

24 Channel DMX Decoder - 3A per Channel

DMX-24-2000S



The 24 Channel DMX Decoder - 3A per Channel is a top of the line decoder for large projects. This new addition to our Studio Series of decoders allows for greater design flexibility, higher load capacities, and includes the newest scrambled pulse width modulation (S-PWM) technology. Each of the 24 channels can sustain up to 3 amps of current at 5, 12, or 24 VDC. Channels 1-12 and 13-24 are powered by separate voltage inputs, allowing strands of two different voltages to be addressed simultaneously. Contrary to traditional decoders which apply the same voltage to all loads, with the [DMX-24-2000S](#) all of your LED strip lights **do not** have to have the same input voltages.

With a high PWM frequency of 2,000 hertz, the appearance of flicker that can be seen by studio equipment is reduced and there is a smooth output of light. In addition to having a high output frequency, this decoder also has integrated S-PWM patented technology, which increases the visual refresh rate and supports a 16-bit gray scale control on the output channels. Scrambled PWM (S-PWM) technology modifies the alignment of the “on” period of each channel so that the frequency appears to be above the measured 2,000 hertz. Simply put, this decoder allows for higher color resolution and enables high speed iris cameras to seamlessly capture video in real time, without flicker.

The DMX-24-2000S decoder has several pre-programmed built in functions for testing. DMX in can be connected via the connector blocks or 3-pin XLR ports. The 24 channels can support eight separate Red-Green-Blue devices, or 24 monochrome channels. Each of the eight sets of

outputs contains three signal channels and one power output. When used with standard DMX output from a DMX console, the decoder converts incoming signals into PWM output for LED strips, bars, and other fixtures.

Features

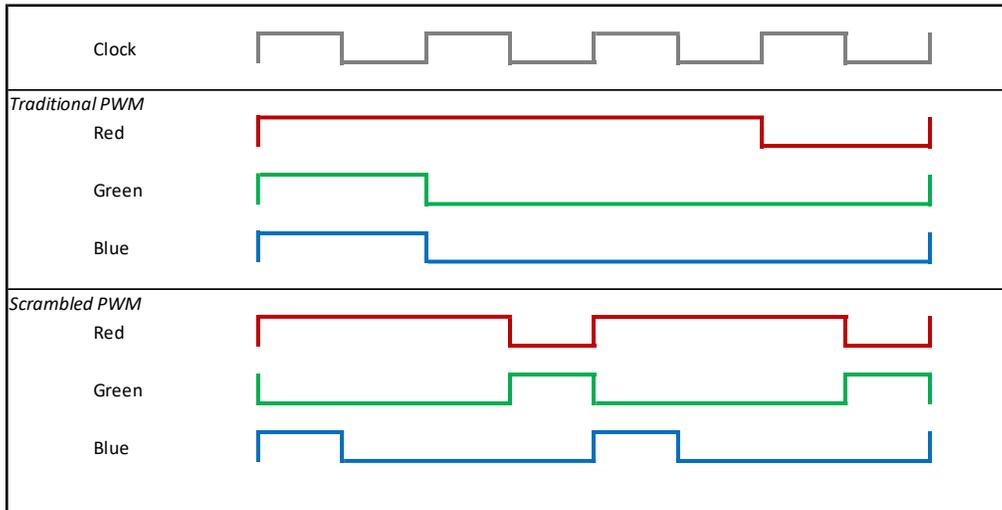
- High output pulse width modulation (PWM frequency) of 2,000 hertz with S-PWM technology reduces the risk of appearance of flickering that can occur with high speed iris cameras increasingly used by state-of-the-art studios.
- Channels 1-12 of the DMX-24-2000S are connected to DC+/- input 1 and channels 13-24 are connected to another set of DC+/- input 2, so channels can be operated at different voltages if needed.
- Converts standard DMX signal to PWM output suitable for driving 5, 12, and 24 VDC LED lighting.
- DIP switches allow user 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.
- 9 preset test functions that can be utilized simply by setting the 10th DIP switch to ON.
- 3 amps per channel maximum load; 24 channels, 5-24 VDC output. Recommended maximum worst-case (all 24 channels on full brightness, sustained) is 360/864/1728 W, based on 5/12/24 VDC.
- -20-150°F recommended operating range.
- 1 year manufacturer's warranty.

