RGB DMX Decoder

Installation & Programming Instructions

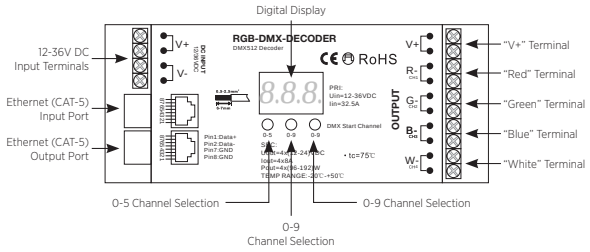
Part Number: #RGB-DMX-DECODER

Need additional assistance? Contact LEDI's Serve Team at (832)-717-2710 or designs@ledinspirations.com.

Before you Begin *(Please read before installing)*

- Ensure all AC power has been shut off before performing this installation.
- This is a low voltage, DC powered component; Do NOT wire AC power to this component.
- This product should be installed and serviced by a trained professional.
- This product is NOT waterproof and is intended for an indoor and dry environment only.
- Ensure all output voltages comply with the working voltage of this product.
- Do NOT use magnetic low voltage LED drivers with this component.
- Ensure the appropriately sized wire is used for this component.
- Please do not attempt any modifications or repairs on this product.
- If a replacement unit is needed, please contact LEDI at (832) 717-2710.
- This product has a 5 year limited warranty from the purchase date.

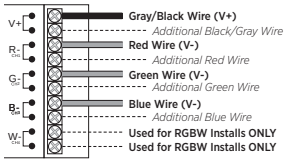
RGB DMX Decoder Overview



- **12-36V DC Input Terminals** - Input terminals for a low voltage, electronic DC driver
- **Digital Display for DMX Channels** - Displays the current DMX channel selected
- **"V+" Terminal** - Terminal for the positive (+) wire from an RGB connector
- **"R" Terminal (Red)** - Terminal for the red wire from an RGB connector
- **"G" Terminal (Green)** - Terminal for the green wire from an RGB connector
- **"B" Terminal (Blue)** - Terminal for the blue wire from an RGB connector
- **"W" Terminal (White)** - Terminal for the wiring from a static white run of tape light
- **Ethernet (CAT-5) Input Port** - Port for receiving CAT-5 data
- **Ethernet (CAT-5) Output Port** - Port for sending CAT-5 data
- **0-5 Channel Selection (Hundreds Place)** - Cycle through values 0-5 in the hundreds place only
- **0-9 Channel Selection (Tens Place)** - Cycle through values 0-9 in the tens place only
- **0-9 Channel Selection (Ones Place)** - Cycle through values 0-9 in the ones place only

Installing the RGB DMX Decoder

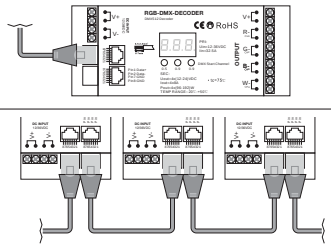
1. Using an RGB Hardwire Connector, wire the stripped ends of the connector to the OUTPUT terminals of the RGB DMX Decoder. Use the "V+" terminal for the gray (or black) wire, the "R" terminal for the red (V-) wire, the "G" terminal for the green (V-) wire, and the "B" terminal for the blue (V-) wire. Screw down each terminal with a mini flathead screwdriver to secure the wire.



Note: The "W" terminals will only be used for RGBW installations.

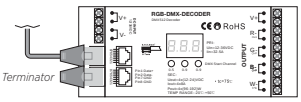
Tip: *If you need to wire more than one RGB Hardwire Connector to the RGB DMX Decoder, you may use the additional terminal of each channel (V+, R, G, B) for any additional RGB tape light runs . You may wire multiple runs of RGB tape light to each terminal. Ensure the terminals allow enough space for each wire.*

2. Connect the CAT-5 cable from your RGB DMX Controller to the INPUT Ethernet port.



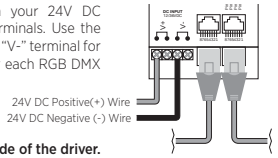
3. If wiring additional RGB DMX Decoders, connect a CAT-5 cable to the OUTPUT Ethernet port of the RGB DMX Decoder you just installed. Connect the same CAT-5 cable to the INPUT Ethernet port of your next RGB DMX Decoder. Repeat this process for any additional RGB DMX Decoders you install.

Note: ALL RGB DMX Decoders in your setup must be daisy-chained together via CAT-5 cables, unless you are using wireless DMX transmitters/receivers.



