# LED CREATIVE

## CUSTOM DESIGNED LED SYSTEMS and SOLUTIONS



**BYTE**

SIMPLE INTELLIGENT PIXEL CONTROL

**USER GUIDE**

version 4.0

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## CONTENTS

# BYTE CONTROLLER

## TECHNICIAN QUICK START GUIDE

**Power up**

The Rental Byte controllers are configured as standard for a 230v Ac supply input and 7V Dc on each of the 8 outputs. On start up the LCD display should read – Byte current firmware version 2.x Led Creative.

**LED Pixel types**

*Byte is capable of driving;*

WS2811, 2812 & 2812B. PIXEL TYPE [WS2811] on controller.

2903 (Also referred to as 1904). PIXEL TYPE [1904] on the controller.

It is not possible to select different pixel types for individual outputs.

**Supply voltages and cable runs**

Sigma – all densities of led tape, RGB and single colour – 7 volts.

Sigma Fairground – 24 Volts.

See figures 1-4 for configuration guidelines.
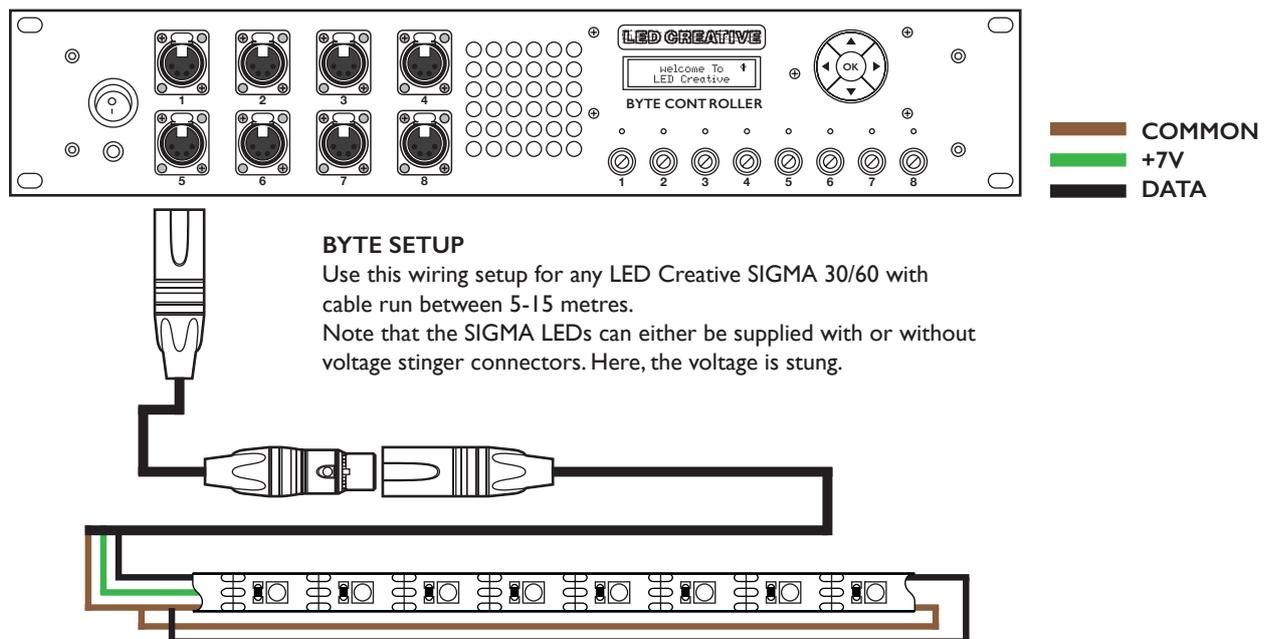


