Instruction Manual

WMR-DLI

Wired Multi-Room DALI Controller



2024
Version 1.0.0

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For programming information, see the Wired System Programming Guide

For further installation information, see the Wired RAK Application Sheet

1 What is the WMR-DLI?



The WMR-DLI is a multi-room DALI controller used in a DALI addressable network. The Room grouping feature on the WMR-DLI enables up to 64 ballasts to be grouped with a maximum limit of 16 Rooms.

The WMR-DLI is fitted with an RJ11 socket for connection to a RAK-LINK or RAK-STAR. It can also be connected to the Wired network using the punch-down connections on the daughterboard with a CAT5 or CAT6 cable.

Once configured in Rasoft Pro, The WMR-DLI can be controlled from the Wired network with Rako Wired controllers such as the WCM, WK-EOS, WK-MOD, WK-PIR, WAVFR, and WAVMI.

When used with compatible DT6 or DT8 ballasts, the WMR-DLI can be used for RGBW and colour-tunable LEDs.

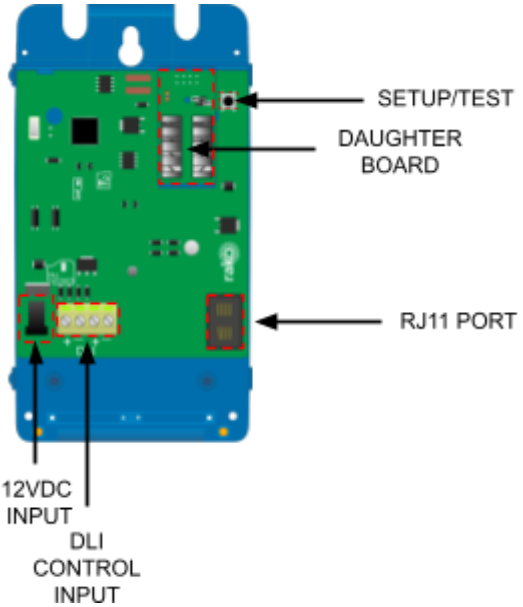
2 Connections

The WMR-DLI has two ways of connecting to the Rako Wired network, via the daughterboard using a CAT5/CAT6, or via the RJ11 port using an RJ11 cable.

The RJ11 connection can connect directly to a RAK-LINK, or Wired accessories such as the WK-CONNECT, WK-CONNECT and WP-CON.

The DALI control input is used to connect the DALI control cables which run to the DALI ballasts.

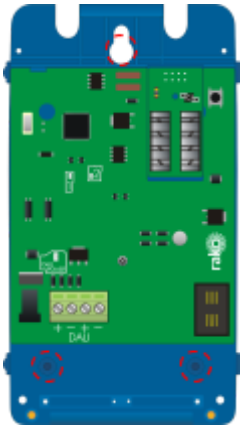
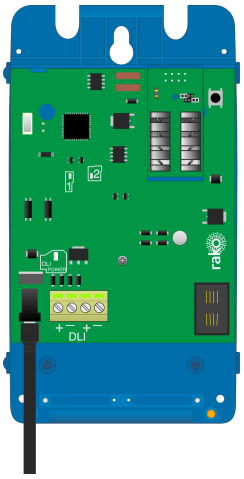
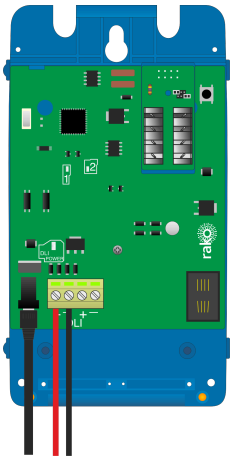
The WMR-DLI comes with a 12V DC power supply, this must be connected to the 12V DC port for the WMR-DLI to function.

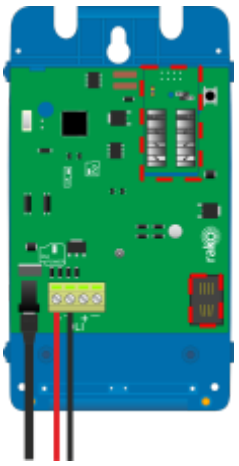


3 Installing the WMR-DLI

⚠WARNING

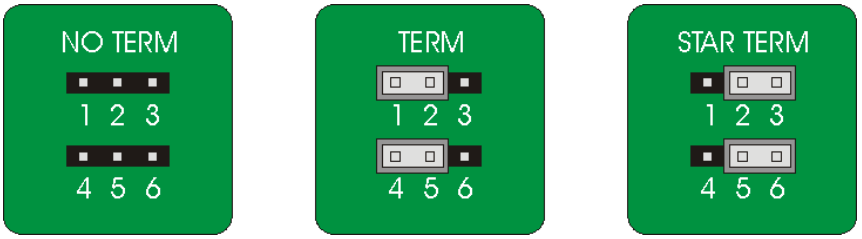
POWER SHOULD BE ISOLATED THROUGHOUT THE INSTALLATION PROCESS

STEP 1		Fix the back section of the WMR-DLI to the wall using the fixing points. NB Ensure there is a mains plug socket within 0.5M of the unit for the WMR-DLI power supply.
STEP 2		Connect the power supply which is supplied with the WMR-DLI.
STEP 3		Connect the DALI control cable which runs to the DALI ballasts.

STEP 4		Connect to the Rako Wired Network via the RJ11 port or the daughterboard. If the daughterboard is used, it is essential to set the correct termination jumpers, see Terminating the WMR-DLI for more information.

4 Terminating the WMR-DLI

Depending on the position of the WMR-DLI in the Rako Wired network, the termination required will be one of the following:



No Term: Both Jumpers removed
Used when the WMR-DLI is not at the end of line. This is usually identifiable by two cables being punched down to the WMR-DLI.

Term: Jumper fitted across 1+2 and 4+5
Used when the WMR-DLI is end of line in a daisy chain configuration.

