DA1 Controller

DALI DA1 Controller Installation Guide
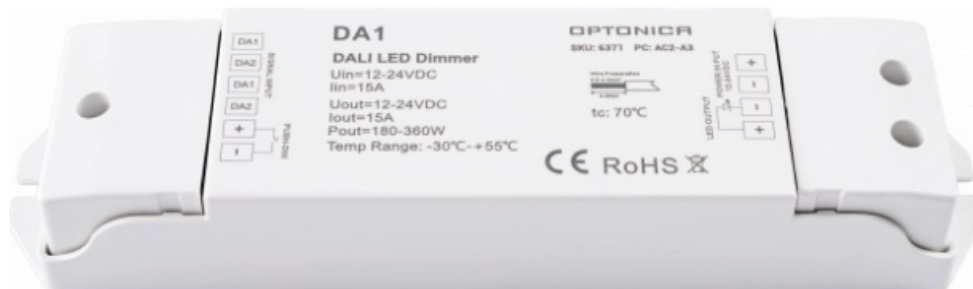
Contents

DALI DA1 Controller

Specifications

- **Product Name:** DALI Controller
- **Material:** Copper, Aluminium

- **Output Power:** 1.25 times the total output power of all connected light strips
- **Compatibility:** Constant voltage type

Product Usage Instructions

- Understand the DALI system architecture.
- Select the appropriate DALI controller based on the application scenario.
- Connect the DALI controller, DALI master control panel, and DALI bus power supply to the same DALI bus.
- Connect and label the switching power supply and light strip to the DALI controller.
- Address assignment can be performed by manually setting the digital tube. For example, display A00, where the DALI address is 00.
- DALI constant voltage controllers require a switching power supply to power them. Ensure the output voltage of the switching power supply matches the supply voltage of the light strip.
- The host computer sets the address, group, scene, and system parameters of each DALI constant voltage controller.
- DALI signal wire has no plus-minus polarity requirement.
- Avoid stacking products to maintain proper heat dissipation.
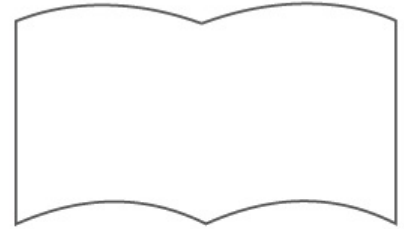 Maintain a distance of 10cm between products.

FAQ

- **Q:** Can I directly connect an AC input class DALI controller/dimming driver to mains power?
- **A:** Yes, AC input class DALI controllers can be directly connected to mains power without the need for a switching power supply.
- **Q:** How do I assign the DALI address for controllers with set buttons and display screens?
- **A:** The DALI address can be assigned manually or automatically by the DALI host computer for controllers with set buttons and display screens.

General

- DALI Protocol (digital addressable lighting interface) is the international standard lighting control communication protocol, with group dimming, addressing dimming, a variety of scene mode settings and other powerful dimming functions, through two-way data exchange to monitor and control each device.
- SKYDANCE is one of the DALI Alliance (DiiA) Members and some products such as DA1, DA4, and DH have passed DALI2 certification.
- Our DALI series products include DALI constant voltage LED dimmers, DALI constant current LED dimmers, DALI AC switches, DALI triac dimmers, DALI 0/1- 10V converters and DALI dimming constant voltage/current drivers and various types of DALI master controller, and so on, follow the IEC62386 standard and can be connected to any device conforming to DALI protocol on the same bus control.

Packing List

DALI controller (optional)
1 pcs

User manual
1 pcs

Outsourced parts

| Switching power supply | DALI master | DALI host computer | Signal wire (cuts required) | Power wire (cuts required) | Single color LED strip |

Notes:

1. The output voltage of the switching power supply must be the same as the supply voltage of the light strip, and the output power of the switching power supply ≥ 1.25 times the total output power of all the connected light strips

2. When the controller is dimmed, the switching power supply may emit noise that can be heard by the human ear (20~20KHz), and it is recommended to use the glue-filling switching power supply in places with noise requirements.

