CTRL Series | Controls
DMX CONTROLS DMX Decoder
(CTRL-DMX-RGBX)

TYPE

FEATURES

Channels	4: R, G, B, and X
Input Signal	DMX-512 199 Digital Signal
Output Signal	0 - 100% PWM Signal (Can Drive 5A Per Channel, 20A Total)
Voltage	24V DC
Power Output	24V, 180W Max. Load
Case Dimensions	7" x 1.63" x 1.25"
Weight	0.54 lbs (247 g)
Listing	Dry Location Only
Temperature Rating	0°C to 70° (32°F to 158°F)

CONTENTS

PRODUCT INFORMATION
- Compatible with DMX-512 1990
- 256 level brightness and full color control
- 4 output channels, constant voltage, 3A maximum each
- Each channel is controlled by a Pulse with Modulation (PWM) signal
- 256 gray levels
- Mode, suspension protection, output short circuit protection
- DMX address setting via DIP switches
- Up to 28 Decoders may be daisy chained together using RJ45 cables

ELECTRICAL
- DMX-RGBX requires a 24 Volt DC remote electronic driver
- To calculate transformer size, determine Watts per Foot of LED lighting
  Example: 4.5W per Foot
- Determine Length in Feet
  Example: 10'
- Calculate Load: Multiply Watts per Foot x Length in Feet
  Example: 4.5W x 10'= 45W
- Choose an electronic driver from catalog
  Example: DRV60-E
- Determine maximum distance using Maximum Wire Length Table on transformer page
  Example: 45 watts is between 40W and 60W. Using #14 wire, maximum distance is 37' from electronic driver to first LED

INSTALLATION RECOMMENDATIONS
- Do not connect to a transformer larger than 320W
- DMX-RGBX must be mechanically attached directly to mounting surface using screws.
- Do not install in locations without proper ventilation
- Do not mount device on wood or plastic
- Do not install in wet or damp locations

INSTALLATION TOOLS REQUIRED
- Electric Hammer Drill
- 14.4 to 28 Volt Cordless Drill
- Phillips Bits
- Utility Knife
- Electrical Cord
- Marker
- Wire Stripper
- Long Nose Pliers
- Drill Bits - Concrete or Wood
- Electrical Three Ways
- Safety Glasses
- Measuring Tape
- Chalk Line

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OVERVIEW OF TYPICAL LAYOUTS

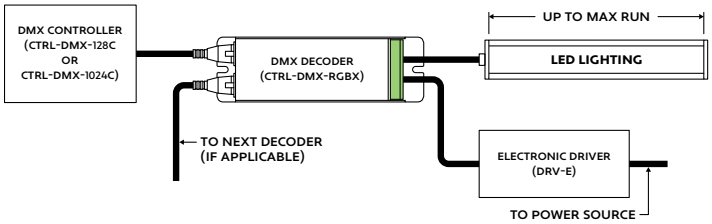
- Dynamic color LEDs work best when using a DMX controller (CTRL-DMX-128C or CTRL-DMX-1024C). A third-party DMX controller may also be used.
- Scenes can be set using DIP Switches on DMX Decoder (DMX-RGBX) but are greatly limited. It is recommended to use a controller.
- A single DMX Decoder can be loaded up to 180 Watts.
- Up to 28 Decoders may be daisy chained together using RJ45 cables.

NOTE

- Diagrams on this page are for conceptual purposes only and are not to be used for wiring. Always refer to wiring diagrams before connecting wires or parts.
- Only make connections based on the provided diagrams.
- Consult factory for advanced wiring applications.

SINGLE RUN

- Each fixture has its own Decoder and Driver.
- The DMX signal from the controller can be relayed from Decoder to Decoder using RJ45 cables.
- The total wattage of the run is limited to the Decoder's maximum load (180W).

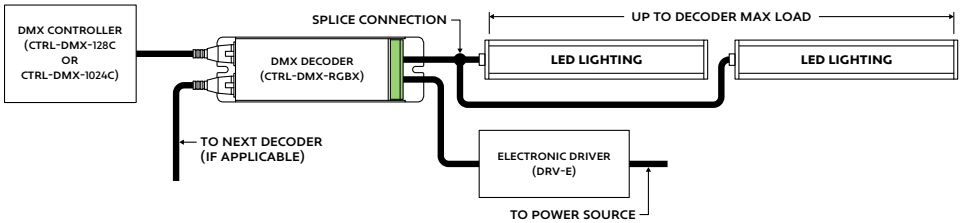


SPLIT RUN

- Multiple fixtures that compose a single run can share a Decoder and Driver. This is typical when a run exceeds maximum run length limitations.
- Connect fixture lead wires using splice connectors.
- The DMX signal from the controller can be relayed from Decoder to Decoder using RJ45 cables.
- The total wattage of the run is limited to the Decoder's maximum load (180W).