4. If installing 4 or more RGB DMX Decoders, an RGB DMX Terminator is needed to terminate the signal. Connect the RGB DMX Terminator to your last RGB DMX Decoder (opposite of your RGB DMX Controller, which is considered the first) to the OUTPUT Ethernet port.

5. Wire the low voltage OUTPUT leads from your 24V DC **Electronic** Driver to the 12-36V DC INPUT terminals. Use the "V+" terminal for your positive (+) wire, and the "V-" terminal for your negative (-) wire. Repeat this process for each RGB DMX Decoder you've installed.



Note: Your 24V DC Electronic Driver(s) may be equipped with a set of purple and gray, 0-10V dimming wires on the OUTPUT side of the driver. DO NOT USE these wires. Please cap each wire individually.

Parts Needed *(All components sold separately)*

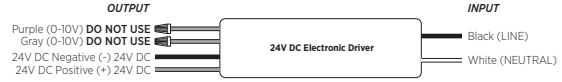
x1 or More RGB DMX Decoder(s)
x1 RGB DMX Controller
x1 or More CAT-5 Cable(s)
x1 or More RGB Hardwire Connector(s)
x1 or More 24V DC Electronic Driver(s)
x1 or More Run(s) of RGB Tape Light
x2 or More Wire Nuts
x1 RGB DMX Terminator*
**Required if installing four (x4) or more RGB DMX Decoders.*

Tools Needed

x1 Mini Flathead Screwdriver
x1 Wire Strippers

6. Wire the line voltage leads on the INPUT side of your 24V DC **Electronic** Driver(s) to 120-277V AC power.

WARNING: DO NOT USE 24V DC *MAGNETIC* DRIVERS WITH RGB DMX EQUIPMENT! THESE DRIVERS WILL DAMAGE THE EQUIPMENT.



DMX Addressing

ATTENTION *This section should only be used if using a **MULTI-ZONE** RGB DMX CONTROLLER.*

Introduction

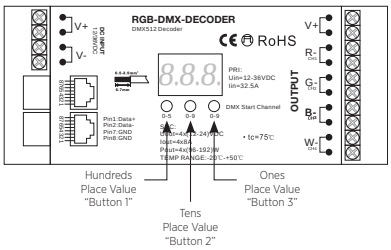
The RGB DMX Decoder transfers data via the standard DMX512 protocol. When pairing multiple RGB DMX Decoders with a multi-zone RGB DMX controller, each RGB DMX Decoder may be individually addressed and controlled, allowing greater customization for your lighting application. Follow the instructions below to learn how to address the RGB DMX Decoders.

Digital Display & Programming Buttons

There are three programming buttons positioned below the digital display. See below for a description of each. Refer to ***Figure 1A*** *(below)* for a visual:

- **"Button 1"** controls the hundreds place value and can have a numeric value of 0-5.
- **"Button 2"** controls the tens place value and can have a numeric value of 0-9.
- **"Button 3"** controls the ones place value and can have a numeric value of 0-9.

Figure 1A



Setting the DMX Channel

Before we begin addressing the RGB DMX Decoders, we must, first, make sure each RGB DMX Decoder is programmed to the correct DMX channel. There are a total of four (x4) DMX channels:

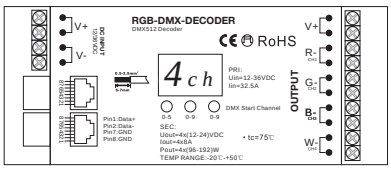
- CHANNEL 1 - RED
- CHANNEL 2 - GREEN
- CHANNEL 3 - BLUE
- CHANNEL 4 - WHITE/ALL

From the factory, all RGB DMX Decoders should be programmed to CHANNEL 4 (WHITE/ALL), which allows you to control ALL available colors on our RGB LED Tape Light. If an RGB DMX Decoder is programmed to a DMX channel other than CHANNEL 4, the RGB LED Tape Light will not correspond with the color selection on your RGB DMX controller *(example: selecting a red color on your RGB DMX controller may result in a blue color on your RGB LED Tape Light)*.

If an RGB DMX Decoder is not programmed to CHANNEL 4, we may manually set the DMX channel to CHANNEL 4 using the following steps:

1. Press and hold "Button 2" and "Button 3" until the digital display begins to flash.
2. While the digital display is flashing, press "Button 1" to scroll through each DMX channel.
3. When you've landed on CHANNEL 4 (***Figure 2A below****; the digital display will read "**4ch**")*, press and hold "Button 1" to save your selection.
4. Repeat this process for each RGB DMX Decoder.

