Instruction Manual

DIN-DLI

Multiroom DALI Controller

2025
Version 1.0.1

MADE IN BRITAIN

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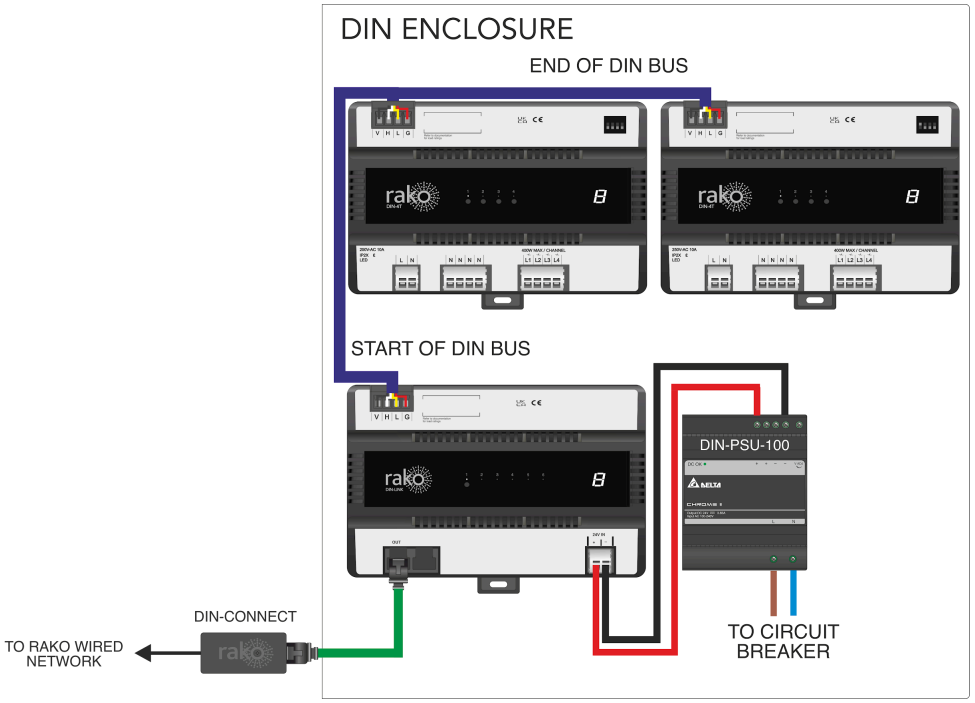
1 What is the DIN-DLI?

1.1 Product image

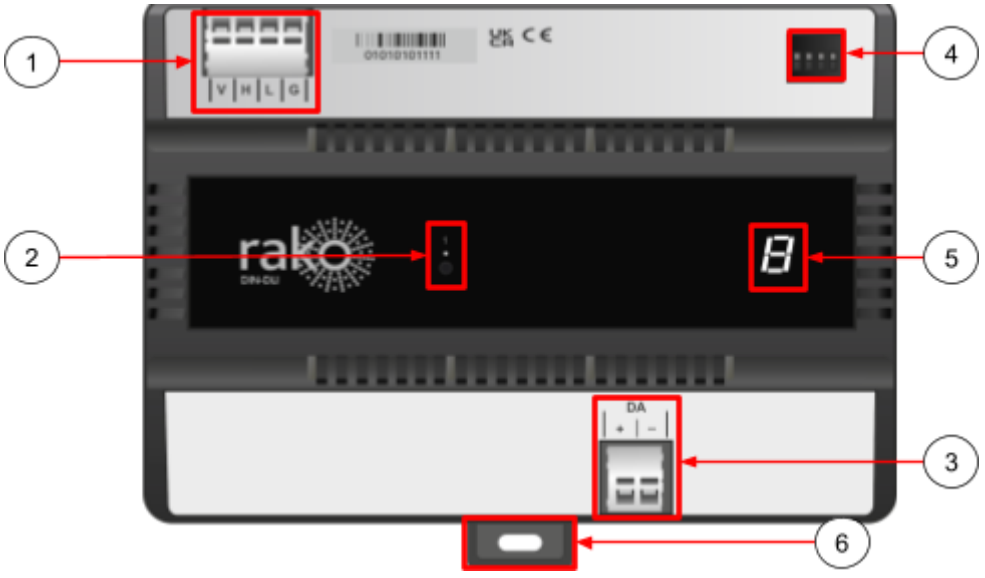
1.2 Features of the DIN-DLI

- Multiroom DALI up to 16 Rooms
- Controls up to 64 DALI Ballasts
- Supports Standard, RGBW and Colour-Tunable Applications
- Compatible with DT6/DT8 Ballasts
- Controlled on Rako Wired Network using keypads such as the WK-MOD or WCM
- Controlled on Rako Wireless Keypads, such as the RK-MOD and RNC, when used in conjunction with a WK-HUB or WRB100

2 Example DIN Layout



3 Panel Overview



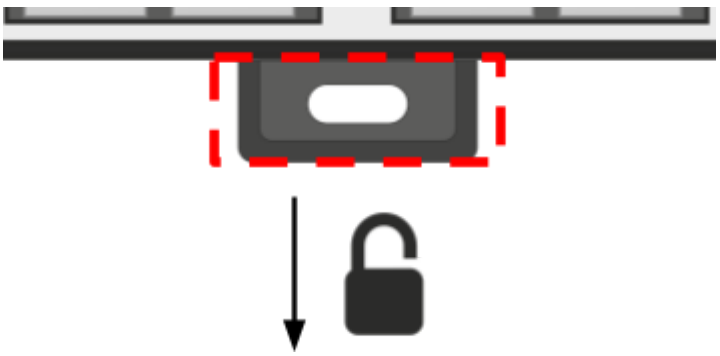
No.	Description
1	DIN-BUS input. Powered via the DIN-LINK.
2	DALI broadcast test button.
3	Output terminal connection for DALI ballasts.
4	The DIN-DLI is identified by its box number set during the programming.
5	Seven-segment display for diagnostic feedback.
6	Lock for the DIN-DLI to the DIN rail.