Star Term: Jumper fitted across 2+3 and 5+6
Used when the WMR-DLI is end of line in a STAR wire configuration.

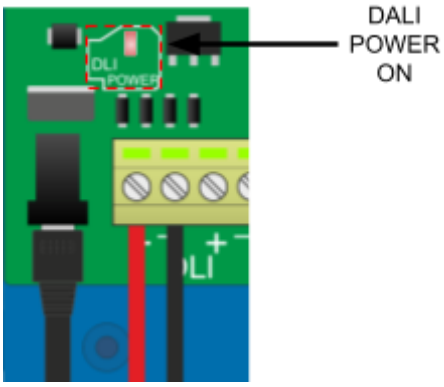
5 Checks before programming

Before the WMR-DLI is programmed, check the following:

- All DALI ballasts to be commissioned are connected to the WMR-DLI

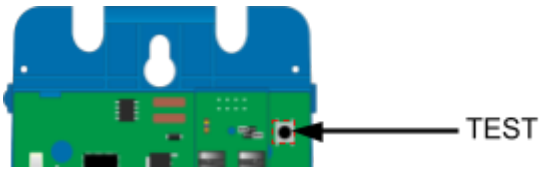
- The PSU is connected and powered, to confirm this, the onboard red LED will illuminate.

  NB
  The DALI power supply is isolated from the rest of the board which is powered by the Rako Wired network.

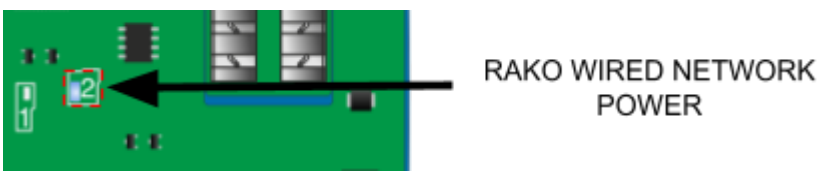


  NB
  If the 12V PSU is connected and powered and the onboard LED is not illuminated, remove the DALI connections, if the LED illuminates there is likely an issue on the DALI network.

- Connected luminaires turn on and off via the override button on the WMR-DLI

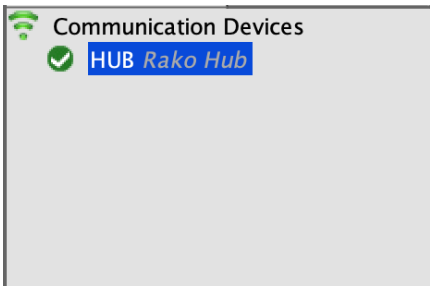


- The WMR-DLI is connected to the Rako Wired network via the RJ11 or daughterboard, LED 2 will illuminate. For further information on the WMR-DLI LEDs, see Appendix 3 - LED States.



6 Adding the WMR-DLI as a device

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

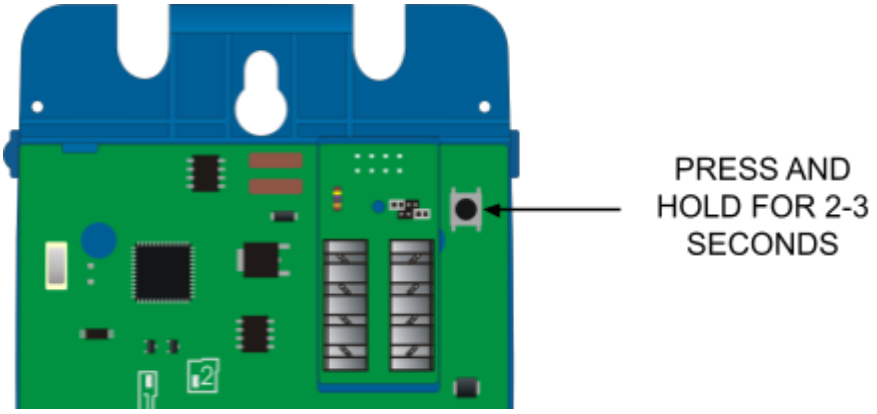


The following steps assume:

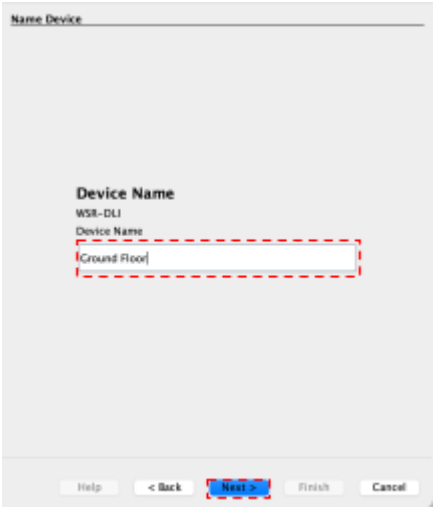
- A Project File has been created.
- Rooms have been created.
- The HUB has been configured.
- The Channels in the Rooms have been labelled.

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

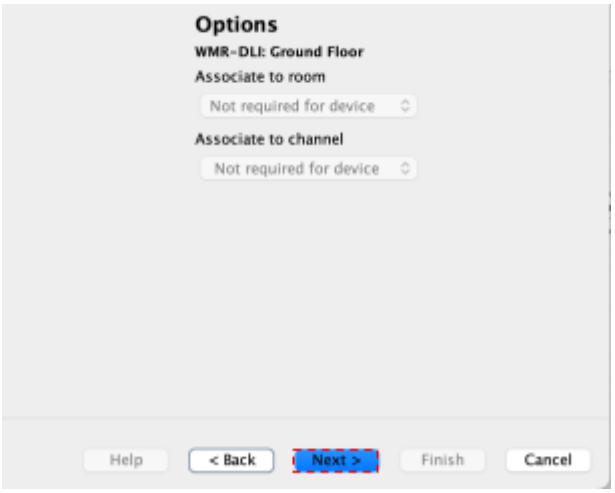
- Put the WMR-DLI into Setup Mode by pressing and holding the setup button on the unit for 3-4 seconds.



