

DMX512 Setup and Addressing Instructions

For RCL DRX Range Luminaires

BEFORE YOU START

- Read these instructions carefully. For the latest instructions for all our products please see www.rclighting.com/instructions
- For DMX Installation instructions, please refer to DOC-083 "DMX Installation Instructions".
- RCL spotlights need to be converted for DMX use. This cannot be done on site and must be specified when ordering.
- RCL spotlights converted for DMX still require a third party DMX source for control. RCL's handheld remote controller is used for addressing the spotlights only.
- DMX systems should always be installed by a contractor who understands the requirements of the DMX standard. Before RCL spotlights are installed, it is important to test the cable and source, as indicated in DOC-083.

Read these instructions carefully. For the latest instructions on all our products see www.rclighting.com/downloads

These instructions cover the following installation methods:

- A Setting the Control mode
- B Addressing Maps
- C Programming the Control mode
- D Addressing via RCL controller
- E Operating Mode

Important Safety Information

READ INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT. SAVE INSTRUCTIONS FOR LATER REFERENCE.

PRODUCT IS NOT SUITABLE FOR PHASE DIMMING

- Products must be installed by a suitably qualified professional only. Installations must conform to national installation codes and accident prevention regulations.
- Ensure electrical rating shown on product label conforms to mains voltage supply.
- Do not modify the product in any way. RCL accepts no responsibility for damage caused by modifying this product.
- Dispose of this product in accordance with WEEE or other national regulations.

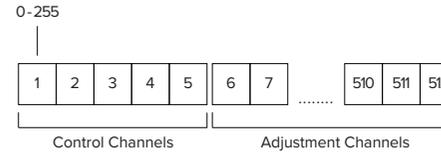
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Introduction to DMX512

As an alternative to using RCL's handheld remote controller, it is also possible to control RCL's spotlights using the DMX512 protocol. DMX was originally developed for use in the theatre but is now widely used in entertainment, hospitality and retail.



The DMX signal is made up of 512 'Channels'. Each channel can have a value between 0-255. For standard DMX setup, RCL requires the first five channels as Control Channels. The remaining channels (6-512) can be used for data.

NOTE

- The number of adjustment channels that the fixture uses is dependent on the functions available on the fixture and the control mode that is selected. By default RCL fixtures require four consecutive channels.

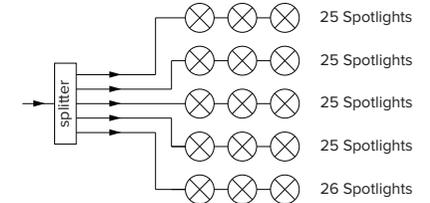
SA	SA+1	SA+2	SA+3
Pan (Coarse)	Pan (Fine)	Tilt	Dimmer

Our default configuration for an RCL spotlight requires four consecutive adjustment Channels to control it – 2 for Pan, 1 for Tilt and 1 for Dimmer Level. The first channel that a light reads is called the Start Address (SA).

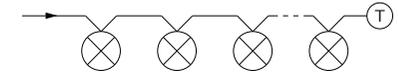


The DMX signal is sent out as a continuous stream of data from the DMX source via a cable or track. The spotlight uses the Start Address to identify which data it needs to read.

The maximum number of spotlights that can be individually controlled by a single DMX source (sometimes called a Universe) is dependent on the control mode selected and the number of features the fixture is fitted with. By default a DMX source can support 126 spotlights providing pan, tilt and dimmer control. However, due to loading issues RCL recommends that no more than 30 lights be connected to one DMX feed. To control more than 30 lights, it is possible to fit isolating amplifiers known as Splitters (readily available from third party manufacturers).



A typical Splitter with five outputs can control all 126 spotlights by connecting 25 to four chains and 26 to the fifth.



The DMX system must be connected in a 'Daisy Chain' configuration and the chain must be terminated with a 120Ω DMX terminator. All cable used must be approved DMX cable.

A Setting the Control mode

The following DMX Control Modes can be selected, these modes allow access to greater control with additional precision, or alternatively basic control with minimal channel requirements.

NOTE

- You can skip this step if you wish to use the standard four channel Movement mode as this is the factory default.