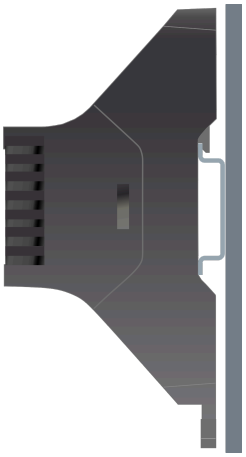
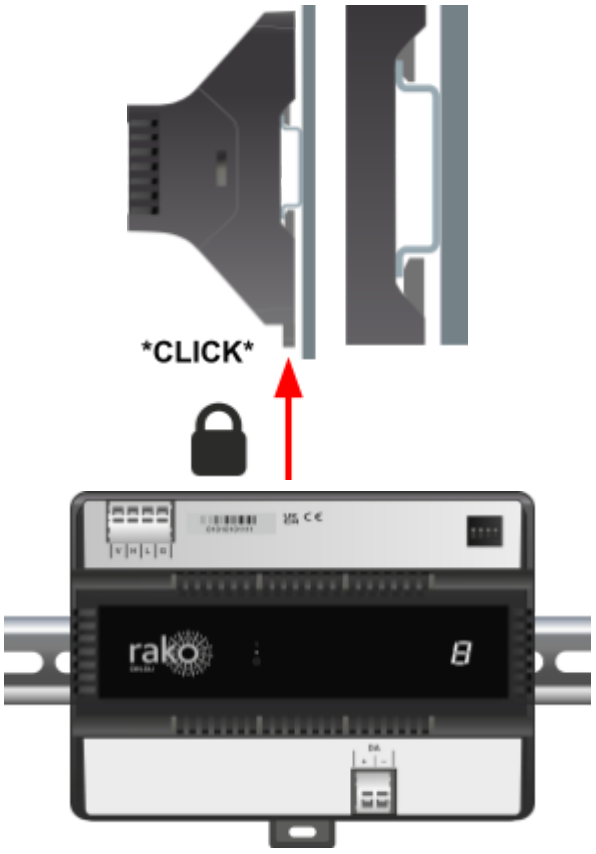
4 Installation Instructions

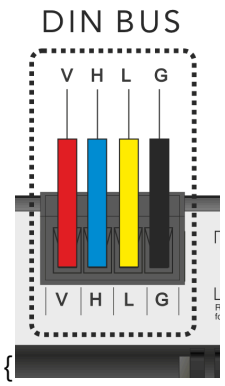
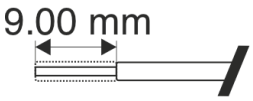
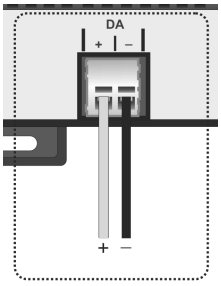
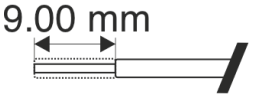
⚠WARNING

The overall safety of any system incorporating this equipment is the responsibility of the assembler of the end system.

This product must be installed by a qualified electrician. Ensure all wiring follows national electrical standards. Use only appropriately rated cables and secure all connections before powering on.

1		Pull down the DIN clamp at the bottom of the unit to unlock it.

2		Once unlocked, place the DIN-DLI over the DIN rail.
3		Push the clamp tab up to secure the DIN-DLI to the DIN rail.

4		 Use ferrules matching the appropriate cable size.	Connect the DIN bus to the top left terminals.
5	 TO DALI BALLASTS	 Use ferrules matching the appropriate cable size.	Connect the DALI network to the output terminal.

5 Servicing the DIN-DLI

The DIN-DLI contains no user-serviceable parts; should the unit require a repair it must be returned via the online form at https://returns.rakocontrols.com/contact/service-returns/.

6 Discovering the DIN-DLI

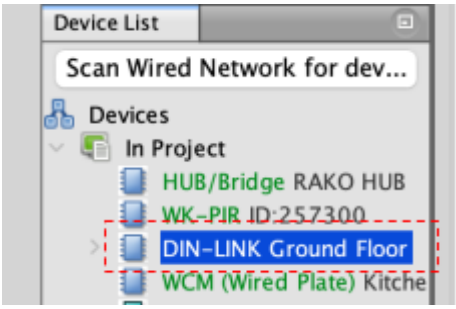
Before the DIN-DLI can assign DALI ballasts, it needs to be added as a Device in Rasoft Pro.

The following steps assume:

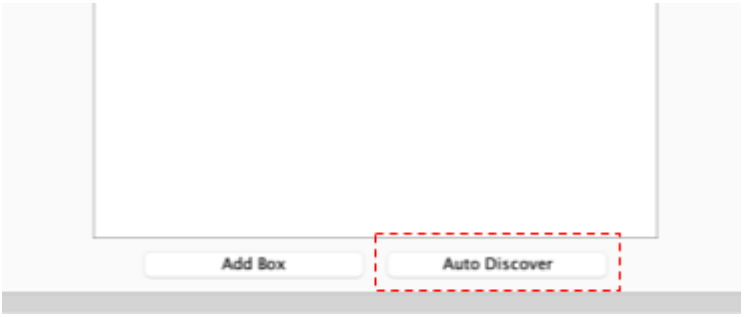
- A Project File has been created.
- Rooms have been created.
- The HUB has been configured.
- The Channels in the Rooms have been labelled.
- The DIN-LINK connected to the DIN-DLI has been set up.

If the above has not been done, refer to the Wired System Programming Guide before continuing.

➔ In the Device List, select the DIN-LINK

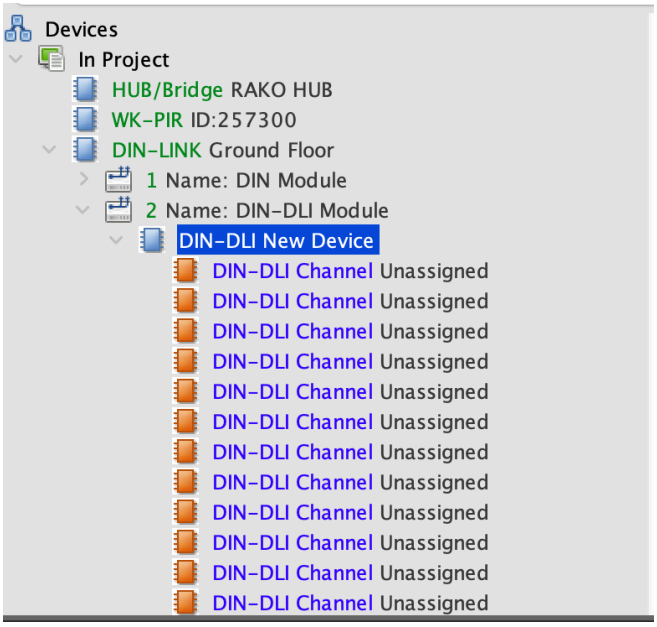


➔ Select 'Auto Discover'



➔ Select 'Box Info' on the discovered DIN-DLI

➔ The DIN-DLI will appear in the Device List, ready to be configured



7 DIN-DLI Setup

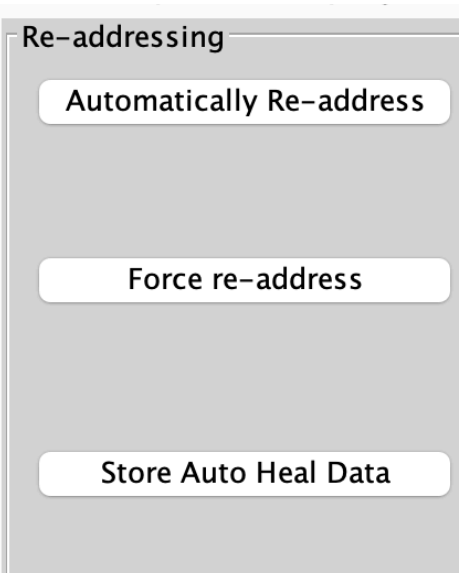
Once the DIN-DLI has been added as a Device, it requires further setup to assign ballasts short addresses and arrange them into their respective Rooms and Channels.

