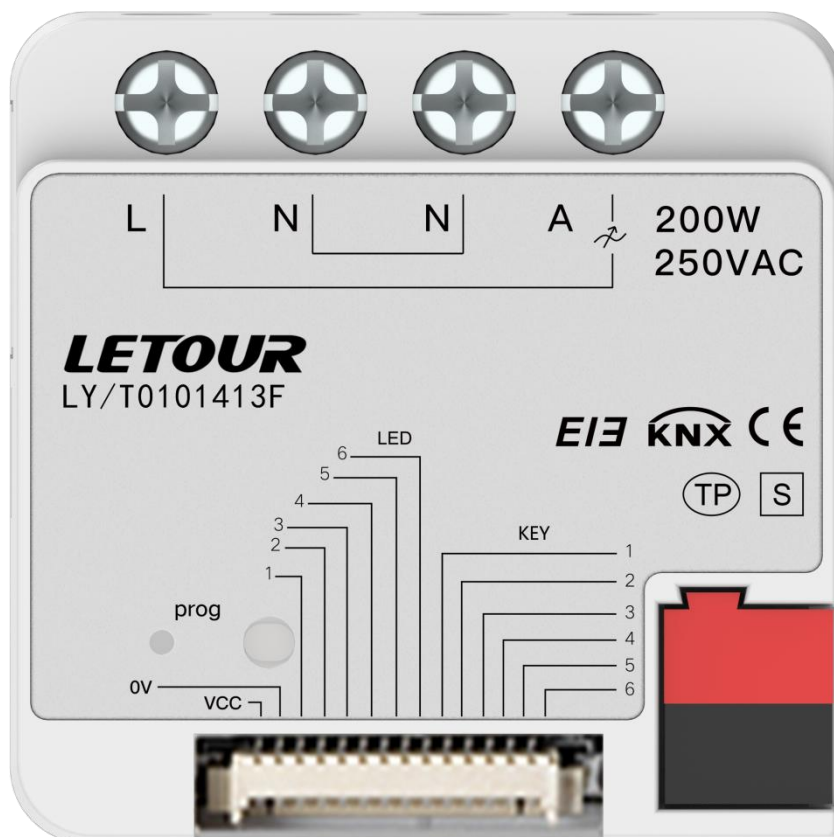


Universal Dimming Actuator, Flush Mounted, 1-Fold

User Manual



KNX/EIB Home and Building Control System

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Chapter 1. Summary

One low-cost, straightforward smart home system component that is primarily intended for post-installation markets is the embedded dimming actuator. That is, mostly for smart home renovations or wired buildings. The standard 86 box or 60 box is where it is installed. You simply need to connect one extra KNX Bus to convert the original conventional lighting design into a contemporary smart home management system solution when compared to traditional lighting wiring and control methods. Installing it is simple and convenient. In response to the functional needs of the modern household, the system is made to cover the following application areas:

- **Dimming output control**
- **Dry contact panel input scanning**
- **Panel Indicator Display**

The KNX Bus system is all that is needed to power and communicate with the system's products; no additional power supply voltage is needed. Copper columns with screw terminals are used to connect the output end to the load.

The system consists of the following function blocks. During the use of the product, we select the relevant function blocks for configuration according to the characteristics of the product. The configuration tool is the engineering design tool ETS with pr4 project files (version ETS3 or higher). The functions of the modules are summarized below:

——**Dry Contact Panel Input Scanning**

Use to turn standard switch panels into intelligent control signals in up to six different ways, all of which can make use of the functions summarized below:

- Switch function
- Dimming function
- Shutter function
- Calling and storing scenario function
- Fixed value sending function

——**Dimming output control**

Connection to a variety of dimmable lighting fixtures, programmable as 1 channel, with SCR dimming output up to 200W. The functions are summarized below:

- Switch lighting function: on/off illumination
- Relative dimming function: adjusts the brightness of the light
- Absolute dimming function: directly give the light a brightness value
- Switch and brightness status report, query or reply the current switch and brightness status to the Bus, so as to understand the brightness status of the light from the visualization device
- 8 scene settings, can call or store 8 scenes, through 1byte object
- Bus reset function, can define the brightness value after reset

——**LED Indication**

The state of the relevant lighting circuits can be displayed on the panel in real time using up to six traditional LED indication output controls (the connected switch panel must have the LED indication connection function).

To ensure that the system functions properly, it is critical to inspect the wiring for flaws prior to use and pay close attention to the technical specifications of the load equipment. The functional configuration of the product must be tailored to the characteristics of the chosen product.

This manual contains thorough technical information about the device, including installation and programming details, as well as instructions on how to use it based on practical examples.

Chapter 2. Technical Data & Dimension & Connection Diagram

2.1. Technical Data

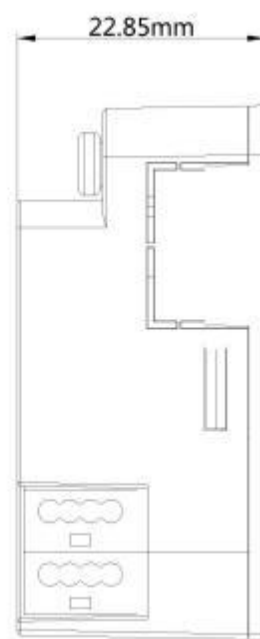
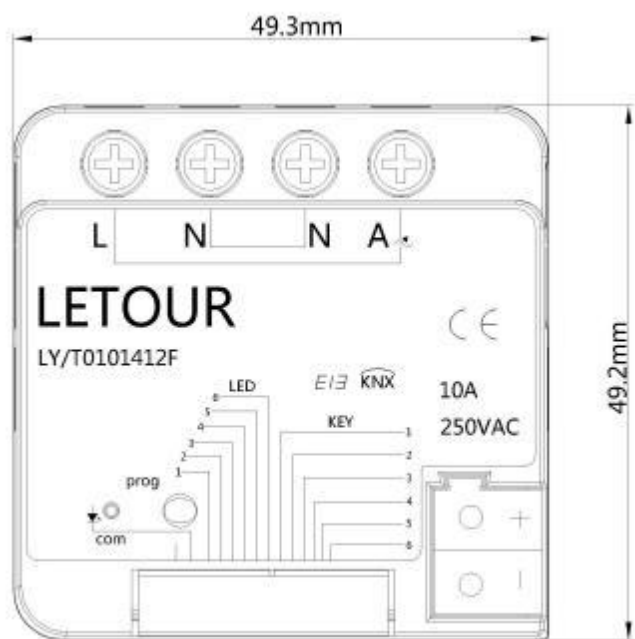
Power supply	Operating Voltage, EIB	21~30VDC via EIB bus
	Static Current, EIB	<12mA
	Static Power Consumption, EIB	<360mW
Output	Dimming Channel	1 Fold
	Rated Voltage	220 VAC
	Load Carrying Capacity	200W (Resistive Load)
LED Output	Channel 6 Fold	Common negative connection
	Output Current	1mA
	Input Channel	6 Fold
	Connection	Suitable for screw thread ends
	EIB / KNX Bus	Connection terminal connection (red/black)
	Output Terminal	0.8mmØ with screw-wired copper post connections

