

DMX 512 PixelControl Decoder Manual

Part number: DMX512-PX-V2



This is a key component for creating intelligent LED lighting, which enables the end user to control digitally addressable RGB LED pixel lights using standard DMX512. **We developed this decoder to be compatible with our intelligent PixelControl RGB LED lighting family.** Specifically, the DMX512-PX-V2 is designed to be used in conjunction with RGB PixelControl LED Strip Lights (waterproof and non-waterproof), RGB PixelControl Super Flat Rope, and RGB PixelControl LED Neon.

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-PX-V2 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-PX-V2 pixel decoder is compatible with our RGB PixelControl LED Strip Lights (waterproof and non-waterproof), RGB 5050 PixelControl LED Super Flat Rope, and RGB PixelControl LED Neon products. Our DMX512 PixelControl Decoder makes RGB PixelControl easy to customize and control. The decoder is compatible with standard DMX output from a DMX light board or DMX control system. The DMX512-PX-V2 translates standard DMX output to the data signal input required by RGB PixelControl LED Strip Light.

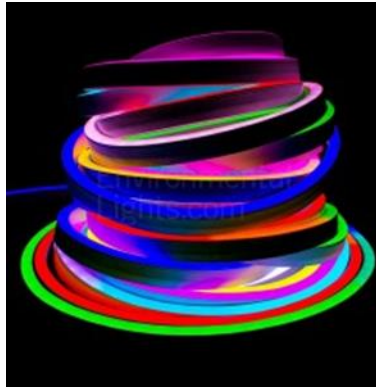
CAUTION: Do not activate test mode (DIP switch #10) while the decoder is powered on. See page 7 for more information.

Companion Parts

Below are some examples of RGB PixelControl LED lights you can control with the DMX512-PX-V2 decoder.



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

***Note:** This **DMX512-PX-V2** decoder is **not compatible with PixelPro LED products** that use the DMX512-PX decoder. Please only use the DMX512-PX decoder for PixelPro LED Products and the DMX512-PX-V2 for PixelControl LED Products.

Specifications

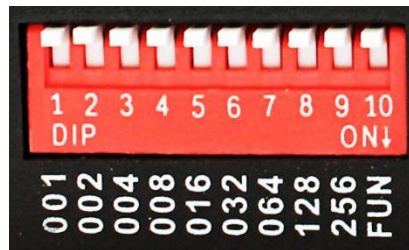
Part Number	DMX512-PX-V2
Dimensions	4.92" x 2.05" x 1.57"
	125 mm x 52 mm x 40mm
Output	V+, DATA, GND
Input Voltage	5/12/24 VDC
Max. Current Load	1x12A
Max. Output Power	60W/144W/288W (5V/12V/24V)
Max. Device Temp	-22 to 150°F (-30 to 65°C)

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

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 5-24 VDC.
- DC+ terminals are connected. Use one for supplying power to the decoder and the other power 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. ****Please read page 8 about DIP Switch 10 before using the functional test mode with RGB PixelControl Strip Lights.**
- 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-PX-V2 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-PX-V2 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.

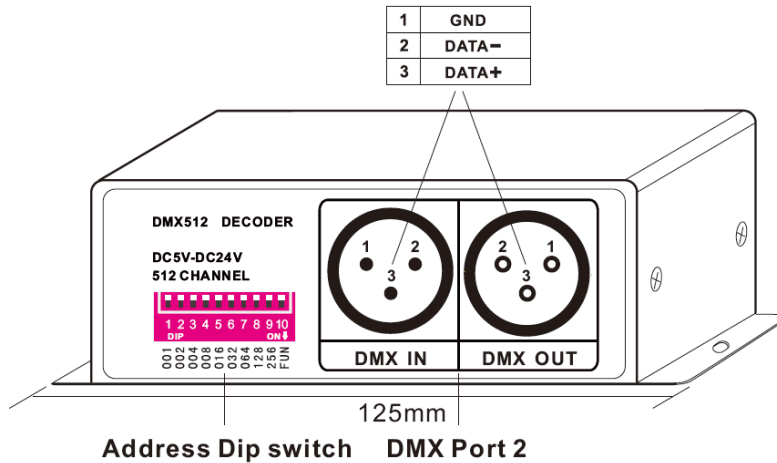


Figure 1: DMX512 Input (3-pin XLR) and DMX serial Output port (3-pin XLR)

