measurement sensor is used for movement detection.</p> <p>Internal and external: Both internal movement detection sensor and external movement detection source (such as another KNX presence sensor configure as slave) are used.</p>	Internal only Internal and external
Light on time	<p>This parameter is the time period between the last movement detected and the sending of the telegram "value for switch-off" by the sensor.</p> <p>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.</p>	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
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3.4.2. Constant Light Controller – Output

On this parameter subpage, the relevant parameters that need to be configured in order 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.

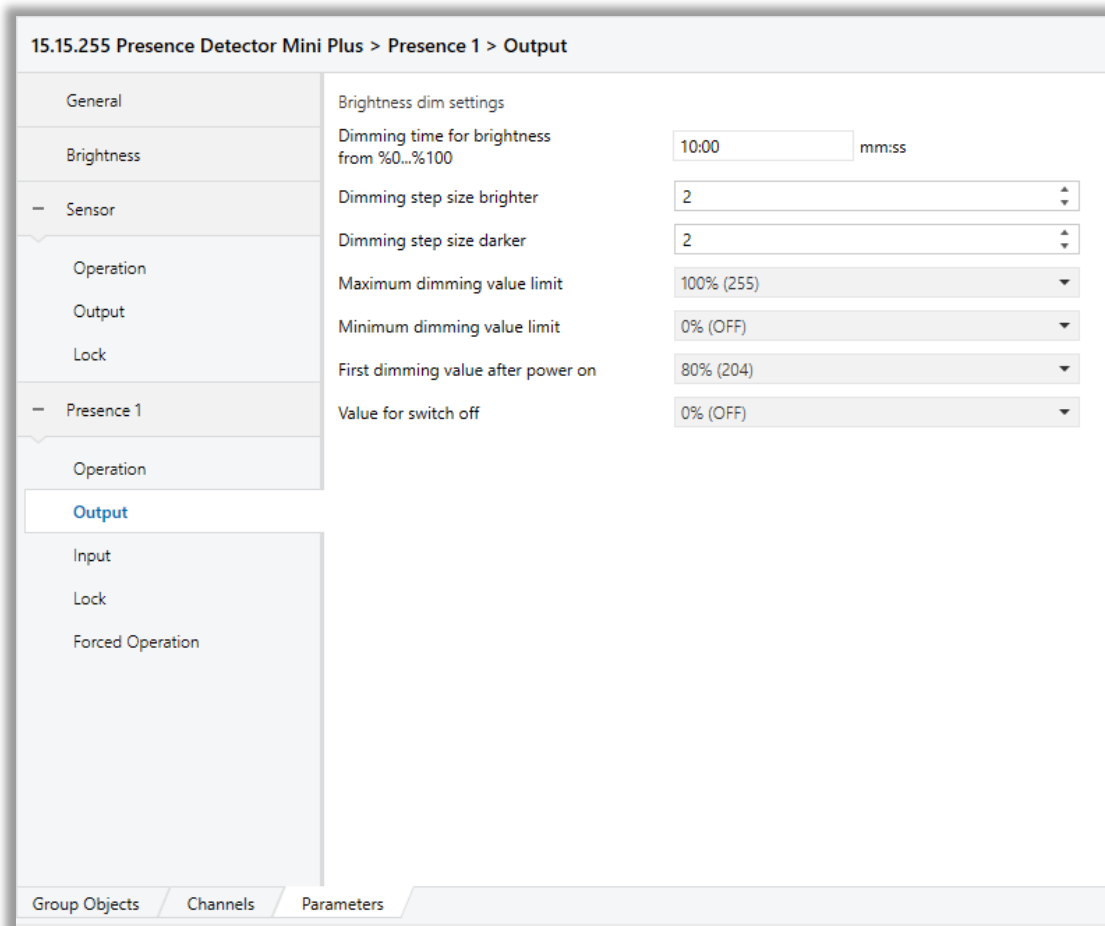


Fig. 15 : Constant Light Controller - Output Page Configuration

3.4.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Dimming time for brightness from %0...%100	<p>This parameter is used to determine how long it takes for the output object value to go from 0% to 100% during manual dimming.</p> <p>For example, let the lighting in the environment is completely off (that is, the output is at 0%) and the value entered in this parameter is 20 seconds. In this state, when presence detector detects a movement, the brightness of the lighting unit controlled in the environment will be 100% after 20 seconds.</p>	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 power on	<p>This parameter is used to set the initial value at which the presence detector will start dimming.</p> <p>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.</p>	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, in order 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 is completely off (that is, the output is at 0%) and the	0... 3 ...59

	<p>value entered in this parameter is 20 seconds. In this state, when an ON telegram is sent to the 'manual on/off' object from KNX bus line, the brightness of the lighting unit controlled in the environment will be 100% after 20 seconds.</p> <p>In another case, let this parameter is configured as 20 seconds. When the output is at 50%, the time required for it to reach 100% will be 10 seconds.</p>	
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 check the 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 check the 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 check the 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)	<p>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 definitely exit the manual mode and switch to the automatic state.</p> <p>Only when '0' value is entered to this parameter, the detector will remain in manual mode permanently.</p>	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 exactly the same as the parameters in the “sensor” channel, for more detailed explanation the parameter properties can be viewed in the sensor channel lock section (3.3.3).

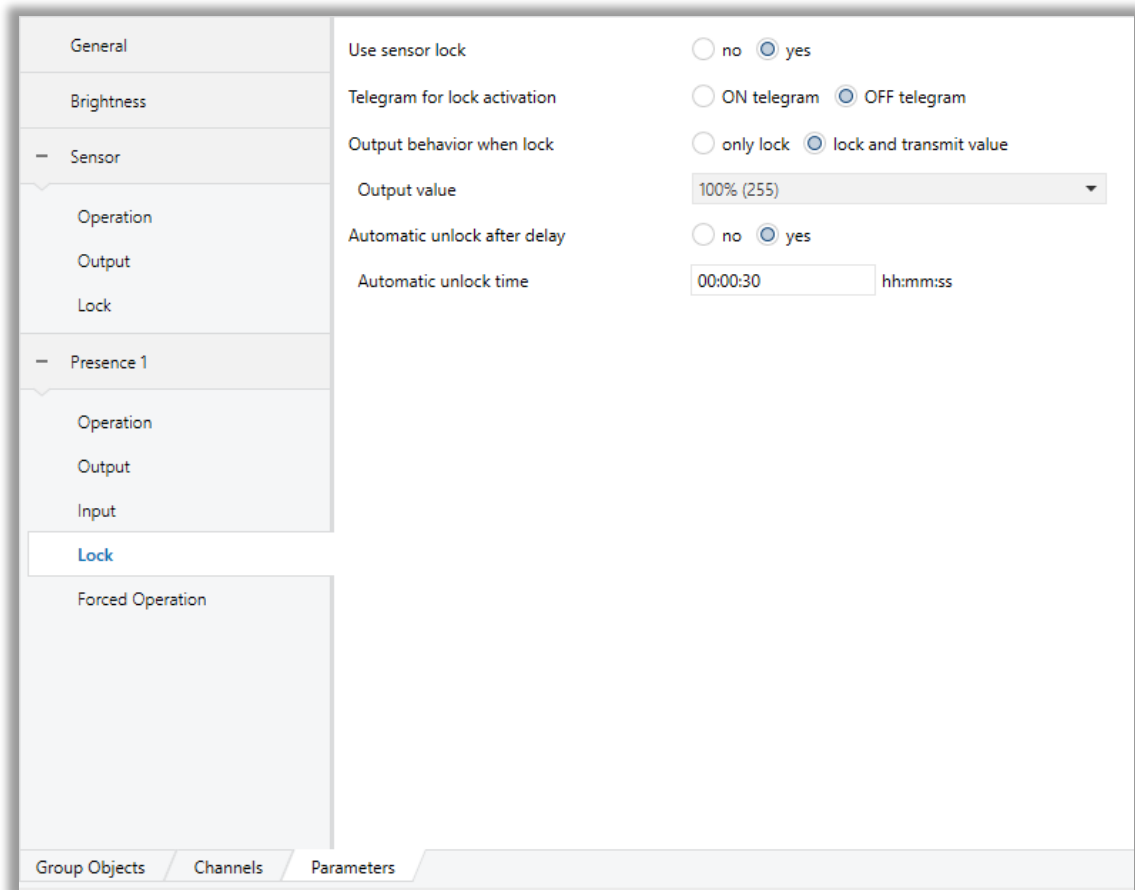


Fig. 17 : Constant Light Controller – Lock Page Configuration

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 behavior 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 exactly 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 channel.