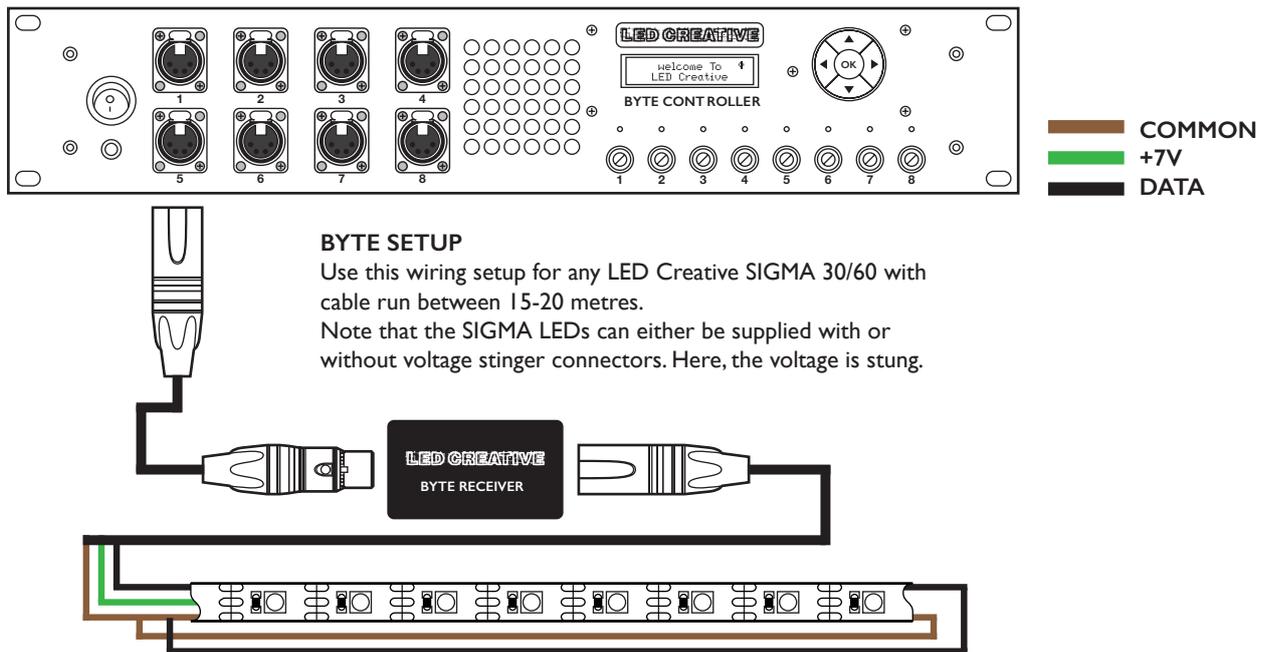**BYTE SETUP**

Use this wiring setup for any LED Creative SIGMA 30/60 with cable run between 5-15 metres.

Note that the SIGMA LEDs can either be supplied with or without voltage stinger connectors. Here, the voltage is stung.

*figure 1*

COMMON
+7V
DATA

**BYTE SETUP**
Use this wiring setup for any LED Creative SIGMA 30/60 with cable run between 15-20 metres.
Note that the SIGMA LEDs can either be supplied with or without voltage stinger connectors. Here, the voltage is stung.