7.1 Assigning ballasts a short address

Each DALI ballast requires a unique short address so that it can be communicated with individually; multiple short addresses can be grouped into a maximum of 16 Rooms.

There are three options on the DIN-DLI setup page.

7.2 Force Re-address



Any short addresses on DALI ballasts are replaced with new short addresses; this is typically used on new systems.

7.3 Automatically Re-address

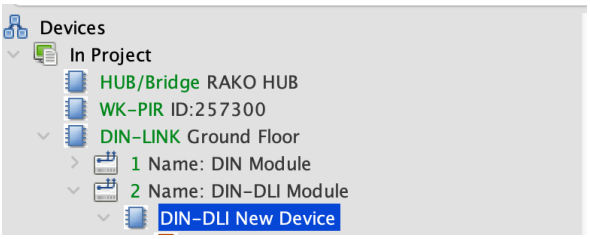
Will only assign short addresses to DALI ballasts that do not have one. This is used on existing systems when additional DALI ballasts have been added, and the preservation of the short addresses on existing ballasts is required.

7.4 Store Auto Heal Data

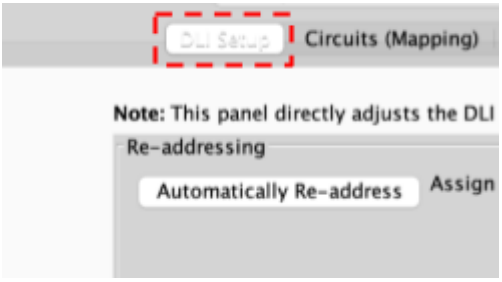
After all of the DALI ballasts have been commissioned, use this feature to store all DALI data (Groupings, scenes and fade-rates, etc). If a ballast is replaced, the data for the replaced ballast will be re-uploaded.

7.5 Assigning Short Addresses

➔ Select the DIN-DLI in the "Device List" to open the "Device Editor"



➔ Select “DLI Setup” tab



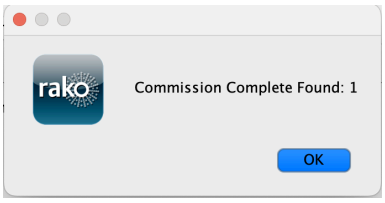
➔ Select “Force Re-address”, which will assign short addresses to all connected DALI ballasts.

> If DALI ballasts have been added to an existing DALI network, select "Automatically Re-Address", which will only assign short addresses to DALI ballasts with no short address.

➔ The DALI ballast outputs will flash once individually when short addresses are being assigned. Once all DALI ballasts have been given a short address, a window will appear saying how many ballasts have been assigned. This should match the number of ballasts which are connected to the DIN-DLI.

> Due to some ballasts having multiple short addresses for various outputs, there may be more short addresses than there are ballasts.

➔ Once the ballasts have been assigned a short address and there are no more ballasts found, a confirmation message will show how many ballasts have been found.



8 Mapping and Grouping

Once the DIN-DLI has assigned a short address to all connected DALI ballasts, they must be assigned to their relevant Rooms via the Circuits Mapping page.

Ballasts are given group numbers unique to each Rako Room. The first Room to be selected from the Room dropdown will be given group 0, the second Room Group 1 and so on.

The diagrams demonstrate how DALI ballasts may be grouped and what this looks like in Rasoft Pro.

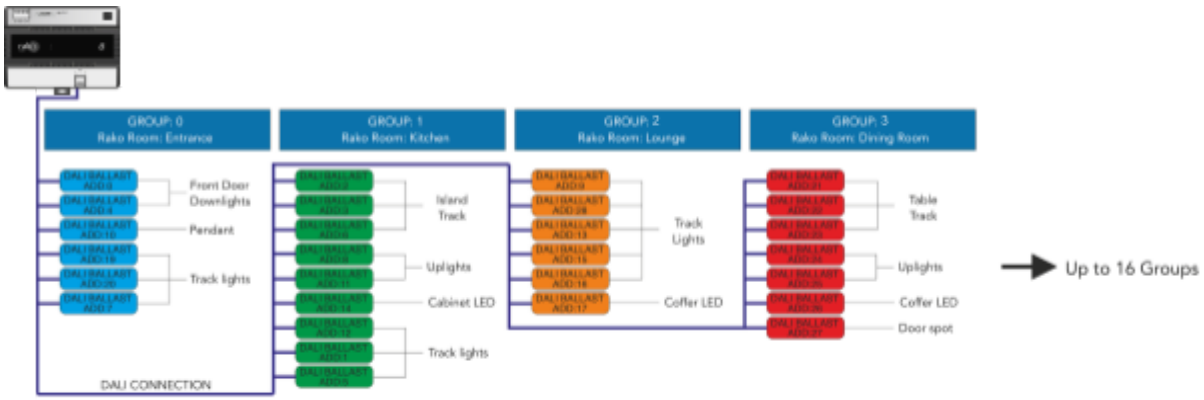


Diagram demonstration of how ballasts are grouped together.

