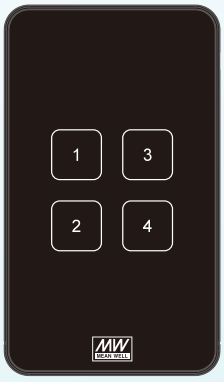
DTP-2XX series

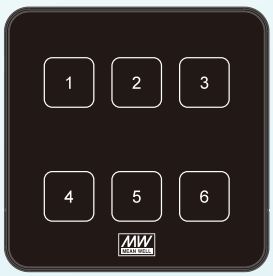
Installation Manual

DALI-2 Touch Panel (Push Button)

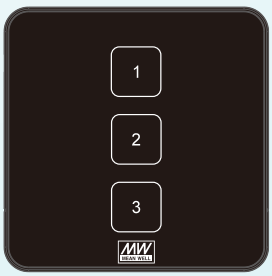
6 keys-U type



4 keys-U type



6 keys-E type



3 keys-E type

The DTP-2XX series touch panel (push button) compliant with DALI IEC 62386 standard as a DALI-2 input device, it is powered by the DALI bus and has a variety of buttons. It designs with a tempered glass and a sliding cover. The cover is easy to install and can also provide customized laser-engraved symbols. There is a built-in toggle switch to adjust the button backlight and volume, allowing users to customize settings according to their needs. This touch panel can be used with the MEAN WELL DLC-02 DALI controller, LED power supply, and various DALI sensors to form a DALI-2 digital lighting system, which can control the on/off, colour temperature, colour, brightness, scene, grouping, scheduling, and various event adjustments, thus meeting most lighting control needs.

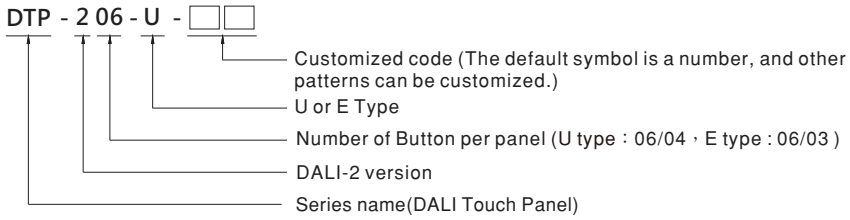
目录

1.Safety Guidelines

- This product shall be debugged and installed by qualified personnel.
- Do not install with power applied to product.
- Do not install this product in humid, high-temperature environments or areas with direct sunlight.
- Good heat dissipation conditions can extend the product's service life. Please install the product in a well-ventilated environment.
- Please check whether the working voltage used meets the product's parameter requirements.
- Carefully read the manual instructions before installation.

2.Introduction

2.1 Model Encoding



2.2 Features

- DALI-2 touch panel, Compliant with IEC 62386-101, IEC 62386-103, IEC 62386-301 and IEC 62386-332.
- Compatible for DAL1-2 controllers.
- Powered by DALI bus without additional power supply.
- Configurable functionality via MEAN WELL DLC-02 software.
- Each button can trigger multiple modes: short press/double press/long press, to trigger scene or group functions.
- Backlight brightness adjustable.
- Touch panel volume adjustable.

2.3 Specification

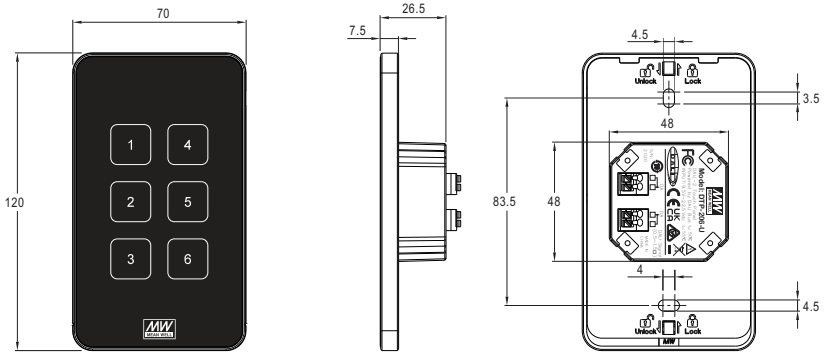
SPECIFICATION				
MODEL	**DTP-206-U**	**DTP-204-U**	**DTP-206-E**	**DTP-203-E**
NUMBER OF BUTTONS	6	4	6	3
INPUT				
INPUT VOLTAGE	DALI bus 9.5V~22.5V DC according to IEC62386 regulation			
CURRENT CONSUMPTION	Typ. Current <4mA (at 16V) Inrush Current <10mA			
START-UP TIME	300ms			
PROTOCOL	DALI-2			
FUNCTION				
DALI STANDARD	IEC62386-101, 103, 301, 332			
BUTTON EVENT	Short click, Double click, Long press			
BACKLIGHT	Three adjustable levels: high brightness, low brightness, and off			
VOLUME	Optional to turn on or off			
ENVIRONMENT				
OPERATING TEMP.	-20 ~ +50°C			
OPERATING HUMIDITY	10 ~ 93% RH; refer to EN50090-2-2			
STORAGE TEMPERATURE & HUMIDITY	-25 ~ +70°C, 10 ~ 95% RH			
SAFETY & EMC				
SAFETY STANDARD	BS EN/EN61347-1; BS EN/EN61347-2-11			
EMC EMISSON	BS EN/EN55015 ; FCC Part 15 CLASS B			
EMC IMMUNITY	BS EN/EN61547			
WITHSTAND VOLTAGE	DALI port-Case:1.5KVAC			
OTHERS				
WIRE SIZE	0.5~1.5 mm^2(AWG 20~16)			
SIZE/UNIT(L*W*H)	120 * 70 * 26.5mm		86 * 86 * 26.5mm	
PACKING	0.14Kg ; 48pcs / 6.8Kg /2.33CUFT		0.13Kg ; 48pcs / 6.4Kg / 2.33CUFT	
MATERIAL	ABS+PC(Black)			
NOTE				
1. RCM is on a voluntary basis .				

2.4 Mechanical Dimensions

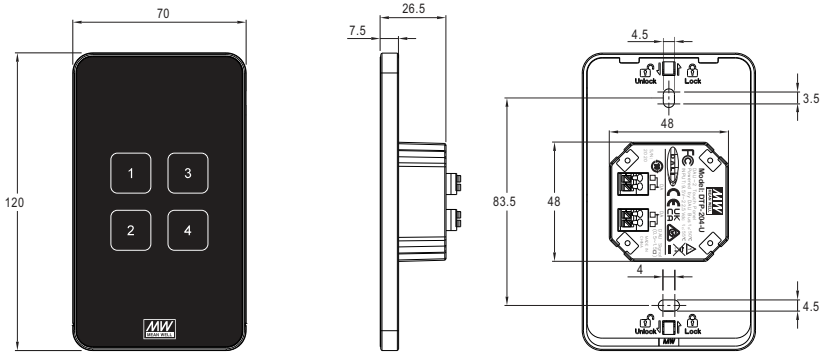
U Type :

6 Keys---Order No. : DTP-206-U

Unit:mm

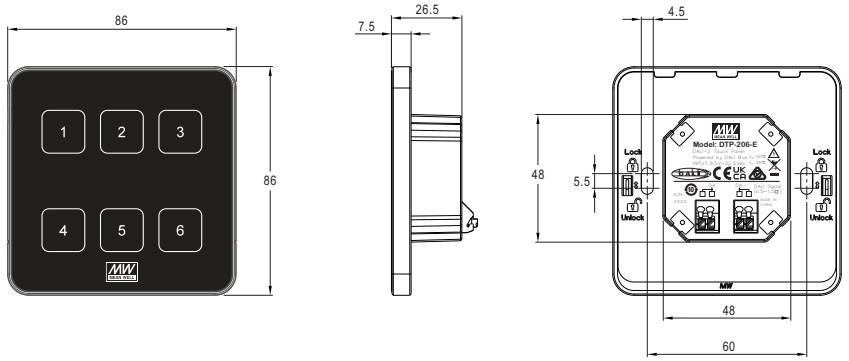


4 Keys---Order No. : DTP-204-U

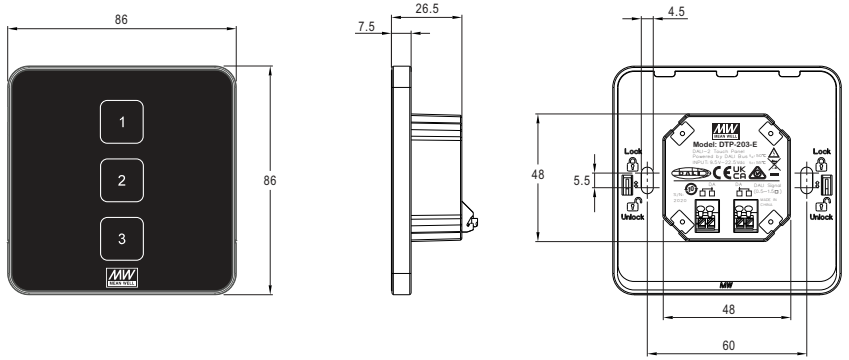


E Type :

