User Manual

K-BUS Binary Input for floating contact with Secure, 4/8/16-Fold_V1.2

CTBIF-04/00.S

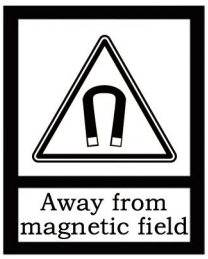
CTBIF-08/00.S

CTBIF-16/00.S

KNX/EIB Home and Building Control System

Attentions

1. **Please keep devices away from strong magnetic field, high temperature, wet environment;**



2. **Please do not fall the device to the ground or make them get hard impact;**

3. **Please do not use wet cloth or volatile reagent to wipe the device;**

4. **Please do not disassemble the devices.**

Content

Chapter 1 Summary

The Binary Input for floating contact with Secure, 4/8/16-Fold (hereinafter being referred as Binary Input) are mainly used in building control system. Via connection of KNX terminals (black/red), these devices will be connected to the KNX BUS system to realize different functions in KNX system, and their functions are both simple to operate and intuitive, users can program it according to the requirement to implement the function systematically.

This manual provides technical information about the Binary Input in detail for users as well as assembly and programming, and explains how to use the Binary Input by the application examples.

The Binary Input has 4-Fold, 8-Fold and 16-Fold inputs, and these devices are designed for modular installation devices, which are easy to install in the distribution boards on 35mm mounting rails according to EN60715. It can be used in switch, dimming, value output, scene control, blind,, shift register,multiple operation, RGB/RGBW send value, delay mode etc. When selecting products, users can choose them according to own require.

The Binary Input connect to KNX bus directly, no extra power is needed. In programming, both physical addressing and parameter setting can be realized by using ETS with .knxprod files (ETS5 or above). The Binary Input have many functions that can be used in a wide variety of application areas. The following list provides an overview:

- **Switching and dimming**
- **Shutter control and Value sending**
- **Scenario function**
- **Shift register function**
- **RGB and RGBW dimming**
- **Multiple control**
- **Delay sending(e.g. switching value, dimming value)**
- **8 logic function**
- **8 scene group function**
- **Support the KNX Data Secure**

Each input of a device can adopt any of the functions described above. In order to ensure the normal work of device in the actual use, the selection of the hardware type in the database must conform to the product type used.

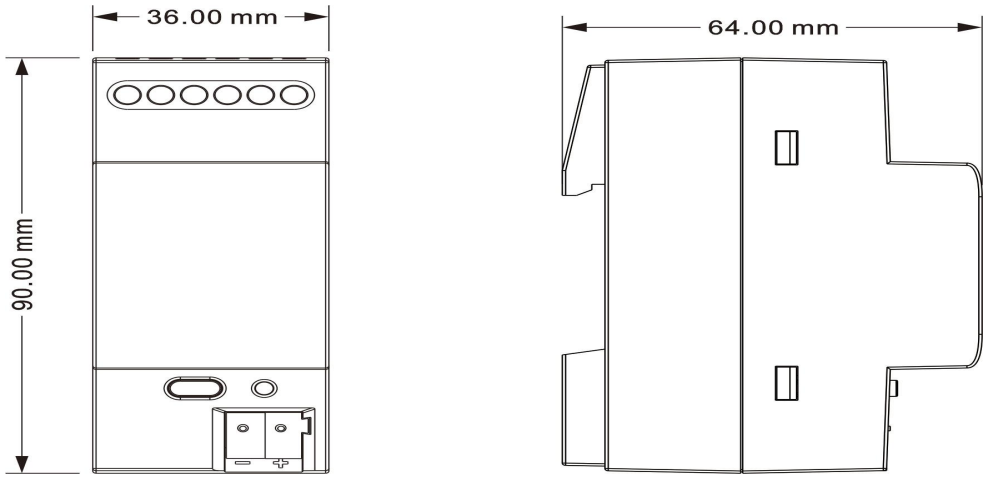
Chapter 2 Technical Parameter

Power Supply	Bus voltage	21-30V DC, via KNX bus
	Bus current	4-Fold: <9.5mA, 24V；<8.5mA, 30V 8-Fold: <11.5mA, 24V；<9.5mA, 30V 16-Fold: <14.0mA, 24V；<12.0mA, 30V
	Bus consumption	<360mW
Inputs	4/8/16-Fold input channels	Can be individually configured function of input
	Input scanning voltage	>12V DC
	Input current	Approximately 0.7mA
	Permitted cable length	≤100m (cross section for 1.5mm^2)
Operation and display	Red LED and push button	Physical address programming
	Green LED flashing	For displaying application layer running normally
Connection	KNX	Via bus connecting terminal (Diameter 0.8mm)
	Input connection terminal	Using screw terminals Cable cross-section: 0.5-2.5mm^2 Tightening torque: max. 0.4Nm
Temperature	Operation	–5 °C ... 45 °C
	Storage	– 25 °C ... 55 °C
	Transport	– 25 °C ... 70 °C
Environment	Humidity	<93%,except condensation
Design	Modular DIN-Rail Component	35mm Din rail, modular installation
	Size / Weight	CTBIF-04/00.1: 36mm×90mm×64mm / 0.1KG CTBIF-08/00.1: 72mm×90mm×64mm / 0.15KG CTBIF-16/00.1: 72mm×90mm×64mm / 0.15KG

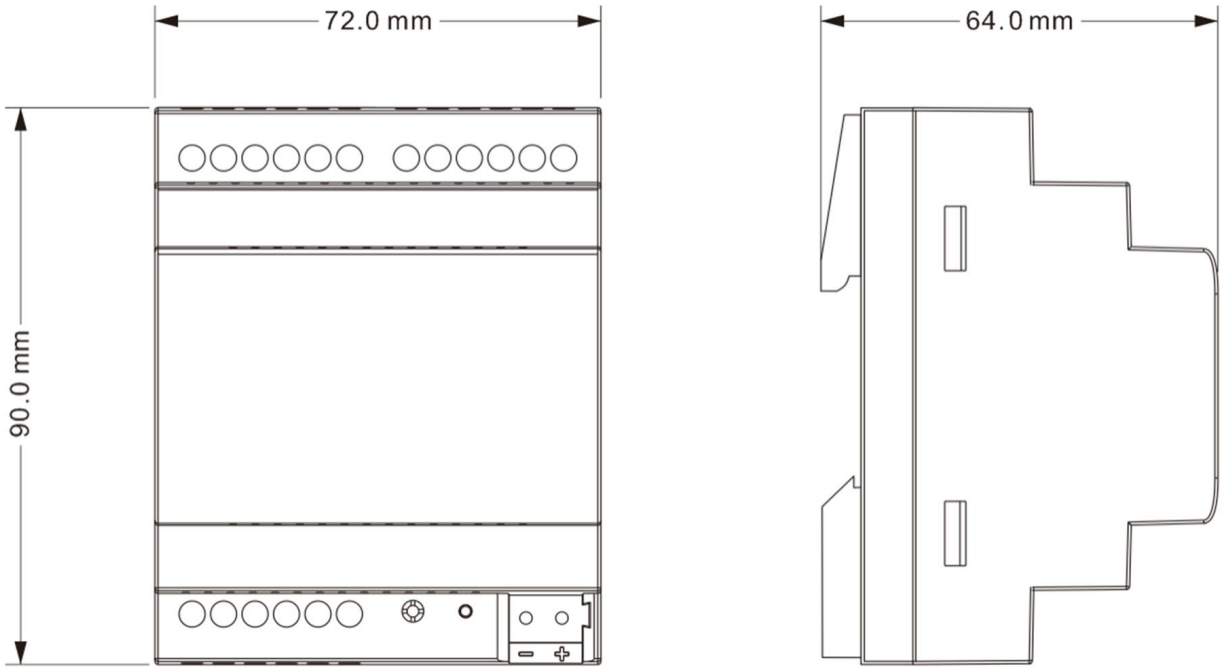
Application Program	Max. Communication Object number	Max. Group address Number	Max. Combined Address Number	Secure group addresses
Binary Input for floating contact with Secure,4-Fold/00E5 2.0 Binary Input for floating contact with Secure,8-Fold/00E6 2.0 Binary Input for floating contact with Secure,16-Fold/00E7 2.0	218	400	400	400

Chapter 3 Dimension and Wiring Diagram

3.1. Dimension

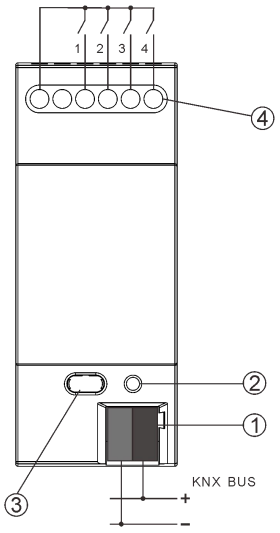


CTBIF-04/00.S

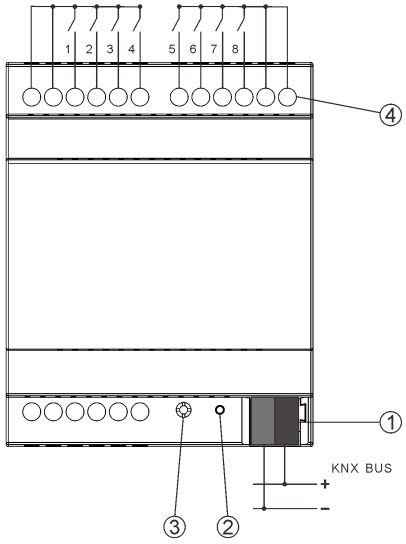


CTBIF-08/00.S (CTBIF-16/00.S)

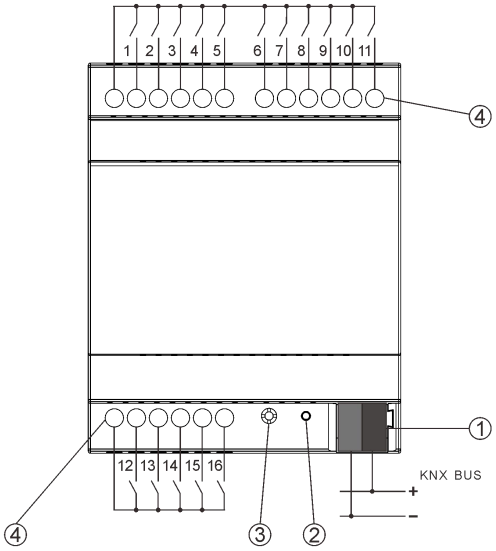
3.2. Wiring Diagram



CTBIF-04/00.S



CTBIF-08/00.S



CTBIF-16/00.S

①KNX bus connection terminal

②Red LED for entering the physical address, green LED for application process normally running

③Programming button

④Input connect terminal

Reset the device to the factory configuration: press the programming button and hold for 4 seconds then release, repeat the operation for 4 times, and the interval between each operation is less than 3 seconds.

Chapter 4 Parameter setting description in the ETS

4.1. KNX Secure

Binary Input for floating contact with Secure, 4/8/16-Fold is a KNX device that complies with the KNX secure standard. That is, you can run the device in safe way.

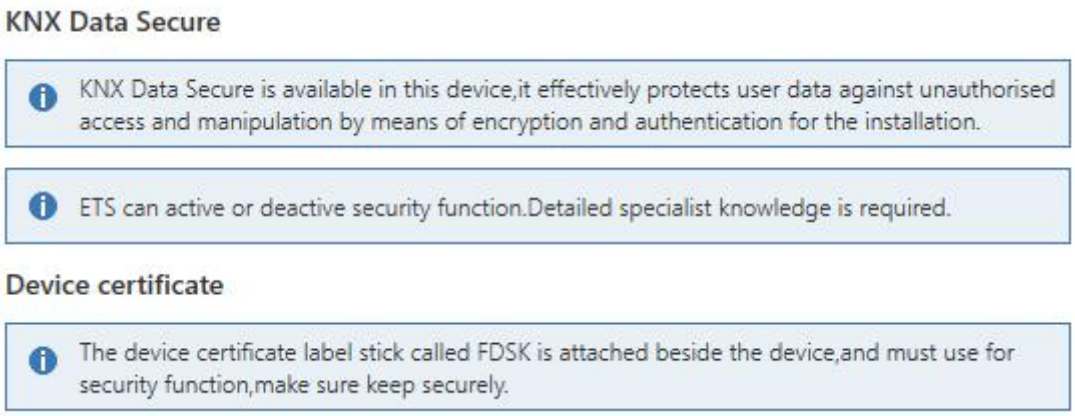


Fig.4.1 (1) Parameter window"KNX Secure"

The device with KNX secure will be displayed notes on ETS, as shown as Fig.4.1(1).

If secure commissioning is actived in ETS project, the following information must be considered during device debugging:

❖ It is essential to assign a project password as soon as a KNX Secure device is imported into a project. This will protect the project against unauthorized access.

The password must be kept in a safe place – access to the project is not possible without it (not even the KNX Association or device manufacturer will be able to access it)!

Without the project password, the commissioning key will not be able to be imported.

❖ A commissioning key is required when commissioning a KNX Secure device (first download). This key (FDSK = Factory Default Setup Key) is included on a sticker on the side of the device, and it must be imported into the ETS prior to the first download:

✧ On the first download of the device, a window pops up in the ETS to prompt the user to enter the key, as shown in Fig.4.1 (2) below.

The certificate can also be read from the device using a QR scanner (recommended).

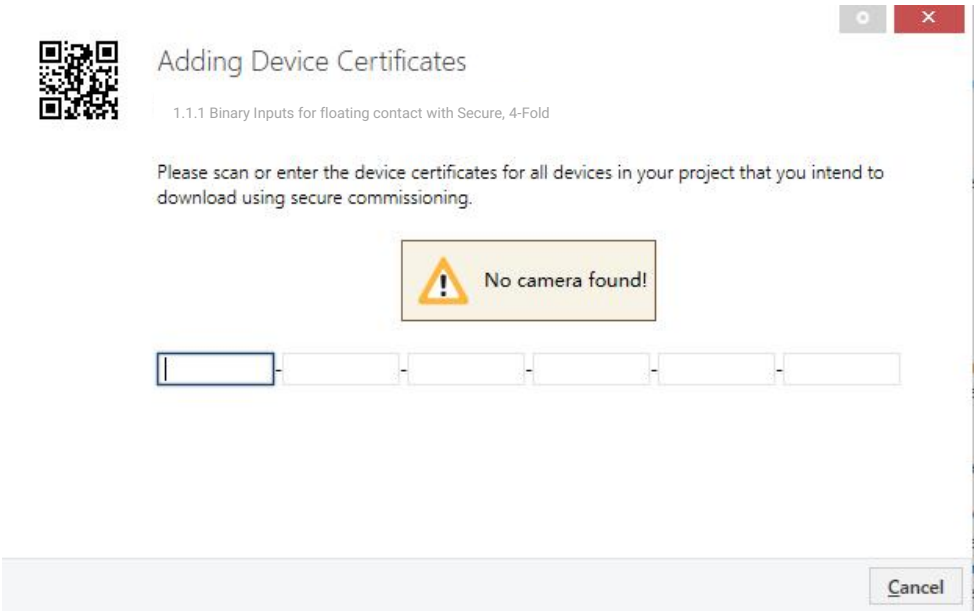


Fig.4.1(2) Add Device Certificate window

✧ Alternatively, the certificates of all Secure devices can be entered in the ETS beforehand.

This is done on the "Security" tab on the project overview page, as shown in Fig.4.1(3) below.

The certificates can be also added to the selected device in the project, as shown in Fig.4.1(4).