*figure 2*



**BYTE SETUP**
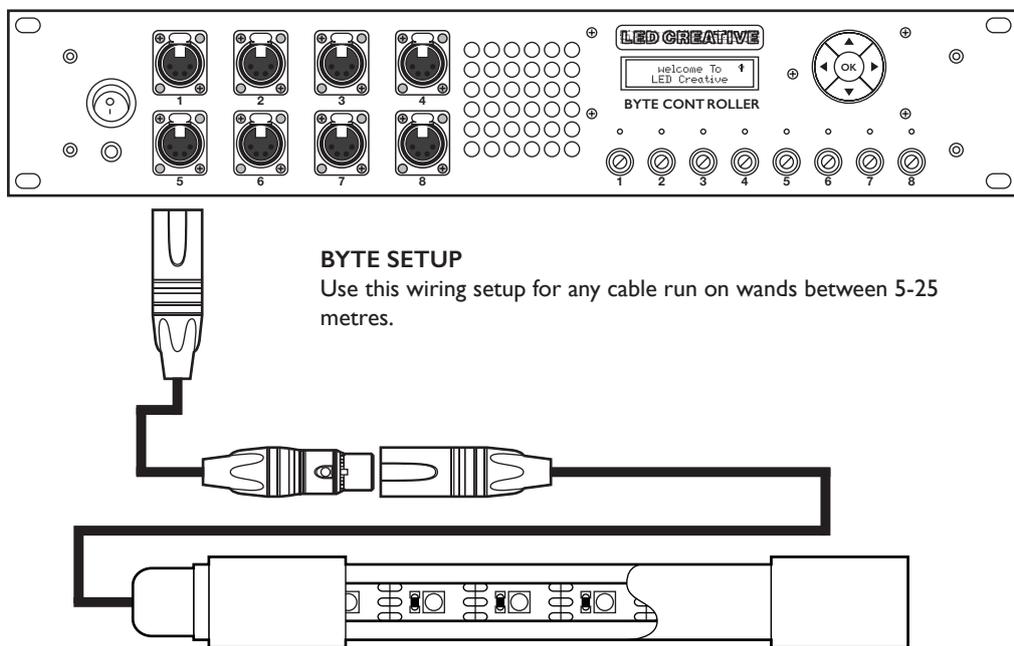Use this wiring setup for any cable run on wands between 5-25 metres.
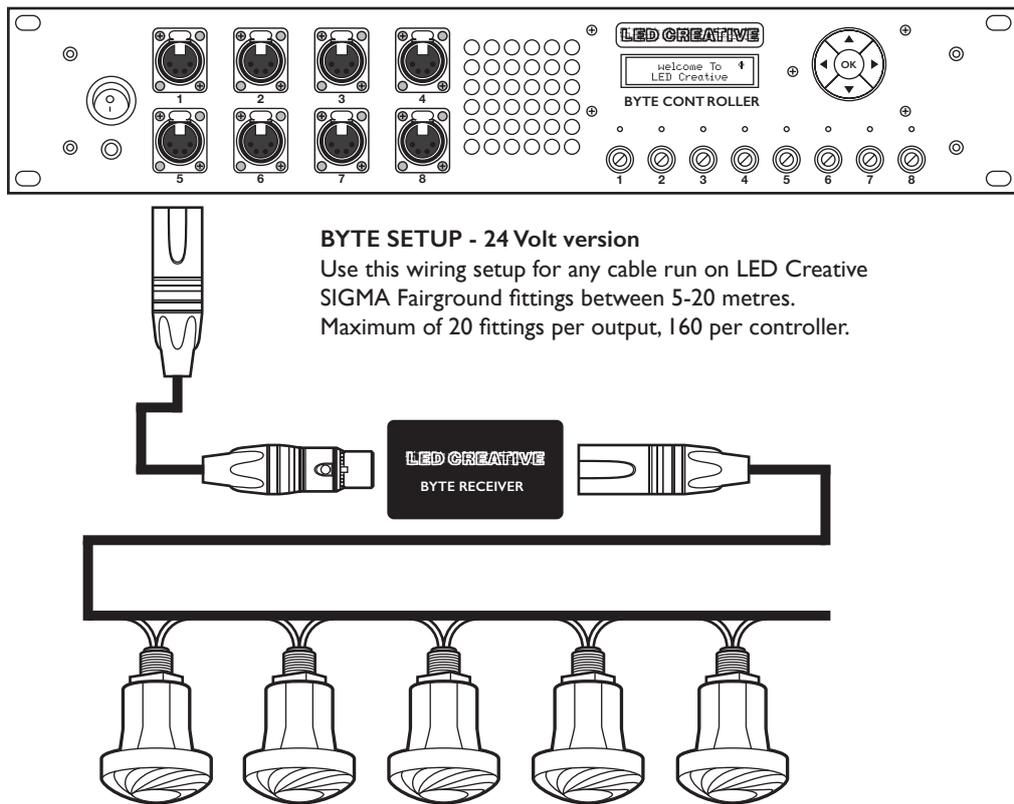
*figure 3*

*figure 4*

**Note about serial based pixels**
Our pixel products are serial data based on a cascading data transmission. Each time a Dmx frame is received they display the information received and continue to display that information until a Dmx frame containing different information is received. If the Dmx is unplugged the last received Dmx frame will continue to be output by the Leds. Power cycling the box (with no Dmx data connected) will clear all outputs.

**Test mode**
To test controller outputs with no DMX present:

**SETTINGS [ENTER]**
**None**
**All white 20%**
**All white 50%**
**All red**
**All green**
**All blue…**
**RGB alternating - good test mode for rigging as you can see that all pixels are responding and continue to respond as the product is rigged.**
**The test mode logic is that a Dmx signal automatically overrides any active Test patterns.**

Once Dmx has been connected in order to output the active test, first disconnect DMX, then navigate to the Settings menu and select desired test pattern.