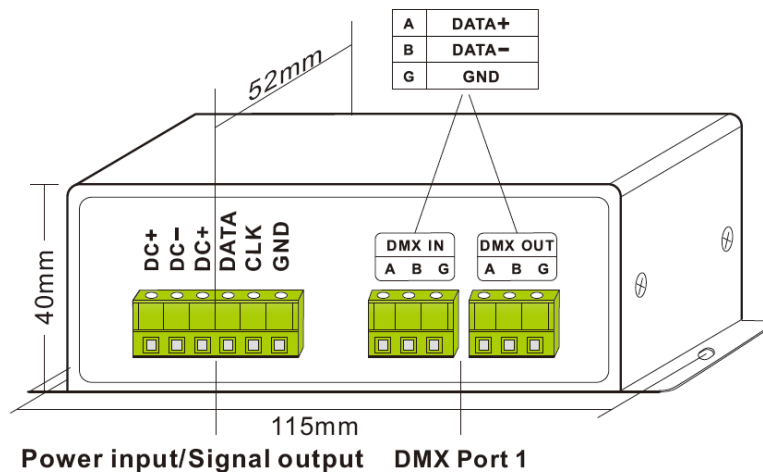
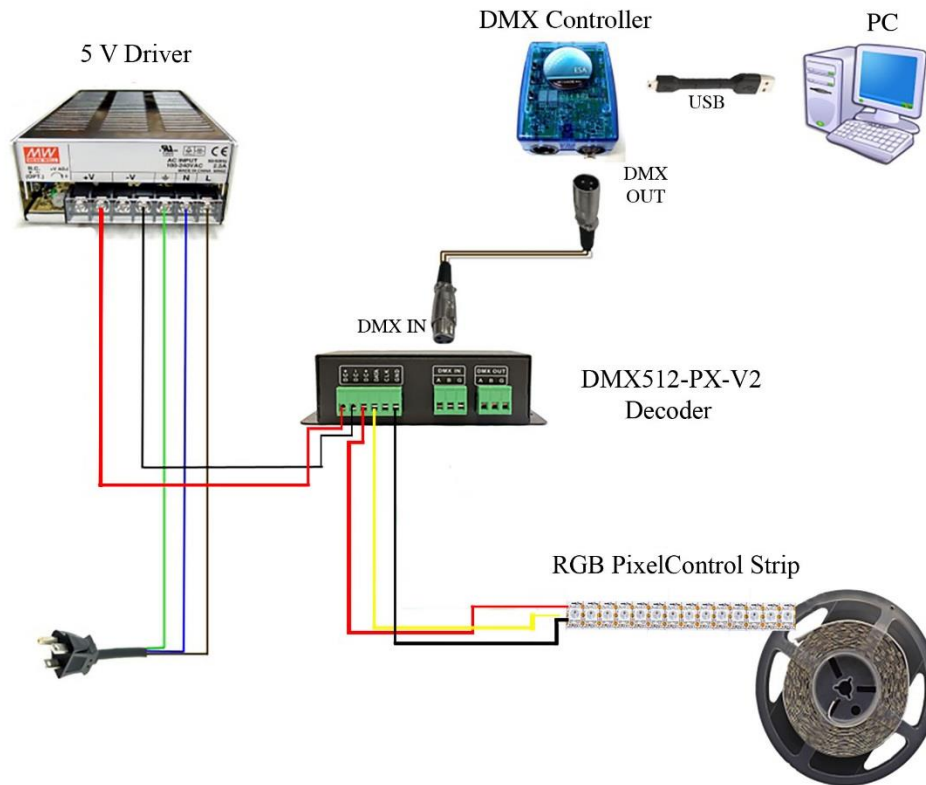


Figure 2: Power (5-24 VDC) input, signal output and DMX I/O via screw terminal blocks

The screw terminal blocks can be used as an alternate method for DMX I/O connectivity where A= DATA+, B=DATA-, and G= GND. Use only one DMX512 input port or connection method at a time.

Wiring Instructions

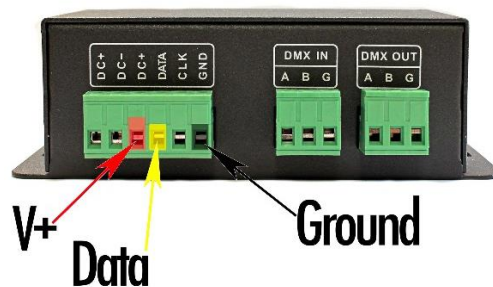
Below is a circuit diagram that illustrates how to wire the DMX512 PixelControl Decoder to PixelControl lights, a power supply and the DMX controller. In this diagram the Easy Stand Alone DMX controller is used to control the PixelControl LED lights, but you can use any console that outputs standard 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-PX-V2 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.