Name	Description	Channels
Dim 8b	Basic dimming only (log dim curve)	1
Movement	Movement with basic dimming	4
Dim 16b	Precise dimming control only (linear dim curve)	2
Movement 16b	Precise movement with precise dimming	6
Dim Ext	Precise dimming control with additional channels	[Defined by light engine fitted]
Ext Move	Precise movement with precise dimming and additional channels	[Defined by light engine fitted]



NOTE

- Default factory setting is movement

B Addressing Maps

1

Dim 8b

SA

Dimmer

2

Movement

SA	SA+1	SA+2	SA+3
----	------	------	------

Pan (Coarse) Pan (Fine) Tilt Dimmer

3

Dim 16b

SA	SA+1
----	------

Dimmer (Coarse) Dimmer (Fine)

4

Movement 16B

SA	SA+1	SA+2	SA+3	SA+4	SA+5
----	------	------	------	------	------

Dimmer (Coarse) Dimmer (Fine) Pan (Coarse) Pan (Fine) Tilt (Coarse) Tilt (Fine)



NOTE

- The following extended dim addressing maps requires an advanced light engine to be installed

5

Dim Ext: Lens Vector™ or VPS light engine fitted

SA	SA+1	SA+2
----	------	------

Dimmer (Coarse) Dimmer (Fine) Width

Dim Ext: Tunable White light engine fitted

SA	SA+1	SA+2
----	------	------

Dimmer (Coarse) Dimmer (Fine) Colour Temp

Dim Ext: Tunable White and Lens Vector™ light engine fitted

SA	SA+1	SA+2	SA+3
----	------	------	------

Dimmer (Coarse) Dimmer (Fine) Width Colour Temperature

Dim Ext: Colour Controlled light engine fitted

SA	SA+1	SA+2	SA+3
----	------	------	------

Dimmer (Coarse) Dimmer (Fine) Hue Saturation



NOTE

- The following extended move addressing maps requires an advanced light engine to be installed

6

Ext Move: Lens Vector™ or VPS light engine fitted

SA	SA+1	SA+2	SA+3
----	------	------	------

Dimmer (Coarse) Dimmer (Fine) Width Pan (Coarse)

SA+4	SA+5	SA+6
------	------	------

Pan (Fine) Tilt (Coarse) Tilt (Fine)

Ext Move: Tunable White light engine fitted

SA	SA+1	SA+2	SA+3
----	------	------	------

Dimmer (Coarse) Dimmer (Fine) Colour Temperature Pan (Coarse)

SA+4	SA+5	SA+6
------	------	------

Pan (Fine) Tilt (Coarse) Tilt (Fine)

Ext Move: Colour Controlled light engine fitted

SA	SA+1	SA+2	SA+3
----	------	------	------

Dimmer (Coarse) Dimmer (Fine) Hue Saturation

SA+4	SA+5	SA+6	SA+7
------	------	------	------

Pan (Coarse) Pan (Fine) Tilt (Coarse) Tilt (Fine)

Ext Move: Tunable White and Lens Vector™ light engine fitted

SA	SA+1	SA+2	SA+3
----	------	------	------

Dimmer (Coarse) Dimmer (Fine) Width Colour Temperature

SA+4	SA+5	SA+6	SA+7
------	------	------	------

Pan (Coarse) Pan (Fine) Tilt (Coarse) Tilt (Fine)

Ext Move: Colour Controlled and Lens Vector™ light engine fitted

SA	SA+1	SA+2	SA+3	SA+4
----	------	------	------	------

Dimmer (Coarse) Dimmer (Fine) Width Hue Saturation

SA+5	SA+6	SA+7	SA+8
------	------	------	------

Pan (Coarse) Pan (Fine) Tilt (Coarse) Tilt (Fine)



NOTE

- Other custom configurations may be delivered, these will come with supplementary instructions that should be read alongside these.

C Programming the Control Mode

1

Program the control mode by using the buttons on the controller. Cycle through the Function Menu and use the button to select DMX Control.

Use the buttons to choose which option to assign.

2

Select one of the options according to the desired mode:

Dim 8b
Movement
Dim 16b
Movement 16b
Dim Ext
Ext Move

3

Holding the button, aim the controller's laser beam at the sensor of the spotlight you wish to adjust. An LED on the spotlight will illuminate red to show that the light has been selected.