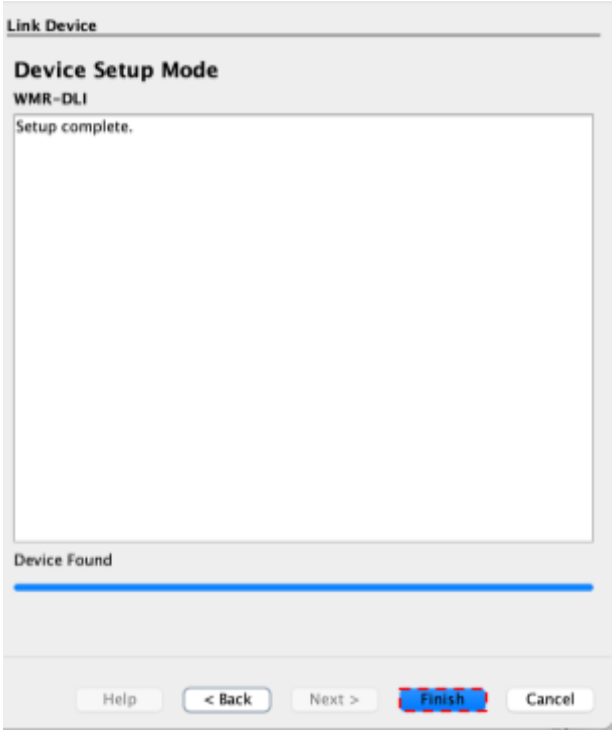
- Choose the WMR-DLI name, and select “Next”.



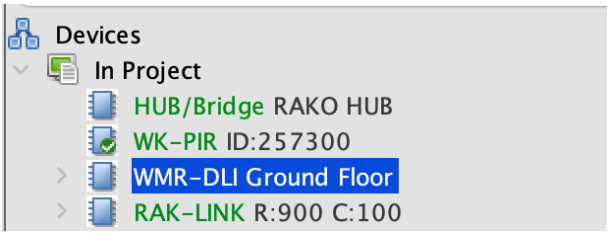
- The WMR-DLI does not require Room assignment during the setup wizard, select "Next"



- Select “Finish”



- The WMR-DLI has been assigned in Rasoft Pro, it can be accessed by selecting it in the “Device List”



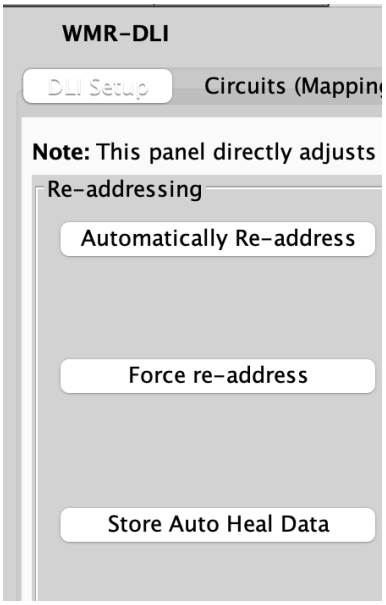
7 WMR-DLI Setup

Once the WMR-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 WMR-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

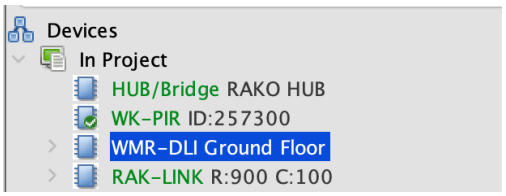
Will only assign short addresses to DALI ballasts that do not have one, this is used on existing systems when additional DALI ballasts have been added and the preservation of the short addresses on existing ballasts is required.

7.4 Store Auto Heal Data

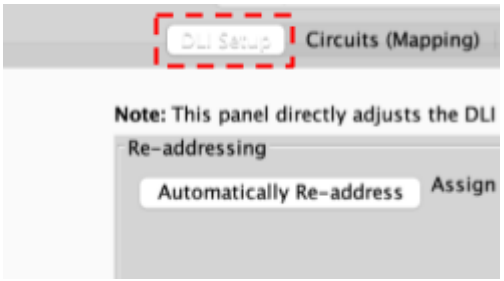
After all of the DALI ballasts have been commissioned, use this feature to store all DALI data (Groupings, scenes and fade-rates etc). If a ballast is replaced the data for the replaced ballast will be re-uploaded.

7.5 Assigning Short Addresses

- Select the WMR-DLI in the “Device List” to open the “Device Editor”



- Select the “DLI Setup” tab



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

  NB

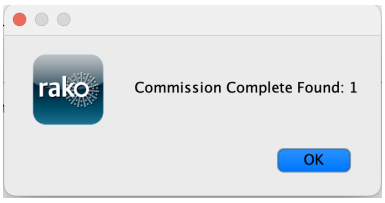
  If DALI ballasts have been added to an existing DALI network, select "Automatically Re-Address" which will only assign short addresses to DALI ballasts with no short address.

- 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 WMR-DLI.

  NB

  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 WMR-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.