3. The controller is a constant voltage type, for the switching type constant voltage/constant current conversion lamps, not guaranteed adaptation, dimming process may flicker, subject to actual measurement, the maximum access power of such lamps can not be higher than 50% of the rated power of the controller, otherwise, it is easy to cause damage to the controller.
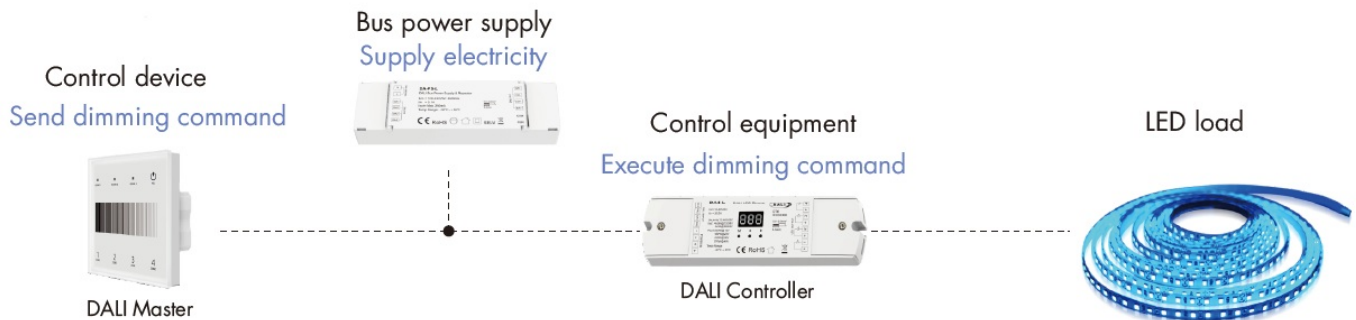
Wire selection:

- Wire (signal wire) can choose copper wire or aluminum wire, the cross-sectional area is 1.5mm²,
- Example: Copper wire diameter > 2mm ² can reach the maximum transmission distance, < 1.5mm ² will have a serious impact.
- When needing to increase DALI signal transmission distance, it is recommended to choose a wire with a cross-sectional area of 1.5mm² or more..
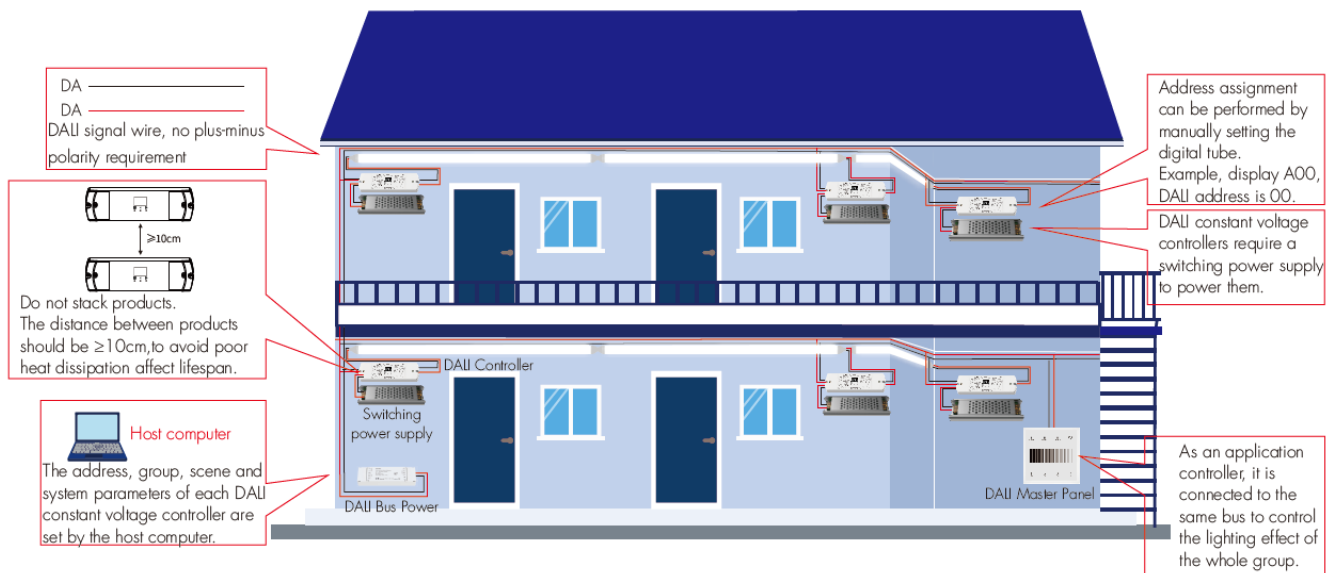
Material	Copper						
Wire diameter (mm²)	0.14	0.50	0.75	1.00	1.50	2.00	2.50
Max. distance (m)	31	112	168	224	300	300	300
Material ²	Aluminium . . .						
Wire diameter (mm)	0 14	0 50	0 75	1.00	1.50	2.00	2.50
Max. distance (m)	19	68	102	136	205	273	300

