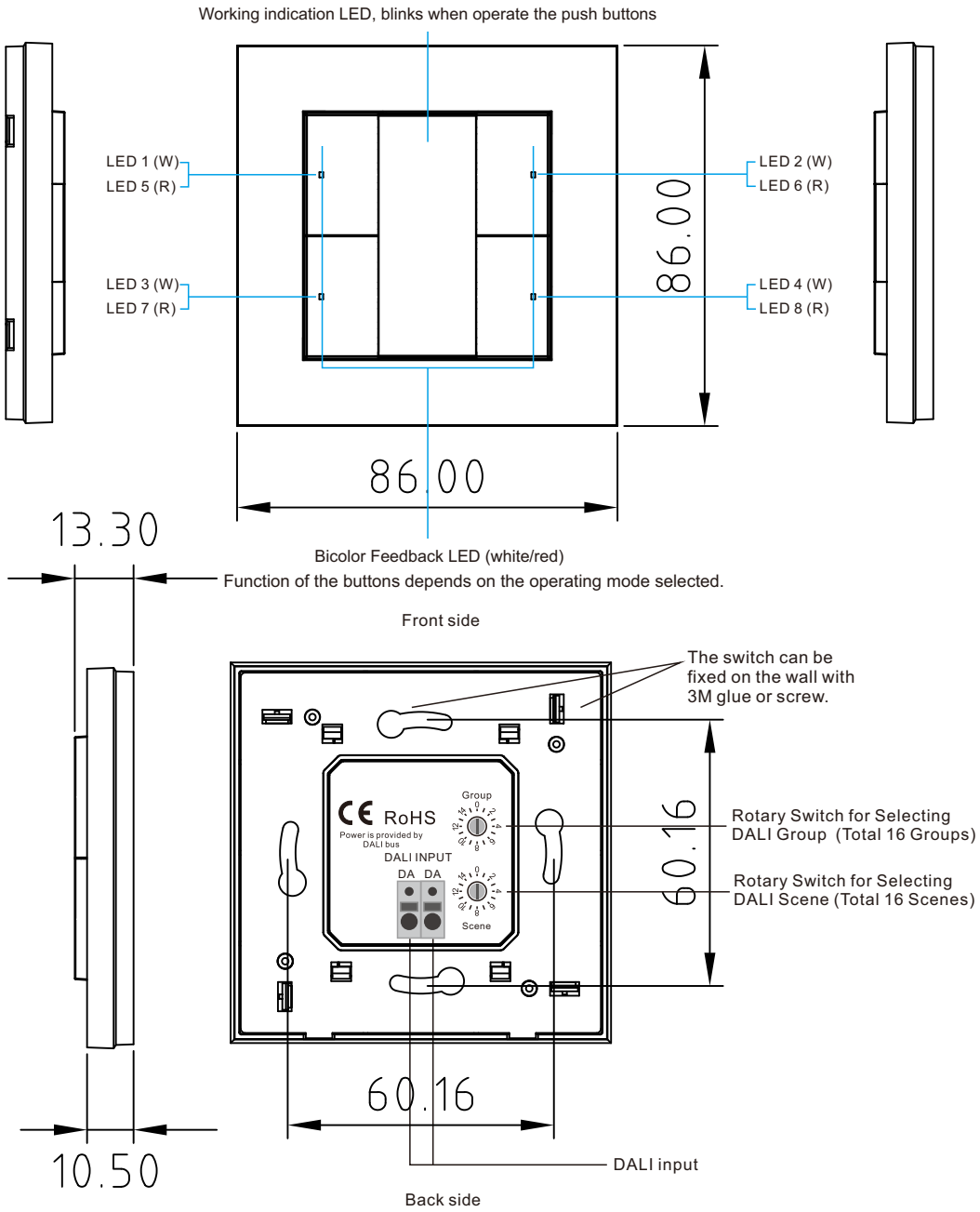
Multi-functional 4-Key Push Button DALI Wall Switch

Important: *Read All Instructions Prior to Installation*

Function introduction



Product Features

- Multi-functional 4-key push button DALI wall switch
- DALI-2 control device according to IEC62386-101, IEC62386-103, IEC62386-301
- Provides 4 push button instances
- DALI push button switch for dimming, color temperature, color and scene control
- Individual DALI Commands and operating modes can be assigned to the push buttons
- Multiple operating modes can be set by the DALI-2 controller using command SET OPERATING MODE (DTR0)
- Instance mode for sending DALI-2 push button event messages - integration in standard DALI-2 control systems
- DIM mode, directly send DALI commands to DALI bus
- CCT mode, directly send DALI commands to DALI bus
- RGBW mode, directly send DALI commands to DALI bus
- RGBWA mode, directly send DALI commands to DALI bus
- Scene mode, directly send DALI commands to DALI bus
- Multi-master capable, multiple modules can be installed on one DALI line
- Factory default setting is DALI-2 instance mode for sending DALI-2 button status event messages
- DALI bus powered, no extra power supply required
- Easy configuration via DALI-2 compliant central controller