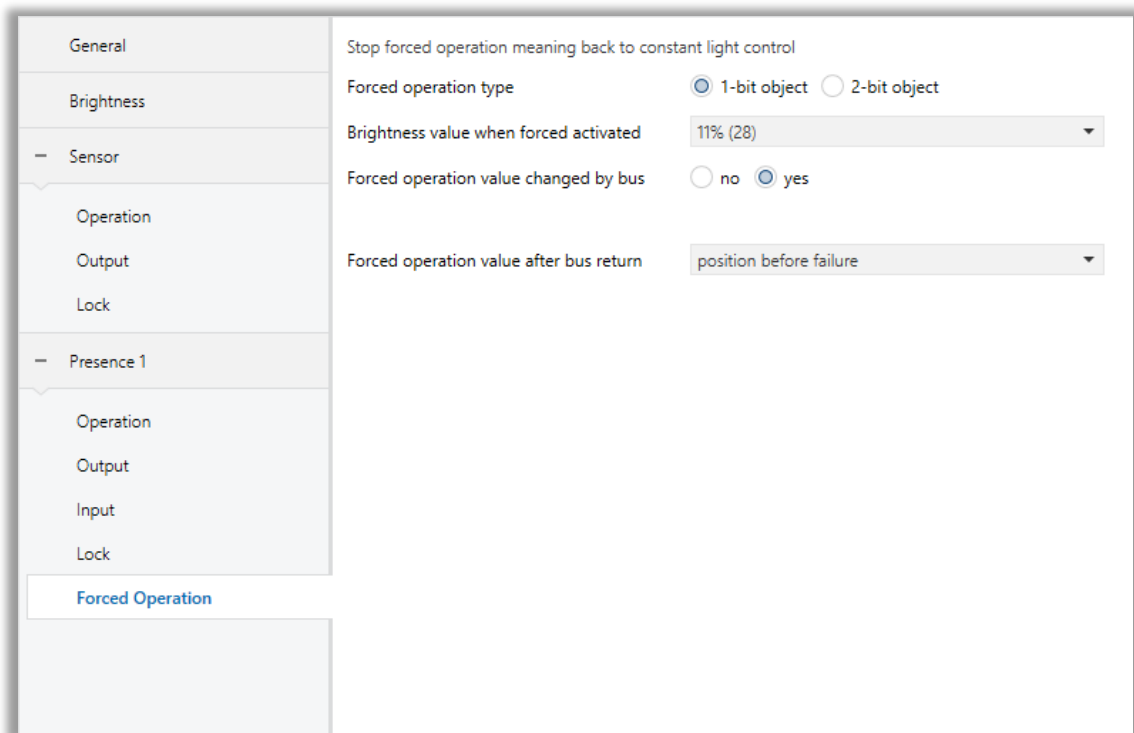


Fig. 18 : Constant Light Controller – Forced Operation Page Configuration

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 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 default state. Forced on : The detector will operate as forced on state. Forced off : The detector will operate constant light controller mode. Position before failure : The detector will operate at last state(before bus voltage break) after bus voltage return.	no forced operation forced on forced off position before failure

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 KNX presence sensor by switching via buttons connected to digital inputs. Detailed information on the relevant parameter configurations is described in the table below.

General	Operation mode of the channel	switch sensor
+ Brightness Detection	Input name	
+ Sensor	Distinction between long and short operation	<input checked="" type="radio"/> no <input type="radio"/> yes
+ Presence Channels	Cyclic sending of object "Switch"	if "Switch" = ON
- Inputs	Reaction on closing the contact (rising edge)	TOGGLE
Input 1	Reaction on opening the contact (falling edge)	ON
Input 2	Telegram is repeated every	00:00:30 hh:mm:ss
Additional Probe	Scan input after bus voltage recovery	<input type="radio"/> no <input checked="" type="radio"/> yes
+ Temperature	Object is only sent, if reaction on opening / closing not equal TOGGLE	<--- NOTE
+ Virtual Card Holder	Debounce time	50 ms
+ Logic Functions		

Fig. 19 : Input – Input Switch Sensor

3.5.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
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Operation Mode of the channel	This parameter, is used to determine the input x operation mode. If no function 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. Name can be consists of 40 character.	40 bytes allowed
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operation. With 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 operation. 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 operation. 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 operation. For each edge you can set if the object value is to be switched ON, OFF or TOGGLE, or if no reaction should occur.	No reaction ON OFF TOGGLE

	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.	
-> Telegram is repeated every	This parameter is visible if 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 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 operation. It is used to determine the short press operation sending 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 operation. It is used to determine the long press operation sending 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...00:00.5 00...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 operation. 1 object : Short and long operation will be proceed with same object. 2 object : Short and long operation will be proceed with 2 different objects.	1 object 2 object

<p>Debounce time</p>	<p>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.</p>	<p>10 ms 20 ms 30 ms 40 ms 50 ms 70 ms 100 ms 150 ms</p>
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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.

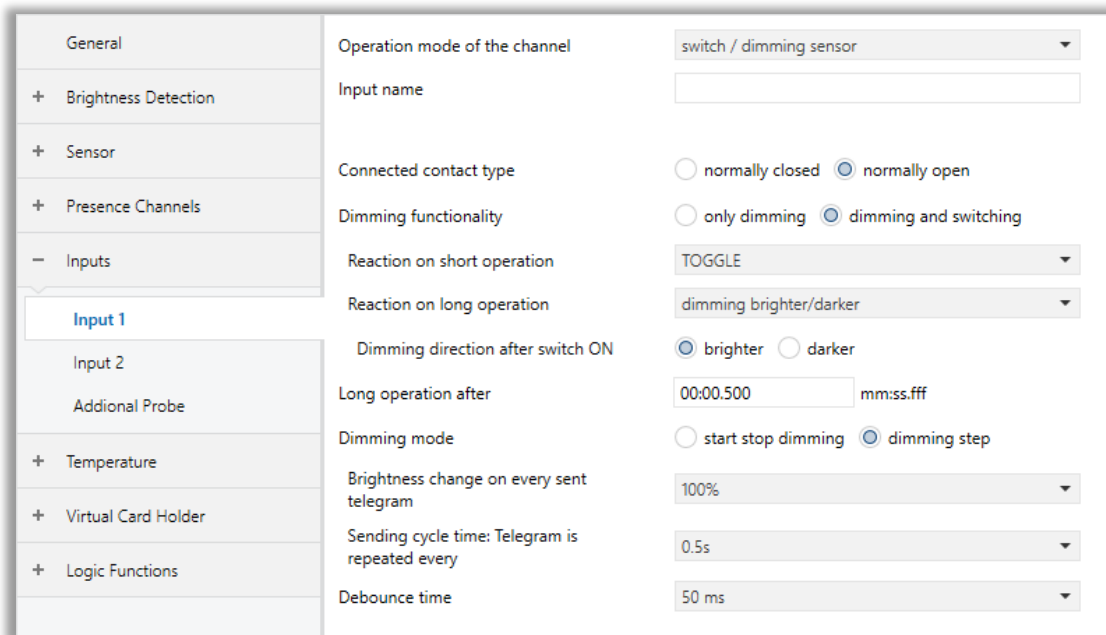


Fig. 20 : Input – Input Switch / Dimming Sensor

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 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. Name can be consists of 40 character.	40 bytes allowed
Connected contact type	This parameter is used to specify the contact type that 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 switches.	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 operation 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 operation. It is used to determine the short press operation sending 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 operation. It is used to determine the long press operation sending 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...00:00.5 00...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 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 percent), 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. 21 : 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 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. Name can be consists of 40 character.	40 bytes allowed
Operation Functionality of blind	This parameter is used to define the type of the blind operation. Overview of the operating modes are 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 connected to the KNX Sensor input x.	Normally closed Normally open
1-push-button, short = stepping, long = moving		
Short Operation : Lamella Long Operation : Move UP / DOWN	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,
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 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 operation. It is used to determine the short press operation sending 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 operation. It is used to determine the long press operation sending 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 operation 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 operation 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 operation 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 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