Installation steps

- Understand the DALI system architecture, according to the application scenario, and select the appropriate DALI controller.
- DALI controllers include constant voltage series, constant current series, triac series, 0/1-10V series, and AC switch.
- The DALI controller is responsible for executing dimming commands in the light control system, which can be matched by users according to their needs.
- **Example:** TD1-4S as a DALI master, DA-PS-L as a bus power supply, and DA4-L as a control unit connecting power supply and light strip to form a simple light control system.
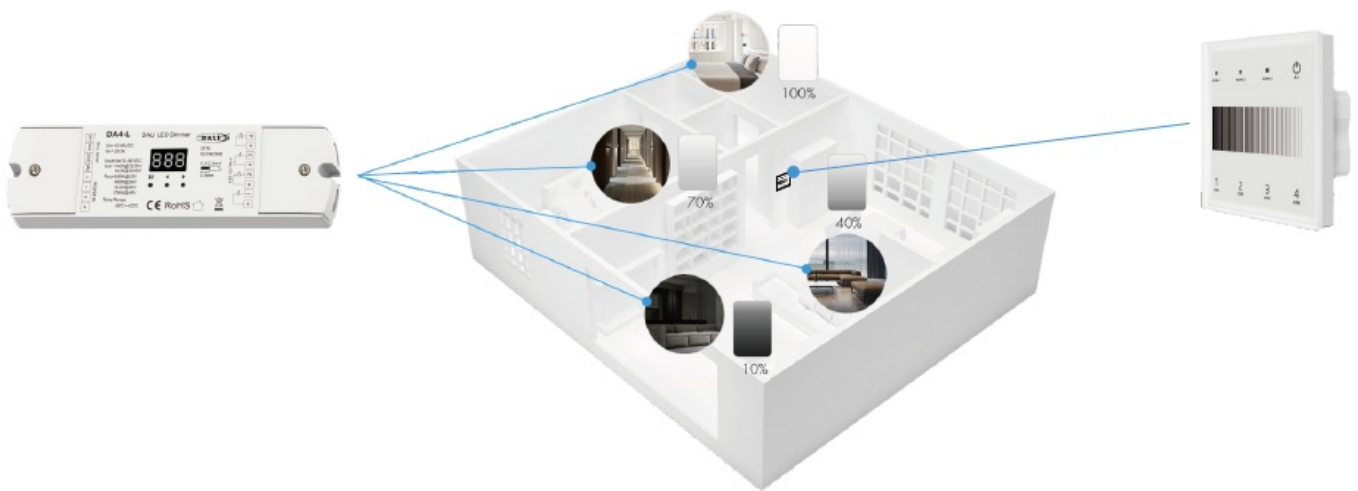

- Connect the DALI controller, DALI master control panel, and DALI bus power supply to the same DALI bus, and connect and label the switching power supply, and light strip to the DALI controller.

