

## DMX 512 PixelControl Decoder Manual

Part number: DMX512-pixelcontrol



The DMX512-pixelcontrol is designed to be compatible with our entire PixelControl LED lighting family, including our Precision PixelControl strips which have the integrated WS2815 chip. This component facilitates controlling individual LED nodes in our PixelControl strips or modules.

Use the DMX512 PixelControl Decoder to create unique animated RGB color effects, such as chasing, rotating graphic patterns, rain effects, pixel display text boards, color wave backlit panels, and more. The DMX512-pixelcontrol is a reliable way to control intelligent PixelControl RGB LED lighting and can even be connected in a daisy chain, making it customizable for any type of installation. This decoder is compatible with either a 3 or 5-pin (with adapter) DMX output from your DMX console. When connected to a 5-pin DMX output, the DMX512 PixelControl Decoder simply ignores the audio data from the 2 extra pins.

The DMX512-pixelcontrol pixel decoder is compatible with all of our PixelControl products. This includes our Neon Strip Lights, Precision Strip Lights, Super Flat Rope, XL Strip Lights, and XXL Strip Lights.

Our DMX512 PixelControl Decoder makes RGB PixelControl Strip Lights and modules easy to customize and control. The decoder is compatible with standard DMX output from a DMX light board or DMX control system. The DMX512-pixelcontrol translates standard DMX output to the data signal input required by RGB PixelControl LED Strip Light and modules.

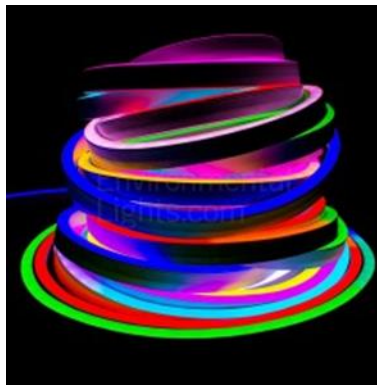
**CAUTION: Do not activate test mode (DIP switch #10) while the decoder is powered on. See page 7 for more information.**

## Companion Parts

Below are some examples of RGB PixelControl LED lights and modules you can control with the DMX512-pixelcontrol decoder. For a complete list of compatible PixelControl products, please refer the LED Pixel Lighting section on our website.



RGB 5050 PixelControl  
LED Super Flat Rope,  
56/m, with White Finish  
PSFR-RGB-W-20



RGB PixelControl  
LED Neon  
PSFR-RGB-B-20



RGB XL PixelControl LED  
Strip Light, 60/m, 12mm wide  
by the 5m Reel  
RGB-XLpixelcontrol-12V-60-reel



Waterproof XL PixelControl  
LED Strip Light, 60/m, 12mm  
wide by the 5m Reel  
wp-RGB-XLpixelcontrol-12V-6-reel



RGB PixelControl  
LED Strip Light - 30/m -  
5.6m Reel  
RGB-pixelcontrol-30-10-5.6m



Waterproof RGB PixelControl  
LED Strip Light - 30/m -  
5.6m Reel  
wp-RGB-pixelcontrol-30-10-5.6m



RGB PixelControl  
LED Strip Light - 60/m -  
2.8m Reel  
RGB-pixelcontrol-60-10-2.8m



Waterproof RGB PixelControl  
LED Strip Light - 60/m -  
2.8m Reel  
wp-RGB-pixelcontrol-60-10-2.8m



RGB PixelControl  
LED Strip Light - 144/m -  
1.2m Reel  
RGB-pixelcontrol-144-10-1.2m



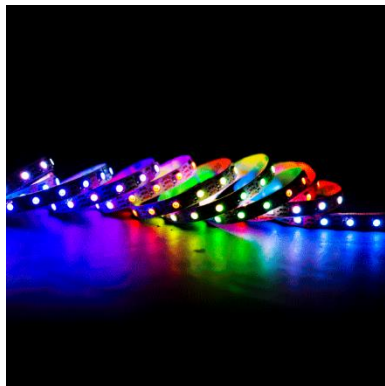
Waterproof RGB PixelControl LED Strip Light - 144/m - 1.2m Reel  
Wp-RGB-pixelcontrol-144-10-1.2m



