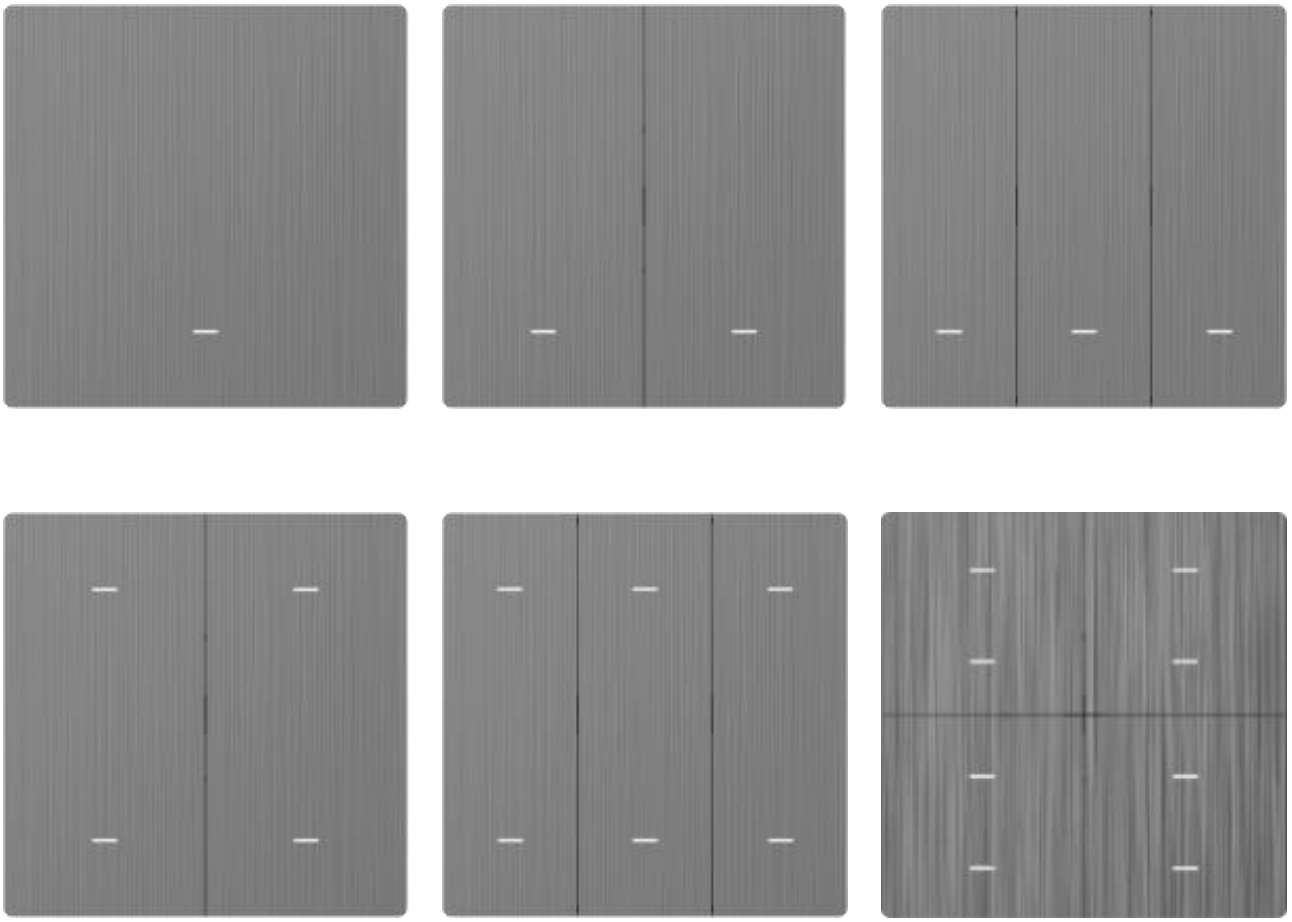
Product Manual

M7 2-wire KNX Switch Panel



M7 2-wire KNX Switch Panel

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1 Instructions for Use

1.1 Safety Precautions

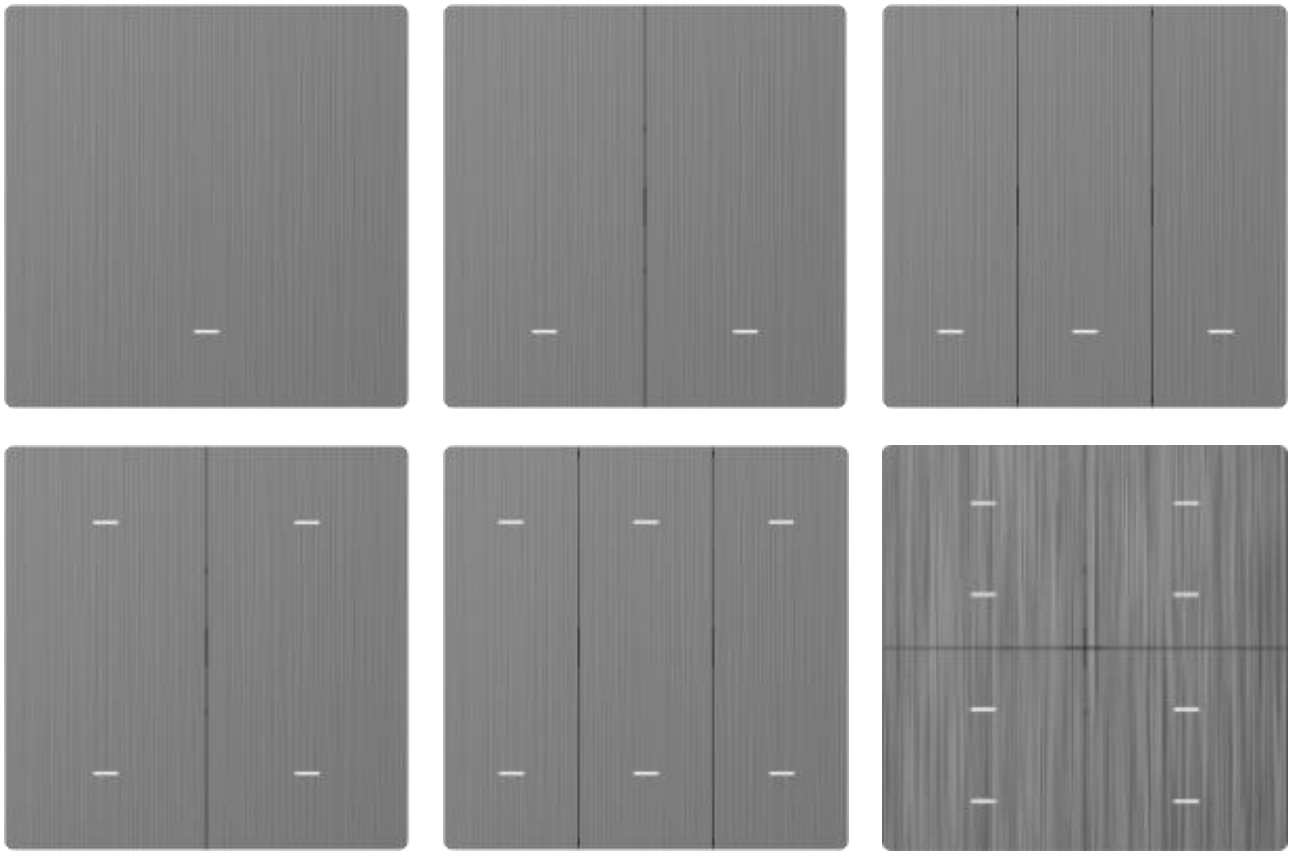
The operation of a 220V power supply system should only be performed by qualified personnel. Disconnect the power supply before installation and/or removal. Failure to comply with installation and operating instructions may result in fire or other hazards.

