Developer of Uniqueness

KNX Binary Input

Product Manual

Version 1.0

Contents

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1. Content of The Document

This document contains Interra ITR112-XXXX coded KNX Binary Input devices' electronic and all essential feature information for programming the products. In each subtitle is explained the characteristics of the device. Modifications of the product and special change requests are only allowed in coordination with product management.

This manual provides detailed technical information concerning ITR112-XXXX KNX Binary Input. All the models have the same software functionality so, the features described in this document apply to all versions.

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

2. Product Description

ITR112-XXXX series KNX Binary Input device is the newest products of Interra Technology. The Interra KNX Binary Inputs are designed for using at mainly in interior areas of buildings.

The Interra KNX Binary Input serve as interfaces for operation of KNX systems via conventional buttons/switches or for coupling of binary signals (signal contacts). The devices feature a push button for manual operation for each input. Input states can be simulated during manual operation, so that the conventional push buttons, switches or floating contacts do not need to be connected for commissioning purposes. The connection to the KNX Binary Input is established using the front side bus connection terminal.

All versions have a rear connector with 12 digital inputs that can be connected to buttons and used for switch sensor, switch/dimming sensor, shutter sensor, value/forced operation, control scene, RGB colour control, RGBW control, mode selection and command sequence.

Interra KNX Binary Input has 5 logic function blocks and can be set the logical relation AND/OR/XOR. Each block can control 5 output objects.

2.1. Technical Information

The following table shows the technical information of the KNX Binary Input.

Product Name	KNX Binary Input
Product Code	ITR112-XXXX
Power Supply	KNX Power Supply
Current Consumption	10 mA
Inputs	12
Cable Length	Maximum 100 m at 1.5 mm^2
Cable Cross-Section	0.25 – 1.5 mm^2
Cable Stripping	6 mm
Type of Inputs	Dry Contact Inputs
Mode of Commissioning	S-Mode
Type of Protection	IP 20
Temperature Range	Operation (-5°C...45°C) Storage (-25°C...55°C)
Colour	Light Grey
Dimensions	90 x 36 x 71 mm (H x W x D)
Certification	KNX Certified
Configuration	Configuration with ETS

2.2. Connection Features

The figure below shows the KNX Binary Input connectors. All of the ITR112-XXXX models have the same connection layout.

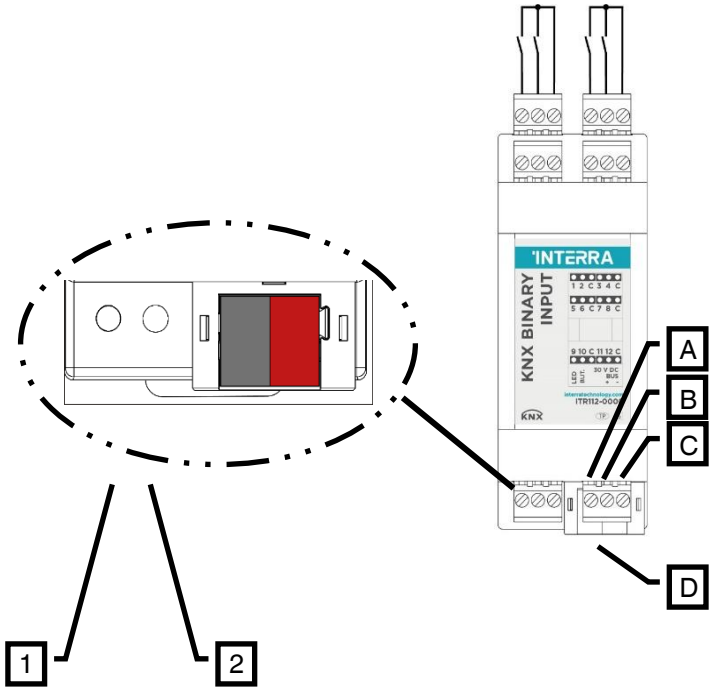

Fig. 1 : Connection Features of KNX Binary Input

Letter	Feature
A	Input X
B	Input Y
C	Common
D	KNX Connector
1	Programming LED
2	Programming Button

2.3. Dimensions

All values given in the device dimensions are millimetres.

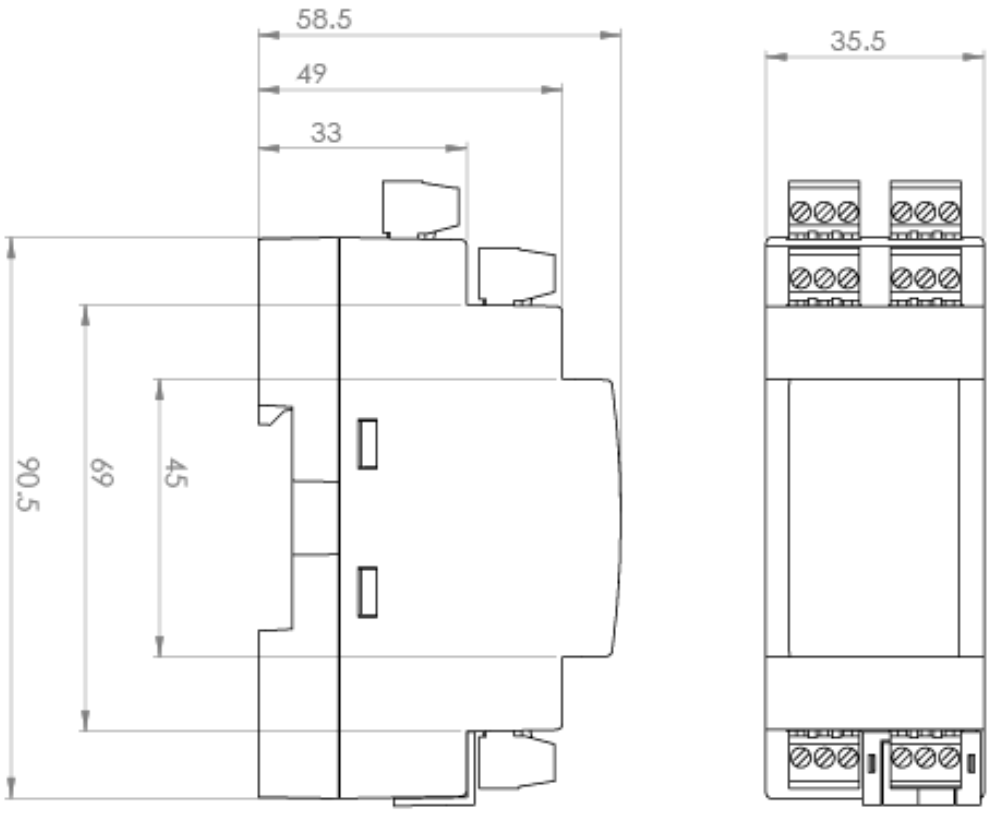

Fig. 2 : Dimensions of KNX Binary Input

2.4. Functionality

The complete configuration of the device is performed via ETS5 or higher. Depending on ETS configuration and settings, the product feature will be different. Available functions are:

Input Functions

- Switch Sensor
- Switch / Dimming Sensor
- Shutter Sensor
- Value / Forced Operation
- Control Scene
- RGB Colour Control
- RGBW Control
- Mode Selection
- Command Sequence
- Counter

Logic Functions

Internal Inputs (max. 12)

External Inputs

- Binary Value (adj. size) (max. 3 selectable)
- Movement
- Temperature
- Brightness

Output Types (max. 5 selectable)

- Switch
- Dim
- Shutter
- Alarm
- Percentage
- Sequence
- Scene Number
- String
- Threshold

Most functions only need one input, and therefore each input might be assigned a different function. However, there are also some functions that can also use two inputs, such as “Dimming with 2 buttons” and “Shutter/Blinds with 2 buttons”.

3. ETS Parameters & Descriptions

In this chapter, the ETS parameters of ITR112-XXXX KNX Binary Input devices are described using the parameter pages and options. The parameter pages features are dynamic structures which mean further parameters and parameter pages are enabled depending on the configuration.

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

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

3.1. General Page

When the ITR112-XXXX KNX Binary InputETS 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.

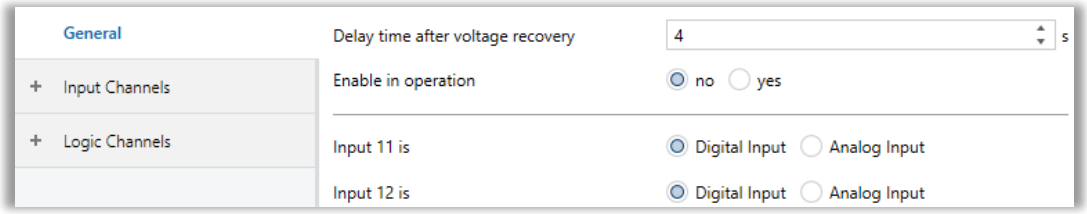

Fig. 3 : General Page Configuration

3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Delay time after voltage return	This parameter is used to determine the delay time after voltage return in seconds. When in a delayed state, the KNX Binary Inputdoes not send any KNX telegrams. Incoming telegrams are received and updated in the background. The updated values are only executed when the wait state ends and then sent according to the parametrization.	2...**4**…60
Enable In Operation	This parameter is used to determine the existence of the KNX Binary Inputon 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.	**Alive value ‘0’** Alive 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
Input 11 is	This parameter is used to determine whether the selected input is analog or digital.	**Digital Input** Analog Input
Input 12 is	This parameter is used to determine whether the selected input is analog or digital.	**Digital Input** Analog Input

3.2. Inputs

Interra KNX Binary Input has 12 digital inputs or 10 digital and 2 analog inputs. 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 Binary Input.