DA ——————
DA ——————
DALI signal wire, no plus-minus polarity requirement

Do not stack products. The distance between products should be ≥10cm,to avoid poor heat dissipation affect lifespan.

Host computer
The address, group, scene and system parameters of each DALI constant voltage controller are set by the host computer.

Address assignment can be performed by manually setting the digital tube. Example, display A00, DALI address is 00.

DALI constant voltage controllers require a switching power supply to power them.

As an application controller, it is connected to the same bus to control the lighting effect of the whole group.

DALI Controller
Switching power supply
DALI Bus Power
DALI Master Panel

Notes:

1. AC input class DALI controller/dimming driver can be directly connected to the AC mains power, no need to connect the switching power supply.
2. For the DALI controller with set buttons and display screen, the DALI address can be assigned manually or automatically by the DALI host computer.
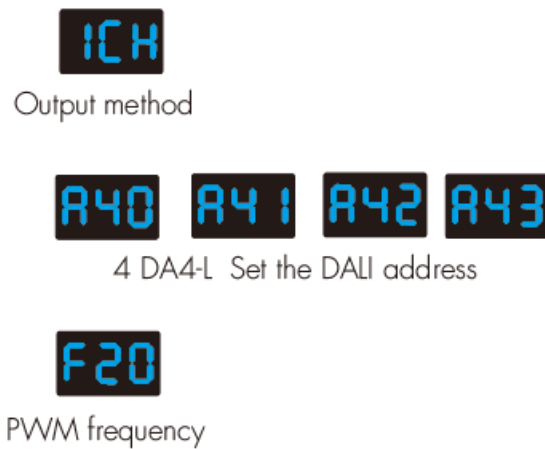

The following 3-6 items are expanded with 1 DALI dimming panel (TD1-4S) + multiple DALI controllers (DA4-L) as an example to realize the lighting control of each room by distributing multiple DA4-L in different areas.

4 DALI controllers with 4-zone DALI dimming panel, set the DALI address through the controller buttons to realize the zoned dimming effect

Set the DALI addresses of the four DALI controllers (DA4-L) separately.
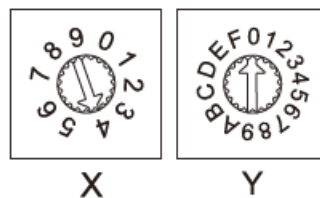
- Step 1: Set the DA4-L controller to the single-channel dimming output mode (4 channels output is same), that is, 1 DA4-L controller occupies 1 DALI address.
- First long press the M key for 2s, then short press ◄ or ► key to select "1CH".
- Step 2: Set the DALI addresses of the four DA4-L controllers to A40, A41, A42, and A43 respectively.
- First Long press ◄ or ► key for 2s, then short press ◄ or ► key to set the DALI address.

- Step 3: The default PWM frequency of the DA4-L controller is 2 KHz.
- Try modifying the PWM frequency if the cell phone is shooting lights with a significant ripple or if the switching power supply is noisy.
- Long press M & ◄ key for 2s, then short press ◄ or ► key to select different PWM frequencies, for example, select "F80″ (8KHz).