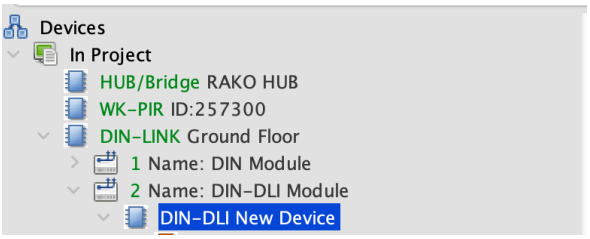
DLI Mapping

DLI Short Address	DLI Status	Room	Room#	Channel	Channel#
0	Level:255 Group:0	Entrance [Rm: 5]	5	Front Door Downlights [Ch: 1]	1
1	Level:255 Group:1	Kitchen [Rm: 9]	9	Track Lights [Ch: 4]	4
2	Level:255 Group:1	Kitchen [Rm: 9]	9	Island Track [Ch: 1]	1
3	Level:255 Group:1	Kitchen [Rm: 9]	9	Island Track [Ch: 1]	1
4	Level:255 Group:0	Entrance [Rm: 5]	5	Front Door Downlights [Ch: 1]	1
5	Level:255 Group:1	Kitchen [Rm: 9]	9	Track Lights [Ch: 4]	4
6	Level:255 Group:1	Kitchen [Rm: 9]	9	Island Track [Ch: 1]	1
7	Level:255 Group:0	Entrance [Rm: 5]	5	Track Lights [Ch: 3]	3
8	Level:255 Group:1	Kitchen [Rm: 9]	9	Uplights [Ch: 2]	2
9	Level:255 Group:2	Lounge [Rm: 13]	13	Track Lights [Ch: 1]	1
10	Level:255 Group:0	Entrance [Rm: 5]	5	Pendant [Ch: 2]	2
11	Level:255 Group:1	Kitchen [Rm: 9]	9	Uplights [Ch: 2]	2
12	Level:255 Group:1	Kitchen [Rm: 9]	9	Track Lights [Ch: 4]	4
13	Level:255 Group:2	Lounge [Rm: 13]	13	Track Lights [Ch: 1]	1
14	Level:255 Group:1	Kitchen [Rm: 9]	9	Cabinet LED [Ch: 3]	3
15	Level:255 Group:2	Lounge [Rm: 13]	13	Track Lights [Ch: 1]	1
16	Level:255 Group:2	Lounge [Rm: 13]	13	Track Lights [Ch: 1]	1
17	Level:255 Group:2	Lounge [Rm: 13]	13	Coffer LED [Ch: 2]	2
18	Level:255 Group:4	SPARE [Rm: 50]	50	SPARE C1 [Ch: 1]	1
19	Level:255 Group:0	Entrance [Rm: 5]	5	Track Lights [Ch: 3]	3
20	Level:255 Group:0	Entrance [Rm: 5]	5	Track Lights [Ch: 3]	3
21	Level:255 Group:3	Dining Room [Rm: 17]	17	Table Track [Ch: 1]	1
22	Level:255 Group:3	Dining Room [Rm: 17]	17	Table Track [Ch: 1]	1
23	Level:255 Group:3	Dining Room [Rm: 17]	17	Table Track [Ch: 1]	1
24	Level:255 Group:3	Dining Room [Rm: 17]	17	Uplights [Ch: 2]	2
25	Level:255 Group:3	Dining Room [Rm: 17]	17	Uplights [Ch: 2]	2
26	Level:255 Group:3	Dining Room [Rm: 17]	17	Coffer LED [Ch: 3]	3
27	Level:255 Group:3	Dining Room [Rm: 17]	17	Door spot [Ch: 4]	4

Diagram demonstration of how ballasts are grouped in Rasoft Pro via the DLI Mapping page. Colours will not show in Rasoft Pro.

8.1 Assigning Rooms and Channels to Ballasts

➔ Select the DIN-DLI from the Device List



➔ Select "Circuits (mapping)"

➔ Select the first row of the mapping, and test the output of the ballast by pressing one of the following keys:

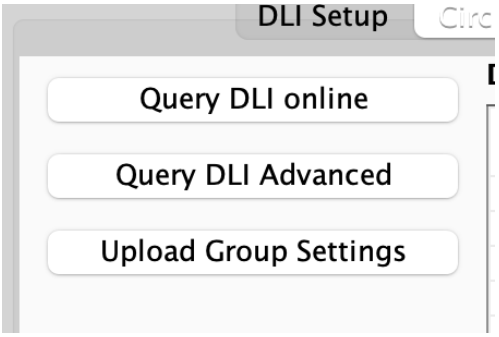
"<" - Off
">" - On
"?" - Ident

➔ When the luminaire has been identified, select the Room and Channel from the drop-down menus

➔ Repeat the previous steps until all luminaires are identified and mapped

IMPORTANT

➔ Once the mapping is complete, select "Upload Group Settings"; this will assign a group number to each Room.



➔ To verify the Group Settings, select "Query DLI Advanced" and check that the group number matches the Rooms for each Channel. If it doesn't, then press "Upload Group Settings" again.

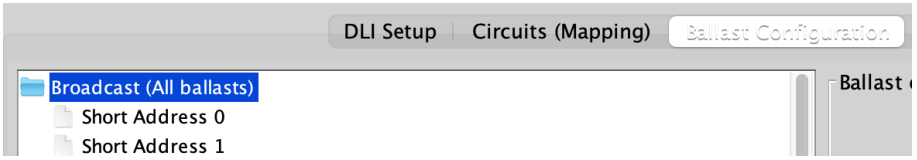
9 Ballast Configuration

Additional configuration is available via the Ballast Configuration menu once the DALI ballasts have been assigned short addresses.

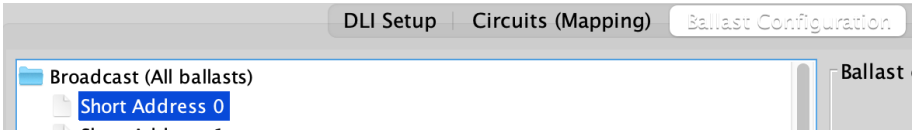
9.1 Selecting ballasts

Before any of the settings below can be set on the DALI ballasts, the short address of the DALI ballast must be selected.

If the settings apply to all DALI ballasts, then select "Broadcast (all ballasts)"

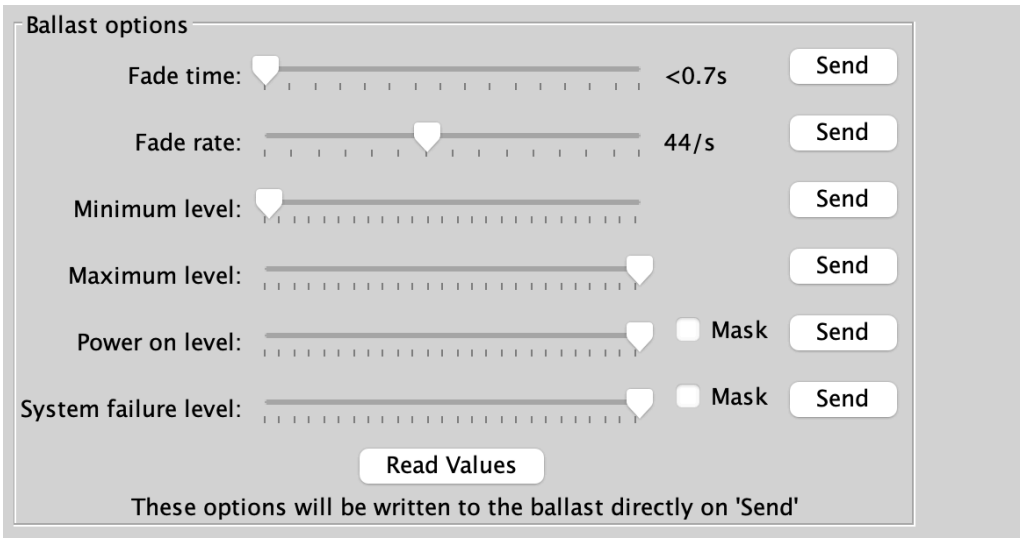


Configurations will apply to all ballasts



Configurations will apply to the ballast assigned the short address 0

10 Ballast Options



10.1 Fade Time

Set how long it takes the light to reach full brightness from off; 3 seconds is recommended.