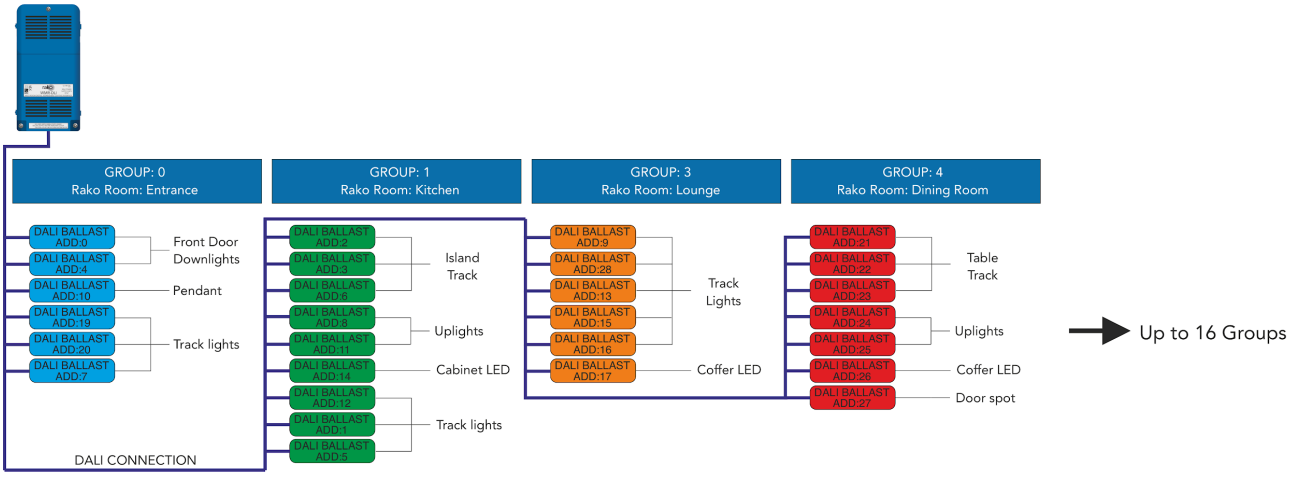


Diagram demonstration of how ballasts are grouped together.

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 WMR-DLI from the Device List



- Select "Circuits (mappings"

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

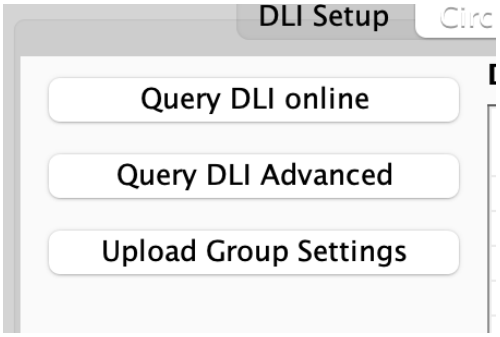
  "<" - Off
  ">" - On
  "?" - Ident

- 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.

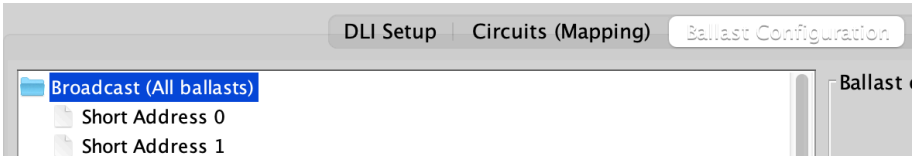


9 Ballast Configuration

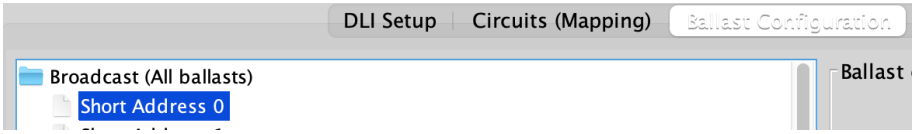
Additional configuration is available via the Ballast Configuration menu once the DALI ballasts have been assigned short addresses.

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)"

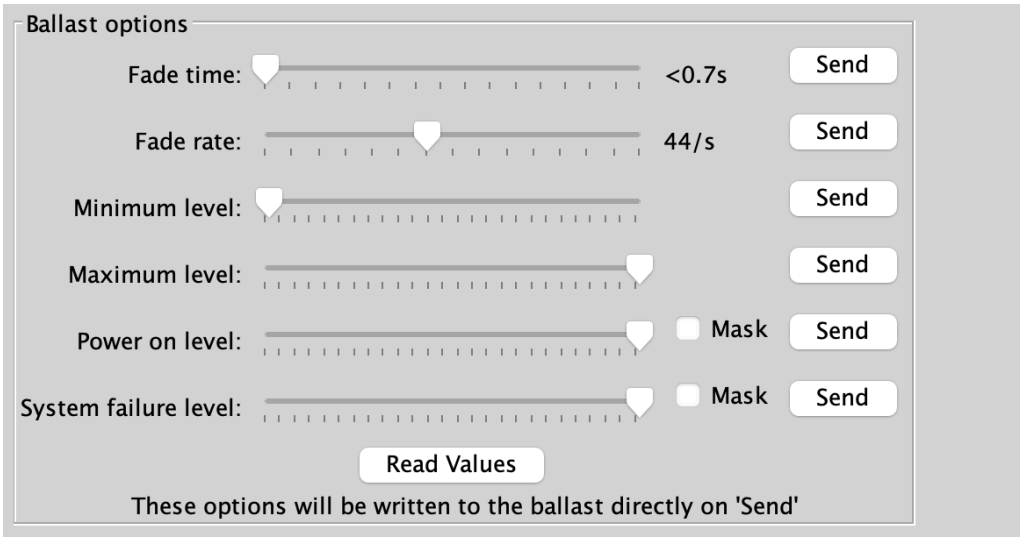


Configurations will apply to all ballasts



Configurations will apply to ballast assigned 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.

NB

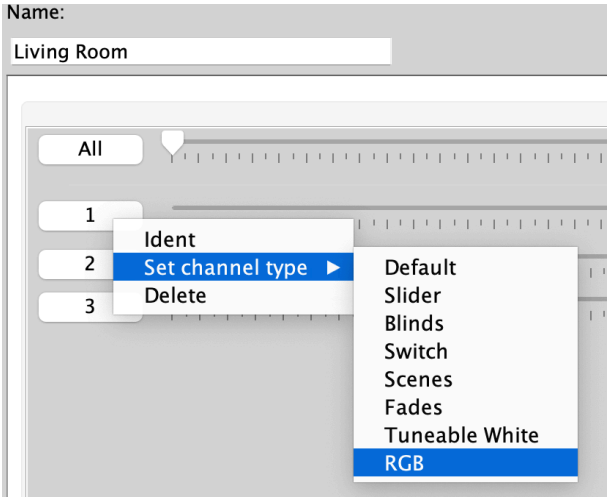
Colour and temperature control can also be set in the Device Editor in the Ballast Configurations tab although this is not necessary.