1.2 Disclaimer

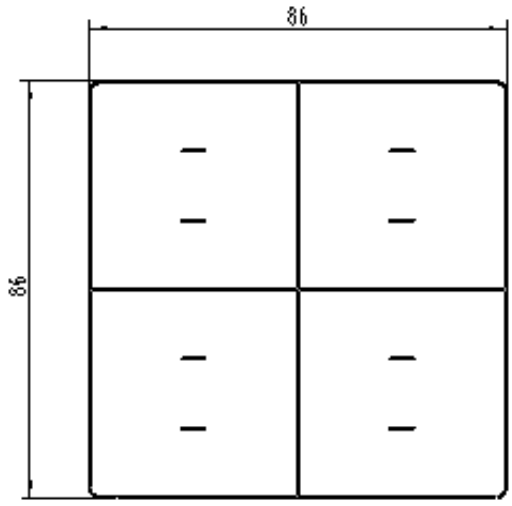
The contents of this printed material have been checked for compatibility with the hardware and software. However, we assume no responsibility for any discrepancies that may still occur. Any necessary corrections will be implemented in future versions of this manual. Please let us know if you have any suggestions for improving this manual.

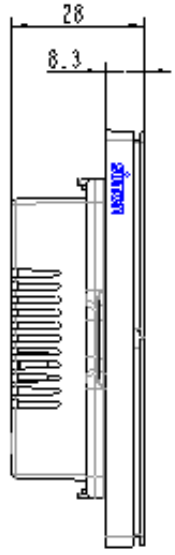
2 Product appearance and dimensions

2.1 Product Appearance



2.2 Product Dimensions





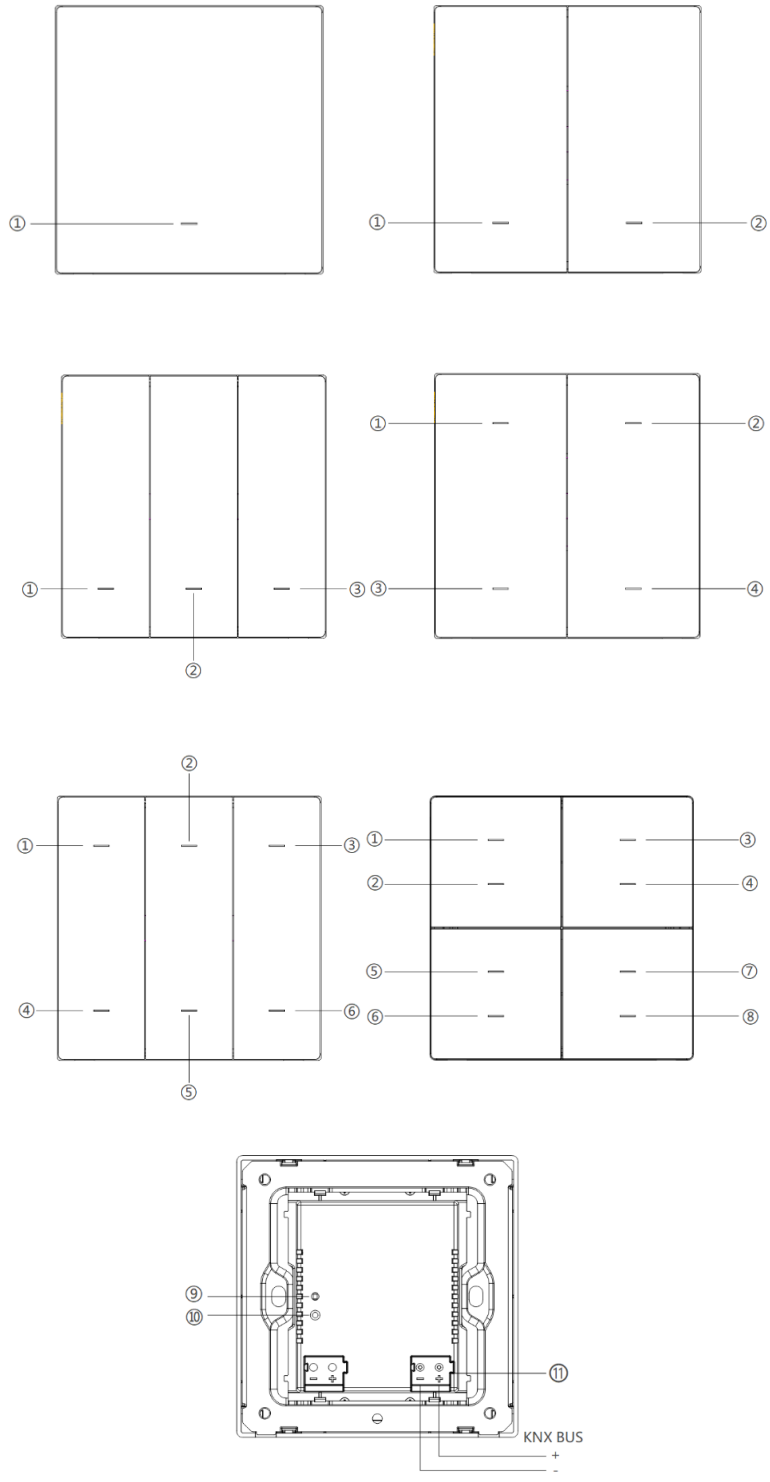
3 Product Parameters

KNX end Voltage	30VDC
KNX terminal current	≤10mA
Auxiliary working voltage	24VDC
Auxiliary operating current	DC < 20mA (without load) 100mA (with 4-channel load)
Operating temperature	-5℃ to +45℃
Operating humidity	-5℃~45℃, 5%~90%RH, no condensation
Installation method	86 junction box installation
External dimensions(Length * Width * Height)	86mm x 86mm x 41mm

Important Note

- It is necessary to prevent the devices from getting damp, dirty, or damaged during transportation, storage, and use.
- Do not operate the device outside of its specified technical specifications (e.g., temperature range).
- When the equipment is dirty, only use a dry cloth to clean it. If this is not enough to clean it properly, you can gently wipe it with a damp cloth dipped in a small amount of soap solution. Never use alkaline agents or corrosive solvents.

4 Product Interface Description



1~8: Buttons 1 through 8

9: LED programming indicator

10: Programming button

11: KNX bus connection terminal

5 Product Functions and Description

Switch control

Press (long/short press) button of M7. Switch to control the opening and closing of the switch actuator module;

Curtain control

Press (long/short press) button of M7. Switch to control the forward and reverse rotation and stop of the curtain motor;

Dimming control

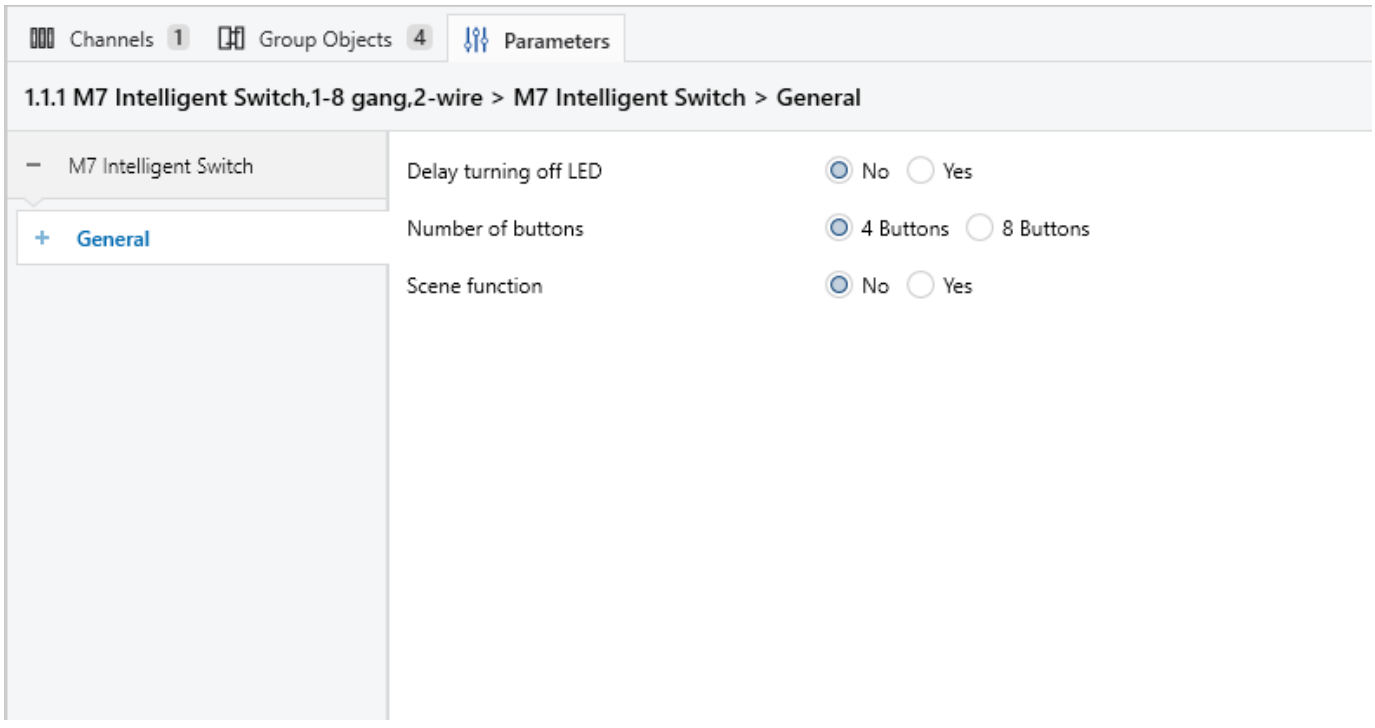
Through button of M7. Switch to control the dimming module, a short press turns it on or off, while a long press dims it.