10.2 Fade Rate

The speed of dimming when using the "Fade Up" or "Fade Down" controls.

10.3 Minimum Level

The lowest level the light can reach, setting the minimum level >0 will result in the light not switching off.

10.4 Maximum Level

The brightest level the light can reach, setting the maximum level to <0 will result in the light not switching on.

10.5 Power On Level

The default light level when power is restored to the system.

10.6 System Failure Level

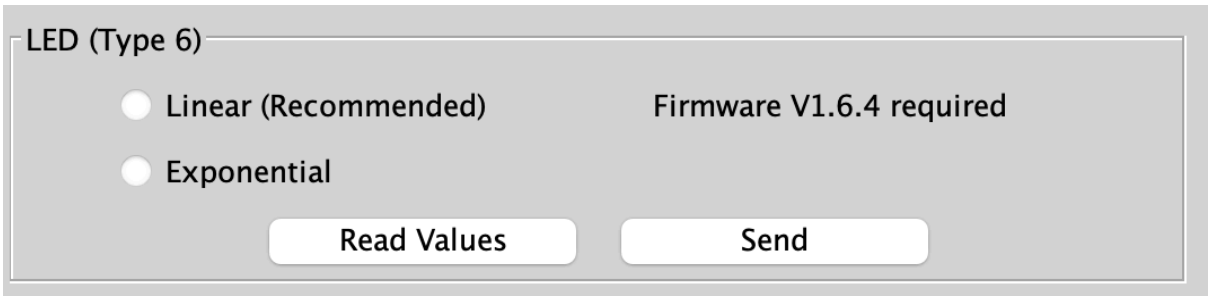
If the DALI signal is lost, the light level will default to this setting.

10.7 Read Values

Reads the current configuration of the selected ballast.

11 Linear and Exponential Dimming (DT6)

For DT6 DALI ballast, there are two options for dimming: Linear and Exponential.



11.1 Linear Dimming (Recommended)

Equally divides 0-255 levels across 0-100%.

11.2 Exponential Dimming

Within the lower dimming range, the ballast's influence on light output evolves gradually; within the higher dimming signal range, its impact on lighting effects shifts more rapidly.

12 Colour/Temperature Control In Room Editor

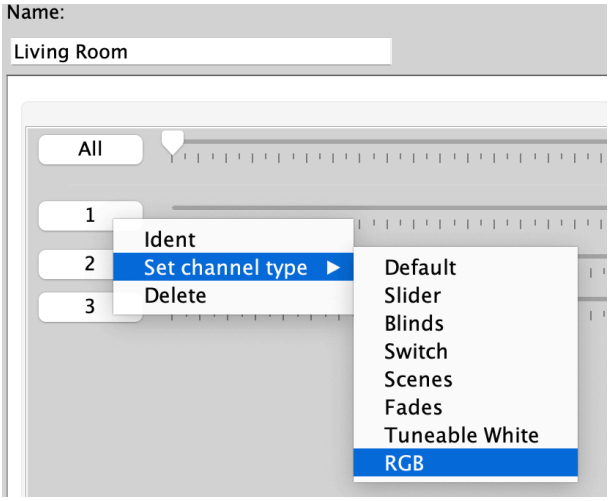
Rako Channels can be adjusted for colour and temperature control in Rasoft Pro and the Rako App.

> Colour and temperature control can also be set in the Device Editor in the Ballast Configurations tab, although this is not necessary.

12.1 Setting an RGB Scene

➔ Select the Room which has the RGBWAF Channels assigned.

➔ Right-click the Channel number and select “Set Channel type” > “RGB”

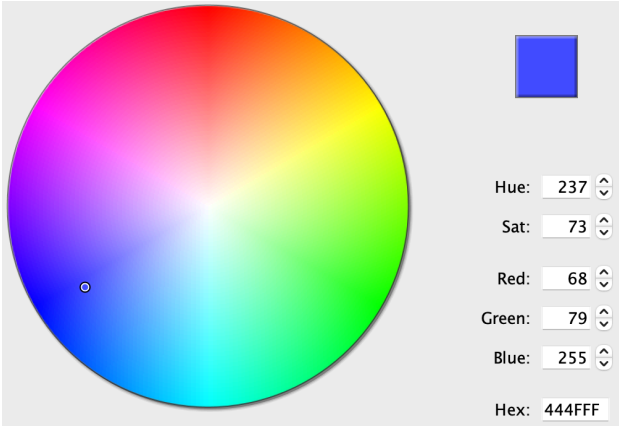


➔ Select a Scene required to be changed.

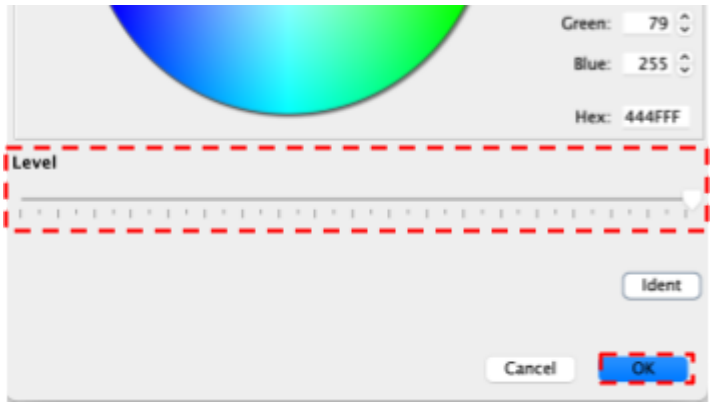
➔ Select the colour wheel.

➔ Tick "Set RGB".

➔ Select the required colour.



➔ Select the required intensity using the slider, and select “OK”



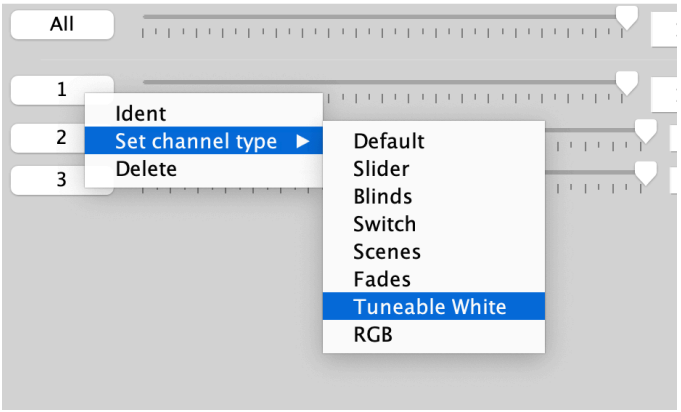
➔ Select “Store Scene”

➔ The Scene is now set for the specified colour.