6-Keys---Order No. : DTP-206-E



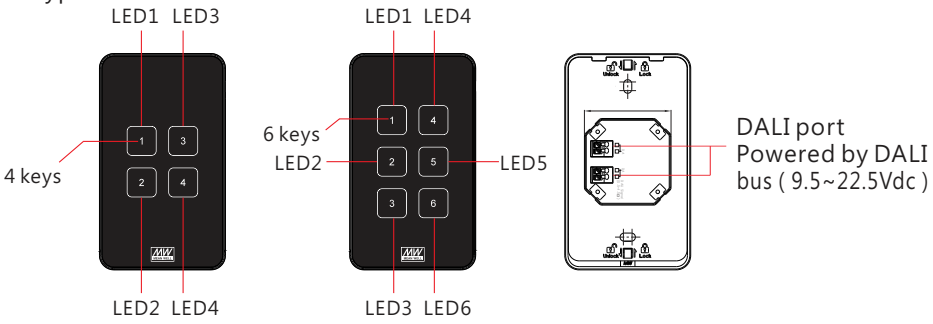
3-Keys---Order No. : DTP-203-E



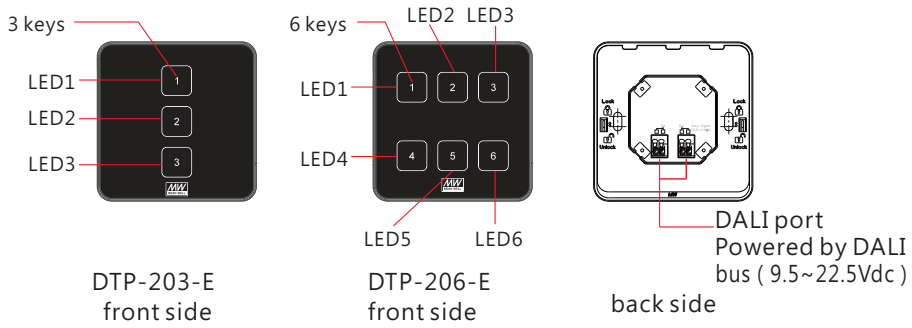
2.5 Function Description

2.5.1 Button and DALI port

U type:



E type:



The DTP-2XX series touch panels, as input devices, are integrated into lighting control systems compliant with the DALI-2 standard. When button actions occur (e.g., short press /double press /long press, etc.), different input event commands are generated. These commands can be received and responded by other controllers on the DALI bus, which then issue corresponding control commands to adjust the state of the lamps.

The button instance numbers of the DTP-2XX series are shown in Table below (in compliance with IEC 62386-301, Input Devices – Push Button).

Model	Button physical No.	DALI instance No.
DTP-203-E	1	1
	2	0
	3	2
DTP-206-E	1	5
	2	3
	3	1
	4	4
	5	2
	6	0

Model	Button physical No.	DALI instance No.
DTP-204-U	1	2
	2	0
	3	3
	4	1
DTP-206-U	1	4
	2	2
	3	0
	4	5
	5	3
	6	1

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

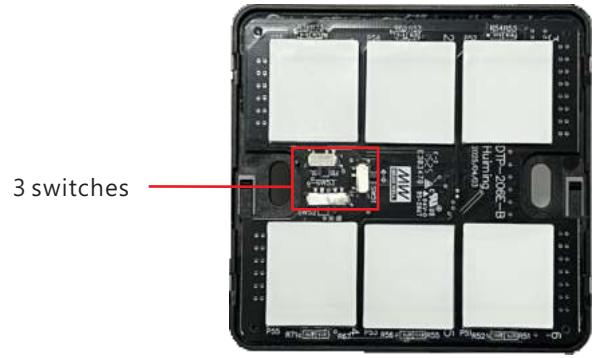
Additional instance parameters of push button such as event filter, event timings (short timer, double timer, repeat timer, stuck timer) can be configured according to the IEC 62386-301.

DALI terminals :

Connection type	Wire size	Stripping length	DALI bus voltage
Push-in	0.5~1.5mm² (AWG 20~16)	8~9mm	9.5~22.5Vdc

2.5.2 Switches

The product has three built-in switches, allowing users to adjust the panel backlight brightness and turn the buzzer on or off according to their needs.



Switch No.	Function	Description
SW51	Buzzer function setting	Turn on or off : ON(Default) : OFF
SW52	LED brightness setting	Three adjustable levels : high brightness(Default) : low brightness : OFF
SW53	LED function setting	Set the LED to backlight function or feedback function (DALI IEC 62368-332) BL：Backlight function (Default) FB：Feedback function Note：1、If the setting is changed, the panel needs to be powered on again to take effect. 2、Please refer to Chapter 2.5.3 for the feedback function

2.5.3 Feedback Functionality

The DTP-2XX series DALI-2 touch panels provide visual feedback to inform users of the lighting system's status (e.g., the on/off status of a lamps). The visual feedback is implemented by the LED indicator of each button, which turns on or off according to the feedback value.

The instance numbers of the LEDs are as follows (according to the IEC 62386-332, Input Devices - Feedback):

Model	LED physical No.	DALI instance No.
DTP-203-E	LED1	1
	LED2	0
	LED3	2
DTP-206-E	LED1	5
	LED2	3
	LED3	1
	LED4	4
	LED5	2
	LED6	0

Model	LED physical No.	DALI instance No.
DTP-204-U	LED1	2
	LED2	0
	LED3	3
	LED4	1
DTP-206-U	LED1	4
	LED2	2
	LED3	0
	LED4	5
	LED5	3
	LED6	1

Commands to activate and stop feedback:

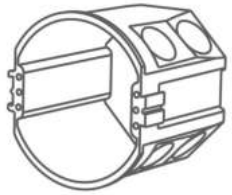
Command Name	Opcode byte
ACTIVATE FEEDBACK	0X10
STOP FEEDBACK	0X11

Feedback variables and additional commands such as feedbackActive, feedbackTiming, feedbackActiveBrightness, feedbackActiveColour, feedbackInactiveBrightness and feedbackInactiveColour can be configured according to IEC 62386-332.

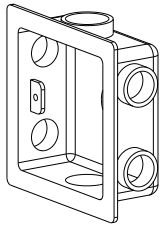
3.Installation

Please install with the touch panel powered off.