Scene control

Press (long/short press) button of M7. Switch to trigger a preset scenario;

6 Parameter settings

6.1 General



Delay turning off LED

This parameter sets whether the button indicator light automatically enters sleep mode (i.e., automatically turns off) when the button indicator light is on (button indicator lights are generally used to reflect the status of a group object; the status data length is 1 bit; when the status of the group object is 1, the LED is on; when the status of the group object is 0, the LED is off).

Optional:

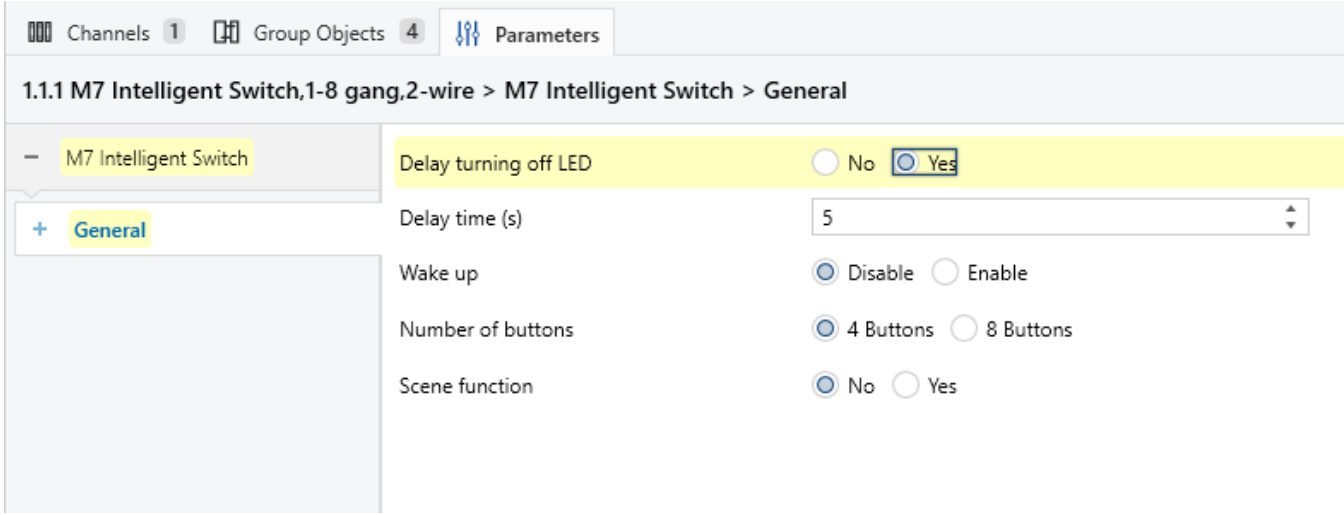
No

Yes

No: The indicator light on the button will not turn off, meaning the button will not enter sleep mode.

Yes: The indicator light on the button will turn off after a preset delay period, indicating that the button has entered sleep mode.

If you select "Yes", the following parameters will appear:



Parameter "Delay time (s)"

This parameter sets the duration the LED remains lit. After this time, the LED will automatically turn off, meaning the button will enter sleep mode. Value range: 1s ~ 255s.

Parameter "Wake up"

This parameter is used to set whether an additional wake-up action is required when the button is in sleep mode and needs to be operated.

Optional:

Disable
Enable

Disable: This means that the operation corresponding to the button is executed the first time the button is pressed without needing to be woken up.

Enabled: This means the button needs to be activated before the corresponding operation can be performed. The first press will activate the indicator light, ensure the indicator light's state matches the state of its corresponding group object. Pressing the button a second time will execute the operation corresponding to that button. Note that the interval between the two button presses must be shorter than the set "Delay time"; otherwise, the button will re-enter sleep mode.

Parameter "Number of Buttons"

This parameter is used to select Number of buttons for M7 switch panel.

Optional

4 Buttons
8 Buttons

All switches in the M7 2-wire Switch series are using the same product database file. For ease of setup, two levels of switch quantity are provided: 4 Buttons and 8 Buttons. Suggest to choose "4 Buttons" for 1-button, 2-button, 3-button, 4-button switches; and choose "8 Buttons" for 6-button and 8-button switches. This can avoid unnecessary operations in ETS.

Parameter "Scene function"

This parameter is used to set the scene functions of the switch panel.

Optional:

No

Yes

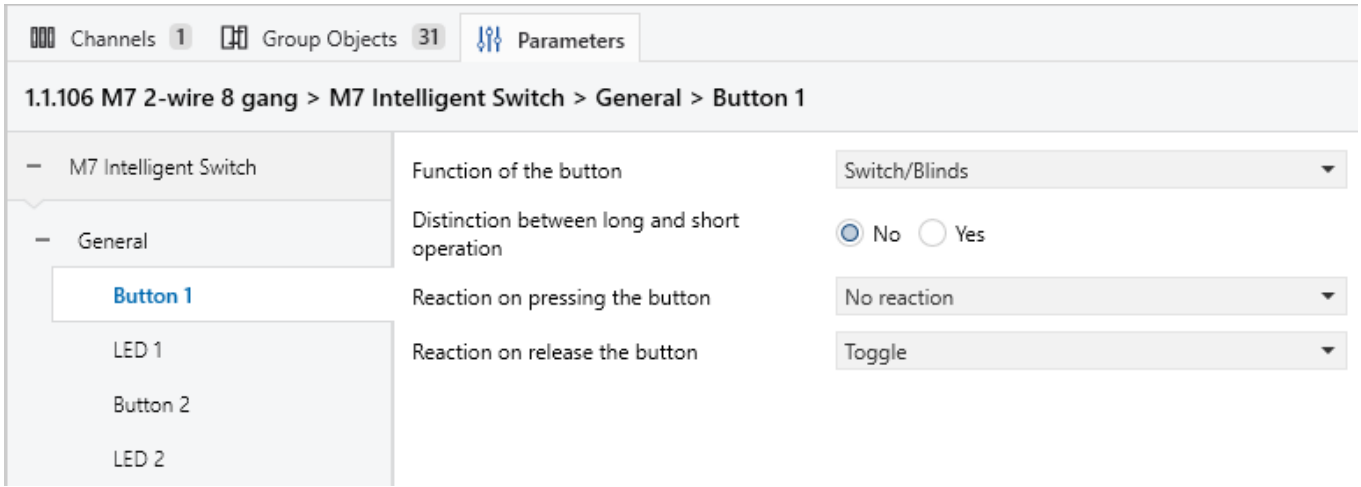
No: This means not setting a scene in the panel.

Yes: Set the scene in the panel.

For detailed steps on setting up scene functions, please refer to section 6.4, “Scene Setting”.

6.2 Button

Click the "+" to the left of “General”, and the following page will appear:



The buttons on the M7 2-wire KNX switch can be configured with various functions for controlling the switching actuator or curtain actuator module. Also, the functions can be configured to distinguish between short presses and long presses.

The LED indicator lights on the buttons can also be set independently.

Function of the button

This parameter is used to set the function of the button.

Optional:

No Function
Switch/Blinds
Value/Forced operation
Switch/Dimming Sensor

No Function: This button is invalid; pressing this button will not send any messages to the bus.