3.5.4. 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. 22 : 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 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. Name can be consisting of 40 characters.	40 bytes allowed
Connected contact type	This parameter is used to specify the contact type that 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 operation. With option “yes”, after opening/closing of the contact it must first of all be ascertained if a short	No Yes

	or long operation has occurred here. Only thereafter will a possible reaction be triggered.	
Reaction on short operation	This parameter is visible if there is a distinction between short and long operation. It is used to determine the short press operation sending 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 operation. It is used to determine the long press operation sending 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 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. 23 : 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 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. Name can be consisting of 40 characters.	40 bytes allowed
Connected contact type	This parameter is used to specify the contact type that 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 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 long operation. With “Store scene” obj value = 1 : The scene will be stored when the Store scene object value is 1. On long operation (“Store scene” obj value = 1) : The scene will be stored when the Store scene object is 1 and a long operation occurs.	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.

The screenshot shows a configuration window for 'Input 1'. On the left is a sidebar with a tree view containing: General, + Brightness Detection, + Sensor, + Presence Channels, - Inputs (expanded), Input 1 (selected), Input 2, Additional Probe, + Temperature, + Virtual Card Holder, and + Logic Functions. The main area displays the following settings:

- Operation mode of the channel: RGB colour control (dropdown)
- Input name: (empty text field)
- Connected contact type: normally closed, normally open
- Set colour value: red (dropdown)
- Change colour with long operation: no, yes
- Long operation after: 00:00.500 (text field) mm:ss.fff
- RGB object type: three object of one byte, one object of three bytes
- Debounce time: 50 ms (dropdown)

Fig. 24 : 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 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. Name can be consisting of 40 characters.	40 bytes allowed
Connected contact type	This parameter is used to specify the contact type that connected to the KNX Sensor input x.	Normally closed Normally open
Set colour value	This parameter is used to set RGB colors according to the configured values.	Red Orange Yellow Green-yellow

		Green Green-cyan Cyan Blue-cyan Blue Blue-magenta Red-magenta white
-> Cyclic sending of object "Switch"	This parameter is visible if there is no distinction between short and long operation. 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
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 color 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. 25 : 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 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. Name can be consists of 40 character.	40 bytes allowed

Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operation. With 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 operation. It is used to determine the short press operation sending 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 operation. It is used to determine the long press operation sending 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

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.

General	Enable "Lock" object	<input type="radio"/> no <input checked="" type="radio"/> yes
+ Brightness Detection	Initial enable state	<input type="radio"/> disable <input checked="" type="radio"/> enable
+ Sensor	Enable activation telegram	<input type="radio"/> telegram 0 <input checked="" type="radio"/> telegram 1
+ Presence Channels	Enable "Temperature" object	<input type="radio"/> no <input checked="" type="radio"/> yes
- Inputs	Sending on variation	0.1°C
Input 1	Cyclic sending of value (0 = disable)	00:00 hh:mm
Input 2	Sensor calibration	0 0.1°C
Additional Probe	Number of sample	10
+ Temperature	NTC resistance	10000
+ Virtual Card Holder	NTC B value	3850
+ Logic Functions		

Fig. 26 : 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 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 "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	<p>This parameter is used to determine the calibration value of the analog probe.</p> <p>E.g. Measured value is 25 °C, and the calibration value is selected as 10.</p> <p>The calibrated value is $25 - (10 \times 0.1) = 24$ °C.</p> <p>0.1 is a constant factor value.</p>	-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 analog 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 analog 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 measurement 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.

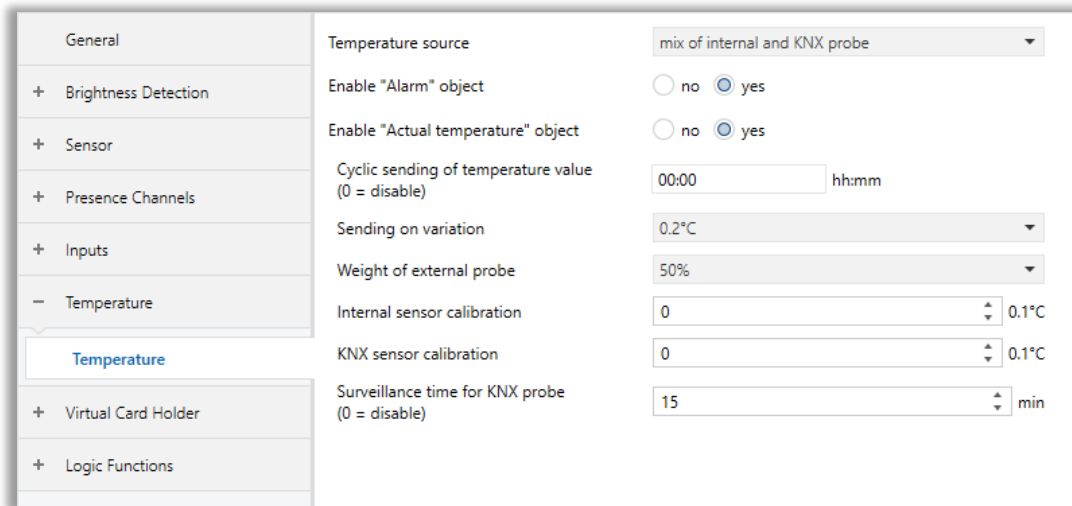


Fig. 27 : Temperature – Temperature Info

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.	Internal probe External probe Mix of internal and external probe

	<p>Several options can be made : you can choose a single source or also mix of 2 different sources according to needs.</p>	<p>KNX probe Mix of internal and KNX probe Mix of external and KNX probe</p>
Enable “Alarm” Object	This parameter is used to enable the “Alarm” object to define a threshold value for alarm information.	<p>No Yes</p>
Enable “Actual Temperature” Object	This parameter is used to enable the “Actual Temperature” object to send the actual ambient temperature value to the bus.	<p>No Yes</p>
-> 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.	<p>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</p>
Weight Of External Probe	<p>This parameter is used to determine the weight of the external probe.</p> <p>e.g. temperature source is selected as Mix of internal and external probe.</p>	<p>%10, %20, %30, %40, %50, %60, %70, %80, %90</p>

	<p>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.</p>	
Internal Sensor Calibration	<p>This parameter is used to determine the calibration value of the internal sensor.</p> <p>E.g. Measured value is 23 °C, and the calibration value is selected as -10.</p> <p>The calibrated value is $23 - (10 \times 0.1) = 22$ °C.</p> <p>0.1 is a constant factor value.</p>	-100...0...100
External Sensor Calibration	<p>This parameter is used to determine the calibration value of the external sensor.</p> <p>E.g. Measured value is 26 °C, and the calibration value is selected as -20.</p> <p>The calibrated value is $26 - (20 \times 0.1) = 24$ °C.</p>	-100...0...100
KNX Sensor Calibration	<p>This parameter is used to determine the calibration value is received from the KNX Probe temperature object.</p> <p>E.g. Measured value is 20 °C, and the calibration value is selected as 20.</p> <p>The calibrated value is $20 + (20 \times 0.1) = 22$ °C.</p>	-100...0...100
Surveillance time for KNX probe (0 = disable)	<p>This parameter is used to determine the surveillance time for KNX probe.</p> <p>E.g. if this parameter configured as 10. Every 10 min the received value from KNX is take into account for temperature calculation.</p>	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.