①Install an electrical junction box in the wall

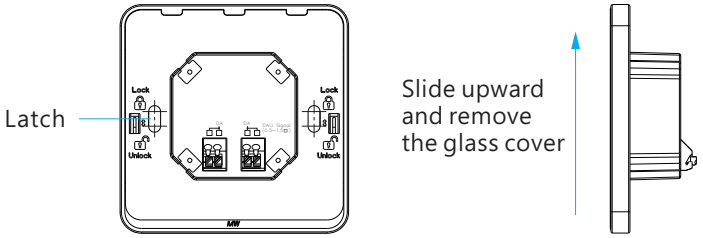


European style



86 type

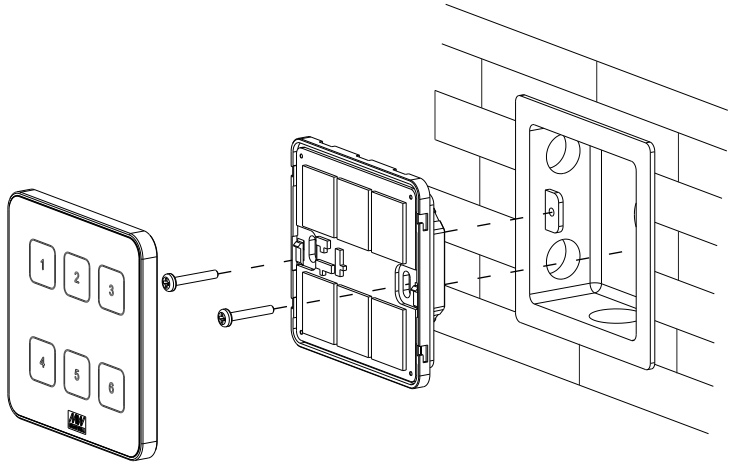
②Slide the glass cover upward and remove both the glass cover and the back cover



③Connect the DALI signal cable to the DA terminal on the back cover

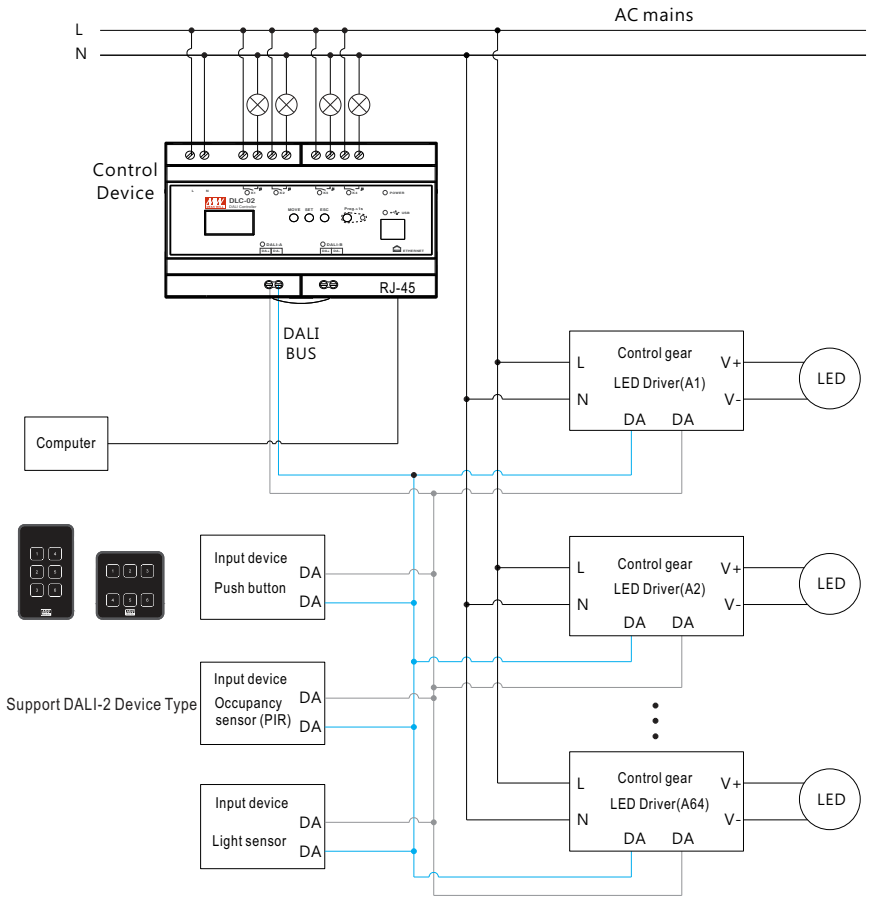
④Put the back cover on the electrical box and fit it with the screws

⑤Snap the glass cover onto the back cover, slide it downward to fix it, and complete the installation



4.Wiring Diagram

- DALI-2 Digital Lighting System Wiring Diagram (MEAN WELL DLC-02 controller has a built-in DALI bus power)



- MEAN WELL DLC-02 controller, each channel can be connected up to 12 input devices. But the maximum number of input devices that can be connected is determined by the DALI bus power and operating current of the input device. For example, when 64(Lamps) LED drivers (2mA) are connected, the maximum remaining applicable current on the DALI bus is 250mA - (2mA x 64) = 122mA. If the current requirement of the input device is 10mA, then up to 12 input devices can be connected.

Please refer to DLC-02 manual:
https://www.meanwell.com/Upload/PDF/DLC-02-E.pdf

5.Application examples

The DTP-2XX series touch panel input devices, combined with the MEAN WELL DLC-02 application controller and LED driver, form a DALI-2 digital lighting system. By using the DLC-02 PC software to scan the input devices and lamps on the DALI bus and configure parameters and effects, it is possible to achieve the control of DALI lamps' on/off, brightness, colour, groups, scenes, and various events, meeting daily lighting control needs.

Here is the relevant reference material link:
DLC-02 Manual:
https://www.meanwell.com/Upload/PDF/DLC-02-E.pdf

DLC-02 PC software：

https://www.meanwell.com/Upload/PDF/DLC-02/DLC-02-SOP-E.pdf

5.1 "Group On/Off/Dimming" example

Taking office lighting as an example, the conference room is equipped with 4 DALI-2 panel lights, divided into 2 groups. The touch panel buttons are used to control the lighting changes of these 2 groups respectively.

(1) MEAN WELL DALI-2 Devices and Application Software

A、Four DT6-type LED drivers, model: XLC-60-H-DA2

B、One 3-buttons DALI-2 touch panel, model: DTP-203-E

C、One DALI-2 controller, model: DLC-02

D、DLC-02 PC software

Note: For wiring diagram, please refer to the instructions in Chapter 4.

(2) Lamps grouping settings

A、LED 1~2：Group 1

B、LED 3~4：Group 2

C、LED 1~4：Group 3

(3) Effect Settings

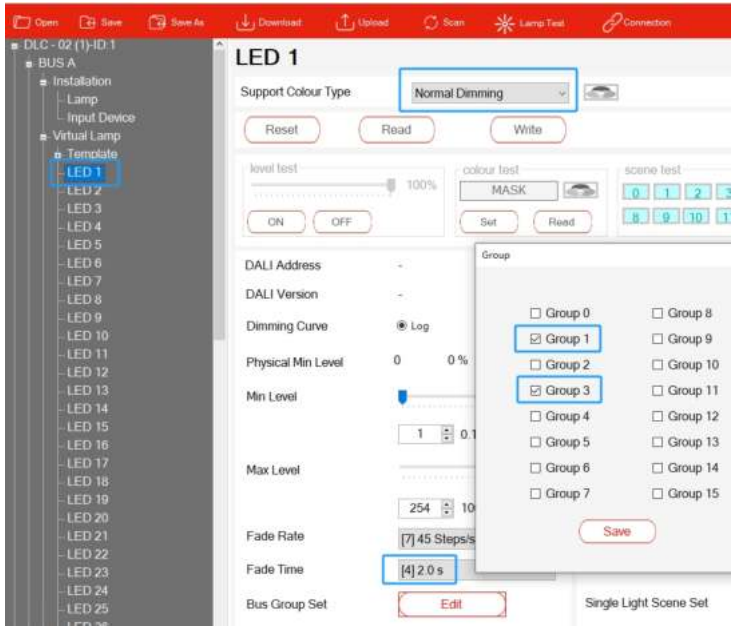
Button No	Controlled object	Trigger Mode	Effect Description
1	Group 1	Short press	ON(100%)/OFF(0%)
		Double press	50% brightness
		Long press	Adjust brightness up/down
2	Group 2	Short press	ON(100%)/OFF(0%)
		Double press	50% brightness
		Long press	Adjust brightness up/down
3	Group 3	Short press	ON(100%)/OFF(0%)
		Double press	50% brightness
		Long press	Adjust brightness up/down

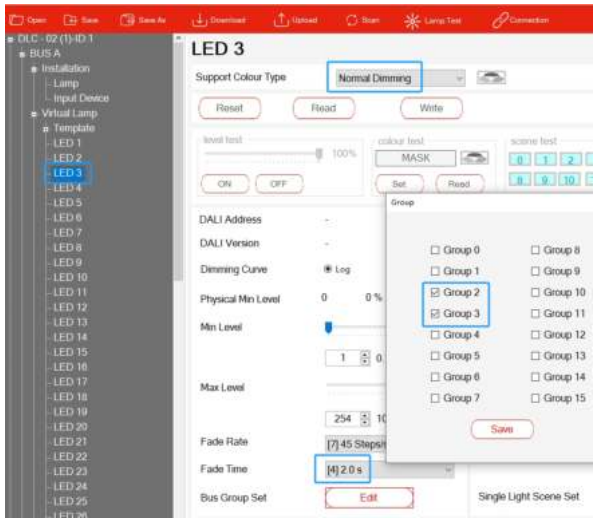
(4) The implementation steps are as follows (Steps 1 to 3 can be configured offline, and Steps 4 to 5 require connecting to DALI devices for online operation):

Step 1: Set parameters such as virtual lamp type, group, and fade time
In the "Installation" interface of the DLC-02 software, DALI parameters for lamps and input devices can be set.