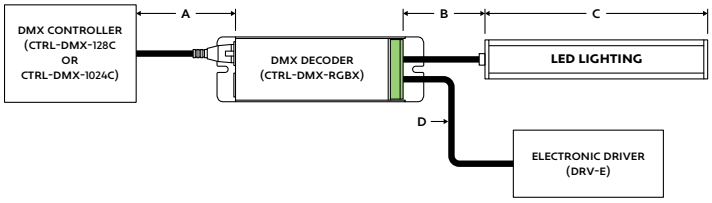
HOW TO CALCULATE LOADS

- 30' Run (21' + 9') @ 4.5W (Class 2)
- Calculate Load of Fixture Segments:
  21' x 4.5W = 94.5W
  9' x 4.5W = 40.5W
  94.5W + 40.5W = 135W
- Both fixtures segments can share a decoder because the combined wattage is within the decoder's maximum load.
- Both fixture segments can share a driver.
- For best performance, only load drivers to 80%.



MAXIMUM DISTANCES

- Refer to the diagram & table below for descriptions of distance limitations.



Key	Description	Maximum Distance
A	Distance from DMX Controller to First Decoder	300'*1
B	Distance from Decoder to First LED	Determined by load of lighting*2
C	Maximum Run of LED Lighting	Refer to Specification Submittal
D	Distance from Driver Output to Decoder Input	1'

*1 Maximum distance from DMX Controller to first Decoder is 300'. The maximum distance of cumulative signal run is 1000'.
*2 Refer to Driver installations instructions for maximum distances.

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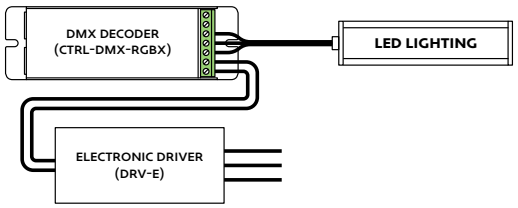
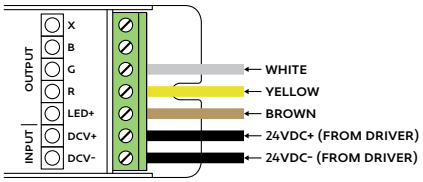
TYPE

1 Determine which configuration best suits your application.
Note: Refer to Typical Layouts for details

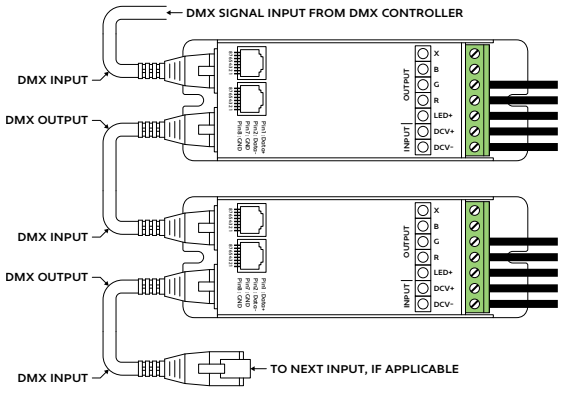
2 Calculate load. Use the diagram below as a reference for the calculations. Calculate load by multiplying the fixture's Watts per Foot by Length in Feet. Add 1 Watt for each decoder used.
Example: 5.5 Watts per Foot x 8' = 44W + 1W = 45W.
Determine size of driver needed. It is recommended that drivers are only loaded to 80% for best performance. 45W is approximately 80% of 60W.
Example: 60 Watts x 0.8 = 48 Watts. Choose a 60W driver for this application.



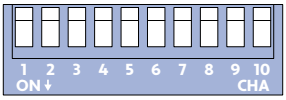
3 Connect Dynamic White LED Lighting **(DWH)** to CTRL-DMX-RGBX.
Insert the brown, yellow, and white wires to the corresponding output terminals of the decoder.
Note: Maximum wire size for decoder terminals is 16AWG.



4 If your application requires multiple decoders, use RJ45 Ethernet Cables to connect decoders in sequence. Refer to Typical Layouts for details.
Note: Up to 28 Decoders may be daisy chained together.