	Wire Diameter	0.5-4mm²
	Torque	0.8N-m
	Operation and Display	Programming buttons and red LED Buttons on the front of the actuator for programming the device
	Red Light Indicator	Representative enters programming Mode
	Green Light Indicator	Blinking indicates that the device is functioning properly
	Protection Rank	IP 20, EN 60 529
	Temperature Range	Operation -5°C.....+45°C
	Storage	-25°C.....+55°C
	Transport	-25°C.....+70°C
	Environmental Condition	Maximum air humidity <93%, except for condensation
	Design	Flush mounted equipment
	Installation	Installation in a standard 86 or 60 box. The depth of the junction box is at least 50mm. The minimum depth of the junction box is 50mm, 70mm is recommended.
	Size / Weight	49.3mm×49.2mm×22.5mm about 0.1KG

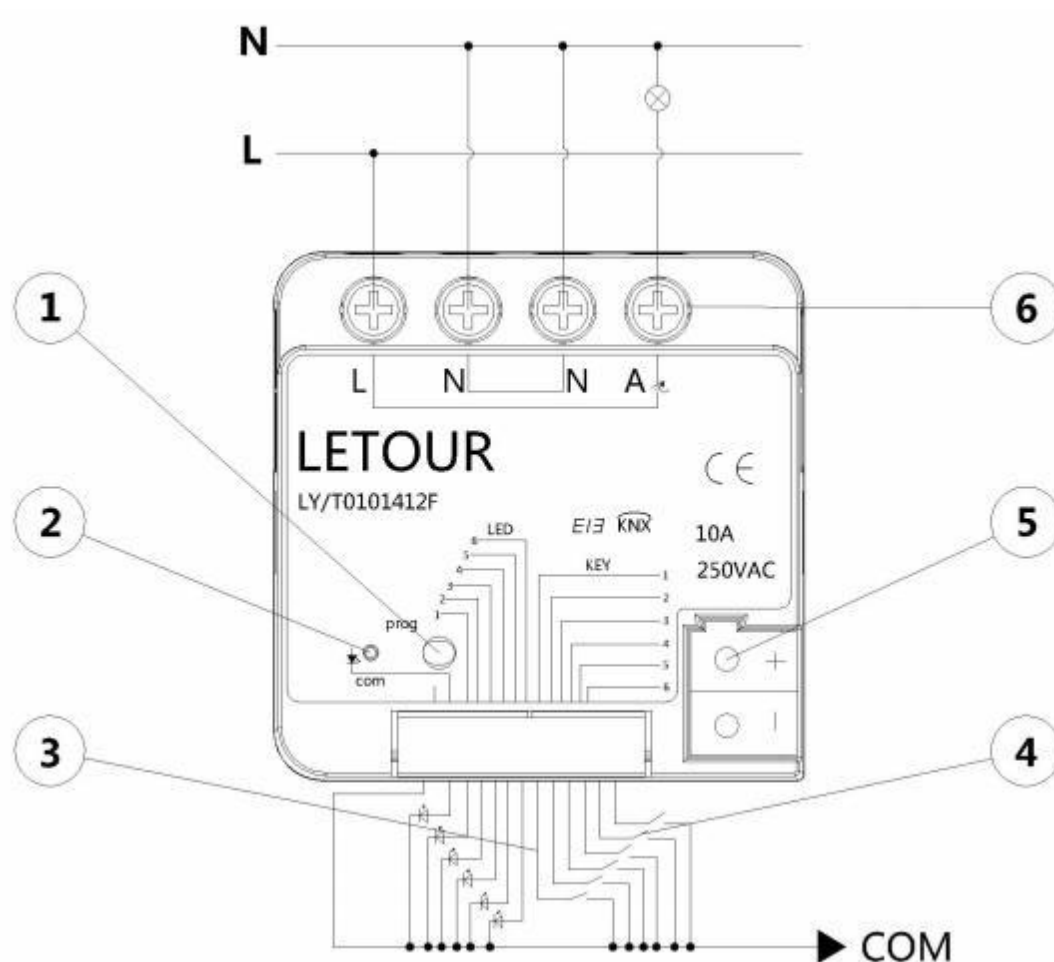
Application:

Application	Maximum quantity of communication objects	Maximum quantity of group addresses	Maximum quantity of combined tables
Flush mounted Dimmer and IO, 1 fold	30	80	80

2.2 Dimension



2.3 Connection Diagram



- ① Programming Button
- ② Programming LED
- ③、④ LED and Button Terminal Block
- ⑤ KNX/EIB Bus Connection Terminal
- ⑥ Switch Output, Load Connection Terminal

Chapter 3. Parameter Setting Description in the ETS

Function blocks provide a description of the ETS system's parameter settings.