Operation Details:

- Select **LED 1** under virtual lamp, set the colour type to **Normal Dimming**, and set the fade time to **2 seconds**.
- Click **Bus Group Set - Edit**, check **Group 1** and **Group 3**, and click **Save** to complete the setting.
- Using the same method: For **LED 2**, **LED 3**, and **LED 4**, set the colour type to **Normal Dimming** and the fade time to **2 seconds**. Add **LED 2** to **Group 1 and Group 3**. Add **LED 3 and LED 4** to **Group 2 and Group 3**.

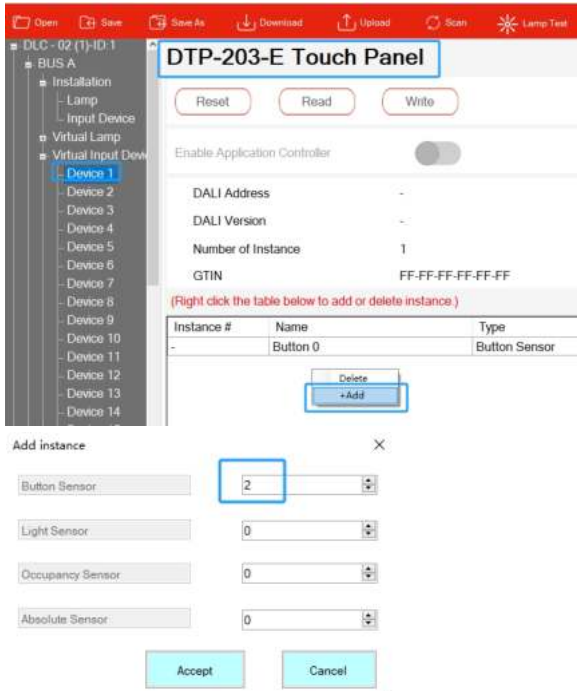




Step 2: Add and configure virtual input device instances

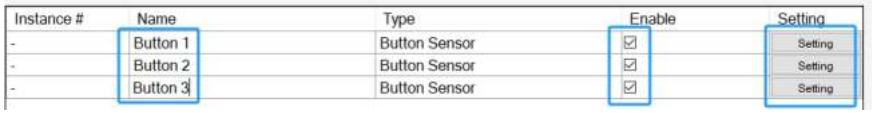
※Add input device instances

Select **Device 1** under virtual input device. You can customize its name to "**DTP-203-E Touch Panel**". This virtual input device defaults to button sensor type with **1 button instance**. Right-click on the blank area of the instance table, select "**+Add**", and add **2 more button instances**.

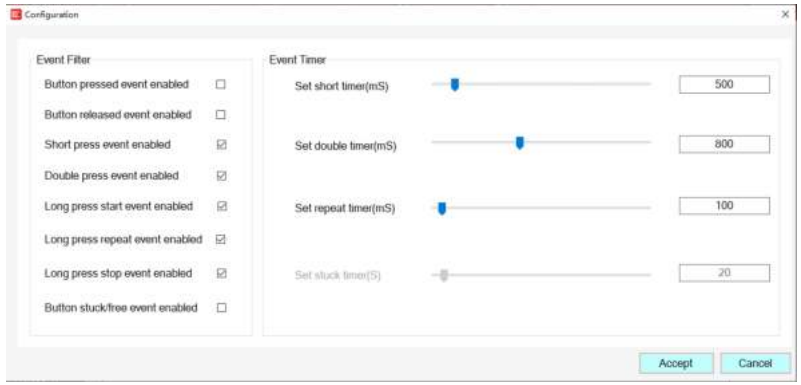


※Configure the input device instance

Rename the three buttons as **Button 1**, **Button 2**, and **Button 3** (corresponding to the three physical buttons on the DTP-203-E). Check **Enable** for all buttons to activate them. Then click the **Setting** option to configure the button functions.



As shown in the figure below, check the event filters related to "**Short Press**", "**Double Click**" and "**Long Press**", and set the event timer.

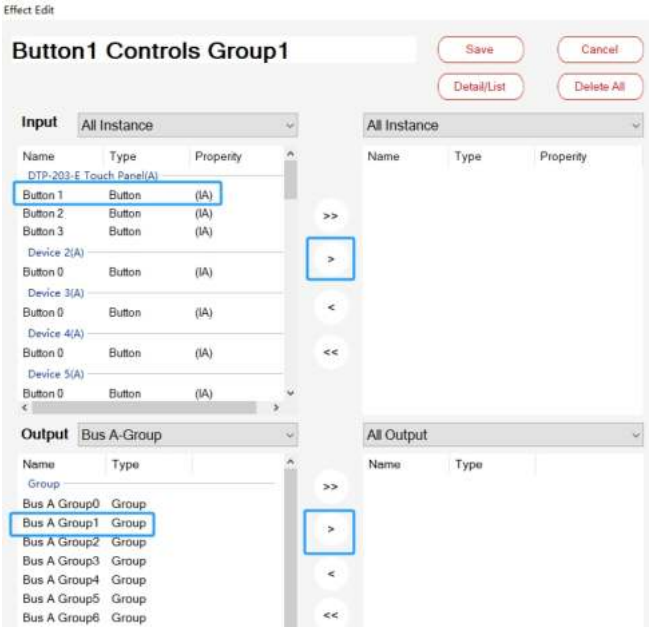


Note: For parameter descriptions of the input device, please refer to Section 4.3.3.4 of the DLC-02 Manual.

Step 3: Effect Configuration

The control logic between input devices (buttons) and lamp groups will be configured in the "**Effects**" interface. Click "**+Add**" to create an effect:

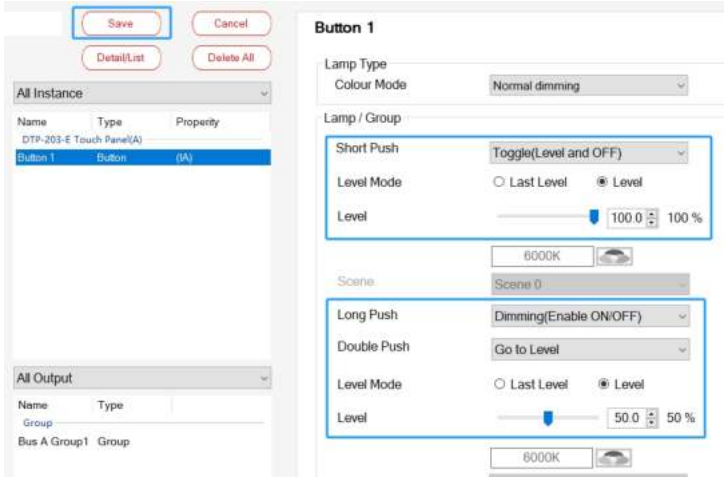
Rename the effect as "Button1 Controls Group1", and move "**Button 1**" in the input area and "**Bus A Group 1**" in the output area to the right selection area.



Select "**Button 1**", and under the "**Lamp/Group**" section:

- For "**Short Push**": Select "**Toggle (Level/Off)**" and set the level to "**100%**".
- For "**Long Push**": Select "**Dimming (Enable ON/OFF)**".
- For "**Double Push**": Select "**Go to Level**" and set the level to "**50%**".

Click "**Save**" to complete the configuration of the control effect between "**Button 1**" and "**Bus A Group 1**".