Product Data

DALI Interface

Input Type	DALI
Marking	DA, DA
Input Voltage Range	12VDC - 22.5VDC (according IEC62368-101)
Typ. Current Consumption DALI (at 16.5V)	2mA
Max. Current Consumption DALI (Inrush Current at 22.5V)	10mA
Number of Addresses for DALI Control Gear	DALI
Number of Addresses for DALI Control Devices	4 programmable push buttons
Number of Feedback LED	8 programmable LEDs

General Data

Dimensions (L x W x H)	86mm x 86mm x 13.3mm
Mounting	Wall Mounting or on Conduit Box
Max. casing temperature Tc	75°C
Expected Life Time @Tc	50,000H
Protection Class	II in Intended Use
Protection Degree Housing	IP20
Protection Degree Terminals	IP20
Function	Configurable
Start-up Time	<150ms

Terminals

Connector Type	Push-In
Wire Size Solid Core	0.2 - 1.5 mm2 (AWG26 - AWG16)
Wire Size Fine Core	0.2 - 1.5 mm2 (AWG26 - AWG16)
Wire Size Using Wire End Ferrule	0.25 - 1.0 mm2
Stripping Length	9 - 10 mm / 0.35 - 0.39 inch
Release Connector	Push Button

Environment Conditions

Storing Temperature	-20°C~+50°C
Working Ambient Temperature	-20°C~+50°C
Relative Humidity	8%- 80%

Standards

DALI	IEC62386-101:2014 IEC62386-103:2014 IEC62386-301 IEC62386-332
EMC	EN 61547 EN 50015 / IEC CISPR15
Safety	EN 61347-2-11 EN 61347-1
Markings	DALI-2, CE

Safety & Warnings

• DO NOT installed with power applied to device.
• DO NOT expose the device to moisture.

Application & Function

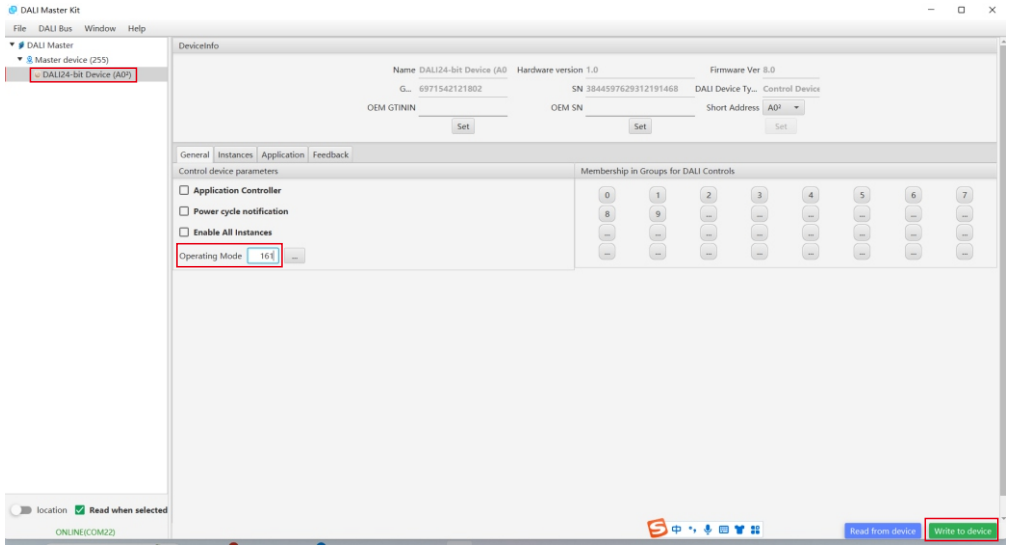
The DALI-2 switch supports different operating modes, it can work as a standard DALI-2 input device and send event messages to the DALI-2 control system, or directly send DALI commands to the DALI bus. The function is determined by the selection of the operating mode. Multiple operating modes can be set by the DALI-2 application controller using command SET OPERATING MODE (DTR0).

Set Operating Mode (DTR0)

0X00(0): Instance mode for sending DALI-2 push button status event messages (factory default)
0XA1(161): DIM+Scene mode, directly send DALI commands to DALI bus
0XA2(162): DIM+Group mode, directly send DALI commands to DALI bus
0XA3(163): Scene mode, directly send DALI commands to DALI bus
0XA4(164): CCT mode, directly send DALI commands to DALI bus
0XA5(165): RGB mode, directly send DALI commands to DALI bus
0XA6(166): RGBW mode, directly send DALI commands to DALI bus
0XA7(167): RGBWA mode, directly send DALI commands to DALI bus

Set Operating Mode via USB DALI Master Controller

The DALI-2 switch supports different operating modes, the operating mode can be set via USB DALI Master Controller and DALI Master Kit PC software, please refer to the following diagram for detailed setting.