3.1. Parameter Window “Input X”

The input functions are thoroughly explained in this section. Each of the six inputs serves the same purpose. An example of one of the inputs for parameter setting instructions is as follows:

1.1.1 Flush mounted Dimmer and IO > Input A		
Input A	Function of the channel	Switch
Input B	Connect type	☒ Normally open ☐ Normally close
Input C	Distinction between long and short operation	☒ No ☐ Yes
Input D	Send object value after voltage recovery (if yes, no TOGGLE)	☒ No ☐ Yes
Input E	Reaction on short operation or closing the contact	ON
Input F	Reaction on long operation or opening the contact	OFF
LED	Debounce time	50ms
Dimming A	Disable function	☐ disable ☒ enable
A: Scene	Trigger value of disable object	☒ disable=1/enable=0 ☐ disable=0/enable=1

Figure 4.1 Parameter Window “Input X-Switch ”

Parameter “Function of the channel”

The input's function is set by this parameter. The function of this input is not enabled if the "No function" option is selected. Options available:

- No function
- Switch
- Switch/Dimming
- Value/Force output
- Scene control
- Shutter control

The specific parameter settings for each function are described below:

3.1.1. “Switch” Function

The “Switch” parameter window is shown in Figure 4.1.

Parameter “Connect type”

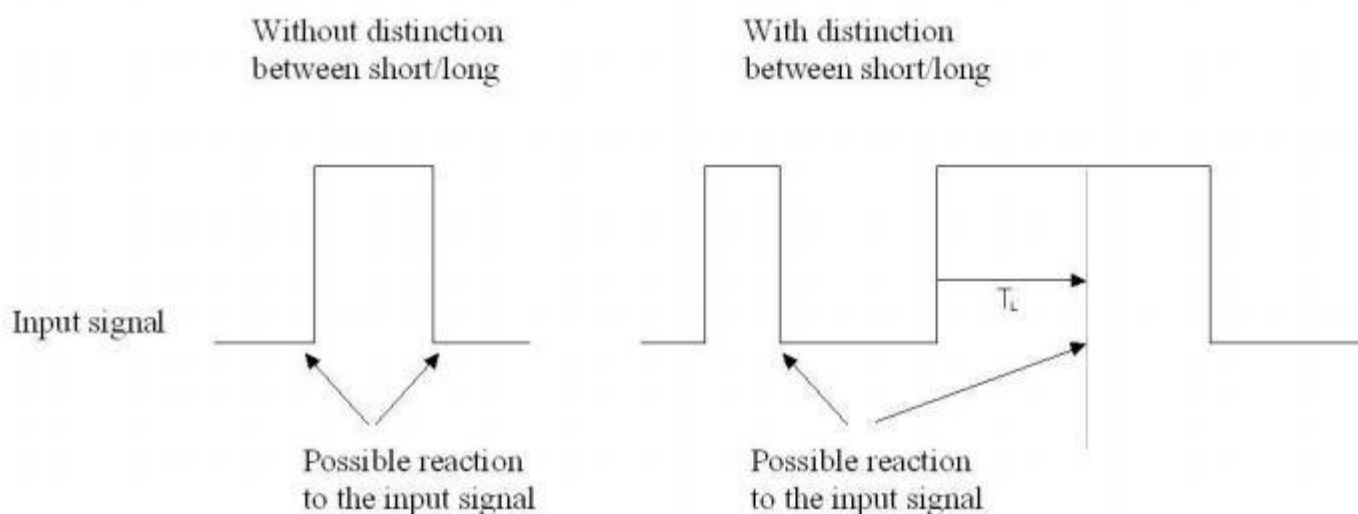
In this case, the type of contact connection is generally configured to either typically open or normally closed for the input contact. Options available:

- Normally open
- Normally close

This section's parameters are based on the normally open type; for instance, the normally closed type operates in the opposite way from the normally open type.

Parameter“ Distinction between long and short operation”

The contact inputs' ability to differentiate between long and short operations is determined by this parameter. Before the contact does the predetermined action, the input will need to assess whether the operation is lengthy or short if the "yes" option is chosen. The figure illustrates how the lengthy operation is processed:



Note: Long operations are processed in the same way here as they are in the sections that follow. The time it takes to identify if an input action is a long operation is known as "TL".

Options available: Yes / No

Parameter“Send object value after voltage recovery (if yes, no toggle)”

This parameter, which is displayed when there is no differentiation between long and short operation, allows you to specify whether the current switching value is delivered to the bus upon power restoration.

Options available: Yes / No

If “yes” is selected, the current switching value is sent to the bus after a bus reset. However, only when “Toggle” is not selected for the options “Reaction on short operation or closing the contact” and “Reaction on long operation or opening the contact”. No value is delivered to the bus if any of the parameter choices are set to “Toggle”. No value will be delivered to the bus if any of the parameter choices are set to “Toggle”. Additionally, no value will be transmitted if the current operation is set to “No reaction”.

Parameter “ Long operation after (*0.1s) ”

When differentiating between lengthy and short procedures, this characteristic becomes apparent. This is where the valid time for lengthy procedures is set. An operation is classified as long if the input contact is connected for more time than this; otherwise, it is classified as short.

Options available: 3..25

Parameter “ Reaction on short operation or closing the contact ”/“ Reaction on long operation or opening the contact”

This configures the operation to be carried out during long/short operation or when the contact is closed/broken. The object value is instantly updated upon determining the input.

Options available:

- No action
- ON
- OFF
- Toggle

“No action ” , no messages sent.

“ON ” , sent open message;

“OFF ” , sent close message;

“Toggle ” , Every operation will cause the switch to switch between on and off.

For example, if a switch on message was sent (or received) recently, this operation will cause a switch off message to be sent; if the switch is operated again, a switch on message will be sent; and so on. When operated, the switch will always remember its previous value and change to a new one. As a result, when the switch is actuated, it always remembers its previous state and changes to a different value.

Parameter “ Debounce time”

When the contact is triggered numerous times during the jitter time—that is, the minimum effective time of the contact input—the de-jitter time is specified here to avoid needless multiple operations.

Options available: 10ms/20ms/...../150ms

Parameter “ Disable function”

Determines if the input's disable function should be enabled. Options available:

- Disable
- Enable

If “Enable”, the input can be disabled or used by the object.

Parameter “Trigger value of disable object”

Sets the trigger value for the disable/enable input. Options available:

- Disable=1/enable=0
- Enable=0/enable=1

3.1.2. “Switch/Dimming”Function

“Switch/Dimming ”parameter window is shown in Figure 4.2.