Figure 2A



Addressing the RGB DMX Decoders

When addressing the RGB DMX Decoders, we may program each Decoder to the SAME address, or we may program each to SEPARATE addresses. See below for a description of each type of addressing to see which method best suits your application:

- **SAME Address**: Programming *ALL* of the Decoders to the same address will allow you to control *ALL* of your RGB LED Tape Light simultaneously.
- **SEPARATE Addresses**: Programming the Decoders to separate addresses will allow you to control specific runs of RGB LED Tape Light. **Please note that a *multi-zone* DMX controller is required to control Decoders that are separately addressed.**

> See the next page for programming instructions.

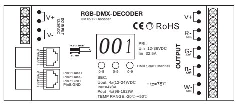
DMX Addressing (cont.)

SAME Address
On your first RGB DMX Decoder, perform the following:

1. Press and hold “Button 1” until the digital display begins to flash.
2. While the digital display is flashing, press “Button 1” until the numeric value reads “0” (zero).
3. Press “Button 2” until the numeric value reads “0” (zero), as well.
4. Press “Button 3” until the numeric value reads “1” (one).
5. The digital display should read “001” (***Figure 3A below***).
6. Press and hold “Button 1” to save your selection.

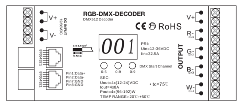
Repeat this process for each RGB DMX Decoder in your setup (***Figure 3B below***). Once completed, all of your RGB LED tape light will operate the same when controlled by the RGB DMX controller.

Figure 3A



First RGB DMX Decoder

Figure 3B



Next RGB DMX Decoder

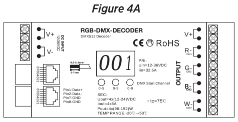
SEPARATE Addresses
On your first RGB DMX Decoder, perform the following:

1. Press and hold “Button 1” until the digital display begins to flash.
2. While the digital display is flashing, press “Button 1” until the numeric value reads “0” (zero).
3. Press “Button 2” until the numeric value reads “0” (zero), as well.
4. Press “Button 3” until the numeric value reads “1” (one).
5. The digital display should read “**001**” (***Figure 4A below***).
6. Press and hold “Button 1” to save your selection.

On your next RGB DMX Decoder, perform the following:

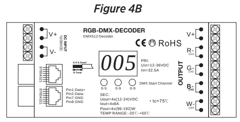
1. Press and hold “Button 1” until the digital display begins to flash.
2. While the digital display is flashing, press “Button 1” until the numeric value reads “0” (zero).
3. Press “Button 2” until the numeric value reads “0” (zero), as well.
4. Press “Button 3” until the numeric value reads “5” (five).
5. The digital display should read “**005**” (***Figure 4B below***).
6. Press and hold “Button 1” to save your selection.

Figure 4A



First RGB DMX Decoder

Figure 4B



Next RGB DMX Decoder

For any additional RGB DMX Decoders, repeat the same process you followed above, but add four (+4) to the address you programmed on the previous RGB DMX Decoder (example: if your previous RGB DMX Decoder is addressed as “**005**”, your next Decoder should be addressed as “**009**”, or *005 + 4 = 009*). Follow this process for each additional RGB DMX Decoder in your setup. You may also adjust the tens place and hundreds place values if needed. See the chart below for an example:

Address #	0-5 (Hundreds)	0-9 (Tens)	0-9 (Ones)
#1	0	0	1
#2	0	0	5
#3	0	0	9
#4	0	1	3
#5	0	1	7

Troubleshooting

Below you’ll find some general troubleshooting tips regarding some common issues you may encounter with the RGB DMX Decoders. If you have any further questions, or an issue you’ve encountered is not addressed below, please contact LEDI’s Serve Team at (832)-717-2710 (*M-F; 8am-5pm CST*) or designs@ledinspirations.com.

The RGB DMX Decoder Does Not Turn On
If the RGB DMX Decoder does not turn on, please check for the following:

- The driver(s) wired to your RGB DMX Decoders are ***low voltage, 24V DC Electronic*** Drivers and ***NOT*** MAGNETIC drivers. DO NOT USE 24V DC MAGNETIC DRIVERS WITH RGB DMX EQUIPMENT! THESE DRIVERS WILL DAMAGE THE EQUIPMENT**.**
- The ***low voltage, 24V DC*** connections from your Electronic Low Voltage Driver are in their correct terminal on the RGB DMX Decoder and the terminals are securely tightened. Refer to step 5 of the section titled “Installing the RGB DMX Decoder” for details.
- The low voltage leads of your 24V DC Electronic driver are delivering a constant 24V DC. Use a multimeter to determine the voltage.
- There is sufficient power running to the 120-277V AC input of the Electronic Low Voltage Driver.