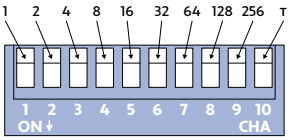


5 Engage Switch 10 on the last Decoder in the daisy chain sequence to terminate the signal run. The DMX signal must be terminated for all applications, including when only 1 Decoder is used.



Switch 10 is used for termination.
Engage switch 10 on the last decoder of a sequence to terminate signal.

6 Set DMX Address using DIP Switches on the side of Decoder. The sum of the value of each engaged DIP Switch creates the DMX Address. Switch 10 is only used for termination and has no value.
Example: 1 + 4 + 32 = 37. The DMX Address for this Decoder is 37.



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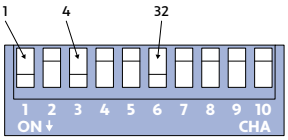
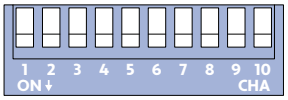
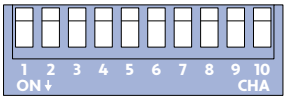


DMX Address set to 37.
Switched 1, 3, & 6 are engaged (ON).

7 The Decoder is able to control the lighting without the use of a DMX Controller, but the capabilities are greatly limited. It is recommended to use a DMX Controller. See below settings & descriptions of the default scenes.



All DIP Switches in the ON position (down).
The lighting will fade cycle through Cool White and Warm White.



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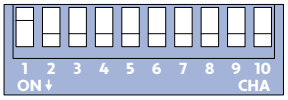

DIP Switch 1 in the OFF position (up).
All other switches in the ON position.
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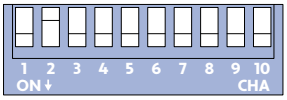

DIP Switch 2 in the OFF position (up).
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8 Connect CTRL-DMX-RGBX Decoder to DMX Controller. Refer to CTRL-DMX-128C or CTRL-DMX-1024C for details on setup and wiring of controllers.
URL: https://aluz.lighting/assets/PDFs/CTRL/CTRL-DMX-128C.pdf
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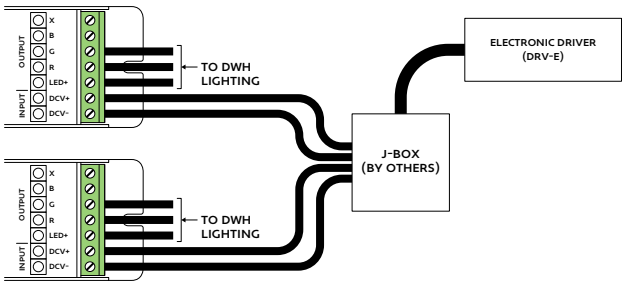

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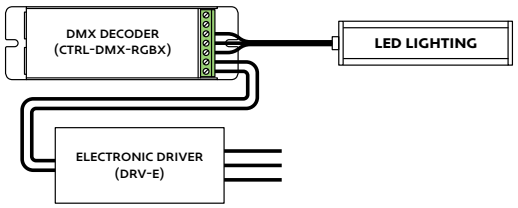

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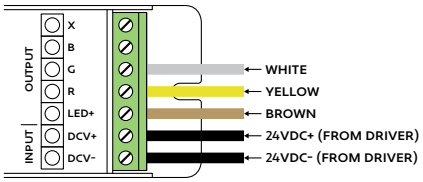

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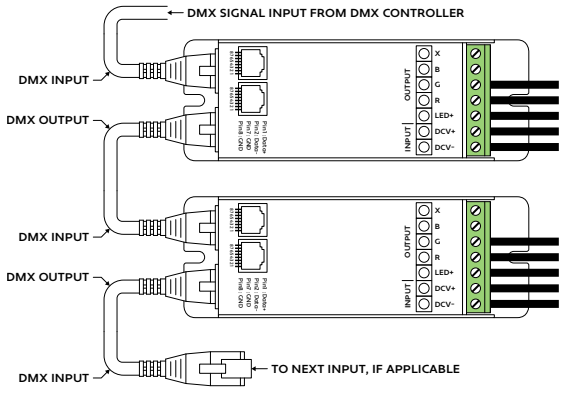

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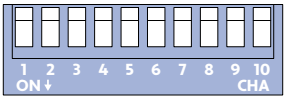

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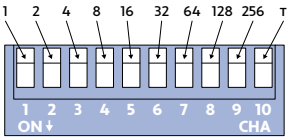

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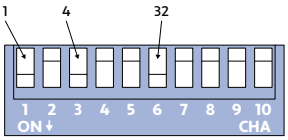