Step 1: Select the DALI push button device you would like to set on the left, e.g. “DALI24-bit Device (A02)”.
Step 2: Enter the operating mode you would like to select in decimal, e.g. “161”.
Step 3: Write the setting into the DALI push button by click on the “Write to device” button.

Instance Mode 0X00 (Factory default setting)

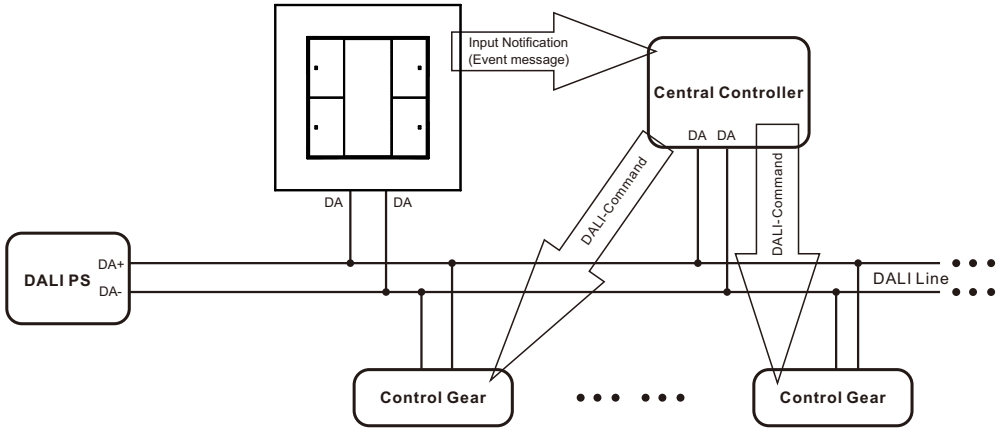
The DALI Switch can be used as input device for the integration in DALI-2 compliant central lighting control systems. In this mode each input (“instance”) informs about changes by using so called “input notifications”. These event-messages can be evaluated by other controllers on the DALI-line e.g. as trigger for commands sent to luminaires. The DALI-Switch provides 4 instances of type 1 (input device – push button).
Instance 1-4: Push Button, Instance Type 1 (according IEC62386-301, Input Devices – Push Button)
According to the standard the following INPUT NOTIFICATIONs are supported:

Event name	Event Information	Description
Button released	00 0000 0000b	The button is released
Button pressed	00 0000 0001b	The button is pressed
Short press	00 0000 0010b	The button is pressed and released, without being pressed quickly again (in case of double press enabled), or the button is pressed and quickly released (in case of double press is disabled)
Double press	00 0000 0101b	The button is pressed and released, quickly followed by another button press
Long press start	00 0000 1001b	The button is pressed without releasing it
Long press repeat	00 0000 1011b	Following a long press start condition the button is still pressed, the event occurs at regular intervals as long as the condition holds
Long press stop	00 0000 1100b	Following a long press start condition, the button is released
Button free	00 0000 1110b	The button has been stuck and is now released
Button stuck	00 0000 1111b	The button has been pressed for a very long time and is assumed stuck.

Additional instance parameters like event filter, event timings (short timer, double timer, repeat timer, stuck timer) can be configured according to IEC62386-301.

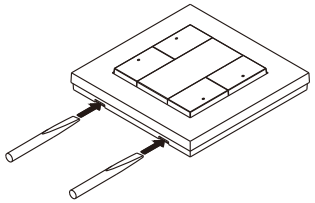
Application Diagram of Instance Mode

Integration in a system with DALI-2 compliant central control unit, push buttons results in input notifications (event messages)

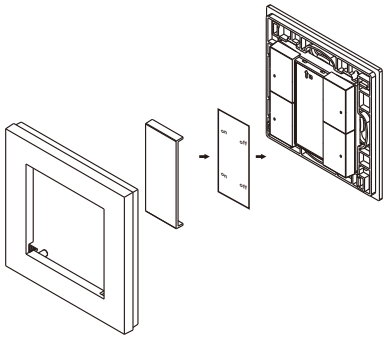


Push Button Function Label

Push button function label can be printed and customized, to better indicate whatever functions configured to the push buttons. Please contact sales person to ask for the available customizable button function file in Excel format, which will generate corresponding label image after selecting the desired function for each button, just print it and install as follows:

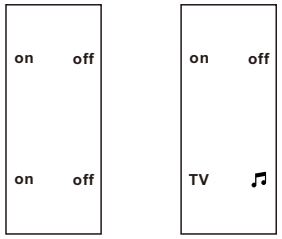


Step 1: Remove the white color central cover plate using a sharp tool such as tweezers.