1.1.1 Flush mounted Dimmer and IO > Input A

Input A	Function of the channel	Switch/Dimming
Input B	Connect type	☒ Normally open ☐ Normally close
Input C	Long operation after(*0.1s)	25
Input D	Reaction on short operation	TOGGLE
Input E	Reaction on long operation	brighter/darker
Input F	Dimming mode	☒ Start-stop-Dimming ☐ Steps dimming
LED	Debounce time	50ms
Dimming A	Disable function	☒ disable ☐ enable
A: Scene		

Figure 4.2parameter window“Input X-Switch/Dimming ”

Parameter“Connect type”

The contact connection type is selected here, which determines whether the input contact is generally open or closed.

Options available:

- Normally open
- Normally close

The parameters given in this section are based on the Normally open type, as an example; the Normally closed type operates in the opposite manner.

Parameter “ Long operation after (*0.1s) ”

The valid time for a long operation is specified here. If the input contact is linked for a longer period of time than specified here, the operation is considered long; otherwise, it is classified as short.

Options available: 3..25

Parameter “ Reaction on short operation”

This parameter determines the value of the switch that is sent when a brief operation is initiated. Options available:

- No action
- ON
- OFF
- Toggle “No action ” , There were no messages sent.

“ON ” , Sent an open message;

“OFF ” , Sent an open message;

“Toggle ” , Each operation will alternate between turning on and off.

Parameter“ Reaction on long operation”

This option specifies the value of the relative dimming sent when a lengthy operation is entered. Dimming is brightened or dimmed till the button is released.

Options available:

- Brighter
- Darker

➤ Toggle

“Brighter ”, The message for dimming is sent when the button is operated long;

“Darker ”, Send the dimmed message;

“Toggle ”, Each operation switches between brightening and dimming.

Note: If one of the parameter settings for switching and relative dimming is “Toggle”, there will be a linkage between them; for example, if the switching object is switched on, it will be dimmed the next time it is dimmed. For example, if the object is set to OFF, the next time it is dimmed, it will remain dull.

Parameter“ Dimming mode”

You can specify the relative dimming mechanism, such as start-stop dimming or step-by-step dimming.

Options available:

➤ Start-stop dimming

➤ Steps-dimming

If you pick the “Start-stop dimming” option, the relative dimming method is start-stop dimming, which sends a dimming or brightening message during dimming and a stop message after dimming is completed. In the Start-stop dimming mode, the dimming telegrams do not have to be issued in a cycle.

When you choose the “Steps-dimming” option, the relative dimming technique is step-by-step, the dimming message is sent cyclically, and the cease dimming message is sent instantly when the dimming is complete.

Parameter“ Brightness change one very sent”

When the “Steps dimming” option is selected, the “Dimming mode” parameter becomes displayed. You can adjust the brightness (in percentage) by sending a dimming telegraph cyclically.

Options available:

- 100%
- 50%
-
- 1.56%

Parameter“Interval of Tele. Cyclic send (*0.1s, 0=send once) ”

This parameter is available when the“Dimming mode”option is set to“Steps dimming”; here, you can choose the time interval for sending dimming telegrams cyclically.

Options available: 0..25

Parameter“ Debounce time”

The de-jitter time is set here to avoid redundant operations when the contact is activated numerous times during the jitter period, which is the minimum effective time of the contact input.

Options available: 10ms/20ms/...../150ms

Parameter“ Disable function”

Enables or disables the input's disable function.

Options available: Disable/Enable

If you select 'Enable', the input can be deactivated or used by the item.

Parameter“Trigger value of disable object”

Sets the trigger value for the disabled/enabled input.

Options available:

- Disable=1/enable=0
- Enable=0/enable=1

3.1.3. “Value/Force output”Function

“Value/Force output ”parameter window is shown in Figure 4.3.

Figure 4.3 parameter window“Input X-Value/Forced output ”

Parameter“Connect type”

The contact connection type is selected here, which determines whether the input contact is generally open or closed.

Options available:

- Normally open
- Normally close

The parameters given in this section are based on the Normally open type, as an example; the normally closed type operates in the opposite manner.

Parameter“ Distinction between long and short operation”

This option determines whether the touch input can distinguish between long and short operations. If the 'yes' option is selected, the input will wait a specific period of time to assess whether the operation is long or short before doing the desired action.

Options available: Yes/No

Parameter“Long operation after (*0.1s)

This parameter becomes noticeable when distinguishing between lengthy and short operations. The valid time for long operations is specified here. If the input contact is linked for a longer period of time than specified here, the operation is considered long; otherwise, it is classified as short.

Option available: 3..25

Parameter “ Reaction on short operation or closing the contact ”/“ Reaction on long operation or opening the contact”

Set the type of data that will be sent when the contact is closed/disconnected, or during long/short operations.

Options available:

- No reaction
- 1bit value[0/1]
-
- 2byte value[0...65535]

Parameter“Output value[...]”

This determines the data value that will be supplied when the operation is done. The previous parameter's data type determines the range of values.

Parameter“ Debounce time”

The de-jitter time is set here to avoid redundant operations when the contact is activated numerous times during the jitter period, which is the minimum effective time of the contact input.

Options available: 10ms/20ms/...../150ms

Parameter“ Disable function”

Determines whether to allow or disable the input.

Options: Disable / Enable

If you select 'Enable', the input can be deactivated or used by the item.

Parameter“Trigger value of disable object”

Sets the trigger value for the disabled/enabled input.Options available:

➤ Disable=1/enable=0

➤ Enable=0/enable=1

3.1.4. “Scene control”Function

Figure 4.4 depicts parameter window “Scene control”.

1.1.1 Flush mounted Dimmer and IO > Input A

Input A	Function of the channel	Scene control
Input B	Connect type	☒ Normally open ☐ Normally close
Input C	Distinction between long and short operation	☒ No ☐ Yes
Input D	Reaction on short operation or closing the contact	No reaction
Input E	Reaction on long operation or opening the contact	No reaction
Input F	Debounce time	50ms
LED	Disable function	☒ disable ☐ enable
Dimming A		
A: Scene		

Figure 4.4 parameter window “Input X-Scene control ”

Parameter“Connect type”

The contact connection type is selected here, which determines whether the input contact is generally open or closed. Options available:

- Normally open
- Normally close

The parameters given in this section are based on the Normally open type, as an example; the Normally closed type operates in the opposite manner.