RGBWW 4-in-1 PixelControl LED Strip Light, 60/m, 10mm wide, by the 2m Reel  
RGBWW-4in1-pixelcontrol-reel-60



RGBDW 4-in-1 PixelControl LED Strip Light, 60/m, 10mm wide, by the 2m Reel  
RGBDW-4in1-pixelcontrol-reel-60



RGBA 4-in-1 PixelControl LED Strip Light, 60/m, 10mm wide, by the 2m Reel  
RGBA-4in1-pixelcontrol-reel-60



Waterproof RGB PixelControl LED Spheres, 1 meter  
RGB-pixelcontrol-sphere



Daylight White PixelControl LED Spheres, 1 meter  
DL-pixelcontrol-sphere



RGB + 3,000K 4-in-1 XL PixelControl LED Strip Light 60/m by the 3m Reel  
RGB3000K-4in1-XLpixelcontrol-60-10-3m



RGB XXL PixelControl LED Strip Light 60/m by the 7m Reel  
RGB-XXLpixelcontrol-60-12-7m



Waterproof RGB Precision PixelControl LED Strip Light, 60/m by the 5m Reel  
wp-RGB-XPpixelcontrol-60-10-12V-5m

**\*Note:** This **DMX512-pixelcontrol** decoder is **not compatible with PixelPro LED products** that use the DMX512-PX decoder. Please only use the DMX512-PX decoder for Pixel**Pro** LED Products and the DMX512-pixelcontrol for Pixel**Control** LED Products.

## Specifications

|                   |                               |
|-------------------|-------------------------------|
| Part Number       | <b>DMX512-pixelcontrol</b>    |
| Dimensions        | 4.92" x 2.05" x 1.57"         |
|                   | 125 mm x 52 mm x 40mm         |
| Output            | V+, DATA, GND                 |
| Input Voltage     | 5/12/24 VDC                   |
| Max. Current Load | 1x12A                         |
| Max. Output Power | 60W/144W/288W<br>(5V/12V/24V) |
| Max. Device Temp  | -22 to 150°F (-30 to 65°C)    |

\*Note: The 12A limit does not apply to power supplies directly connected to PixelControl lights.

This decoder is compatible with the following IC chips we carry as well as others not listed here.

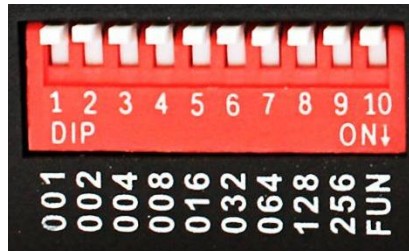
|         |      |         |         |        |         |         |       |
|---------|------|---------|---------|--------|---------|---------|-------|
| LPD6803 | D705 | UCS6909 | LPD8803 | TM1803 | UCS1903 | WS2811  | P9813 |
| LPD1101 |      | UCS6912 | LPD8806 | TM1804 | UCS1909 | WS2812B |       |
|         |      |         | LPD8809 | TM1809 | UCS1912 | WS2815  |       |
|         |      |         | LPD9912 | TM1812 | UCS2903 |         |       |
|         |      |         |         |        | UCS2912 |         |       |

## Features

- Converts Standard DMX512 signals to a control signal compatible with all PixelControl products. Decodes up to 512 DMX channels for individual control of 170 pixels.
- Powered by 5, 12, or 24 VDC.
- DC+ terminals are connected. Use one for supplying power to the decoder and the other DC+ powering PixelControl lights, up to 12A.
- Built in functional test modes. For dynamic modes (color step and color fade), speed is controlled by toggling the dip switches 1-5.
- XLR3 and bare wire DMX in and out.
- DIP switches on the side allow you to set the decoder's lowest address so it uses the address you desire from your DMX program. Each decoder has a DMX device address you can set. **Default setting with all switches OFF = 1.**

| DIP | Mode                          |
|-----|-------------------------------|
| 1   | Red                           |
| 2   | Green                         |
| 3   | Blue                          |
| 4   | Yellow                        |
| 5   | Magenta                       |
| 6   | Cyan                          |
| 7   | White                         |
| 8   | Step mode - speed control 1-5 |
| 9   | Fade mode - speed control 1-5 |