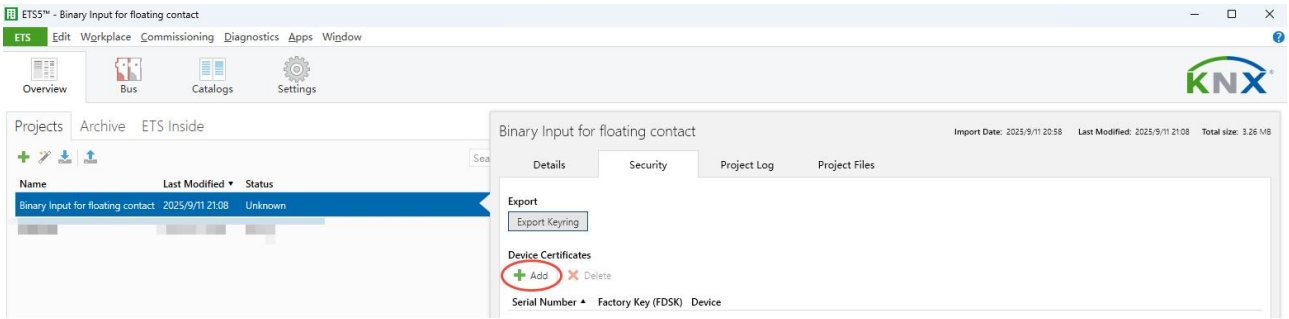


Fig.4.1(3) Add Device Certificate

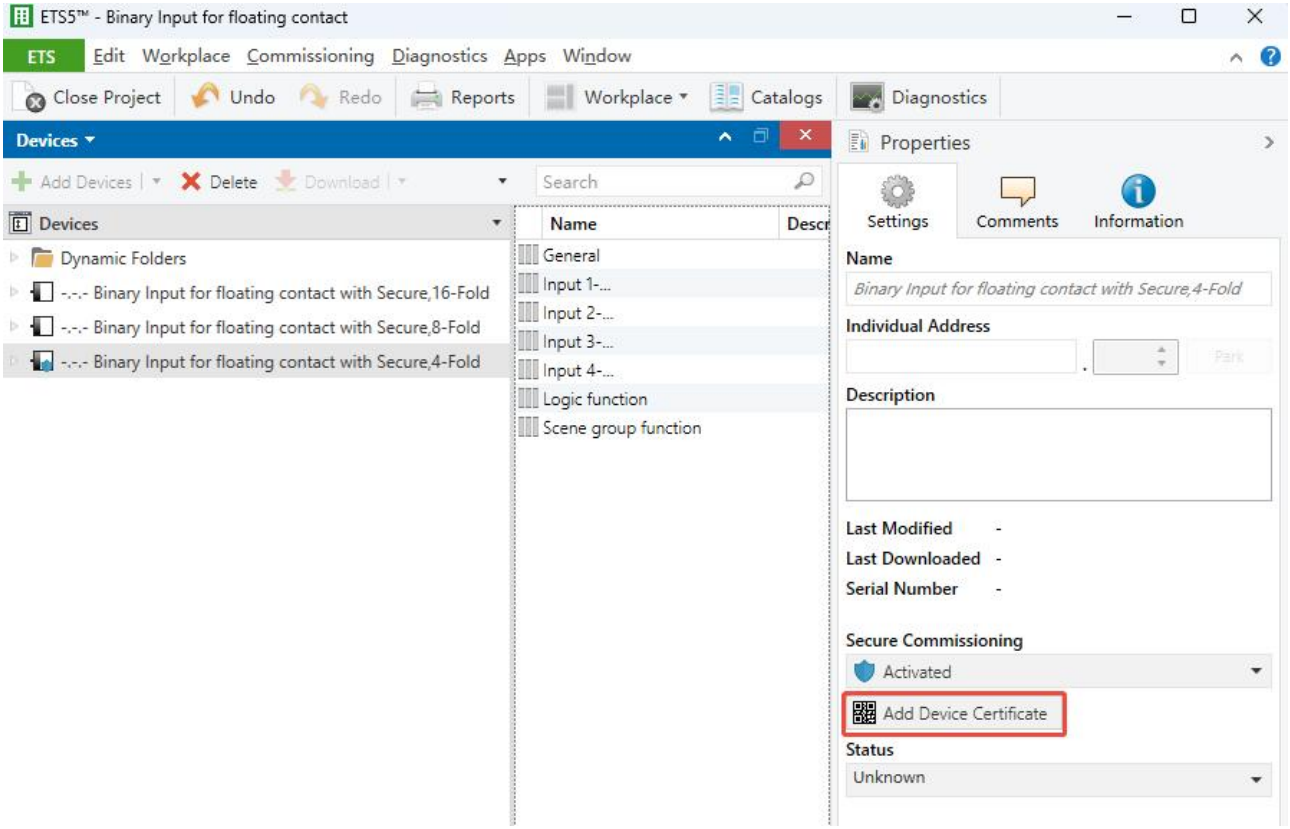


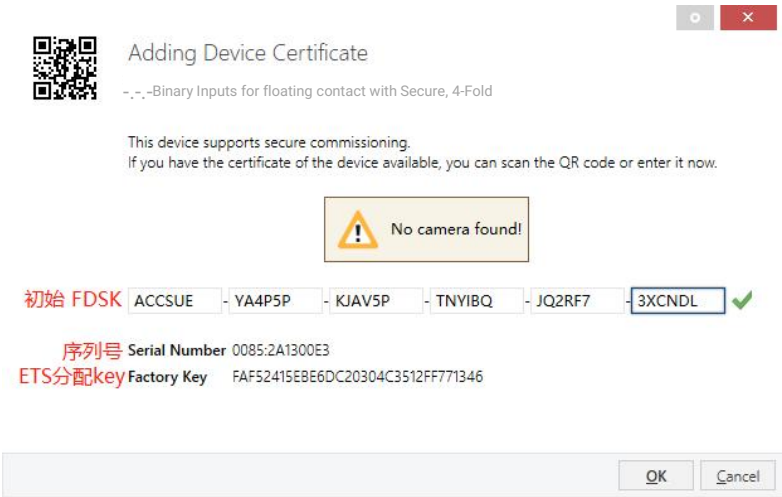
Fig.4.1(4) Add Device Certificate

✧ There is a FDSK sticker on the device, which is used for viewing FDSK number.

Without the FDSK, it will no longer be possible to operate the device in KNX Secure mode after a reset.

The FDSK is required only for initial commissioning. After entering the initial FDSK, the ETS will assign a new key, as shown in Fig.4.1(5) below.

The FDSK will be required again only if the device was reset to its factory settings (e.g. If the device is to be used in a different ETS project).



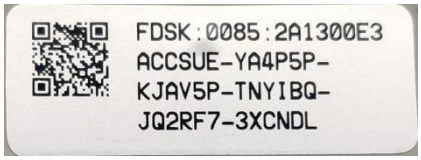


Fig.4.1(5)

Example:

If this application in the project needs to be tried with another device, it is no longer the original device. When the application is downloaded to a new device, the following prompt will appear on the left of Fig.4.1(6), click yes, the Add Device Certificate window will appear, then enter the initial FDSK of the new device, and you need to reset the device to the factory settings (it is not required if the device is still factory default; If it has been used, it will be required to reset, otherwise the following error message will appear on the right of Fig.4.1(6)), and then the device can be successfully downloaded again.

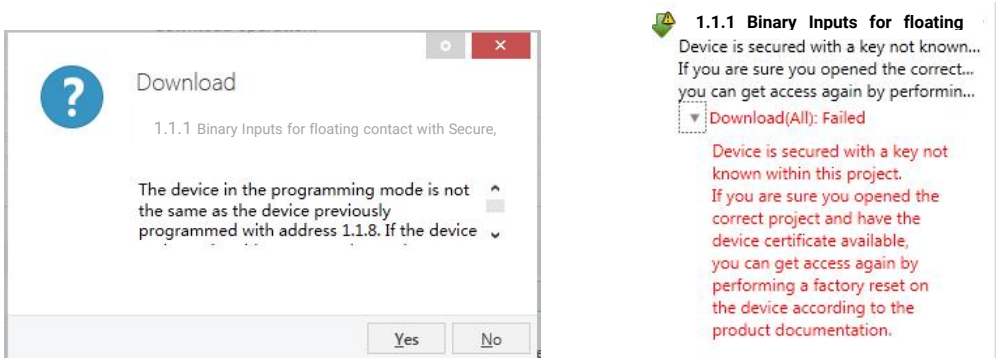


Fig.4.1(6) Example

Whether the device is replaced in the same project, or the device is replaced in a different project, the processing is similar: **Reset the device to the factory settings, then reassign the FDSK.**

After the device is downloaded successfully, the label Add Device Certificate turns gray, indicating that the key for this device has been assigned successfully, as shown in Fig.4.1(7) below.

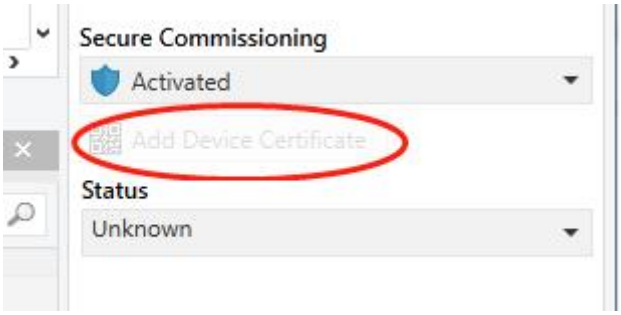


Fig.4.1(7)

ETS generates and manages keys:

Keys and passwords can be exported as needed to the use of security keys outside of the associated ETS projects. As shown in Fig.4.1(8) below, the file extension is .knxkeys.

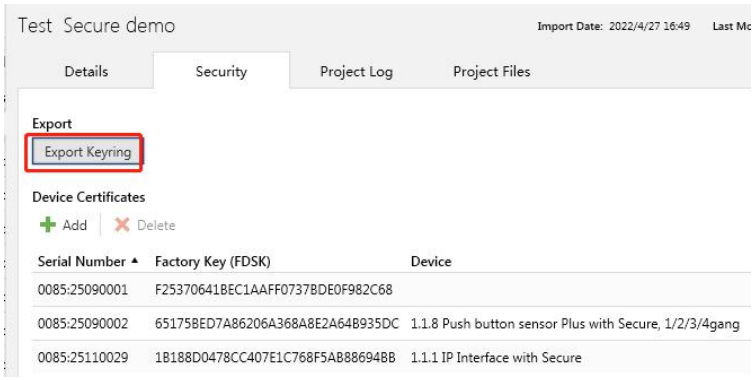


Fig.4.1(8)

Note: Any USB interface used for programming a KNX Secure device must support "long frames". Otherwise ETS will report a download failure information, as shown below.

4.2. Parameter window “General”

“General” Parameter Setting Interface is shown as in Fig.4.2. The hardware type of the Binary Input has 4-Fold input, 8-Fold input and 16-Fold input. The products are designed for 35mm Din-rail installation.The selection of the database is based on the actual product used.

The following will take the 4-Fold input as an example to illustrate, the operation of the 8-Fold input and 16-Fold input is similar to the 4-Fold input, , not repeat detailed descriptions here.

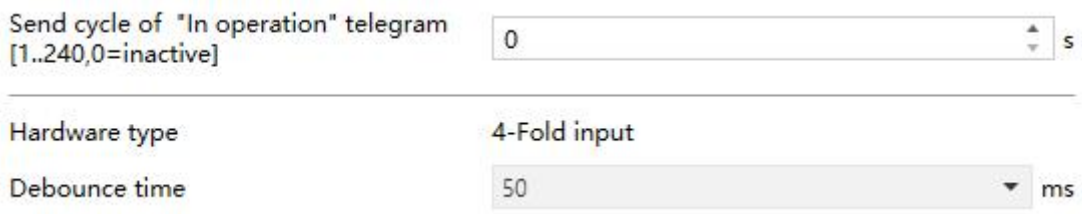


Fig. 4.2 Parameter window “General”

Parameter "Send cycle of In operation telegram [1..240,0=inactive]s"

This parameter is for setting the time interval when this device cycle send telegrams through the bus to indicate this module in normal operation. When set to “0”, the object “in operation” will not send a telegram. If the setting is not “0”, the object “In operation” will send a telegram according to the set period time with logic “1” to the bus. Options: **0...240s, 0= inactive**

As to reduce the bus load as much as possible, the maximum time interval should be selected according to actual needs.

Parameter "Hardware type"

Display hardware type. Default display:

4-Fold input	**apply to CTBIF-04/00.S**
8-Fold input	**apply to CTBIF-08/00.S**
16-Fold input	**apply to CTBIF-16/00.S**

Next chapter 4.3 we will take one of input channels as example to introduce the parameters of each function and communication objects under different applications.

Note: After the bus power-on recovery or programming, the value of all communication objects is 0.

Parameter "Debounce time"

It can set the vibration time to prevent unwanted multiple operation by bouncing of contacts in vibration time, which means the effective time of the contact operation. Options:**10ms/20ms/.../150ms**

4.3. Parameter window “Input”

The parameter settings and communication objects for each input are described as follow:

Fig. 4.3 Parameter window “Input x”

Parameter "Description (max 30char.)"

This parameter is for setting the name description of channel, up to input 30 characters.

Parameter "Function of the Channel"

The parameter is set function of the channel. Options：

No function

Switch

Dimming

Value output

Scene Control

Blind

Shift register

Multiple operation

RGB/RGBW send value

Delay mode

4.3.1. Switch

"Switch" Parameter Setting Interface is shown as in Fig.4.3.1, with this application, the users can press or release the contact to send a switch telegram.

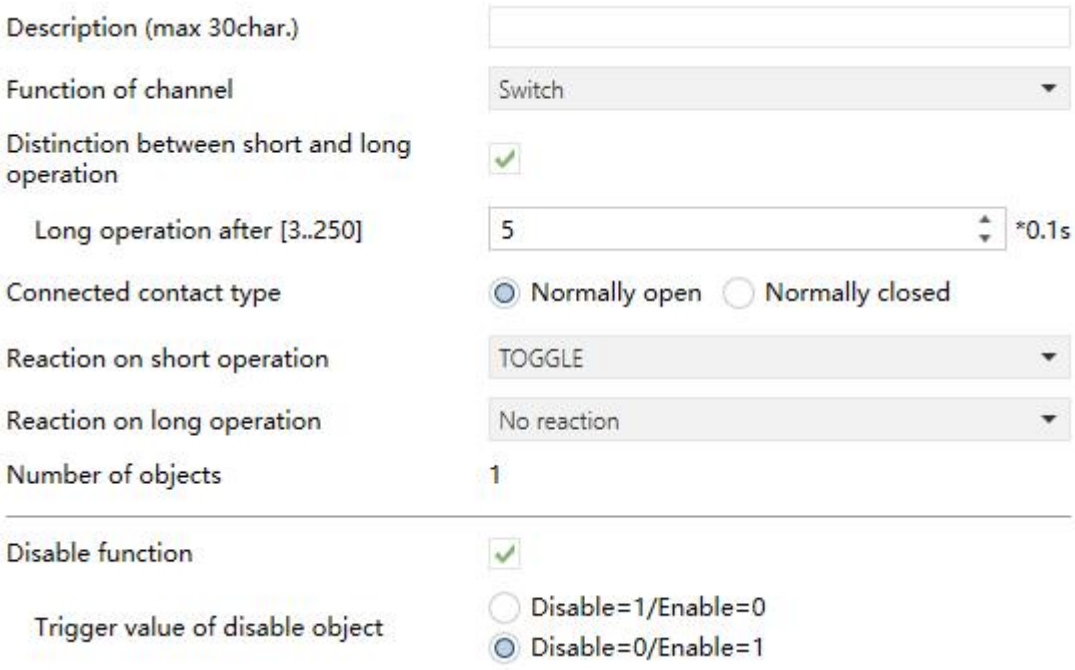


Fig. 4.3.1 Parameter window "Input x- Switch"

Parameter "Distinction between long and short operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. When enabled, the operation reaches a certain time to determine whether the operation is a long or short operation before the contact performs the setting action.

——Parameter "Long operation after [3..250] (*0.1s)"

This parameter can be seen under "Distinction between long and short operation", you can set the valid time for long operation. So, when you press longer than the time set here, it will be identified as long operation, otherwise, it will be taken as short operation. Options: **3...250**

Parameter "Connected contact type"

This parameter is visible if there is distinction between a short and long operation. It is used to set whether the input contact is a normally closed or normally open contact. Options:

Normally open

Normally closed

The parameters that are described in this chapter are based on normally open connect type as

example, the normally close connect type is just opposite. This parameter will not be illustrated in next chapters; the usage is similar.

Parameter "Reaction on short operation or Reaction on close the contact"

Parameter "Reaction on long operation or Reaction on open the contact"

You can set the operation to be performed while during long/short operation or close/open the contact. When the input is confirmed, the object value will be updated immediately. Options:

No action

ON

OFF

TOGGLE

No action: No telegram to be sent.

ON: Send telegram for on.

OFF: Send telegram for off.

TOGGLE: Each operation will switch between on and off. For example, if the last telegram was sent (or received) for on, then the next operation will trigger a telegram for off. When the switch is operated again, it will send a telegram for on etc., So the switch will always remember the previous state and covert to opposite value during next operation.When the device is powered on for the first time or restarted after downloading, the default value for ”Switch” is 0, meaning the first operation is ON.

Parameter "Interval of tele. cyclic send [0..60000] (0=send once)"

This parameter is to set the interval for cyclically sending the telegram. Options: **0..60000**

Parameter "Send object value after bus recovery (valid if reaction is not toggle)"

This parameter is visible when select to not distinguish long/short operation. Set whether to send the current value of object "Switch" to the bus after bus recovery.

If enabled, send the current value of object "Switch" to the bus after bus recovery, but it is only applied to the option is not "Toggle" or "No reaction", and if any one of the parameters select these two options can not send value to the bus.