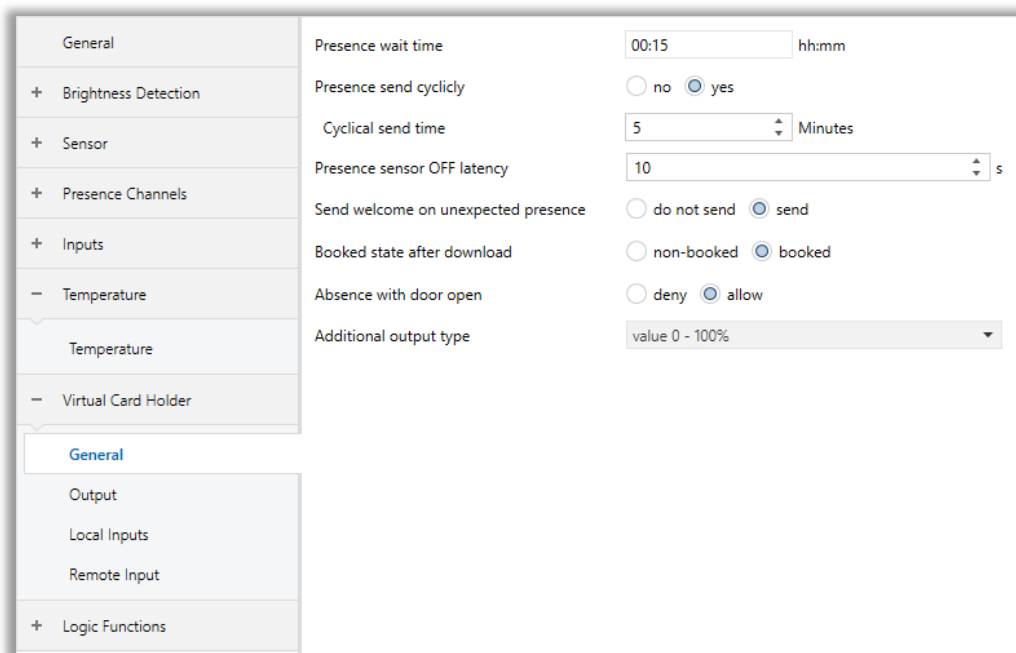


Fig. 28 : Virtual Card Holder – General

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	00:05...00:15...06:00

	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.	
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
Presence sensor OFF latency	This parameter is related to the time set on the presence detector. The most of presence detectors keep the presence status for a configurable number of seconds; set this parameter to the same value. It's recommended to set this time duration at the minimum.	Do not send Send
Send welcome on unexpected presence	This parameter is used to define the behavior 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
Booked state after download	This parameter is used to set the initial value for the object virtual holder room booked	Non-booked Booked
Absence with door open	This parameter is used to define the behavior when the virtual holder module detects the open port. If the door remains open longer than the wait time, this parameter defines whether to keep the room in “occupied” state or not	Deny Allow
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 card holder systems used especially in hotels, are explained.

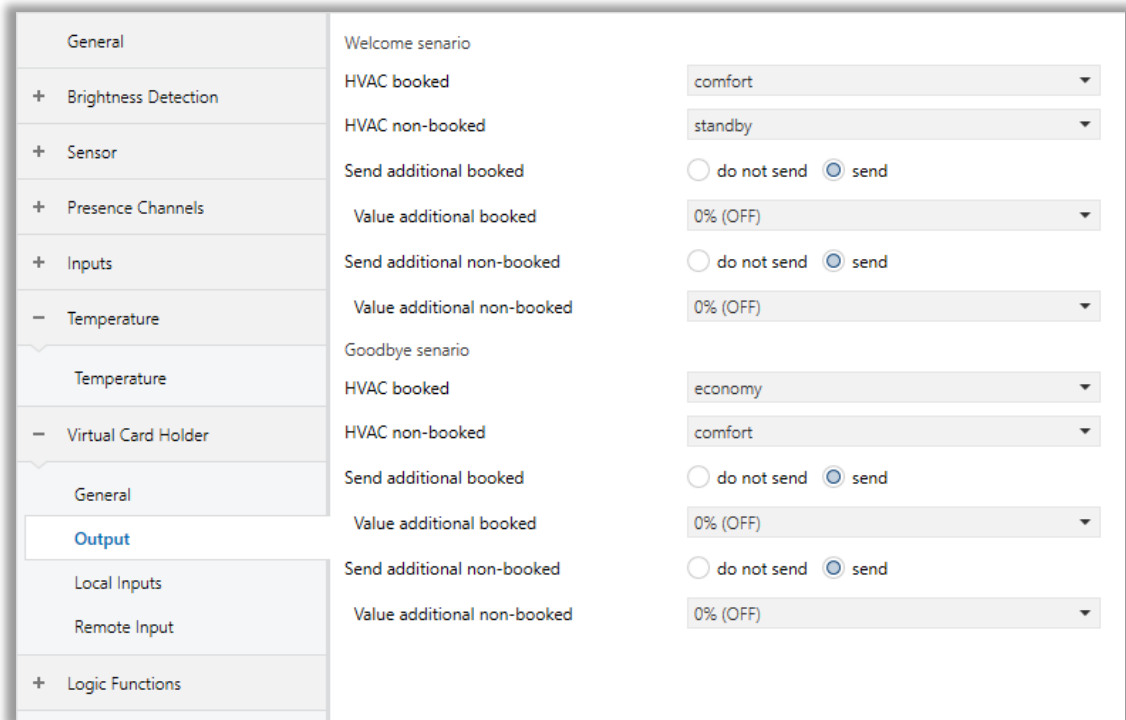


Fig. 29 : Virtual Card Holder – Output

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 additional 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 additional 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 additional 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 additional 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 – Local Inputs

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

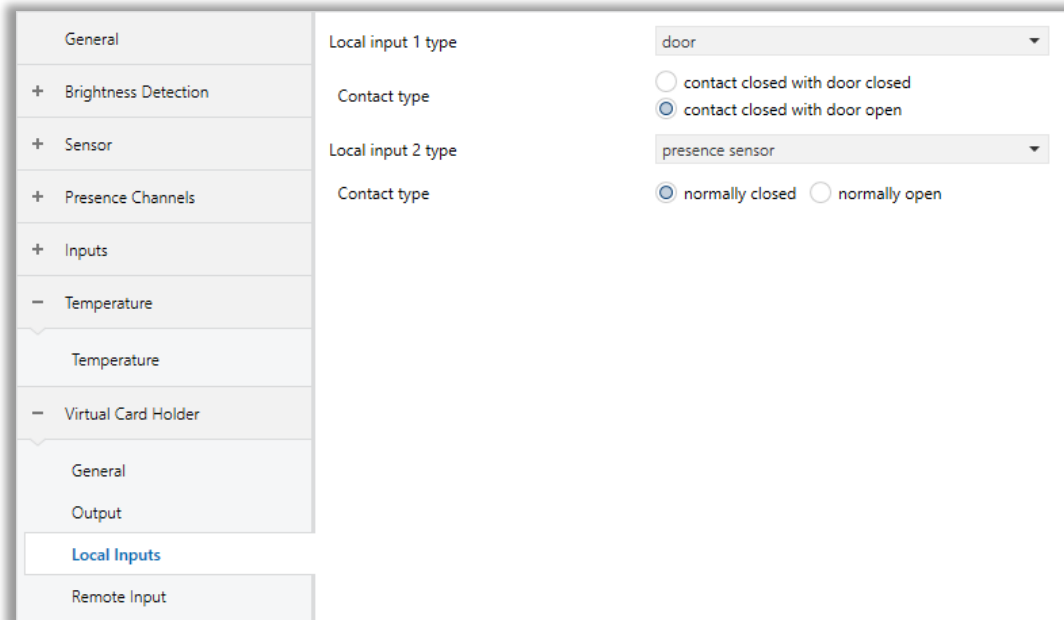


Fig. 30 : Virtual Card Holder – Local Inputs

3.7.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Local input type 1	This parameter, is used to connect the local inputs of the KNX presence sensor to door or conventional presence sensor. Door : Local input is connected to a door contact Presence Sensor : Local 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

Local input type 2	<p>This parameter, is used to connect the local inputs of the KNX presence sensor to door or conventional presence sensor.</p> <p>Door : Local input is connected to a door contact</p> <p>Presence Sensor : Local input is connected to a conventional presence detector.</p>	<p>Disabled</p> <p>Door</p> <p>Presence Sensor</p>
-> Contact type	<p>This parameter is used to determine the contact type that will the door contact is closed with door open or close.</p>	<p>Contact closed with door closed</p> <p>Contact closed with door open</p>
-> Contact type	<p>This parameter is used to determine the connected contact type as normally closed or normally open.</p>	<p>Normally closed</p> <p>Normally open</p>

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 card holder 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 each single Remote Input should be properly configured.