3.2.1. Input – Switch Sensor

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

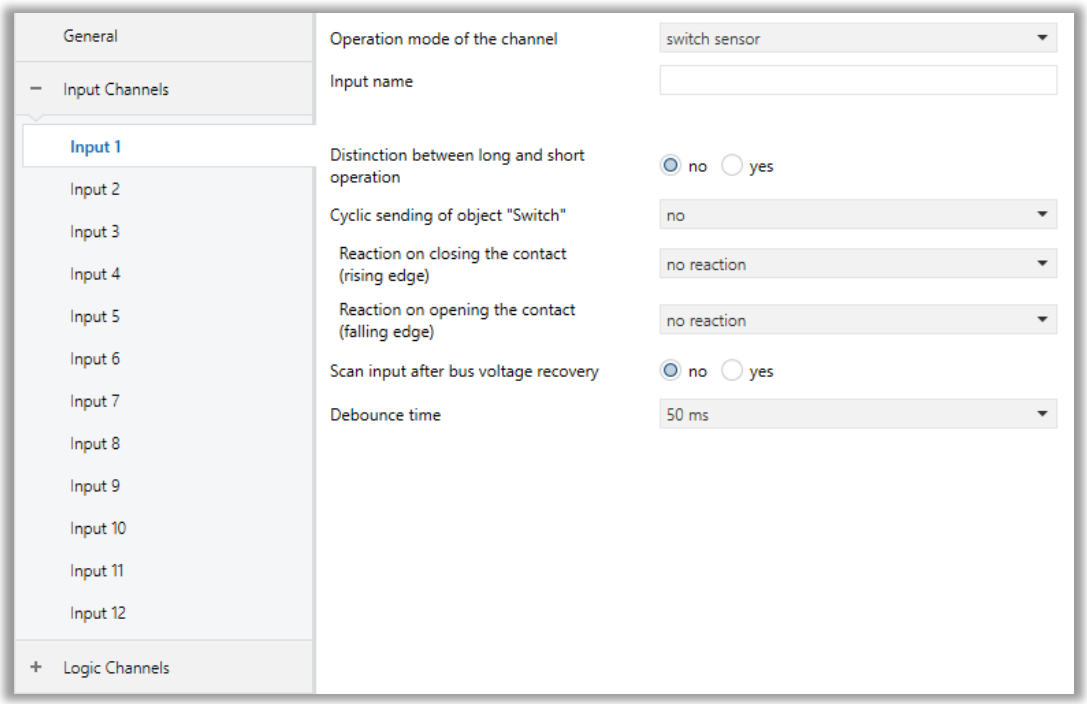

Fig. 4 : Input – Switch Sensor

3.2.1.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can consist of up to 40 characters.	**40 bytes allowed**
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contact, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
-> Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binary Inputinput x.	Normally closed **Normally open**
-> Cyclic sending of object “Switch”	This parameter is visible if there is no distinction between short and long operations. The communication object “Switch” can be sent cyclically. If the parameter “always” is set, the object sends cyclically on the bus, regardless of its value. Should the parameter value “if telegram switch = ON” or “if telegram switch = OFF” be set, the corresponding object value is sent cyclically.	**No** If “Switch” = OFF If “Switch” = ON always
-> Reaction on closing the contact **(rising edge)**	This parameter is visible if there is no distinction between short and long operations. For each edge, you can set if the object value is to be	**No reaction** ON OFF

	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.	TOGGLE
-> Reaction on opening the contact **(Falling edge)**	This parameter is visible if there is no distinction between short and long operations. For each edge, you can set if the object value is to be switched ON, OFF or TOGGLE, or if no reaction should occur. If cyclical sending has been parameterized, it is possible by setting the parameter value “terminate cyclic sending” with an operation of the input, to stop cyclic sending without a new object value being sent.	**No reaction** ON OFF TOGGLE
-> Telegram is repeated every	This parameter is visible if the cyclical transmission is active. The send cycle time describes the time used between two cyclically transmitted telegrams	00:00:005…**00:00:500**…01:05:535
-> 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
-> Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**No reaction** ON OFF TOGGLE
-> Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**No reaction** ON OFF TOGGLE
-> Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.005…**00:00.500**…01:05.535

-> Number of object for short/long operation	This parameter is used to determine the object count to use for short and long operations. **1 object**: short and long operations will proceed with the same object. **2 object**: Short and long operations will proceed with 2 different objects.	**1 object** 2 object
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

3.2.2. Input – Switch / Dimming Sensor

In this section, it is explained how to control the unit of a lighting unit through the KNX Binary Input, 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.

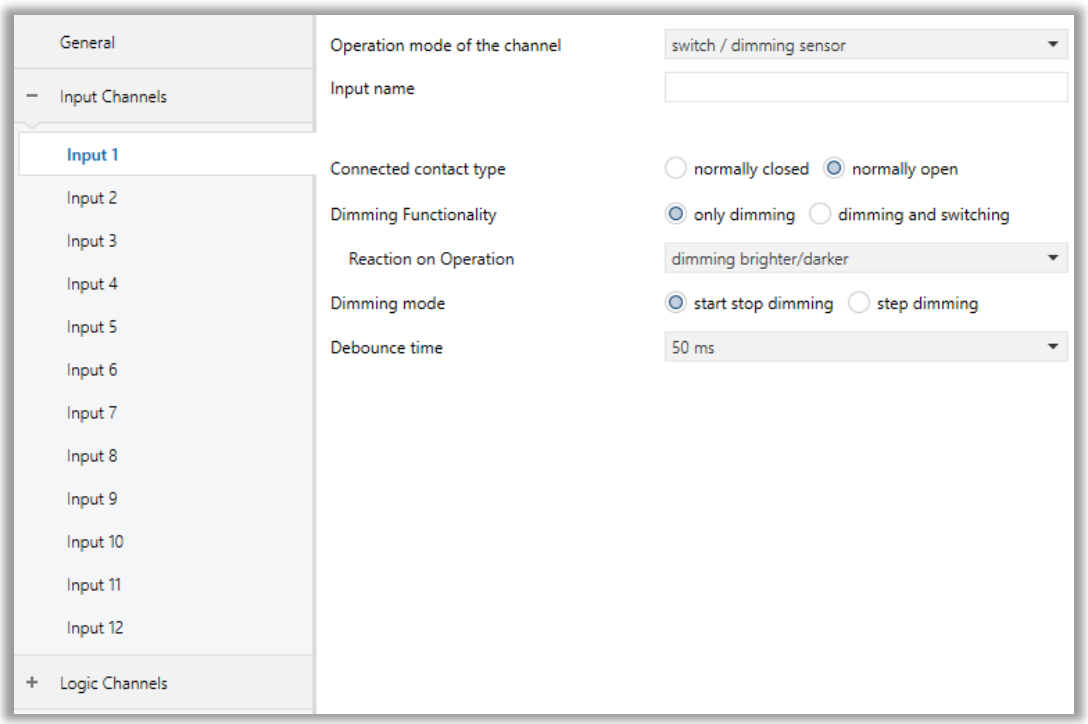

Fig. 5 : Input – Switch / Dimming Sensor

3.5.2.1. Parameters List

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

-> Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.005…**00:00.500** …01:05.535
Dimming mode	This parameter is used to determine the dimming mode. Normal “Start-stop-dimming” starts the dimming process with a telegram BRIGHTER or DARKER and ends the dimming process with a STOP telegram. Cyclic sending of the telegram is not necessary in this case. With “Dimming steps”, the dimming telegram is sent cyclically during a long operation. The STOP telegram ends the dimming process at the end of the operation.	**Start-stop dimming** Step Dimming
-> Brightness change on every sent telegram	This parameter is only visible with “Dimming steps”. This parameter is set to change the brightness (in per cent), which is cyclically sent with every dimming telegram.	%100 %50 **%25** %12.5 %6.25 %3.125 %1.563
-> 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

3.2.3. 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 Binary Input. Detailed information on the relevant parameter configurations is described in the table below.

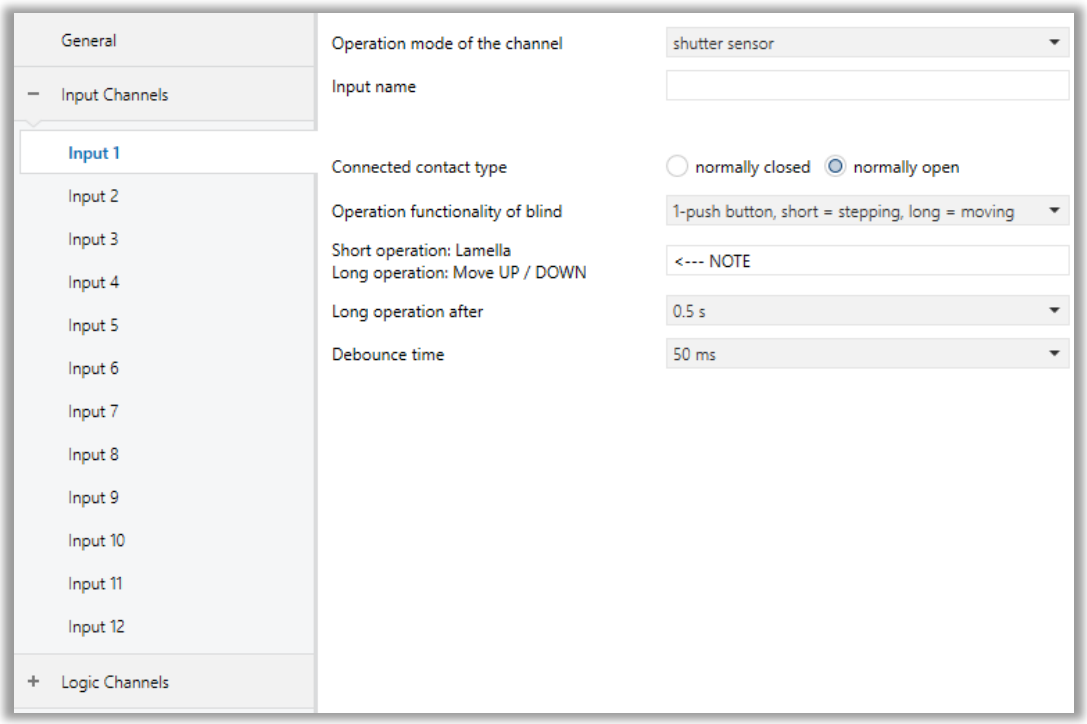

Fig. 6 : Input – Shutter Sensor

3.2.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX binary input x.	Normally closed **Normally open**
Operation Functionality of blind	This parameter is used to define the type of blind operation. An overview of the operating modes is described below.	**1-push-button, short = stepping, long = moving** 1-push-button, short = moving, long = stepping 1-push-button-operation 1-switch button operation 2-push-button, standard 2-switch-operation, moving 2-push-button, moving 2-push-button, stepping
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 a long operation.	0.3s, 0.4s, **0.5s**, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
1-push button operation		
On Every operation in success: **UP – STOP – DOWN - STOP**	NOTE	NOTE
1-switch button operation		
On operation : UP – DOWN **End of operation : STOP**	NOTE	NOTE
2-push button operation, standard		
Short Operation : STOP – Lamella UP / DOWN **Long Operation : Move UP / DOWN**	NOTE	NOTE
Reaction on short operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**Stop / lamella up** Stop / lamella down

Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**Move up** Move down
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	0.3s, 0.4s, **0.5s**, 0.6s, 0.8s, 1s, 1.2s, 1.5s, 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s,
2-switch operation, moving		
On Operation : Moving **End of Operation : STOP**	NOTE	NOTE
Reaction on operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Move up** Move down
2-push button operation, moving		
On Operation : Moving **End of Operation : STOP**	NOTE	NOTE
Reaction on operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Move up** Move down
2-push-button operation, stepping		
On Operation : Stepping	NOTE	NOTE
Reaction on operation	This parameter is used to determine the reaction when an operation occurs. A distinction is not made between short and long operations here.	**Stop / Lamella up** Stop / Lamella down
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

3.2.3.2. The Functionality of Each Function

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

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

3.2.4. Input Value / Forced Operation

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

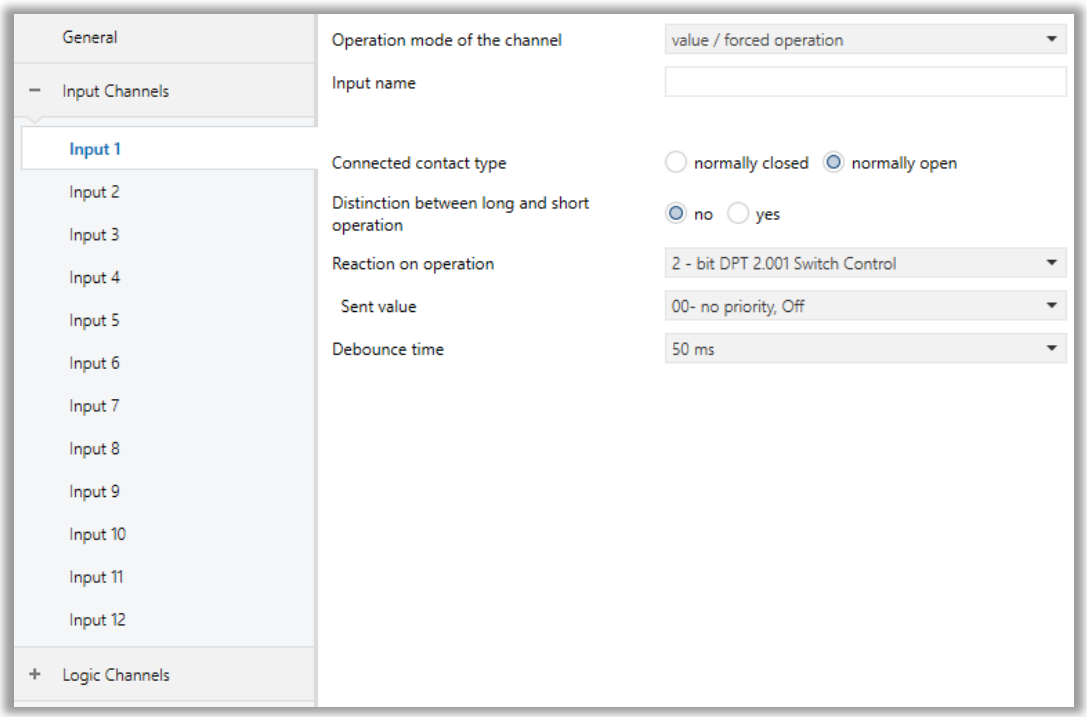

Fig. 7 : Input – Value / Forced Operation

3.2.4.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binary input x.	Normally closed **Normally open**
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contact, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
Reaction on operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**2-bit DPT 2.001 Switch Control** 1-byte DPT 5.001 Percent (0…100%) 1-byte DPT 5.005 Decimal factor (0…255) 1-byte DPT 17.001 Scene Number 2-byte DPT 7.600 Colour temperature(Kelvin) 2-byte DPT 9.001 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.
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
Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**2-bit DPT 2.001 Switch Control** 1-byte DPT 5.001 Percent (0…100%) 1-byte DPT 5.005 Decimal factor (0…255) 1-byte DPT 17.001 Scene Number 2-byte DPT 7.600 Color temperature(Kelvin) 2-byte DPT 9.001 Color temperature (˚C) 2-byte DPT 9.004 Brightness (Lux) 3-byte DPT 232.600 RGB value 3x (0…255)
-> sent value	This parameter is used to determine the sending value to the bus when a long operation occurs.	Values depends on DPT selection.
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

3.2.5. Input – Control Scene

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

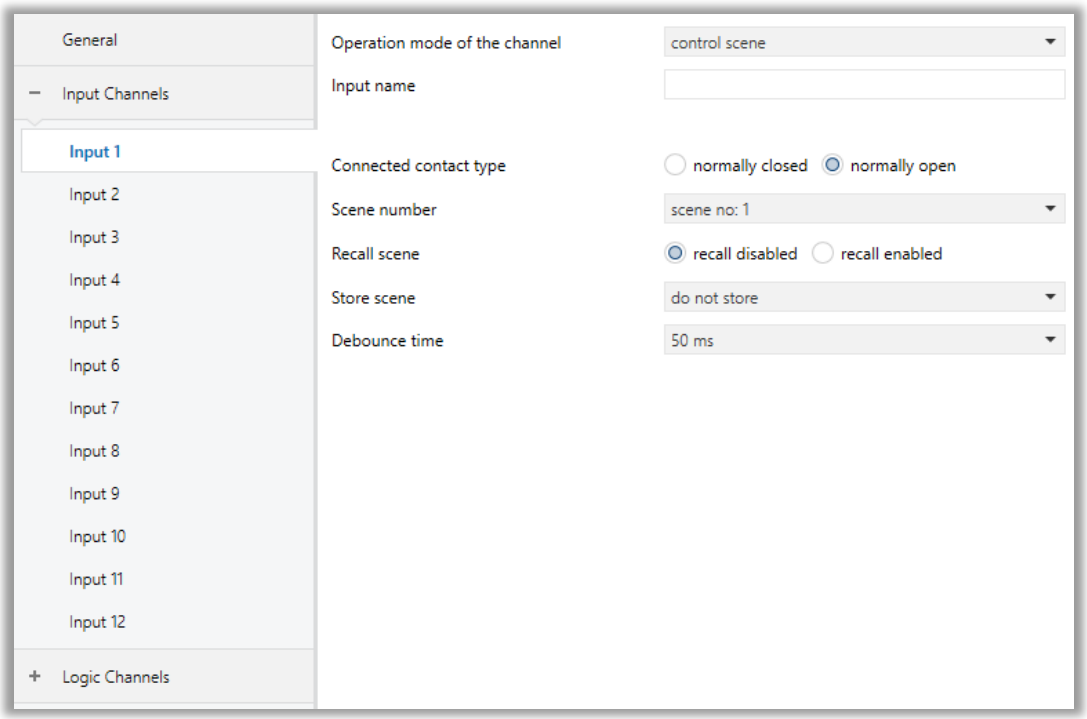

Fig. 8 : Input – Control Scene

3.2.5.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binary input x.	Normally closed **Normally open**
Scene Number	This parameter is used to configure the scene number to send to the KNX when a short press operation occurs.	**Scene no.1**…Scene no.64
Recall scene	This parameter is used to determine the recalling of the scene. If this parameter is selected as “recall enabled” the configured scene number will be called.	Recall disabled **Recalled enabled**
Store Scene	This parameter is used to determine to store or not to store the related scene. **On long operation** : The scene will be stored after a long operation. **With “Store scene” obj. value = 1** : The scene will be stored on operation if the Store scene object value is 1. **On long operation (“Store scene” obj. value = 1)** : The scene will be stored on long operation if the Store scene object is 1.	**Do not store** 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.	00:00.005…**00:00.500**…01:05.535
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

3.2.6. 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 Binary Input. Detailed information on the relevant parameter configurations is described in the table below.

