

Studio 4 Channel DMX Decoder - 5A per Channel

Part numbers: **DMX-4-5000**



The DMX-4-5000 is a 4-channel DMX decoder designed with a high PWM frequency to avoid flicker when used with high-end cameras on movie and TV sets. Four output channels makes it compatible with RGB ColorPlus lighting, up to 5 amps per channel. For traditional RGB lighting, it can handle up to 20 amps across the three channels. DMX addressing is set via a side-mounted DIP switch that can also engage an internal termination of the DMX out. The decoder features RJ45 jacks for DMX input and output. Cables are sold separately for RJ45, 3-pin and 5-pin connectors for compatibility with any DMX system.

Features

- Output PWM frequency of 5,000 Hertz, high enough to avoid flickering that can occur with high speed iris cameras used by state-of-the-art studios.
- Converts standard DMX signal to analog signal suitable for driving 12 VDC or 24 VDC LED lighting, such as our LED strip lights.
- Output is 4 channels, typically Red, Green, Blue, and White or Amber.
- DIP switches on the side allow you to set the decoder's lowest DMX address.
- Internal termination of the DMX out jack that may be activated by flipping switch 10.
- 5 amps per channel maximum sustained power; 6.67 amps per channel maximum peak power (3-channel only); 4 channels; 12 or 24 VDC output. **Recommended maximum is 240 watts at 12 VDC or 480 watts at 24 VDC.**
- Use amplifiers for additional power, if necessary.
- 0 to 110°F recommended operating range. Device maximum temperature is listed in the specifications. Always install in a dry area with ventilation.
- Power dissipation is < 1 watt.
- 2 year warranty.

Applications

- Any application requiring conversion of DMX to PWM signals for driving LEDs. Provides 4 channels of output, suitable for 1 Red-Green-Blue-White device or 4 different single channels.

Specifications

Part Number	DMX-4-5000
Dimensions	1.65" x 7.48" x 1.34"
	42 mm x 190 mm x 34mm
Channels	4
Input Voltage	12-24 Volts DC
Max. Current Load	4x5A or 20A Total
Max. Output Power	240W/480W (12V/24V)
PWM Frequency	5000Hz
DMX Ports	2xRJ45
Cables	Sold Separately
Max. Device Temp	-22 to 150°F (-30 to 65°C)

Cables sold separately



Wiring Diagram

The DMX512 Out port has an internal termination. Always flip DIP switch #10 down to the ON position if the DMX Out port is not being used.

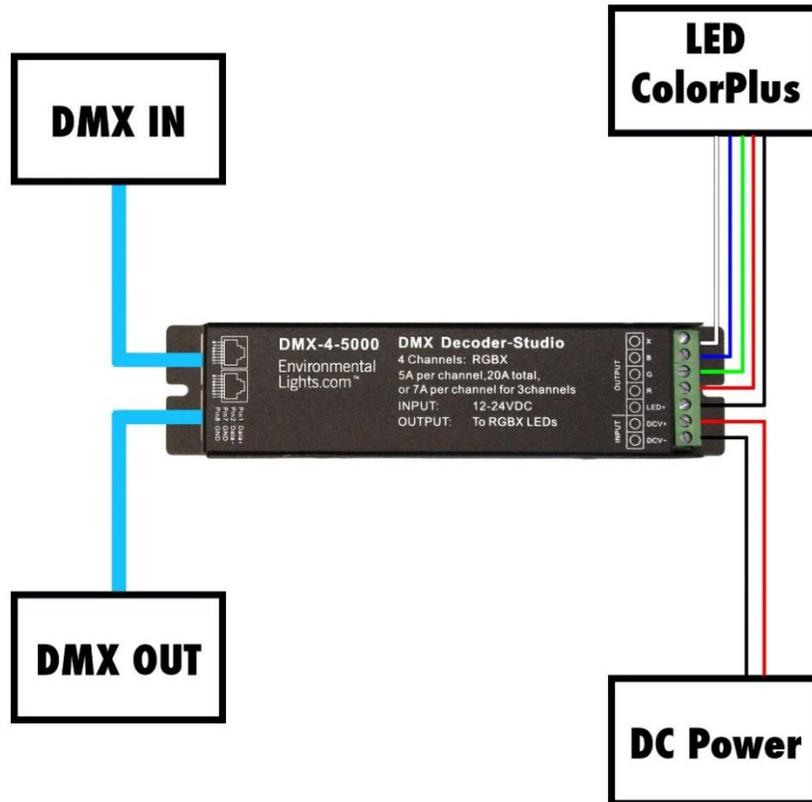


Figure 1. Wiring Diagram for ColorPlus LEDs.