Parameter“ Distinction between long and short operation”

This option determines whether the touch input can distinguish between long and short operations. If the 'yes' option is selected, the input will wait a specific period of time to assess whether the operation is long or short before doing the desired action.

Options available: Yes / No

Parameter“ Long operation after (*0.1s) ”

This parameter becomes noticeable when distinguishing between lengthy and short operations. The valid time for long operations is specified here. If the input contact is linked for a longer period of time than specified here, the operation is considered long; otherwise, it is classified as short.

Options available: 3..25

Parameter “ Reaction on short operation or closing the contact ”/“ Reaction on long operation or opening the contact”

Scenes are configured here to be recalled or saved when the contact is closed/disconnected, or during long/short operation.

Options available:

- No reaction
- Recall scene
- Store scene

Parameter“Scene number (1..64)”

Set the scene number and range: Scene NO.1~64 corresponds to message 0~63.

Parameter“ Debounce time”

The de-jitter time is set here to avoid redundant operations when the contact is activated numerous times during the jitter period, which is the minimum effective time of the contact input.

Options available: 10ms/20ms/...../150ms

Parameter“ Debounce time”

The de-jitter time is set here to avoid redundant operations when the contact is activated numerous times during the jitter period, which is the minimum effective time of the contact input.

Options available: 10ms/20ms/...../150ms

Parameter“ Disable function”

Determines whether to allow or disable the input.

Options: Disable / Enable

If you select 'Enable', the input can be deactivated or used by the item.

Parameter“Trigger value of disable object”

Sets the trigger value for the disabled/enabled input.

Options available:

- Disable=1/enable=0
- Enable=0/enable=1

3.1.5. “Shutter control” Function

Figure 4.5 depicts parameter window “Shutter control”.

1.1.1 Flush mounted Dimmer and IO > Input A

Input A	Function of the channel	Shutter Control
Input B	Connect type	☒ Normally open ☐ Normally close
Input C	Long operation after(*0.1s)	3
Input D	Reaction on short operation	Stop(Adjust Up/Down)
Input E	Reaction on long operation	Up/Down
Input F	Debounce time	50ms
LED	Disable function	☒ disable ☐ enable
Dimming A		
A: Scene		

Figure 4.4 parameter window “Input X-Shutter control ”

Parameter“Connect type”

Here you can specify the sort of contact connection and, in general, whether the input contact is generally open or closed.Options available:

- Normally open
- Normally close

The parameters given in this section are based on the Normally open type, as an example; the Normally closed type operates in the opposite manner.

Parameter“ Long operation after (*0.1s) ”

The valid time for a long operation is specified here. If the input contact is linked for a longer period of time than specified here, the operation is considered long; otherwise, it is classified as short.

Options available: 3..25

Parameter“ Reaction on short/long operation”

This option specifies what action should be taken whether the input is a short or long operation.

Options available:

- No action
- Up
- Down
- Up/Down
- Stop (Adjust Up)
- Stop (Adjust Down)
- Stop (Adjust Up/Down)

“No action ”, does not do any actions.

“Up ”, move curtains up or open them;

“Down ”, move the curtains down or close them;

“Up/Down ”, alternate curtain opening and closing (up/down) actions.

“Stop (Adjust Up) ”, closing the curtains or changing the tilt of the blinds upwards;

“Stop (Adjust Down) ”, closing the curtains or changing the tilt of the blinds downwards;

“Stop (Adjust Up/Down) ”, stop curtain operation or alternately modify upward/downward louvre angle.

Parameter“Interval of Tele. Cyclic send (*0.1s, 0=send once) ”

This parameter becomes accessible when the previous parameter option is 'Stop...'. This parameter appears if the previous parameter choice is 'Stop...' and specifies the time interval for cyclic delivery of leaf angle adjustment signals.

Options available:

Parameter“ Debounce time”

The de-jitter time is set here to avoid redundant operations when the contact is activated numerous times during the jitter period, which is the minimum effective time of the contact input.

Options available: 10ms/20ms/...../150ms

Parameter“ Disable function”

Determines whether to allow or disable the input.

Options: Disable / Enable

If you select 'Enable', the input can be deactivated or used by the item.

Parameter“Trigger value of disable object”

Sets the trigger value for the disabled/enabled input.

Options available:

- Disable=1/enable=0
- Enable=0/enable=1

3.2. Parameter Window “LED”

This interface is used to control how the LED function. Six LED are supplied for indication, and each LED may be set individually; we will use one of the LED as an example for parameter setup.

1.1.1 Flush mounted Dimmer and IO > LED

Input A	LED 1 function	
Input B	The object value='0',LED is	☒ OFF ☐ ON
Input C	The object value='1',LED is	☐ OFF ☒ ON
Input D	LED 2 function	
Input E	The object value='0',LED is	☒ OFF ☐ ON
Input F	The object value='1',LED is	☐ OFF ☒ ON
LED	LED 3 function	
	The object value='0',LED is	☒ OFF ☐ ON
	The object value='1',LED is	☐ OFF ☒ ON
Dimming A	LED 4 function	
A: Scene	The object value='0',LED is	☒ OFF ☐ ON
	The object value='1',LED is	☐ OFF ☒ ON
	LED 5 function	
	The object value='0',LED is	☒ OFF ☐ ON
	The object value='1',LED is	☐ OFF ☒ ON
	LED 6 function	
	The object value='0',LED is	☒ OFF ☐ ON
	The object value='1',LED is	☐ OFF ☒ ON

Figure4.6 Parameter Window“LED ”

Parameter “ LED common polarity”

This option specifies the LED's polarity: common cathode.

Parameter“LED X function ”

Parameter “The object value='0/1', LED is”

Sets whether the LED lights up or turns off when the LED's object receives the telegram value '1' or '0'.

Options available: OFF/ON

3.3. Parameter Window “Dimming output”

Dimming output only allows one output channel; the 'Dimming output' parameter setup interface is depicted in Figure 4.7.