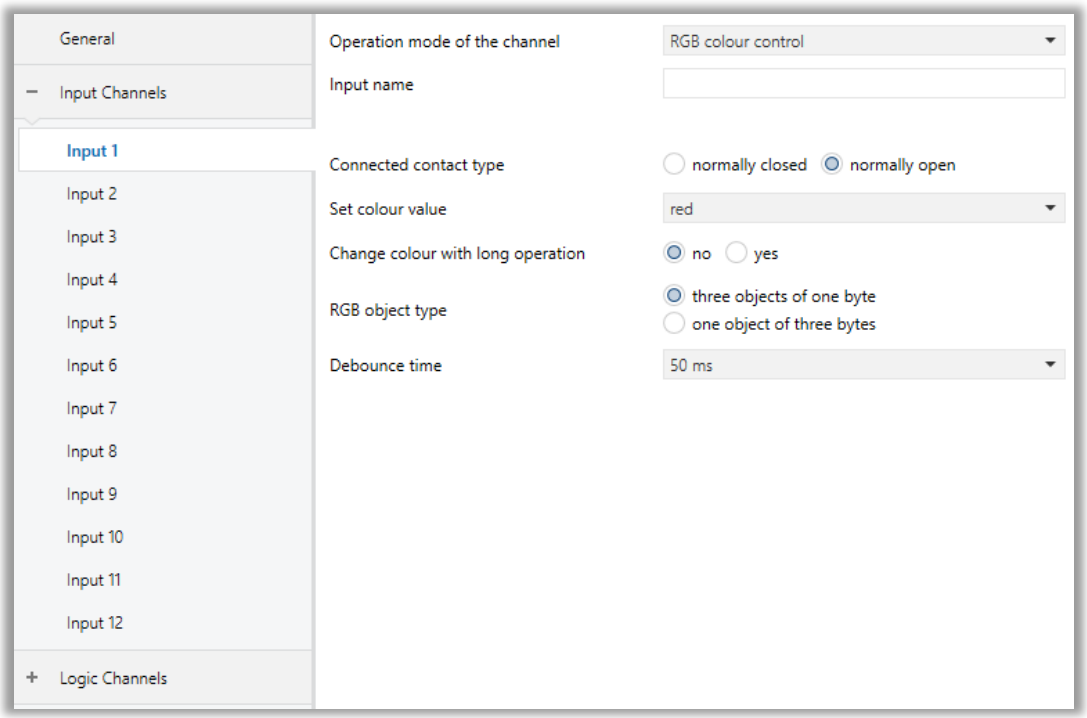

Fig. 9 : Input – RGB Colour Control

3.2.6.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binary input x.	Normally closed **Normally open**
Set colour value	This parameter is used to set RGB colours according to the configured values.	**Red** Orange Yellow Green-yellow Green Green-cyan Cyan Blue-cyan Blue Blue-magenta Red-magenta white
Change colour with long operation	This parameter is used to enable or disable the colour changing with long press operation.	**No** Yes
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the	00:00.005…**00:00.500**…01:05.535

	button should be pressed at least the configured value.	
RGB object type	This parameter is used to determine the RGB colour object type.	**Three object of one byte** one object of three bytes
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.2.7. 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 Binary Input. Detailed information on the relevant parameter configurations is described in the table below.

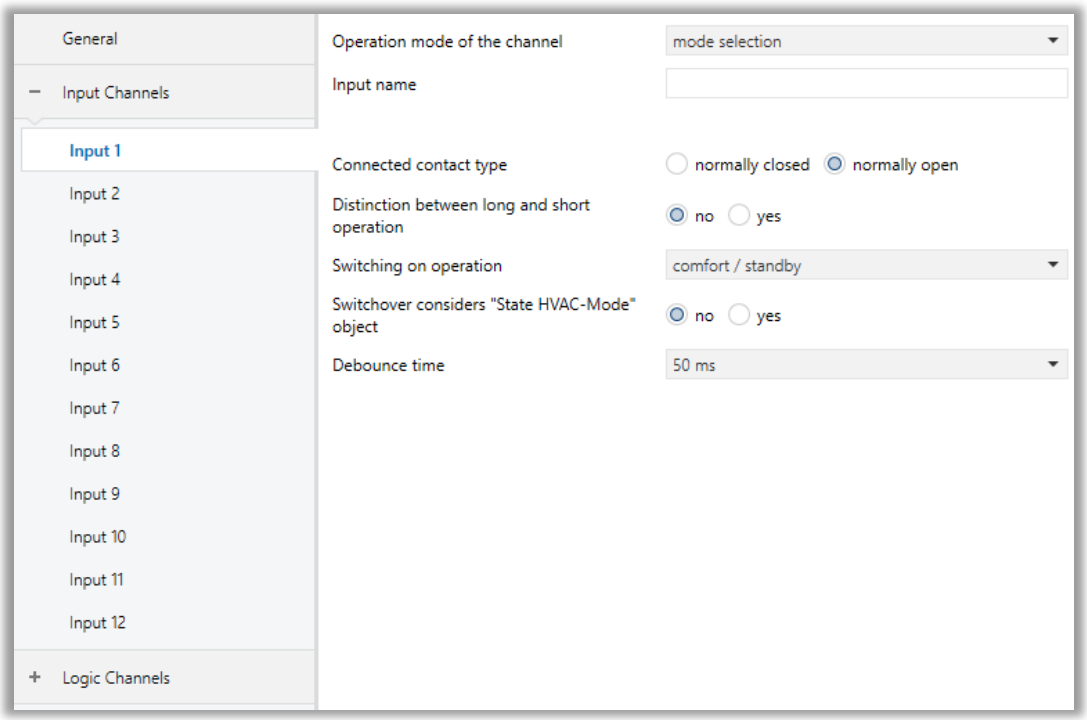

Fig. 10 : Input – Mode Selection

3.5.7.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binary input x.	Normally closed **Normally open**
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contact, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
-> Reaction on short operation **Switching on operation**	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**Comfort / standby** Comfort / economy Comfort / standby / economy Comfort / standby / economy / frost
-> Reaction on long operation	This parameter is visible if there is a distinction between short and long operations. It is used to determine the long-press operation sending the value of the input x.	**Comfort / standby** Comfort / economy Comfort / standby / economy Comfort / standby / economy / frost

Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the button should be pressed at least the configured value.	00:00.005…**00:00.500**…01:05.535
Switchover considers "State HVAC-Mode" object	This parameter is used to enable the HVAC-Mode state object to change the current HVAC mode via KNX.	**No** Yes
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.2.8. Input – Command Sequence

In this section, it is explained how the command sequence function works. Up to 4 commands are attainable with either 1 bit, 1 byte (percentage) or 1 byte (0..255) objects. Each press event toggles through the used commands (Object A, B, C, D) via the assigned buttons. Detailed information on the relevant parameter configurations is described in the table below.

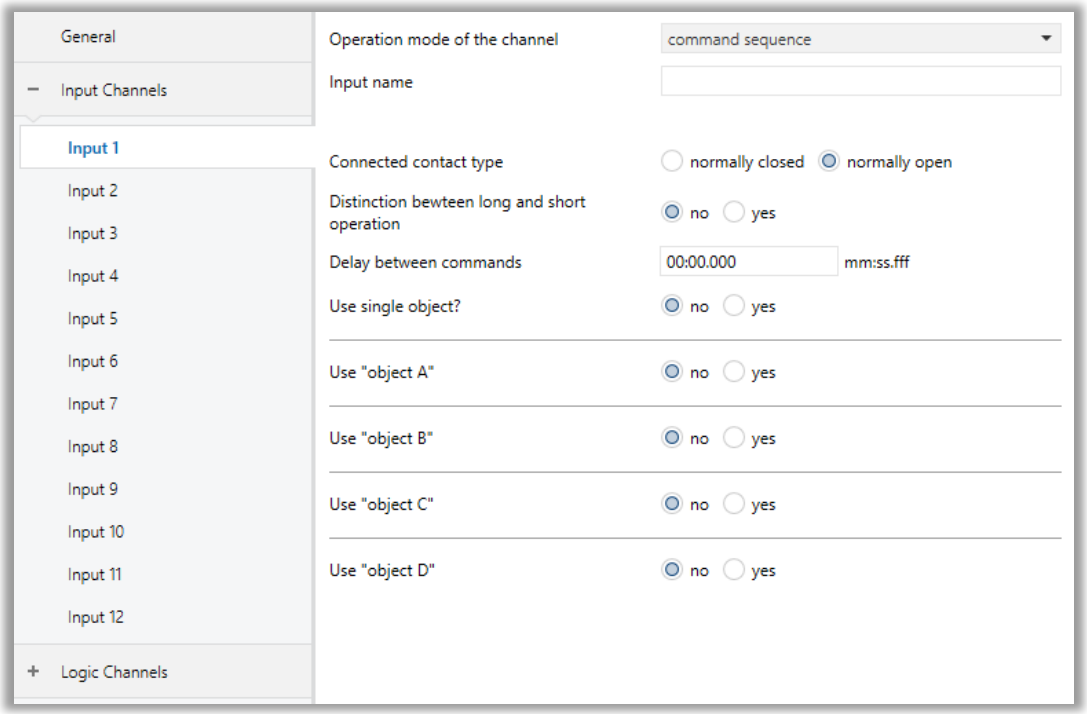

Fig. 11 : Input – Command sequnce

3.2.8.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binaryinput x.	Normally closed **Normally open**
Distinction between short and long operation	This parameter is used to set if the input differentiates between short and long operations. With the option “yes”, after opening/closing of the contact, it must, first of all, be ascertained if a short or long operation has occurred here. Only thereafter will a possible reaction be triggered.	**No** Yes
Delay between commands	This parameter is visible if there is a distinction between short and long operations. It is used to determine the short press operation sending the value of the input x.	**00:00.000**…00:20.000
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.	00:00.005…**00:00.500**…01:05.535
Use single object?	This parameter decides wheter each object is sent to a single object or to objects assigned to each command.	**No** Yes

➔ **Value Amount**	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.	2 **3** 4
➔ **Data type**	This parameter is used to determine the sending value to the bus when a short operation occurs.	Values depends on DPT selection.
Use “object X”	This parameter is used to enable each command object when they are set to yes.	**No** Yes
➔ **Data type**	This parameter is used to determine the sending value to the bus when a short operation occurs.	Values depends on DPT selection.

3.2.9. Input – Counter

In this section, it is explained how to count input pulses on the KNX Binary Input. Detailed information on the relevant parameter configurations is described in the table below.