4

To complete the process, aim the controller at the selected spotlight and press the button. The LED on the spotlight will flash blue to indicate that the command has been received.

5

Repeat steps 3 – 4 to set the DMX control mode for each spotlight.

D Addressing via RCL Controller



NOTE

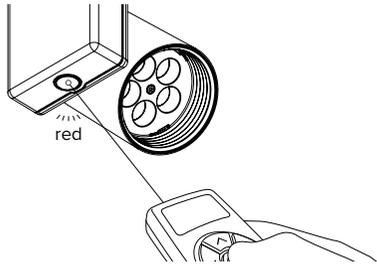
- This process requires the "Set DMX Address" option to be enabled in the RCL handheld controller's Function Menu. If it is not visible, please see DOC-005 "Controller Advanced Instructions" for enabling instructions.

- Using the buttons on the controller, cycle through the Function Menu and use the button to select Set DMX Address.
- Use the buttons to choose which Address to assign.

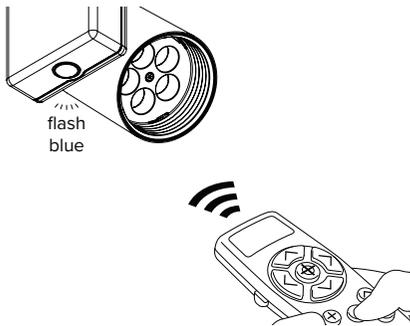


NOTE

- The first Start Address that can be set is 6. Please refer to the section "Introduction to DMX512" for more information.
- The factory default address is 6.



- Holding the button, aim the controller's laser beam at the sensor of the spotlight you wish to Address. An LED on the spotlight will illuminate red to show that the light has been selected.
- The spotlight is now ready to receive the allocated Start Address.

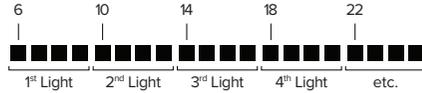


- To complete the process, aim the controller at the selected spotlight and press the button to transmit the Address to the spotlight. The LED on the spotlight will flash blue to indicate that the command has been received.
- Repeat steps 1 – 4 to set the appropriate Start Address for each spotlight.

- To exit the Function Menu at any time, press the button.

IMPORTANT

- The number of channels your RCL spotlight uses is determined by the control mode you have selected, by default each spotlight uses four. Because each spotlight uses four Adjustment Channels, assuming that the first Start Address is 6, the Start Address for the next spotlight would be 10 and so on.

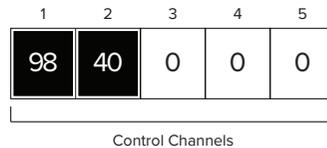


NOTE

- In situations where you want multiple lights to respond to the same DMX instructions, it is possible to allocate the same Start Address to more than one light.

E Operating Mode

- Once all the spotlights have been allocated Start Addresses, the DMX system needs to be set to Operating Mode.
- To set the DMX system to Operating Mode, set Channel 1 = 98, Channel 2 = 40 and Channels 3, 4 and 5 to zero on the DMX source



F Alternative Operating Mode



NOTE

- Feature only available in spotlights supplied in 2023 and later - contact RCL for further information.

If the user has no wish to utilise the "Advanced DMX Control Options" described in DOC-304 then it is possible to disable the requirement for the control channels (addresses 1 to 5) to be set as described under section E by setting the **DMX Language to Standard**.

Programming the DMX Language



NOTE

- In *Standard* mode the first five channels are available for spotlight addressing, if you wish to address a spotlight to these addresses, you will need to change the mode first.

- Program the DMX language by using the buttons on the controller. Cycle through the Function Menu and the button to select **Set DMX Language**
- Select one of the DMX Languages using the buttons:



- Holding the button, aim the controller's laser beam at the sensor of the spotlight you wish to adjust. An LED on the spotlight will illuminate red to show that the light has been selected.
- To complete the process, aim the controller at the selected spotlight and press the button. The LED on the spotlight will flash blue to indicate that the command has been received.
- Repeat steps 3 – 4 to set the DMX language for each spotlight.



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