DIP switches to set address

\*\*Please note: An address bit is set ON and has a value = 1 in the down position

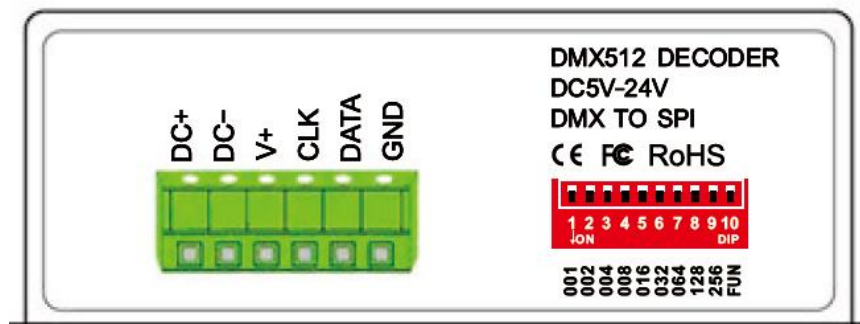
## Applications

- Enables DMX control of PixelControl LED lighting to create bright animated effects for studios, stage lighting, architectural, or decorative purposes.

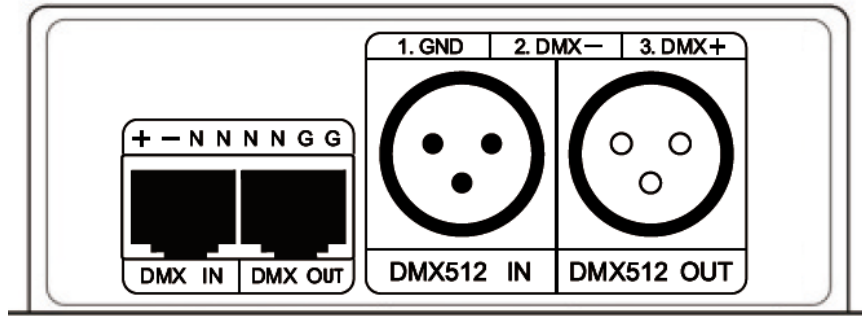
## Connections

The DMX512-pixelcontrol decoder has 3-pin XLR connector ports (Figure 1) and screw terminal blocks (Figure 2) for DMX IN and DMX OUT signals. Use only one DMX input port or connection method at a time. If possible, use the 3-pin XLR connector ports in Figure 1 below, as this is a more secure connection.

When using XLR connectors for DMX I/O connectivity, the DMX512-pixelcontrol is compatible with standard 3 or 5-pin DMX outputs from a DMX console, as long as the end connecting to the decoder is a 3-pin female/male XLR. The decoder simply ignores the audio data from the 2 extra pins if the signal is coming from a 5-pin DMX output.