Applications

- Any application requiring conversion of DMX to PWM signals for driving LEDs. Provides $8 \times 3 = 24$ channels of output, suitable for 8 Red-Green-Blue devices or 24 different white channels, for example.
- High PWM makes this product ideal for photo and video lighting.
- Custom LED lighting installation in which the lights have different input voltage requirements. Decoder can be used with 5, 12, or 24 VDC.

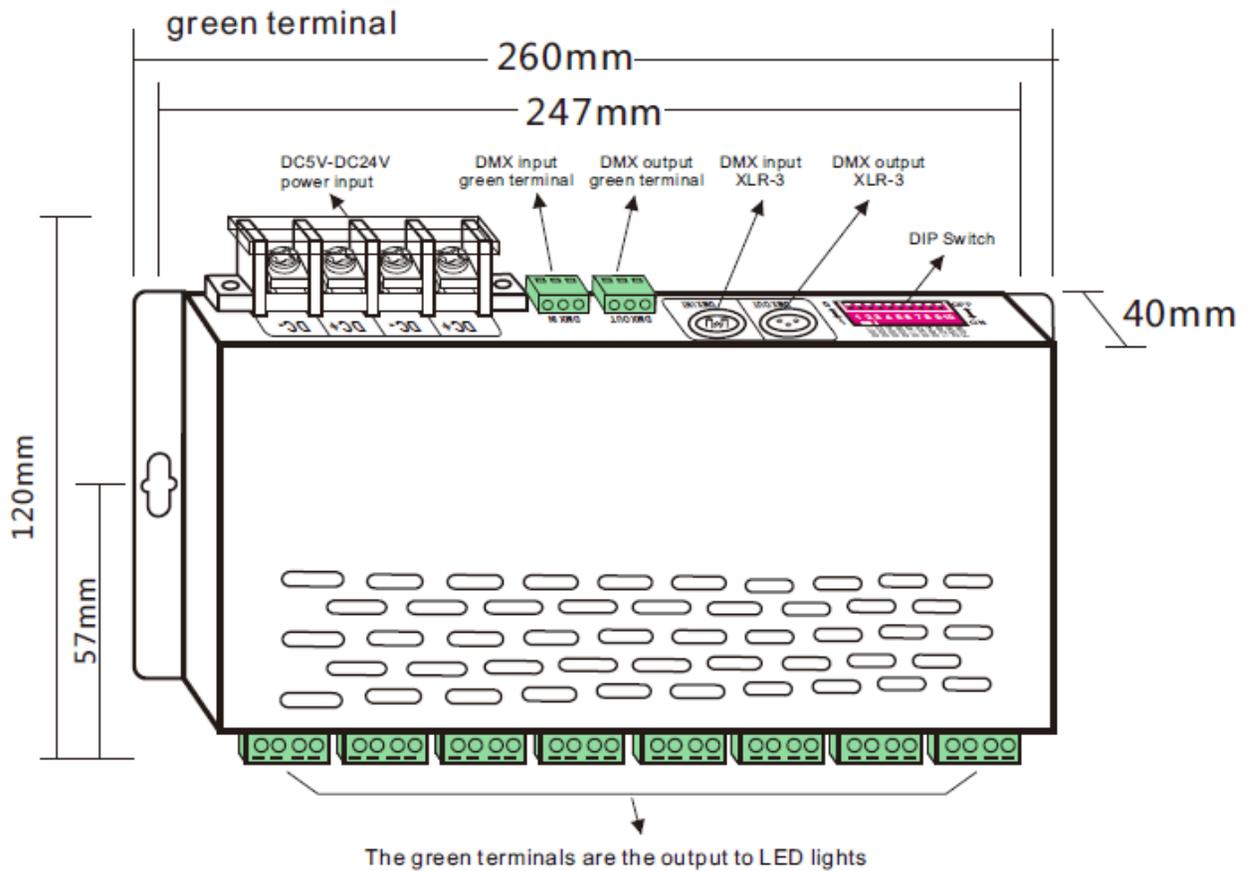
Scrambled Pulse Width Modulation (S-PWM)

S-PWM offsets the signals of the RGB channels in order to decrease the possibility of flicker in high sensitivity filming or photography. Within each pulse, the signal for each red, green and blue is scattered, rather than concentrated at the beginning.



