Instruction Manual
WSR-DLI

15-Channel Digital Lighting Interface

2024
Version 2.1.0

For programming information, see the Wired System Programming Guide

For further installation information, see the Wired RAK Application Sheet

Contents

1 What is the WSR-DLI?

The WSR-DLI is used in a Rako Wired network to interface with up to 64 DLI Ballasts, 15 groups can be created in a single Room.

When used with compatible DT8 Ballasts, the WSR-DLI can be used for RGBW and colour-tunable control.

2 Connections

The WSR-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 DLI control input is used to connect the DLI control cables which run to the DLI Ballasts.
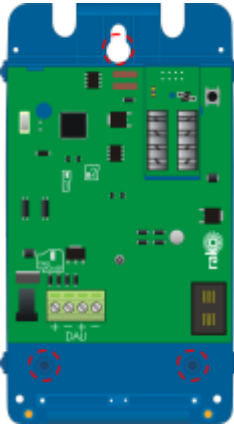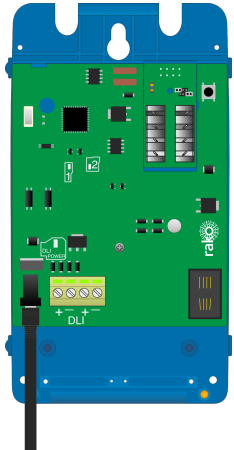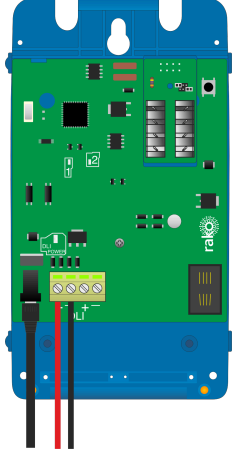
The WSR-DLI comes with a 12V DC power supply, this must be connected to the 12V DC port for the WSR-DLI to function.

DAUGHTER BOARD

RJ11 PORT

12VDC INPUT

DLI CONTROL INPUT
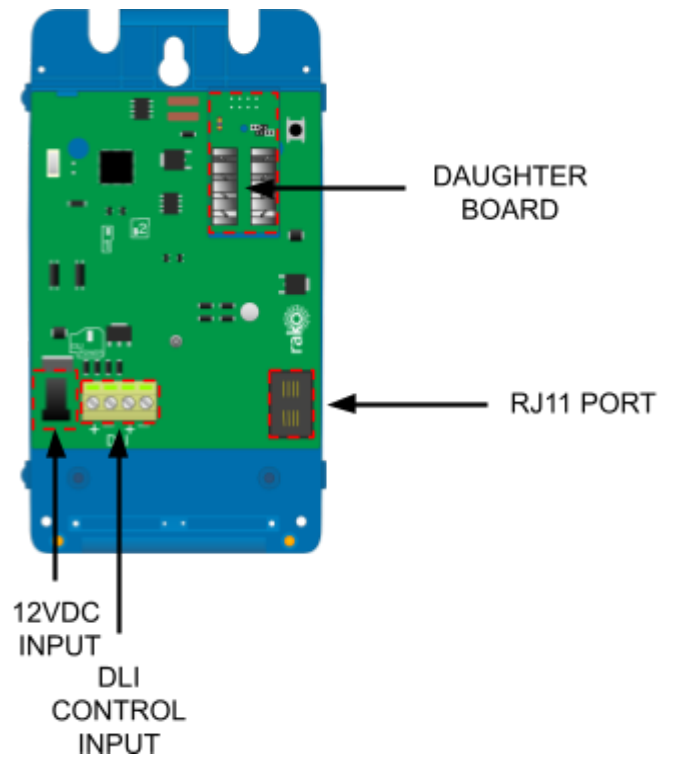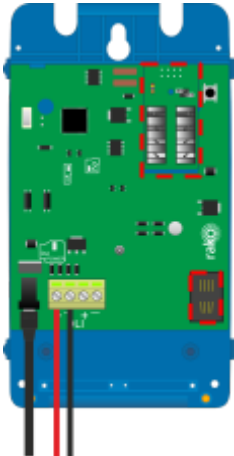
3 Installing the WSR-DLI

POWER SHOULD BE ISOLATED THROUGHOUT THE INSTALLATION PROCESS

STEP 1		Fix the back section of the WSR-DLI to the wall using the fixing points. NB Ensure there is a mains plug socket within 0.5M of the unit for the WSR-DLI power supply.

STEP 2		Connect the power supply which is supplied with the WSR-DLI.
STEP 3		Connect the DLI control cable which runs to the DLI 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 WSR-DLI for more information.

NB

LEDs will illuminate on the WSR-DLI when a connection is made to the Rako Wired network, the DLI section of the WSR-DLI still requires permanent power from the 12V DC PSU.

4 Terminating the WSR-DLI

TERMINATION ON THE WSR-DLI IS ONLY REQUIRED WHEN USING THE 8-WAY KRONE CONNECTOR "CAN CONNECT" DAUGHTERBOARD.

Depending on the position of the WSR-DLI in the Rako Wired network, the termination required will be one of the following:
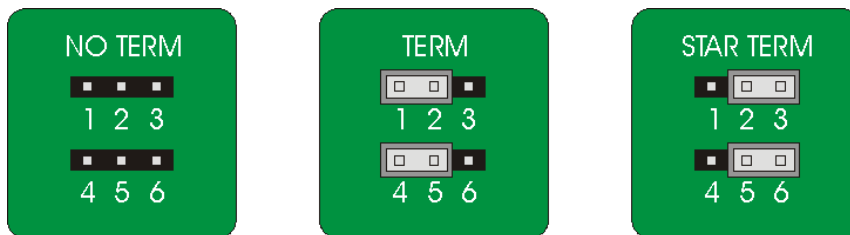
No Term: Both Jumpers removed
Used when the WSR-DLI is not at the end of line. This is usually identifiable by two cables being punched down to the WSR-DLI.

