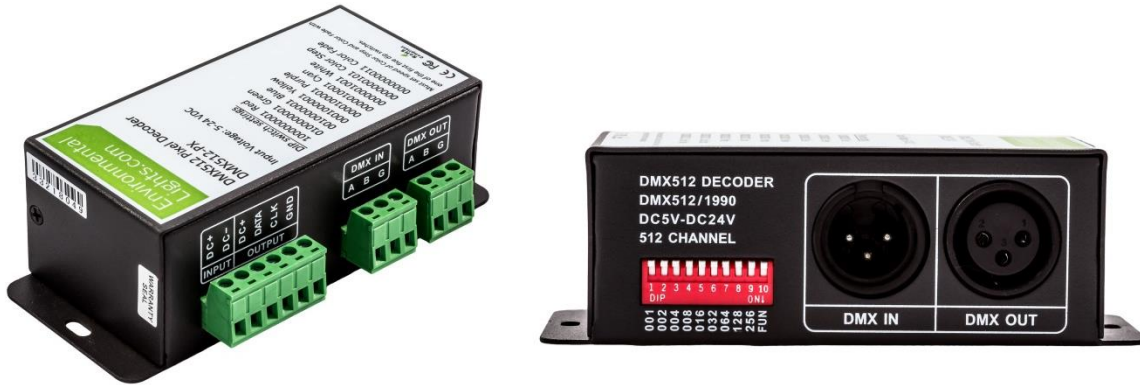


## DMX 512 PixelPro Decoder

Part number: DMX512-PX



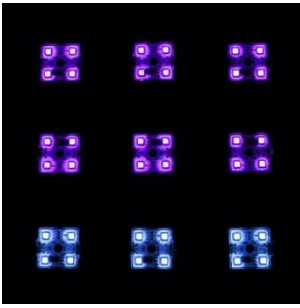
The DMX512-PX is specifically designed to control digitally addressable PixelPro LED pixel lights using standard DMX512 controllers. **This decoder is capable of controlling individual LED nodes when used in conjunction with PixelPro strips or modules.**

Use the DMX512 PixelPro Decoder to create unique animated RGB color effects, such as chasing, rotating graphic patterns, rain effects, text display boards, color wave backlit panels and more. The possibilities are endless! The DMX512-PX is directly compatible with 3-pin DMX output and 5-pin adapter is available. The audio data from the 2 extra pins is ignored if connected to a 5-pin DMX output.

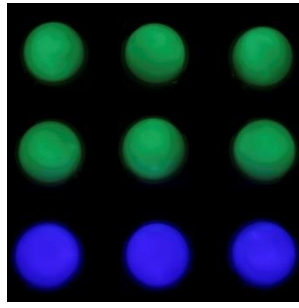
This product is compatible with WS2801 IC chips. The WS2801 chip is very popular with our customers because of its color, speed, efficiency, and reliability. Our DMX512 PixelPro Decoder makes PixelPro LED lights easy to customize and control. The DMX512-PX converts standard DMX output into SPI protocol for the WS2801 chip, enabling simultaneous control of each individual LED pixel.

The PixelPro line comes in an assortment of individually addressable RGB LED pixel strip and modules in various shapes and sizes. We currently offer RGB PixelPro in these configurations: square, bullet (square or round base), mini dome, dome, strip (waterproof and non-waterproof), and rectangle. We also offer several white monochrome PixelPro modules for applications calling for high quality white light.

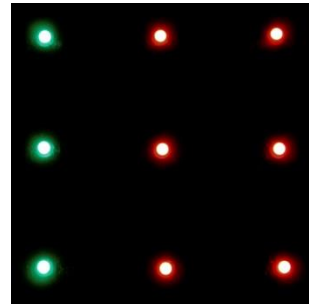
Examples of RGB PixelPro LED lights you can control with the DMX512 decoder.