Parameter "Number of objects"

This parameter is for setting the number of objects to control switch, 1 common object or 2 separate objects.

Options:**1/2**

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

Without distinction between short and long operation: If the channel is disabled before release, no telegram is sent when released; Also,when the channel switches from disabled to enabled, no telegram is sent for the current contact state.

Distinction between short and long operation：When the channel switches from disabled to enabled, no telegram is sent for the current contact state.

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

——Parameter "Behaviour from disable to enable(valid if reaction is not toggle)"

This parameter is set from disabled to enabled, whether to send the current status is only effective if the corresponding contact function has a fixed telegram (ON or OFF).

4.3.2. Dimming

"Dimming" parameter setting is shown in fig. 4.3.2.

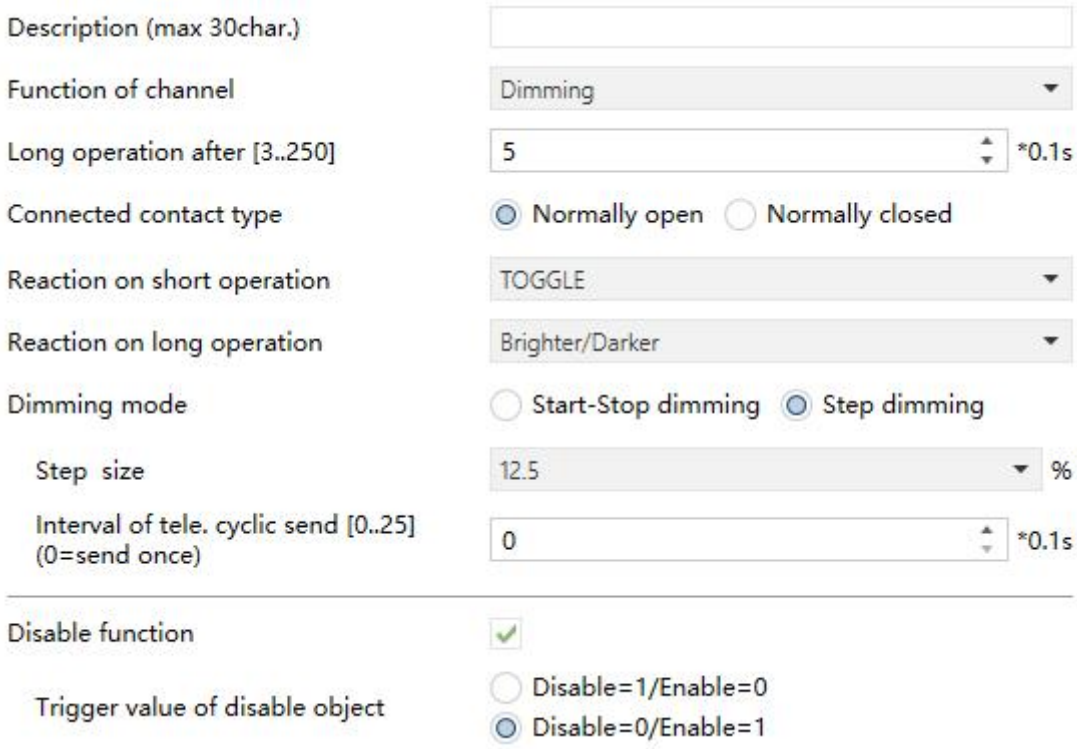


Fig 4.3.2 Parameter window "Input x- Dimming"

Parameter "Long operation after [3..250] (*0.1s)"

This parameter is used to define the time for a long operation. If operation time is longer than the time set here, the operation will be identified as long operation, otherwise as short operation.

Option: **3..250**

Parameter "Reaction on short operation"

This parameter is used to define the value sent by short operation, Options:

No action

ON

OFF

TOGGLE

No action: no telegram sent to the bus.

ON: ON telegram sent to the bus.

OFF: OFF telegram sent to the bus.

TOGGLE: every operation is alternately ON or OFF. When the device is powered on for the first time or restarted after downloading, the default value for "Switch" is 0, meaning the first operation is ON.

Parameter "Reaction on long operation"

This parameter is used to send the relative dimming value (up or down) during long operation, releasing the contact will stop the dimming, Options:

Brighter

Darker

Brighter/darker

Brighter: the dimming up value will be sent.

Darker: the dimming down value will be sent.

Brighter/Darker: dimming up and down will be sent alternately. When the device is powered on for the first time or restarted after downloading, the default value for "Dimming" is 0, meaning the first operation is dim up the brightness.

Note: In "TOGGLE" mode of this parameter setting, the value sent will be linked. For example, if the last value is switching on status, then it will be dimmed down in next dimming operation; if the last value is switching off, then it will be dimmed up in next dimming operation.

Parameter "Dimming mode"

This parameter is used to set the way of relative dimming, to define whether the dimming is a start-stop one or step one, Options:

Start-stop dimming

Step dimming

If "Start-stop dimming" is used, the dimming mode will be start-stop, i.e. a dimming up or down telegram will be sent when the dimming starts, and a stop telegram will be sent when dimming ends. Here the dimming telegram will not be sent cyclically.

If "Step dimming" is used, the dimming mode will be a step one and the dimming telegram will be sent cyclically. When dimming ends, a stop dimming telegram will be sent immediately.

——Parameter "Step size"

This parameter is visible when "Step dimming" is selected. Set the brightness (%) that can be changed by the dimming telegrams sent cyclically. Options:

100%

50%

…

1.56%

——Parameter “Interval of tele. Cyclic send [0..25] (0=send once)”

This parameter is visible when "Step dimming" is selected. Set the interval for cyclically sending the telegram of dimming. Options: **0..25 *0.1s, 0=send once**

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

When the channel switches from disabled to enabled,no telegram is sent for the current contact state; The channel is disable when pressed, the cyclically sent telegram will stop, and even if the channel is enabled before release,no more long operation telegram will be sent.However, if the long operation was triggered before the channel was disable, a stop dimming telegram will be sent at this case.

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.3.3. Value output

"Value output" parameter setting page is shown as fig. 4.3.3.

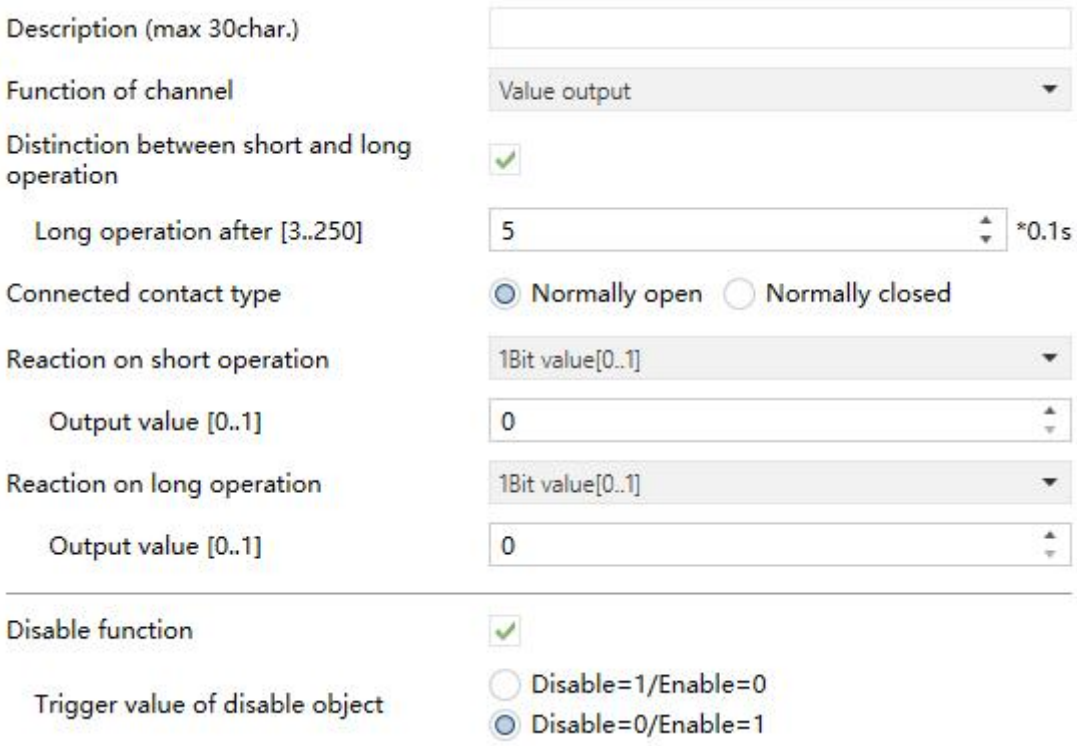


Fig. 4.3.3 Parameter window "Input x- Value/Forced output"

Parameter "Distinction between long and short operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. When enabled, the operation reaches a certain time to determine whether the operation is a long or short operation before the contact performs the setting action.

——Parameter "Long operation after [3..250]（*0.1s）"

This parameter is used to distinguish long/short operation, here the long operation activation time can be set. In operation when the contact is pressed longer than the time set here, it will be recognized as long operation, or else short operation. Options: **3..250**

Parameter "Reaction on short operation or Reaction on close operation"

Parameter "Reaction on long operation or Reaction on open operation"

This parameter is used to set the data type sent when long/short operation or close/open the contact. Options:

No reaction

1bit value [0...1]

……

4 byte value float value

Parameter"Output value[...]"

This parameter is used to define the data value sent after operation, range of the value is defined by the above parameter data type.

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

Without distinction between short and long operation: If the channel is disabled before release, no telegram is sent when released; Also, when the channel switches from disabled to enabled,no telegram is sent for the current contact state.

Distinction between short and long operation: When the channel switches from disabled to enabled,no telegram is sent for the current contact state.

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.3.4. Scene control

"Scene control" parameter setting page is shown in fig. 4.3.4.

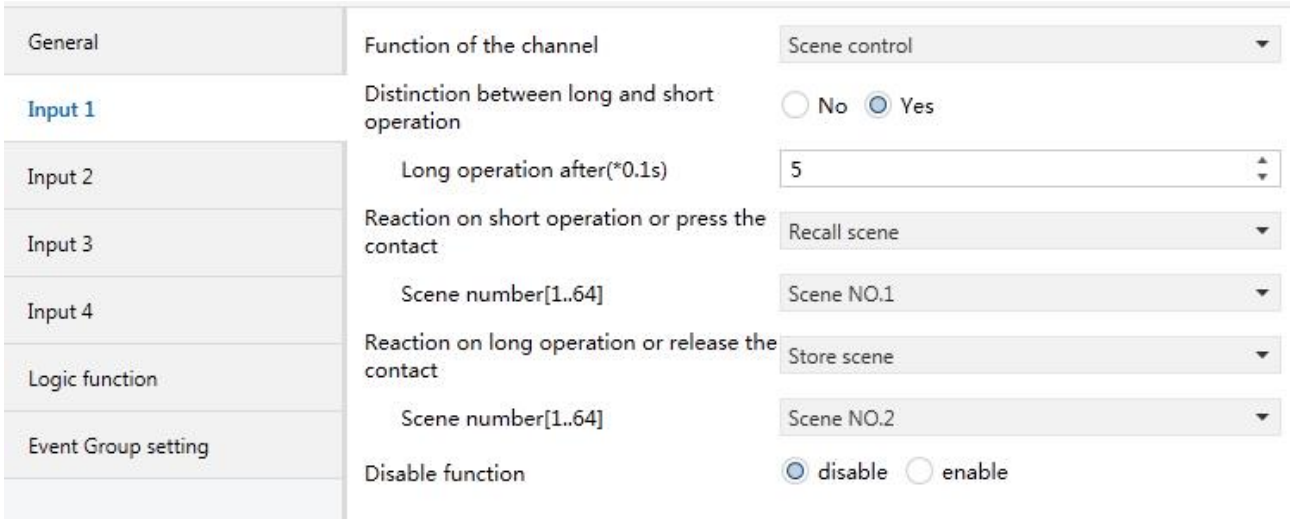


Fig. 4.3.4 Parameter window "Input x- Scene control"

Parameter "Distinction between long and short operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. When enabled, the operation reaches a certain time to determine whether the operation is a long or short operation before the contact performs the setting action.

——Parameter "Long operation after [3..250]（*0.1s）"

This parameter is used to distinguish long/short operation, here the long operation activation time can be set. In operation when the contact is pressed longer than the time set here, it will be recognized as long operation, or else short operation, Options: **3..250**

Parameter "Reaction on short operation or Reaction on close the contact"

Parameter "Reaction on long operation or Reaction on open the contact"

This parameter is used to set the reaction for the scene use or storage when long/short operation or close/open the contact.Options:

No reaction

Recall scene

Store scene

Parameter "8 bit scene number"

This parameter is for setting the scene number. Options: **Scene NO.1~64**, corresponding telegram is 0~63.

Parameter "Number of objects"

This parameter is for setting the number of objects to recall/store scene, 1 common object or 2 separate objects. Options:

1

2

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

Without distinction between short and long operation: If the channel is disabled before release, no telegram is sent when released; Also, when the channel switches from disabled to enabled,no telegram is sent for the current contact state.

Distinction between short and long operation: When the channel switches from disabled to enabled, no telegram is sent for the current contact state.

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.3.5. Blind

"Blind" parameter setting is shown in fig. 4.3.5.

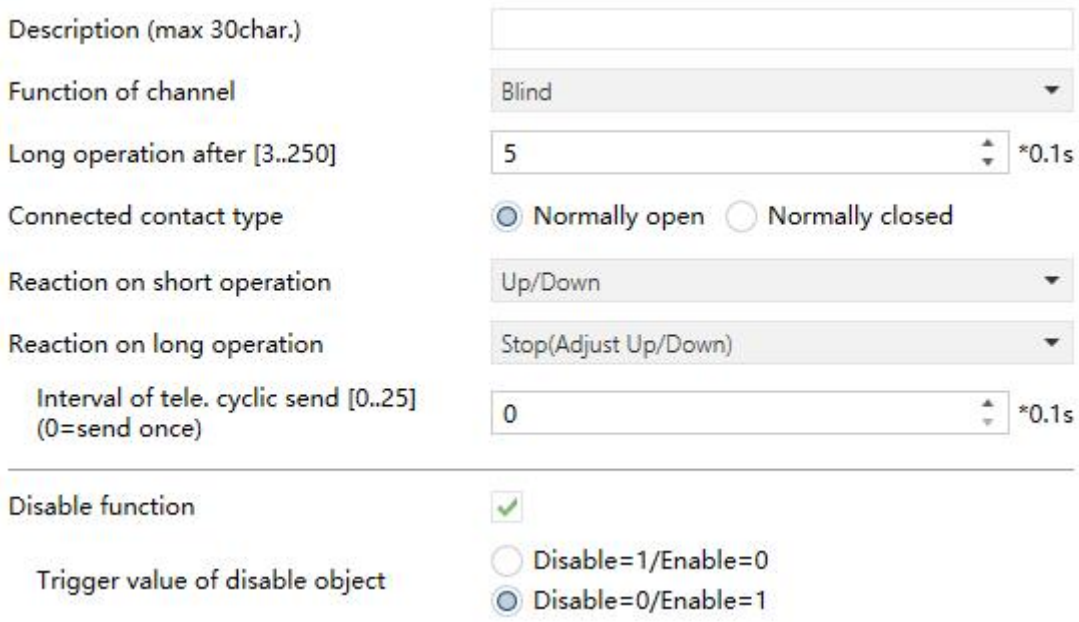


Fig. 4.3.5 Parameter window "Input x- Blind"

Parameter "Long operation after [3..250] (*0.1s)"

This parameter is used to set the activation time of long operation. If the contact is pressed longer than the time set here, the operation will be defined as long operation, or else short operation.

Options: **3..250**

Parameter "Reaction on short/long operation"

This Parameter is used to set the actions when the contact is operated in short/long operation.

Options:

No action

Up

Down

Up/Down

Stop (Adjust Up)

Stop (Adjust Down)

Stop (Adjust Up/Down)

No action: no action is performed.

Up: the shutter/blinds will be opened or moved up.

Down: the shutter/blinds will be closed or moved down.

Up/Down: alternately open/close or move up/down the shutter/blinds.When the device is powered on for the first time or restarted after downloading, the default value for ”Up/Down, Blind” is 0, meaning the first operation is closing or moving down the blinds.

Stop (Adjust Up): stop the shutter movement or move up one angle of blinds.

Stop (Adjust Down): or move down the angle of blinds.

Stop (Adjust Up/Down): stop the shutter movement or move up/down the angle of blinds alternately.When the device is powered on for the first time or restarted after downloading, the default value for ”Stop/Adjust Blind” is 0, meaning the first operation is stop or move down the angle of blinds.