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

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

5 Adding the WSR-DLI as a device

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

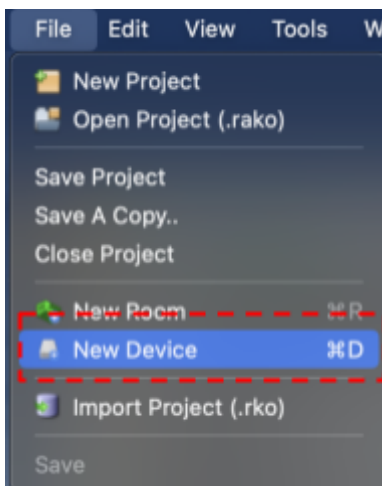Wired System Programming Guide

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.
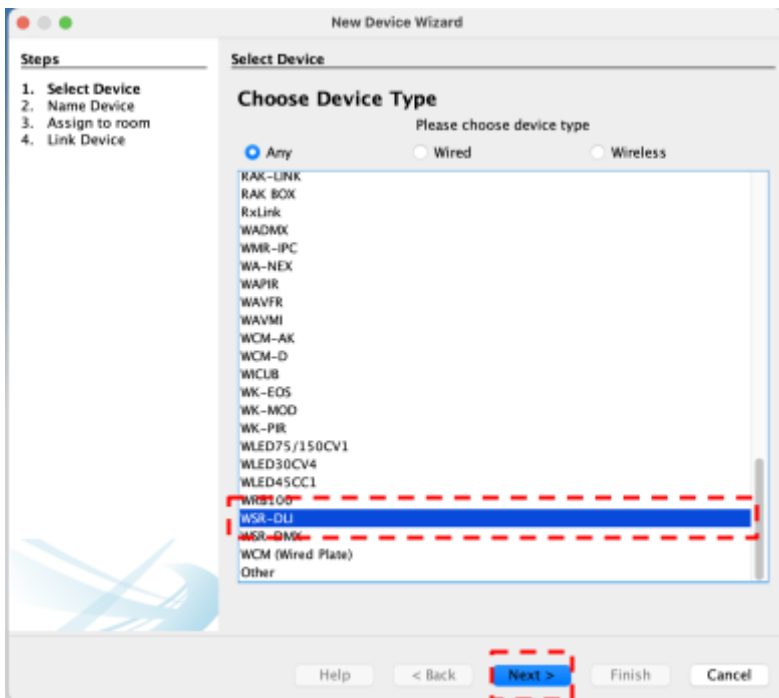
If the above has not been done, refer to the Wired System Programming Guide before continuing.
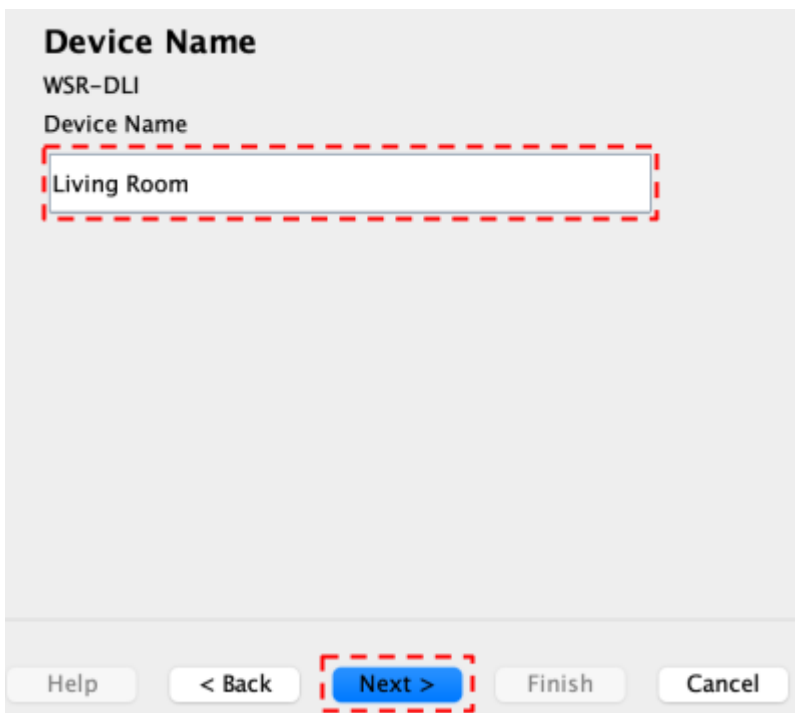
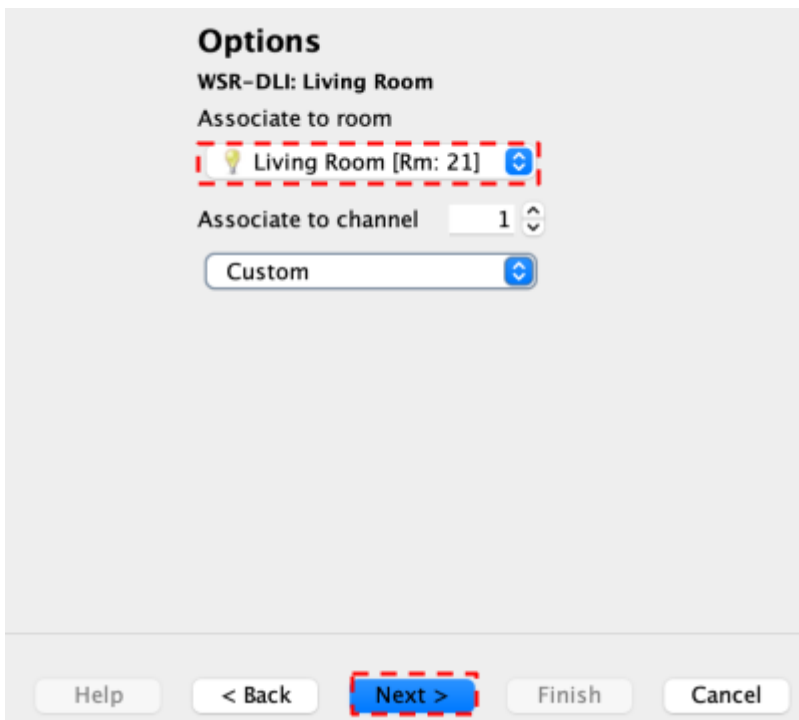- Select "File" - "New device" to bring up the "New device Wizard"