1.1.1 Flush mounted Dimmer and IO > Dimming A

Input A	Time duration of dimming, time = entry *2 [1..255s]	1
Input B	Switch on with	☐ Preset brightness value ☒ Last brightness
Input C	Behaviour on bus voltage recovery	☐ Preset brightness value ☒ As before voltage failure
Input D	Reaction on receipt of switch on value	☐ Dimming on ☒ Switch on softly
Input E	Reaction on receipt of brightness value	☐ Dimming on ☒ Switch on softly
Input F	Switch-OFF mode	Switch off instantly
LED	Minum dimming value [1..50%]	1
	Maximum dimming value [51..100%]	100
Dimming A	Switching off when dimming darker	☒ Yes ☐ To minum dimming value
A: Scene	Switching off via brightness value 0%	☒ Yes ☐ To minum dimming value
	Response mode of switch/brightness status	respond always
	Scene function	☐ disable ☒ enable

Figure4.7 Parameter Window “Dimming output ”

Parameter “Time duration of dimming, time=entry*2[1..255s]”

This option controls the dimming time. When Dimming on or Dimming off dimming time is selected, independent of brightness or switch dimming mode, the time is calculated by multiplying the input value by 2 seconds, with a maximum possible input time of 255 seconds.

Parameter “Switch on with”

This property defines whether the brightness value is selected from the previous brightness or from the preset brightness when switching the light on with the object ‘switch’. Options available:

- Preset brightness value
- Last brightness

If the option is 'preset brightness value ', the brightness value when switching is enabled is the one set by the parameter "Preset brightness value for object switch". Preset a brightness value for the object switch. When the preset brightness value for the object switch is less than the low brightness value, the brightness when the light is turned on is lower; when the preset brightness value for the object switch is greater than the high brightness value, the brightness when the light is turned on is higher. The high and low dimming levels are defined by the parameters'minmum /maximum dimming value[1..50%]/[51..100%]'.

When 'last brightness' is selected, the brightness of switch mode will be the brightness of the last non-dark state; if the switch mode is executed as the first action after bus reset and the light is turned off, the default brightness of switch mode will be 50%; in all other cases, the switch mode will always be the brightness of the last bright state. If the light is turned off after a bus reset, the default brightness of the switch on is 50%; otherwise, the brightness of the switch on is the previous brightness level.

——Parameter “ Preset brightness value for object switch”

This parameter is accessible when 'preset brightness value' is selected in the preceding parameter. It is used to set the preset brightness of the light switched on in the'switch' mode, with a range of brightness: 1～100%.

Parameter “ Behaviour on bus voltage recovery”

This option controls the brightness after a bus reset, whether it is the brightness before powering off or the preset brightness.

Options available:

- Preset brightness value
- As before voltage failure

When the option is 'preset brightness value', the brightness at bus power-on reset is determined by the following parameter: 'Preset brightness value on bus recovery'. Preset the brightness value for bus recovery'. When the preset brightness value is less than the brightness low limit, the brightness on bus recovery is the lower limit; when the preset brightness value is greater than the brightness high limit, the brightness on bus recovery is the upper limit. The brightness's high and low limit values are defined by the parameter'minmum/maximum dimming value[1...50%]/[51...100%]'.

When the 'As before voltage failure' option is selected, the brightness at bus power-on reset is the same as before power-down.

When the parameter download is complete, the brightness equals zero.

——Parameter “ Preset brightness value on bus recovery”

This parameter is available when the previous option 'preset brightness value' is selected; it is used to set the brightness when the bus is power reset; the brightness range is 0-100%.

Parameter “ Reaction on receipt of switch on value”

This option sets the dimming time when the light is turned on using the'switch', options available:

- Dimming on
- Switch on softly

The dimming time of "switch" when the option is "dimming on" is equal to the dimming time specified in the aforementioned parameter, "time duration of dimming time=entry*2." The dimming time of "switch" is equal to the dimming time duration multiplied by "entry*2."

By default, the "switch" dimming time is 4 seconds when the "switch on softly" option is selected.

Parameter “ Reaction on receipt of brightness value”

The dimming time for the "brightness value" of absolute dimming is set by this parameter, options available:

- Dimming on
- Switch on softly

The dimming time for "brightness value" when the option is "dimming on" is equal to the dimming time entered in the parameter "time duration of dimming time = entry*2." The dimming time for "brightness value" is equal to the dimming time entered in the parameter "entry*2" above, multiplied by 2.

By default, the "brightness value" dimming time is 4 seconds when the "switch on softly" option is selected.

Parameter “Switch-OFF mode”

This option determines the dimming time when the light is turned off using the 'switch'. Options available:

- Dimming off
- Switch off softly
- Switch off instantly

When the option is ‘ dimming off’ , the dimming time of ‘ switch’ is equal to the input time*2 of the time duration of dimming time entered in the above parameter ‘time duration of dimming time=entry*2.

When the option is 'switch off softly', the default dimming time for 'switch' is 4 seconds.

When the option 'switch off instantaneously' is selected, the dimming time is set to zero, and the light turns off immediately.

Parameter“Minimum dimming value [1..50%] ”

This option controls the brightness's low limit, which can be set between 1 and 50%.

Parameter“Maximum dimming value [51..100%] ”

This setting determines the top limit of the brightness and ranges from 51 to 100%.

The upper and lower brightness limits govern the output brightness's adjustable range. Dimming starts at the lower limit. Assuming the current brightness is 0, the lower limit is 15%, and the upper limit is 90%, when a message with a specified brightness of 10% is received, the output is directly 15%, and there is no brightness gradient time in this process; if the specified brightness is 40%, then the dimming process is directly to 15%, and then slowly adjusted to 40%; if the current brightness is 70%, and the received brightness message is 10%, then the dimming process is 70% and slowly.

Assume the lowest limit is 10%, while the higher limit is 80%. If the obtained brightness value exceeds 80%, 80% will be output directly.

Parameter“Switch off when dimming darker ”

This option determines whether to switch off the brightness or keep the lower limit when the brightness is reduced to less than or equal to the lower limit via relative dimming. Options available:

- Yes
- To minimum dimming value

Set the bottom limit at 10%. If you select "yes", the light will be turned off when the brightness setting is reduced to 10%;

If 'To minimum dimming value' is selected, the brightness remains constant when dimmed down to 10%.