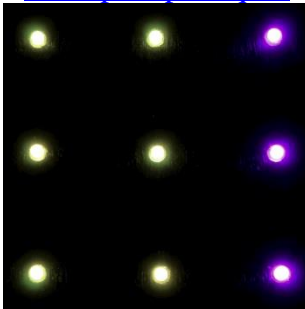
RGB PixelPro LED  
Square Modules  
[RGB-pixelpro-sq-40](#)



RGB PixelPro LED  
Dome Module  
[RGB-pixelpro-dome-50](#)



RGB PixelPro  
LED Bullet  
[RGB-pixelpro-bullet-8](#)



RGB PixelPro LED  
LED Bullet (Square Base)  
[RGB-pixelpro-bullet-sq-8](#)



Waterproof RGB PixelPro  
LED Rectangle Module  
[RGB-pixelpro-module-3](#)

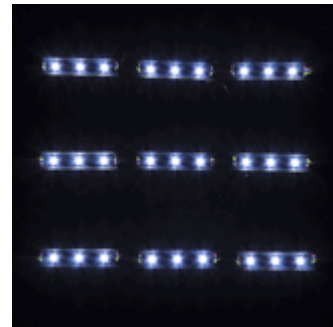


RGB PixelPro LED  
Mini Dome Module  
[RGB-pixelpro-minidome-30](#)

Examples of Monochrome PixelPro LED lights you can control with the DMX512 decoder.



Waterproof Warm White  
PixelPro LED Rectangle Module  
[ww-pixelpro-module-3](#)



Waterproof Daylight White  
PixelPro LED Rectangle Module  
[dl-pixelpro-module-3](#)

# DMX512-PX

## Specifications

Part Number	<b>DMX512-PX</b>
Dimensions	4.92" x 2.05" x 1.57"
	125 mm x 52 mm x 40mm
Output	V+, CLK, 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 PixelPro lights.

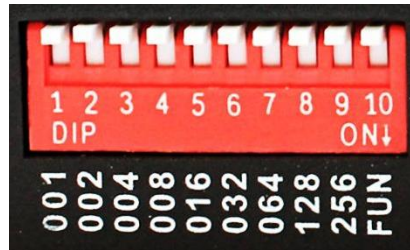
## Features

- Powered by 5-24 VDC.
- DC+ Input power to decoder feeds into DC+ input power for connected PixelPro lights.
- **Built in functional test modes, active when DIP switch 10 is “on”.** For dynamic modes (color step and color fade), speed is controlled by toggling the dip switches 1-5.

Dip Switch Settings	
1000000001	Red
0100000001	Green
0010000001	Blue
0001000001	Yellow
0000100001	Purple
0000010001	Cyan
0000001001	White
0000000101	Color Step
0000000011	Color Fade

- Compatible with standard DMX512 output, enabling individual pixel control.
- XLR3 male and female DMX interface.
- Bare wire DMX input and output.
- Decode a maximum of 512 DMX addresses, when DIP switch 10 is “off”.
  - 170 pixels of PixelPro LED strip light *or* 170 PixelPro LED modules.
- Converts standard DMX output to digital SPI signals suitable for driving the WS2801 IC chip used in PixelPro lights.
- Compatible with the PixelPro line of individually digitally addressable RGB LED strip lights and modules, available in 5 VDC or 12 VDC.
- Outputs are clock and data signals, defined independently under direction of the DMX input signal.

- 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 switches to set address

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

## Applications

- Create animated effects for studios, stage lighting, architectural, or decorative purposes.
- Use for any application requiring conversion of DMX to WS2801 SPI signals for driving PixelPro LEDs.
- An economical and easy solution for full color intelligent LED lighting control systems.

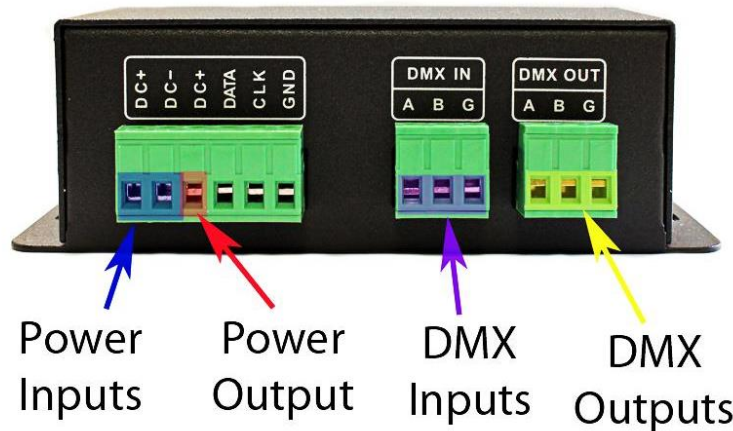
## Connections

The DMX512-PX 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 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) and DMX serial OUT port

