diodeled

# DMX 4-CHANNEL RDM DECODER

INSTALLATION GUIDE

## SAFETY & WARNINGS

1. Install in accordance with national and local electrical code regulations.
2. This product is intended to be installed and serviced by a qualified, licensed electrician.
3. DO NOT connect directly to high voltage power. Install with a compatible Class 2 constant voltage LED driver (power supply).
4. This product is rated for indoor installation and is not protected against moisture.
5. Install appropriately rated wire between driver, decoder, and fixture. When choosing wire, factor in voltage drop, amperage rating, and type (in-wall rated, etc.) Inadequate wire installation may cause fire.
6. Do not modify or disassemble product beyond instructions or warranty will be void.

### MAXIMUM DAISY-CHAIN DMX DECODERS

A maximum of 10x DMX Decoders may be connected together via RJ45 DMX Connection Ports. DMX signal may be extended further by installing a DMX 8-Way Splitter after the 10th DMX Decoder.

## QUICK SPECS / MODELS

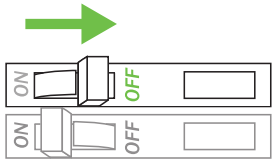
| | Input | Output | Max Load |
|---|---|---|---|
| DI-1810<br>(also DI-1918) | 12 - 24VDC | 12 - 24VDC | 4CH x 5A<br>4CH x 96W (12V)<br>4CH x 192W (24V) |

RDM Support: Yes
Output PWM Frequency: 2KHz
DMX Splitter Compatible: Yes
Environment: Indoor Location

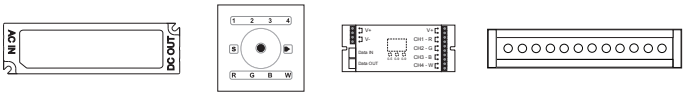
## INSTALLATION

### 1 TURN POWER OFF AT CIRCUIT BREAKER

**SHOCK HAZARD! May result in serious injury or death.**
Turn power OFF at circuit breaker prior to installalation.




### 2 DETERMINE LOCATION TO INSTALL COMPONENTS



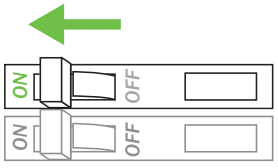

1) Driver
2) DMX Controller
3) DMX Decoder
4) Luminaire(s)

### 3 CONNECT DECODER TO DRIVER. ATTACH LED LUMINAIRE. ONLY USE COPPER WIRING.

Reference SYSTEM DIAGRAM located further in guide for visual.

### 4 CONNECT DECODER TO DMX CONTROLLER.

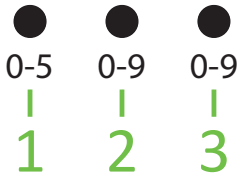
### 5 INSTALL ADDITIONAL COMPONENTS, VERIFY CONNECTIONS, TURN MAIN POWER ON AT BREAKER.



# OPERATION

## DMX START CHANNEL DISPLAY

Adjust the following settings with the DMX Start Channel Display (Fig. 1.):




a. DMX Address
b. Output Channels
c. PWM Frequency
d. Red Light Signal Status Indicator

## SETTING THE DMX ADDRESS

**Use the 3 buttons of the DMX start channel to adjust the values of the DMX address. The decoder will control up to 512 channels.**

a. To set the DMX address, press and hold 'button 1' for 2 seconds until numbers on display flash.
b. Select an address based on the functionality of the Master DMX Controller (see controller installation guide). Once an address is selected, the remaining 3 channels will be utilized digitally. For example, if the decoder is addressed to 001 on the display then CH1 – 001, CH2 – 002, CH3 – 003, CH4 – 004.
c. Once display stops flashing, DMX address is set.
d. Hold 'button 1" for 3 seconds to confirm the setting
e. Indicator light will light red when data signal is confirmed

*Diode LED strongly recommends only professional DMX installers utilize the following settings. All standard DMX applications specified by Diode LED do not require these settings to be adjusted.*

## SETTING DMX CHANNELS

The DMX channels can be adjusted, which allows the user to conserve DMX addresses that may be wasted when programming a large DMX universe.