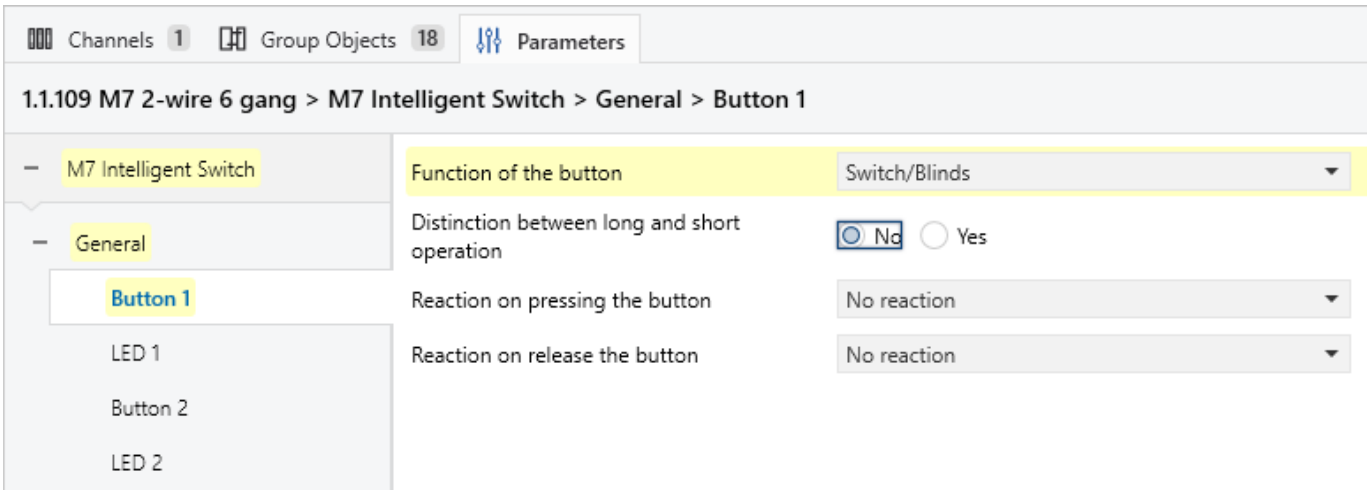
Switch/Blinds: This button functions as an ON/OFF switch or a blinds switch or curtain switch.

Value/Forced operation: This button outputs a value of 1 byte length. The value is used to control the dimming level or to call a scene.

Switch/Dimming Sensor: This button outputs a value of 4 bit. The value is used to control the dimmable light to turn on, turn off, or to dim.

6.2.1 Switch/Blinds

When choose “Switch/Blinds” for "Function of the button", the following page appears:



Distinction between long and short operation

This parameter is used to set whether this button distinguishes between short presses and long presses.

Optional:

NO
YES

NO: Whether it's a short press or a long press, it will be treated as a short press.

YES: Distinguish between short press and long press, and set corresponding functions for short press and long press separately.

When the parameter is selected as "NO", the following parameters need to be set:

Reaction on pressing the button

This parameter sets the response of the button when it is pressed.

Optional:

No reaction
On/Step or down
Off/Step or up
Toggle

No reaction: No message is triggered when the button is pressed.

On/Step or down: Send a message with a value of 1. The specific meaning of this message depends on the linked group object; if the group object is a switching actuator module, then this message is "On"; if the linked group object is a Venetian blinds, then this message is "Step or down", which means that the Venetian blinds move down one step or continually; if the linked group object is a curtain, then this message is “closing the curtain”.

Off/Step or up: Send a message with a value of 0. The specific meaning of this message depends on the linked group object; if the group object is a switching actuator module, then the message is "Off"; if the linked group object is a Venetian blinds, the message is "Step or up", which means that the Venetian blinds move up one step or continually; if the linked group object is a curtain, then this message is “open the curtain”.

Toggle: Each time this button is pressed, the value sent toggles between 0 and 1.

Reaction on release the button

This parameter is used to set the response of this button when it is released from a press.

Optional:

No reaction
On/Step or down
Off/Step or up

Toggle

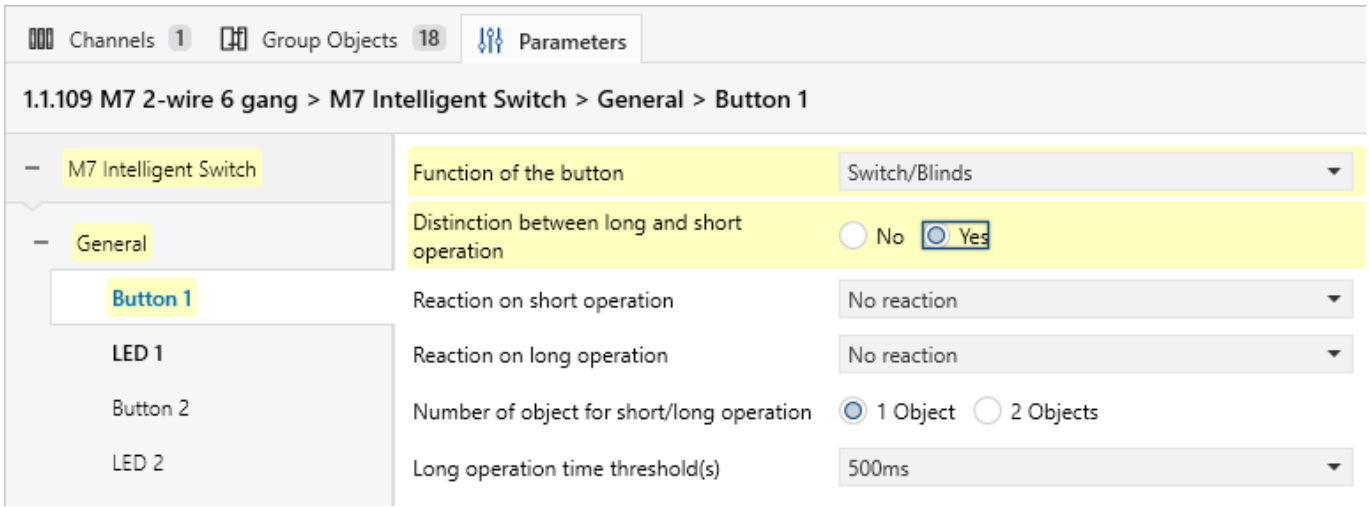
No reaction: No message is triggered when the button is released.

On/Step or down: Send a message with a value of 1. The specific meaning of this message depends on the linked group object; if the group object is a switching actuator module, then this message is "On"; if the linked group object is a Venetian blinds, then this message is "Step or down", which means that the Venetian blinds move down one step or continually; if the linked group object is a curtain, then this message is "closing the curtain".

Off/Step or up: Send a message with a value of 0. The specific meaning of this message depends on the linked group object; if the group object is a switching actuator module, then the message is "Off"; if the linked group object is a Venetian blinds, the message is "Step or up", which means that the Venetian blinds move up one step or continually; if the linked group object is a curtain, then this message is "open the curtain"..

Toggle: Each time this button is released, the value sent toggles between 0 and 1.

When the parameter is selected as "YES", the following parameters need to be set:



Reaction on short operation

This parameter is used to set the function of this button when there is a short operation (the button is shortly pressed and released).

Optional:

No reaction
On/Step or down
Off/Step or up
Toggle

No reaction: No message is triggered when the button is pressed briefly.

On/Step or down: Send a message with a value of 1.

Off/Step or up: Send a message with a value of 0.

Toggle: Each time this button is pressed, the value sent toggles between 0 and 1.

Reaction on long operation

This parameter is used to set the function of this button when it is pressed and held (long operation).

Optional:

No reaction
On/Step or down
Off/Step or up
Toggle

No reaction: No message is triggered when the button is pressed and held.

On/Step or down: Send a message with a value of 1.

Off/Step or up: Send a message with a value of 0.

Toggle: Each time this button is pressed, the value sent toggles between 0 and 1.

Number of objects for short/long operation

This parameter is used to set the group objects corresponding to short operation and long operation.

Optional:

1object
2 objects

1 object: short operation and long operation uses a shared group object.

2 objects: Short operation and long operation use a corresponding group object each.

