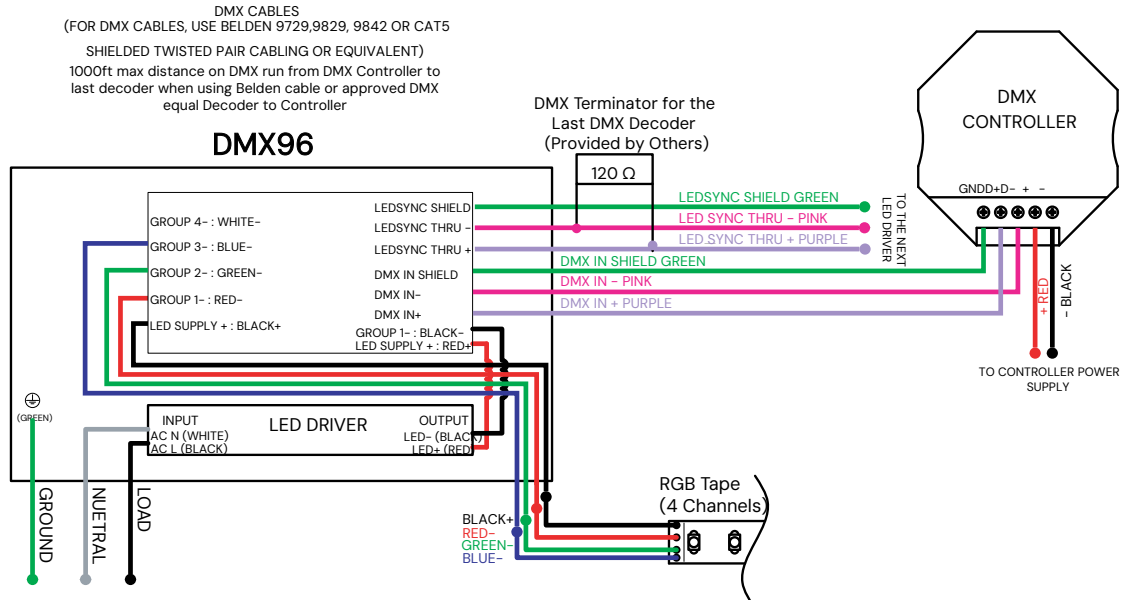# INSTALLATION INSTRUCTIONS

⚠️ READ ALL INSTRUCTIONS BEFORE INSTALLATION AND RETAIN FOR FUTURE REFERENCE. INSTALLATION MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN. DMX ADDRESSING, PROGRAMMING, AND CONTROL ARE REQUIRED AND MUST BE PROVIDED BY OTHERS.

RGB WIRING DIAGRAM – DMX96

Power Supply, 120–277VAC- DMX (0.1%)- Dry- 96 Watts- 24V DC
Do not use wire nuts for any DMX connections.

RGB WIRING DIAGRAM – DMX3X96

Power Supply, 120–277VAC- DMX (0.1%)- Dry- 3x96 Watts- 24V DC
Do not use wire nuts for any DMX connections.