***The factory default is 4cH: 4 channels (address 001 - 004) as highlighted in the chart below.*** Charts have also been provided for 1cH, 2cH, and 3cH settings.

**4cH (001 - 004)**

| Channel | Address |
|---|---|
| CH1 | 001 |
| CH2 | 002 |
| CH3 | 003 |
| CH4 | 004 |

**1cH (001 Only)**

| Channel | Address |
|---|---|
| CH1 | 001 |
| CH2 | 001 |
| CH3 | 001 |
| CH4 | 001 |

**2cH (001 - 002 Only)**

| Channel | Address |
|---|---|
| CH1 | 001 |
| CH2 | ***002*** |
| CH3 | 001 |
| CH4 | ***002*** |

**3cH (001 - 003 Only)**

| Channel | Address |
|---|---|
| CH1 | 001 |
| CH2 | 002 |
| CH3 | 003 |
| CH4 | ***001*** |


Fig. 2


Fig. 3

**To change channel setting:**

a. Press and hold 'button 2 and 3' simultaneously for 2 seconds until 'cH' flashes on display (Fig. 2).
b. Press 'button 1' to choose 1, 2, 3, or 4 channel outputs (Fig. 3).
c. Press and hold any button for >2 seconds to set channel output.
d. Hold 'button 1' for 3 seconds to confirm the setting

## PWM FREQUENCY

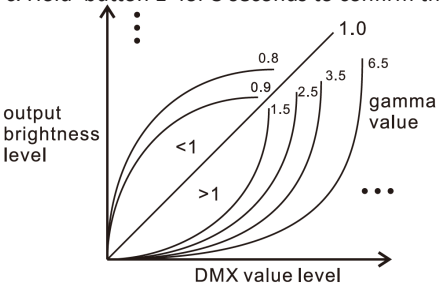
The Default PWM frequency is PF2 (2KHz)

## SETTING DIMMING CURVE GAMMA VALUE

The dimming curve gamma value can be adjusted for special applications. Default dimming curve is g1.0 (Gamma 1.0)

**To change channel setting:**

a. Press and hold 'buttons 1, 2, and 3' simultaneously for 3 seconds until 'g1.0' flashes on display (Fig. 5).
b. Press 'button 2' and 'button 3' to change gamma value.
c. Hold 'button 1' for 3 seconds to confirm the setting