ICH

Output method

A40 A41 A42 A43

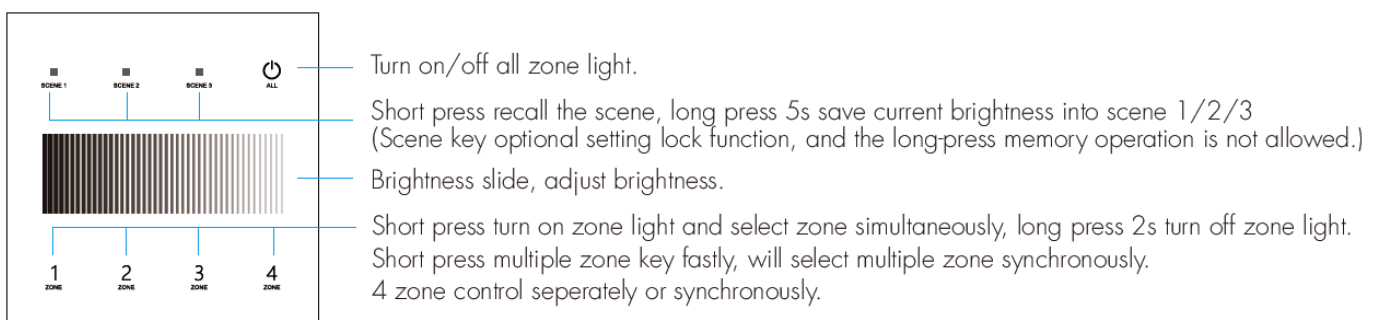4 DA4-L Set the DALI address

F20

PWM frequency

Sets the address of the 4-Zone DALI dimmer panel (TD1-4S).

- Addresses are set through knobs on the back of the panel, for example, set the two knobs to X=4 and Y=0.
- At this time, zone 1, 2, 3, and 4 will control the DALI controllers for addresses A40, A41, A42 and A43 respectively.

X   Y

4-Zone DALI Dimming Panel (TD1-4S) Function

Turn on/off all zone light.

Short press recall the scene, long press 5s save current brightness into scene 1/2/3 (Scene key optional setting lock function, and the long-press memory operation is not allowed.)

Brightness slide, adjust brightness.

Short press turn on zone light and select zone simultaneously, long press 2s turn off zone light. Short press multiple zone key fastly, will select multiple zone synchronously. 4 zone control seperately or synchronously.

Set address, group, scene, and system parameters by the host computer

- Each lamp has an independent address, and a standard DALI bus link can control up to 64 lamps, if more than this number, requires another DALI bus link to control.
- To realize single-lamp or group control, address assignment and group setting of the control device should be carried out first.

- Set address, group, scene, and system parameters on the host computer based on the application scenario.
- For DALI constant voltage/current controllers or DALI dimmable drivers without address setting keys or displays, short address (Short Address) assignments can only be performed by the host computer.

Example:

1. Select the device, assign the address
   Click "Short Address" and select addresses A0-A63.
2. Setting Group
   Under "Member Of Groups", click 0-15 to set the group.
3. Setting the scene
   Under "Scene Light Levels", click 0-15 to set the value of MASK (0-100%).
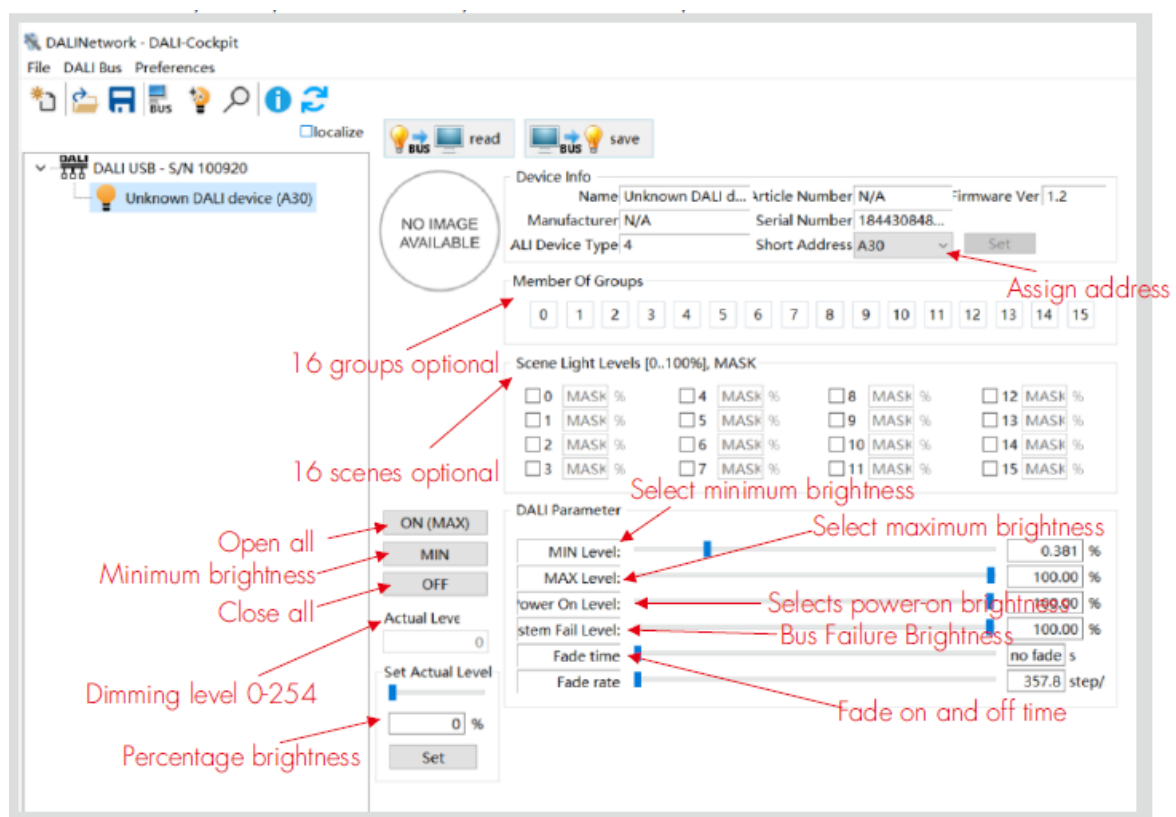4. Setting DALI system parameters
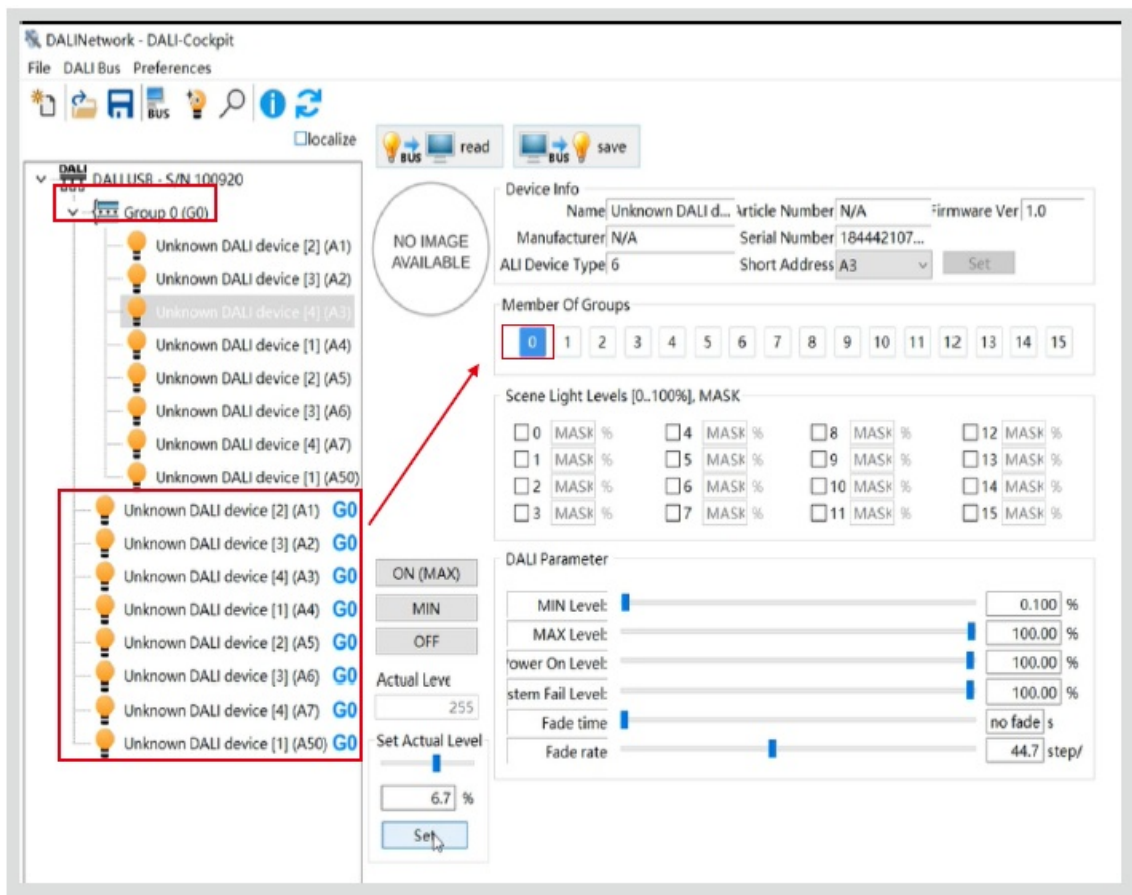   Slide the "MIN/MAXLevel" bar to set the min/max brightness respectively;
   Slide the "Power On Level" bar to set the power-on default brightness;
   Slide the "System Fail Level" bar to set the bus fault brightness;
   Slide the "Fade time/Fade rate" bar to set the fading time/fading speed respectively.