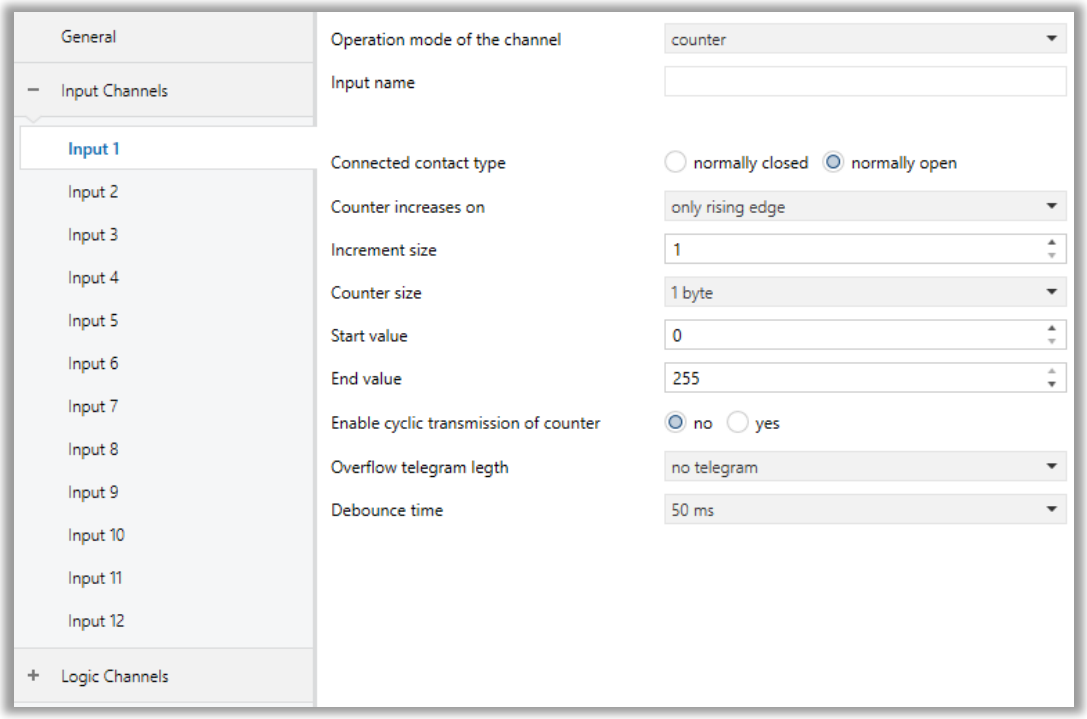

Fig. 12 : Input – Counter

3.2.9.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binary input x.	Normally closed **Normally open**
Counter increases on	This parameter is used to set how the input pulse is to be generated.	**Only rising edge** Only falling edge Both edges
Increment size	This parameter is used to assign the increment size when a press event occurs.	**1**…255
Counter size	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.	1 byte **2 byte** 4 byte
Start Value	This parameter is used to set the initial value of the counter after a reset or a failure.	Values depends on DPT selection.
End Value	This parameter is used to set the end value of the counter.	Values depends on DPT selection.
Enable cyclic transmission of counter	This parameter is used to determine if the counter value is sent cyclically on the bus	**No** Yes

➔ **Repeated transmit cycle period**	This parameter is used to determine the sending value to the bus when a short operation occurs.	00:00.005…**00:00.500** …01:05.535
Overflow telegram length	This parameter is used to set the length of the overflow telegram which will be sent to bus when counter value exceeds the end value set in the parameter list.	**No telegram** 1 bit 1 byte
➔ **Overflow telegram value**	This parameter is used to determine the sending value to the bus when a short operation occurs.	Values depends on DPT selection.
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

3.2.10. Input – RGBW control

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

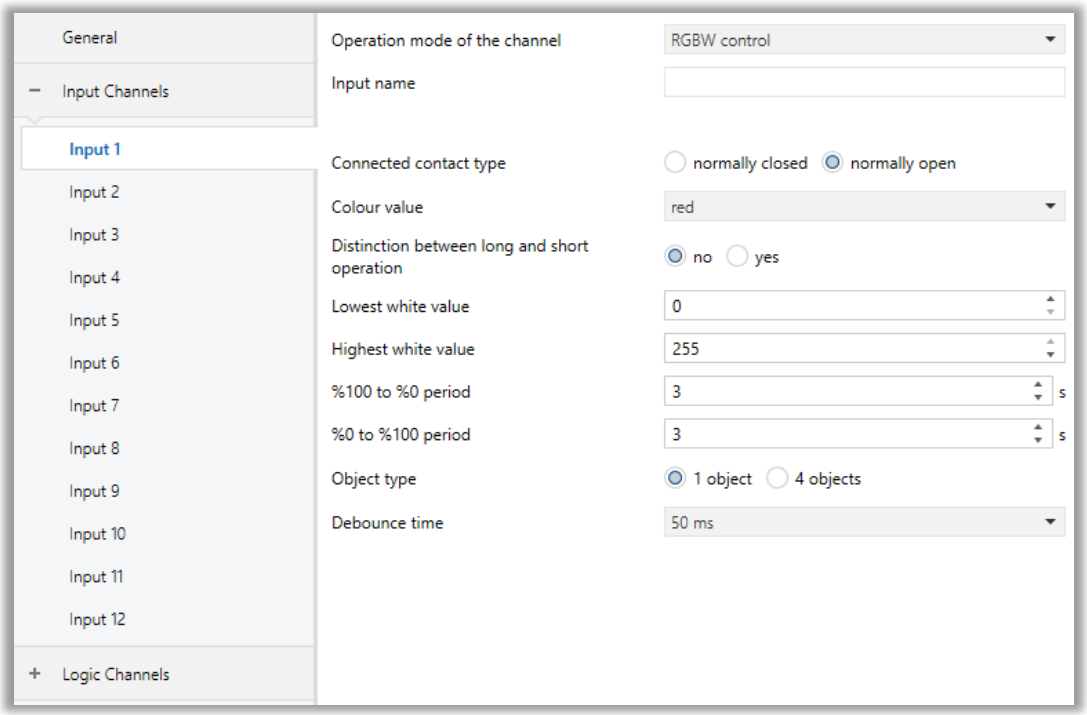

Fig. 13 : Input – RGBW Control

3.2.10.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Operation Mode of the channel	This parameter is used to determine the input x operation mode. If no function is selected, the input x will not be used. For other choices, all functionalities are configured separately.	**No function** Switch sensor Switch/dimming sensor Shutter sensor Value/forced operation Control scene RGB colour control Mode selection Command sequence Counter RGBW control
Input Name	This parameter is used to type an input name. The name can be consisting of 40 characters.	**40 bytes allowed**
Connected contact type	This parameter is used to specify the contact type that is connected to the KNX Binary input x.	Normally closed **Normally open**
Set colour value	This parameter is used to set RGB colours according to the configured values.	**Red** Orange Yellow Green-yellow Green Green-cyan Cyan Blue-cyan Blue Blue-magenta Red-magenta white
Change colour with long operation	This parameter is used to enable or disable the colour changing with long press operation.	**No** Yes
Long operation after	This parameter is used to determine long operation detection after the button press operation. For making a long operation, the	00:00.005…**00:00.500**…01:05.535

	button should be pressed at least the configured value.	
Lowest white value	This parameter is set to the lowest white value.	**0**..254
Highest white value	This parameter is set to the highest white value.	1…**255**
%100 to %0 period	This parameter is used to set how long it takes to go from 100% to 0%.	1s...**3s**…10s
%0 to %100 period	This parameter is used to set how long it takes to go from 0% to 100%.	1s...**3s**…10s
Object type	This parameter is used to determine the RGB colour object type.	**1 object** 4 objects
Debounce time	This parameter is used to determine the debounce time. Debouncing prevents unwanted multiple operations of the input, e.g., due to bouncing of the contact.	10 ms 20 ms 30 ms 40 ms **50 ms** 70 ms 100 ms 150 ms

3.3. Logic Channels

This section describes the logical function modules of the Interra KNX Binary Input. With the logical function blocks on the KNX Binary Input, 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.

3.3.1. Logic Channels – General

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

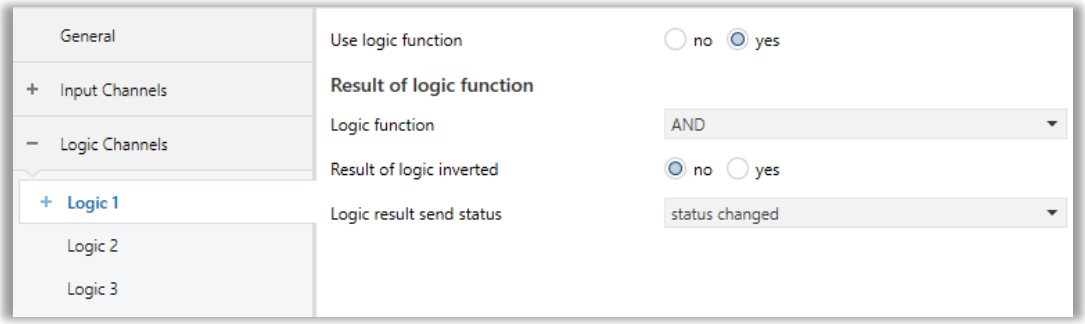

Fig. 14 : Logic Functions – General

3.3.1.1. Parameters List

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

3.3.2. Logic Functions – Internals Inputs

This section describes the input parameters of the logical association module of the Interra KNX Binary Input.

Parameters must be configured separately for each logic block.