**Do I have DMX present?**
Presence / absence of DMX is indicated in top right corner of LCD screen as;

No Dmx detected (->x)
DMX detected (->d)
DMX present & new Dmx packet received (->->)

**Output fusing**
Each output has an inline 5 x 20mm fuse for short circuit protection. Above each fuse there is a led indicator, this is illuminated for good fuse. The units are fitted with 8A fuses as standard.

**Controller defaults**
As shipped from the warehouse default settings for all byte controllers are.

**Output 1-8**
Dmx start address:001
Total Pixels:300
Start Mask:0
End Mask:0
Offset:0
1st Pixel:0
Pixel Direction: FWD
Colour order: GRB (note that this is an internal colour patch which patches pixels to appear in the colour order of Red, Green, Blue from a lighting console.
Footprint: 34 channels (Master Layer, 2 x Colour & Effects Layers, 1 x Colour Layer). Master Brightness: Def (Unassigned)
Group: None
Global Settings
Test: None
Patch: 001-034 Sequential
Speed Sync: Off
Led Type: WS2811
Snapshot: Live DMX
Global: Disabled

**OUTPUT MENUS (Changes visible in real time)**

**Start address** – specify any start address between 001-512.

**Total pixels** - specifies the total number of pixels on the canvas to use when calculating effects for that output. Use for setting the physical canvas size.
Minimum value = 10 pixels
Maximum value = 300 pixels (default).

*How to use* - for consistent results and the ability to programme all led as one group from the lighting console set the total number of pixels to the highest denominator, for example

Scenario 1 - All Leds are Sigma 60 and all at 5 metre lengths
Total pixels for all outputs set to 300.

Scenario 2 - All Leds are Sigma 60 and a variety of lengths the longest of which is 5 metres. Total pixels for all outputs set to 300.
Scenario 3 - A mixture of Sigma 60 led ribbon 3 metres lengths and 1 metre sigma 60 wands.
Total pixels for all outputs set to 180.

**Start / End pixel mask** - Specifies number of pixels at start or end of string to switch off.
Note that this function does not move the position of the first pixel, it operates as a mask only.

*How to use* - great for masking pixels which are not required or where hidden pixels in scenery can be seen.

**Offset** - specifies position of the first pixel and can be a positive or negative value.

*How to use* - great for when some pixels need to be hidden and it is necessary to move the first pixel. Entering a positive value moves the first pixel to the right, entering a negative value moves the first pixel to the left. Offset values >0 switch off pixels from the Xlr end of the Led ribbon. Offset values <0 switch pixels off from the opposite end to the Xlr.

**EXAMPLE PIXEL OFFSET = 0 (default)**

FIRST PIXEL

**EXAMPLE PIXEL OFFSET = 3**

FIRST PIXEL

**EXAMPLE PIXEL OFFSET = -3**

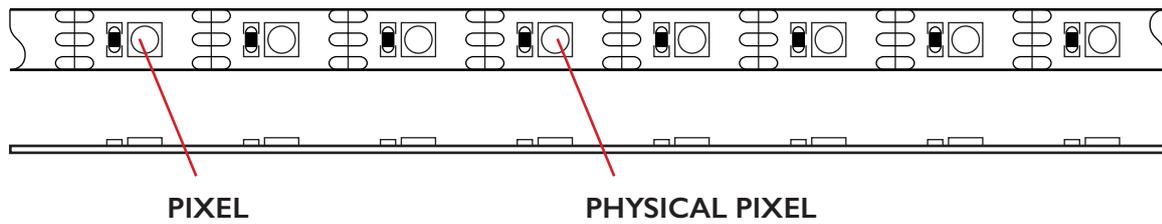PIXEL                                    PHYSICAL PIXEL
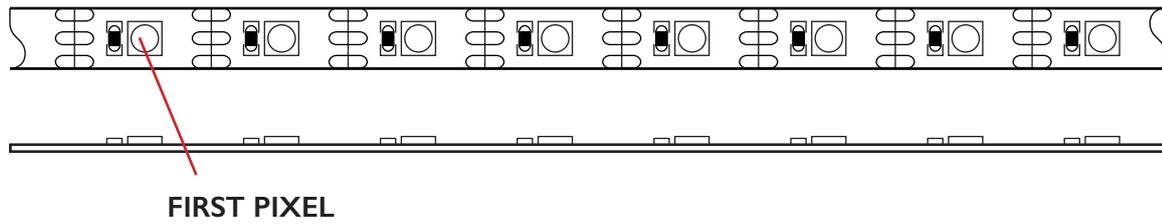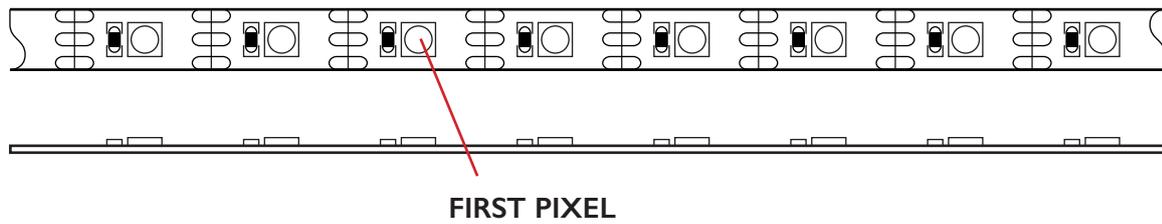
*figure 5*