**Figure 1:** Power input, signal output, and address dip switches.

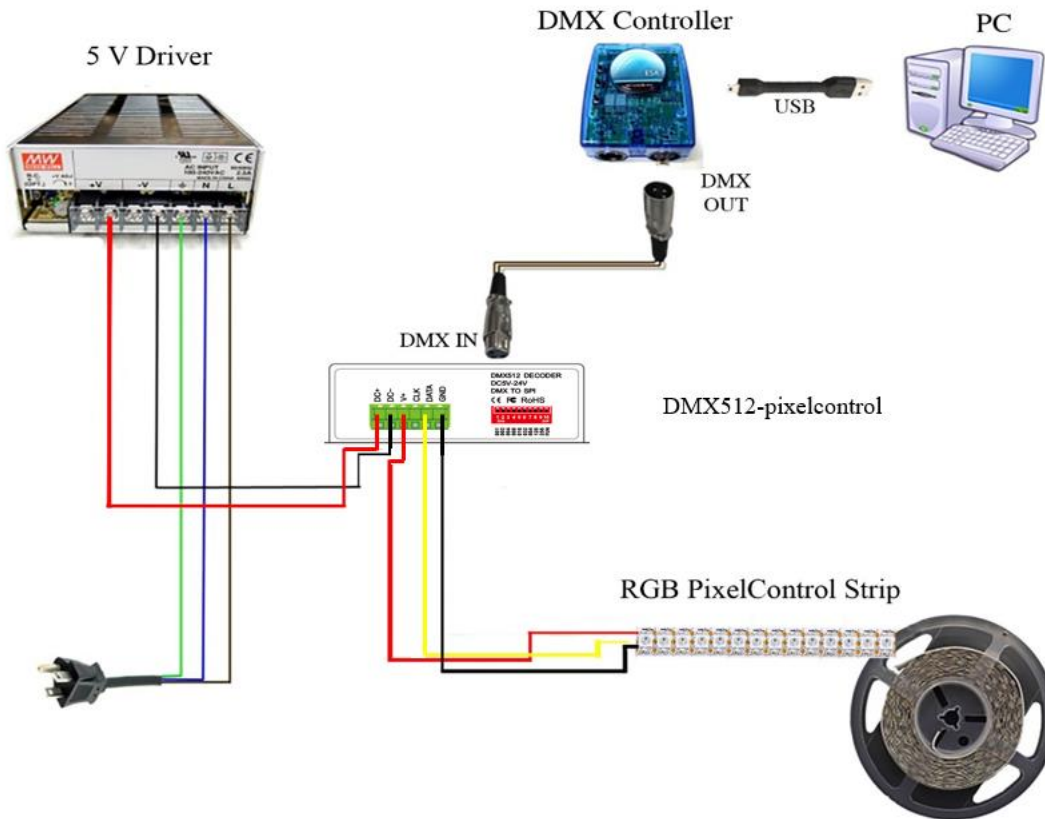


**Figure 2:** DMX512 input (3-pin XLR and RJ45) and DMX512 output (3-pin XLR and RJ45).

Use only one DMX512 input port or connection method at a time. Note that the RJ45 connection carries DMX signal only, not Art-Net.

## Wiring Instructions

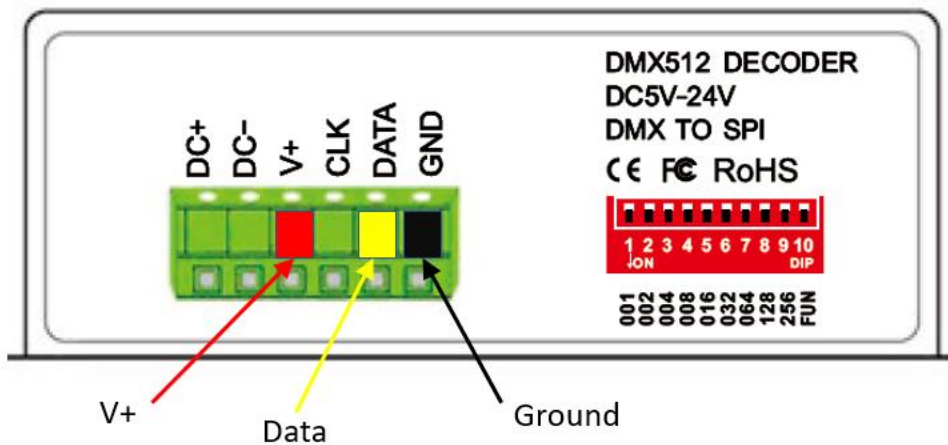
Below is a circuit diagram that illustrates how to wire the DMX512 PixelControl Decoder to PixelControl lights, a power supply and the DMX controller. In this diagram the Easy Stand Alone DMX controller is used to control the PixelControl LED lights, but you can use any console that outputs standard DMX. Keep signal lines away from power lines to avoid inductive coupling and signal corruption. **Be sure to match the voltage of the driver to the required voltage of the PixelControl lights.** This driver is 5V because the RGB PixelControl Strip Lights shown below require 5V.