Long operation time threshold(s)

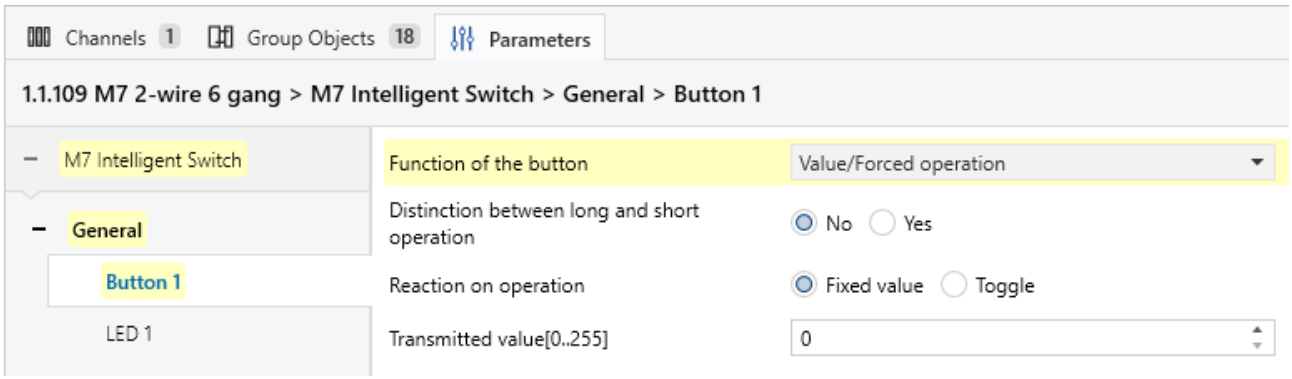
This parameter is used to define what a long operation is. In other words, a long operation is only considered to occur when the button is held pressed for a period of time equal to or exceeding a certain threshold; otherwise, it is considered a short operation.

Optional:

500ms
1s
2s
4s
8s
16s

6.2.2 Value/Forced operation

When "Value/Forced operation" is chosen for "Function of the button", the following page appears:



Distinction between long and short operation

Optional:

NO
YES

NO: Whether it's a short press or a long press, it will be treated as a short press.

YES: Distinguish between short press and long press, and set corresponding functions for short press and long press separately.

When the parameter is set to "NO", the following parameters need to be set:

Reaction on operation

This parameter is used to set the response of the button when it is pressed.

Optional:

Fixed value
Toggle

When "Fixed value" is selected, the following parameters need to be set:

Transmitted value [0•••255]

This parameter is used to set a fixed value to be sent when the button is pressed; the data length is 1 byte, the range of values is 0-255.

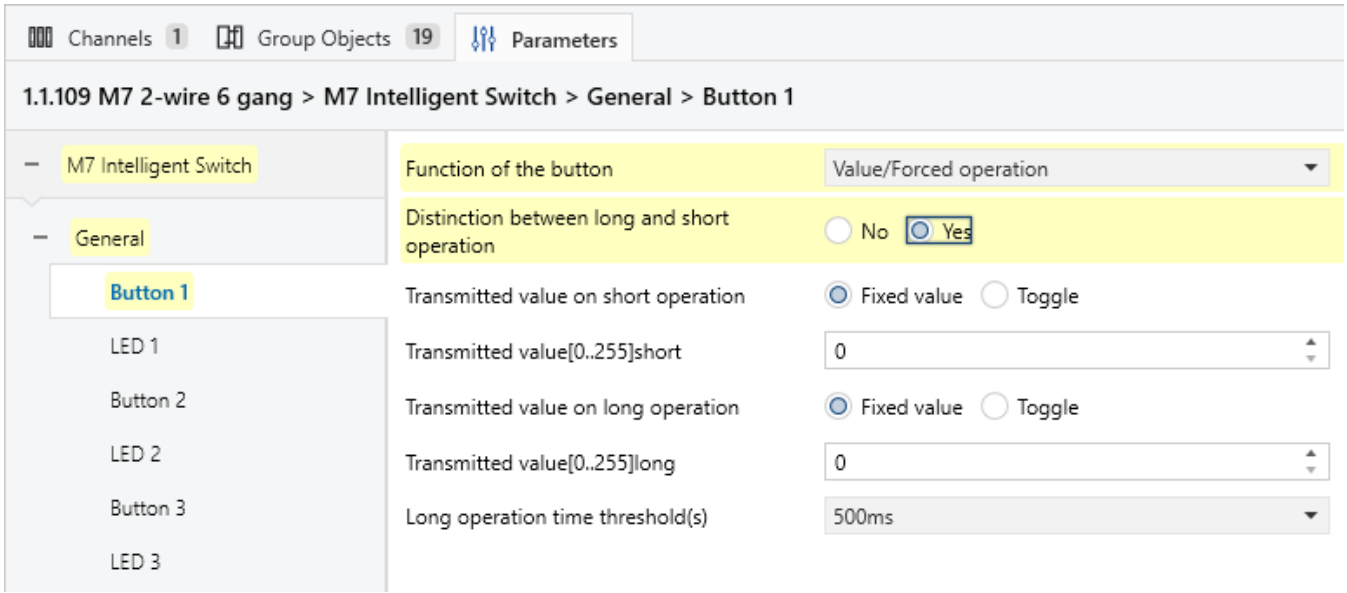
When "Toggle" is selected, the following parameters appear:

Transmitted value 1 [0...255]

Transmitted value 2 [0...255]

Set these two parameters to certain value, so that each time the button is pressed, the data sent will toggle between the two values.

When the parameter is selected as "YES", the following options appear:



Transmitted value on short operation

This parameter is used to set the function of this button when there is a short operation. Refer to parameter "Reaction on operation" for details.

Transmitted value on long operation

This parameter is used to set the button's response when pressed and held. Refer to parameter "Reaction on operation" for details.

Long operation time threshold (s)

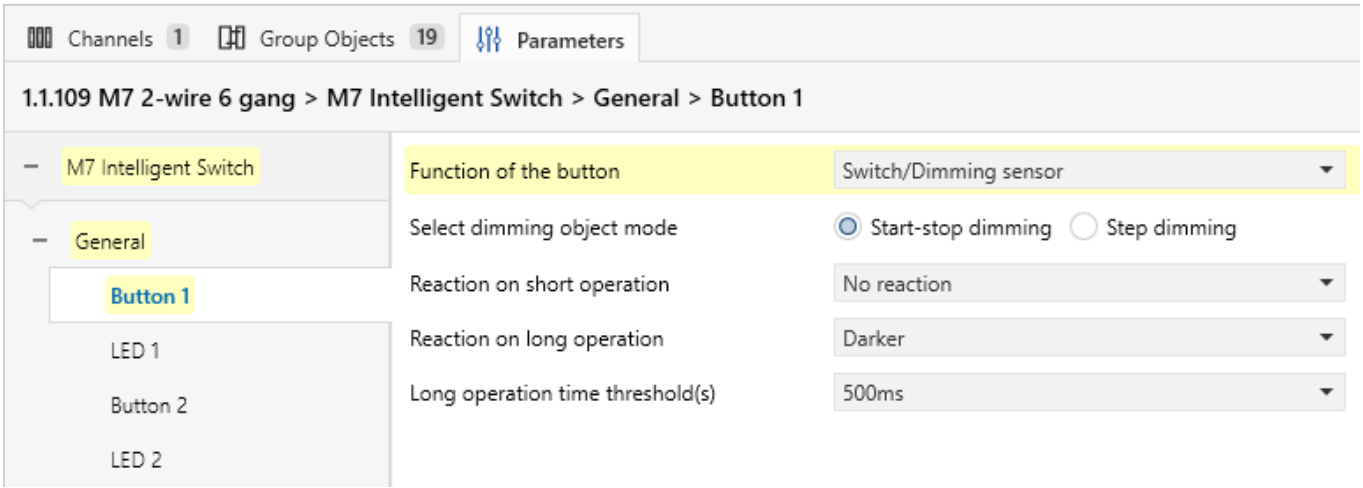
This parameter is used to define what a long operation is. In other words, a long operation is only considered to occur when the button is held pressed for a period of time equal to or exceeding a certain threshold; otherwise, it is considered a short operation.

Optional:

500ms
1s
2s
4s
8s
16s

6.2.3 Switch/Dimming Sensor

When "Switch/Dimming Sensor" is chosen for "Function of the button", the following page appears:



Select dimming object mode

This parameter is used to select the dimming mode for the button.

Optional:

Start-stop dimming
Step dimming

Start-stop Dimming: Start dimming or stop dimming. The dimming speed depends on the settings of the dimming actuator module; the level of dimming depends on the duration the button is pressed.