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.



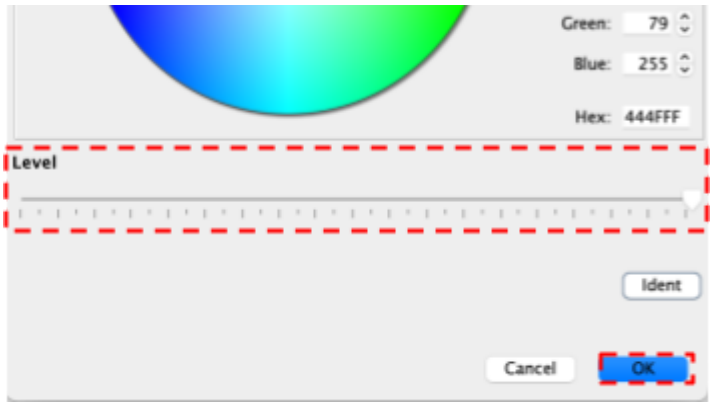
- Tick "Set RGB".



- Select the required colour.



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



- Select “Store Scene”



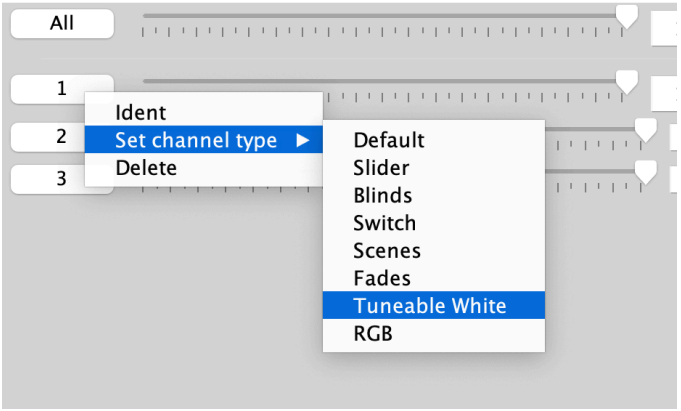
- The Scene is now set for the specified colour.

12.2 Setting a Temperature Scene

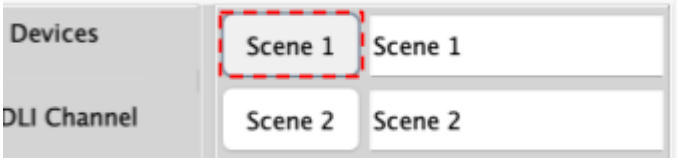
- Select the Room which has the RGBWAF Channels assigned.



- 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 the Temperature and brightness are correct, and select “OK”



- Select “Store Scene”



- The Scene is now set for the specified temperature.

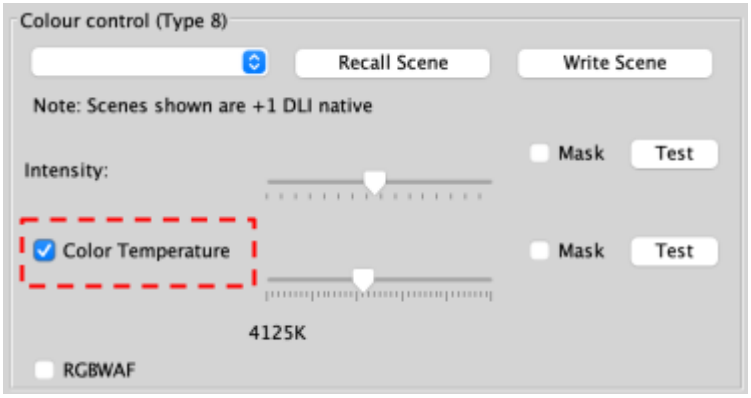
13 Colour Control In Device Editor

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

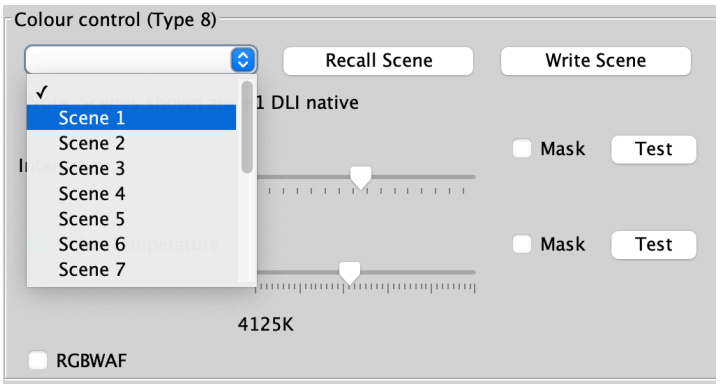
NB
The colour control menu is not suitable for DT6 ballasts as they require two DALI addresses: one for each channel.

13.1 Setting Temperature

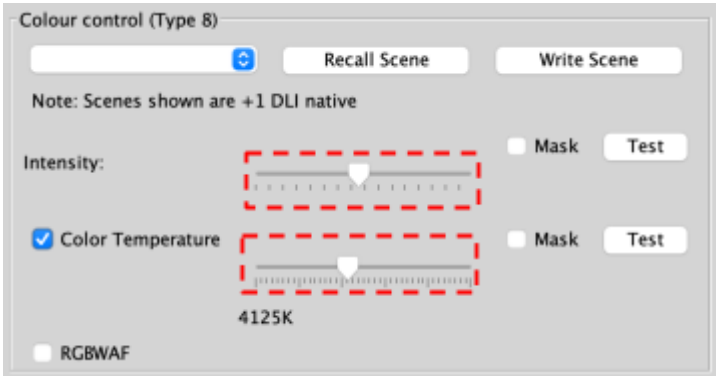
To set the colour temperature of a ballast, first ensure that the "Colour Temperature" box is ticked.