- Select "WSR-DLI" and then select "Next".

- Choose the WSR-DLI name, and select "Next".

- Associate the WSR-DLI with a Room using the drop-down menu, leave "Associate to Channel" as it is and select "Next"

Options

WSR–DLI: Living Room

Associate to room

🔆 Living Room [Rm: 21] ⬍

Associate to channel 1 ⬍

Custom ⬍

| Help | < Back | **Next >** | Finish | Cancel |

- Put the WSR-DLI into Setup Mode by pressing and holding the blue setup button on the unit for 3-4 seconds.
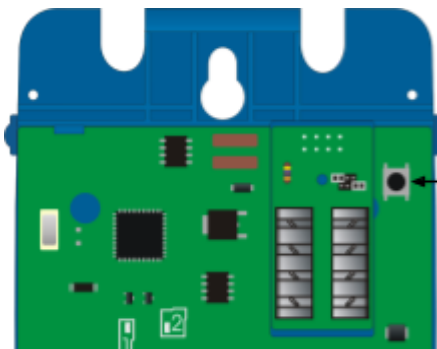
PRESS AND
HOLD FOR 2-3
SECONDS

- Once the WSR-DLI has entered Setup Mode, the blue LED on the unit will blink periodically and the Device Setup Wizard will show 'Device Found'.

- Select "Finish".

Device Setup Mode
WSR–DLI
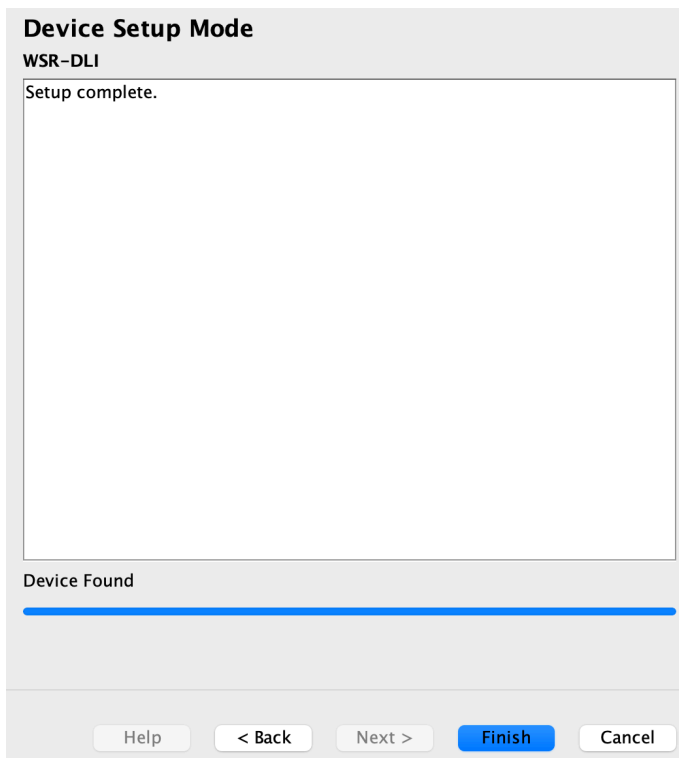
Setup complete.

Device Found

| Help | < Back | Next > | **Finish** | Cancel |

- The WSR-DLI has been assigned in Rasoft Pro, it can be accessed by selecting it in the "Device List"

    Devices
    In Project
      HUB/Bridge RAKO HUB
      WK–PIR ID:257300
    > RAK–LINK R:900 C:100
      WSR–DLI Living Room

6 Configuring the WSR-DLI

Now that the WSR-DLI has been added as a Device, it requires further setup to assign DLI Ballasts to give them short addresses and group DLI Ballasts together should it be required.