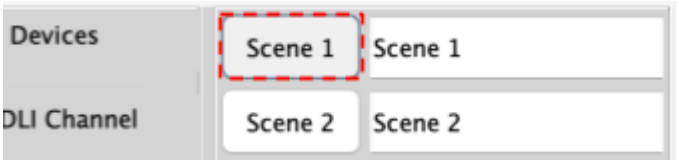
12.2 Setting a Temperature Scene

➔ Select the Room which has the RGBWAF Channels assigned.

➔ Right-click the Channel number and select “Set Channel type” > “Tunable White”



➔ Select the Scene to be changed.



➔ Select the Tunable white icon for the Channel.

➔ Tick “Set Tunable White”.

➔ Adjust the temperature slide to the desired level.

➔ Select the intensity slider to the desired brightness.

➔ Confirm that the Temperature and brightness are correct, and select “OK”

➔ Select “Store Scene”

➔ The Scene is now set for the specified temperature.

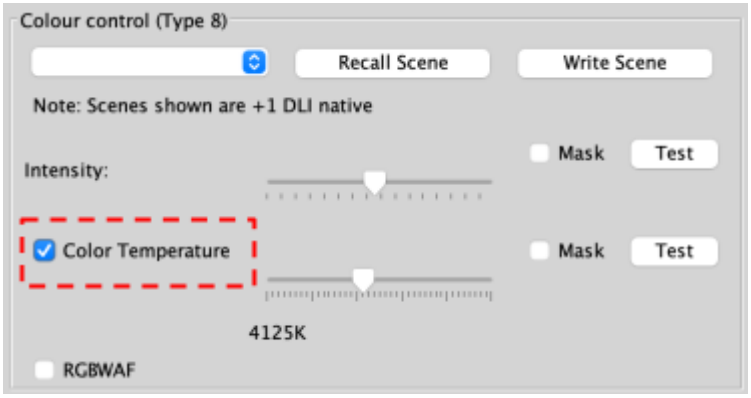
13 Colour Control In Device Editor

DT8 uses one DALI address to control two or more output channels, which can be configured in the Device Editor.

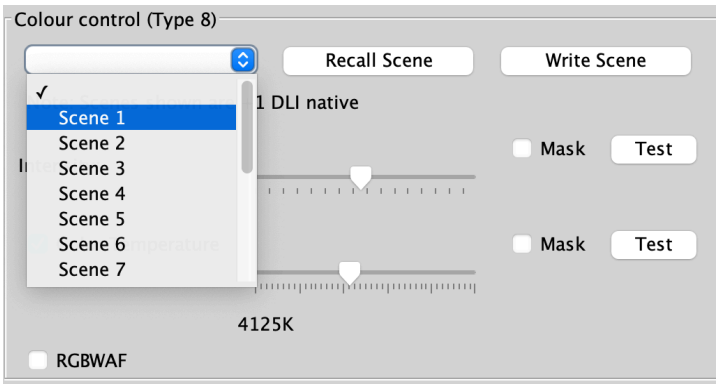
> The colour control menu is not suitable for DT6 ballasts as they require two DALI addresses: one for each channel.

13.1 Setting Temperature

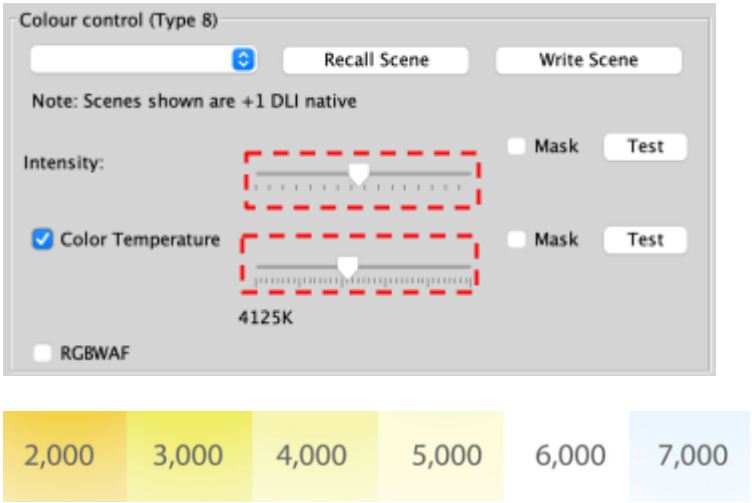
To set the colour temperature of a ballast, first ensure that the "Colour Temperature" box is ticked.



➔ From the drop-down menu, select the Scene to which the colour temperature will apply.

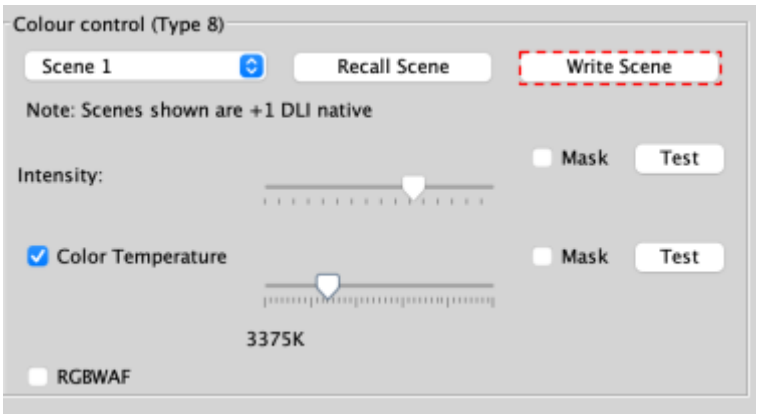


➔ Using the sliders, select the intensity and the desired temperature.



Temperature scale is measured in Kelvin.