Steps Dimming: When this option is selected, you can set the dimming ratio for each step; you can also set the cycle for sending step dimming commands.

When the parameter is selected as "Start-stop Dimming", the following parameters need to be set:

Reaction on short operation

This parameter is used to set the function of this button when it is briefly pressed.

Optional:

No reaction
ON/step or down
OFF/step or up
Toggle

No reaction: No message is triggered when the button is pressed.

ON/step or down: The button sends a value of 1. This can be used to turn on lights.

OFF/step or up: The button sends a value of 0. This can be used to turn off lights.

Toggle: The button toggles the transmitted value between"0" and "1". This can be used to turn on and turn off the light.

Reaction on long operation

This parameter is used to set the function of this button when it is pressed and held.

Optional:

Darker
Brighter
Darker/Brighter

Darker: Long press to send a dimming down command. The dimming speed depends on the settings of the dimming actuator module; the level of dimming depends on the duration the button is pressed.

Brighter: Long press to send a dimming up command. The dimming speed depends on the settings of the dimming actuator module; the level of dimming depends on the duration the button is pressed.

Darker/Brighter: Each long press will toggle between dimming down and dimming up.

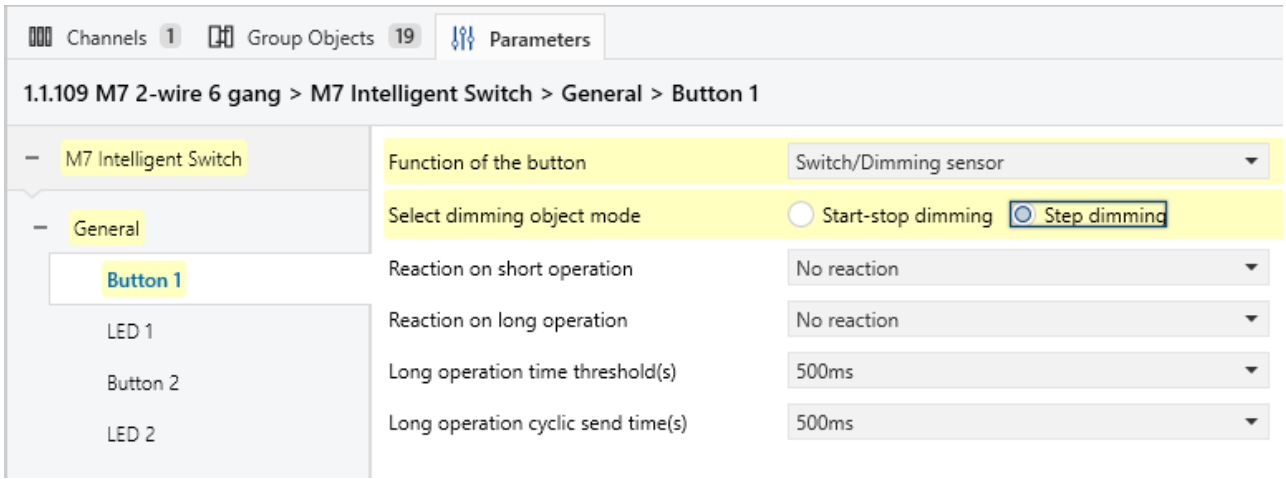
Long operation time threshold (s)

This parameter is used to define what a long operation is. In other words, a long operation is only considered to occur when the button is held pressed for a period of time equal to or exceeding a certain threshold; otherwise, it is considered a short operation.

Optional:

500ms
1s
2s
4s
8s
16s

When the parameter is set as "Step dimming", the following page appears:



Reaction on short operation

This button is used to set the dimming ratio each time this button is pressed briefly.

Optional:

No reaction
Reduce by 1%/3%/6%/12%/15%/50%/100%
Increase by 1%/3%/6%/12%/15%/50%/100%

Each short press of the button will immediately trigger step dimming, but the dimming speed still depends on the settings of dimming actuator module.

Reaction on long operation

This button is used to set the dimming ratio each time the button is pressed and held.

Optional:

No reaction
Reduce by 1%/3%/6%/12%/15%/50%/100%
Increase by 1%/3%/6%/12%/15%/50%/100%

Each long press of the button will trigger step dimming, and the dimming speed depends on the settings of dimming actuator module.

Long operation time threshold (s)

This parameter is used to define what a long operation is. In other words, a long operation is only considered to occur when the button is held pressed for a period of time equal to or exceeding a certain threshold; otherwise, it is considered a short operation.

Optional:

500ms
1s
2s
4s
8s
16s

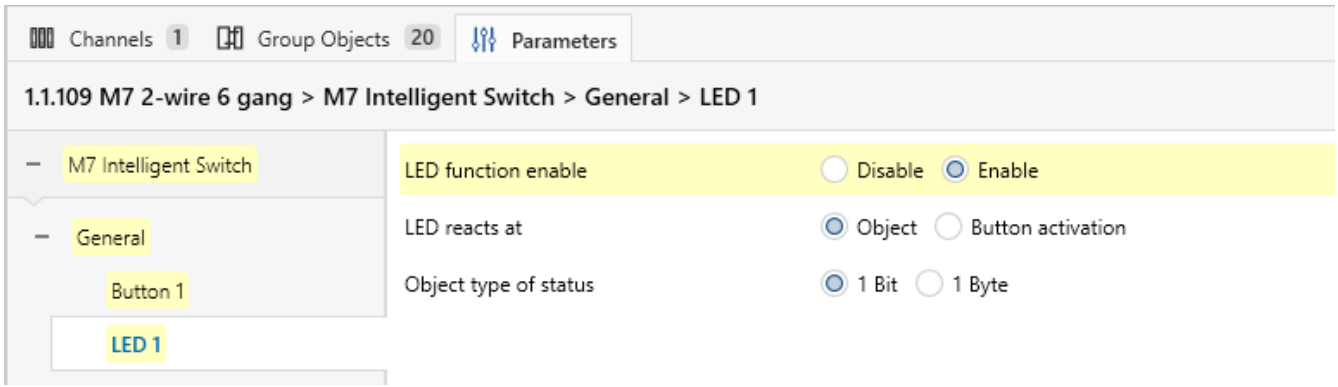
`Long operation cyclic send time(s)`

If it exceeds the threshold and the button remains pressed, the button will continuously send step dimming commands until the button is released. Selecting the following option will determine the interval between two adjacent commands.

500ms
1s
2s
4s
8s
16s

6.3 LED

Each button on the M7 2-wire KNX switch panel can be independently configured with an LED indicator.



`LED function enable`

This parameter is used to set whether to enable the indicator light for the button.

Optional:

Disable
Enable

Disable: Do not enable LED indicators.

Enable: Enable the LED indicator light.

When "Enable" is selected, the following parameters need to be set:

`LED reacts at`

This parameter is used to set the object that the LED indicator response to.

Optional:

Object
Button activation

Object: The LED indicator reflects the status of a group object that it is linked to.

Button activation: The LED indicator shows the button's status. The LED lights up when the button is pressed and turns off when the button is released.

When "Object" is selected, the following parameters need to be set:

`Object type of status`

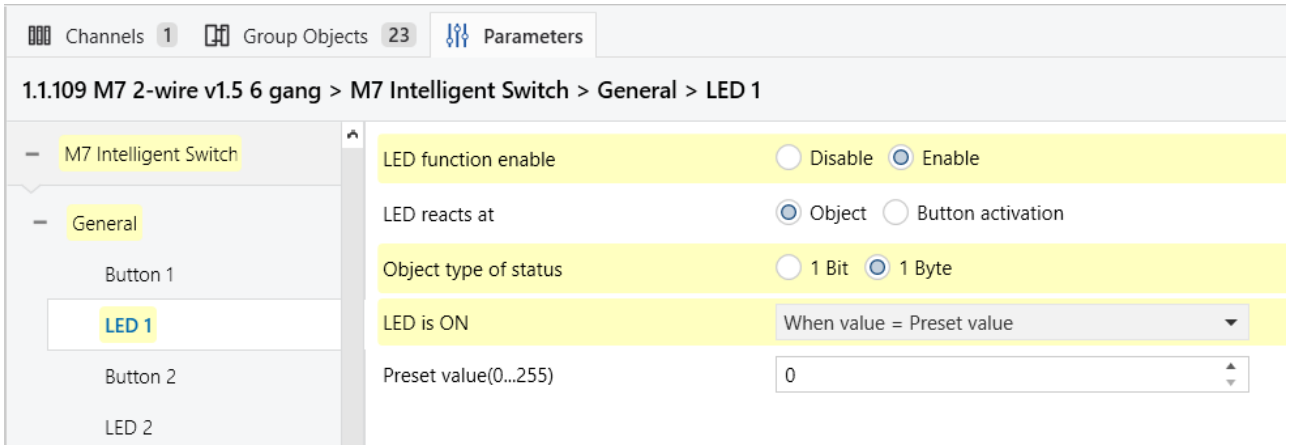
This parameter is used to set the data type of the linked group object, which is usually used to describe the status of the actuator module.

