DMX LED EFFECTS

OWNER'S MANUAL

KIT INCLUDES

- 3M® VHB Mounting Pad
- Mounting Hardware

PART # 40040

IMPORTANT

It is strongly recommended that this product
be installed by a professional.

1   PRODUCT DESCRIPTION

The Rigid Industries DMX LED Effects control panel is a nine button dual universe DMX controller with a center rotary slider. The control panel lets you set colors from red, green, blue and white, the dimming level, almost infinite color mixing, and automatic play color changing rate (speed). It is designed to control the Rigid Underwater LED Light that hosts red, green, blue and white LEDs with a separate DMX channel or slot. In addition, two independent DMX universes are supported to allow for above and underwater zone control.

1.1   Panel Properties
The Rigid Industries DMX LED Effects control panel hosts dual DMX universes output RS-485 channels. A single button (DMX) allows the selection of the DMX universe to control, with settings for both, universe 1 (CH1) or universe 2 (CH2) individually. The panel will change the output to the chosen color or mode depending on the DMX universe selection. The panel can operate on a wide range of input voltages from 10-36V DC.

1.2   Control Properties
The Rigid Industries DMX LED Effects control panel features the following lighting control properties:
- Dual DMX universes (DMX)
- RGBW color selection (RED, GREEN, BLUE, WHITE)
- 8-bit dimming resolution
- Dimming percentage (DIM)
- Color changing show or play mode (CYCLE)
- Adjustable show speed
- Save color selection or show speed (SAVE)

1.3   Networking Properties
The Rigid Industries DMX LED Effects control panel is compatible with DMX-512A using the RS-485 transmission protocol. Cable lengths of up to 4000ft are possible using DMX. This controller uses unidirectional data transmission for remote device or slave color command.

1.4   Solid State Lighting Applications
This panel is packaged into a 6.3" x 3.8 x 0.50" (L x W x H) IP67 water resistant enclosure, giving you freedom to mount the panel in many environments.

1.5 Control Diagram
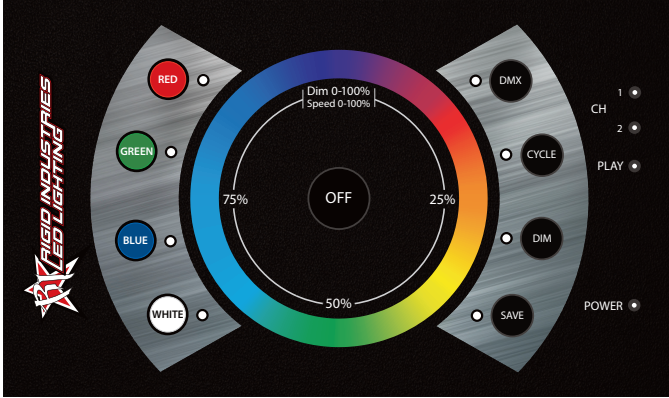
1.6 DMX Modes

The Rigid Industries DMX LED Effects control panel has two programmable DMX universes.

1.6.1 DMX Universe Selection

The Rigid Industries DMX LED Effects control panel will power on with both universe one (CH1) and universe two (CH2) selected. Touching the DMX button (see figure 1) will cycle though the Universes starting with CH1. The panel will function with both, 1 or 2. For save functions, consider it to have 3 selections, with unique functions for both, 1 or 2. It may be best to split the universes up into zones (example: on a boat, above and below water.)

Figure 2 - Zones

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2   COLOR SELECTION

This section will cover the color selection process and various color modes the Rigid Industries DMX LED Effects control panel can control. The buttons on the Rigid Industries DMX LED Effects control panel use capacitive touch technology and will not physically depress when pushed. The electrical characteristics of your skin are enough for the panel to detect that a selection has been made.

2.1   RGBW Color Selection
Solid colors can be selected using the buttons on the left side of the DMX control panel.
Note: Only one solid color can be selected at a time. If color mixing is desired use the color wheel. See section 3.2.