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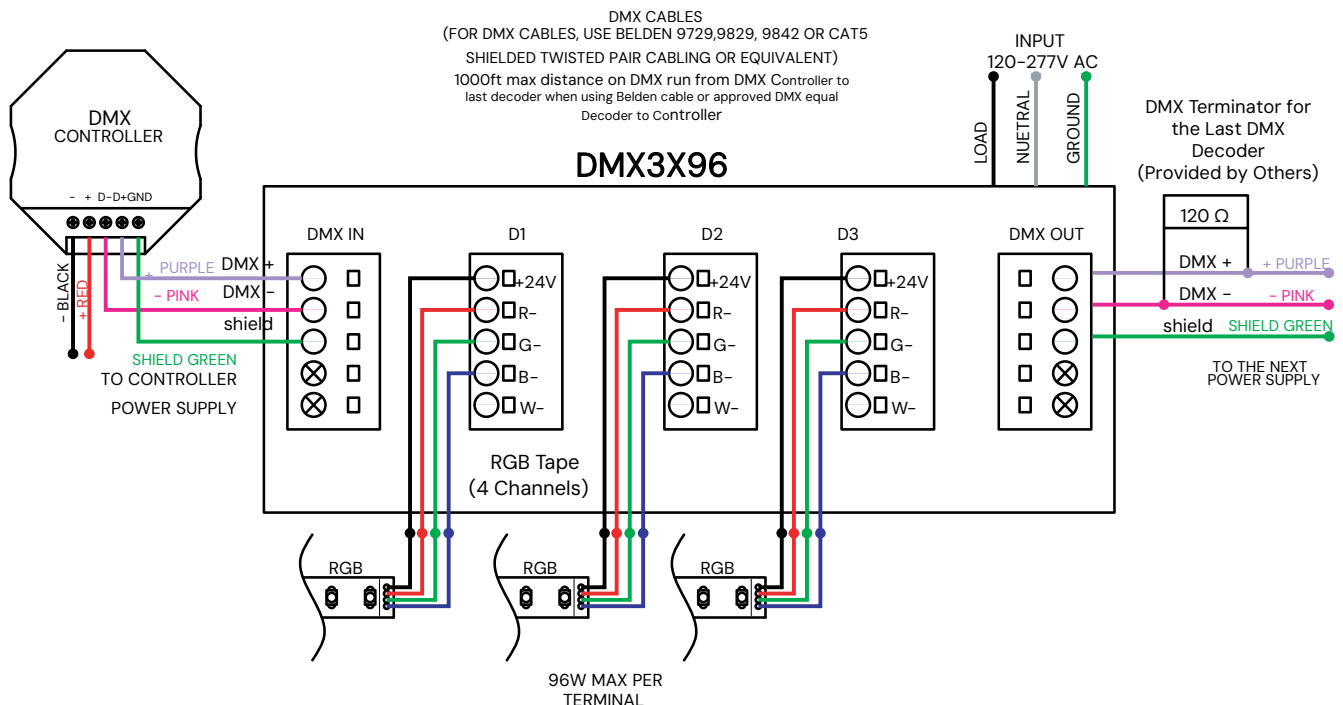
RGBW WIRING DIAGRAM – DMX96

Power Supply, 120–277VAC- DMX (0.1%)- Dry- 96 Watts- 24V DC
Do not use wire nuts for any DMX connections.