Step 2: Put the printed label into the central part.

Step 3: Install another transparent central cover plate attached with the product.



Two example labels

Feedback Functionality

This DALI wall switch supports feedback functionality, feedback is the means of informing the user about the system state, the supported feedback type by the switch is visible feedback using 8 LEDs.

The instance number of the 8 LEDs are as follows (according IEC62386-332, Input Devices – Feedback):

LEDs	Instance number
LED 1 (W)	0x20
LED 2 (W)	0x21
LED 3 (W)	0x22
LED 4 (W)	0x23
LED 5 (R)	0x24
LED 6 (R)	0x25
LED 7 (R)	0x26
LED 8 (R)	0x27

Commands to activate and stop feedback

Command Name	Opcode byte
ACTIVATE FEEDBACK	0x10
STOP FEEDBACK	0x11

Feedback variables and additional commands like feedbackActive, feedbackTiming, feedbackActiveBrightness, feedbackActiveColour, feedbackInactiveBrightness and feedbackInactiveColour can be configured according to IEC62386-332.

Control of Feedback LEDs

Control of feedback LEDs uses Feature command, it has 3 Bytes, the 1st Byte is device address (Address Byte), the 2nd Byte is the LED address (Instance Byte), it can be short address, or group address, or broadcast, the 3rd Byte is operation code (opcode Byte):

For example:
Command: FF2010
FF is device address, means broadcast, 20 is the short address of the 1st instance, then 21 will be the short address of the 2nd instance, other instances' short addresses can concluded according to this, the 3rd Byte 10 means turning on the LED, 11 means turning off the LED.
The above command means: broadcast to all devices, turn on the LED with instance address 0.

Command: 01FD11
01 is device address, short address, FD means all instances' short addresses (broadcast), the 3rd Byte 10 means turning on the LED, 11 means turning off the LED.
The above command means: turn off LED of all instances addresses of the device with short address 0.

Command: FFA010
FF is device address, means broadcast, A0 means the LED with instance group address 0, if the instance group address is 1, then this value should be A1, the 3rd Byte 10 means turning on the LED, 11 means turning off the LED.
The above command means: broadcast to all devices, turn on LED with instances group address 0.

For example: broadcast to all devices, turn on or turn off LED1-LED8.

LED1 ON
Send command: FF2010

LED1 OFF
Send command: FF2011

LED2 ON
Send command: FF2110

LED2 OFF
Send command FF2111

LED3 ON
Send command: FF2210

LED3 OFF
Send command: FF2211

LED4 ON
Send command: FF2310

LED4 OFF
Send command: FF2311

LED5 ON
Send command: FF2410

LED5 OFF
Send command: FF2411

LED6 ON
Send command: FF2510

LED6 OFF
Send command: FF2511

LED7 ON
Send command: FF2610

LED7 OFF
Send command: FF2611

LED8 ON
Send command: FF2710

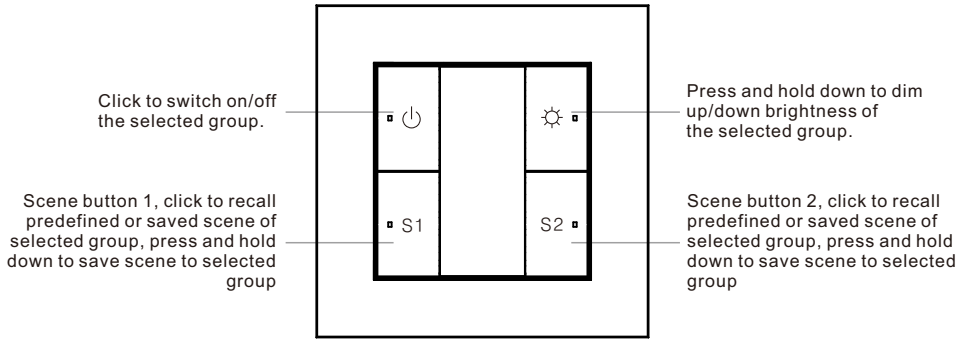
LED8 OFF
Send command FF2711

All LEDs ON
Send command: FFFD10

All LEDs OFF
Send command: FFFD11

DIM+Scene mode 0XA1 (161)

1. When set as DIM+Scene mode 0XA1, the switch will directly send DALI commands to the DALI bus, the functions are as follows:



2. Set starting Group number via rotary switch on the back: (0-15 selectable)
• This DALI push button controller enables dimming commands to be sent to One Group of devices on the DALI circuit. A rotary switch on the back is used to select the DALI Group you would like to control and set the starting Group number, and total 16 Groups (0-15) can be selected.
• When the rotary switch arrow position is at 0, the controller controls all devices on DALI circuit through broadcast.
• When the rotary switch arrow position is at X except 0 (1-15), the controller controls devices in Group X-1.