2.1.1   Red
A single press of the red button will turn all the red channels (DMX slot 1) to full power.
2.1.2   Green
A single press of the green button will turn all the green channels (DMX slot 2) to full power.
2.1.3   Blue
A single press of the blue button will turn all the blue channels (DMX slot 3) to full power.
2.1.4   White
A single press of the white button will turn all the white channels (DMX slot 4) to full power. Pressing and holding the White button for 3 seconds will go to all channels. The light output color is slightly pink shade of white. This is due to all the color dies on at once. It provides the absolute most light out of an RGB unit, albeit in a slightly odd color.

2.2   Color Mixing
Color mixing is possible by using the color wheel. The Cycle button also allows color mixing as it cycles through the color spectrum. Cycle speed can be increased or decreased by the center rotary control.

2.2.1   Color Wheel
The color wheel is a fast way to select a color mix shown on the color wheel. When using any color with no other mode selected, just touch the color you would like.
Note that the center color wheel will also allow for dimming and changing the speed of the CYCLE mode, so it is important to know that using the color wheel will take charge of the output only when not in the DIM or CYCLE mode.

3   ADVANCED FEATURES

3.1   Cycle

The Cycle button will put the selected DMX universe (CH1, CH2, or both CH1 and CH2) into a preprogrammed light show cycling though all available colors at a predetermined rate.

The color wheel changes functions to ONLY a speed selector while the panel is in cycle mode. To use the color wheel as a color selector after cycle mode has been activated, the cycle must first be turned off. To turn off the cycle program, touch any dedicated color, off, or save to bring up a different mode.

3.1.1   Cycle Speed

In Cycle mode the color wheel function changes to a cycle speed selector. The cycle speed can be changed by touching different places on the color wheel. Refer to the control diagram in figure 1 for the speed indication from 1-100%. Fastest cycle rate would be in the 11 o' clock position, slowest in the 1 o' clock position.

3.2   Dimming

Selecting the Dim button will allow you to use the color wheel as a brightness controller sending a DMX signal between 0-255 in increments between 1-100%. The lowest brightness setting will be at the 1 o'clock position and the brightest will be at 11 o'clock.   When dimming is selected, the indicator LED on the panel next to the Dim button will be flashing. To turn off dim function, touch the Dim button again. The LED will stop flashing and the system will revert to the previously used mode.

3.2.1   Dimming Solid Colors

After a solid color has been selected it can be dimmed to the desired level by touching the Dim button and then selecting the desired brightness on the color wheel.

3.2.2   Dimming in Cycle Mode

Dimming works the same way in Cycle mode as in any other mode. Touch Cycle, then touch Dim. The indicator LED next to Dim will be flashing. Set the desired brightness, then touch Dim again. It will revert back to standard Cycle logic (speed vs. dimming on the wheel).

3.3   Saving Colors

A color can be saved in each of the three DMX universe modes. CH1, CH2, or both (CH1 and CH2 conjointly).

3.3.1   Saving Mixed Colors
After you have selected a color from the color wheel and dimmed it to the desired level, hold the SAVE key with a "long press" until you see the LED fixture flash. The LED fixture flashing indicates the color has been saved, and you can now let go of the Save button.

3.3.2   Saving RGBW Colors
After you have selected red, green, blue, or white and dimmed it to the desired level, touch the save key until you see the color flash. The flash indicates the color has been saved.

3.3.3   Saving a Cycle
A cycle can be saved by the same way mixed and solid colors are saved. Touching and holding Save after the desired speed and dim level have been established will save the cycle to memory. The flashing LED indicates the color has been saved.

3.3.4   Recalling a Saved Scheme
A saved scheme can be recalled by briefly touching Save. The scheme that was last saved to that specific universe will be displayed.

4   INSTALLATION INSTRUCTIONS

4.1   Install Location
When installing the Rigid Industries DMX LED Effects control panel to your vehicle care should be taken to ensure that the panel is correctly secured on a flat surface. Do not install the Rigid Industries DMX LED Effects control panel on uneven surfaces, DAMAGE TO THE INTERNAL CIRCUITRY CAN RESULT.

4.1.1   Environmental Considerations
The Rigid Industries <u>DMX LED Effects control panel was designed to operate</u> in extreme conditions. However, it should not be completely submerged in water, or installed in a location that will be exposed to temperatures greater than 65°C (150°F). The enclosure has an ingress protection rating of IP67.