——Parameter“Interval of tele. cyclic send [0..25] (0=send once)”

This parameter is visible when previous parameter is selected "Stop...". Set the interval for cyclically sending the telegram of blinds angle adjustment. Options: **0..25,0=send once**

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

When the channel switches from disabled to enabled,no telegram is sent for the current contact state; If the channel is disable before release,no more long operation telegram will be sent periodically.

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.3.6. Shift register

"Shift register" parameter setting page is shown in fig. 4.3.6, this function can send value by the way of shift register.

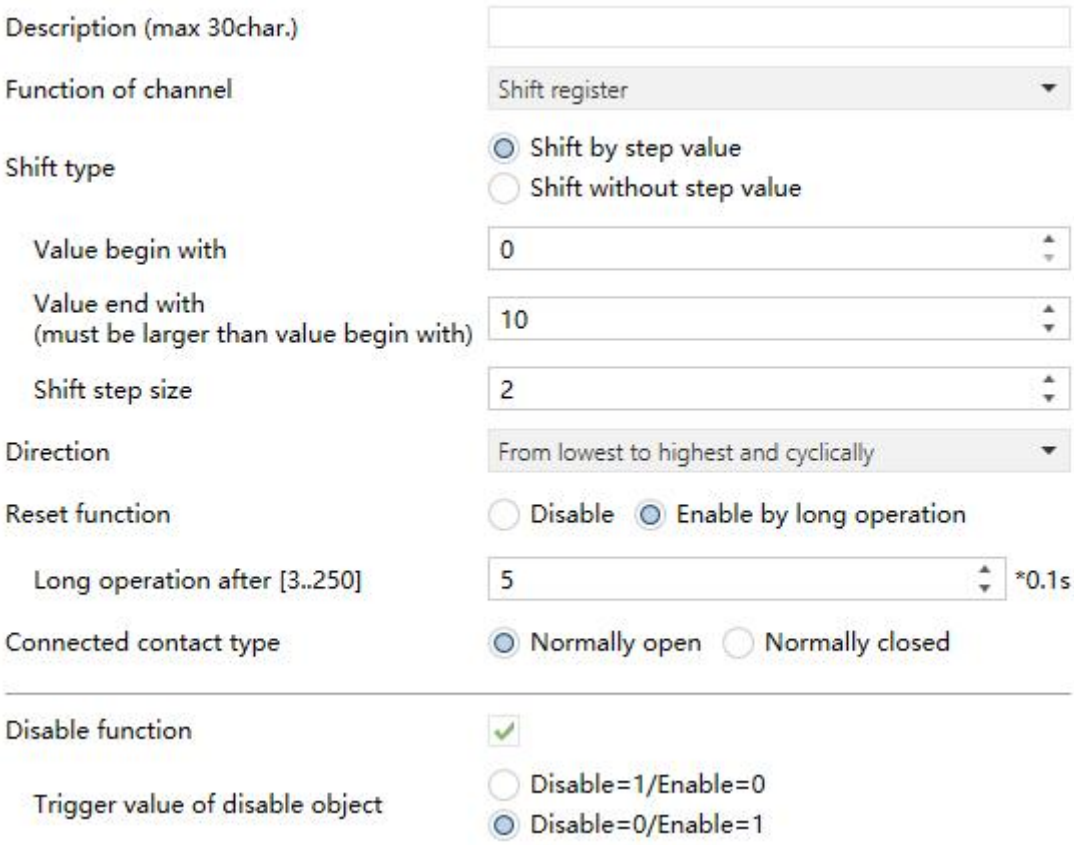


Fig. 4.3.6 Parameter window "Input x- Shift register"

Parameter "Shift type"

This parameter is used to set the shift type, whether shift by step value or without step value, Options:

Shift by step value

Shift without step value

Shift by step value: here the starting value and stopping value of shift can be set, the value increased (from low to high) or decreased (from high to low) from every shift can also be set.

Shift without step value: when there's no step value, the actual value sent by each shift can be set (max. 10 value), in every operation one value will be sent.

Parameter "Value begin with"

This parameter is available when the "Shift by step value" is activated. It is used to set the starting value of the shift, Options: **0..240.**

Parameter "Value end with (must be larger than the begin value)"

This parameter is available when the "Shift by step value" is activated. It is used to set the stopping value of the shift, Options: **1..255.**

The stopping value must be larger than begin value.

Parameter "Shift step size"

This parameter is available when the "Shift by step value" is activated. It is used to set the increase (from low to high) or decrease (from high to low) value, Options: **1...240**

参数 "Object datatype"

This parameter is available when "Shift without step value" is activated. It is used to set the object datatype for the shift object. Options:

1byte unsigned value

Scene number

HVAC mode

Parameter "Shift number"

This parameter is available when "Shift without step value" is activated. It is used to set number of shift, with maximum 10 value**.**

When "1byte unsigned value" or "Scene number" is selected, options: **0/1/2/.../10**

When "HVAC mode" is selected, options: **1/2/3/4**

Setting the value sent from each shift in the following parameters:

Parameter "Value x"(x=1~10 或 x=1~4)

This parameter is used to set the value of every shifting operation。

When "1byte unsigned value" is selected, options: **0...255**

When "Scene number" is selected, options:

Scene NO.1

Scene NO.2

Scene NO.3

...

Scene NO.64

When "HVAC mode" is selected, options:

Comfort mode

Standby mode

Economy mode

Frost/heat protection

Parameter "Direction"

This parameter is used to set the shift direction, Options:

From lowest to highest and stop to the end

From highest to lowest and stop to the begin

From lowest to highest and cyclically

From highest to lowest and cyclically

From lowest to highest and stop to the end: Shift from low to high.

From highest to lowest and stop to the begin: Shift from high to low.

From lowest to highest and cyclically: once to the end value, shift direction starts over again and constantly cycling from low to high operation.

From highest to lowest and cyclically: once to the start value, shift direction starts over again and constantly cycling from high to low operation.

Parameter "Reset function"

This parameter is used to set the possibility of enable/disable shift reset function, Options:

Disable

Enable by long operation

Disable: not possible to reset shift.

Enable by long operation: possible to reset shift by long operation, when reset, shift will start new.

Parameter "Reaction on close/open the contact"

This parameter is available when the shift reset function is disabled. It is used to define whether the shift operation will be effected when the contact is close/open, Options:

No reaction

Send shift value

Parameter "Long operation after [3..250] (*0.1s)"

This parameter is available when the shift reset function is enabled. It is used to set the effective

time of long operation. So when the contact is pressed for longer time than time set here, it will be defined as long operation, or else short operation, Options: **3..250**

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

Without distinction between short and long operation: If the channel is disabled before release, no telegram is sent when released; Also, when the channel switches from disabled to enabled,no telegram is sent for the current contact state.

Distinction between short and long operation: When the channel switches from disabled to enabled,no telegram is sent for the current contact state.

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.3.7. Multiple operation

Parameter setting interface of “Multiple operation” can be shown in fig. 4.3.7(1), Fig.4.3.7(2). Multiple operation functions are set here, with the application, different predefined values can be sent out and different types of functions can be invoked for an operation of the rocker switch. Max. 4 different objects value can be set for each input. Parameter is described as below:

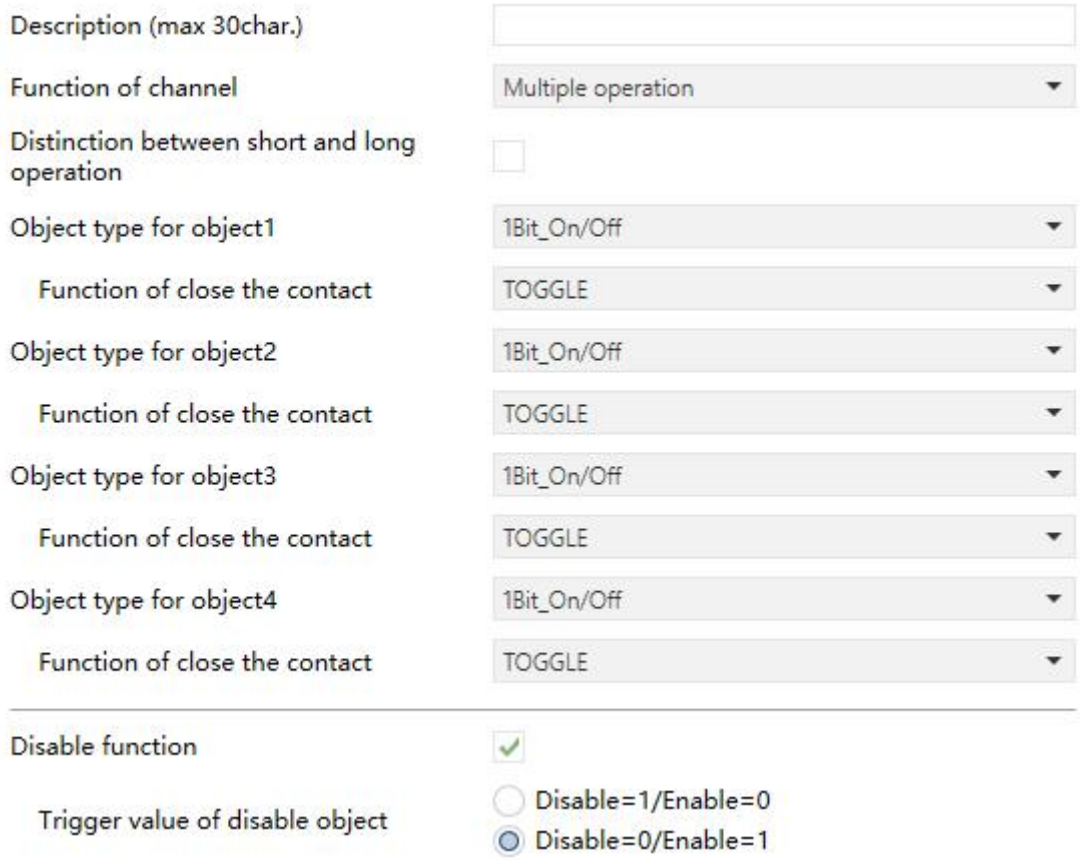


Fig. 4.3.7(1) Parameter window “Input x- Multiple Operation” (no distinctions between long & short operation)

Fig. 4.3.7(2) Parameter window "Input x- Multiple Operation" (Distinctions of Long & Short Operation)

Parameter "Distinction between long and short operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. When enabled, the operation reaches a certain time to determine whether the operation is a long or short operation before the contact performs the setting action.

——Parameter "Long operation after [3..250]（*0.1s）"

This parameter can be seen under "Distinction between long and short operation", you can set the valid time for long operation. So, when you press longer than the time set here, it will be identified as long operation, otherwise, it will be taken as short operation. Options: **3...250**

Parameter "Object type for object x(x=1..4)"

Setting here when pressing contact or long/short operation, the data type of sending out. Options:

Disable

1Bit_On/Off

……

1Byte_Unsigned value

——Parameter "Function of close the contact/ Function of short operation/ Function of long operation"

Setting the specific values of sending here when executing the operation, either no action or sending value (the specific value will be set in next parameter).

——Parameter "Value 1/2（...）"

The parameter is visible when object type is selecting "1byte_RecallScene" "1byte_StoreScene" "1byte_Percentage" "1byte_Unsigned value". It's used to set sending values when executing operations. The range of value is up to the data type selected by the parameter before last one.

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

When the channel switches from disabled to enabled,no telegram is sent for the current contact state.

Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.3.8. RGB/RGBW send value

Parameter window “RGB/RGBW send value” can be shown in Fig. 4.3.8(1), Fig.4.3.8(2).

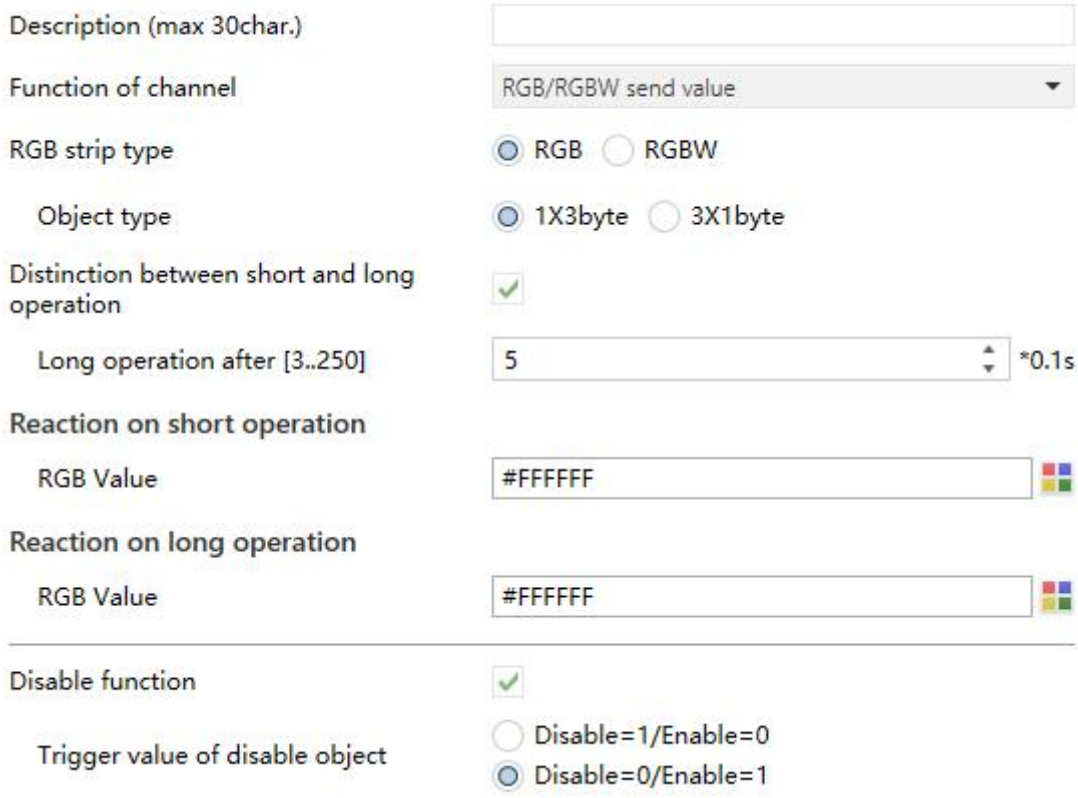


Fig. 4.3.8(1) Parameter window “Input x- RGB”

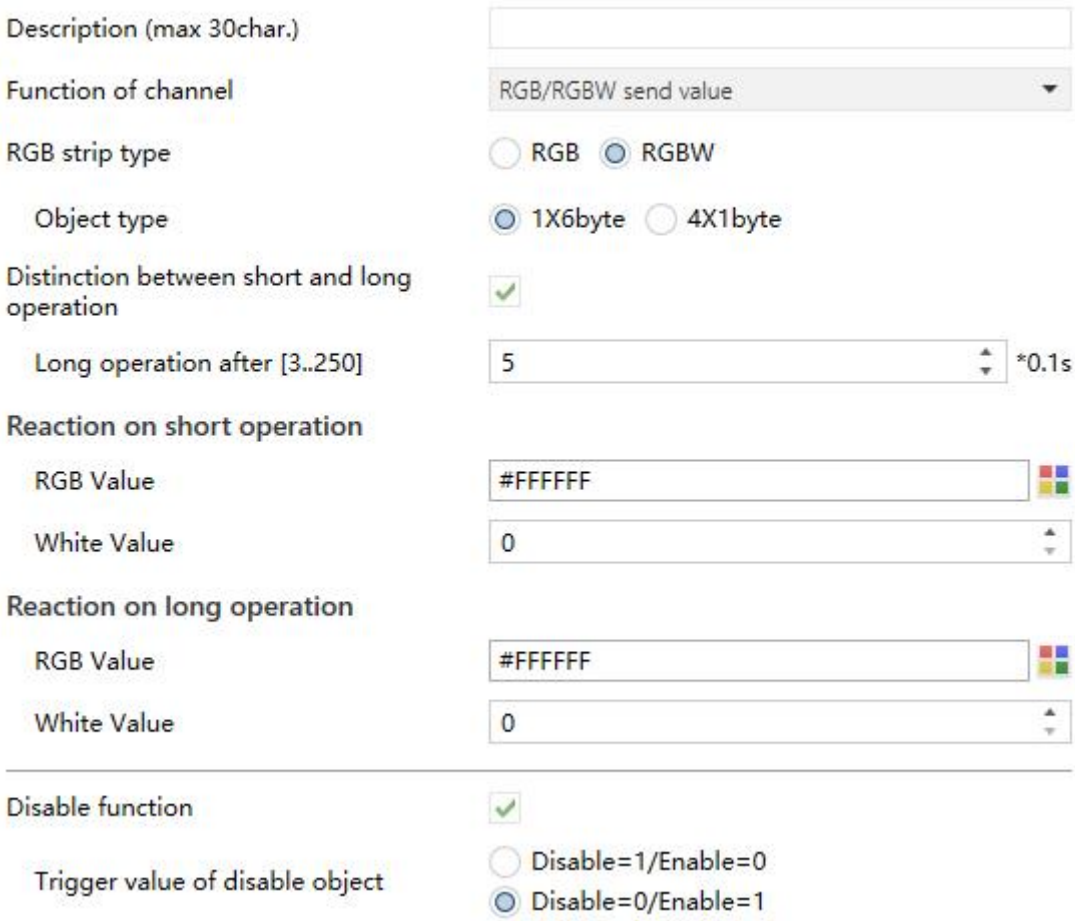


Fig. 4.3.8(2)Parameter window “Input x- RGBW”

Parameter "RGB strip type"

The parameter is used to set the type of RGB strip lights, Options:

RGB

RGBW

RGB：Apply to adjust RGB these three colors lights.