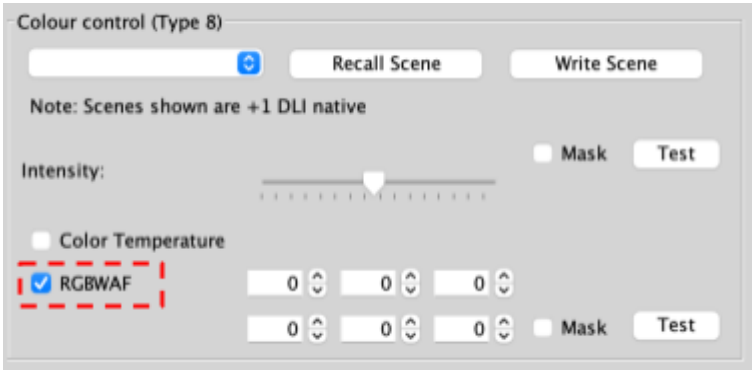
➔ Use the "Test" buttons to verify the intensity and temperature are correct, then select "Write Scene"



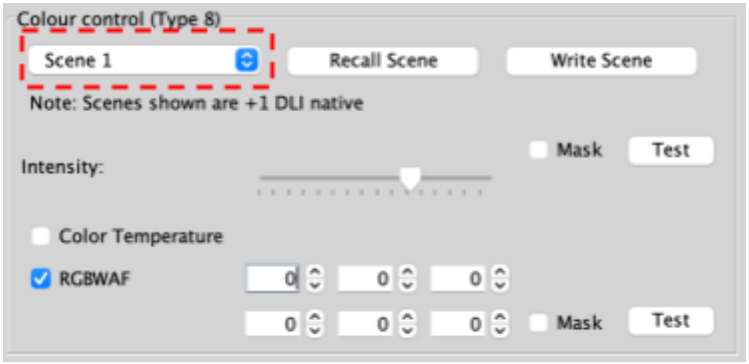
13.2 RGBWAF Colour (DT8 only)

RGBWAF abbreviates Red, Green, Blue, White, Amber, and Free Colour. These six colours represent the output capabilities of compatible lights.

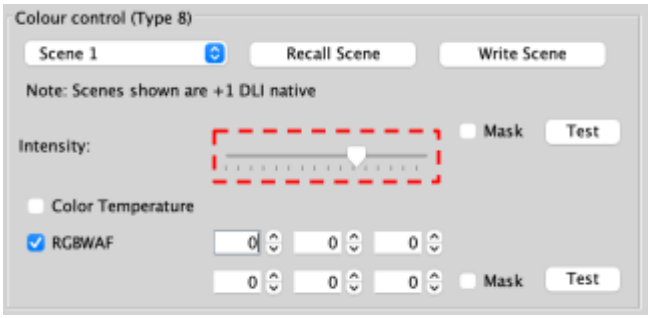
➔ Ensure that the RGBWAF box is ticked.



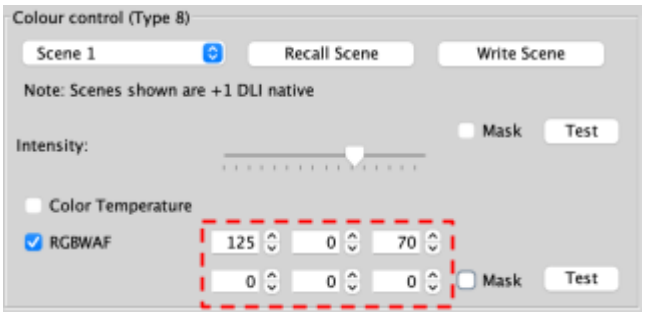
➔ Select the Scene to be adjusted



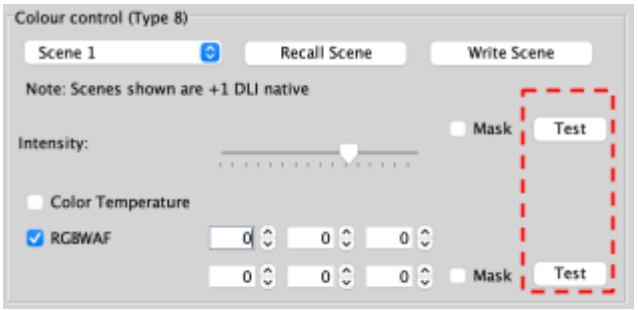
➔ Using the slider, set the Intensity



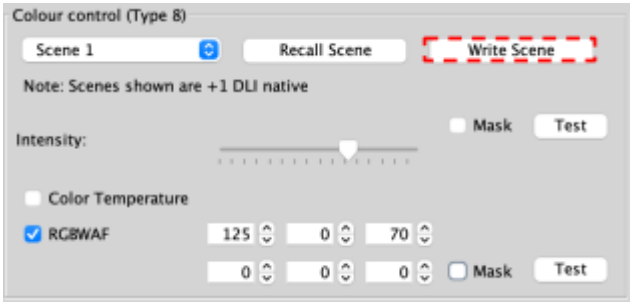
➔ Enter a value between 0-254 in each required input, representing Red, Green, Blue, White, Amber and Free Colour



➔ Test both the Intensity and RGBWAF by selecting the Test buttons to verify the light settings are correct



➔ Select "Write Scene"



14 Setting Colour and Temperature in the Rako App

Once the Channels have been configured in section 12, the data can be uploaded to the Rako HUB to set Colour and Temperature Scenes in the Rako App.

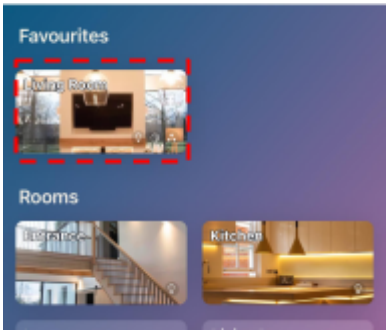
For instructions on uploading Channel and Room information, see below:

Wired Systems	Wireless Systems
WK-HUB Instruction Manual - Section 6	RK-HUB Instruction Manual - Section 6

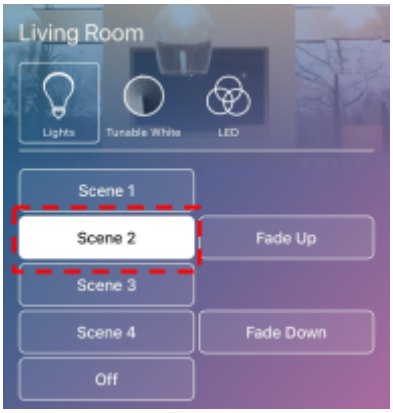
14.1 Setting a Colour Scene in the Rako App

➔ Open the Rako App, Connect to the HUB

➔ Select the Room requiring the Scene change



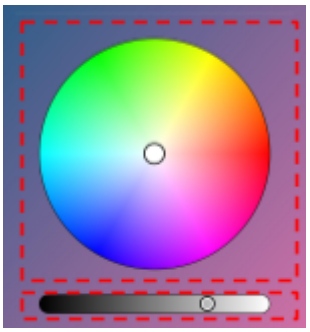
➔ Select the Scene number to change



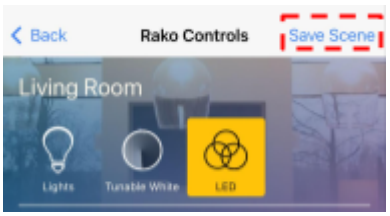
➔ Select the “LED” icon

➔ Select “Edit Scene”

➔ Select the desired colour using the colour wheel, and the brightness using the slider.