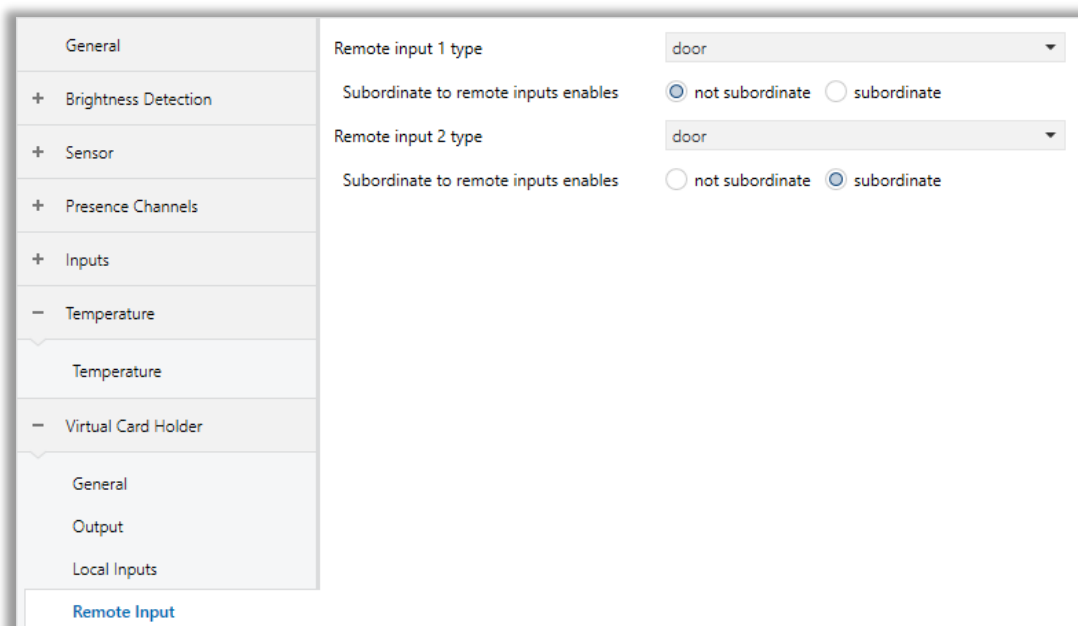


Fig. 31 : Virtual Card Holder – Remote Input

3.7.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Remote input type 1	<p>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.</p> <p>Door : The remote input is connected to door contact.</p> <p>Presence Sensor : The remote input is connected to presence sensor.</p>	<p>Disabled</p> <p>Door</p> <p>Presence Sensor</p>
-> Subordinate to remote input enables	<p>This parameter is used to determine that subordinate or not subordinate relation of the related room.</p> <p>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.</p>	<p>Not subordinate</p> <p>Subordinate</p>
Remote input type 2	<p>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.</p> <p>Door : The remote input is connected to door contact.</p> <p>Presence Sensor : The remote input is connected to presence sensor.</p>	<p>Disabled</p> <p>Door</p> <p>Presence Sensor</p>
-> Subordinate to remote input enables	<p>This parameter is used to determine that subordinate or not subordinate relation of the related room.</p> <p>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.</p>	<p>Not subordinate</p> <p>Subordinate</p>

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.

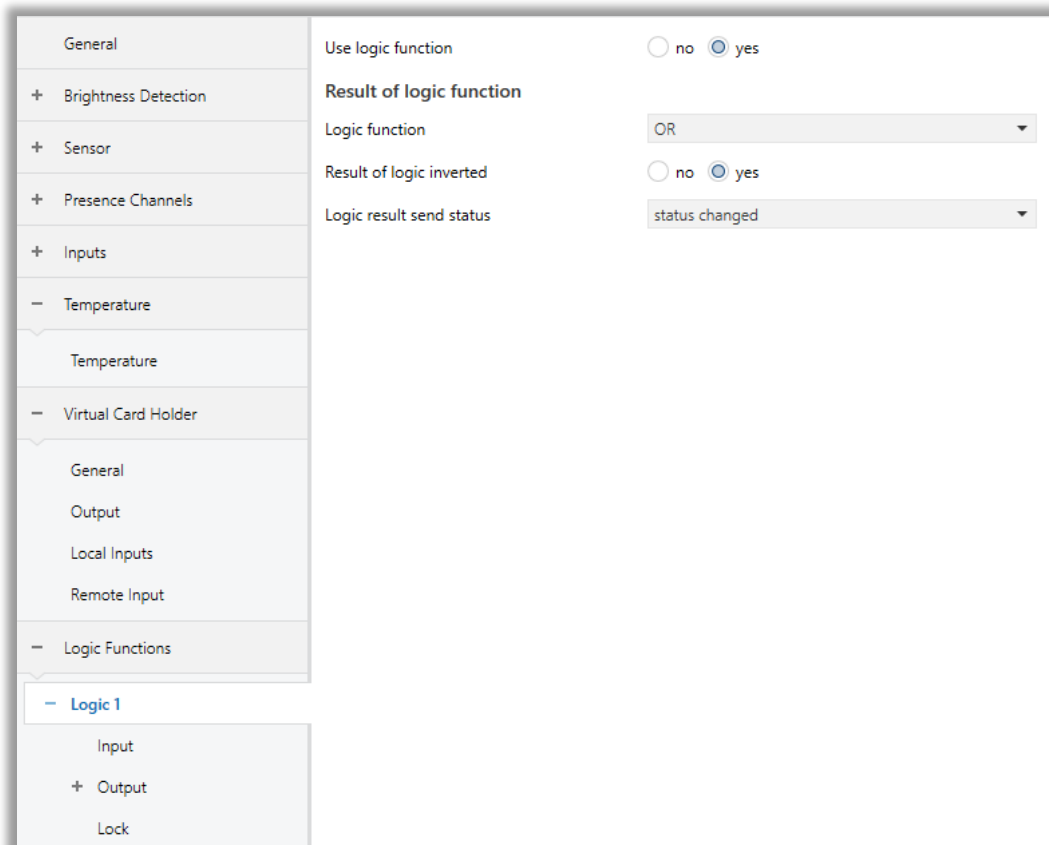


Fig. 32 : Logic Functions – General

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 logic 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.