RGBW：Apply to adjust RGBW these four colors lights.

Parameter "object type"

The parameter is used to object type, Options:

Applicable to RGB type:

1x3byte **Perform the RGB dimming by a 3byte object**

3x1byte **Execute the RGB dimming by three 1byte objects**

Applicable to RGBW type:

1x6byte **Perform the RGBW dimming by a 6byte object**

4x1byte **Execute the RGBW dimming by four 1byte objects**

Parameter "Distinction between long and short operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. When enabled, the operation reaches a certain time to determine whether the operation is a long or short operation before the contact performs the setting action.

——Parameter"Long operation after [3..250]（*0.1s）"

This parameter can be seen under "Distinction between long and short operation", you can set the valid time for long operation. So, when you press longer than the time set here, it will be identified as long operation, otherwise, it will be taken as short operation. Options: **3...250**

Parameter "Recation on close/short/long operation–Red/ Green/Blue/White Value (0..255)"

When setting the operational contact or long/short operation here, the brightness value of sending various colors of strip lights is: **#000000...#FFFFFF/0...255**

Parameter "Disable function"

This parameter is for setting trigger value to disable/enable contacts.

When the channel switches from disabled to enabled, no telegram is sent for the current contact state.

Options:

Disable

Disable=1/Enable=0

Disable=0/Enable=1

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.3.9. Delay mode

Parameter window of “Delay mode” can be shown in fig. 4.3.9(1), Fig.4.3.9(2). It’s used to set delay mode function here. Sending a value or none when operating, then delaying for a period, another value will be sent out.

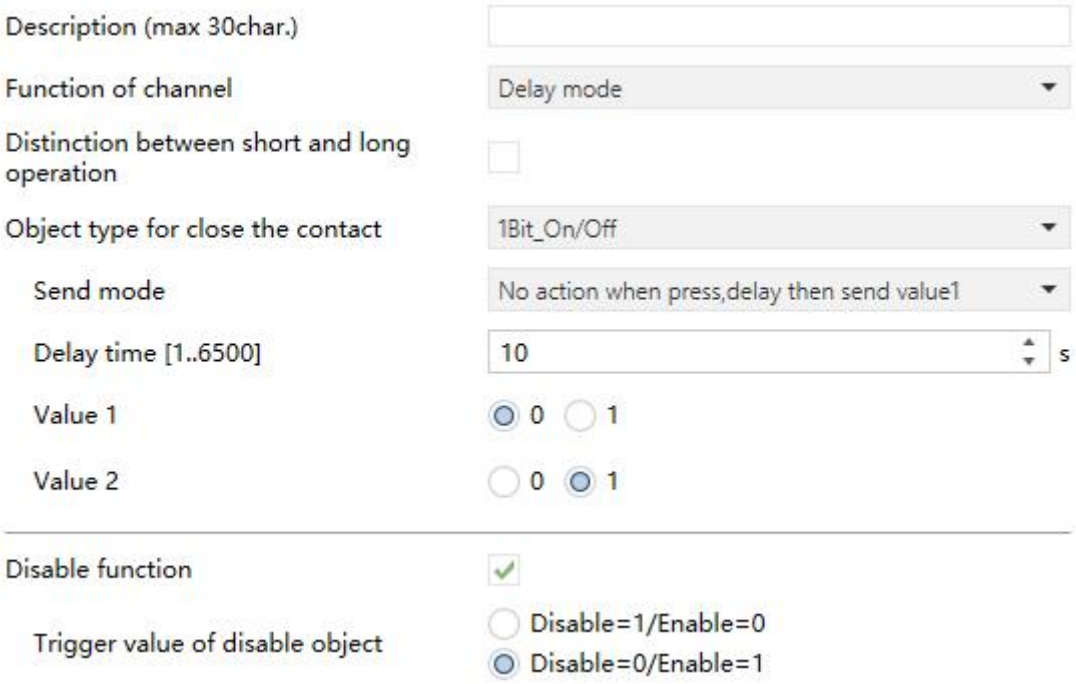


Fig.4.3.9(1) Parameter window “Input x- Delay mode” (no distinction between long & short operation)

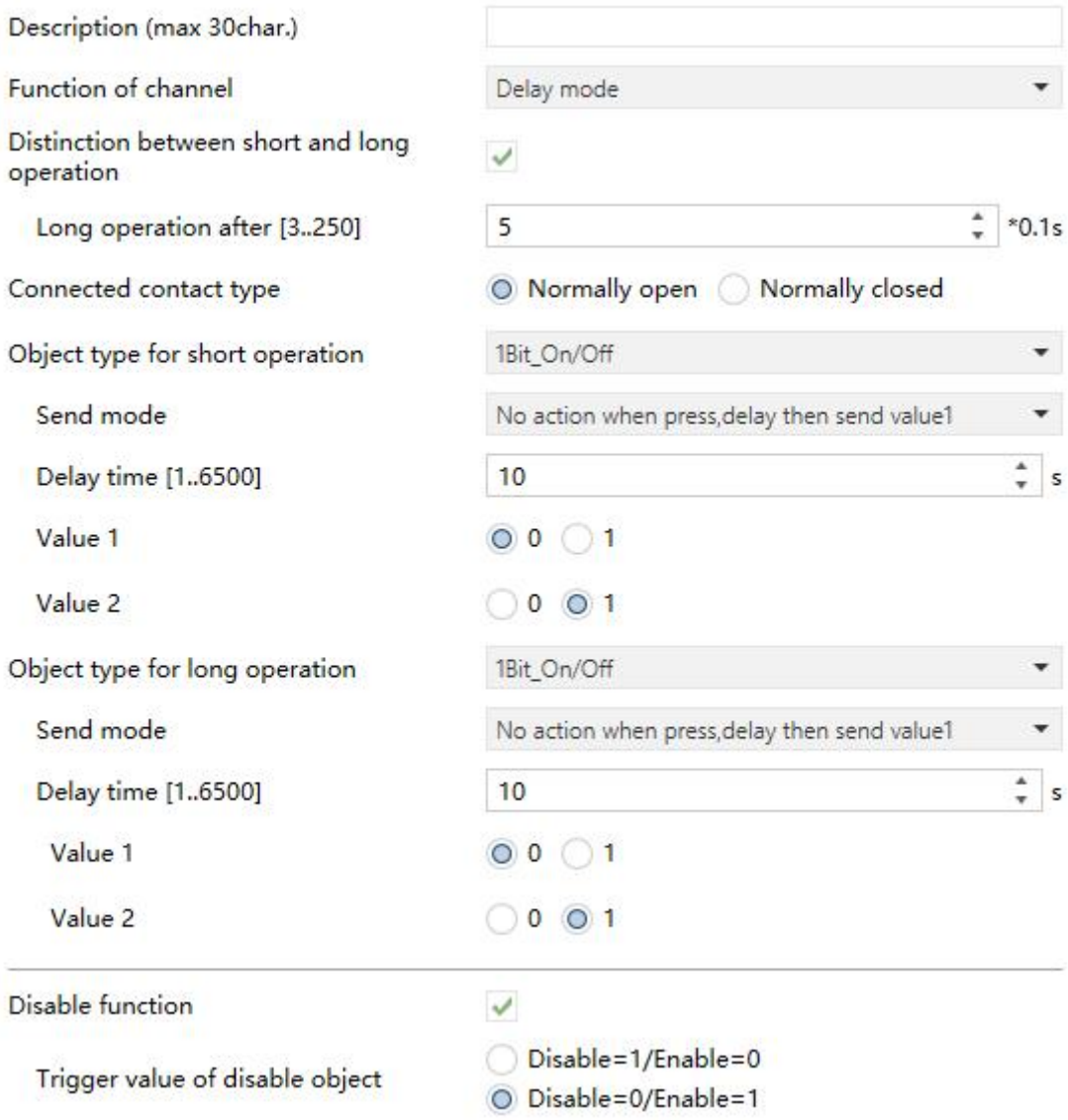


Fig.4.3.9(2) Parameter window "Input x- Delay Mode" (Distinction between long & short operation)

Parameter "Distinction between long and short operation"

This parameter is for setting whether to distinction the contact operation between short and long operation. When enabled, the operation reaches a certain time to determine whether the operation is a long or short operation before the contact performs the setting action.

——Parameter"Long operation after [3..250]（*0.1s）"

The parameter is visible when distinguishing the long and short operation, and setting the valid time for long operation here. Therefore, when the operating time of contact surpasses the setting time here, the operation is defined as long operation, otherwise, it's considered as short operation.

Options: **3..250**

Parameter "Object type for close the contact/ short/long operation "

Setting here when pressing contact or long/short operation, the data type of sending out. Options:

Disable

1Bit_On/Off

4Bit_Dimming

1Byte_Unsigned value

——Parameter "Send mode"

Setting the sending mode here. Options:

No action when press, delay then send value 1

No action when press, delay then send value 2

Send value 1 when press, delay then send value 2

Send value 2 when press, delay then send value 1

——Parameter "Delay time [1..6500] (*1s)"

Setting delay time here. Options: **1..6500s**

——Parameter "value1/2[…]"

Setting the data value 1/2 to send. The range of value is up to the selected data type.

Parameter "Disable function"

This parameter for setting whether to enable the disable function of the contact. The disable status is activated be default after download.

When the channel switches from disabled to enabled, no telegram is sent for the current contact state.

——Parameter "Trigger value of disable object"

This parameter is visible when previous parameter is enabled. Set the trigger value of disable object. Options:

Disable=1/enable=0

Disable=0/enable=1

4.4. Parameter window “Logic function”

Parameter window “Logic function “can be shown in fig. 4.4. It can enable the Logic function. And there are 8 logic functions in total.

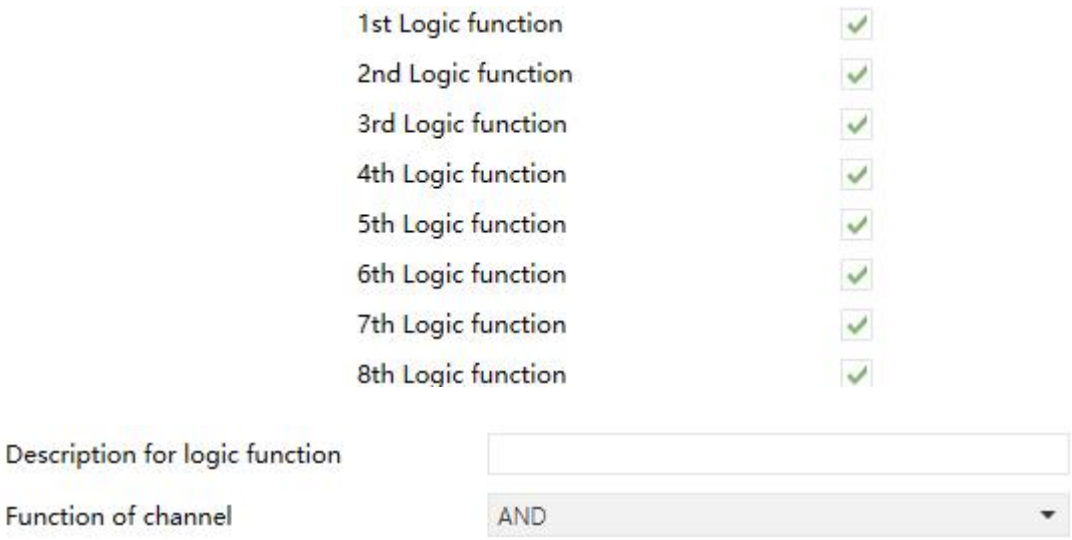


Fig. 4.4 Parameter window “Logic function”

Parameter "1st/2nd/3rd... Logic function"

This parameter is for setting the setting interface of logic function, display corresponding logic function page when select. Up to enable 8 logic functions.

Parameter "Description for logic function"

This parameter is for setting the name description for logic function, up to input 30 characters.

Parameter "Function of channel"

This parameter is used for setting the Logic function of the channel, Options:

AND
OR
XOR
Gate forwarding
Threshold comparator
Format convert
Gate function
Delay function
Staircase lighting

AND/OR/XOR: These parameter is similar with the communication object. The only difference is the Logical algorithm. Take one of the logical function for detailed instruction as follows.

4.4.1. AND/OR/XOR

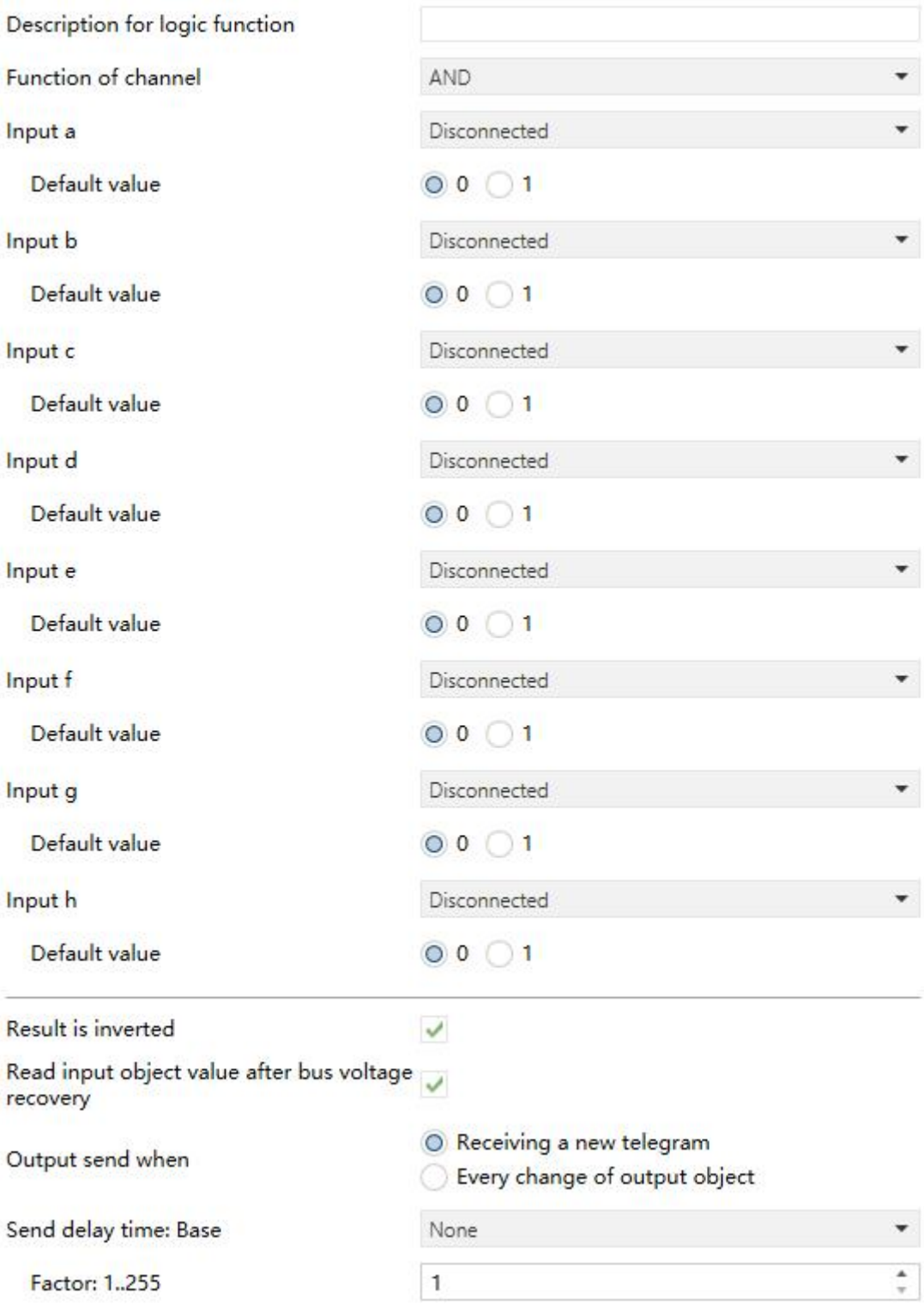


Fig. 4.4.1 Parameter window “Logic function -- AND/OR/XOR”

Parameter "Input a/b/c/d/e/f/g//h"

This parameter is used for setting whether the logic input x will be involved in the logical operating, or normal operating or inverted operating.