For example: Rotary switch arrow at 1, the controller controls devices in Group 0. Rotary switch arrow at 15, the controller controls devices in Group 14.

Please refer to the detailed Group setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Group Selected	Broadcast	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Note: please assign the DALI drivers on DALI circuit to a DALI group(0-15) with DALI master controller first.

3. Set starting Scene number via rotary switch on the back: (0-15 selectable)
• This DALI push button controller enables Scene selection commands for up to two Scenes to be sent to the DALI circuit by 2 Scene buttons S1, S2. A rotary switch on the back is used to select Scenes you would like to control and set the starting scene number, and total 16 Scenes (0-15) can be selected.

• When the rotary switch arrow position is at X (0-15), Scene button S1 controls DALI Scene X, S2 controls DALI Scene X+1.

For example: Rotary switch arrow at 0, button S1 controls DALI Scene 0, S2 controls DALI Scene 1. Rotary switch arrow at 15, button S1 controls DALI Scene 15, S2 controls DALI Scene 0.

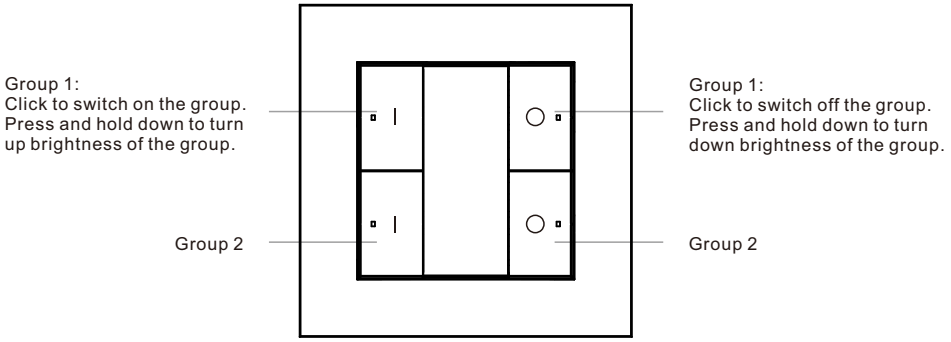
Please refer to the detailed Scene setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Scene assigned to S1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Scene assigned to S2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	0

Note: please predefine DALI scenes(0-15) to the devices on DALI circuit with DALI master controller first.

DIM+Group mode 0XA2 (162)

1. When set as DIM+Group mode 0XA2, the switch will directly send DALI commands to the DALI bus, the functions are as follows:



2. Set starting Group number via rotary switch on the back: (0-15 selectable)
• This DALI push button controller enables dimming commands to be sent to 2 Groups of devices on the DALI circuit. A rotary switch on the back is used to select Groups you would like to control and set the starting Group number, and total 16 Groups (0-15) can be selected.

• When the rotary switch arrow position is at 0, group 1 buttons control all DALI devices on the circuit via broadcast, group 2 buttons control DALI Group 0.

• When the rotary switch arrow position is at X except 0 (1-14), group 1 controls DALI Group X-1, group 2 controls Group X.

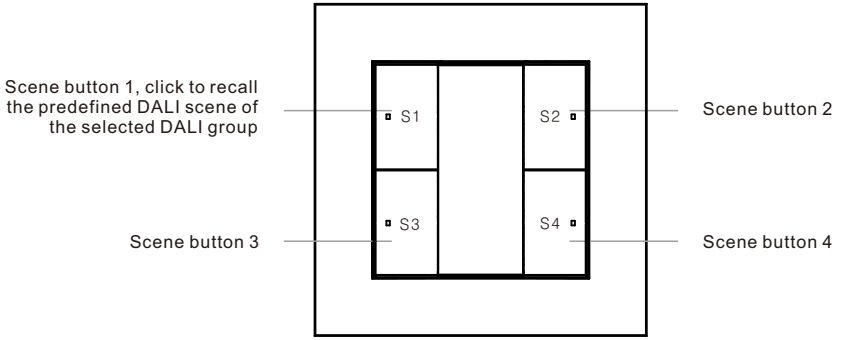
• When the rotary switch arrow position is at 15, group 1 controls devices in DALI Group 14, group 2 controls all devices through broadcast.

Note: all DALI drivers on the circuit shall be assigned to one or more DALI groups by DALI master first.
Please refer to the detailed Group setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Group for Group 1 Buttons	Broadcast	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
DALI Group for Group 2 Buttons	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Broadcast

Scene mode 0XA3 (163)

1. When set as Scene mode 0XA3, the switch will directly send DALI commands to the DALI bus, the functions are as follows:



2. Set starting Group number via rotary switch on the back: (0-15 selectable)
• This DALI push button controller enables scene selection commands to be sent to One Group of devices on the DALI circuit. A rotary switch on the back is used to select the DALI Group you would like to control and set the starting Group number, and total 16 Groups (0-15) can be selected.