The RGB LED Tape Light Does Not Turn On
If the RGB LED Tape Light does not turn on, please check for the following:

- The RGB DMX controller is powered on and is set to 100% brightness.
- There is a CAT-5 cable running from the RGB DMX controller to your first RGB DMX Decoder.
- All other CAT-5 connections are secure in their terminals.
- The ***low voltage, 24V DC*** connections from your Electronic Low Voltage Driver are in their correct terminal on the RGB DMX Decoder and the terminals are securely tightened. Refer to step 5 of the section titled “Installing the RGB DMX Decoder” for details.
- There is sufficient power running to the 120-277V AC input of the Electronic Low Voltage Driver.
- The RGB Hardwire Connector is connected to the RGB LED Tape light.
- The RGB Hardwire Connector is correctly wired to the RGB DMX Decoder and the terminals are securely tightened. Refer to step 1 of the section titled “Installing the RGB DMX Decoder” for details.

The RGB LED Tape Light Does Not Respond to the RGB DMX Controller
If the RGB LED Tape Light does not respond to the RGB DMX controller, please check for the following:

- There is a CAT-5 cable running from the RGB DMX controller to your first (or last) RGB DMX Decoder.
- If using additional RGB DMX Decoders, all Decoders are daisy-chained together using CAT-5 cables.
- The RGB DMX controller is powered on and is set to 100% brightness.
- If using a multi-zone DMX controller, the applicable zone is selected.
- The RGB DMX controller is not locked *(if applicable; some RGB DMX controllers allow the user to lock the controls/buttons to prevent accidental touches causing unwanted changes to the RGB LED Tape Light - see your controller’s user manual for applicable instructions on locking/unlocking the controls/buttons).*

The RGB LED Tape Light is Displaying the Wrong Color
If the RGB LED Tape Light shows a different color than you’ve selected on your RGB DMX controller, please check for the following:

- The RGB Hardwire Connector is correctly wired to the RGB DMX Decoder and the terminals are securely tightened. Refer to step 1 of the section titled “Installing the RGB DMX Decoder” for details.
- The correct DMX channel is set on all of the RGB DMX Decoders in your setup. Please refer to section titled “RGB DMX Addressing - Setting the DMX Channel” for details.

The RGB LED Tape Light is Displaying the Wrong Color (cont.)

- The RGB Hardwire Connector is correctly wired to the RGB DMX Decoder and the terminals are securely tightened. Refer to step 1 of the section titled “Installing the RGB DMX Decoder” for details.
- The correct DMX channel is set on all of the RGB DMX Decoders in your setup. Please refer to section titled “RGB DMX Addressing - Setting the DMX Channel” for details.
- The correct DMX address is set on all of the RGB DMX Decoders. Refer to the section titled “DMX Addressing - Addressing the RGB DMX Decoders” for details.
- There is a CAT-5 cable running from the RGB DMX controller to your first (or last) RGB DMX Decoder.
- The CAT-5 cable is in good, working condition.
- The CAT-5 cable is not a “crossover” CAT-5 cable *(a cable that has an opposite pin configuration at each end)*.
- An RGB DMX Terminator is used if four (x4) or more RGB DMX Decoders are used in your setup.
- The RGB DMX Decoder(s) are no more than 100-feet away from the very first RGB DMX Decoder in your setup. If any Decoders are further than 100-feet away from the very first Decoder, an RGB DMX Splitter may be used to re-amplify the signal.

Color Changing/Effects/Dimming Delay
If you notice some runs of the RGB LED Tape Light respond slower to color changes, effects, and/or dimming than other runs, and these runs of RGB LED Tape Light are programmed to the ***SAME*** DMX address, the PWM frequencies of the RGB DMX Decoder might be out of sync. From the factory, the RGB DMX Decoders should be set to a PWM frequency of “2-2”; however, some units may have been programmed to another frequency. To reset the PWM frequencies of the RGB DMX Decoder, follow these simple steps:

1. Press and hold “Button 1” and “Button 3” until the digital display begins to flash “P-c”.
2. Press “Button 1” until the number “2” (two) is shown on the digital display.
3. Press “Button 3” until the number “2” (two) is shown on the digital display.
4. The digital display should now read “2-2”.
5. Press and hold “Button 1” to save your selection.
6. Repeat this process for any RGB DMX Decoders that are having the issues mentioned above.

Complete System Wiring Diagram