Disconnected

Normal

Inverted

Disconnected: not involved in the logical operating.

Normal：Involved in the logical operating directly.

Inverted：the inverted value will be Involved in the logical operating.

Note: The "inverted operation" will not applied to the default value.

Parameter "Default value"

This parameter is used for setting the default value of the logical input x, Options:

0

1

Parameter "Result is inverted"

This parameter is used for setting whether the "inverted operation "is applied to the logical operation result.

Disable: Output directly.

Enable: output the inverted value.

Parameter "Read input object value after bus voltage recovery"

This parameter is used for setting whether the reading telegram will be sent to the logical input object after the programming or resetting.

Parameter "Output send when"

This parameter is used for setting the conditions of sending logical operating result.

Receiving a new telegram

Every change of output object

Option"Receiving a new telegram",the logical result will be sent to the bus every time when there is logical input.

Option"Every change of output object",the logical result will be sent to the bus when there is changes of logical result. **Note: Although there is no change of the logical result for first logical operating, the logical result will still be sent to the bus.**

Parameter "Send delay time"

Base:

None

0.1s

1s

...

10s

25s

Factor: **1..255**

This parameter is used for setting the delay time of the logical result to be sent to the bus.

Delay time =Base x Factor. If the option Base is "None", then there is no delay.

4.4.2. Gate forwarding

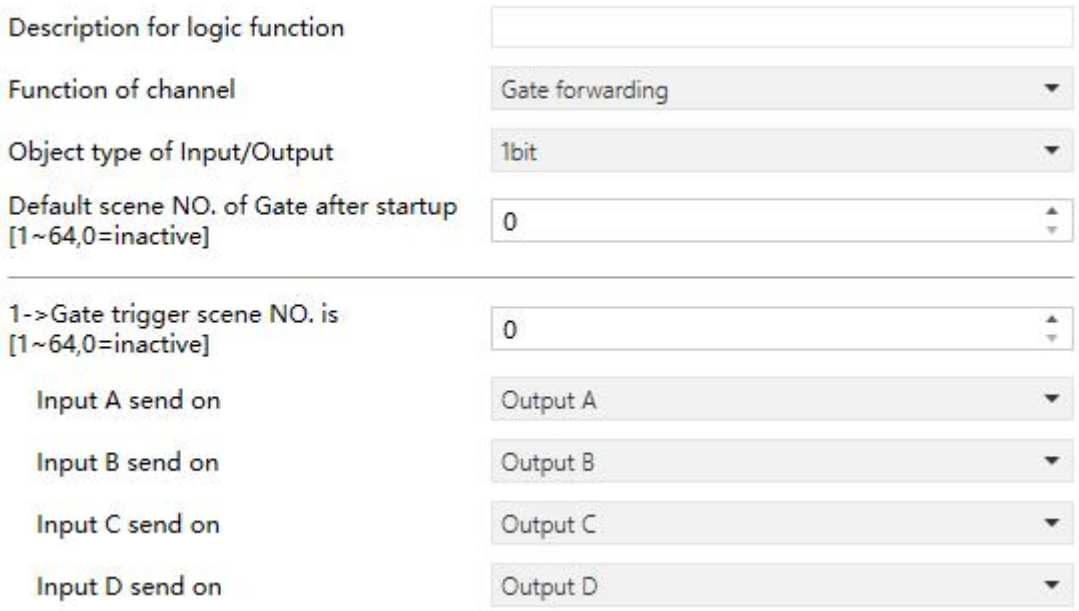


Fig. 4.4.2 Parameter window "Logic function -- Gate forwarding"

Parameter "Object type of Input/Output"

To set the object type of the input/output object.

Options:**1bit/4bit/1byte**

Parameter "Default scene NO. Of Gate after device startup (1..64, 0=inactive)"

After the device is started, the scenario of logical gate forwarding can be performed by default. This scenario needs to be configured in the parameters. Options: **1..64,0=inactive**

Parameter "z->Gate trigger scene NO. is(1..64,0=inactive)" (z:1~8)

To set the scene number of logic gate forwarding. Each logic can trigger maximum 8 scenes. Options: **1..64, 0=inactive**.

Parameter "Input A/B/C/D send on"

To set the output after gate forwarding input. Options:

Output A

Output B

..

Output B,C,D

Usually the input value is the same as the output value, and depending on the option, one input can be forwarded to single or multiple outputs.

Note: Select the gate scene before operation, otherwise the default scene will be activated.

4.4.3. Threshold comparator

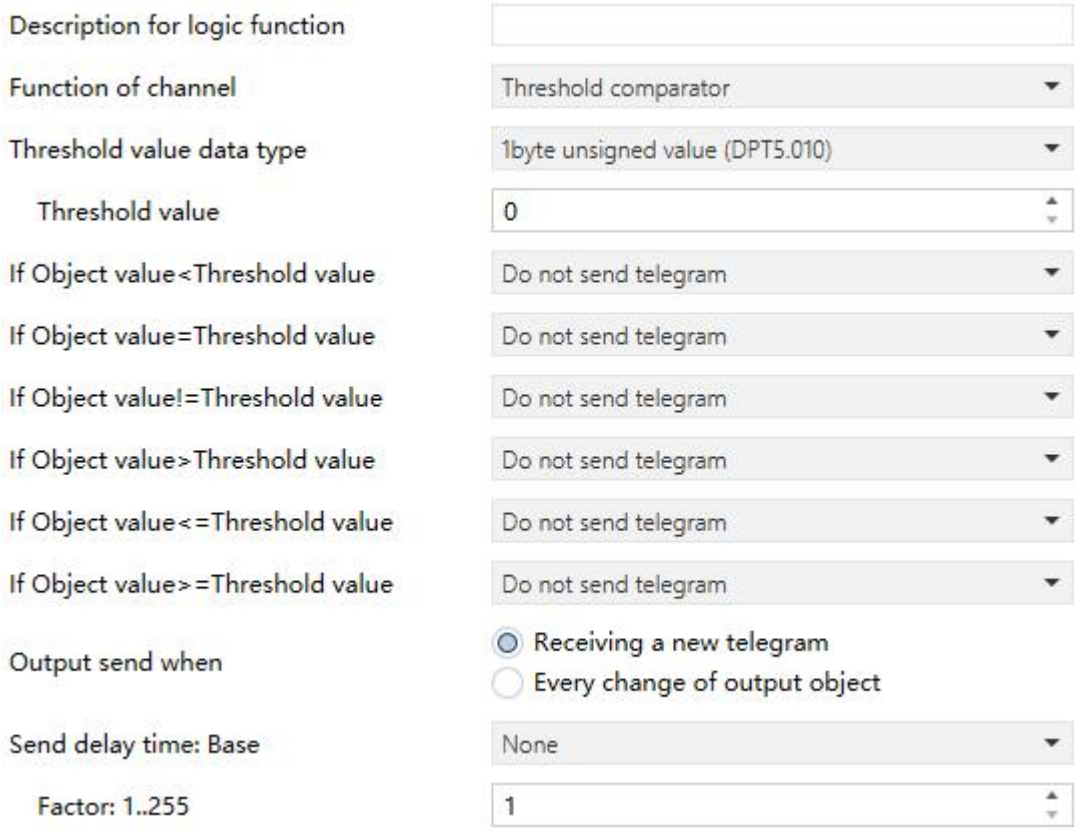


Fig. 4.4.3 Parameter window “Logic function --Threshold comparator”

Parameter "Threshold value data byte "

Here set the threshold data types. Optional:

4bit

1byte

2byte

4byte

Parameter "Threshold value…. "

Sets the threshold, threshold value range determined by its data type: **4bit 0..15/1byte 0..255/ 2byte 0..65535 /4byte 0..4294967295**

Parameter "If Object value<Threshold value "

Parameter "If Object value=Threshold value "

Parameter "If Object value!=Threshold value "

Parameter "If Object value>Threshold value "

Parameter "If Object value<=Threshold value "

Parameter "If Object value>=Threshold value "

These parameters are used to set the input threshold is less than, equal to, not equal to, greater than, less than, equal to or greater than or equal to the set threshold value, the logical result values should be sent. Options:

Do not send telegram

Send value “0”

Send value “1”

Do not send telegram: Select this option regardless of the parameters;

Send value "0"/ "1": When the condition is satisfied, send telegram 0 or 1. If the parameter sets Options that conflict, so the final result will be considered by the last valid parameter. For example, when parameter "If Object value=Threshold value" set Send value "0", while the parameter "If Object value< =Threshold value" settings Send value "1" , and so when an object value is equal to the threshold value, the logical result will be sent " 1 ".

Parameter "Output send when "

Here to set conditions for sending results of logical operations. Optional:

Receiving a new telegram

Every change of output object

Option " Receiving a new telegram "Each receives an input value; the logical result will be sent to the bus;

Option " Every change of output object " When the logic changes occur to the results, are sent to the bus. **Note: when you first perform logical operations, logical operations results do not change, will also be sent.**

Parameter "Send delay time "

Base:

None

0.1s

1s

...

25s

Factor: 1..255

This parameter is used to set the delay time of sending results of logical operations to the bus. Delay =Base x Factor, if the Base option to "None", there is no delay.

4.4.4. Format convert

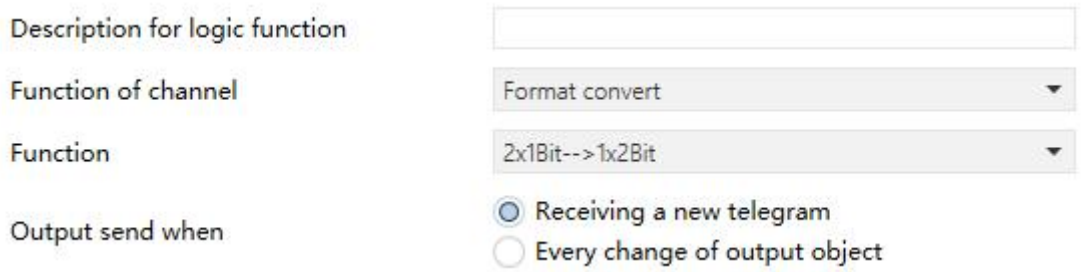


Fig. 4.4.4 Parameter window “Logic function -- Format convert”

Parameter "Format convert type"

To set the format convert type. Options:

2x1bit-->1x2bit

8x1bit-->1x1byte

1x1byte-->1x2byte

2x1byte-->1x2byte

2x2byte-->1x4byte

1x1byte-->8x1bit

1x2byte-->2x1byte

1x4byte-->2x2byte

1x3byte-->3x1byte

3x1byte-->1x3byte

Parameter "Output send when"

To set the conditions for sending logical results. Options:

Receiving a new telegram

Every change of output object

Receiving a new telegram： Each time an object receives a new input value, the result is sent to the bus;

Every change of output object: Only when the logic result changes, the result will be sent to the bus.

Note: When the logic operation is performed for the first time, the logical operation result will be sent even when it does not change.

4.4.5. Gate function

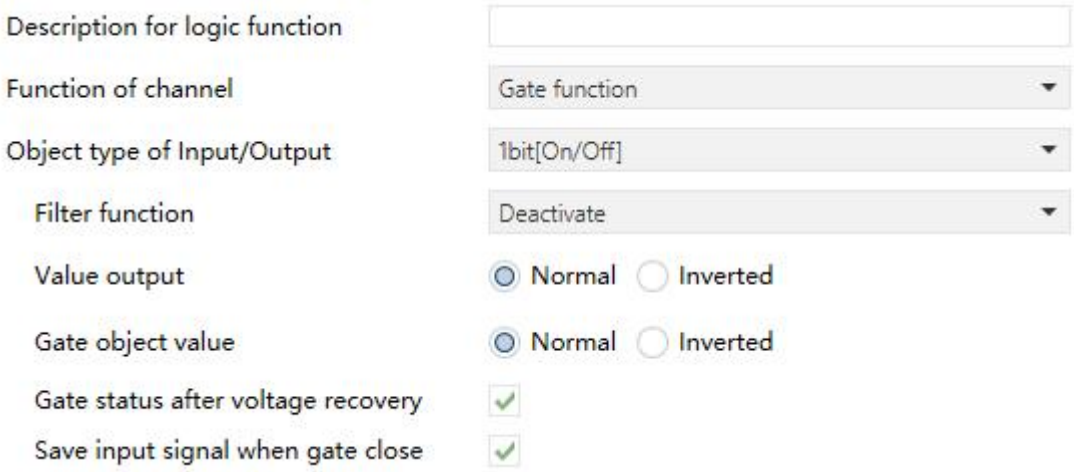


Fig.4.4.5 Parameter window "Gate function"

Parameter "Object type of Input/Output"

This parameter is for setting the object type of input/output. Options:

1bit[On/Off]

1byte[0...100%]

1byte[0...255]

2byte[Float]

2byte[0...65535]

Parameter as follow are visible when "1bit[On/Off]" is selected.

——Parameter "Filter function"

This parameter is visible when "1bit[On/Off]" is selected. Set whether to filter On or Off telegram, only pass one of them or pass all. Options:

Deactivate

On filter out

Off filter out

Deactivate: Do not filter the On or Off telegrams;

On filter out: Off can pass, On cannot pass;

Off filter out: On can pass, Off cannot pass.

——Parameter "Value output"

This parameter is for setting whether to invert the value then output it. Options:

Normal

Inverted

Parameter "Gate object value"

This parameter is for setting whether to invert the gate object value then output it. Options:

Normal

Inverted

Parameter "Gate status after voltage recovery"

This parameter is for setting the gate status after power on. Options:

Disable

Enable

Parameter "Save input signal when gate close"

This parameter is for setting whether to save input signal on gate close. Options:

Yes

No

Yes: enable to save the input, the input values received during the gate closing period are output when gate is open (whether the input value is changed or not).

Note: During the period when the gate is closed, the received filtered input values are not saved. After the gate is opened, the valid input values received are output.

No: disable to save the input, the input values received during the gate closing period are ignored;

4.4.6. Delay function

Fig.4.4.6 Parameter window “Delay function”

Parameter "Object type of Input/Output"

This parameter is for setting the object type of input/output. Options:

1bit[On/Off]

1byte[0..100%]

1byte[0..255]

2byte[Float]

2byte[0..65535]

Parameter "Delay time [0..6500]s"

This parameter is for setting the delay time that output object forwards the value when the input object receives the telegram. Options: **0..6500**

Note: Receive telegram again in delay time, re-timing.

4.4.7. Staircase lighting

Fig.4.4.7 Parameter window “Staircase lighting”

Parameter "Trigger value"

This parameter is for setting the telegram value of the object “Trigger value”. Options:

0

1

0 or 1

Parameter "Object type of output"

This parameter is for setting the object type of output. Options:

1bit

1byte

Parameter "Duration time of staircase lighting[10..6500]s"

This parameter is for setting duration time of staircase lighting after the stair light power on.

Options:**10..6500**

Parameter "Send value 1 when trigger"

Parameter "Send value 2 after duration time"

These parameters are for setting the value to send. Send value 1 when trigger, and then send value 2 after duration time. Options display according to the output object datatype.

When 1 bit, options:

OFF

ON

When 1 byte , options: **0..255**

Parameter "Retriggering"

This parameter is for setting whether to trigger re-timing when received trigger value in delay time.

Options: **Disable/Enable**

4.5. Parameter window "Scene Group function "

Parameter window “Scene group function “can be shown in fig. 4.5. It is mainly setting scene group function, up to 8 scene group functions can be configured,each group with 8 outputs.