4.2   Drilling Pattern
Use the mounting template seen on Page 10 for the five mounting holes.

4.2.1 Drill Size

The four outer mounting holes should be drilled with a #28 (9/64") size drill. The center hole for the cable should be drilled with at least a Q (0.332") size drill for adequate cable and grommet clearance.

4.2.2 Screw Pitch

If you require different length mounting screws or studs than those provided, the correct thread pitch is #8-32. PLEASE USE CAUTION. Using screws that are of the wrong length can cause them to bottom out and structurally damage the case.

4.3 Wiring Connections

Use the following instructions for connecting the Rigid Industries DMX LED Effects control panel to your LED lights.

4.3.1 Connection Wire Color Code

COLOR	USE
Red	Positive (+) DC Input 10-36V
Black	Negative (-) DC Input 10-36V
Yellow	DMX Universe 1 Positive(+)
Green	DMX Universe 1 Negative (-)
Orange	DMX Universe 2 Positive (+)
Brown	DMX Universe 2 Negative (-)
White	No Connect

4.3.2 Connectors

The connection between the LED light and the Rigid Industries DMX LED Effects control panel should be kept free of moisture. If the panel is installed in a marine environment, a marine grade dry connector must be used.

5 DMX NETWORK ARCHITECTURE AND TOPOLOGY

5.1 Setting up your DMX LED Effects

The Rigid Industries DMX LED Effects will act as a DMX master in your DMX network. Use this section to understand how the Rigid Industries DMX LED Effects should be used with your DMX capable LED lights. Note that only one DMX master may connect to a single DMX universe, if more than one is connected DMX data will be corrupted.

5.1.1   DMX Network Protocol

The Rigid Industries DMX LED Effects control panel supports unidirectional DMX communication. DMX is the communication protocol between the master device, the Rigid Industries DMX LED Effects control panel, and the LED light by individual address-ing. The panel expects that all slaves are assigned to color channels in this order:

> Red – slot 1
> Green – slot 2
> Blue – slot 3
> White – slot 4

This Rigid Industries DMX LED Effects control panel will work on a DMX network with other DMX devices as long as they accept standard DMX signals, but will only drive the first four slots on the DMX universe. The panel conforms to all DMX512A for compatibility.

5.1.2   DMX Network Architecture

You can setup the DMX topology as follows:

- The Rigid Industries DMX LED Effects control panel will output over DMX slots 1, 2, 3 and 4, corresponding to red, green, blue and white.