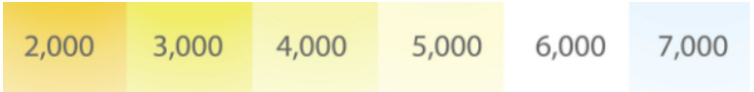


- From the drop-down menu, select the Scene to which the colour temperature will apply.



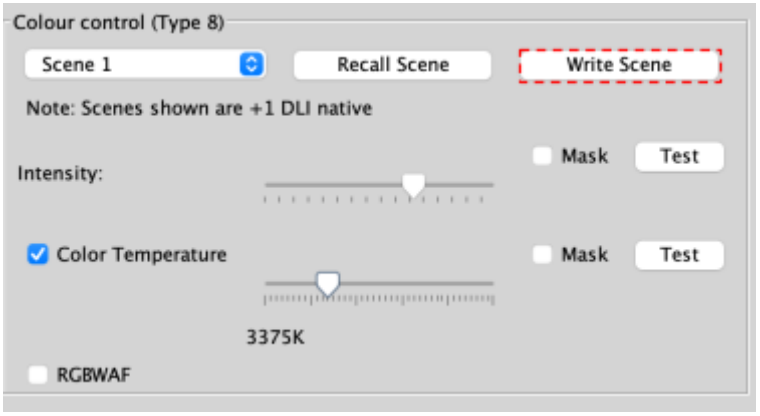
- Using the sliders, select the intensity, and the desired temperature.





Temperature scale measured in Kelvin.

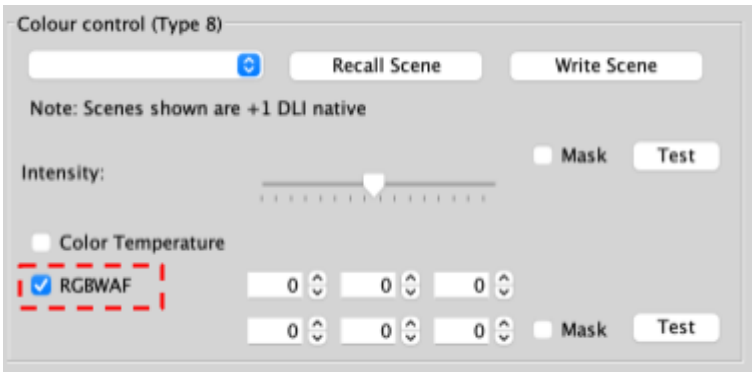
- Use the "Test" buttons to verify the intensity and temperature are correct, then select "Write Scene"



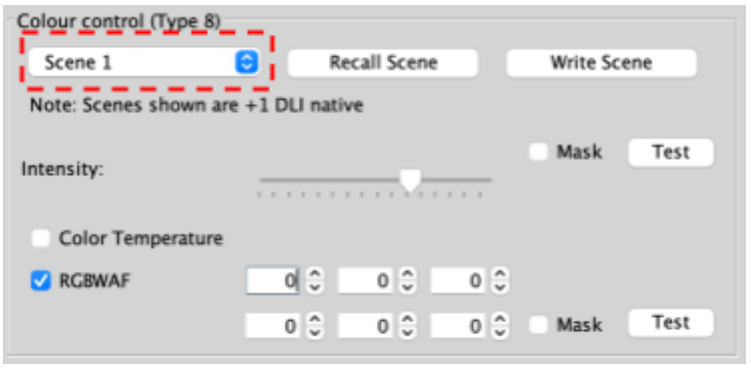
13.2 RGBWAF Colour (DT8 only)

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

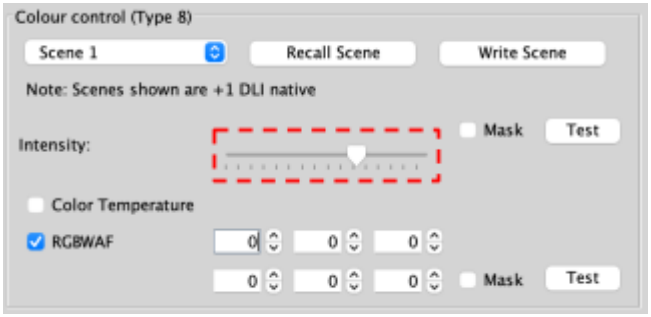
- Ensure that the RGBWAF box is ticked.



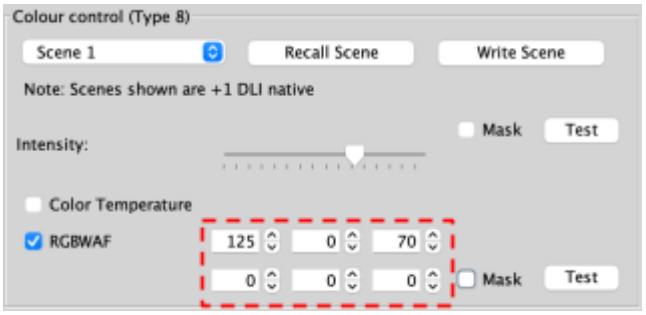
- Select the Scene to be adjusted



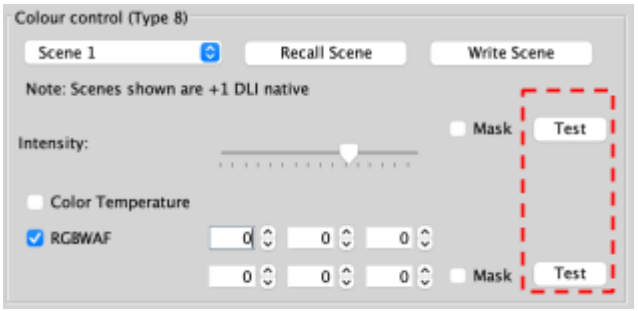
- Using the slider, set the Intensity



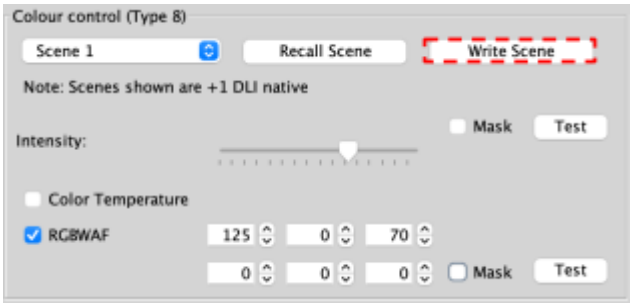
- Enter a value between 0-254 in each required input, representing Red, Green, Blue, White, Amber and Free Colour.