Through the host computer to realize the precise dimming control of a single lamp or group

Single lamp control

- For DALI controllers with set keys and display, set the DALI address by key.
- Long press ◄ or ►key for 2s, and enter the DALI address setting status.
- then press ◄ or ►key to set the value of the DALI address.
- The setting range is 00-63-FF (FF means unassigned address).
- For example, The controller sets the 01 address and controls the lamp at the 01 address.

For DALI controllers without set keys and displays, address assignment can only be done by the host computer.

- Select a device, click "Short address" to assign an address, and the set range is A0-A63.
- For example: select A1, and control the lamp at the 01 address.
- Then select A1 from the device list on the left, set the light brightness (Actual Level), and click ON (Max) or Off to turn on /off the light, to realize the brightness adjustment and switch control of 01 address lamps.
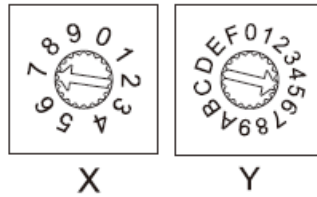
Group control

- When using the group control method, multiple DALI controllers need to be grouped by the host computer, and different DALI controllers are assigned to the same group for group control.

- For example: click A1 device, select the 0th group among 16 groups, and then click A2 device, the same select the 0th group among 16 groups, and so on, to assign the devices that need group control to the same group.
- Then select Group 0(G0) from the device list on the left, set the light brightness (Actual Level) , and click ON (Max) or Off to turn on /off the light, to realize the brightness adjustment and on/off control of Group 0(G0).

Multiple DALI controllers with 4-zone DALI dimming panels for multi-light multi-group control.

When multiple DALI controllers are through the host computer for the group setup, you can select the group mode through the panel for zoning control, each 4-zone dimming panel (TD1-4S) can control four consecutive group addresses.

Example: Group multiple DALI controllers according to the application requirements and set Group 5 (G5), Group 6 (G6), Group 7 (G7), and Group 8 (G8) group addresses respectively.

- Then set the two knobs on the back of the dimmer panel to X=7 and Y=5, that is, the group address values corresponding to zone 1, 2, 3, and 4 are set to 5, 6, 7, and 8.
- Zone 1 controls all DALI controllers under Group 5 (G5).
- Zone 2 controls all DALI controllers under Group 6 (G6).
- Zone 3 controls all DALI controllers under Group 7 (G7).
- Zone 4 controls all DALI controllers under Group 8 (G8).

When the dimming panel is set to broadcast mode (X=9), all DALI controllers/DALI dimming drivers on this DALI bus can be controlled at the same time.
In this case, recommend the use of a single-zone dimming panel (example: TD1-S).

Documents / Resources

DALI DA1 Controller [pdf] Installation Guide
DA1, DA4, DH, DA1 Controller, DA1, Controller

References

- **User Manual**