5.1.2.1   DMX Network Start Address

The start address of the device is permanently set to DMX slot 1. Only DMX slots 1, 2, 3, and 4 will be broadcast over the DMX network connected to Rigid Industries DMX LED Effects control panel. See Figure 3.
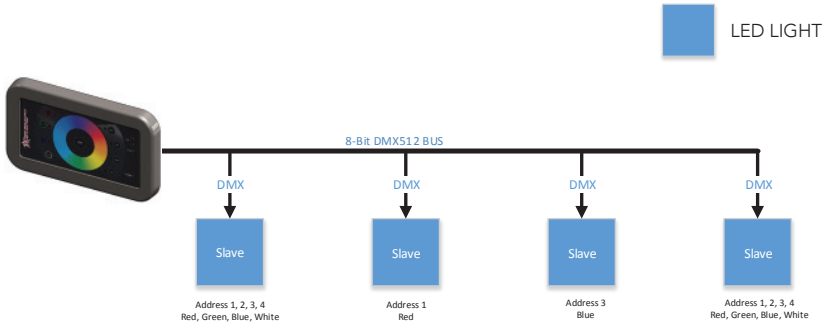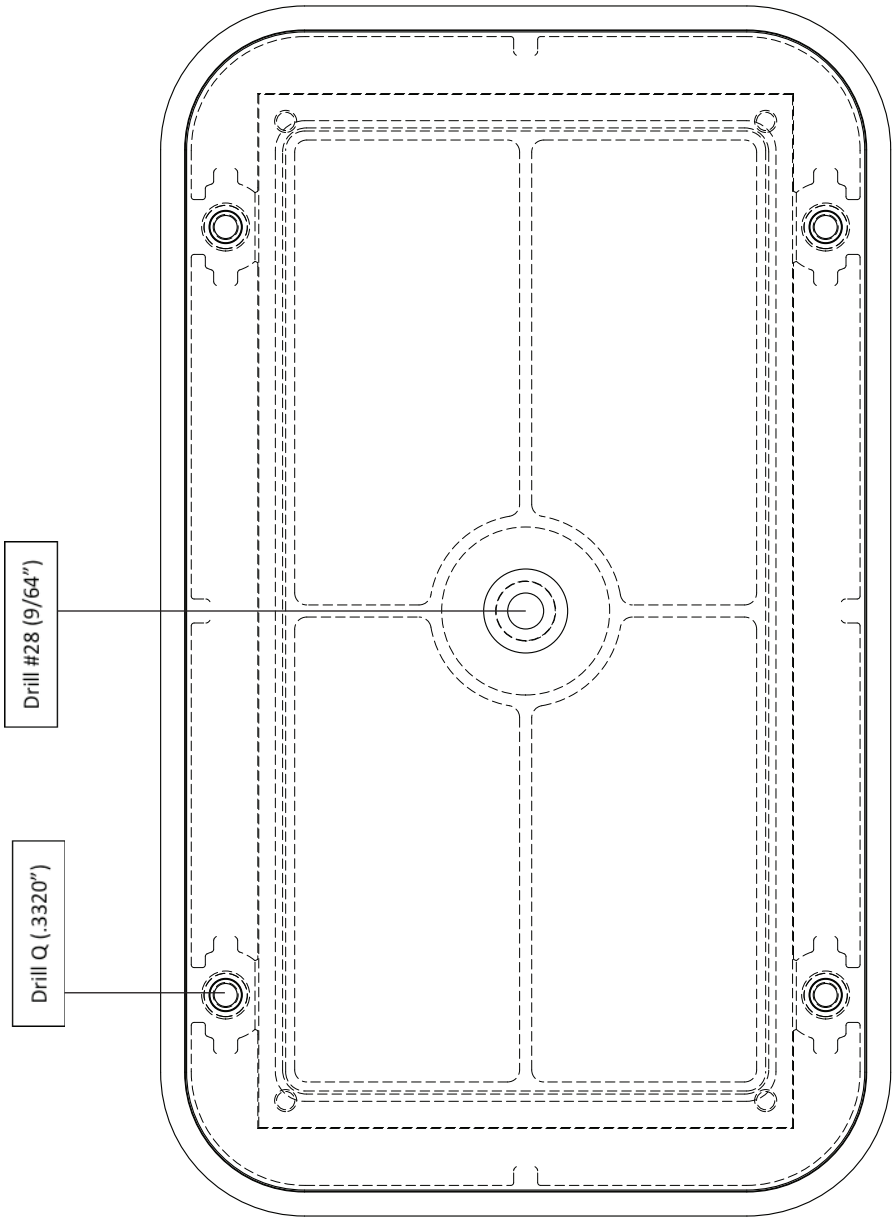

LED LIGHT

8-Bit DMX512 BUS

DMX   DMX   DMX   DMX

Slave   Slave   Slave   Slave

Address 1, 2, 3, 4   Address 1   Address 3   Address 1, 2, 3, 4
Red, Green, Blue, White   Red   Blue   Red, Green, Blue, White

Figure 3 – 8-bit DMX Bus Network Architecture

Drill #28 (9/64")

Drill Q (.3320")

Mounting Template

*If printing from a printer, choose ACTUAL SIZE print option

6 SPECIFICATIONS

Physical
- Dimensions 6.3" x 3.8 x 0.50" (L x W x H)
- Weight: 250g

Dimming resolution
- 8-bit DMX512A

Electrical
- Operating supply voltage: 10V-36V DC
- Output short circuit protected
- Input reverse polarity protected

Environmental characteristics
- Case temperature -31°F to 149°F
- Ambient temperature 113°F
- Expected design lifetime at 77°F 10 years in operation
- Ingress Protection: IP66

Network Control
- Communication protocol: DMX512A
- Network standard based on RS-485
- Signal rate: 8ms
- Network resolution: 8 -bit
- Communication: unidirectional (master mode only)
- Network DMX start address:
  Slot 1 = red, slot 2 = green, slot 3 = blue, slot 4 = white

Thermal
- On board thermistor