• When the rotary switch arrow position is at 0, the controller controls all devices on DALI circuit through broadcast.
• When the rotary switch arrow position is at X except 0 (1-15), the controller controls devices in Group X-1.

For example: Rotary switch arrow at 1, the controller controls devices in Group 0. Rotary switch arrow at 15, the controller controls devices in Group 14.

Please refer to the detailed Group setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Group Selected	Broadcast	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Note: please assign the DALI drivers on DALI circuit to a DALI group(0-15) with DALI master controller first.

3. Set starting Scene number via rotary switch on the back: (0-15 selectable)
• This DALI push button controller enables Scene selection commands for up to four Scenes to be sent to the DALI circuit by 4 Scene buttons S1, S2, S3, S4. A rotary switch on the back is used to select Scenes you would like to control and set the starting scene number, and total 16 Scenes (0-15) can be selected.

• When the rotary switch arrow position is at X (0-15), Scene button S1 controls DALI Scene X, S2 controls DALI Scene X+1, ..., S4 controls DALI Scene X+3.

For example: Rotary switch arrow at 0, button S1 controls DALI Scene 0, S2 controls DALI Scene 1, ..., S4 controls DALI Scene 3. Rotary switch arrow at 15, button S1 controls DALI Scene 15, S2 controls DALI Scene 0, ..., S4 controls DALI Scene 2.

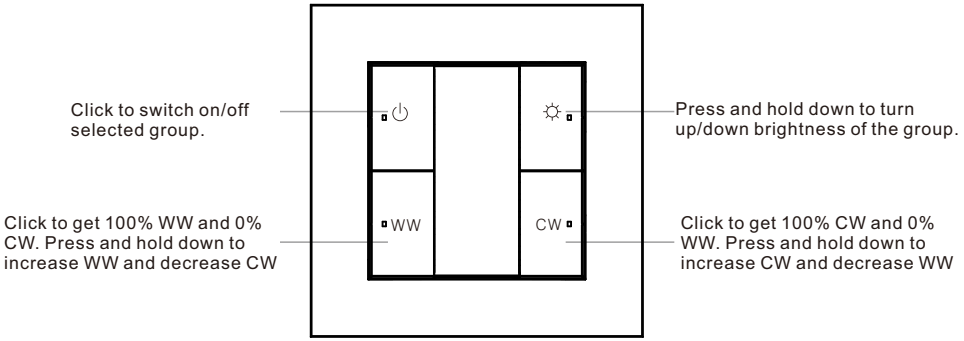
Please refer to the detailed Scene setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Scene assigned to S1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Scene assigned to S2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	0
Scene assigned to S3	2	3	4	5	6	7	8	9	10	11	12	13	14	15	0	1
Scene assigned to S4	3	4	5	6	7	8	9	10	11	12	13	14	15	0	1	2

Note: please predefine DALI scenes(0-15) to the DALI dirvers on DALI circuit with DALI master controller first.

CCT mode 0XA4 (164)

1. When set as CCT mode 0XA4, the switch will directly send DALI commands to the DALI bus, the functions are as follows:



2. Set starting Group number via rotary switch on the back: (0-15 selectable)
• This DALI push button controller enables dimming commands and DT8 commands to be sent to One Group of devices on the DALI circuit. A rotary switch on the back is used to select the DALI Group you would like to control and set the starting Group number, and total 16 Groups (0-15) can be selected.
• When the rotary switch arrow position is at 0, the controller controls all devices on DALI circuit through broadcast.
• When the rotary switch arrow position is at X except 0 (1-15), the controller controls devices in Group X-1.

For example: Rotary switch arrow at 1, the controller controls devices in Group 0. Rotary switch arrow at 15, the controller controls devices in Group 14.

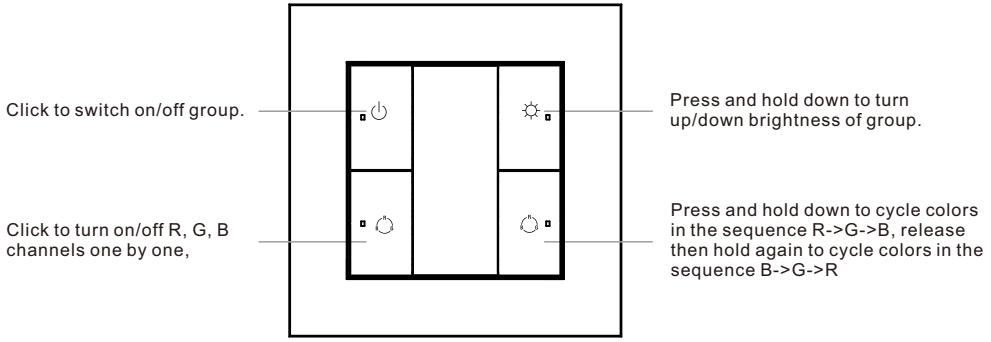
Please refer to the detailed Group setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Group Selected	Broadcast	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Note: please assign the drivers on DALI circuit to a DALI group(0-15) with DALI master controller first.