Fig.4.5(1) Parameter window “Scene Group function”

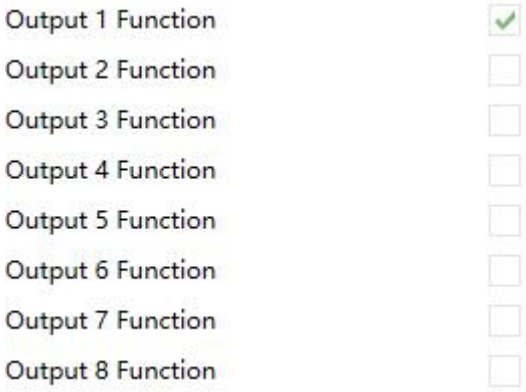


Fig.4.5(2) Parameter window “Group X”

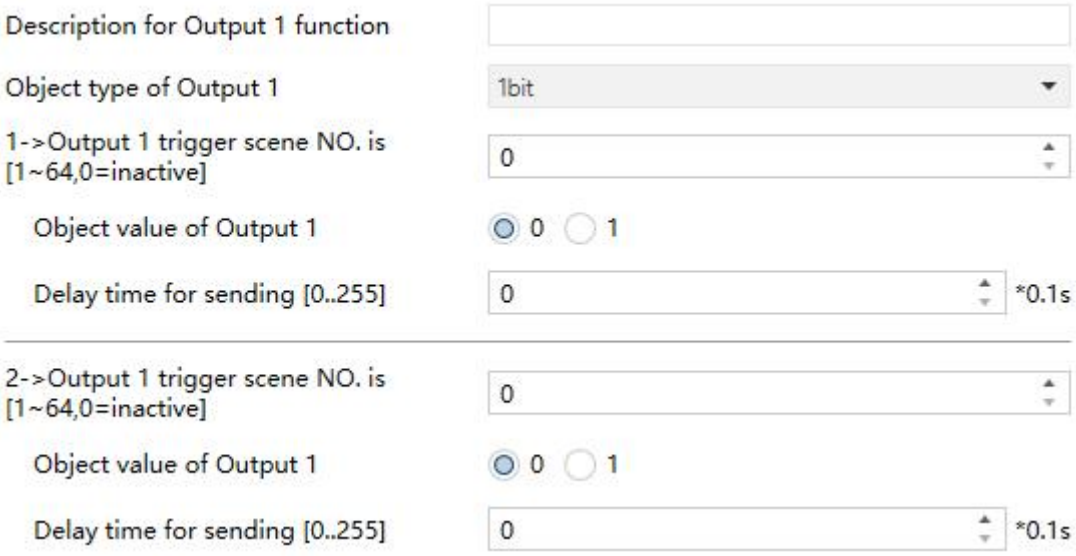


Fig.4.5(3) Parameter window “Output Y function”

Parameter "Scene Group x Function,(x=1-8)"

This parameter is for setting whether to enable scene group x function, up to 8 scene groups.

Parameter "Output y Function,(y=1-8)"

This parameter is for setting whether to enable output Y of scene group X, up to 8 output functions for each scene group.

As 8 group functions are the same, and 8 output functions of each group as well, the following description only about one output of a group.

Parameter "Description for Output y function,(y=1-8)"

This parameter is for setting the name description for output Y of group X, up to input 30 characters.

Parameter "Object type of Output 1 y,y=(1-8)"

This parameter is for setting the object type of output Y of group X. Options:

1bit

1byte

2byte

RGB

RGBW

——Parameter"Object datatype"

This parameter is for setting the datatype of 1byte or 2byte.

When the datatype is 1byte, options:

1byte unsigned value

HVAC mode

When the datatype is 2byte, options:

2byte unsigned value

Temperature value

Parameter "z->Output 1 trigger scene NO. is [1~64,0=inactive],(z=1-8)"

This parameter is for setting the triggered scene number of output y of group x. Up to 8 triggered scene of each output can be configured. Options: **0..64, 0=inactive**

Parameter "Object value of Output y"

This parameter is for setting the output value, the range depends on the data type of output Y.

When the datatype is 1bit, options: **0..1**

When the datatype is 1byte-1byte unsigned value, options: **0..255**

When the datatype is 1byte-HVAC mode, options:

Comfort mode

Standby mode

Economy mode

Frost/heat protection

When the datatype is 2byte-2byte unsigned value, options: **0..65535**

When the datatype is 2byte-Temperature value, options:

-5°C

-4°C

...

45°C

——Parameter "RGB value of Output y"

When the datatype is RGB this parameter is visible, used for setting the RGB value of output y. Options: **#000000...#FFFFFF**

——Parameter "White value of Output y"

When the datatype is RGBW this parameter is visible, used for setting the white value of output y. Options: **0.255**

Parameter "Delay time for sending [0...255]*0.1s"

This parameter is for setting the delay time for sending the output value to the bus. Options: **0..255**

Chapter 5 Communication object description

The medium for One devices communicate with other devices on the bus is Communication object, Each communications object is detailed below.

Note: in the property column in the table below "C" Communications represents a communication object functionality is enabled, the "W" On behalf of a distribution object to rewriting across the bus, "R" On behalf of a distribution object's value can be read via the bus, "T" Represents a communication object with transfer function, "U" On behalf of a distribution object's value can be updated.

5.1. “General” Communication object

序号	名称	对象功能	描述	群组地址	长度	C	R	W	T	U	数据类型	优先级
1	General	In operation			1 bit	C	R	-	T	-	switch	低

Fig. 5.1 “General” Communication object

No.	Function	Name	Type	Property	DPT
1	**In operation**	**General**	**1bit**	**C,R,T**	**1.001 switch**
The communication object is used to periodically send a telegram “1” to the bus to indicate that the device is working properly.					

Table 5.1 “General” Communication object

5.2. “Input” Communication object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Switch			1 bit	C	-	W	T	U	switch	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Close, Switch			1 bit	C	-	W	T	U	switch	Low
140	Input 1 - ...	Open, Switch			1 bit	C	-	W	T	U	switch	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

"Switch" Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Short, Switch			1 bit	C	-	W	T	U	switch	Low
140	Input 1 - ...	Long, Dimming			4 bit	C	-	W	T	-	dimming control	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

"Dimming" Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Short, 1bit value			1 bit	C	-	-	T	-	switch	Low
140	Input 1 - ...	Long, 1bit value			1 bit	C	-	-	T	-	switch	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

"Value output” Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Scene			1 byte	C	-	-	T	-	scene control	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Short, Scene			1 byte	C	-	-	T	-	scene control	Low
140	Input 1 - ...	Long, Scene			1 byte	C	-	-	T	-	scene control	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

"Scene control” Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Up/Down, Blind			1 bit	C	-	W	T	-	up/down	Low
140	Input 1 - ...	Stop/Adjust, Blind			1 bit	C	-	W	T	-	step	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

“Blind” Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Register value			1 byte	C	-	W	T	-	counter pulses (0..255)	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

“Shift register” Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Object1-SceneCon...			1 byte	C	-	-	T	-	scene control	Low
140	Input 1 - ...	Object2-On/Off			1 bit	C	-	W	T	-	switch	Low
141	Input 1 - ...	Object3-On/Off			1 bit	C	-	W	T	-	switch	Low
142	Input 1 - ...	Object4-On/Off			1 bit	C	-	W	T	-	switch	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

"Multiple operation" Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	RGB dimming value			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

RGB_1x3byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Red dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
140	Input 1 - ...	Green dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
141	Input 1 - ...	Blue dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

RGB_3x1byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	RGBW dimming value			6 bytes	C	-	-	T	-	RGBW value 4x(0..100%)	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

RGBW_1x6byte

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Red dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
140	Input 1 - ...	Green dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
141	Input 1 - ...	Blue dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
142	Input 1 - ...	White dimming value			1 byte	C	-	-	T	-	percentage (0..100%)	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

RGBW_4x1byte

"RGB/RGBW send value" Function

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Close, Delay mode			1 bit	C	-	-	T	-	switch	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
139	Input 1 - ...	Short, Delay mode			1 bit	C	-	-	T	-	switch	Low
140	Input 1 - ...	Long, Delay mode			1 bit	C	-	-	T	-	switch	Low
143	Input 1 - ...	Disable			1 bit	C	-	W	-	-	enable	Low

"Delay mode" Function

Fig. 5.2 "Input" Communication object

No.	Function	Name	Type	Property	DPT
139	**Switch**	**Input X- {{...}}**	**1bit**	**C,W,T,U**	**1.001 DPT_Switch**
139	**Close, Switch**	**Input X- {{...}}**	**1bit**	**C,W,T,U**	**1.001 DPT_Switch**
140	**Open, Switch**	**Input X- {{...}}**	**1bit**	**C,W,T,U**	**1.001 DPT_Switch**

The communication object is used to trigger a switching operation. Only the object "Switch" is visible when use a common object. If use two separate objects, "close/open" is visible when there is no distinction for short/long operation.

Telegrams:

0 — Off

1 — On

After the bus recovery or programming, the default value is “0”.

The name in parentheses changes with the parameter "Description (max 30char.)". If description is empty, display "Input x - ..." by default. The same below.

139	**Short, Switch**	**Input X- {{...}}**	**1bit**	**C,W,T,U**	**1.001 DPT_Switch**

The communication objects are used to trigger switch Operation. Telegram:0 – off, 1 – on

After the bus recovery or programming, the default value is “0”.

140	**Long, Dimming**	**Input X- {{...}}**	**4bit**	**C,W,T**	**3.007 DPT_Dimming control**

This communication objects triggers a dimming operation.

The telegram 1~7 is to dim down, larger values of this range, smaller amplitude of dimming down , 0 is to stop dimming; while the telegram 9~15 dim up,larger values of this range, smaller amplitude of dimming up. 8 is to stop the dimming.

After the bus recovery or programming, the default value is “0”.

139	**Short/Close,1bit/2bit/ 4bit/1byte/2byte value**	**Input X- {{...}}**	**1bit 2bit 4bit 1byte 2byte**	**C,T**	**1.001 DPT_Switch/ 2.001 DPT_Switch control/ 3.007DPT_Dimming control/ 5.010 DPT_counter pulses/ 7.001 DPT_pulses**
140	**Long/Open,1bit/2bit/ 4bit/1byte/2byte value**	**Input X- {{...}}**			

These two communication objects are used for sending a fixed value to the bus, "Close/Open" is

visible when there is no distinction for short/long operation; "Short/Long" is visible when there is distinction for short/long operation. Range of values that can be sent are determined by the datatype, and the datatype is determined by the parameter setting.

139	**Scene**	**Input X- {{...}}**	**1byte**	**C,T**	**18.001 DPT_SceneControl**
139	**Close, Scene**	**Input X- {{...}}**	**1byte**	**C,T**	**18.001 DPT_SceneControl**
139	**Short/Press, Scene**	**Input X- {{...}}**	**1byte**	**C,T**	**18.001 DPT_SceneControl**
140	**Open, Scene**	**Input X- {{...}}**	**1byte**	**C,T**	**18.001 DPT_SceneControl**
140	**Long/Release, Scene**	**Input X- {{...}}**	**1byte**	**C,T**	**18.001 DPT_SceneControl**

Sending a communication object 8bit Instruction calls or store scenes. Detailed 8bit the meaning of the directive. Use a common object or two separate objects is according to the parameter setting when close/open and long/short operation.

Only the object "Scene" is visible when use a common object. If use two separate objects, "Close/Open" is visible when there is no distinction for short/long operation; "Short/Long" is visible when there is distinction for short/long operation.

Detailed 8bit the meaning of the directive.

Set up a 8bit Orders for the (Binary code) : FXNNNNNN

F: '0' recall scene; '1' for storage scene;

X : 0 ;

NNNNNN: Scene number(0... 63).

Parameter setting Options are 1~64 Actually communication object "Scene" Corresponds to the telegram received is 0~63 . Such as parameter settings is the scene 1, Communication object "Scene" sends the scene for 0. As follows:

Object message value	Description
0	Recall scene 1
1	Recall scene 2
2	Recall scene 3
...	...

63	Recall scene 64
128	Store scene 1
129	Store scene 2
130	Store scene 3
...	...
191	Store scene 64

139	**Up/Down, Blind**	**Input X- {{...}}**	**1bit**	**C,T**	**1.008 DPT_up/down**

This object is used to move up/down the curtain. Telegram:

0 —— Move up the curtains / blinds

1 —— Move down the curtains / blinds

After the bus recovery or programming, the default value is “0”.

140	**Stop/Adjust,Blind**	**Input X- {{...}}**	**1bit**	**C,T**	**1.007 DPT_Step**

This object is used to stop the curtain moving or adjusting the shutter angle.

After the bus recovery or programming, the default value is “0”.

139	**Register value**	**Input X**	**1bit**	**C,T**	**5.010 DPT_counter pulses**

This address is used to send shift register value.Range of values that can be sent are determined by the datatype, and the datatype is determined by the parameter setting.

139	**Object x-On/Off**	**Input X- {{...}}**	**1bit**	**C,W,T**	**1.001DPT_Switch**
	Object x-Up/Down		**1bit**	**C,W,T**	**1.008DPT_up/down**
	Object		**1byte**	**C,T**	**18.001DPT_SceneControl**
	x-SceneControl		**1byte**	**C,T**	**5.001DPT_Scaling**
	Object x-Percentage		**1byte**	**C,T**	**5.010DPT_counter pulses**
	Object x-Unsigned				
	value				

These objects for multiple object up and activate 4 (x=1,2,3,4), Through these objects, once, can be sent simultaneously 4 A different type of object values to the bus. Range of values that can be sent are determined by the datatype, and the datatype is determined by the parameter setting.

After the bus recovery or programming, the default value for “On/Off” and “Up/Down” is “0”.

139	**Red dimming value**	**Input X**	**1byte**	**C,T**	**5.001 percentage**
140	**Green dimming value**	**Input X- {{...}}**	**1byte**	**C,T**	**5.001 percentage**
141	**Blue dimming value**	**Input X- {{...}}**	**1byte**	**C,T**	**5.001 percentage**

These three communication objects are visible when “3x1byte” for the RGB object type is selected, used for sending brightness value of the control R(red) /G(green) / B (blue) channel to the bus.

Telegrams: 0...100%

142	**White dimming value**	**Input X- {{...}}**	**1byte**	**C,T**	**5.001 percentage**

The communication object is visible when “4x1byte” for the RGBW object type is selected, used for sending brightness value of the control W(white) channel to the bus.

139	**RGB dimming value**	**Input X- {{...}}**	**3byte**	**C,T**	**232.600 RGB value 3x(0..255)**

This object is visible when “1x3byte” for the RGB object type is selected, used to send RGB three-color lamp brightness values. The highest bit is the dimming value of R (red).

3-Byte Code for RGB Dimming Object Data Type: U8 U8 U8, as follows:

3_{MSB}	2	1_{LSB}
R	G	B
UUUUU UUU	UUUUU UUU	UUUUUUUU

R: red dimming value; G: green dimming value; B: blue dimming value.

139	**RGBW dimming value**	**Input X- {{...}}**	**6byte**	**C,T**	**251.600 DPT_Colour_RGBW**

This object is visible when “1x6byte” for the RGB object type is selected, used to send RGBW four-colour light brightness value. The highest bit is the dimming value of R (red).

The encoding of the RGBW dimming value is: U8 U8 U8 U8 R8 R4 B4， Details as follow:

6_{MSB}	5	4	3	2	1_{LSB}
R	G	B	W	Reserved	r r r r mR mG mB mW
UUUUUUUU	UUUUUUUU	UUUUUUUU	UUUUUUUU	00000000	0000BBBB

R: Colour Level Red ;

G: Colour Level Green;

B: Colour Level Blue;

W: Colour Level White;

mR: Shall specify whether the colour information red in the field R is valid or not. , 0=not valid, 1=valid;

mG: Shall specify whether the colour information green in the field G is valid or not. , 0=not valid, 1=valid;

mB: Shall specify whether the colour information blue in the field B is valid or not. , 0=not valid, 1=valid;

mW: Shall specify whether the colour information white in the field W is valid or not. , 0=not valid, 1=valid.

139	**Close, Delay mode**	**Input X- {{...}}**	**1bit**	**C,T**	**1.001 DPT_Switch**
139	**Short, Delay mode**	**Input X- {{...}}**	**4bit**		**3.007 DPT_Dimming control**
140	**Long, Delay mode**	**Input X- {{...}}**	**1byte**		**5.010 DPT_counter pulses**
These value of this object is used to send time-delay mode of communication, "Close" is visible when there is no distinction for short/long operation; "Short/Long" is visible when there is distinction for short/long operation. Range of values that can be sent are determined by the datatype, and the datatype is determined by the parameter setting.					
5	**Disable**	**Input /Rocker X**	**1bit**	**C,W**	**1.003 DPT_enable**
This object is used to disable/ enable the input function, the telegram value is decided by the parameter.					

Table 5.2 “Input” Communication object

5.3. “Logic” Communication object

5.3.1. “AND/OR/XOR”communication object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input a			1 bit	C	-	W	T	U	boolean	Low
3	1st Logic - ...	Input b			1 bit	C	-	W	T	U	boolean	Low
4	1st Logic - ...	Input c			1 bit	C	-	W	T	U	boolean	Low
5	1st Logic - ...	Input d			1 bit	C	-	W	T	U	boolean	Low
6	1st Logic - ...	Input e			1 bit	C	-	W	T	U	boolean	Low
7	1st Logic - ...	Input f			1 bit	C	-	W	T	U	boolean	Low
8	1st Logic - ...	Input g			1 bit	C	-	W	T	U	boolean	Low
9	1st Logic - ...	Input h			1 bit	C	-	W	T	U	boolean	Low
10	1st Logic - ...	Logic result			1 bit	C	-	-	T	-	boolean	Low

Fig. 5.3.1 “AND/OR/XOR” communication object

No.	Function	Name	Type	Property	DPT
2..9	**Input x**	**1st /.../8th Logic**	**1bit**	**C,W,T,U**	**1.002 DPT_boolean**
The communication object is used to receive the value of the logic Input x.					
10	**Logic result**	**1st /.../8th Logic**	**1bit**	**C,T**	**1.002 DPT_boolean**
The communication object is used to send logical result.					