6.1 Assigning Short Addresses

Each DLI Ballast requires a unique short address so that it can be communicated with individually, multiple short addresses can be grouped within 15 Channels of the Rako Room to which the WSR-DLI is assigned. There are two options for assigning short addresses.
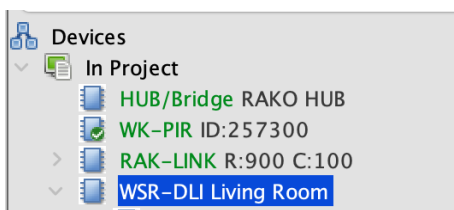
6.2 Force Re-address

Any short addresses on DLI Ballasts are replaced with new short addresses, this is typically used on new systems.
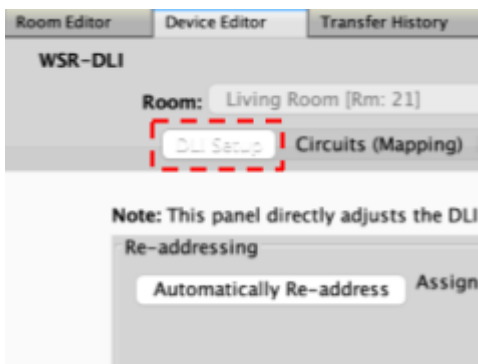
6.3 Automatically Re-address

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

- Select the WSR-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 DLI Ballasts.

   NB

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

- The connected lights for the DLI Ballasts will flash when a short address has been assigned, once all DLI 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 WSR-DLI.

7 Managing the WSR-DLI Channels

The short addresses on the DLI Ballasts need to be paired with Rako Channels, there are two options for grouping.

7.1 Grouped Mapping

Multiple DLI short addresses can be grouped together onto a single Rako Channel, there can be up to 15 groups in a single Rako room across 64 DLI Ballasts.

7.2 Direct Mapping

The DLI short address will relate directly to the Rako Channels, for example: DLI short address 0 would map to Rako Channel 1, DLI short address 1 would map to Rako Channel 2.

7.3 Overriding a DLI Ballast

The DLI Ballast with an assigned short address can be tested by selecting a DLI Ballast with an assigned short address and pressing the following keys:

> The <, key = Send on command
>
> The >. key = Send off command
>
> The ?/ key = Toggle on/off

DLI Short Address	Test (Double Click)	DLI Status	Rako Channel	DLI Group #
0	Send On		Channel 1 [Ch: 1]	0

7.4 Store Auto Heal Data

After commissioning all DLI Ballasts, store the DLI network information, failing to do this will require re-commissioning all DLI Ballasts should any need to be replaced.

When a DLI Ballast is replaced and Auto Heal Data has been done, the new DLI Ballast will have its short address automatically uploaded when it is connected to the DLI bus.

Should more than one DLI Ballast need to be replaced at the same time, the network should be re-addressed using Force Readdress.

> Store Auto Heal Data
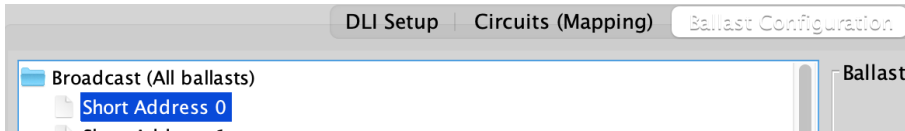
8 Ballast Configuration

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

8.1 Selecting ballasts

Before any of the settings below can be set on the DLI Ballasts, the short address of the DLI Ballast must be selected, if the settings apply to all DLI Ballasts, then select "Broadcast (all ballasts)"
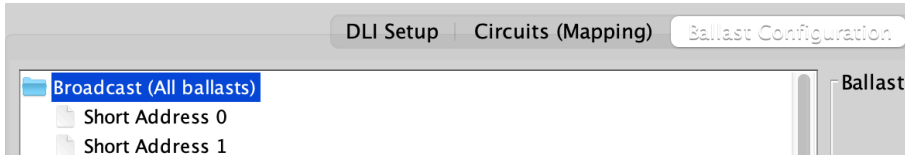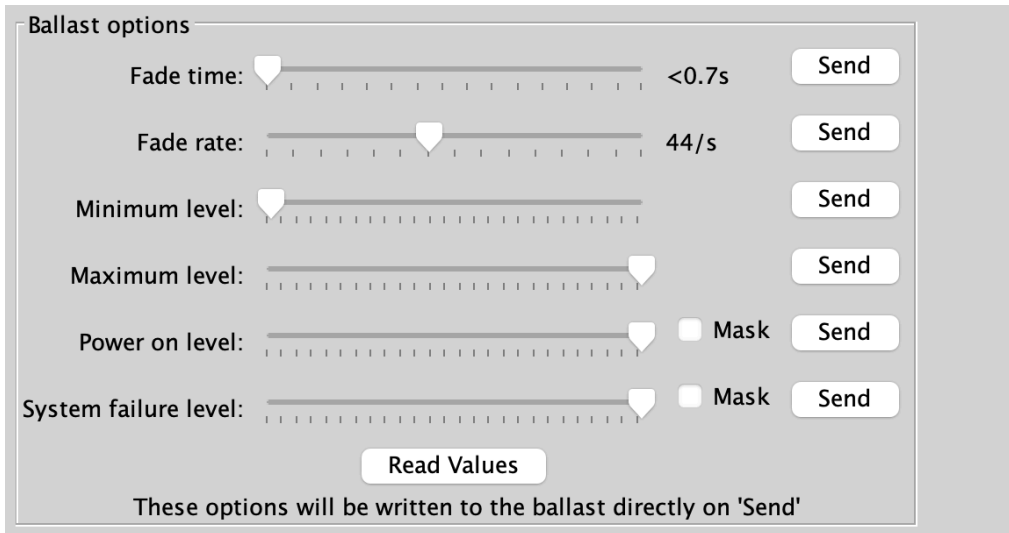

Configurations will apply to all ballasts

Configurations will apply to Ballast assigned short address 0

9 Ballast Options

9.1 Fade Time

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

9.2 Fade Rate

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

9.3 Minimum Level

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

9.4 Maximum Level

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

9.5 Power On Level

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

9.6 System Failure Level

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

9.7 Read Values

Reads the current configuration of the selected ballast.