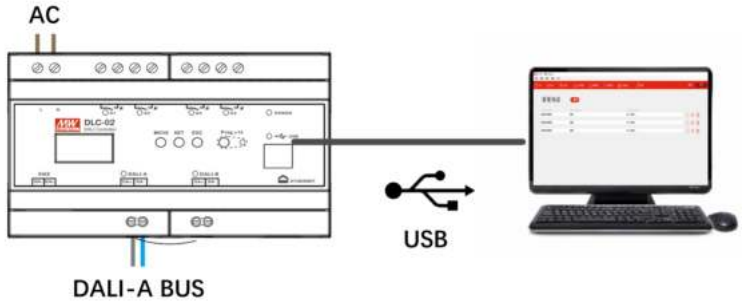
Continue to add two more effects. Refer to the configuration method for Button 1 above to complete the configuration of the control effects for "**Button 2**" and "**Bus A Group 2**", as well as "**Button 3**" and "**Bus A Group 3**".

A total of three effects will be configured, as shown in the figure below:

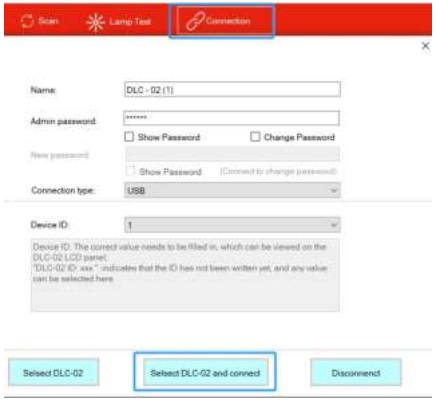
Step 4:Pair Virtual Lamps and Input Devices with Actual Lamps and Input Devices

※Device Scanning

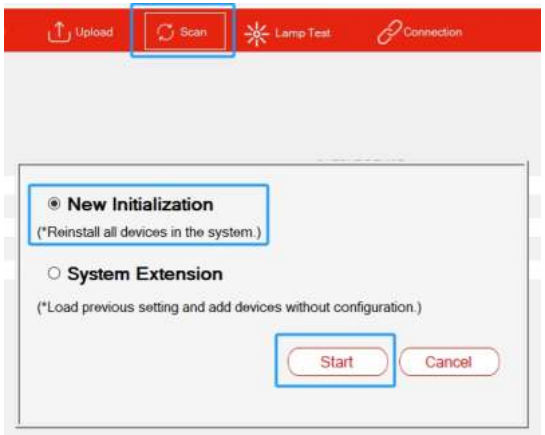
Connect the 4 XLC-60-H-DA2 lamps and 1 DTP-203-E input device in the conference room to the DALI-A bus of the DLC-02, then power on the AC supply. Use a USB cable to connect the computer to the USB port of the DLC-02.



On the DLC-02 PC software, click "**Connection**" to establish communication between the computer and the DLC-02.

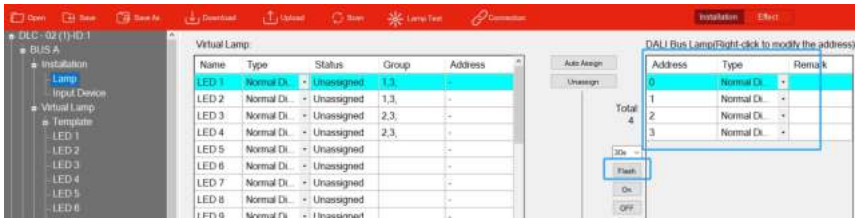


Then click "**Scan – New Initialization**" to scan for DALI devices online.



※Pair Virtual Lamps with Actual Lamps:

After device scanning is completed, click "**Bus A - Installation - lamp**". There are 4 Lamps on DALI Bus A. Select a lamp by its DALI address and click "**Flash**" for testing to locate the actual position of the lamp.



According to the actual positions of the lamps, use the mouse to select the DALI lamps on the right area, and drag them to the corresponding positions of the Virtual Lamp on the left area to complete the pairing.

※Pairing Virtual Input Devices with Actual Input Devices

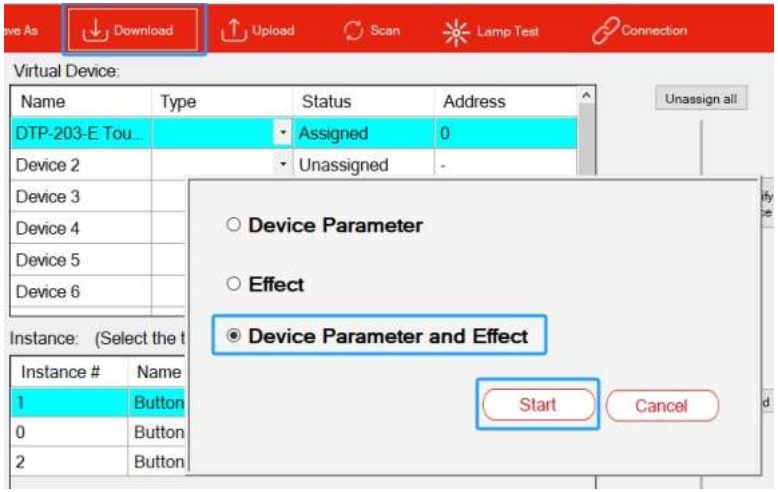
After completing device scanning, click "**Bus A - Installation - Input Device**". There is 1 input device on DALI Bus A. Select the device, and 3 button instances of the device will be displayed in the lower-right corner.

Use the mouse to select the instance number on the right area and drag it to the Virtual Device Instance position on the left area to complete the button pairing.

Instance 1, Instance 0, and Instance 2 are paired with Button 1, Button 2, and Button 3 respectively.

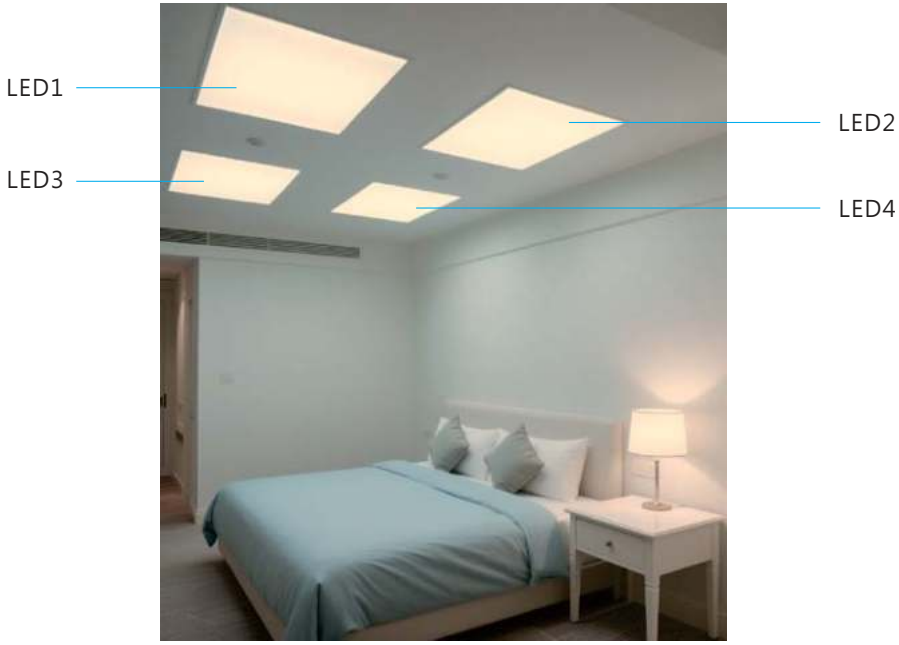
Note: For the button instance numbering table of DTP-203-E, please refer to Section 2.5.1.

Step 5: Finally, click "**Download – Device Parameter and Effect**" to download all device parameters and effect configurations to the lamps, input devices, and the DLC-02 controller. After the download is complete, you can use the DTP-203-E touch panel to control the lighting changes in the conference room.



5.2 "Colour Temperature/Scene" Example

Take hotel lighting as an example. The room is equipped with 4 tunable colour temperature panel lamps. The first 3 buttons of the touch panel are set to correspond to 3 scene modes respectively: Conversation Mode, Reading Mode, and Rest Mode. The 4th button controls the on/off of all 4 lamps simultaneously. Guests can quickly switch between different lighting scene according to their needs.