- 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

WK-HUB Instruction Manual - Section 6

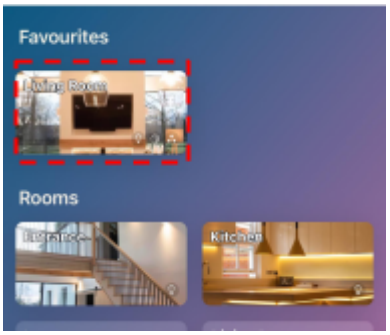
Wireless Systems

RK-HUB Instruction Manual - Section 6

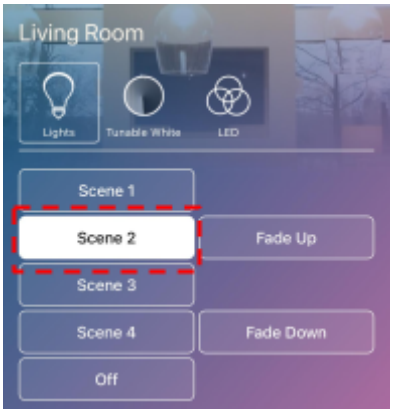
14.1 Setting a Colour Scene in the Rako App

- Open the Rako App, Connect to the HUB

- Select the Room requiring the Scene change



- Select the Scene number to change



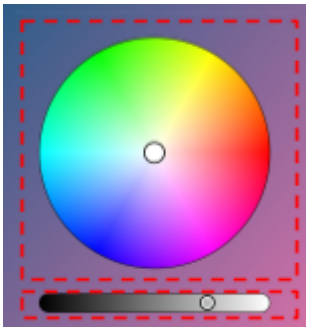
- Select the “LED” icon



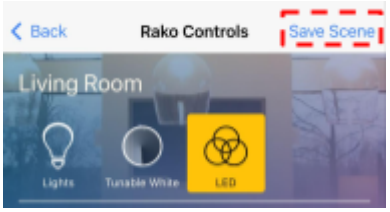
- Select “Edit Scene”



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



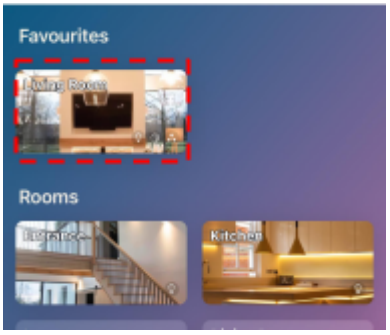
- Select “Save Scene”



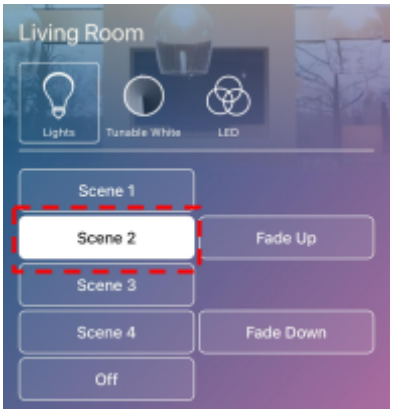
14.2 Setting Colour Tunable Scenes in the Rako App

- Open the Rako App, Connect to the HUB

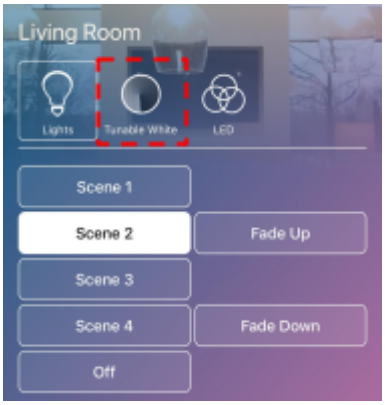
- Select the Room requiring the Scene change



- Select the Scene number to change



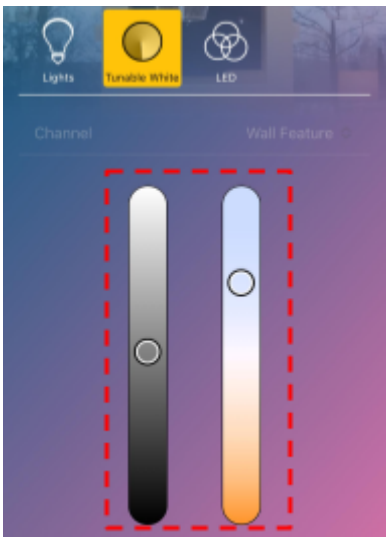
- Select the "Tunable White" Icon



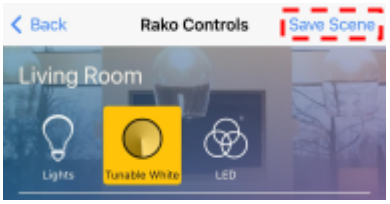
- Select "Edit Scene"



- Adjust the Temperature and Brightness sliders to the desired level.