10 Linear and Exponential Dimming (DT6)

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

10.1 Linear Dimming (Recommended)

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

10.2 Exponential Dimming

Within the lower dimming range, the driver's influence on light output evolves gradually, within the higher dimming signal range, its impact on lighting effects shifts more rapidly.
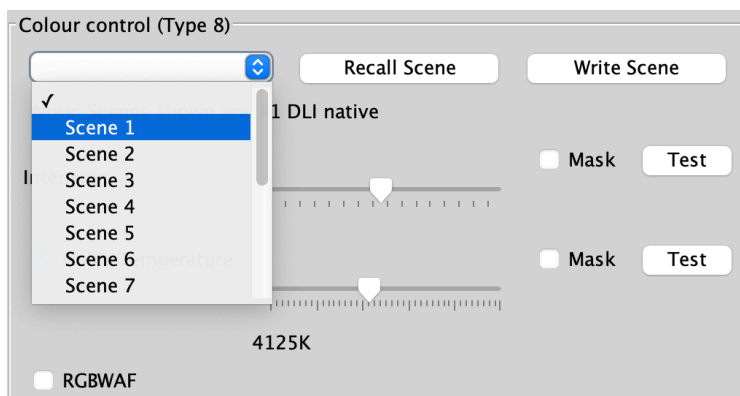
11 Colour Control (DT8) In Device Editor

DT8 drivers can be configured to set colour temperature as well as RGBW.
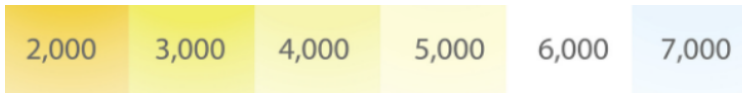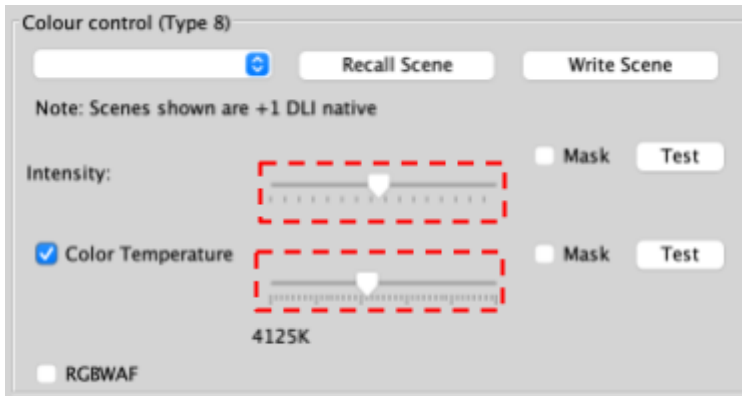
11.1 Setting Colour Temperature

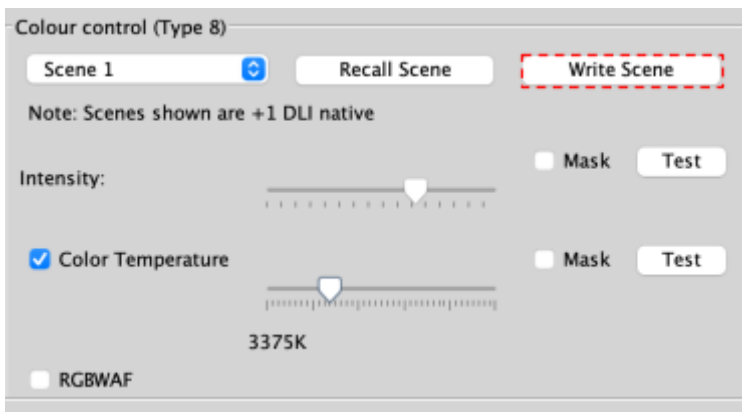To set the colour temperature of a ballast, first ensure that the 'Colour Temperature' box is ticked.
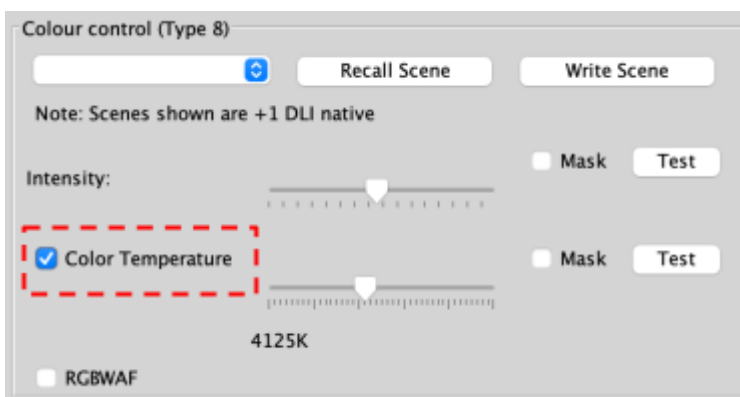
- From the drop-down menu, select the Scene to which the colour temperature will apply.