**1st Pixel -** In development, not a usable feature at present.

**Direction -** forwards (default) or reverse. Flips the 1st pixel to the opposite end of the output. This is useful when some led sections are easier to install in reverse. Note that Start Mask, End Mask & Offset values also flip when reverse is selected.

**Colour order -** soft colour patch.
GRB is default and correct setting for sigma 30/60 flex – this gives results in RGB at the console in the correct order.
RGB is correct setting for Sigma fairground product.

*How to use -* if the Leds have a different colour order it is pos sible to change the order on the controller. This negates the need to make changes to the console fixture personality.

**Footprint** - specifies the number of Dmx channels required to control the output from a selection of predefined personalities.

**34 channel** (default)
Master brightness and mode layer (2 channels)
2 x Fx and colour layers (14 channels)
1 x background colour layer (4 channels)

**20 channels**
Master brightness and mode layer (2 channels)
1 x Fx and 1 colour layer (14 channels)
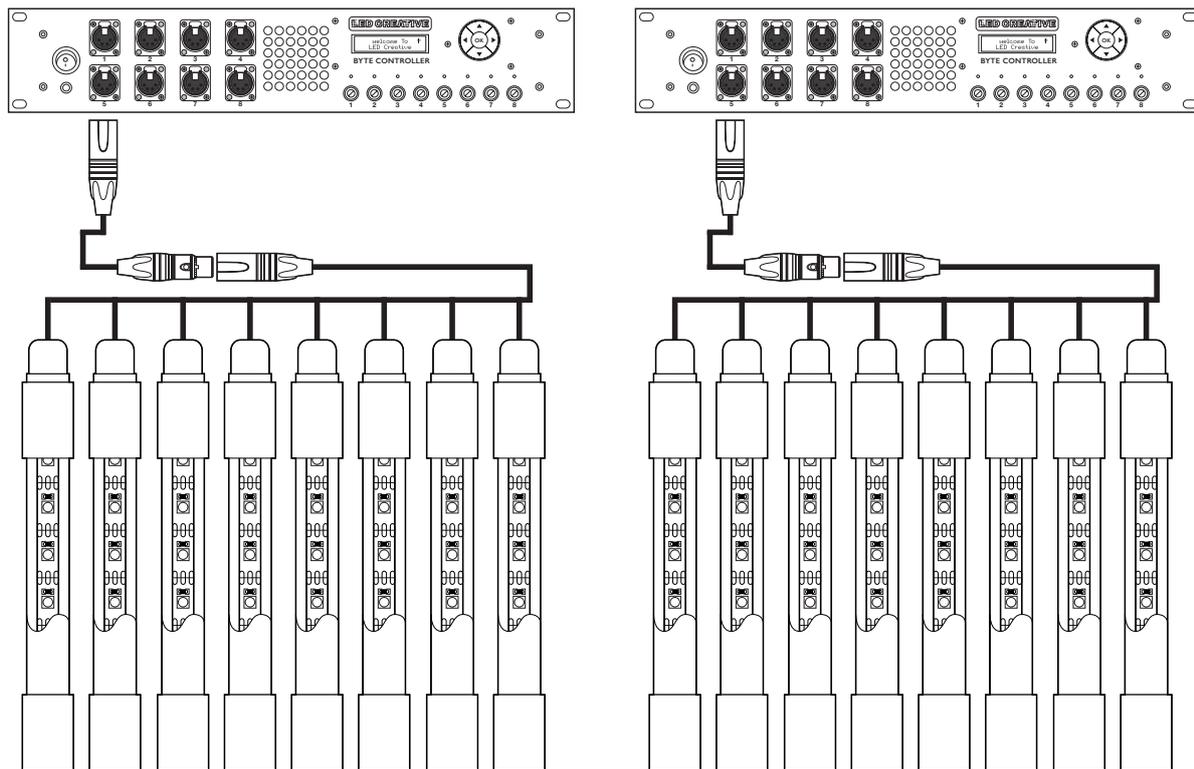1 x background colour layer (4 channels)