Wiring the DMX Controller to decoder

1. To connect the DMX controller to the DMX512-PX-V2 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-PX-V2 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.

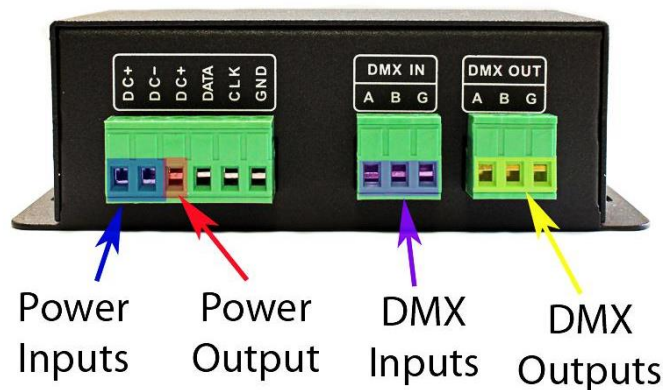


Figure 3: Power (5-24 VDC) and DMX Input via connector blocks

*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 5.
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 Lights

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.

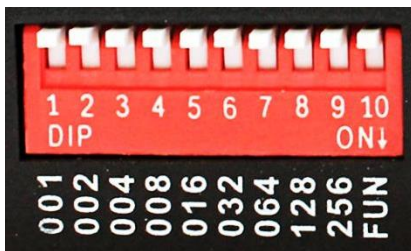
Functional Test Modes - DIP switch 10

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 3 for a table of the built-in test modes.

****WARNING: When using the functional test mode with RGB PixelControl Strip Lights, DIP switch 10 must be turned on BEFORE supplying power. If DIP switch 10 is moved while power is being supplied, the strips will display erratic behavior. This will happen indefinitely while in test mode and can damage the LED lights.**

Using the Decoder with a DMX Controller

The decoder’s default setting with all switches OFF = 1. When setting the DIP switches the actual address will always be the value set+1. 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.



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.

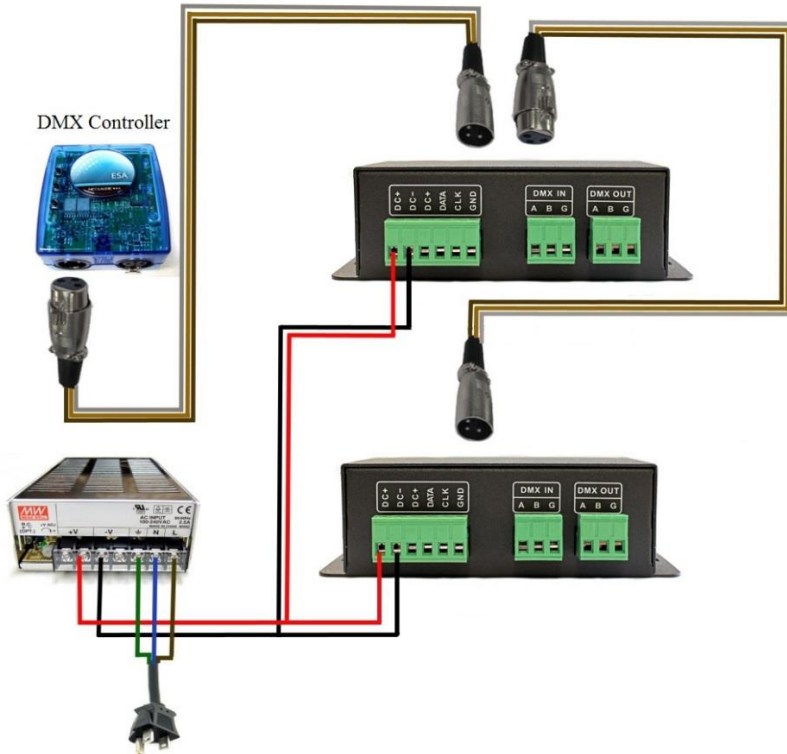
Use the DMX controller and DMX software to program the LEDs.

Controlling RGB PixelControl LED Lights 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	0	0	0	0	0	0	0	0	0	0	binary 000000001 = address 1"
2	0	1	1	0	1	0	0	1	0	0	binary 010010111 = address 151"
3	0	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.