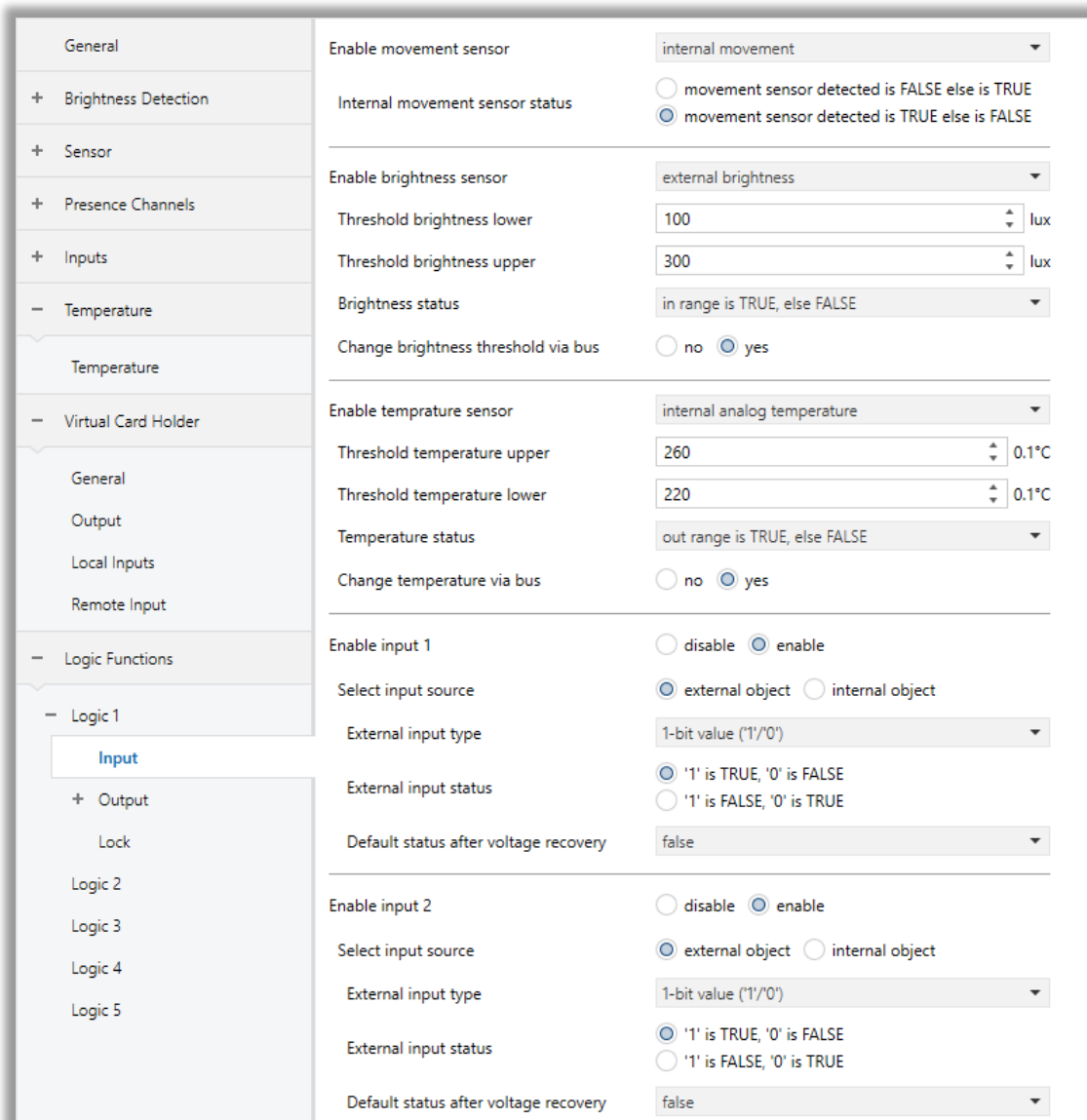


Fig. 33 : Logic Functions – Input

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.	Disable movement Internal movement External movement

	External movement : The external movement information will be used for movement detection.	
-> 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. Internal temperature : The internal temperature sensor will be used as temperature logic input. Internal analog temperature : The internal analog temperature sensor that connected to the analog	Disable Temperature Internal temperature Internal analog temperature

	input of the KNX presence sensor will be used as temperature logic input. External temperature : The external temperature sensor will be used as temperature logic input.	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 the input 1 for logic function block as input	Disable enable
-> Select Input Source	This parameter, is used to determine the input source as internal or external object.	External object Internal object
->> Contact Input Status	This parameter, is used to determine the 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...42949 67295)
->> 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 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...429496 7295
->> 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 the input 2 for logic function block as input	Disable enable
-> Select Input Source	This parameter, is used to determine the input source as internal or external object.	External object Internal object
->> Contact Input Status	This parameter, is used to determine the 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)

		<p>2-byte threshold(0...65535)</p> <p>2-byte float threshold(-50C...100C)</p> <p>4-byte threshold(0...4294967295)</p>
->> 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 selected as 1 bit)	<p>'1' is TRUE, '0' is FALSE</p> <p>'1' is FALSE, '0' is TRUE</p>
->> External Input value	This parameter, is used to determine the external input threshold value to evaluate the input status as TRUE or FALSE.	<p>0...100...255</p> <p>0...1000...65535</p> <p>-50...0...100</p> <p>0...10000...4294967295</p>
->> 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)	<p>TRUE if input value >= threshold else FALSE</p> <p>TRUE if input value <= threshold else FALSE</p>
->> Default status after bus voltage recovery	This parameter, is used to determine the logic status after bus voltage recovery.	<p>False</p> <p>True recovery</p>

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.

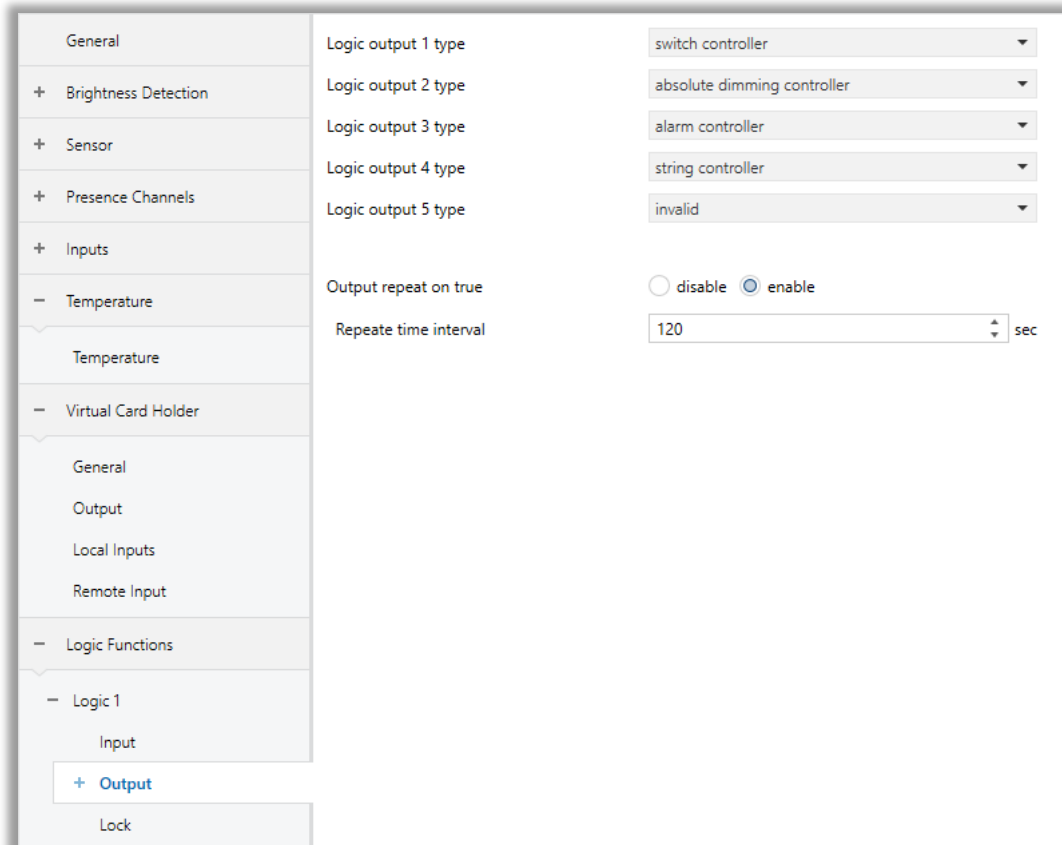


Fig. 34 : Logic Functions – Output General

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 with reference to only one feature.