### Wiring the LEDs to decoder

To connect your LEDs to the DMX512-pixelcontrol decoder, please follow Steps 1-3 and refer to the figure below for terminal locations.

1. Connect the input data on the PixelControl lights to the output data signal terminal (DATA) on the decoder.
2. Connect the ground input on the PixelControl lights to the ground (GND) terminal on the decoder.
3. Connect the power input on the PixelControl lights to the power output (DC+) terminal on the decoder.



**Figure 3:** Led Strip Light Connections.

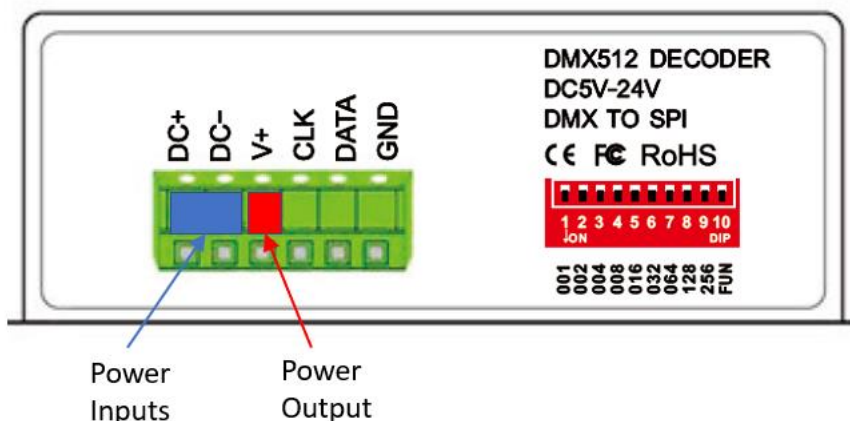
**Wiring the DMX Controller to decoder**

1. To connect the DMX controller to the DMX512-pixelcontrol decoder, use either the DMX Input XLR connector port or the DMX Input screw terminal port. Do NOT use both Input ports at the same time. When using the XLR connector port, connect the XLR 3-pin or 5-pin DMX output from your DMX controller to the 3-pin DMX Input on the decoder.



**Wiring the power supply to decoder**

1. Power the DMX512-pixelcontrol decoder using 5-24 VDC. **Apply voltage from the power supply only to the Power Input ports of the decoder.** Note that there are two terminals labeled DC+ but one is Power Input and the other is Power Output which only gets connected to the LEDs.



**Figure 4:** Power (5-24 VDC) inputs and outputs.



\*Required input voltages for the PixelControl LED lights may vary by type, so be sure to pay careful attention to the required input voltage. We recommend using a separate power supply to inject power into additional PixelControl LED lights connected in series, as this will create a more stable light system and prevent color variation due to voltage drop.

**IMPORTANT: Be sure to connect all common ground wires between power supplies and all lights.** When using multiple power supplies, the ground wires (negative terminals) from each power supply must also share the same common ground. If all grounds are not connected, then the PixelControl lights will display erratic behavior, such as rapid flashing or flickering. Be sure to connect all ground wires together.

2. Compare your wiring to the wiring diagram on Page 7.
3. Make sure the DMX controller is powered on
4. Make sure the voltage from the power supply is the same voltage as the LEDs. Double check all wiring and turn the power supply on.

## Controlling RGB PixelControl LED Light and Modules

The white DIP switches located on the red block are used to set the DMX address of the decoder. DIP switch 1 is the least significant address bit, and 9 are the most significant.

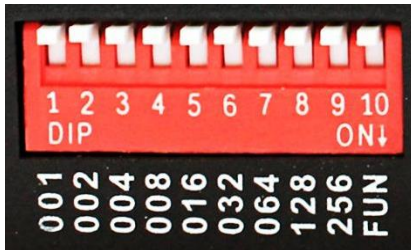
### Functional Test Modes - DIP switch 10

DIP switch 10 engages the functional test mode, and should be set “on” only when DMX control is **not** desired and the built-in modes are desired. Please refer to Page 4 for a table of the built-in test modes.