(1) MEAN WELL DALI-2 Devices and Application Software

A、Four tunable white LED drivers, model: LCM-40TW

B、One 4-buttons DALI-2 touch panel, model: DTP-204-U

C、One DALI-2 controller, model: DLC-02

D、DLC-02 PC software

Note: For wiring diagram, please refer to the instructions in Chapter 4.

(2) Lamps grouping and scene settings

A、LED 1~LED 4：Group 0

B、Conversation Mode: Scene 0, Group 0 brightness is 100% and colour temperature is 6500K

C、Reading Mode: Scene 1, Group 0 brightness is 80% and colour temperature is 4500K

D、Rest Mode: Scene 2, Group 0 brightness is 10% and colour temperature is 3000K

E、Light On/Off：
On: Group 0 brightness is 100% and colour temperature is 6500K
Off: Group 0 brightness is 0%

(3) Effect Settings

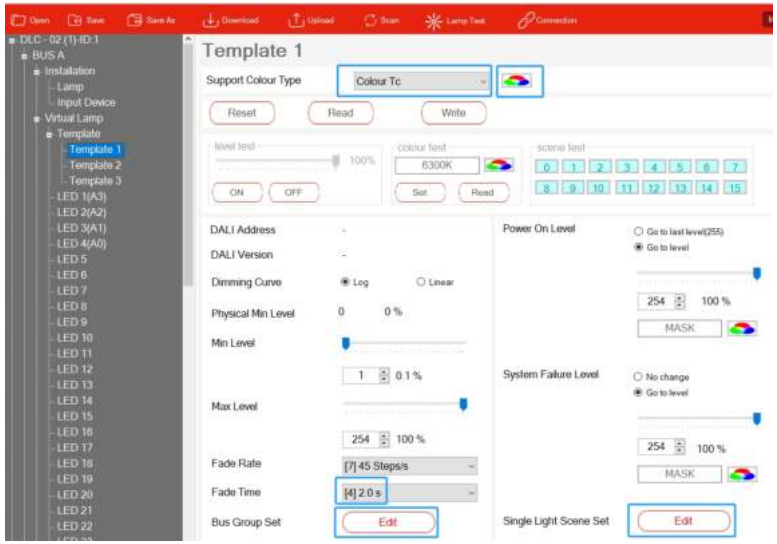
Button No	Controlled object	Trigger Mode	Effect Description
1	Group 0	Short press	Trigger Scene 0: Conversation Mode (Brightness: 100%, Colour Temperature: 6500K)
2			Trigger Scene 1: Reading Mode (Brightness: 80%, Colour Temperature: 4500K)
3			Trigger Scene 2: Rest Mode (Brightness: 10%, Colour Temperature: 3000K)
4			On (100%/6500K) , off (0%)

(4) The implementation steps are as follows (Steps 1 to 3 can be configured offline, and Steps 4 to 5 require connecting to DALI devices for online operation):

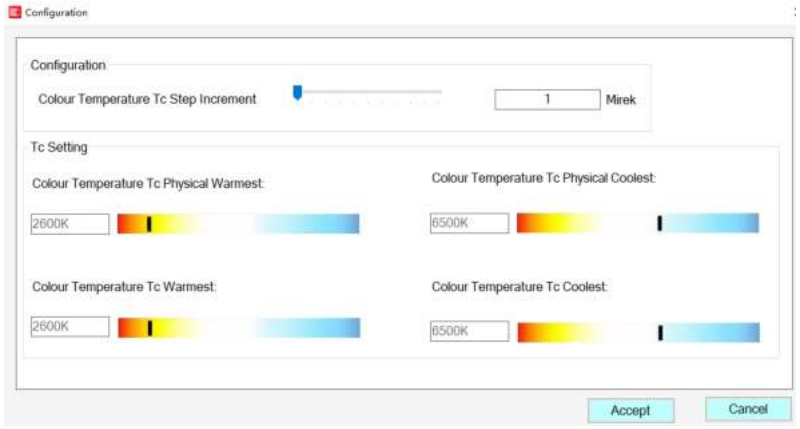
Step 1: Set parameters such as virtual lamp type, fade time, group and scene

In the "Installation" interface of the DLC-02 software, DALI parameters for lamps and input devices can be set. These four lamps will be configured with the same DALI parameters, so the **Template** function can be used to configure all four lamps at once.

Click "**Bus A - Virtual Lamp - Template 1**". In this template 1, set the colour type to **Colour Tc** and set the fade time to **2 seconds**.



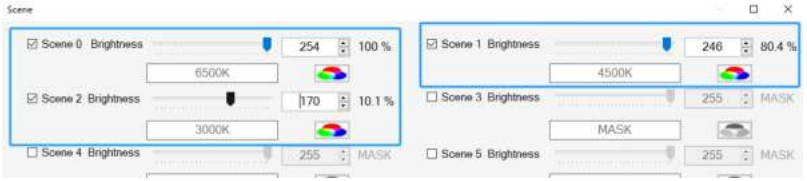
Click the colour icon and set the lamp colour temperature range to 2600–6500K (this colour temperature range is the specification of the LCM-40TW driver).



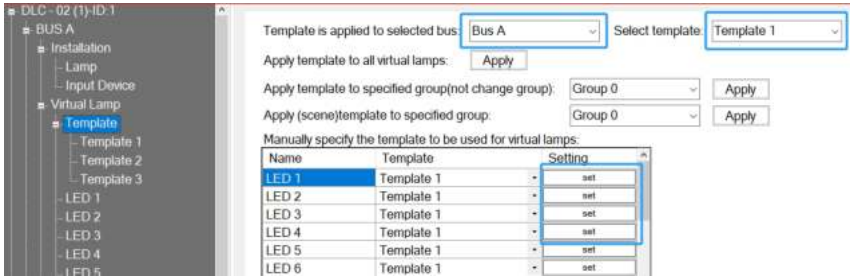
Click **Bus Group Set - Edit**, check **Group 0**.

Click "**Single Light Scene Set - Edit**" and set the brightness and colour temperature for "**Scene 0**", "**Scene 1**", and "**Scene 2**" respectively as shown in the figure below:

- **Scene 0**: Brightness 100%, colour temperature 6500K (corresponding to Conversation Mode);
- **Scene 1**: Brightness 80%, colour temperature 4500K (corresponding to Reading Mode);
- **Scene 2**: Brightness 10%, colour temperature 3000K (corresponding to Rest Mode).



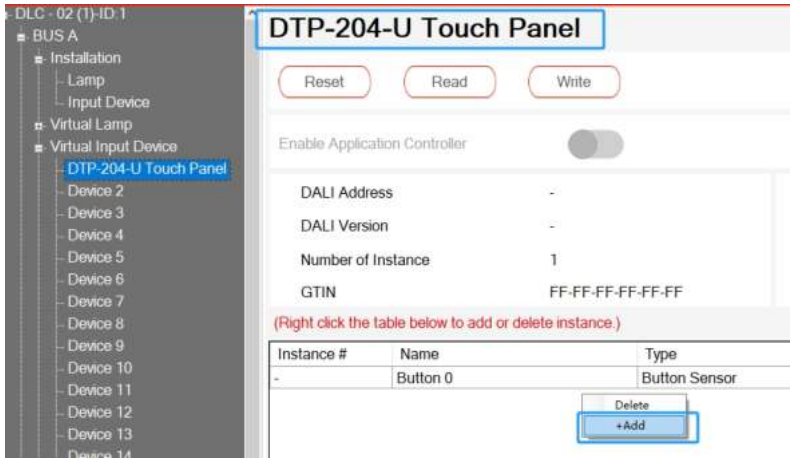
After the above parameter settings, click "**Bus A - Virtual Lamp - Template**", select **Bus A** and the "**Template 1**". In the **virtual lamps table** below, click "**set**" at LED 1 to LED 4 to complete the lamp parameter configuration.