Table. 5.3.1 “AND/OR/XOR” communication object

5.3.2. “Gate forwarding” communication object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Gate value select			1 byte	C	-	W	-	-	scene number	Low
3	1st Logic - ...	Input A			1 bit	C	-	W	-	-	switch	Low
4	1st Logic - ...	Input B			1 bit	C	-	W	-	-	switch	Low
5	1st Logic - ...	Input C			1 bit	C	-	W	-	-	switch	Low
6	1st Logic - ...	Input D			1 bit	C	-	W	-	-	switch	Low
7	1st Logic - ...	Output A			1 bit	C	-	-	T	-	switch	Low
8	1st Logic - ...	Output B			1 bit	C	-	-	T	-	switch	Low
9	1st Logic - ...	Output C			1 bit	C	-	-	T	-	switch	Low
10	1st Logic - ...	Output D			1 bit	C	-	-	T	-	switch	Low

Fig. 5.3.2 “Gate forwarding” communication object

No.	Function	Name	Type	Property	DPT
2	**Gate value select**	**1st /.../8th Logic**	**1byte**	**C,W**	**17.001 scene number**
The communication object is used to select a scene for logic gate forwarding.					
3..6	**Input x**	**1st /.../8th Logic**	**1bit** **4bit** **1byte**	**C,W**	**1.001 switch** **3.007 DPT_Dimming control** **5.010 DPT_counter pulses**
The communication object is used to receive the value of the logic gate input Input x.					
7..10	**Output x**	**1st /.../8th Logic**	**1bit** **4bit** **1byte**	**C,T**	**1.001 switch** **3.007 DPT_Dimming control** **5.010 DPT_counter pulses**
The communication object is used to output the value after the logic gate is forwarded. The output value is the same as the input value, but an input can be forwarded to one or more outputs, set by parameters.					

Table 5.3.2 “Gate forwarding” communication object

5.3.3. “Threshold comparator” communication object

	Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
	2	1st Logic - ...	Threshold value input			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
	10	1st Logic - ...	Logic result			1 bit	C	-	-	T	-	boolean	Low

Fig. 5.3.3 “Threshold comparator” communication object

No.	Function	Name	Type	Property	DPT
2	**Threshold value input**	**1st /.../8th Logic**	**4bit** **1byte** **2byte** **4byte**	**C,W,U**	**3.007 DPT_Dimming control** **5.010 DPT_counter pulses** **7.001 DPT_pulses** **12.001 DPT_counter pulses**
This communication object for input the threshold value.					
10	**Logic result**	**1st /.../8th Logic**	**1bit**	**C,T**	**1.002 DPT_boolean**
This communication object for sending logic operate results. (The value which will be sent after comparing the threshold value of object input with the threshold value was set)					

Table 5.3.3 “Threshold comparator” communication object

5.3.4. “Format convert” communication object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 1bit-bit0			1 bit	C	-	W	-	U	boolean	Low
3	1st Logic - ...	Input 1bit-bit1			1 bit	C	-	W	-	U	boolean	Low
10	1st Logic - ...	Output 2bit			2 bit	C	-	-	T	-	switch control	Low

“2x1bit --> 1x2bit” function: to change 2 of 1 bit’s value to 1 of 2 bit’s value, such as: Input bit1=1, bit0=0--> Output 2bit=2.

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 1bit-bit0			1 bit	C	-	W	-	U	boolean	Low
3	1st Logic - ...	Input 1bit-bit1			1 bit	C	-	W	-	U	boolean	Low
4	1st Logic - ...	Input 1bit-bit2			1 bit	C	-	W	-	U	boolean	Low
5	1st Logic - ...	Input 1bit-bit3			1 bit	C	-	W	-	U	boolean	Low
6	1st Logic - ...	Input 1bit-bit4			1 bit	C	-	W	-	U	boolean	Low
7	1st Logic - ...	Input 1bit-bit5			1 bit	C	-	W	-	U	boolean	Low
8	1st Logic - ...	Input 1bit-bit6			1 bit	C	-	W	-	U	boolean	Low
9	1st Logic - ...	Input 1bit-bit7			1 bit	C	-	W	-	U	boolean	Low
10	1st Logic - ...	Output 1byte			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

“8x1bit --> 1x1byte” function: to change 8 of 1bit’s value to 1 of 1 byte’s value, such as: Input bit2=1, bit1=1, bit0=1,the others are 0--> Output 1byte=7.

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
10	1st Logic - ...	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low

“1x1byte --> 1x2byte” function: to change 1 of 1 byte’s value to 1 of 2 byte’s value, such as: Input 1byte=125--> Output 2byte=125, the data type changed, even the same value.

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 1byte-low			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
3	1st Logic - ...	Input 1byte-high			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
10	1st Logic - ...	Output 2byte			2 bytes	C	-	-	T	-	pulses	Low

“2x1byte --> 1x2byte” function: to changed 2 of 1 byte’s value to 1 of 2 byte’s value, such as: Input 1byte-low = 255 ($FF), Input 1byte-high = 100 ($64) --> Output 2byte = 25855 ($64 FF).

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 2byte-low			2 bytes	C	-	W	-	U	pulses	Low
3	1st Logic - ...	Input 2byte-high			2 bytes	C	-	W	-	U	pulses	Low
10	1st Logic - ...	Output 4byte			4 bytes	C	-	-	T	-	counter pulses (unsigned)	Low

“2x2byte --> 1x4byte” function: to changed 2 of 2 byte’s value to 1 of 4 byte’s value, such as: Input 2byte-low = 65530 ($FF FA), Input 2byte-high = 32768 ($80 00)--> Output 2byte = 2147549178 ($80 00 FF FA).

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 1byte			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
3	1st Logic - ...	Output 1bit-bit0			1 bit	C	-	-	T	-	boolean	Low
4	1st Logic - ...	Output 1bit-bit1			1 bit	C	-	-	T	-	boolean	Low
5	1st Logic - ...	Output 1bit-bit2			1 bit	C	-	-	T	-	boolean	Low
6	1st Logic - ...	Output 1bit-bit3			1 bit	C	-	-	T	-	boolean	Low
7	1st Logic - ...	Output 1bit-bit4			1 bit	C	-	-	T	-	boolean	Low
8	1st Logic - ...	Output 1bit-bit5			1 bit	C	-	-	T	-	boolean	Low
9	1st Logic - ...	Output 1bit-bit6			1 bit	C	-	-	T	-	boolean	Low
10	1st Logic - ...	Output 1bit-bit7			1 bit	C	-	-	T	-	boolean	Low

“1x1byte --> 8x1bit” function: to change 1 of 1 byte’s value to 8 of 1 bit’s value, such as: Input 1byte=200 --> Output bit0=0, bit1=0, bit2=0, bit3=1, bit4=0, bit5=0, bit6=1, bit7=1.

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 2byte			2 bytes	C	-	W	-	U	pulses	Low
9	1st Logic - ...	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
10	1st Logic - ...	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

“1x2byte --> 2x1byte” function: to changed 1 of 2 byte’s value to 2 of 1 byte’s value, such as: Input 2byte = 55500 ($D8 CC) --> Output 1byte-low = 204 ($CC), Output 1byte-high =216 ($D8).

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 4byte			4 bytes	C	-	W	-	U	counter pulses (unsigned)	Low
9	1st Logic - ...	Output 2byte-low			2 bytes	C	-	-	T	-	pulses	Low
10	1st Logic - ...	Output 2byte-high			2 bytes	C	-	-	T	-	pulses	Low

“1x4byte --> 2x2byte” function: to changed 1 of 4 byte’s value to 2 of 2 byte’s value, such as: Input 4byte = 78009500 ($04 A6 54 9C) --> Output 2byte-low = 21660 ($54 9C), Output 2byte-high =1190 ($04 A6).

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 3byte			3 bytes	C	-	W	-	U	RGB value 3x(0..255)	Low
8	1st Logic - ...	Output 1byte-low			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
9	1st Logic - ...	Output 1byte-middle			1 byte	C	-	-	T	-	counter pulses (0..255)	Low
10	1st Logic - ...	Output 1byte-high			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

“1x3byte --> 3x1byte” function: to changed 1 of 3 byte’s value to 3 of 1 byte’s value, such as: Input 3byte = $78 64 C8--> Output 1byte-low = 200 ($C8) , Output 1byte-middle = 100 ($64) , Output 1byte-high =120 ($78).

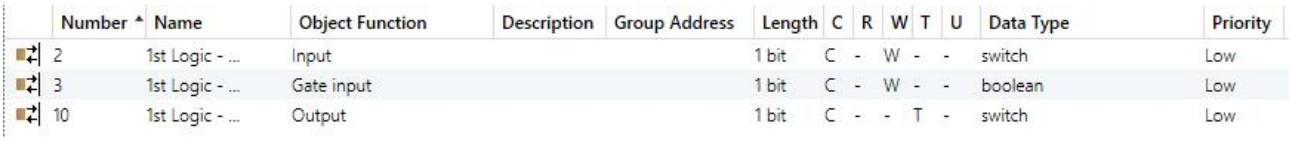
Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input 1byte-low			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
3	1st Logic - ...	Input 1byte-middle			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
4	1st Logic - ...	Input 1byte-high			1 byte	C	-	W	-	U	counter pulses (0..255)	Low
10	1st Logic - ...	Output 3byte			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low

“3x1byte --> 1x3byte” function: to changed 3 of 1 byte’s value to 1 of 3 byte’s value, such as: Input 1byte-low = 150 ($96), Input 1byte-middle = 100 ($64), Input 1byte-high = 50 ($32) --> Output 3byte = $32 64 96

No.	Function	Name	Type	Property	DPT
2	**Input ...**	**1st /.../8th Logic**	**1bit** **1byte** **2byte** **3byte** **4byte**	**C,W,U**	**1.002 DPT_boolean** **5.010 DPT_counter pulses** **7.001 DPT_pulses** **232.600 RGB value 3x(0..255)** **12.001 DPT_counter pulses**
This communication object for inputting the transfer value in need.					
10	**Output ...**	**1st /.../8th Logic**	**2bit** **1byte** **2byte** **3byte** **4byte**	**C,T**	**2.001 DPT_Switch control** **5.010 DPT_counter pulses** **7.001 DPT_pulses** **232.600 RGB value 3x(0..255)** **12.001 DPT_counter pulses**
This communication object for outputting the value was transferred.					

Table 5.3.4 “Format convert” communication object

5.3.5. “Gate function” Communication object



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input			1 bit	C	-	W	-	-	switch	Low
3	1st Logic - ...	Gate input			1 bit	C	-	W	-	-	boolean	Low
10	1st Logic - ...	Output			1 bit	C	-	-	T	-	switch	Low

Fig.5.3.5 “Gate function” Communication object

No.	Function	Name	Type	Property	DPT
2	**Input**	**1st Logic- {{...}}**	**1bit** **1byte** **2byte**	**C,W**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to input a value that needs to gate filter.					
3	**Gate input**	**1st Logic- {{...}}**	**1bit**	**C,W**	**1.002 boolean**
The communication object is used to control the switch status of gate input. Input signal is allowed to pass when gate open, then output, and the current input status is still sent if there is a change; Can not pass when gate close.					
10	**Output**	**1st Logic- {{...}}**	**1bit** **1byte** **2byte**	**C,T**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to output the value after gate filtering. Only when gate input status is open, output is available, defined by the object “Gate input”.					

Table 5.3.5 “Gate function” Communication object

5.3.6. “Delay function” Communication object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input			1 bit	C	-	W	-	-	switch	Low
10	1st Logic - ...	Output			1 bit	C	-	-	T	-	switch	Low

Input/Output - 1bit[On/Off]

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input			1 byte	C	-	W	-	-	percentage (0..100%)	Low
10	1st Logic - ...	Output			1 byte	C	-	-	T	-	percentage (0..100%)	Low

Input/Output - 1byte[0..100%]

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input			1 byte	C	-	W	-	-	counter pulses (0..255)	Low
10	1st Logic - ...	Output			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

Input/Output - 1byte[0..255]

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input			2 bytes	C	-	W	-	-	temperature (°C)	Low
10	1st Logic - ...	Output			2 bytes	C	-	-	T	-	temperature (°C)	Low

Input/Output - 2byte[Float]

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Input			2 bytes	C	-	W	-	-	pulses	Low
10	1st Logic - ...	Output			2 bytes	C	-	-	T	-	pulses	Low

Input/Output - 2byte[0..65535]

Fig.5.3.6 ”Delay function” Communication object

No.	Function	Name	Type	Property	DPT
2	**Input**	**1st Logic- {{...}}**	**1bit** **1byte** **2byte**	**C,W**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to input a value that needs to delay.					
10	**Output**	**1st Logic- {{...}}**	**1bit** **1byte** **2byte**	**C,T**	**1.001 switch** **5.001 percentage** **5.010 counter pulses** **9.001 temperature** **7.001 pulses**
The communication object is used to output that needs to delay converted value, delay time is defined by the parameter.					

Table 5.3.6 “Delay” Communication object

5.3.7. “Staircase lighting” Communication object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
2	1st Logic - ...	Trigger value			1 bit	C	-	W	-	-	trigger	Low
3	1st Logic - ...	Light-on duration time			2 bytes	C	-	W	-	-	time (s)	Low
10	1st Logic - ...	Output			1 bit	C	-	-	T	-	switch	Low

Fig.5.3.7 “Staircase lighting” Communication object

No.	Function	Name	Type	Property	DPT
2	**Trigger value**	**1st Logic- {{...}}**	**1bit**	**C,W**	**1.017 trigger**
The communication object is used to receive the value to trigger staircase lighting.					
3	**Light-on duration time**	**1st Logic- {{...}}**	**2byte**	**C,W**	**7.005 time(s)**
The communication object is used to modify the staircase light-on duration time, the modified range is referenced from the range defined by the parameter, take the limit value if exceeded.					
10	**Output**	**1st Logic- {{...}}**	**1bit** **1byte**	**C,T**	**1.001 switch** **5.010 counter pulses**
The communication object is used to output telegram values when triggered. Telegram value is determined by the parameter setting datatype.					

Table 5.3.7 “Staircase lighting” Communication object

5.4. “Scene group function” Communication object

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
74	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
75	1st Scene Group - Output 1 - ...	1bit value			1 bit	C	-	-	T	-	switch	Low

1 bit value

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
74	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
75	1st Scene Group - Output 1 - ...	1byte unsigned value			1 byte	C	-	-	T	-	counter pulses (0..255)	Low

1 byte unsigned value

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
74	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
75	1st Scene Group - Output 1 - ...	HVAC mode			1 byte	C	-	-	T	-	HVAC mode	Low

1 byte HVAC mode

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
74	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
75	1st Scene Group - Output 1 - ...	2byte unsigned value			2 bytes	C	-	-	T	-	pulses	Low

2byte unsigned value

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
74	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
75	1st Scene Group - Output 1 - ...	Temperature			2 bytes	C	-	-	T	-	temperature (°C)	Low

2byte Temperature

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
74	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
75	1st Scene Group - Output 1 - ...	RGB value			3 bytes	C	-	-	T	-	RGB value 3x(0..255)	Low

RGB value

Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
74	Scene Group	Main scene trigger			1 byte	C	-	W	-	-	scene number	Low
75	1st Scene Group - Output 1 - ...	RGBW value			6 bytes	C	-	-	T	-	RGBW value 4x(0..100%)	Low

RGBW value

Fig. 5.4 “Scene group” communication object

No.	Function	Name	Type	Property	DPT
74	**Main scene trigger**	**Scene Group**	**1byte**	**C,W**	**17.001 scene number**
This communication object triggers each output in the scene group to send a specific value to the bus by recalling the scene number. Telegrams: 0.. 63					
75	**1bit value** **1byte unsigned value** **HVAC mode** **2byte unsigned value**	**1st Scene Group-{{Output X}}**	**1bit** **1byte** **2byte** **3byte**	**C,T**	**1.001 switch** **5.010 counter pulses** **20.102 HVAC mode** **7.001 pulses**

	Temperature **RGB value** **RGBW value**		**6byte**		**9.001 temperature** **232.600 RGB value 3x(0..255)** **251.600 DPT_Colour_RGBW**
When a scene is recalled, the communication object is used to send the corresponding output value of the scene to the bus. If the output is not set to this scene, it will not be sent. A total of 8 scene groups can be set up, with 8 outputs per group.					

Table 5.4 “Scene group” communication object table