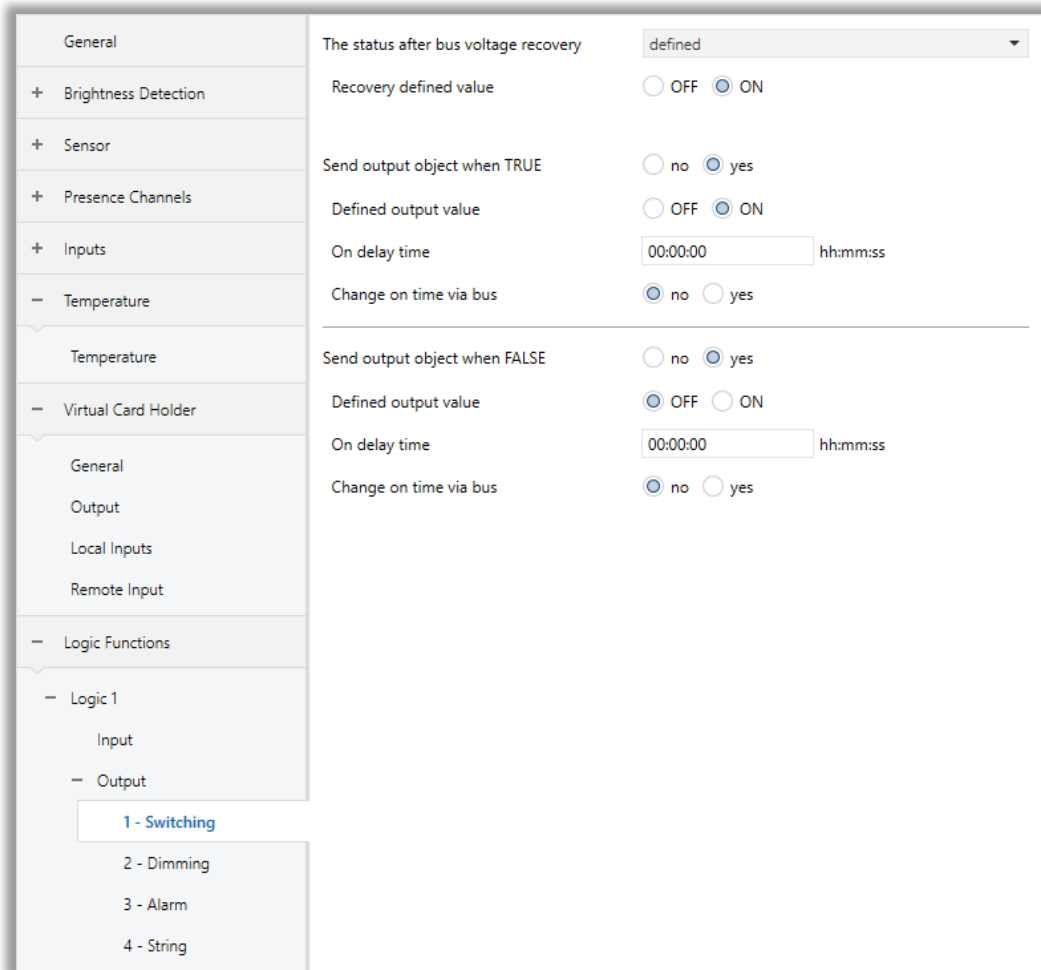


Fig. 35 : Logic Functions – Outputs

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 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 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.

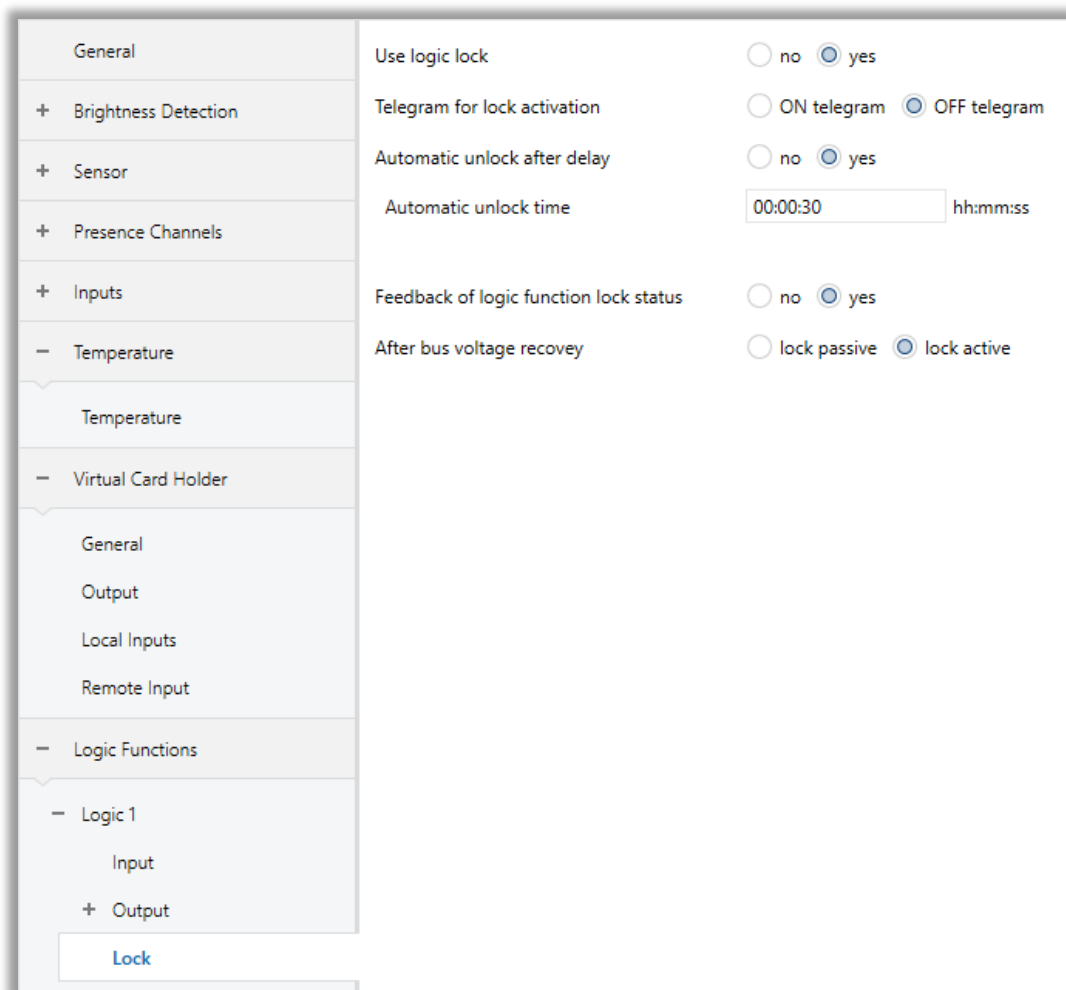


Fig. 36 : Logic Functions – Lock

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 period of time.	no yes
Automatic unlock time	This parameter is used to determine the automatic unlock time 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 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 func.	Block	1.003	1 bit	X		X		
	Input x: Switch/Dim func.				X		X		
	Input x: Shutter func.				X		X		
	Input x: Value/Forced op.				X		X		
	Input x: Scene func.				X		X		
	Input x: RGB control				X		X		
11	Input x: Switch func.	Switch	1.001	1 bit	X			X	
	Input x: Switch/Dim func.	Switch	1.001	1 bit	X			X	

	Input x: Shutter func.	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 bit	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 byte	X			X	
	Input x: Value/Forced op.	Value-1, signed	7.001	2 byte	X			X	
	Input x: Value/Forced op.	Value-1, floating point	9.001	2 byte	X			X	
	Input x: Value/Forced op.	Value-1, unsigned	12.001	4 byte	X			X	
	Input x: Scene func.	8-bit Scene	18.001	1 byte	X			X	
	Input x: RGB control	Red colour	5.010	1 byte	X	X		X	
		RGB colour	232.60 0	3 byte					
12	Input x: Switch func.	Switch-long	1.001	1 bit	X		X	X	
	Input x: Switch/Dim func.	Dimming	3.007	4 bit	X			X	
	Input x: Shutter func.	Stop/Slat adjustment	1.007	1 bit	X			X	
	Input x: Value/Forced op.	Value-2, switch	1.001	1 bit	X			X	