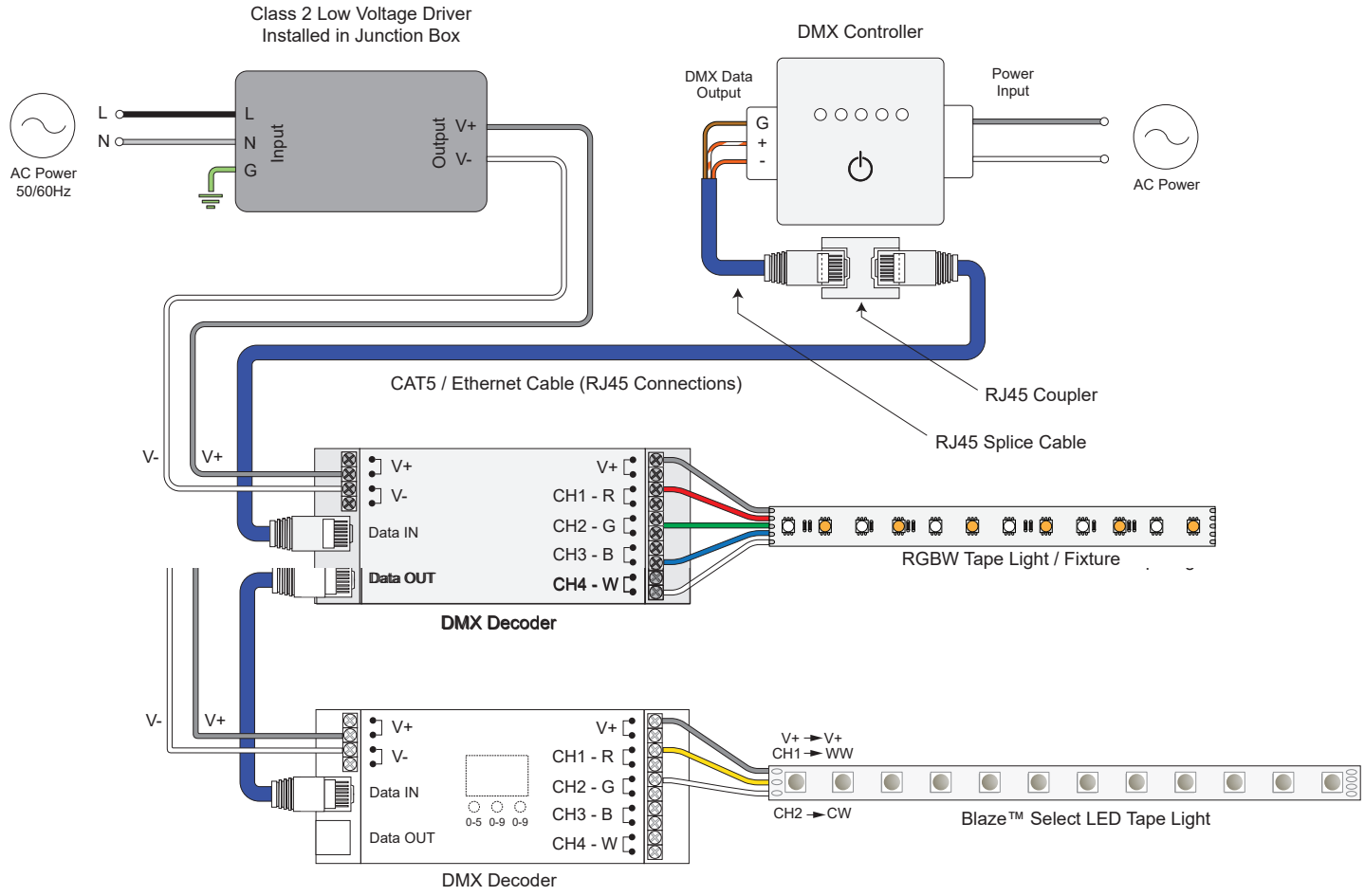




DIMMING CURVE DEFAULT SETTING
Fig. 5

## SYSTEM DIAGRAM

The following diagram is provided as an example system design. CAT5 (RJ45 connections) data cables are the most cost-effective solution for transmitting DMX-512 signals. XLR-3 cables may also be installed but require an additional adapter for connecting to DMX decoders.




## TROUBLESHOOTING

| Symptom | Common Cause |
|---|---|
| Fixture responding incorrectly and/or flickering | • Incorrect wiring. Reversing Data + and Data - will cause lights to flicker.<br>• Incorrect voltage pairing of driver and fixture. (12V & 12V, or 24V and 24V)<br>• Ensure compatible constant voltage driver is installed.<br>• Check connections of additIonal components. |
| Cannot change DMX address | • Hold in button '0-5' for 3 seconds until display flashes continuously, then set address and confirm setting. |

## SUPPORTED RDM PIDs

DISC_UNIQUE_BRANCH
DISC_MUTE
DISC_UN_MUTE
DEVICE_INFO
DMX_START_ADDRESS
IDENTIFY_DEVICE
SOFTWARE_VERSION_LABEL
DMX_PERSONAILITY
DMX_PERSONAILITY_DESCRIPTION
SLOT_INFO
SLOT_DESCRIPTION
MANUFACTURER_LABEL
SUPPORTED_PARAMETERS

### MAXIMUM DAISY-CHAIN DMX DECODERS

A maximum of 10x DMX Decoders may be connected together via RJ45 DMX Connection Ports. DMX signal may be extended further by installing a DMX Splitter after the 10th DMX Decoder.