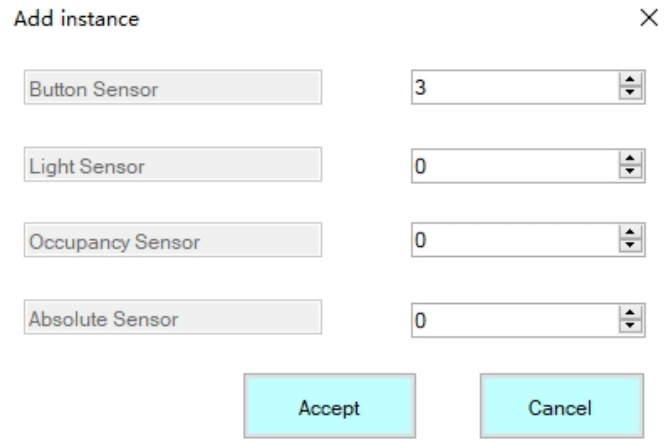


Step 2: Add and configure virtual input device instances

※Add input device instances

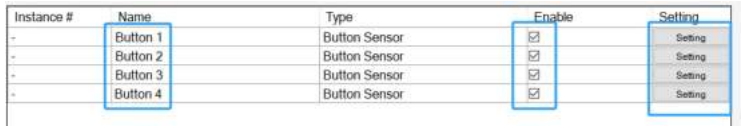
Select **Device 1** under virtual input device. You can customize its name to "**DTP-204-U Touch Panel**". This virtual input device defaults to **button sensor type** with **1 button instance**. Right-click on the blank area of the instance table, select "**+Add**", and add **3 more button instances**.



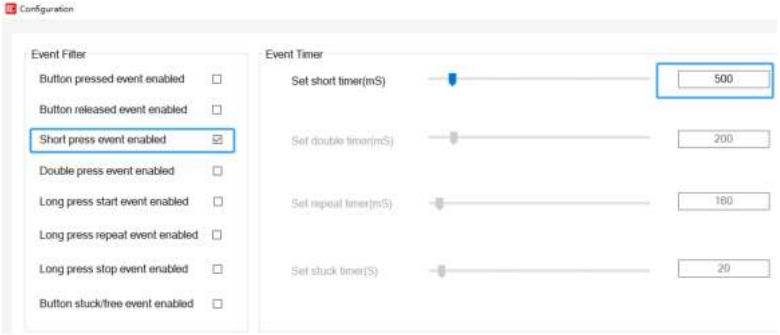


※Configure the input device instance

Rename the four buttons as **Button 1**, **Button 2**, and **Button 3** and **Button 4** (corresponding to the four physical buttons on the DTP-204-U). Check **Enable** for all buttons to activate them. Then click the **Setting** option to configure the button functions.



As shown in the figure below, check the **Short press event enabled**, and set the short press time to 500ms.

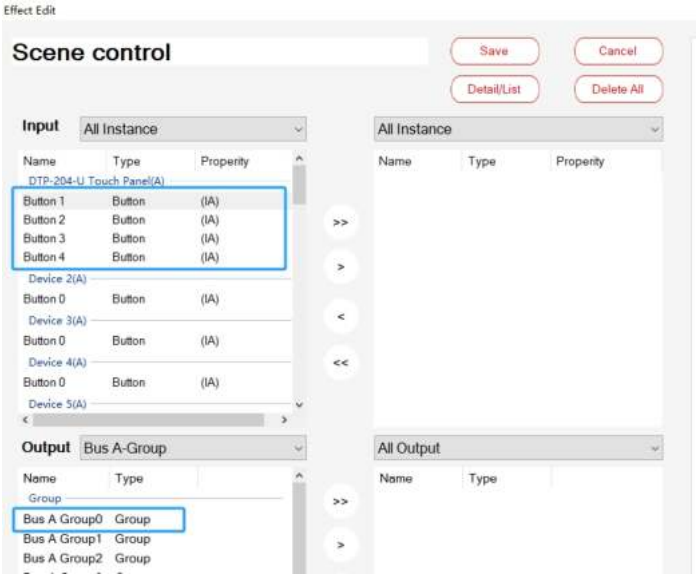


Note: For parameter descriptions of the input device, please refer to Section 4.3.3.4 of the DLC-02 Manual.

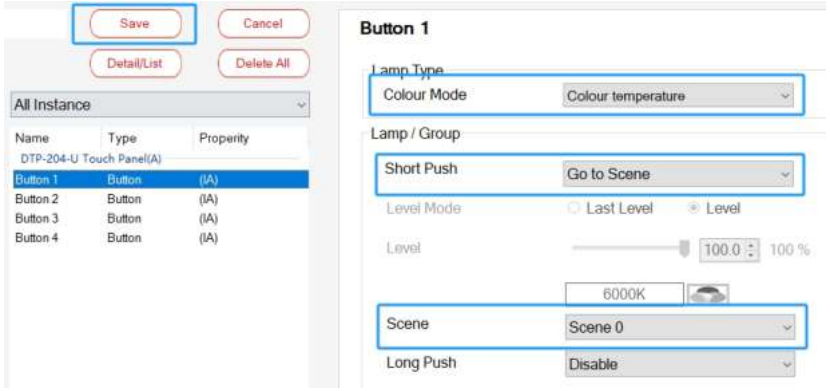
Step 3: Effect Configuration

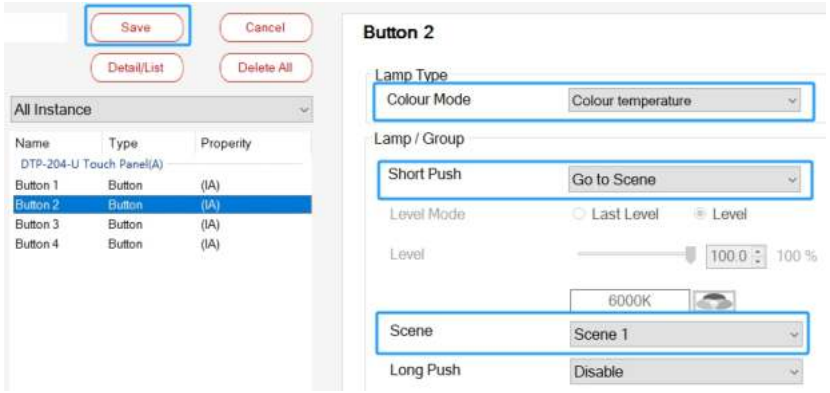
The control logic between input devices (buttons) and lamp groups will be configured in the "**Effects**" interface. Click "**+Add**" to create an effect:

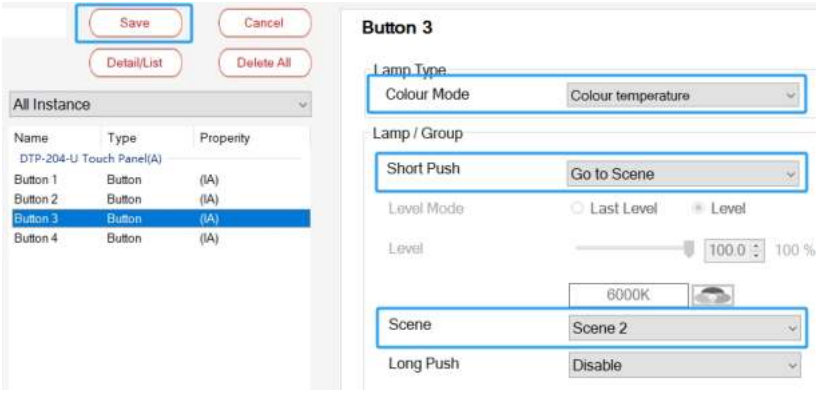
Rename the effect as "Scene control", and move "**Button 1**" to "**Button 4**" in the input area and "**Bus A Group 0**" in the output area to the right selection area.