RGB mode 0XA5 (165)

1. When set as RGB mode 0XA5, the switch will directly send DALI commands to the DALI bus, the functions are as follows:



2. Set starting Group number via rotary switch on the back: (0-15 selectable)
• This DALI push button controller enables dimming commands and DT8 commands to be sent to One Group of devices on the DALI circuit. A rotary switch on the back is used to select the DALI Group you would like to control and set the starting Group number, and total 16 Groups (0-15) can be selected.
• When the rotary switch arrow position is at 0, the controller controls all devices on DALI circuit through broadcast.
• When the rotary switch arrow position is at X except 0 (1-15), the controller controls devices in Group X-1.

For example: Rotary switch arrow at 1, the controller controls devices in Group 0. Rotary switch arrow at 15, the controller controls devices in Group 14.

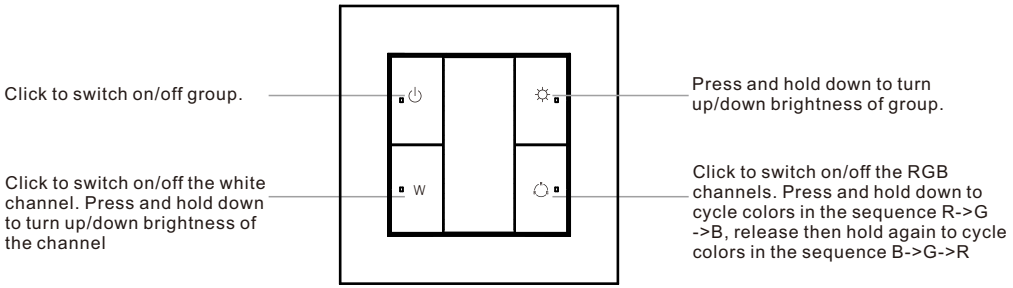
Please refer to the detailed Group setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Group Selected	Broadcast	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Note: please assign the drivers on DALI circuit to a DALI group(0-15) with DALI master controller first.

RGBW mode 0XA6 (166)

1. When set as RGBW mode 0XA6, the switch will directly send DALI commands to the DALI bus, the functions are as follows:



2. Set starting Group number via rotary switch on the back: (0-15 selectable)

• This DALI push button controller enables dimming commands and DT8 commands to be sent to One Group of devices on the DALI circuit. A rotary switch on the back is used to select the DALI Group you would like to control and set the starting Group number, and total 16 Groups (0-15) can be selected.

• When the rotary switch arrow position is at 0, the controller controls all devices on DALI circuit through broadcast.

• When the rotary switch arrow position is at X except 0 (1-15), the controller controls devices in Group X-1.

For example: Rotary switch arrow at 1, the controller controls devices in Group 0. Rotary switch arrow at 15, the controller controls devices in Group 14.

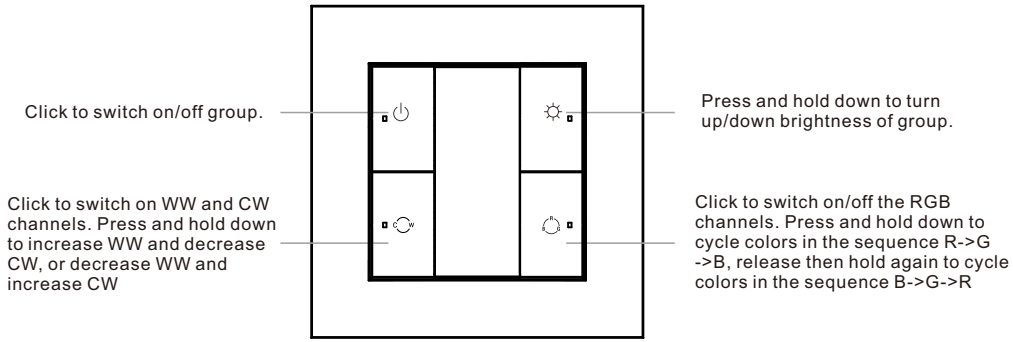
Please refer to the detailed Group setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Group Selected	Broadcast	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Note: please assign the drivers on DALI circuit to a DALI group(0-15) with DALI master controller first.