	Input Value/Forced op. x:	Value-2, forced operation	2.001	2 bit	X			X	
	Input Value/Forced op. x:	Value-2, unsigned	5.010	1 byte	X			X	
	Input Value/Forced op. x:	Value-2, unsigned	8.001	2 byte	X			X	
	Input Value/Forced op. x:	Value-2, signed	7.001	2 byte	X			X	
	Input Value/Forced op. x:	Value-2, floating point	9.001	2 byte	X			X	
	Input Value/Forced op. x:	Value-2, unsigned	12.001	4 byte	X			X	
	Input x: Scene func.	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 func.	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 func.	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 byte	X	X		X	
22	Brightness	Measured value	9.004	2 byte	X	X		X	
23	Brightness	Calibration value	9.004	2 byte	X		X		

24	Sensor	Lock	1.003	1 bit	X		X		
25	Sensor	Presence output	1.001	1 bit	X		X	X	X
			5.001	1 byte					
26	Sensor	Light-on time	7.005	2 byte	X		X		X
27	Sensor	Slave input	1.001	1 bit	X		X		X
28	Sensor	External brightness	9.004	2 byte	X		X		X
29	Sensor	Brightness-value threshold	9.004	2 byte	X	X	X	X	X
30	Presence 1	Lock	1.003	1 bit	X		X		X
31	Presence 1	Presence output	1.001	1 bit	X		X	X	X
			5.001	1 byte					
32	Presence 1	Light-on time	7.005	2 byte	X		X		X
33	Presence 1	External movement	1.001	1 bit	X		X		
34	Presence 1	External brightness	9.004	2 byte	X		X		
35	Presence 1	Brightness-value threshold	9.004	2 byte	X	X	X	X	X
36	Presence 1	Manual on/off	1.001	1 bit	X		X		
37	Presence 1	Relative dimming	3.007	4 bit	X		X		X
38	Presence 1	Absolute dimming	5.001	1 byte	X		X		X
39	Presence 1	Status of control	1.001	1 bit	X	X		X	
40	Presence 1	Forced operation	1.010	1 bit	X	X	X		X
			2.001	2 bit	X	X	X		X
41	Presence 1	Forced operation value	5.001	1 byte	X	X	X		X
85	Temperature	Alarm	1.005	1 bit	X	X		X	
86	Temperature	Actual Temperature	9.001	2 byte	X	X		X	
87	Temperature	KNX Probe Temperature	9.001	2 byte	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	HVAC Output	20.102	1 byte	X	X		X	
91	Virtual Holder	Additional Output	5.001	1 byte	X			X	
92	Virtual Holder	Remote Input 1	1.002	1 bit	X		X		
93	Virtual Holder	Remote Input 2	1.002	1 bit	X		X		
94	Logic x:	Block function	1.003	1 bit	X		X		
95	Logic x:	Feedback of block	1.003	1 bit	X	X		X	
96	Logic x: Input	External movement	1.001	1 bit	X		X	X	X
97	Logic x: Input	External brightness	9.004	2 byte	X		X	X	X
98	Logic x: Input	Brightness threshold lower	9.004	2 byte	X		X	X	X
99	Logic x: Input	Brightness threshold upper	9.004	2 byte	X		X	X	X
100	Logic x: Input	External temperature	9.001	2 byte	X		X		
101	Logic x: Input	Temperature threshold lower	9.001	2 byte	X		X	X	X
102	Logic x: Input	Temperature threshold upper	9.001	2 byte	X		X	X	X
103	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 byte	X		X		X
		External input-1 (2 bytes float threshold)	9.001	2 byte	X		X		X
		External input-1 (4 bytes threshold)	7.001	4 byte	X		X		X
104	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 byte	X		X		X
		External input-2 (2 bytes float threshold)	9.001	2 byte	X		X		X
		External input-2 (4 bytes threshold)	7.001	4 byte	X		X		X
105	Logic x: Output	Result status	1.002	1 bit	X	X		X	

106	Logic x: Output: y	Switch	1.001	1 bit	X	X		X	
		Dimming	3.007	4 bit	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 byte)	16.000	14 byte	X	X		X	
		Threshold	7.001	2 byte	X	X		X	
107	Logic x: Output: y	Delay time on TRUE state	7.005	2 byte	X		X	X	
108	Logic x: Output: y	Delay time on FALSE state	7.005	2 byte	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 telegram can be sent cyclically on the KNX bus line.

DPT : 1.002 (boolean)

Object Name	Function	Type	Flags
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 byte	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 byte	CW
------------	-------------------	--------	----

This object is used for brightness sensor calibration. In general, sensor calibration is required in order 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 byte	CWU
--------	---------------	--------	-----

This object is used to change the duration of the sensor channel light-on time. The light-on time is the time 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 time 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 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 byte	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 byte	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 presence 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 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 byte	CWU
------------	---------------	--------	-----

This object is used to change the duration of the presence channel light-on time. The light-on time is the time 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 time 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. In order 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 byte	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 byte	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 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 : Dimming operation will be proceed according to “Dimming time for manual from 0...%100 (0 = immediately)” parameter.

DPT : 1.001 (switch)

Presence 1	Relative dimming	4 bit	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 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 : Dimming operation will be proceed according to “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 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 : Dimming operation will be proceed according to “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 bit	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 in order 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 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
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This communication object changes in functionality depending on the selected input function. Depending on the configuration, the data type of this object changes. RGB color 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
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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 color 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 func. /RGB control	Upper limit operation / Blue colour	1 bit / 1 byte	CWU
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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, 1 byte Blue color value is set via this object.

DPT : 1.001 / 5.010

Input x: Shutter func.	Lower limit operation	1 bit	CWU
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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 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
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This object is used to lock the external probe that 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 byte	CRT
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This object is used to send temperature value 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 byte	CRT
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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 byte	CW
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This object is used for receive the temperature value from the KNX bus line. This value can be used as 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 card holder 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 behavior if the room is booked or not; 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
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This object is used to send “1” when someone is detected inside the room (presence) and “0” when nobody is detected inside the room and the “presence wait time” has expired (absence).

DPT : 1.002

Virtual Holder: Output	HVAC Output	1 byte	CRT
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This object is used to send HVAC commands in event of presence and absence. Commands can be set different if the room in booked or not and if the person who enter the room is guest, service or maintenance

Note : The values which can be sent are can be ‘comfort’, ‘standby’, ‘economy’ and ‘building protection’.

DPT : 20.102

Virtual Holder: Output	Additional Output	1 byte	CT
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This object is used to send commands in event of presence and absence. Commands can be set different if the room in booked or not and if the person who enter the room is guest, service or maintenance.

DPT : 5.010

Virtual Holder: Remote Input 1	Door / Presence	1 bit	CW
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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 telegram.

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

DPT : 1.002

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

A Remote Input communication object (type presence) must be connected only to one single device with presence on/off 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 KNX Presence sensor, so only one logic 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 logic 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
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This object is used to send feedback of 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 status value will be sent from this object.

DPT : 1.003

Logic x: Input	External movement	1 bit	CW
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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 byte	CWTU
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This object is used to obtain 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 byte	CWTU
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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 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 byte	CWTU
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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 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 byte	CW
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This object is used to obtain temperature value 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 byte	CWTU
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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 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 byte	CWTU
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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 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
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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 calculate the input status. But for other input (such as 1 byte or 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
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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 calculate the input status. But for other input (such as 1 byte or 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
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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 byte	CRT
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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 TRUE state	2 byte	CWT
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This object is used to receive '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 output on delay time for 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 byte	CWT
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This object is used to receive '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 output on delay time for 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