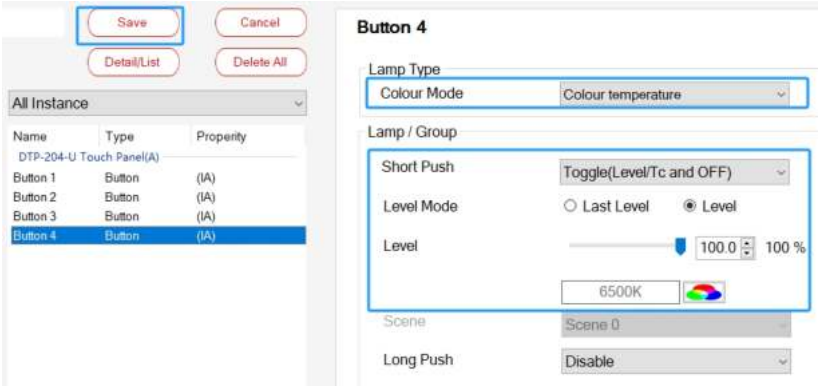


As shown in the figure, configure the control parameters for **Button 1** to **Button 4** respectively (including controlled lamp colour type, short-press execution effects, scene, brightness, colour temperature and other parameters). Click "Save" to complete the effect configuration.





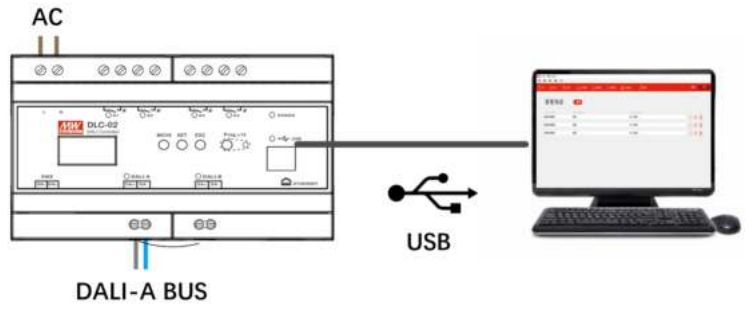




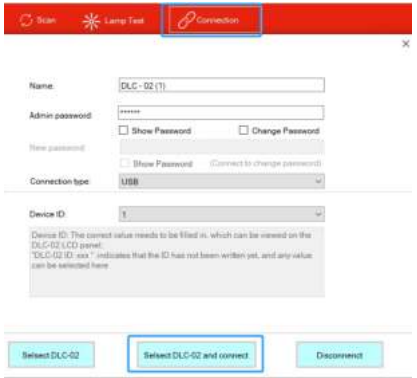
Step 4:Pair Virtual Lamps and Input Devices with Actual Lamps and Input Devices

※Device Scanning

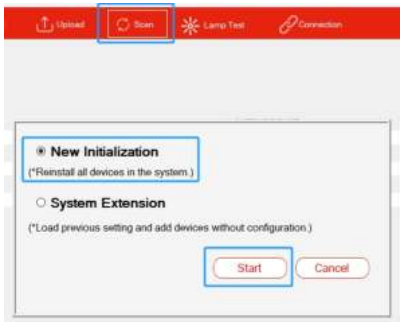
Connect the 4 LCM-40TW lamps and 1 DTP-204-U input device in the hotel room to the DALI-A bus of the DLC-02, then power on the AC supply. Use a USB cable to connect the computer to the USB port of the DLC-02.



On the DLC-02 PC software, click "**Connection**" to establish communication between the computer and the DLC-02.

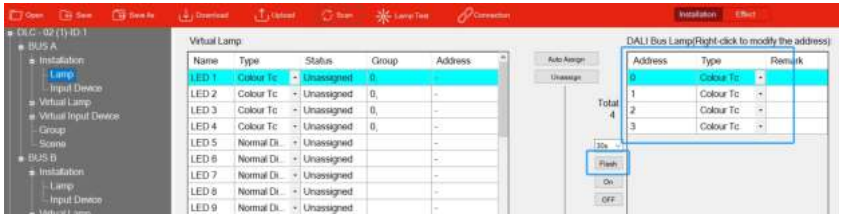


Then click "**Scan – New Initialization**" to scan for DALI devices online.



※Pair Virtual Lamps with Actual Lamps:

After device scanning is completed, click "**Bus A - Installation - lamp**". There are 4 Lamps on DALI Bus A. Select a lamp by its DALI address and click "**Flash**" for testing to locate the actual position of the lamp.



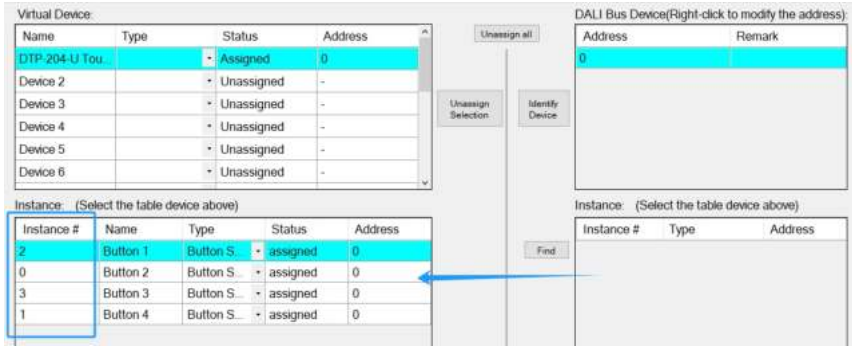
According to the actual positions of the lamps, use the mouse to select the DALI lamps on the right area, and drag them to the corresponding positions of the Virtual Lamp on the left area to complete the pairing.

※Pairing Virtual Input Devices with Actual Input Devices

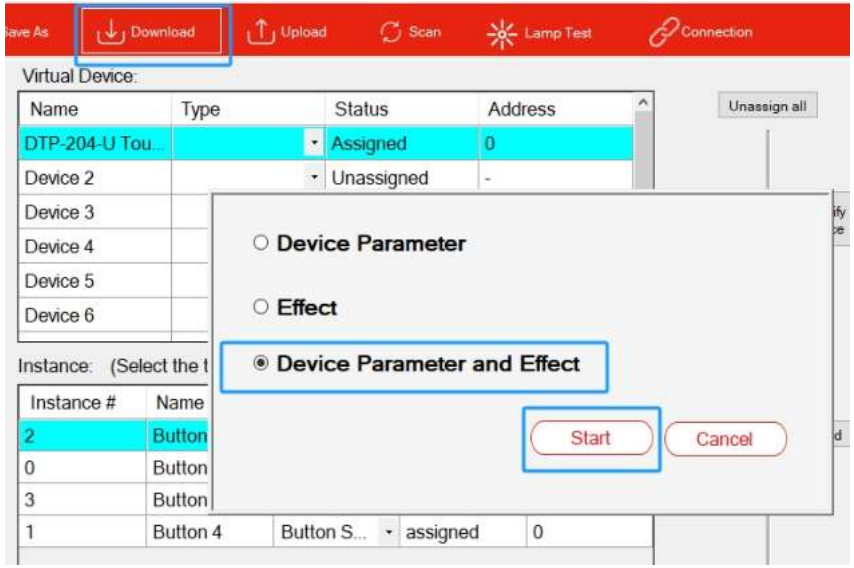
After completing device scanning, click "**Bus A - Installation - Input Device**". There is 1 input device on DALI Bus A. Select the device, and 4 button instances of the device will be displayed in the lower-right corner.

Use the mouse to select the instance number on the right area and drag it to the Virtual Device Instance position on the left area to complete the button pairing.
Instance 2, Instance 0, Instance 3 and Instance 1 are paired with Button 1, Button 2, Button 3 and Button 4 respectively.

Note: For the button instance numbering table of DTP-204-U, please refer to Section 2.5.1.



Step 5: Finally, click "**Download – Device Parameter and Effect**" to download all device parameters and effect configurations to the lamps, input devices, and the DLC-02 controller. After the download is complete, you can use the DTP-204-U touch panel to trigger the lighting scenes in the room.



6.Button pattern customization

Customers can customize button patterns according to actual needs. Please refer the patterns below or provide your own patterns, then our factory can produce by laser engraving. Please contact sales for detailed customization procedures.
(Size must be ⩽ 16.5*16.5 mm)

7.Warranty

This product provides five years warranty under normal usage. Do not replace parts or any form of modification to the product in order to keep the warranty effectively.

※MEAN WELL possesses the right to adjust the content of this manual. Please refer to the latest version of our manual on our website. https://www.meanwell.com

MEAN WELL WEB

8.Environmental declaration information

https://www.meanwell.com//Upload/PDF/RoHS_PFOS.pdf
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https://www.meanwell.com//Upload/PDF/Declaration_RoHS-E.pdf

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