Optional:

1bit
1 byte

When "1 bit" is chosen, the value of the group object is 0 or 1; if it is 0, the LED indicator is off; if it is 1, the LED indicator is on.

When "1 byte" is chosen, the following page will appear:



In this case, a preset value needs to be set for the LED indicator, compared with the status value of the linked group object, and the LED indicator should be turned on or off according to the comparison results.

`LED is ON`

This parameter is used to set the comparison rules.

Optional:

When value > preset value
When value = preset value
When value < preset value
When value > preset value

When one of the rules is selected, the LED indicator lights up when the value of the group object's state meets the rule.

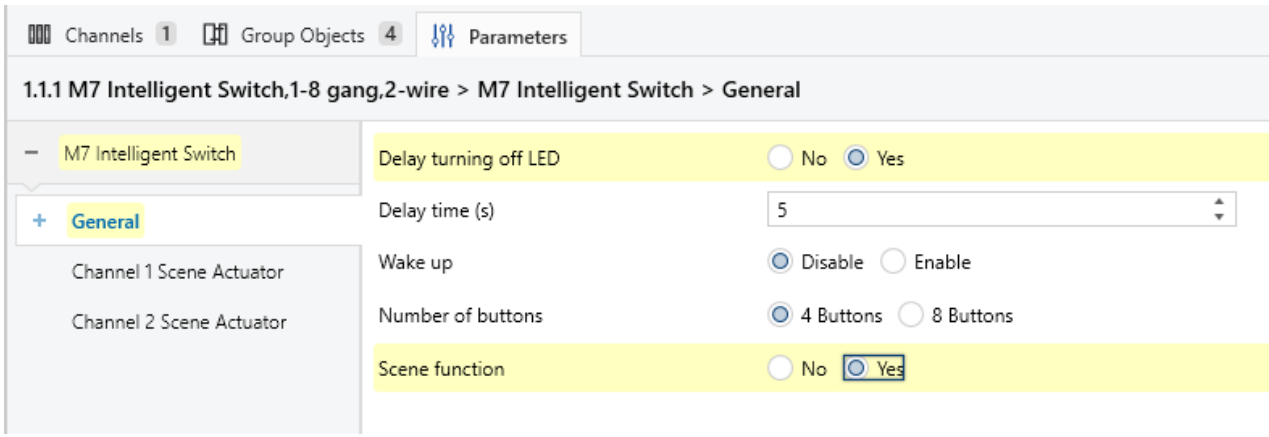
`Preset value (0...255)`

A preset value used for comparison with the status value of the linked group object. Value range: 0~255.

By setting "Object type of status" to "1 byte", the LED can be used for reflecting the status of a scene. For example, set the "Preset value" to a certain scene number, and set "When input as on" to "When value = preset value", then the LED will be lit on if the scene is invoked, and LED will be off if the scene is not invoked.

6.4 Scene Setting

In "General" page, if the Scene function parameter is set to "Yes", then "Channel 1 Scene Actuator" and "Channel 2 Scene Actuator" will appear on the left side of the page. See the following page:

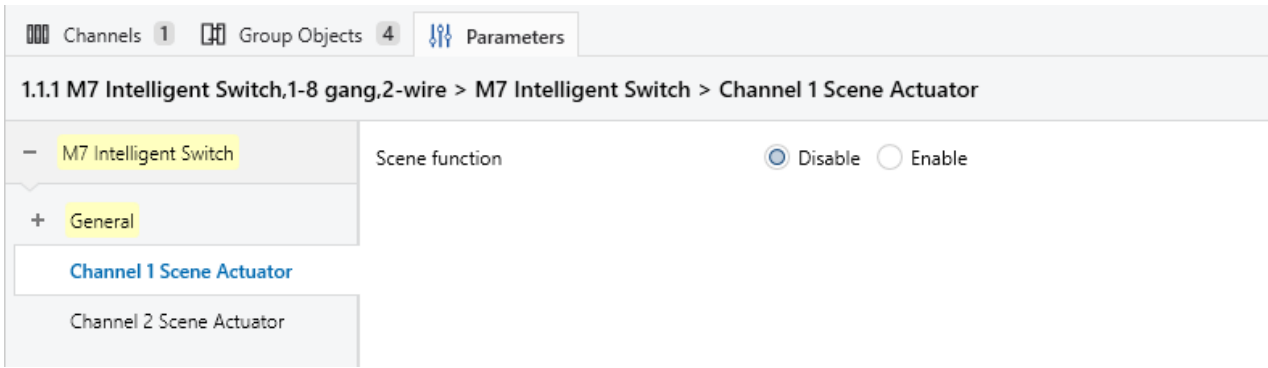


The M7 2-wire KNX Switch series provides two channels for configuring individual actuators in a scene. Each channel can be configured with up to 8 actuators, and at most 8 scenes. Each scene can be independently configured to include which ones of the aforementioned 8 actuators. And each scene in both channels can be set to a certain scene number; in the case of one scene being set to the same scene number with another scene from another channel, the 2 scenes are actually 1. Generally, if there are more than 8 actuators to be set in 1 scene, put them into 2 channels and set same scene number for them.

For the scene function here, the switch panel stores the states of related actuators for scenes in its own memory, hence it is called "Panel Scene", unlike those scenes that set up by linking actuators via a group address, where each actuator module stores its own state for scenes, and so called "Module Scene".

6.4.1 Channel Scene Actuator

Click "Channel 1 Scene Actuator", the following page will appear (same as Channel 2 Scene Actuator):



Scene function

Set this parameter to use this channel for setting up scenes or not.

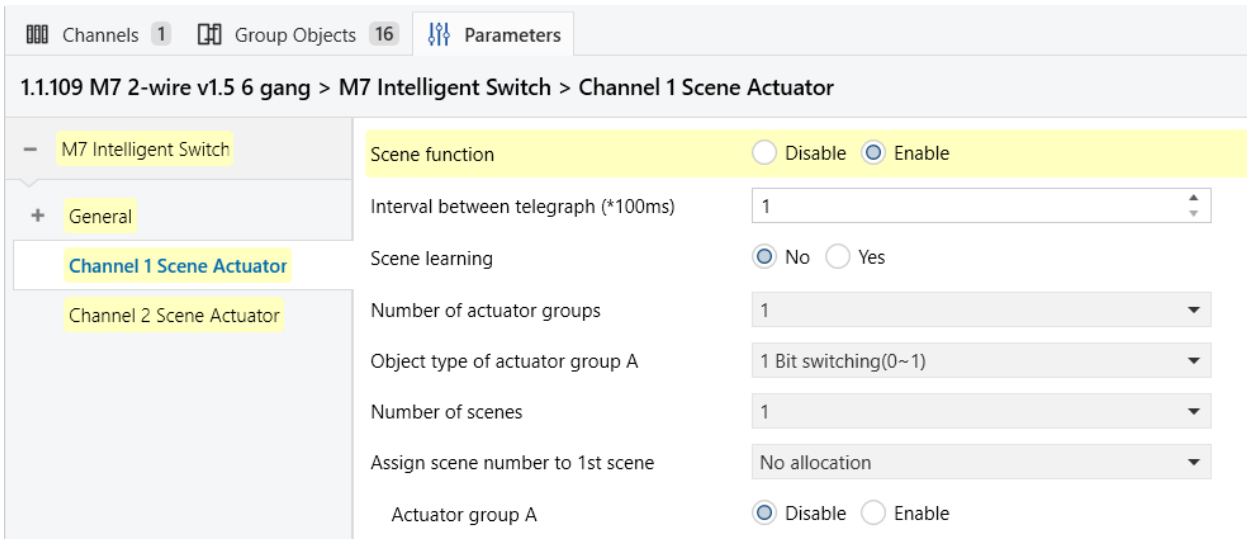
Optional:

Disable
Enable

Disable: Do not configure scene functions in this channel.