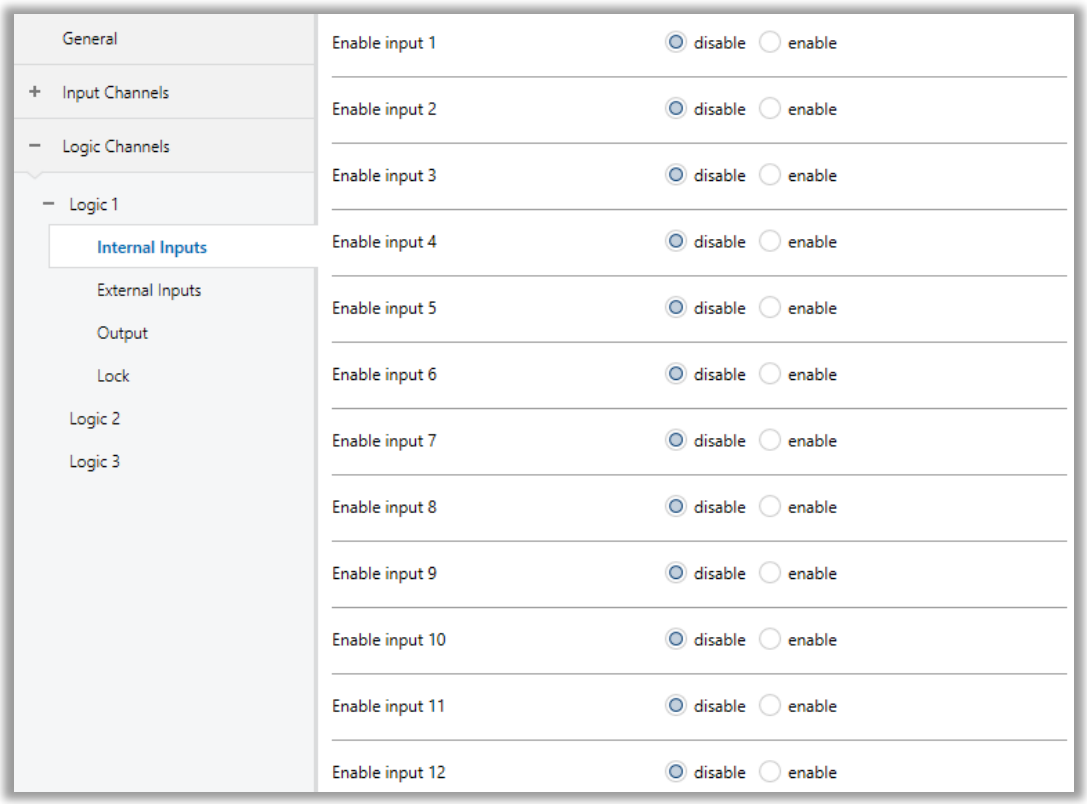

Fig. 15 : Logic Functions – Internal Inputs

3.3.2.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Enable Input 1	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 2	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 3	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 4	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 5	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE

Enable Input 6	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 7	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 8	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 9	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 10	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 11	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable

->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 12	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE

3.3.3. Logic Functions – Externals Inputs

This section describes the externals input parameters of the logical association module of the Interra KNX Binary Input. Parameters must be configured separately for each logic block.

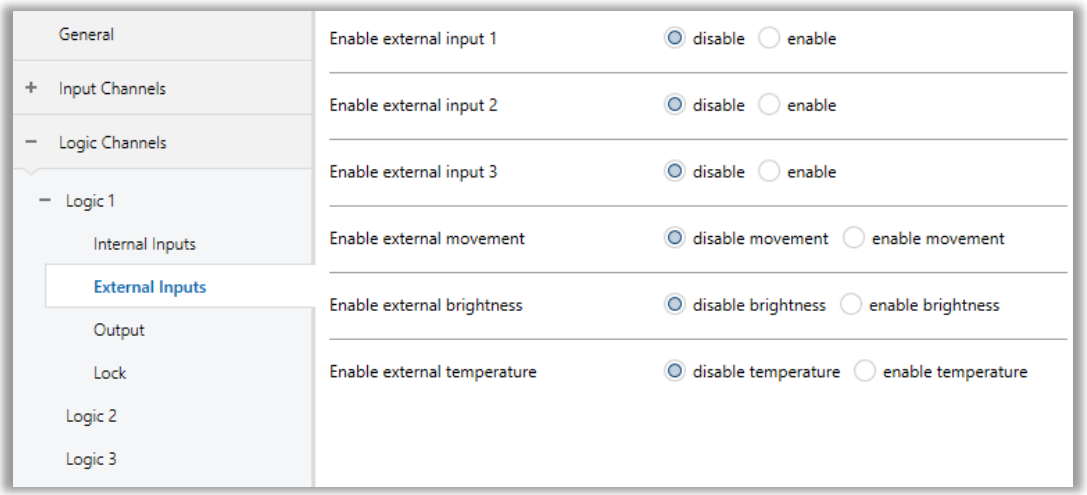

Fig. 16 : Logic Functions – External Inputs

3.3.3.1. Parameters List

PARAMETERS	DESCRIPTION	VALUES
Enable External Input 1	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable
->> 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 threshold (0..255) 2-byte threshold (0..65535) 2-byte float threshold (-50C..100C) 4-byte threshold (0..4294967295)
->> External Input Treshold Value	This parameter is used to determine the external input threshold value to evaluate the input status as TRUE or FALSE.	**0**…255 **0**…65535 -500…0…1000 0…10000…4294967295
External input status	This parameter is used to determine the input status as TRUE or FALSE according to the value. (This is visible if the input is not selected as 1 bit)	**TRUE if input value >= threshold else FALSE** FALSE if input value <= threshold else TRUE
Enable Input 2	This parameter is used to enable or disable input 2 for logic function block as input	**Disable** enable
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Input 3	This parameter is used to enable or disable input 1 for logic function block as input	**Disable** enable

->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
->> Contact Input Status	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Pressed TRUE else FALSE** Pressed FALSE else TRUE
Enable Extarnal movment	This parameter is used to enable or disable input 1 for logic function block as input	**Disable movement** Enable movement
->> External movement input is set to TRUE when recieved	This parameter is used to determine when a press occurs on the local input is accounted as TRUE or FALSE.	**Slave value '0'** Slave value '1'
Enable External Brightness	This parameter is used to enable or disable input 2 for logic function block as input	**Disable brightness** Enable 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 is FALSE** Out range is TRUE, else is FALSE Under lower is TRUE, above upper is FALSE Under lower is FALSE, above upper is TRUE
->> Change brightness via bus	This parameter is used to determine when a press occurs on the local input is accounted as YES or NO.	**no** yes

Enable External Temperature	This parameter is used to enable or disable input 2 for logic function block as input	**Disable temperature** Enable temperature
->> Threshold temperature lower	This parameter is used to determine the lower threshold temperature value.	-300…**220**…700°C
->> Threshold temperature upper	This parameter is used to determine the upper threshold temperature value.	-300…**260**…700°C
->> Temperature Status	This parameter is used to determine when the ambient temperature value is accounted as TRUE or FALSE.	**In range is TRUE, else is FALSE** Out range is TRUE, else is 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 determine when a press occurs on the local input is accounted as YES or NO.	**no** yes

3.3.4. 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.

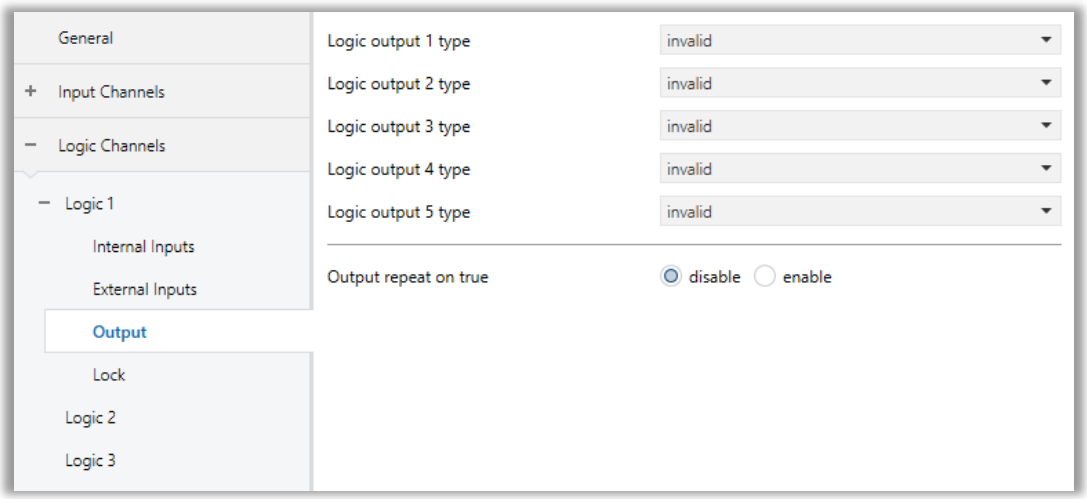

Fig. 17 : Logic Functions – Output General

3.3.4.1. 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 Dim 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.	**Disable** Enable
-> 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**…65535

3.3.5. Logic Functions – Outputs 1-5

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

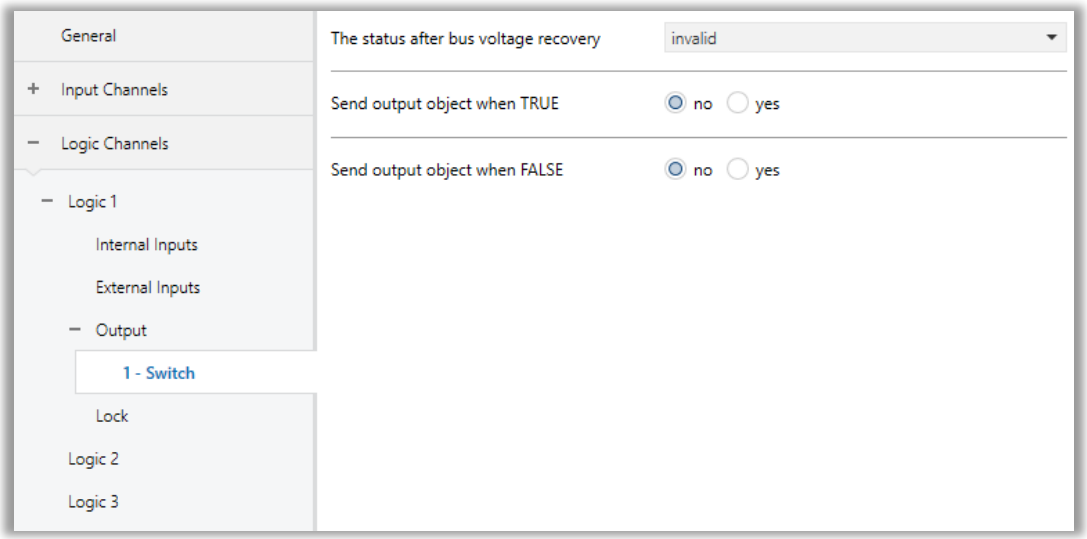

Fig. 18 : Logic Functions – Output: Dimming

3.3.5.1. 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** Defined Recovery
-> 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 no.64 14 bytes string **0**…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…**65535**
-> On Delay Time	This parameter is used to determine the on-delay time of the related logic output channel x when the logic gate is true.	**00:00:00**…18:12:15
-> Change on Time Via Bus	This parameter is used to enable or disable the on-delay time object for changing the delay time on the true state.	**No** yes
Send output object when FALSE	This parameter is used to enable or disable the sending output object when the logic gate is false.	**No** yes

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

3.3.6. 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 binary input 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.