RGBWA mode 0XA7 (167)

1. When set as RGBWA mode 0XA7, the switch will directly send DALI commands to the DALI bus, the functions are as follows:



2. Set starting Group number via rotary switch on the back: (0-15 selectable)

• This DALI push button controller enables dimming commands and DT8 commands to be sent to One Group of devices on the DALI circuit. A rotary switch on the back is used to select the DALI Group you would like to control and set the starting Group number, and total 16 Groups (0-15) can be selected.

• When the rotary switch arrow position is at 0, the controller controls all devices on DALI circuit through broadcast.

• When the rotary switch arrow position is at X except 0 (1-15), the controller controls devices in Group X-1.

For example: Rotary switch arrow at 1, the controller controls devices in Group 0. Rotary switch arrow at 15, the controller controls devices in Group 14.

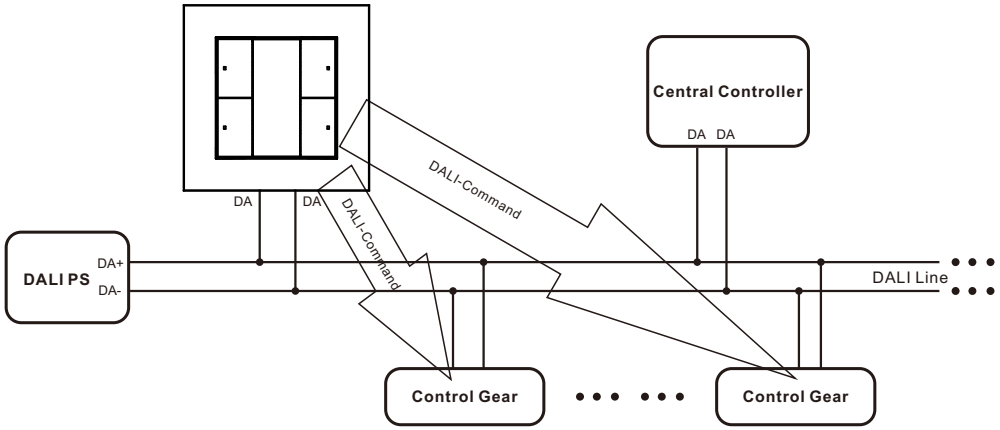
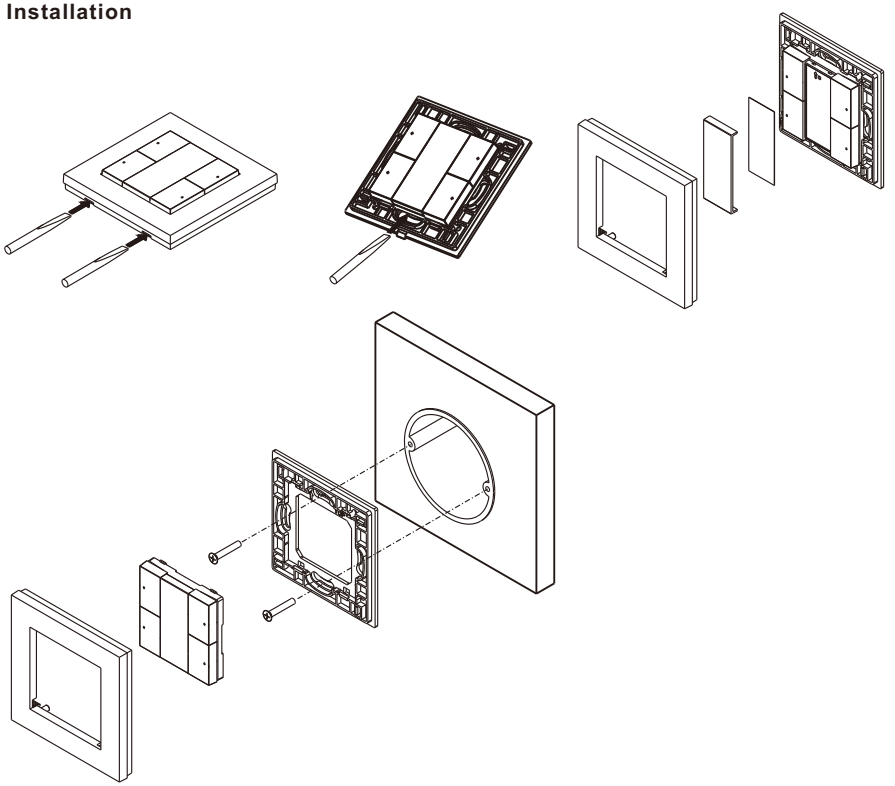
Please refer to the detailed Group setting table as follows:

Rotary Switch Position	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DALI Group Selected	Broadcast	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Note: please assign the drivers on DALI circuit to a DALI group(0-15) with DALI master controller first.

Application Diagram of Master Modes

Under DIM, CCT, RGB, RGBW, RGBWA, Scene modes, the switch will directly send DALI commands to the DALI bus.



Installation