**16 channels**
Master brightness and mode layer (2 channels)
1 x Fx & 1 colour layer (14 channels)

**Master Brightness Separate Patch Point**
Allows user to patch the master brightness channel of each output to a dedicated channel in the Dmx range 1-512. See fig 6 and 7 below for practical use of this feature.



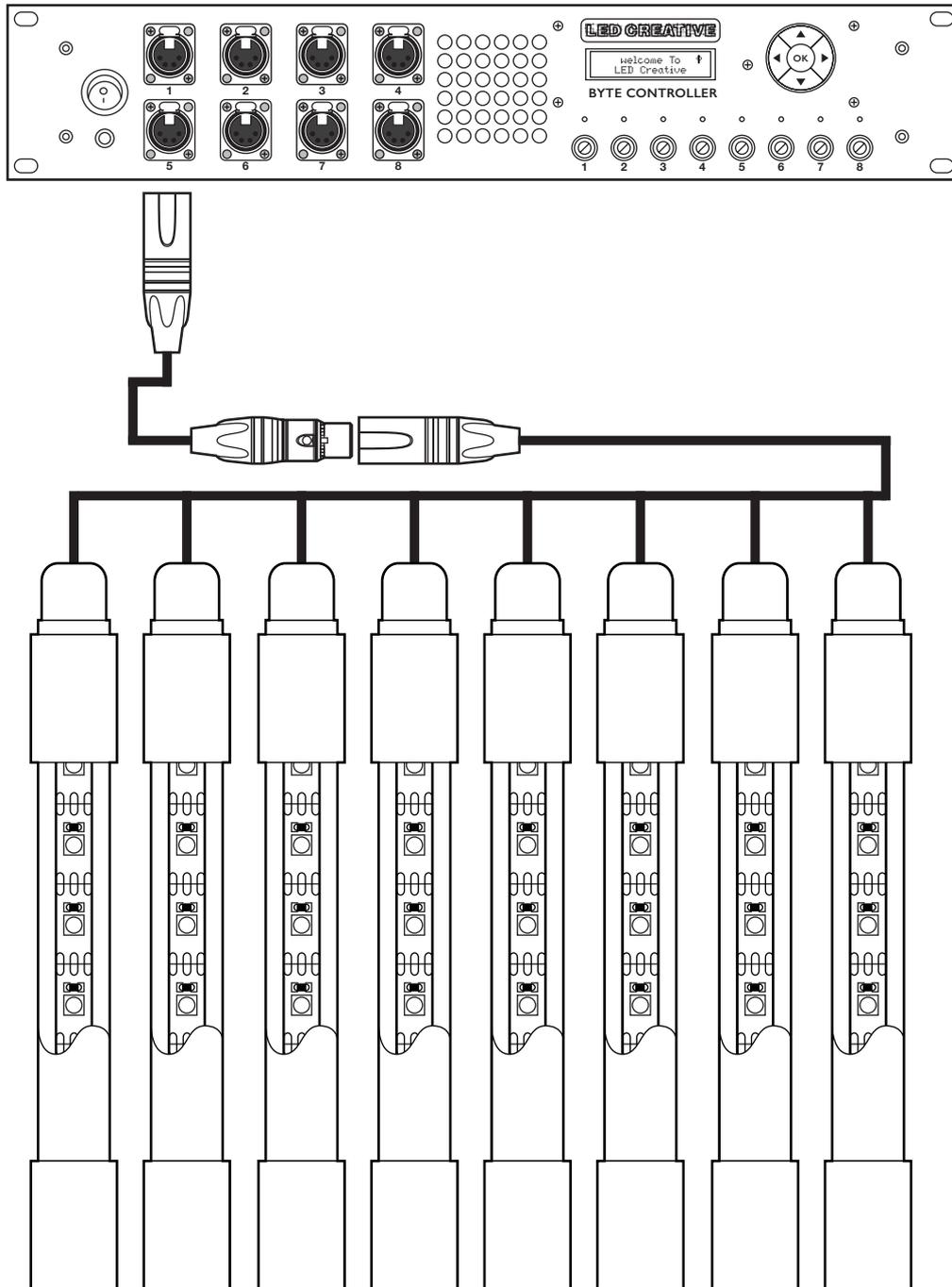**16 CHANNEL MODE**
Outputs 1>16 All @ DMX Start ADDRESS 005
Wands in groups of 4 for Master Brightness
Channel DMX 001-004
Global Offset DMX Address 022
Total Footprint 22 Channels