Specifications

Dimensions:	10.24" x 4.72" x 1.57" 260 mm x 120 mm x 40 mm
Input Voltage:	5-24VDC
Input Signal:	DMX 512
Internal Termination:	No
Maximum Load:	3A per channel, 72A total
Maximum Output Power:	360/864/1728W (5/12/24V)
PWM Frequency:	2000 Hz
Weight:	2 pounds, 12 ounces



Operation

This decoder is compatible with standard DMX output from any DMX controller or console. Begin by connecting the LED strip lighting required for the installation. Then select the appropriate power supply for your lights and apply the input voltage to the corresponding inputs on the DC+/- input. There are 2 DC input ports on the decoder that correspond to channels 1-12 and 13-24. Be sure to apply the correct input voltage to your LED strip lights, as defined by the LEDs on the output channels. **Applying 24V to 12V LED strip light will damage the 12V strip, so be sure that the input voltages are being applied correctly** (see images in Connections).

The DMX-24-2000 is pre-programmed with a built in function test mode. We recommend testing your LED lights with this functional test mode before connecting the decoder to DMX in, as this will help insure that the proper connections are made. To enable the test mode simply place the 10th DIP switch in the downward position (on, or position equal to one). In this mode DIP switches one through seven are, in order, static red, green, blue, yellow, magenta, cyan, and white. DIP switch eight is a dynamic mode that jumps through the above seven colors, while DIP switch 9 is a fade mode through the same. When DIP switch 8 or 9 are on, DIP switches 1-7 control the speed of the mode, with 1 being the slowest and 7 being the fastest.

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

To pause a dynamic mode, simply set all DIP switches 1-7 into the off position. When the function mode is enabled and more than one DIP switch is on, the higher number will take precedence. For example, when both DIP switch 2 and 3 are on, the lights will display a static blue. Likewise, if DIP switches 1, 7, and 9 are all on, the LEDs will dim through the color cycle at the fastest speed.

When DIP switch 10 is OFF, the decoder is set to receive DMX input. At this time the DIP switches are used to set the first address of the system. Below are the values of each DIP switch. Add them together to get the value of the initial address code.

DIP	1	2	3	4	5	6	7	8	9	10
Value	1	2	4	8	16	32	64	128	256	FUN

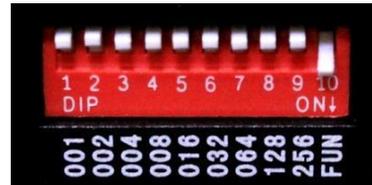
For example, to set the initial address to 37 turn DIP6, DIP3, and DIP1 on. The total sum of these is $32+4+1=37$.

Use either the 3-pin XLR DMX in or DMX in connector block terminals to connect the DMX input signal. Multiple DMX-24-2000s may be connected by connecting the DMX output of the first to the input of the second. The DMX AMP output block indicates that the signal is amplified before being passed on to the next decoder. *Set the dip switch on the decoder to correspond w/the 1st bit of data you wish to be read into the decoder

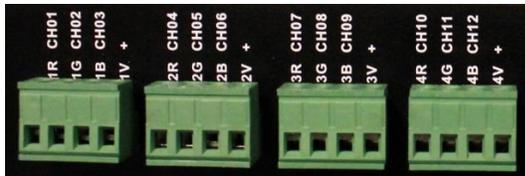
Connections



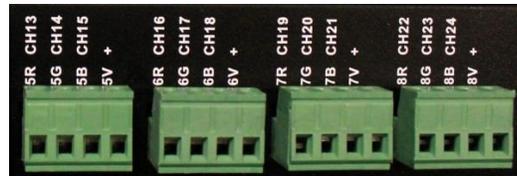
DMX IN/OUT Ports



DIP Switch Settings – Func. Test Mode



PWM Outputs Ch. 1-12 to LEDs



PWM Outputs Ch. 13-24 to LEDs



DC IN: Ch. 13-24 & 1-12

For DMX Pinouts:

- A Data +
- B Data -
- G Ground