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

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

11.2 RGBWAF Colour

RGBWAF abbreviates Red, Green, Blue, White, Amber, and Free Colour. These six colors represent the output capabilities of compatible lights.
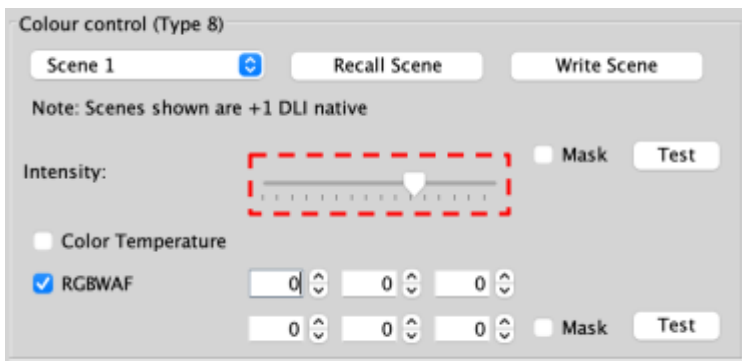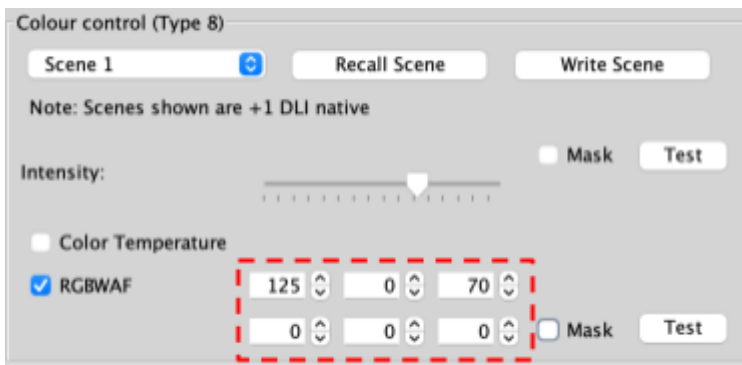
- Ensure that the RGBWAF box is ticked.
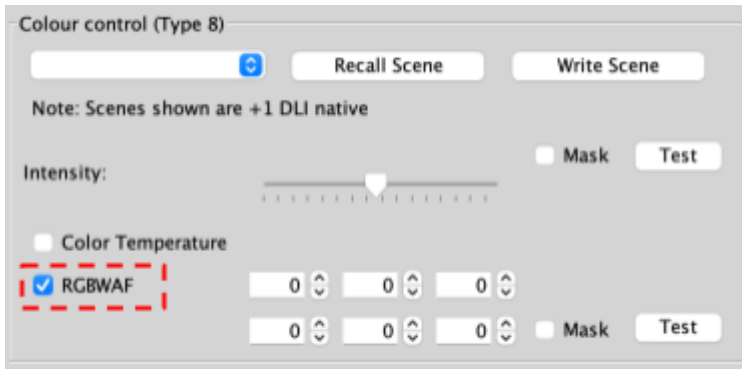
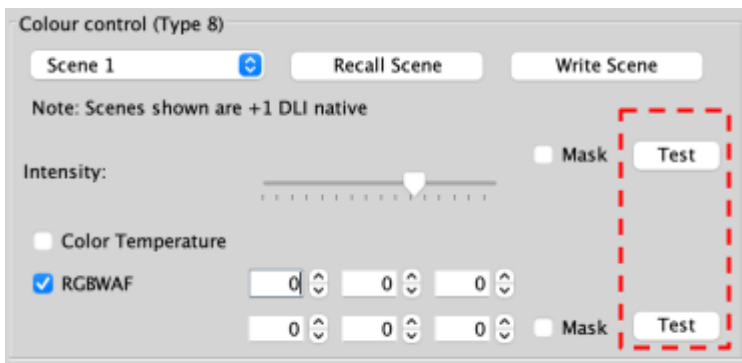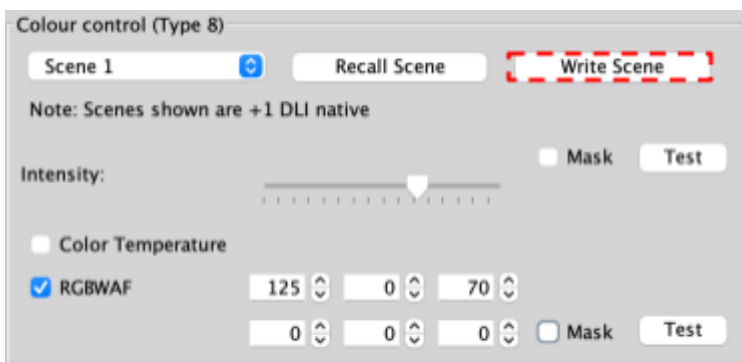- Select the Scene to be adjusted
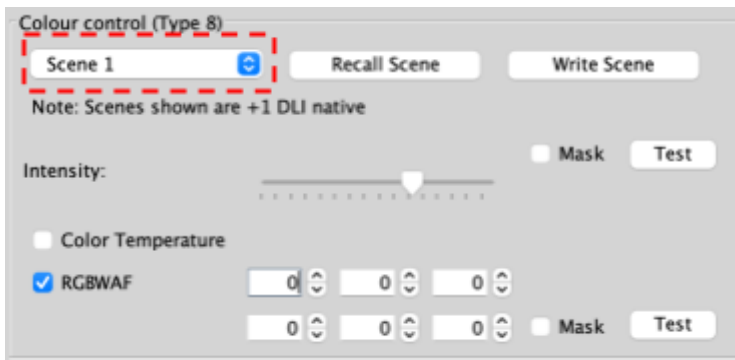
- Using the slider, set the Intensity