- Select “Save Scene”



15 Advanced features of WMR-DLI

15.1 Swap Channels

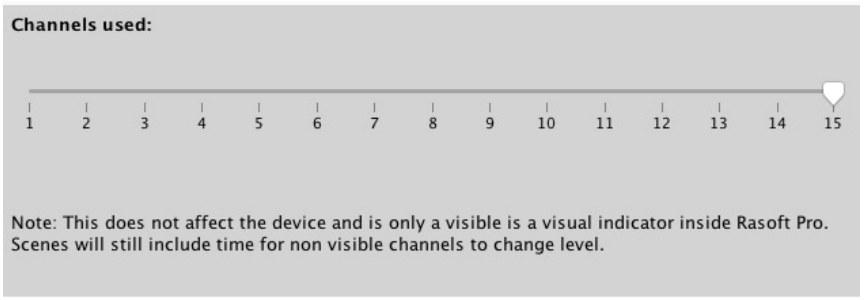
Two DALI short addresses can either be merged or swapped. “Perform Swap” will directly swap two DALI short addresses. “Perform Move” will take DALI Short Address 1 and merge it with DALI Short Address 2.



15.2 Visible Channels

The WMR-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.



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, or by calling our customer support helpline on 01634 226666.

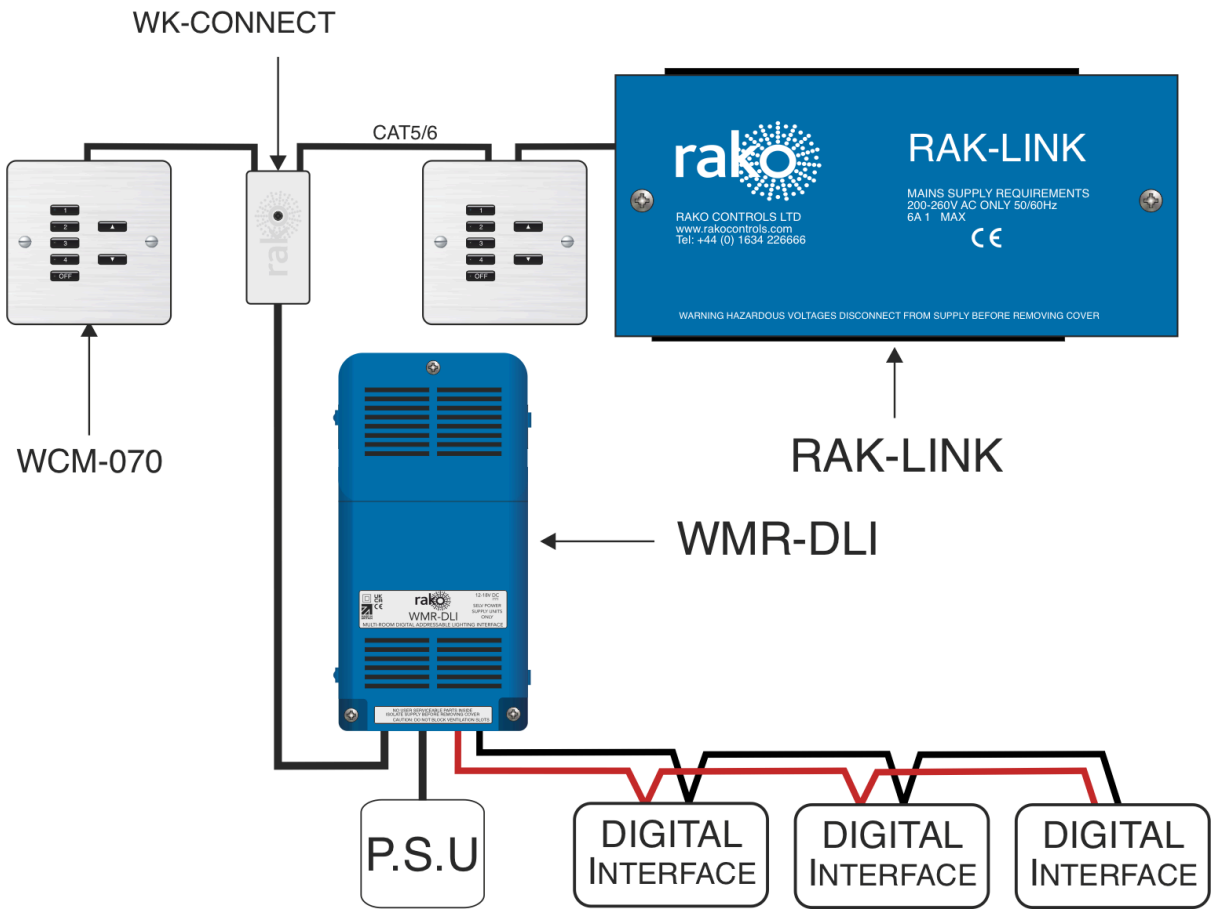
Appendix 1 - Hardware Changes

Power Supply

- WMR-DLI issues D and onwards require a 12V DC power supply
- WMR-DLI issues C and below require an 18V DC power supply

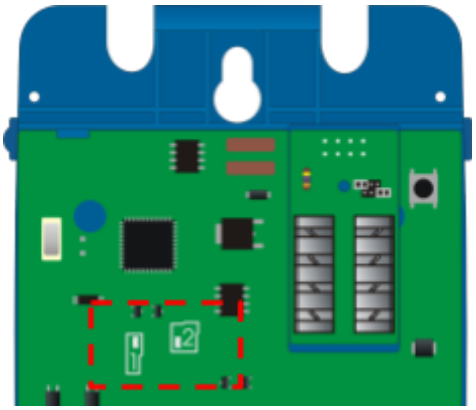
Appendix 2 - Recommended Wiring Topology

There are several ways to wire the DALI bus when connecting ballasts to the WMR-DLI, it is recommended to wire in a radial topology which can be seen below:



Appendix 3 - LED States

The table below references the two LEDs on the WMR-DLI board labelled “1” and “2”.



State	LED 1	LED 2
CAN bus activity	Rapid Flash 0.16s	Solid
Setup mode	Multiple slow flashes 0.5s	Solid
Ident	Long single pulse 2s	Solid
Bootloader	Multiple slow flashes 0.5s	Off
Bootloader firmware updating	Multiple slow flashes 0.5s	Rapid Flash 0.16s
DALI short	Fast flash 0.1s	On