Parameter“Switch off via brightness value 0% ”

This parameter controls whether the brightness is turned off or kept at a low level when 0% brightness is obtained via absolute dimming. Options available:

- Yes
- To minimum dimming value

When the received brightness value is 0%, select 'yes' to output 0 and turn it off.

When the received brightness value is 0%, select 'To minimum dimming value' to force the output to the low limit value.

Parameter“Response mode of switch/brightness status ”

This parameter controls how the on/off and brightness states are sent, with three ways available. Options available:

- Respond after read only
- Respond after change

Select "Respond after read only", and the object "switch status" / "brightness status" will send the current switch status / brightness status to the bus only when the device receives a request to read the switch status / brightness status of the channel from other bus devices or on the bus.

Choose "Respond after change". When the switch status changes, the object "switch status" immediately sends a message to the bus reporting the current switch state. When the brightness changes, the object "brightness status" sends a message indicating the current brightness.

Parameter“Scene function ”

This option activates the scene function. Options available:

- Disable/Enable

When Enable is selected, the following parameter setting screen appears.

3.3.1. Parameter Window “X:Scene” Scene Function

Figure 3.11 depicts the UI for configuring scene function parameters. There are eight scenes available for setting.

1.1.1 Flush mounted Dimmer and IO > A: Scene		
Input A	1> Assignment Scene NO.(1..64,0=no assignment)	1
Input B	--Dimming time = enrt *2 [1..255s]	1
Input C	--Brightness value [0..100%]	0
Input D	2> Assignment Scene NO.(1..64,0=no assignment)	3
Input E	--Dimming time = enrt *2 [1..255s]	3
Input F	--Brightness value [0..100%]	1
LED	3> Assignment Scene NO.(1..64,0=no assignment)	5
Dimming A	--Dimming time = enrt *2 [1..255s]	10
	--Brightness value [0..100%]	30
A: Scene	4> Assignment Scene NO.(1..64,0=no assignment)	10
	--Dimming time = enrt *2 [1..255s]	30
	--Brightness value [0..100%]	50
	5> Assignment Scene NO.(1..64,0=no assignment)	30
	--Dimming time = enrt *2 [1..255s]	50
	--Brightness value [0..100%]	70
	6> Assignment Scene NO.(1..64,0=no assignment)	40
	--Dimming time = enrt *2 [1..255s]	100
	--Brightness value [0..100%]	80
	7> Assignment Scene NO.(1..64,0=no assignment)	50
	--Dimming time = enrt *2 [1..255s]	150
	--Brightness value [0..100%]	99

Figure4.9 Parameter Window “X: Scene ”

Parameter “Assignment Scene NO. (1...64,0= no assignment)”

Each output can be allocated up to 64 different scene numbers. Each output can control eight different scenes at the same time. Options available : 1... 64, 0=no assignment

Note: Valid scene numbers in the parameter configuration options are 1 - 64, and corresponding message values are 0 - 63.

Parameter “--Dimming time = entry*2 [1..255]”

This option controls the scene's dimming time. Option available:1..255.

Parameter“--Brightness value [0..100%] ”

This option controls the brightness of the output when the scene is called. Options available:0% to 100%.

Chapter 4. Description of Communication Object

The communication object is the channel via which a device communicates with other devices on the bus; that is, only the communication object is capable of bus communication. The following provides a full overview of each communication object's role.

Note: In the table property column below, "C" indicates that the communication object's communication function is enabled; "W" indicates that the value of the communication object can be rewritten through the bus; "R" indicates that the value of the communication object can be read through the bus; "T" indicates that the communication object has the transmission function; and "U" indicates that the value of the communication object can be updated.

4.1. "Input X" Communication Object

	Number ^	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
↕	0	Input A	Short/Close,Switch			1 bit	C	-	W	T	-		Low
↕	1	Input A	Long/Open,Switch			1 bit	C	-	W	T	-		Low
↕	2	Input A	Disable, A			1 bit	C	-	W	-	-		Low

“Switch ” Function

	Number ^	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
↕	0	Input A	Short,Switch			1 bit	C	-	W	T	-	switch	Low
↕	1	Input A	Long,Dimming			4 bit	C	-	W	T	-	dimming...	Low
↕	2	Input A	Disable, A			1 bit	C	-	W	-	-		Low

“Switch / dimming ” Function

	Number ^	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
↕	0	Input A	Short/Close,1bit value			1 bit	C	-	-	T	-		Low
↕	1	Input A	Long/Open,1bit value			1 bit	C	-	-	T	-		Low
↕	2	Input A	Disable, A			1 bit	C	-	W	-	-		Low

“Value / Force output ” Function

	Number ^	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
↕	0	Input A	Short/Close,scene			1 byte	C	-	-	T	-		Low
↕	1	Input A	Long/Open,scene			1 byte	C	-	-	T	-		Low
↕	2	Input A	Disable, A			1 bit	C	-	W	-	-		Low

“Scene control ” Function

	Number ^	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
↕	0	Input A	Up/Down,Blind			1 bit	C	-	-	T	-		Low
↕	1	Input A	Stop/Adjust,Blind			1 bit	C	-	-	T	-		Low
↕	2	Input A	Disable, A			1 bit	C	-	W	-	-		Low

“Shutter control ” Function

Figure 4.1 "Input X" Communication Object

No.	Function	Name of the Communication Object	Type	Attribution	DPT
0	Short/Close,Switch	Input X	1bit	C,W, T	1.001DPT_Switch
1	Long/Open,Switch	Input X	1bit	C,W, T	1.001DPT_Switch

This communication object is used to initiate the switch operation. The "Short/Close" output object corresponds to the short or rising edge operation. The "Long/Open" output object corresponds to the long or falling edge operation.

0	Short,Switch	Input X	1bit	C,W, T	1.001DPT_Switch
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This communication object triggers the switch operation.

Message: 0----off; 1----on

1	Long,Dimming	Input X	4bit	C,W, T	3.007 DPT_Dimming control
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This communication item initiates a relative dimming action.

Dimming occurs when the message value falls between 1 and 7. In this range, the higher the value, the lower the fading amplitude. When it is 1, the dimming amplitude is the greatest, when it is 7, the dimming amplitude is the least, and 0 implies halt dimming. When the input value is 9~15, it dims up. In this range, the higher the value, the lower the fading amplitude. When it is 9, the dimming amplitude is the greatest; when it is 15, the dimming amplitude is the least; and 8 indicates halt dimming.