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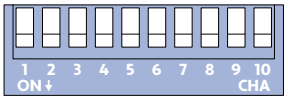

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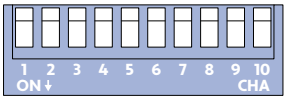

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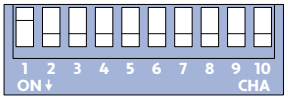

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All other switches in the ON position.
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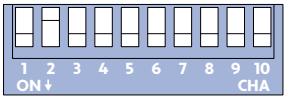

DIP Switch 2 in the OFF position (up).
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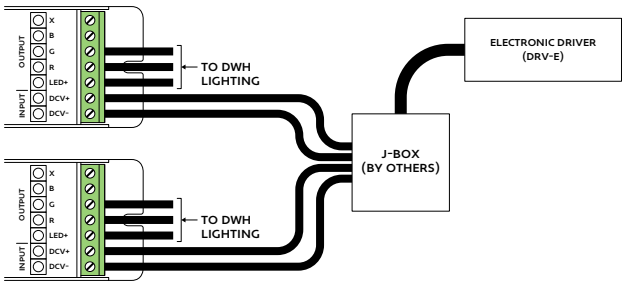

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MAXIMUM RUN BASED ON 80% LOAD OF ELECTRONIC DRIVER MAXIMUM WATTAGE

Driver Wattage	80% Load	1.5W Max Run	2W Max Run	2.5W Max Run	3W Max Run	3.6W Max Run	4W Max Run	4.5W Max Run	5W Max Run	5.5W Max Run	6W Max Run	6.5W Max Run
30	24W	16'	12'	9.6'	8'	6.6'	6'	5.3'	4.8'	4.36'	4'	3.69'
60	48W	32'	24'	19.2'	16'	13.3'	12'	10.6'	9.6'	8.7'	8'	7.3'
96	76.8W	51.2'	38.4'	30.7'	25.6'	21.3'	19.2'	17.1'	15.36'	13.9'	12.8'	11.8'
150	120W	80'	60'	48'	40'	33.3'	30'	26.6'	24'	21.8'	20'	18.4'
200	160W	106.6'	80'	64'	53.3'	44.4'	40'	35.5'	32'	29'	26.6'	24.6'
300	240W	160'	120'	96'	80'	66.6'	60'	53.3'	48'	43.6'	40'	36.9'

Note: Maximum Run refers to the total length of lighting that can be connected to a single driver. Maximum Runs for individual products still apply.

MAXIMUM WIRE LENGTH TO PREVENT EXCESS VOLTAGE DROP

Wire Size	Load Wattage (W)												
	15	**24**	**30**	**48**	**60**	**76**	**96**	**120**	**150**	**160**	**200**	**240**	**300**
20 AWG	79'	49'	39'	25'	20'	16'	12'	10'	8'	7'	6'	5'	4'
18 AWG	125'	78'	63'	39'	31'	25'	20'	16'	13'	12'	9'	8'	6'
16 AWG	199'	125'	100'	62'	50'	39'	31'	25'	20'	19'	15'	12'	10'
14 AWG	317'	198'	158'	99'	79'	63'	50'	40'	32'	30'	24'	20'	16'
12 AWG	504'	315'	252'	157'	126'	100'	79'	63'	50'	47'	38'	31'	25'
10 AWG	801'	501'	400'	250'	200'	158'	125'	100'	80'	75'	60'	50'	40'
8 AWG	1273'	796'	637'	398'	318'	252'	199'	159'	127'	120'	96'	80'	64'

MAXIMUM WIRING DISTANCE OF DRIVER TO LIGHTING

The maximum wiring distance of driver to LED Lighting refers to the wire used between the driver and first LED of the luminaire. If the wire gauge is inadequate for the wiring distance, the luminaire will receive decreased voltage, insufficient to power the LEDs. Refer to the table to determine appropriate wiring distances based on wire gauge and the LED load.

MOUNTING INSIDE AN ENCLOSURE

- Only mount drivers inside enclosures rated for your application
- Always ground drivers to enclosure
- Do not mount drivers without an enclosure
- Use enclosure knockouts and water-tight conduit fittings when applicable

DRIVER CARE

- Do not submerge drivers in any liquid
- Do not leave any exposed wires
- Do not cover driver without proper ventilation
- Do not install damaged driver
- Do not exceed maximum load

DIMMER TRIM VALUES

Set dimmer trim value as needed to prevent flickering and irregular dimming. Review dimmer specifications for trim value adjustment. Dimmers by others.