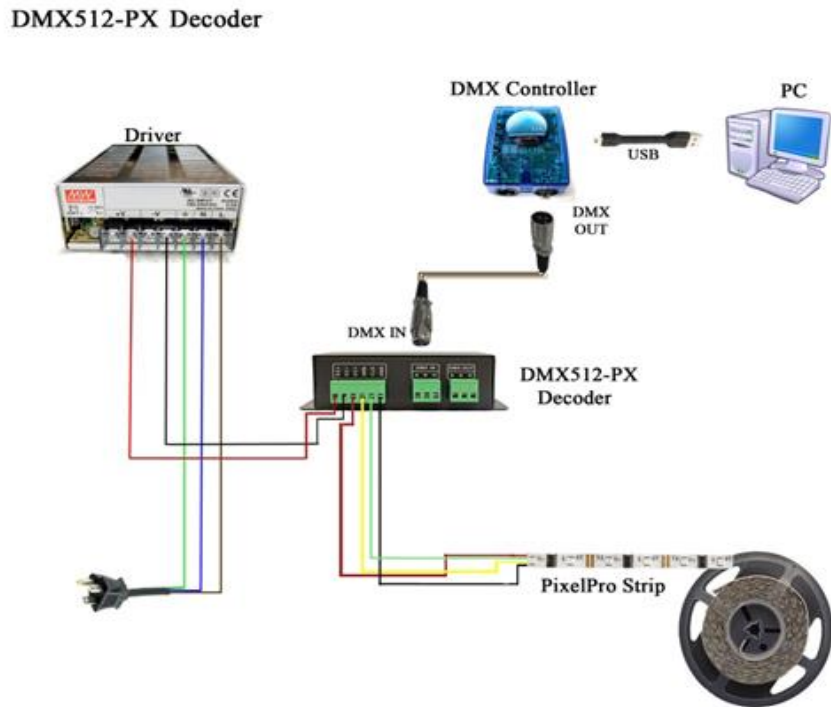


**Figure 2:** Power (5-24 VDC) and DMX Input via connector blocks

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

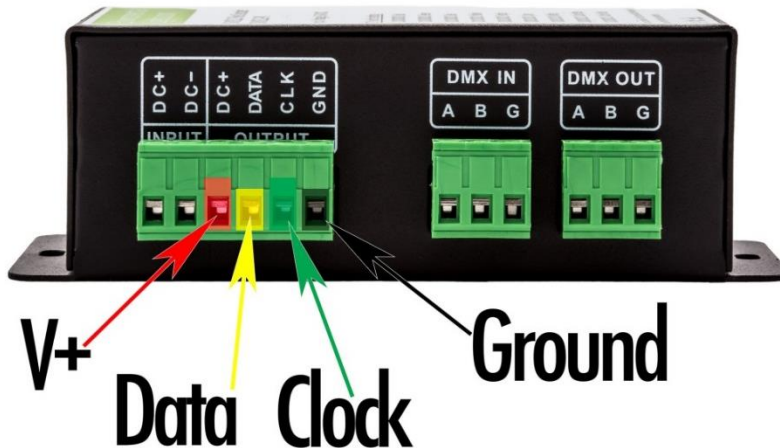
Below is a circuit diagram that illustrates how to wire the DMX512 PixelPro Decoder to PixelPro lights, a power supply and a DMX controller. In this diagram an Easy Stand Alone DMX controller is shown, but you can use any console that outputs standard DMX. Keep signal lines away from power lines to avoid inductive coupling and signal corruption. **Be sure to match the voltage of the driver to the required voltage of the PixelPro lights.**



## Wiring the LEDs to decoder

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

1. Connect the DATA terminal on the decoder to the DATA input on the PixelPro lights.
2. Connect the CLK terminal on the decoder to the CLK input on the PixelPro lights.
3. Connect the GND terminal on the decoder to the ground (-) input on the PixelPro lights.
4. Connect the power terminal (DC+) on the decoder to the power (+) input on the PixelPro lights.