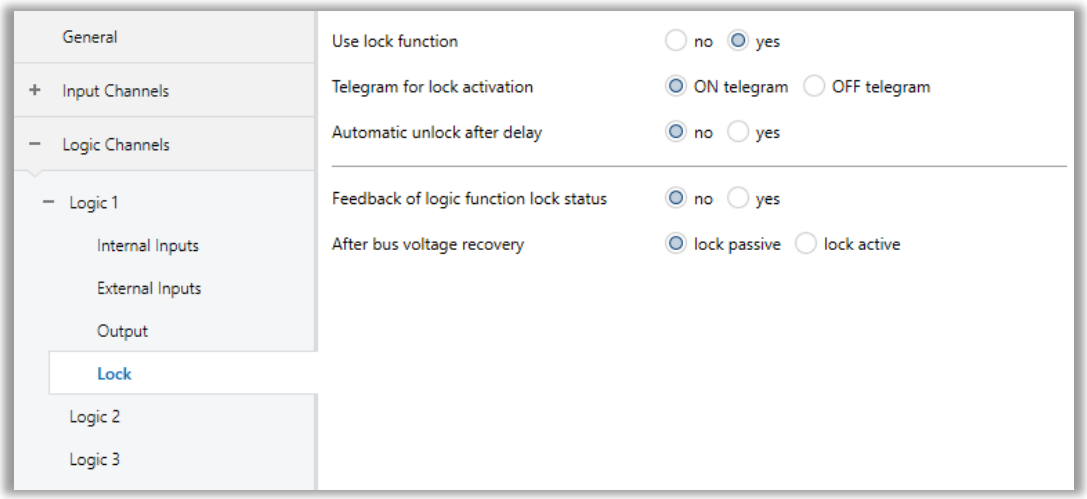

Fig. 19 : Logic Functions – Lock

3.3.6.1. Parameters List

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

4. ETS Objects List & Descriptions

The Interra KNX Binary Inputcan communicate via the KNX bus line. In this section, the group objects of the Interra KNX Binary Inputis described. All of the communication objects listed below are available to the Universal Interface. 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	Input x	Lock	1.003	1 bit	X		X		
3	Input x: Switch function	Switch	1.001	1 bit	X		X	X	
	Input x: Switch/Dim function	Switch	1.001	1 bit	X		X	X	X
	Input x: Shutter function	Shutter UP/DOWN	1.008	1 bit	X		X	X	
	Input x: Value/Forced op.	Forced	2.001	2 bit	X			X	
		Percent value	5.001	1 byte	X			X	
		Decimal value	5.005	1 byte	X			X	
		Scene number	17.001	1 byte	X			X	
		Colour Temperature	7.600	2 bytes	X			X	
		Temperature value	9.001	2 bytes	X			X	
		Brightness value	9.004	2 bytes	X			X	
		Percent value (RGB)	232.600	3 bytes	X			X	
	Input x: Control Scene	8-bit Scene	18.001	1 byte	X			X	
	Input x: RGB control	RGB Colour	232.600	3 bytes	X	X		X	
		Red Colour	5.010	1 byte	X	X		X	
	Input x: Mode Selection	Mode Selection	20.102	1 byte	X			X	
	Input x: Command Sequence	Sequence – 1 bit	1.001	1 bit	X	X		X	
		Sequence – 1 byte	5.001	1 byte	X	X		X	
			5.010	1 byte	X	X		X	
			20.102	1 byte	X	X		X	
		Sequence A – 1 bit	1.001	1 bit	X	X		X	
		Sequence A – 1 bye	5.001	1 byte	X	X		X	
			5.010	1 byte	X	X		X	
			20.102	1 byte	X	X		X	
	Input x: Counter	Counter Value – 1 byte	5.010	1 byte	X	X		X	
		Counter Value – 2 bytes	7.001	2 bytes	X	X		X	
		Counter Value – 4 bytes	12.001	4 bytes	X	X		X	
	Input x: RGBW control	Percent Value (RGBW)	251.600	6 bytes	X			X	
		Red colour	5.010	1 byte	X	X		X	

4	Input x: Switch function	Switch - long	1.001	1 bit	X			X	
	Input x: Switch/Dim function	Dimming	3.007	4 bit	X			X	
	Input x: Shutter function	STOP/lamella adjustment	1.007	1 bit	X			X	
	Input x: Value/Forced op.	Forced – long	2.001	2 bit	X			X	
		Percent value – long	5.001	1 byte	X			X	
		Decimal value - long	5.005	1 byte	X			X	
		Scene number – long	17.001	1 bytes	X			X	
		Colour Temperature – long	7.600	2 bytes	X			X	
		Temperature value – long	9.001	2 bytes	X			X	
		Brightness value – long	9.004	2 bytes	X			X	
		Percent value (RGB) – long	232.600	3 bytes	X			X	
	Input x: Control Scene	Store scene	1.003	1 bit	X	X	X		
	Input x: RGB control	Green colour	5.010	1 byte	X	X		X	
	Input x: Mode Selection	HVAC-Mode State	20.102	1 byte	X		X	X	X
	Input x: Command Sequence	Sequence B – 1 bit	1.001	1 bit	X	X		X	
		Sequence B – 1 byte	5.001	1 byte	X	X		X	
			5.010	1 byte	X	X		X	
			20.102	1 byte	X	X		X	
	Input x: Counter	Reset Counter	1.001	1 bit	X	X	X	X	
	Input x: RGBW control	Green colour	5.010	1 byte	X			X	
5	Input x: Shutter function	Upper limit position	1.002	1 bit	X		X		
	Input x: RGB control	Blue colour	5.010	1 byte	X	X		X	
	Input x: Command Sequence	Sequence C – 1 bit	1.001	1 bit	X	X		X	
		Sequence C – 1 byte	5.001	1 byte	X	X		X	
			5.010	1 byte	X	X		X	
			20.102	1 byte	X	X		X	
	Input x: Counter	Overflow – 1 bit	1.001	1 bit	X	X	X	X	
		Overflow – 1 byte	5.010	1 byte	X	X	X	X	
	Input x: Scene function	Store scene	1.003	1 bit	X		X	X	
	Input x: RGBW control	Blue colour	5.010	1 byte	X			X	
6	Input x: Shutter function	Lower limit operation	1.002	1 bit	X		X		
	Input x: Command Sequence	Sequence D – 1 bit	1.001	1 bit	X	X		X	
		Sequence D – 1 byte	5.001	1 byte	X	X		X	
			5.010	1 byte	X	X		X	
			20.102	1 byte	X	X		X	
	Input x: RGBW control	White colour	5.010	1 byte	X	X		X	
62	Logic x:	Lock	1.003	1 bit	X		X		
63	Logic x:	Lock Feedback	1.003	1 bit	X	X		X	
64	Logic x: Input	External movement	1.001	1 bit	X		X	X	X

65	Logic x: Input	External brightness	9.004	2 bytes	X		X	X	X
66	Logic x: Input	Lower brightness threshold	9.004	2 bytes	X		X	X	X
67	Logic x: Input	Upper brightness threshold	9.004	2 bytes	X		X	X	X
68	Logic x: Input	External temperature	9.001	2 bytes	X		X	X	X
69	Logic x: Input	Lower temperature threshold	9.001	2 bytes	X		X	X	X
70	Logic x: Input	Upper temperature threshold	9.001	2 bytes	X		X	X	X
71	Logic x: Input	External input 1 – 1 bit	1.001	1 bit	X		X	X	X
		External input 1 – 1 byte	5.010	1 byte	X		X	X	X
		External input 1 – 2 bytes	7.001	2 bytes	X		X	X	X
		External input 1 – 2 bytes (float threshold)	9.001	2 bytes	X		X	X	X
		External input 1 – 4 bytes	12.001	4 bytes	X		X	X	X
72	Logic x: Input	External input 2 – 1 bit	1.001	1 bit	X		X	X	X
		External input 2 – 1 byte	5.010	1 byte	X		X	X	X
		External input 2 – 2 bytes	7.001	2 bytes	X		X	X	X
		External input 2 – 2 bytes (float threshold)	9.001	2 bytes	X		X	X	X
		External input 2 – 4 bytes	12.001	4 bytes	X		X	X	X
73	Logic x: Input	External input 3 – 1 bit	1.001	1 byte	X		X	X	X
		External input 3 – 1 byte	5.010	1 byte	X		X	X	X
		External input 3 – 2 bytes	7.001	2 bytes	X		X	X	X
		External input 3 – 2 bytes (float threshold)	9.001	2 bytes	X		X	X	X
		External input 3 – 4 bytes	12.001	4 bytes	X		X	X	X
74	Logic x: Output	Result status	1.002	1 bit	X	X		X	
75	Logic x: Output y:	Switching	1.001	1 bit	X	X		X	
		Absolute dimming	5.004	1 bye	X	X		X	
		Shutter	1.008	1 bit	X	X		X	
		Alarm	1.005	1 bit	X	X		X	
		Percentage	5.004	1 byte	X	X		X	
		Scene	5.004	1 byte	X	X		X	
		String	16.000	14 bytes	X	X		X	
		Threshold	7.001	2 bytes	X	X		X	
76	Logic x: Output y:	Delay time on TRUE state	7.005	2 bytes	X		X	X	X
77	Logic x: Output y:	Delay time on FALSE state	7.005	2 bytes	X		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 Binary Input.