Enable: Configure scene functions in this channel.

When "Enable" is selected, the following page appears:



Interval between telegraph (*100ms)

This parameter is used to set the interval at which the switch panel sends messages to each actuator when a scene is

called for Panel Scenes, when invoking a scene, the switch panel needs to send commands to each actuator individually; that is, invoking a scene requires sending a dense series of commands. Therefore, it is necessary to define the time interval between adjacent messages. The optional time interval here is multiples of 100ms.

Selection range: 1~200. That is...100ms~20s.

Scene learning

This parameter determines whether to utilize the scene learning feature to set up the scene. The scene learning feature is suitable for use during the debugging phase, allowing the current status of ambience to be directly written into the panel scene without needing to modify or save the scene through the download function.

Optional:

No
Yes

For detailed setup steps, please refer to "6.4.2 Scene learning".

Number of actuator groups

This parameter sets the quantity of group objects of actuators in this channel. Since the product database file creates group objects for each actuator, representing corresponding functions, these group objects are called actuator groups. 1 channel can be configured with up to 8 actuator groups.

Optional range: 1~8.

Object type of actuator group A

This parameter is used to set the data type of each group object.

Optional:

1 bit switching (0~1)
1 byte 0-255 (0~255)
Temperature (-10~70)

1 bit switching (0~1): Used for controlling switching signals, such as switching relays, opening and closing curtains, etc.

1 byte 0-255 (0~255): used for variables with data length of 1 byte, for example, setting the dimming level of a dimmable light.

Temperature (-10~70): Used to set temperature data, the unit is ℃.

Note that when the data type is set to "1 byte 0-255 (0~255)", it can also be used to specify the scene number of Module Scenes (which is, scenes configured via a group address). In this case, a Panel Scene can invoke a Module Scene, thus achieving "cascading" between scenes. By this way, the number of actuators that can be controlled by a Panel Scene can be far more than 16.

This also applies to actuator group B through H.

Number of Scenes

This parameter is used to set the number of Panel Scenes. A maximum of 8 scenes can be set per channel.

Assign scene number to 1st scene

Assign a scene number to 1st Panel Scene for this channel. The M7 2-wire KNX switch series support up to 64 Panel Scenes in a KNX system. (Each channel can be assigned by maximum of 8 scenes). Therefore, the numbering range for each panel scene is scene1~scene64, or do not assign a scene number (no allocation). A scene will not be activated if it has not been assigned a scene number.

This also applies to 2nd scene through 8th scene.

Note that different Panel Scenes within the same channel cannot be assigned the same scene number; otherwise, the same actuator group might have multiple states within the same scene. However, one scene can share the same scene number with a scene in the other channel. Generally, if a scene contains more than 8 actuators, two channels are needed to

set up this scene (or use scene cascade).

Actuator group A through H

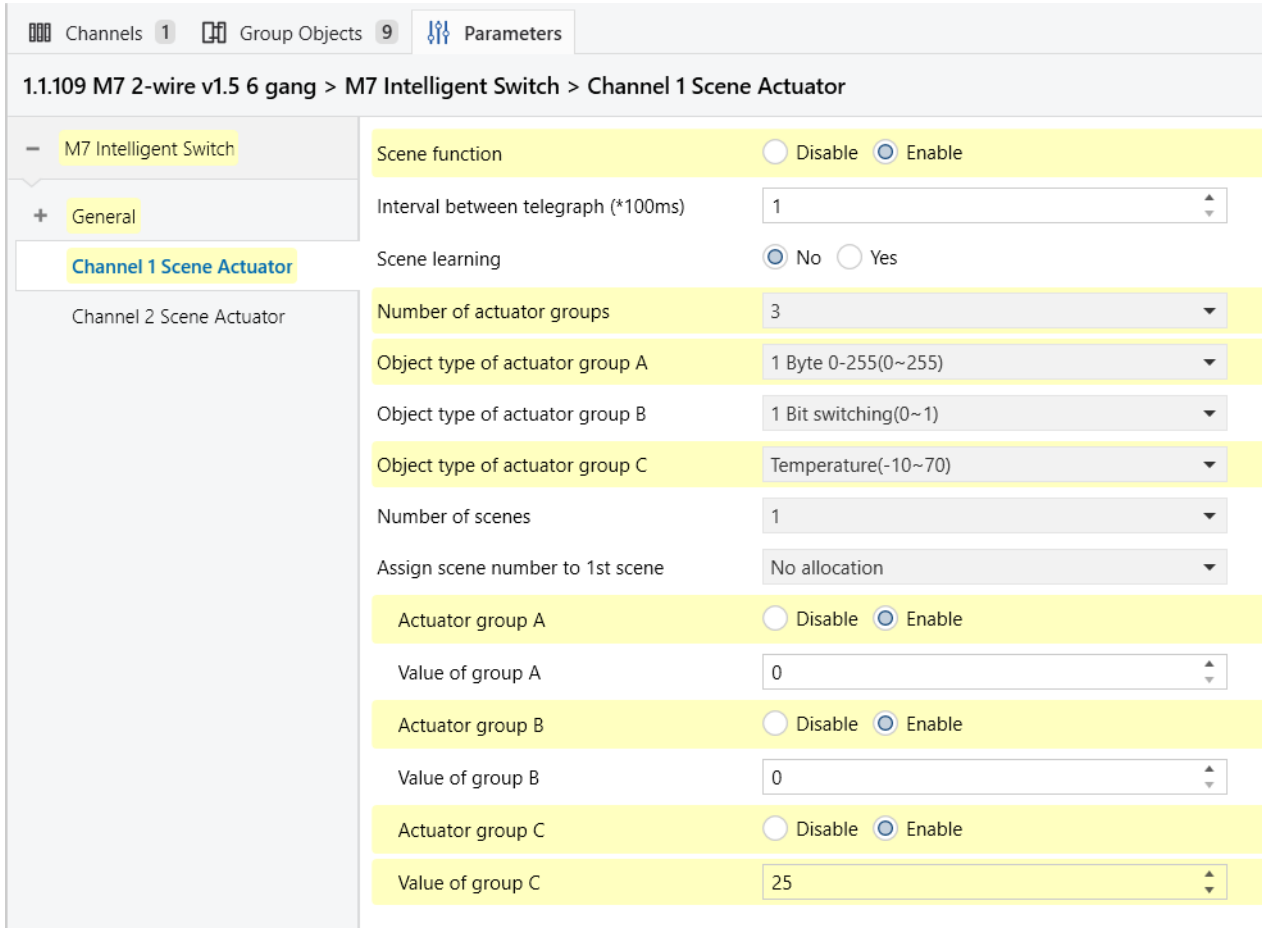
For each scene, it is necessary to configure which ones of the eight Actuator groups should be included in this scene. This parameter is used to set whether actuator group A through H is included in the currently configured scene.

Optional:

Disable
Enable

Disable: This scene does not contain this actuator group.

Enable: This scene contains this actuator group.



Value of group A through H

This parameter is used to set the data value for each actuator group.

For data type of 1-bit, the value range is 0 or1;

For data type of 1 byte 0-255, the value range is 0~255;

For data type of Temperature, the value range is:-10~70, the unit is ℃.

6.4.2 Scene learning

In "6.4.1 Channel Scene Actuator", selecting "Yes" for "Scene learning" enables a method for flexibly saving scenes during debugging. The specific steps are as follows:

1. At the debugging site, utilize diagnostic function to adjust the status of each actuator module until a satisfactory environment is achieved on site.
2. On the diagnostics page, specify a group address for saving the scene, as shown in the example below, which is "2/0/2". In the Value area, select "Store", and then choose a number on the right side of "Store". This number represents the scene number of the panel scene, with a selection range of 1~64, and must be a scene number that has already been assigned in Section 6.4.1.

3. On the right side of the page, click "Write" to save the current status of each actuator to the specified scene number. When the writing is successful, the diagnostic page will provide a prompt.

This method of saving scenes avoids the need for download process to update the scene setting, facilitating on-site debugging. However, while bypassing the download function, it doesn't synchronously update the existing status of each actuator module back to the parameter settings as set in section 6.4.1. That means, once a "download all" or "download application" is performed, the scene setting will be overwritten.