*figure 6*

**20 CHANNEL MODE**
Outputs 1>8 All @ DMX Start ADDRESS 009
Each wand with individual Master Brightness
Channel DMX 001-008
Global Offset DMX Address 030
Total Footprint 30 Channels
Individual intensity control
Collective colour and FX control of foreground and background layer

*figure 7*

**GROUP** - Allows users to link multiple outputs of Leds together and in a specific order so that they may be controlled as one long led string. Up to 7 outputs may be linked continuously in this way. Note that it is not possible to create groups over more than a single controller.

A maximum of up to 8 groups can be allocated with up to 7 outputs per group. Outputs may only be set to a single slot within a single group at any one time.
Scroll past Group 1 to reach higher groups/slots.

*For the group feature to work correctly all outputs that are part of the same group must:*
- Have identical Dmx start address.
- Have identical number of pixels in use.
- Have an offset value of zero pixels.

Direction, Start and End Masks all function in group mode and can be applied to each individual output.

## GLOBAL SETTINGS
**Quick patch** - sets sequential output addresses with start address set by the user.

**The menu layout is:**
**001-239** Sequential Patch 34 Channel Mode (001, 035, 069)
**001-351** Sequential Patch 20 Channel Mode (001, 021 041)
**001-383** Sequential Patch 16 Channel Mode (001, 017, 033)
**001-477** Single Patch 34 Channel Mode (001,001,001)
**001-477** Single Patch 20 Channel Mode (001,001,001)
**001-477** Single Patch 16 Channel Mode (001,001,001)

**Speed sync**
Sync on - Outputs sync (works across multiple controllers).
Sync off - Outputs do not sync (default).

*How to use* - speed sync used for accuracy when running fx's. With speed sync set to ON a change in fx speed parameter restarts the fx. This allows for multiple controllers to all run in sync for pixel accuracy.
With sync off it is possible to change the fx speed on the fly without effects re-starting and a small amount of pixel drift (1-2 pixels) is possible.

**Global offset** - specifies spread of first pixels across all outputs on a single controller from a single DMX channel.

Global offset can be used with all linear effects contained in the effects library of the controller. Global offset is a time-saving feature most useful when you wish to address all fixtures, or groups of fixtures to the same DMX start address, but still retain some control over how effects behave. See figures 6 and 7 for examples of setups where this feature is useful.
*Note that this feature works per controller - there is no link between multiple controllers.*

**DMX Snapshot** - Allows capture of DMX values for replay on the unit for such times as a lighting console is not economical or a system should be programmed and left as standalone. This feature is designed for simple, fast and unmanned setups and it is not possible to use the DMX Sync function if there is no lighting console present.

*How to use* - send DMX signal with the relevant channel levels to the controller(s).
On each controller select DMX Snapshot and choose option Save Slot (Numbered 1-8). Press enter to save.
Unplug DMX.
Power cycle box.
Select Load Slot and press enter.
Snapshot will load.
Note that simply plugging in Dmx does not override a live snapshot - you will need to send a new DMX packet containing new information to re-take control.

**Factory defaults** - press and hold left and right arrows for 3 secs to restore to defaults.