Object Name	Function	Type	Flags
General	In operation	1 bit	CT
This object is used to monitor the presence of the device on the KNX bus line regularly. However, monitoring telegrams can be sent cyclically on the KNX bus line. **DPT** : 1.002 (boolean)			

4.2. 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 12 digital inputs and 2 analog inputs channels with the same functionality and an additional probe channel. In this section, digital and analog 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 universal interface channel. It becomes visible when the "use universal interface 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 universal interface 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: Switch function	Switch	1 bit	CT / CWT
This communication object changes in functionality depending on the selected input function. In accordance with the parameter setting, this communication object can be switched by actuation of the input to ON, OFF or TOGGLE. **DPT** : 1.001			
Input x: Switch function - long	Switch	1 bit	CT / CWT
This communication object changes in functionality depending on the selected input function In accordance with the parameter setting, this communication object can be switched by actuation of the input to ON, OFF or TOGGLE. **DPT** : 1.001			

Input x: Switch/Dim function	Switch	1 bit	CWT

This communication object changes in functionality depending on the selected input function. In accordance with the parameter setting, this communication object can be switched by actuation of the input to ON, OFF or TOGGLE.

DPT : 1.001

Input x: Switch/Dim function	Dimming	4 bit	CT

This communication object changes in functionality depending on the selected input function. In accordance with the parameter setting, A long operation at the input has the effect that BRIGHTER or DARKER dim telegrams are sent via this communication object on the bus. A STOP telegram is sent and the cyclic sending of dim telegrams is stopped at the end of actuation with START-STOP-DIMMING.

DPT : 3.007

Input x: Shutter function	Shutter UP/DOWN	1 bit	CWT

This communication object changes in functionality depending on the selected input function. This communication object sends a shutter motion telegram UP or DOWN on the bus. By receiving telegrams, the device also recognises movement telegrams of another sensor, e.g. parallel operation.

DPT : 1.008

Input x: Shutter function	STOP/lamella adjustment	1 bit	CT

This communication object changes in functionality depending on the selected input function. This communication object sends a STOP telegram or slat adjustment.

DPT : 1.007

Input x: Shutter function	Upper limit operation	1 bit	CW

This communication object changes in functionality depending on the selected input function. 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.

DPT : 1.002

Input x: Shutter function	Lower limit operation	1 bit	CW

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

DPT : 1.002

Input x: Valued/Forced Op.	Forced operation	2 bit / 1 byte / 2 bytes / 3 bytes	CT

This communication object changes in functionality depending on the selected input function. This communication object sends a value on the bus with short operation when opening or closing of the contact. Depending on the configuration, the data type of this object changes. forced, percent value, decimal value, Scene number, temperature value, brightness value and percent value (RGB) can be performed on this object.

DPT : According to parameter selection

Input x: Control Scene	8-bit Scene	1 byte	CT

This communication object stores the value of the active scene number (1 - 64).

DPT : 18.001

Input x: Control Scene	Store Scene	1 bit	CT

This communication object, when active, decides wheter to call or store the preset 8-bit scene number in the parameter list. When the store scene object is enabled the preset scene number is stored, but, when disabled preset scene number is called to be active.

DPT : 1.003

Input x: RGB control	Red colour / RGB colour	1 byte / 3 bytes	CT / CRT

This object either keeps the 1-Byte Red value of the RGB, or keeps the entire 3-Byte RGB value. Decision is made in the parameter list as either “1 object of 3 bytes” or 3 objects of 1 byte”.

DPT : 5.010 / 232.600

Input x: RGB control	Green colour	1 byte	CT

This object keeps the 1-Byte green value of RGB if “3 objects of 1 Byte” option is selected in the parameter list.

DPT : 5.010

Input x: RGB control	Blue colour	1 byte	CT

This object keeps the 1-Byte blue value of RGB if “3 objects of 1 Byte” option is selected in the parameter list.

DPT : 5.010

Input x: Mode Selection	Mode Selection	1 byte	CT

This object keeps the active HVAC state that can be toggled through press events.

Note: There can be up to 4 differenet HVAC state (comfort, standby, economy, building protection) selected and each press event toggles through the HVAC states that are set as available in the parameter list.

DPT : 20.102

Input x: Mode Selection	HVAC-Mode State	1 byte	CT

This object takes the HVAC state changed via the bus.

Note: Whenever this object is updated from the bus, the HVAC state that this object holds will be considered as the valid HVAC state and press events will act as if the last HVAC state is what this object is updated with.

DPT : 20.102

Input x: Command Sequence	Sequence	1 bit / 1 byte	CRT

This object keeps the current command that can be toggled through press events. Used for “Single Object” parameter selection.

Note: Each state (State A, B, C, D) holds a different value with adjustable data length. Each press event puts the next available state’s data to the “Sequence” object.

DPT : According to parameter selection

Input x: Command Sequence	Sequence X	1 bit / 1 byte	CRT

This object keeps the current command that can be toggled through press events. Used for “Multiple Object” parameter selection.

Note: Each object (Object A, B, C, D) holds a different value with adjustable data length. Each press event puts the next available state’s data to the “Sequence X” object and whichever object is holds the current state is sent to bus with its data.

DPT : According to parameter selection

Input x: Counter	Counter Value	1 byte / 2 bytes / 4 bytes	CRT

This object keeps the current value of the press counter.

DPT : According to parameter selection

Input x: Counter	Reset Counter	1 bit	CRWT

This object is used to reset the counter value to preset start value that can be set from parameter list.

DPT : According to parameter selection

Input x: Counter	Overflow Value	1 bit / 1 byte	CRWT

This object is sent to bus with the preset value from the parameter list when the counter value exceeds the preset end value of the counter.

DPT : 1.001 / 5.010

Input x: RGBW control	Red colour / Percent Value (RGBW)	1 byte / 6 bytes	CRT / CT

If the “object type” is set to “1 object”, this object keeps the 6-Byte RGBW value, but, if the “object type” is set to “4 objects”, this object keeps the 1-Byte Red value of the RGBW.

DPT : 5.010 / 251.600

Input x: RGBW control	Green colour	1 byte	CT

If the “object type” is set to “4 objects”, this object keeps the 1-Byte Green value of the RGBW.

DPT : 5.010

Input x: RGBW control	Blue colour	1 byte	CT

If the “object type” is set to “4 objects”, this object keeps the 1-Byte Blue value of the RGBW.

DPT : 5.010

Input x: RGBW control	White colour	1 byte	CRT

If the “object type” is set to “4 objects”, this object keeps the 1-Byte White value of the RGBW.

Note: White value is the colour temperature.

DPT : 5.010

4.3. 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 12 identical logic channels in the KNX Binary Input, so only one logical channel is described here. The x values can be between 1…12 and y values also can be 1…12. Please do not forget to take this into account.

Object Name	Function	Type	Flags
Logic x:	Lock function	1 bit	CW
This object is used to lock the related logic channel x. It becomes visible when the "use logic lock" parameter is set to yes. Depending on the parameter setting, when an ON or OFF telegram is sent to this object, the corresponding logical channel is locked. For example, when "ON telegram" is selected in the parameter page for locking, it will be locked when an ON telegram is received from the KNX bus line, and when an OFF telegram is received, the logic channel will be unlocked. **DPT** : 1.003			
Logic x:	Feedback of block	1 bit	CRT
This object is used to send feedback on the lock status for the related logic channel x. It becomes visible when the "use logic lock" parameter is set to yes. If a status change occurs on the lock function, the changed statue value will be sent from this object. **DPT** : 1.003			
Logic x: Input	External movement	1 bit	CWTU
This object is used to receive movement information from the KNX bus line. According to the ETS parameter configuration, the ‘0’ or ‘1’ value is accounted as there is a movement detection occurs. **DPT** : 1.001			
Logic x: Input	External brightness	2 bytes	CWTU
This object is used to obtain a brightness value from the KNX bus line. The received brightness value will be used to evaluate the input status according to the brightness thresholds. **DPT** : 9.004			

Logic x: Input	Lower brightness threshold	2 bytes	CWTU

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

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

DPT : 9.004

Logic x: Input	Upper brightness threshold	2 bytes	CWTU

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

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

DPT : 9.001

Logic x: Input	External temperature	2 bytes	CWTU

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

DPT : 9.001

Logic x: Input	Temperature threshold lower	2 bytes	CWTU

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

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

DPT : 9.001

Logic x: Input	Temperature threshold upper	2 bytes	CWTU

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

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

DPT : 9.001

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

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

DPT : According to parameter selection, DPT changes.

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

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

DPT : According to parameter selection, DPT changes.

Logic x: Input	External input-3	1 bit / 1 byte / 2 bytes / 4 bytes	CWTU

This object is used to obtain external input 3 information from the KNX bus line. According to the ETS parameter configuration, the received values are accounted as TRUE or FALSE for this external input. For 1 bit configuration, there is only ‘1’ or ‘0’ values for calculating the input status. But for other input (such as 1 byte, etc.) the received value is compared to the external input value parameter.

DPT : According to parameter selection, DPT changes.

Logic x: Output	Result status	1 bit	CT

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

DPT : 1.002

Logic x: Output: y	Switching …. Threshold	1 bit / 1 byte / 2 bytes / 14 bytes	CRT

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

DPT : According to parameter selection

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

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

DPT : 7.005

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

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

DPT : 7.005

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