- 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'

# 12 Colour Control (DT8) In Device Editor

When access to the ballast configuration page is not possible or practical, Rako Channels can be adjusted for colour and temperature control in Rasoft Pro and the Rako App.
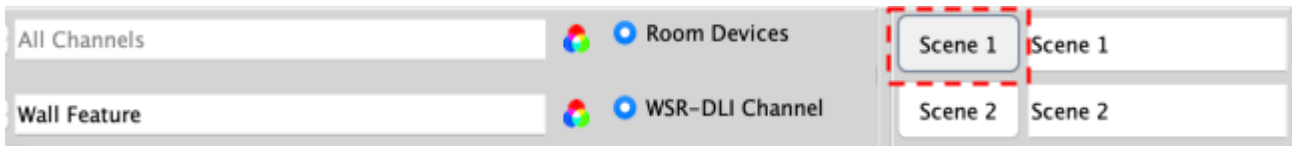
12.1 Setting an RGB Scene in Rasoft Pro

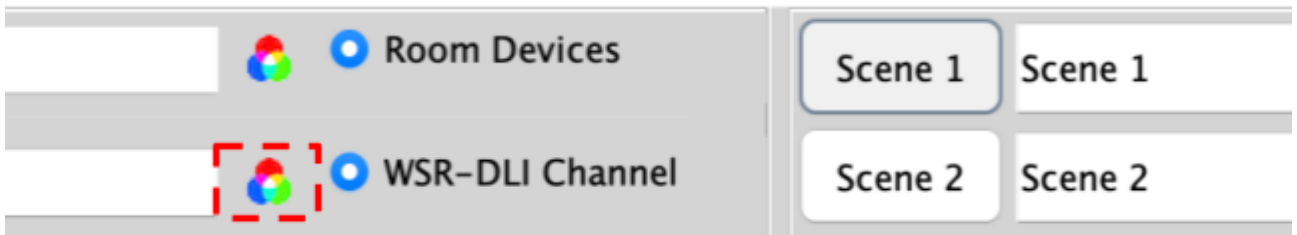- Select the Room which has the RGBWAF channels assigned.

- Right-click the Channel number, and select "Set Channel type" > "RGB"
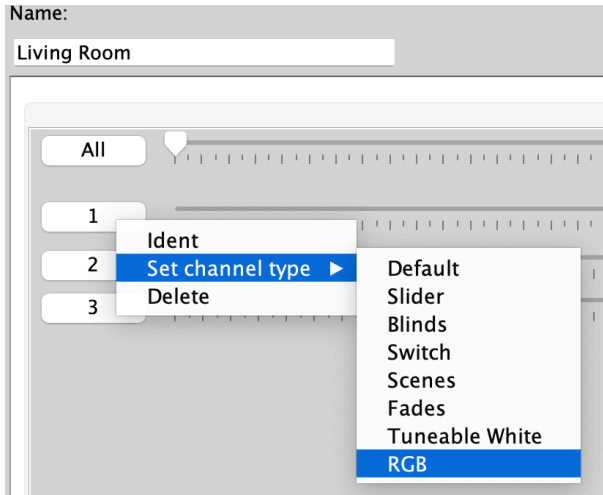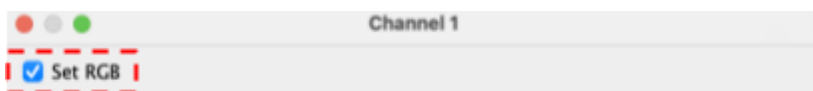

- Select a Scene required to be changed.
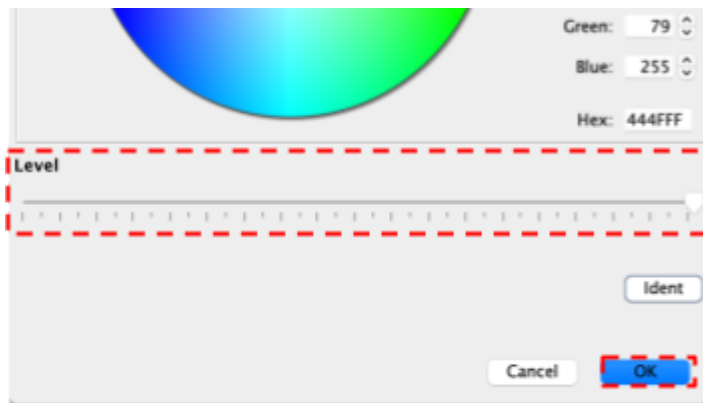

- Select the colour wheel.

- Tick 'Set RGB'.

- Select the required colour.

- Select the required intensity using the slider, and select "OK"
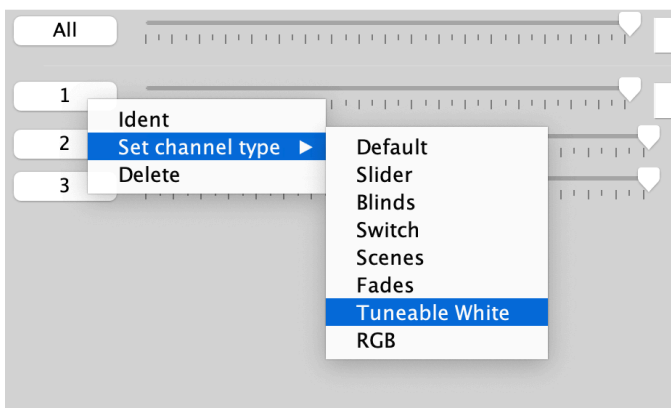
- Select "Store Scene"

- The Scene is now set for the specified colour.