## VOLTAGE DROP CHARTS

For best performance and lumen output, ensure proper wire gauge is installed to compensate for voltage drop of low voltage circuits.

### Example: 12V Voltage Drop & Wire Length Distance Chart

| Wire Gauge | 10 W .83 A | 20 W 1.7 A | 30 W 2.5 A | 40 W 3.3 A | 50 W 2.1 A | 60 W 4.2 A |
|---|---|---|---|---|---|---|
| 18 AWG | 34 ft. | 17 ft. | 11 ft. | 8 ft. | 6 ft. | 5 ft. |
| 16 AWG | 54 ft. | 27 ft. | 18 ft. | 13 ft. | 10 ft. | 9 ft. |
| 14 AWG | 86 ft. | 43 ft. | 29 ft. | 21 ft. | 17 ft. | 14 ft. |
| 12 AWG | 134 ft. | 68 ft. | 45 ft. | 34 ft. | 27 ft. | 22 ft. |
| 10 AWG | 199 ft. | 99 ft. | 66 ft. | 49 ft. | 39 ft. | 33 ft. |

1. Determine load size. Let's assume load is 55 W. Round up to nearest load.
2. Determine distance from driver to load. Let's assume the distance is 20 ft.
3. It's recommended to install 12 AWG to eliminate excess voltage drop.

### 12V Voltage Drop & Wire Length Distance Chart

| Wire Gauge | 10 W .83 A | 20 W 1.7 A | 30 W 2.5 A | 40 W 3.3 A | 50 W 2.1 A | 60 W 4.2 A |
|---|---|---|---|---|---|---|
| 18 AWG | 34 ft. | 17 ft. | 11 ft. | 8 ft. | 6 ft. | 5 ft. |
| 16 AWG | 54 ft. | 27 ft. | 18 ft. | 13 ft. | 10 ft. | 9 ft. |
| 14 AWG | 86 ft. | 43 ft. | 29 ft. | 21 ft. | 17 ft. | 14 ft. |
| 12 AWG | 134 ft. | 68 ft. | 45 ft. | 34 ft. | 27 ft. | 22 ft. |
| 10 AWG | 199 ft. | 99 ft. | 66 ft. | 49 ft. | 39 ft. | 33 ft. |

### 24V Voltage Drop & Wire Length Distance Chart

| Wire Gauge | 10 W .42 A | 20 W .83 A | 30 W 1.3 A | 40 W 1.7 A | 50 W 2.1 A | 60 W 2.5 A | 70 W 2.9 A | 80 W 3.3 A | 100 W 4. 2 A |
|---|---|---|---|---|---|---|---|---|---|
| 18 AWG | 134 ft. | 68 ft. | 45 ft. | 33 ft. | 27 ft. | 22 ft. | 19 ft. | 17 ft. | 14 ft. |
| 16 AWG | 215 ft. | 109 ft. | 72 ft. | 54 ft. | 43 ft. | 36 ft. | 31 ft. | 27 ft. | 22 ft. |
| 14 AWG | 345 ft. | 174 ft. | 115 ft. | 86 ft. | 69 ft. | 57 ft. | 49 ft. | 43 ft. | 36 ft. |
| 12 AWG | 539 ft. | 272 ft. | 181 ft. | 135 ft. | 108 ft. | 90 ft. | 77 ft. | 68 ft. | 56 ft. |
| 10 AWG | 784 ft. | 397 ft. | 263 ft. | 197 ft. | 158 ft. | 131 ft. | 112 ft. | 98 ft. | 82 ft. |

## ADDITIONAL RESOURCES

Visit the on-line product page at www.DiodeLED.com for additional product specifications & warranty information.

### DMX 4-CHANNEL DECODER SPECIFICATION SHEET

For full specifications.

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