0	Short/Close, 1bit/4bit/1byte/ 2byte value	Input X	1bit/4bit/ 1byte/2byte	C,T	1.001 DPT_Switch/ 3.007 DPT_Dimming control/ 5.010 DPT_counter pulses 7.001 DPT_pulses
1	Long/Open, 1bit/4bit/1byte/ 2byte value	Input X	1bit/4bit/ 1byte/2byte	C,T	

This communication object is used for transmitting contact input values. The data type determines the possible values that can be conveyed. The data type is determined by the parameter "Reaction on short operation or closing the contact" / "Reaction on long operation or opening the contact."

0	Short/Close, Scene	Input X	1byte	C,T	18.001 DPT_Scene Control
1	Long/Open, Scene	Input X	1byte	C,T	18.001 DPT_Scene Control

This communication object generates an 8-bit command to call or save a scene. The following is a full explanation of the 8-bit command. Assume an 8-bit command is (binary code) :FXNNNNNN

F: ‘0’ means calling the scene; ‘1’ means storing the scene;

X: 0;

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

The parameter setting options range from 1 to 64, whereas the scene message received by the communication object "Scene" is really 0 to 63. If the option is set to scene 1, the communication object "Scene" will get scene 0. As seen below:

Message value of the object	Description
0	Calling Scene 1
1	Calling Scene 2
2	Calling Scene3
...	...
63	Calling Scene 64
128	Storing Scene 1
129	Storing Scene 2
130	Storing Scene 3
...	...
191	Storing Scene 64

0	Up/Down,Blind	Input X	1bit	C,T	1.008DPT_up/down
This communication item is used to raise/lower the curtain. Message: 0 - Move up the curtains/blinds 1 - Lower the curtains/blinds					
1	Stop/Adjust,Blind	Input X	1bit	C,T	1.007DPT_Step
This communication object is used to stop the curtain operation or alter the angle of the blinds.					
2	Disable	Input X	1bit	C,W	1.003DPT_enable
This communication object is used to enable or disable the input channel's function.					

Figure 5.1 Communication Object Table of "Input X"

Number *	Name	Object Function	Description	Group Address	Length	C	R	W	T	U	Data Type	Priority
18	LED 1	LED 1			1 bit	C	-	W	-	-		Low
19	LED 2	LED 2			1 bit	C	-	W	-	-		Low
20	LED 3	LED 3			1 bit	C	-	W	-	-		Low
21	LED 4	LED 4			1 bit	C	-	W	-	-		Low
22	LED 5	LED 5			1 bit	C	-	W	-	-		Low
23	LED 6	LED 6			1 bit	C	-	W	-	-		Low

Figure 5.2 Communication Object of "LED"

4.2. "LED" Communication Object

No.	Function	Name of the Communication Object	Type	Attribution	DPT
18	LED X	LED X	1bit	C,W	1.001DPT_Switch
This communication object is used to receive 1-bit messages and execute switch commands.					

Figure 5.2 Communication Object Table of "LED"

4.3. "Dimming output" Communication Object

序号	名称 *	物件功能	描述	群组位址	长度	C	R	W	T	U	数据类型	优先级
24	Dimming A	Switch	switch	0/0/2	1 bit	C	-	W	-	-		低
25	Dimming A	Switch status	switch status	0/0/1	1 bit	C	R	-	T	-		低
26	Dimming A	Relative dimming	往上/往下相对调光	0/0/3	4 bit	C	-	W	-	-		低
27	Dimming A	Brightness	输入亮度绝对调光	0/0/4	1 byte	C	-	W	-	-		低
28	Dimming A	Brightness status	调光投文	0/0/5	1 byte	C	R	-	T	-		低
29	Dimming A	Scene	场景	0/0/6	1 byte	C	-	W	-	-		低

Figure 5.3 Communication Object of Dimming Output

No.	Function	Name of the Communication Object	Type	Attribution	DPT
24	Dimming X	Switch	1bit	C,W	1.001 DPT_Switch
This communication object is used to control the dimming output. If a "1" message is received, the output is activated, while "0" is shut off.					
25	Dimming X	Switch status	1bit	C,R,T	1.001 DPT_Switch

This communication item transmits the current switch status to the bus. When the brightness value exceeds 0, this communication object sends "1" to the bus; when the brightness value is zero, it sends "0" to the bus.

26	DimmingX	Relative dimming	4bit	C,W	3.007 DPT_Dimming control
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This object allows you to dim up or down. When the input value is between 1 and 7, it dims down. The higher the value in this range, the lower the fading amplitude. When 1 is the largest, the dimming amplitude is the lowest, and 0 stops dimming. When the input value is 9~15, it dims up. In this range, the higher the value, the lower the fading amplitude. When 9 is the largest, the dimming amplitude is the lowest, and 8 stops fading.

27	DimmingX	Brightness value	1byte	C,W	5.001 DPT_Scaling
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This communication item activates or deactivates the dimming output based on the brightness value received. If the received brightness value exceeds zero, the output is turned on. If the received brightness value is "0", the output may be turned off, or it may be the parameter-determined lower limit.

28	DimmingX	Brightness status	1byte	C,R,T	5.001 DPT_Scaling
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This communication object is used to report the current brightness status to the Bus.

29	DimmingX	Scene	1byte	C,W	17.001 DPT_Scene Number
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This communication object allows you to call or save a scene by sending an 8-bit command. This communication object is only active when the scene function is activated.

The definition of 8-bit instructions is given in full below.

Suppose an 8-bit instruction is (binary code): XXNNNNNN

XX: 0;

NNNNNN: Scene No. (0...63)

The parameter setting options range from 1 to 64, whereas the scene message received by the communication object "Scene" is really 0 to 63. If the parameter is set to scene 1, the communication object "Scene" should receive scene message zero. As seen below:

The message value of the object	Description
0	Calling Scene 1
1	Calling Scene 2
2	Calling Scene3
...	...
63	Calling Scene 64

Figure 5.3 Communication Object Table of Dimming Output