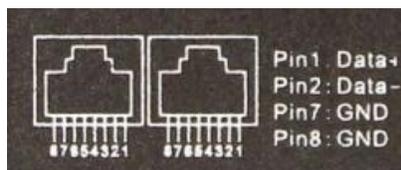


Figure 2. RJ45 Connector Pin-Out.



Figure 3. DIP Switch set to 001.

**Please note: An address bit is set ON in the down position.

DMX Addressing

The DMX-4-5000 has 4 output channels with each using one DMX channel. DIP switches #1-9 are used to set the starting address. The other channels are automatically assigned based on the starting address (see Figure 4).

Output Channel	DMX Address	Example
R	DIP Setting	001
G	R + 1	002
B	R + 2	003
X	R + 3	004

Figure 4. Output DMX Addresses.

DIP switches 1-9 work as a 9-digit binary number, with switch #1 the least and #9 the most significant bit. Each switch corresponds to a value listed in Figure 5. Move a switch down to the ON position to add its value to the starting address. Examples are shown in Figure 6.

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

Figure 5. DIP Switch Values.

DIP Switch Setting (1 indicates ON)	DMX Starting Address
100000000	1
010000000	2
100001000	33
001001001	292

Figure 6. DMX Address Examples.

Common practice is to set the first DMX decoder in the system to the lowest DMX address, 001. Additional receivers can be daisy-chained from the first by connecting DMX out to the next DMX in. Any subsequent decoders should be set based on how many channels you are using on the previous decoder. If the first decoder has LEDs connected to all four channels, it will use addresses 001-004. In this case, set the second decoder to start at 005. If the first decoder only has LEDs on the first 3 (RGB) channels, then set the second decoder to start at 004. This convention can be repeated to link many decoders. When connecting multiple decoders, make sure that DIP switch #10 is ON for only the last decoder in the chain.

Maximum Output Power

Recommended maximum is 7 amps per channel, or 20 amps total max., whichever is less.

A. Recommended maximum worst-case **4 channel** scenario:

Maximum current is 5 A per channel, and there are 4 channels. Therefore:

Rating power at 12V : $12V \times 5A \times 4 = 240 \text{ Watts} = 60 \text{ watts/channel}$

Rating power at 24V : $24V \times 5A \times 4 = 480 \text{ Watts} = 120 \text{ watts/channel}$

B. Recommended maximum worst-case **3 channel** scenario:

Maximum current is 6.67 A per channel, and there are 3 channels. Therefore:

Rating power at 12V : $12V \times 6.67A \times 3 = 240 \text{ Watts} = 80 \text{ watts/channel}$

Rating power at 24V : $24V \times 6.67A \times 3 = 480 \text{ Watts} = 160 \text{ watts/channel}$

Safety Precautions

Please take the following precautions:

1. This equipment, like all electrical equipment, should be installed by a qualified person.
2. Do not expose these LEDs, dimmers or power supplies to intense electro-magnetic fields, including lightning.
3. The controllers and power supplies are not waterproof. Keep them dry.
4. Always observe proper polarity.

When installing LED lighting, it is a good idea to follow this “dry-run” procedure:

1. Be sure you have everything you need before you start.
2. Lay out your lights and power supply on the floor or table.
3. There is some resistance in the LED lighting. If you see any color fading or dimming at the end of a long run, you may have too many LEDs for your power supply and you might need a bigger supply or shorter runs. Use a bus structure as described in [rgb_manual.pdf](#). Call if you need assistance with larger projects.
4. Connect everything and test it to be sure it works and you have it connected properly. It is unlikely, but possible, that some part of your system is defective or was damaged during shipment. If that is the case, it will be very helpful to you to know that before you do all the work involved in installing custom LED lighting systems. You will also know if you damage anything during installation, which is really helpful in trouble-shooting because manufacturing defects and installation damage typically have very different solutions.

Once you have tested the system successfully, you are ready to install it. We recommend you install LEDs, electronic controls and dimmers in such a way that you have access to them in case they fail. All electrical components can fail.