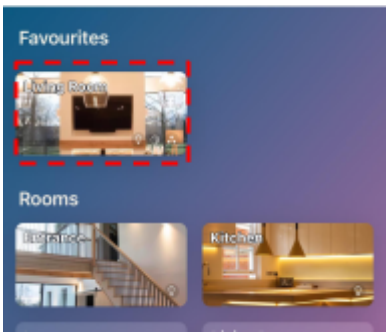
➔ Select “Save Scene”



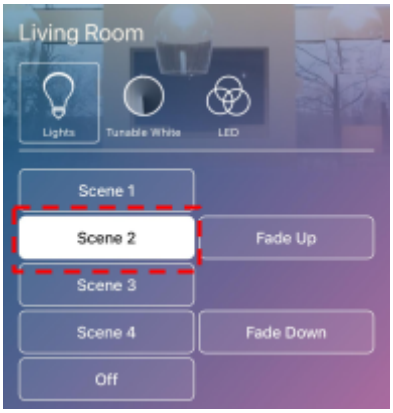
14.2 Setting Colour Tunable Scenes in the Rako App

➔ Open the Rako App, Connect to the HUB

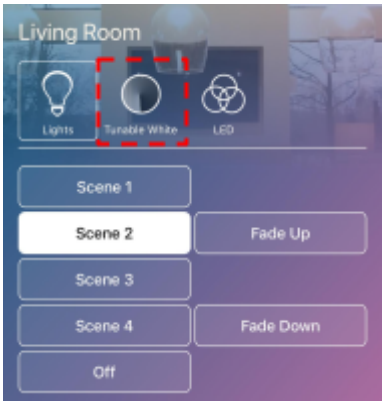
➔ Select the Room requiring the Scene change



➔ Select the Scene number to change

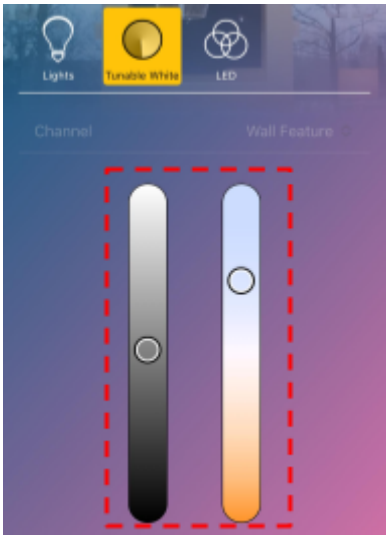


➔ Select the "Tunable White" Icon

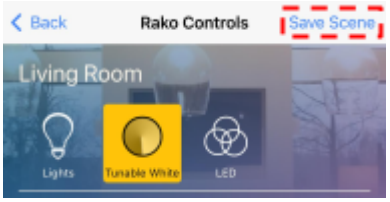


➔ Select "Edit Scene"

➔ Adjust the Temperature and Brightness sliders to the desired level



➔ Select "Save Scene"



15 Advanced features of DIN-DLI

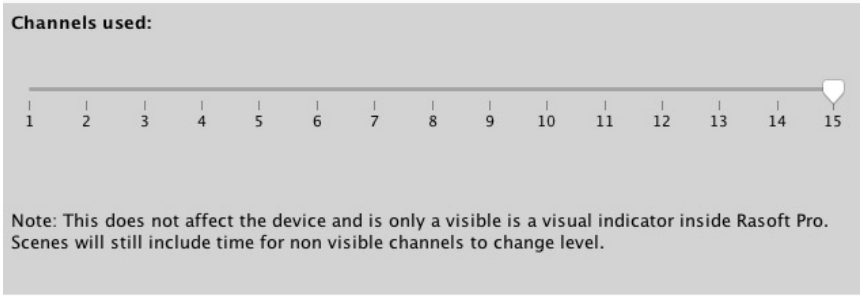
15.1 Swap Channels

Two DALI short addresses can either be merged or swapped. "Perform Swap" will directly swap two DALI short addresses. "Perform Move" will take DALI Short Address 1 and merge it with DALI Short Address 2.

15.2 Visible Channels

The DIN-DLI will allocate all 15 Channels in a Rako Room by default, if all 15 Channels are not being utilised, the number of allocated Channels can be reduced.

To set the number of visible Channels, use the slider. The remaining Channels can now be used for additional Rako devices.



16 Installation Guidelines

⚠WARNING

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

16.1 Electrical Isolation

A disconnect device must be provided in the installation and must be all-pole. It must be clearly labelled and positioned so that it is not obstructed by enclosures, wiring, or heavy equipment, ensuring ease of access for maintenance and emergency disconnection.

Ensure the power supply is isolated before starting any installation or maintenance; failure to do so may result in electrical shock or injury.

16.2 Mounting

The DIN-DLI module is designed for mounting on a DIN rail. Ensure the module is securely mounted within a compliant DIN enclosure.

16.3 Enclosure and Environmental Protection

Install the DIN-DLI module in a suitably rated enclosure that protects against dust, moisture, and other contaminants according to its environment; failure to do so may lead to damage or malfunction.

16.4 Maximum and Minimum Loadings

The load capacity of the DIN-DLI module is load-type dependent; refer to the 'Loadings' section of the datasheet to ensure the load is within the specified limits. Exceeding these limits may cause module failure.

16.5 Wiring

All wiring should comply with the current 18th Edition IET Wiring Regulations (BS 7671). This includes selecting the correct cable size, using appropriate termination methods, and ensuring mechanical protection for the wiring.

16.6 Ventilation and Cooling

Ensure sufficient ventilation within the DIN enclosure to prevent overheating. Poor ventilation can lead to overheating and module failure.

16.7 Compatibility

Verify that the DIN-DLI module is compatible with other electrical components in the system. Incompatibility may result in malfunction, reduced performance, or damage to the module.

Do not connect third-party devices to the Rako DIN bus.

16.8 Third-Party Accessories and Equipment

The installer is responsible for providing the necessary cables, isolators, electrical loads, and ferrules compatible with the terminals on the DIN-DLI unit.

Refer to the manufacturer's instructions for all third-party devices.

All cables must be appropriately rated for the intended load and comply with the relevant electrical standards.

Thank you for choosing Rako Controls; we hope that you are pleased with your system. Should you require further assistance, please contact us via our website, www.rakocontrols.com call our customer support helpline on 01634 226666. The office address is Rako Controls Ltd, Knight Road Rochester, ME2 2AH.