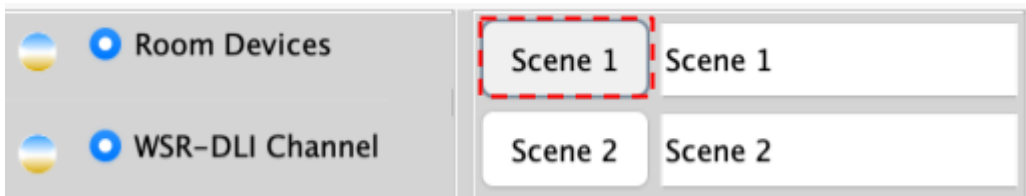## 12.2 Setting a Temperature Scene in Rasoft Pro

- Select the Room which has the RGBWAF channels assigned.

- Right-click the Channel number, and select "Set Channel type" > "Tuneable White"
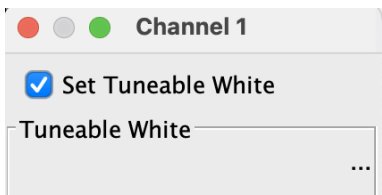

- Select the Scene to be changed.

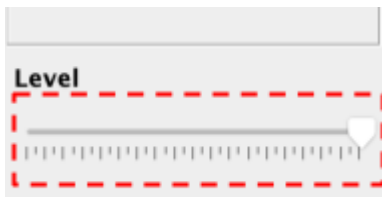- Select the Tunable white icon for the Channel.

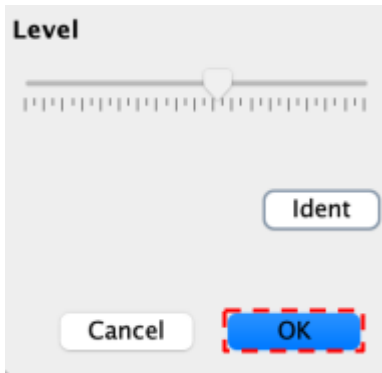
- Tick "Set Tunable White".

- 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 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:
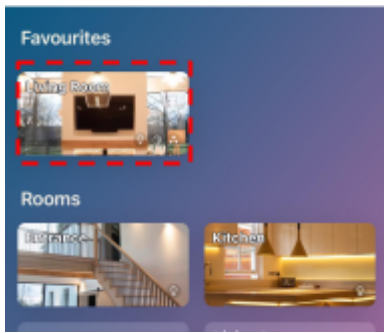
Wired Systems

WK-HUB Instruction Manual - Section 6

Wireless Systems

RK-HUB Instruction Manual - Section 6

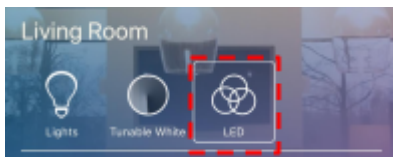## 13.1 Setting a Colour Scene in the Rako App

- Open the Rako App, Connect to the HUB

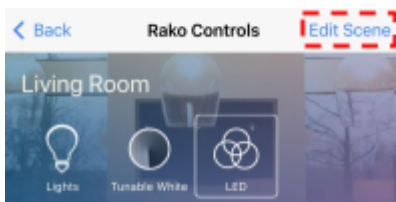- Select the Room requiring the Scene change
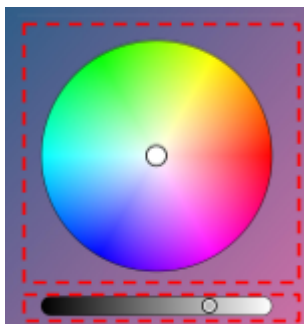
- Select the Scene number to change
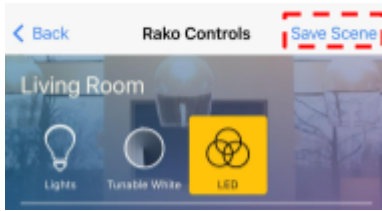

- Select the "LED" icon

- Select "Edit Scene"

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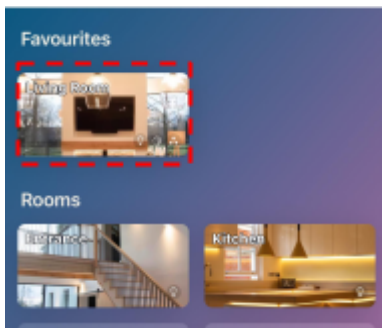
- Select "Save Scene"

13.2 Setting Colour Tunable Scenes in the Rako App

- Open the Rako App, Connect to the HUB

- Select the Room requiring the Scene change
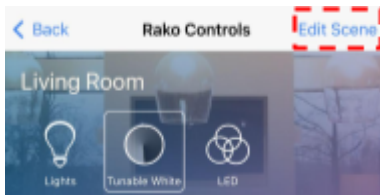

- Select the Scene number to change
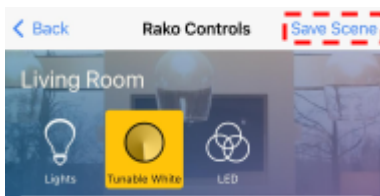

- Select the 'Tunable White' Icon

- Select 'Edit Scene'

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

- Select "Save Scene"

14 Advanced features of WSR-DLI

14.1 Swap Channels

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

14.2 Visible Channels

The WSR-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

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

Appendix 2 - Recommended Wiring Topology

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