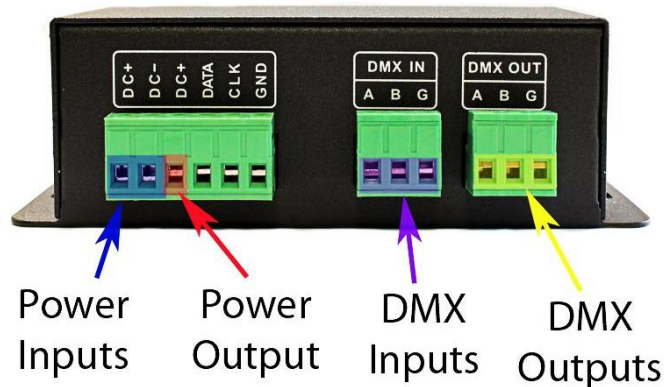
## Wiring the DMX Controller to decoder

1. To connect the DMX controller to the DMX512-PX 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 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 PixelPro LED lights may vary by type, so be sure to pay careful attention to the required input voltage. **Applying more than the rated voltage can permanently damage your lights.** We recommend using a separate power supply to inject power where additional strings of PixelPro LED lights are connected in series. This creates a more stable light system and prevents color variation due to voltage drop.

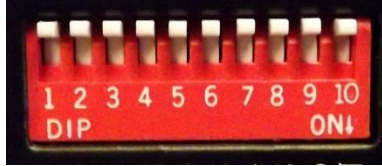
**IMPORTANT: Be sure to connect ground wires between all power supplies and lights.** The ground wires (negative terminals) from each power supply must share the same common ground when using multiple power supplies. If all grounds are not connected, then the PixelPro lights will display erratic behavior,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

2. Compare your wiring to the wiring diagram on Page 6.
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 PixelPro 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 is the most significant. DIP switch 10 engages the functional test mode, and should be set “on” only when DMX control is **not** desired.

Default setting with all switches OFF = 1. When setting the DIP switches the actual address will always be the value set+1. So, 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

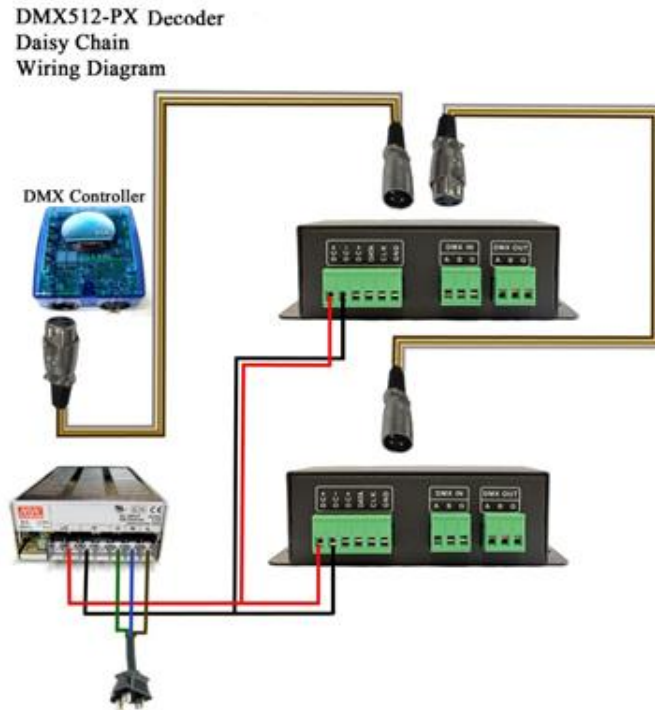
DIP	1	2	3	4	5	6	7	8	9	10
Address	001	002	004	008	016	032	064	128	256	FUN

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 PixelPro strip light, one pixel is equivalent to 1 LED. On the other hand, all 4 LEDs on RGB PixelPro LED Square Modules operate together as 1 pixel.



## Controlling RGB PixelPro LED Lights with Multiple Decoders

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



For this example, we will create an installation using three strings of our RGB PixelPro bullets and three decoders. Each string contains 50 LEDs 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 comment section.

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"

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

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.

## Controlling Monochrome PixelPro LED Lights

Similar to RGB PixelPro lights, each module requires 3 addresses to control three separate channels of white. For example, one string of 20 Waterproof Warm White PixelPro LED Rectangle Modules requires  $(20 \times 3) = 60$  addresses to individually control the dimming of each pixel.