**\*\*WARNING: When using the functional test mode with RGB PixelControl Strip Light or modules, DIP switch 10 must be turned on BEFORE supplying power.**

### Using the Decoder with a DMX Controller

The decoder’s default setting with all switches OFF = 1. Use the DIP switches to specify an address manually. For example, if you are setting the decoder to read the first address from the DMX output, the setting for the DIP switches should be all OFF, in the up position. You can also set the decoder to read the first address by setting the first DIP switch ON, in the down position.



Address “1” Setting

Each RGB pixel requires 3 addresses to control red, green, and blue. A pixel is the smallest controllable element in a given light medium. One pixel can contain one or more LEDs. For example, when referring to RGB PixelControl LED products, one pixel is equivalent to 7 LEDs.

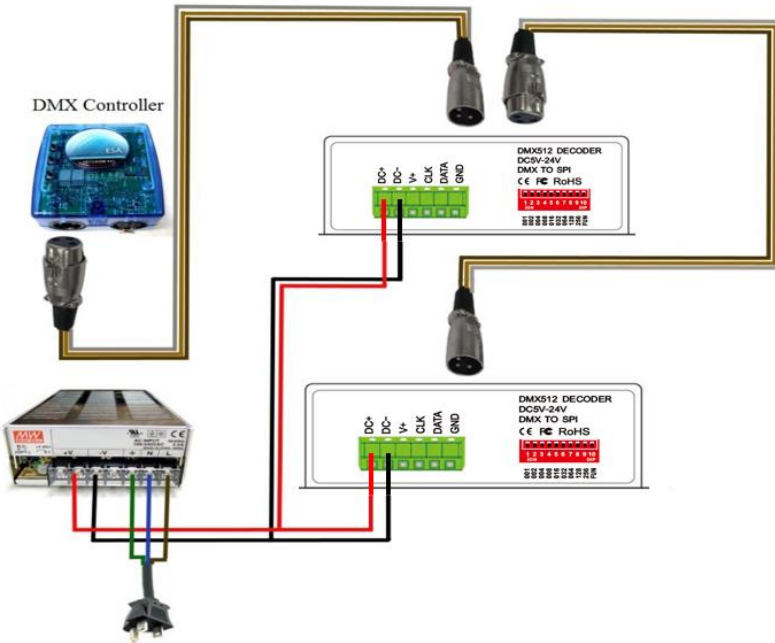
Use the DMX controller and DMX software to program the LEDs.

# Controlling RGB PixelControl LED Lights and Modules with Multiple Decoders

If your installation calls for daisy-chaining decoders, use a XLR 3-pin male to 3-pin female to connect to the next decoder (cable not included). See wiring diagram for details on how to daisy chain the decoders.

## Daisy Chain Wiring

DMX512-PX-V2 Decoder  
Daisy Chain  
Wiring Diagram



If the installation calls for daisy-chaining decoders, follow the example below as a guideline on how to set the DIP switch settings. Link multiple decoders using a 3-pin to 3-pin XLR cable.

| DIP     | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Address | 001 | 002 | 004 | 008 | 016 | 032 | 064 | 128 | 256 | FUN |

Example: Creating an installation using three chains of RGB PixelControl Super Flat Rope and three decoders.

Each chain contains 50 pixels and requires  $(50 \times 3) = 150$  addresses to individually control the RGB colors of each pixel, so the DIP switch settings will be as follows. The actual corresponding addresses are listed in the Comment column.

| String | DIP Switch Settings |   |   |   |   |   |   |   |   |    | Comment                         |
|--------|---------------------|---|---|---|---|---|---|---|---|----|---------------------------------|
|        | 1                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |                                 |
| 1      | 1                   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0  | binary 000000001 = address 1"   |
| 2      | 1                   | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0  | binary 010010111 = address 151" |
| 3      | 1                   | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0  | binary 100101101 = address 301" |

\*Note: DIP switch 10 should always be "off" when in DMX mode. Keep signal lines away from power lines to avoid inductive coupling and signal corruption.