RGBW WIRING DIAGRAM – DMX3X96

Power Supply, 120–277VAC- DMX (0.1%)- Dry- 3x96 Watts- 24V DC
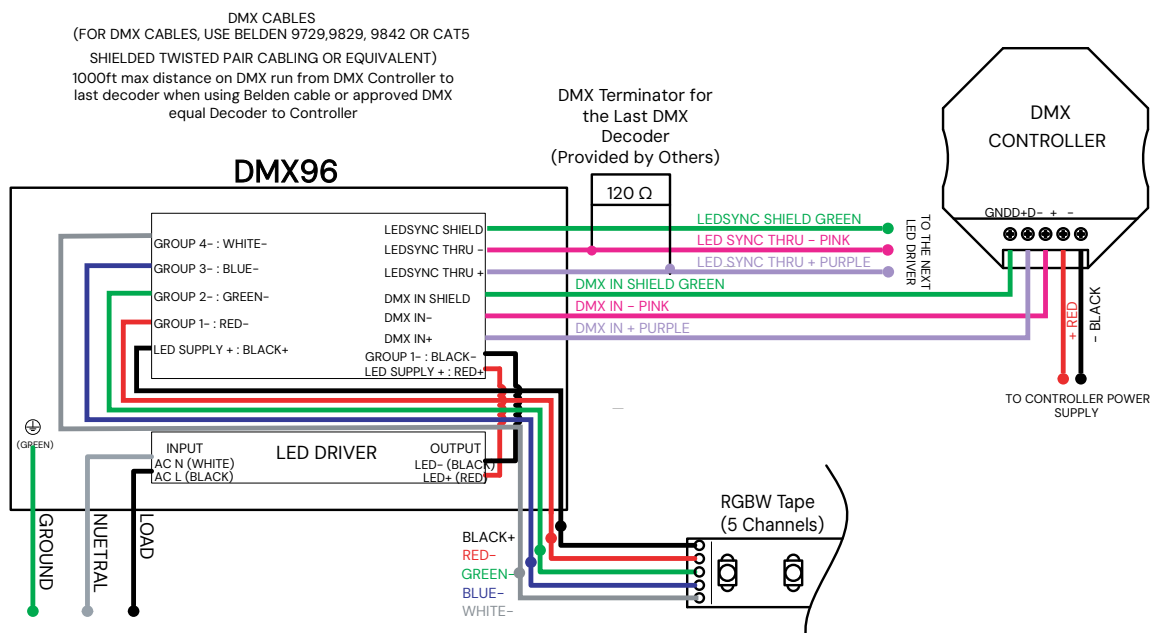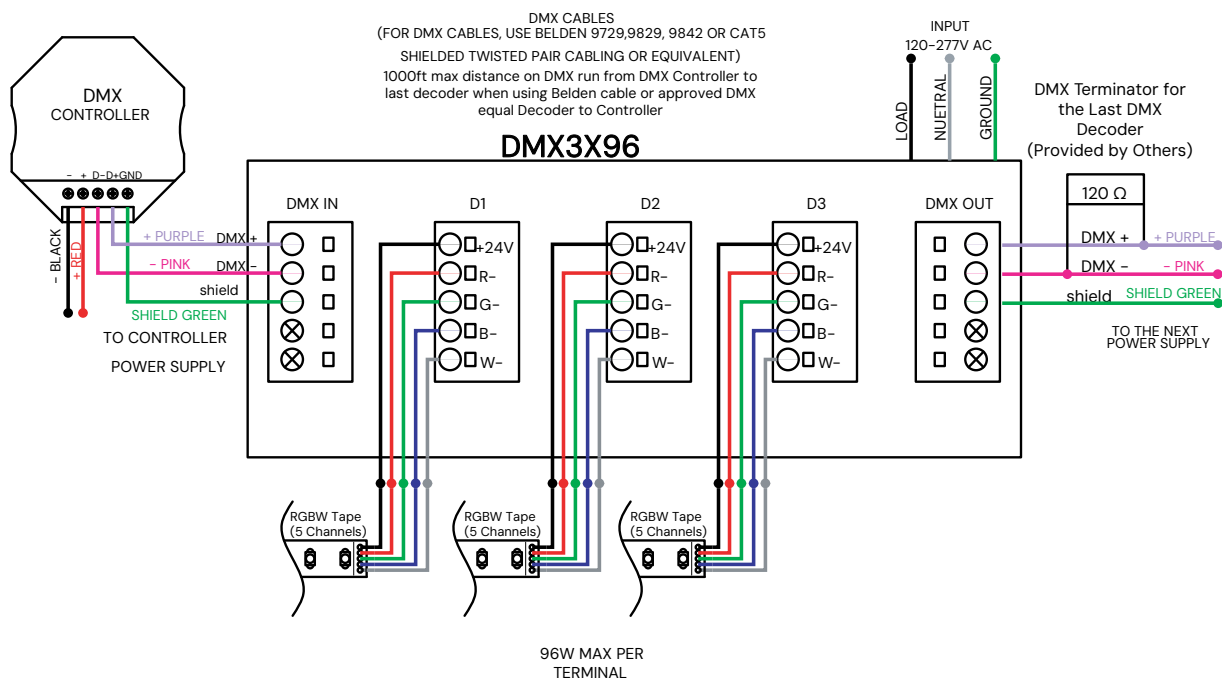Do not use wire nuts for any DMX connections.

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RGBW WIRING DIAGRAM – DMX1Z

DMX Controller, 1Zone, RGBW
Do not use wire nuts for any DMX connections.

DMX CABLES
(FOR DMX CABLES, USE BELDEN 9829, 9842 OR CAT5 SHIELDED TWISTED PAIR CABLING OR EQUIVALENT)
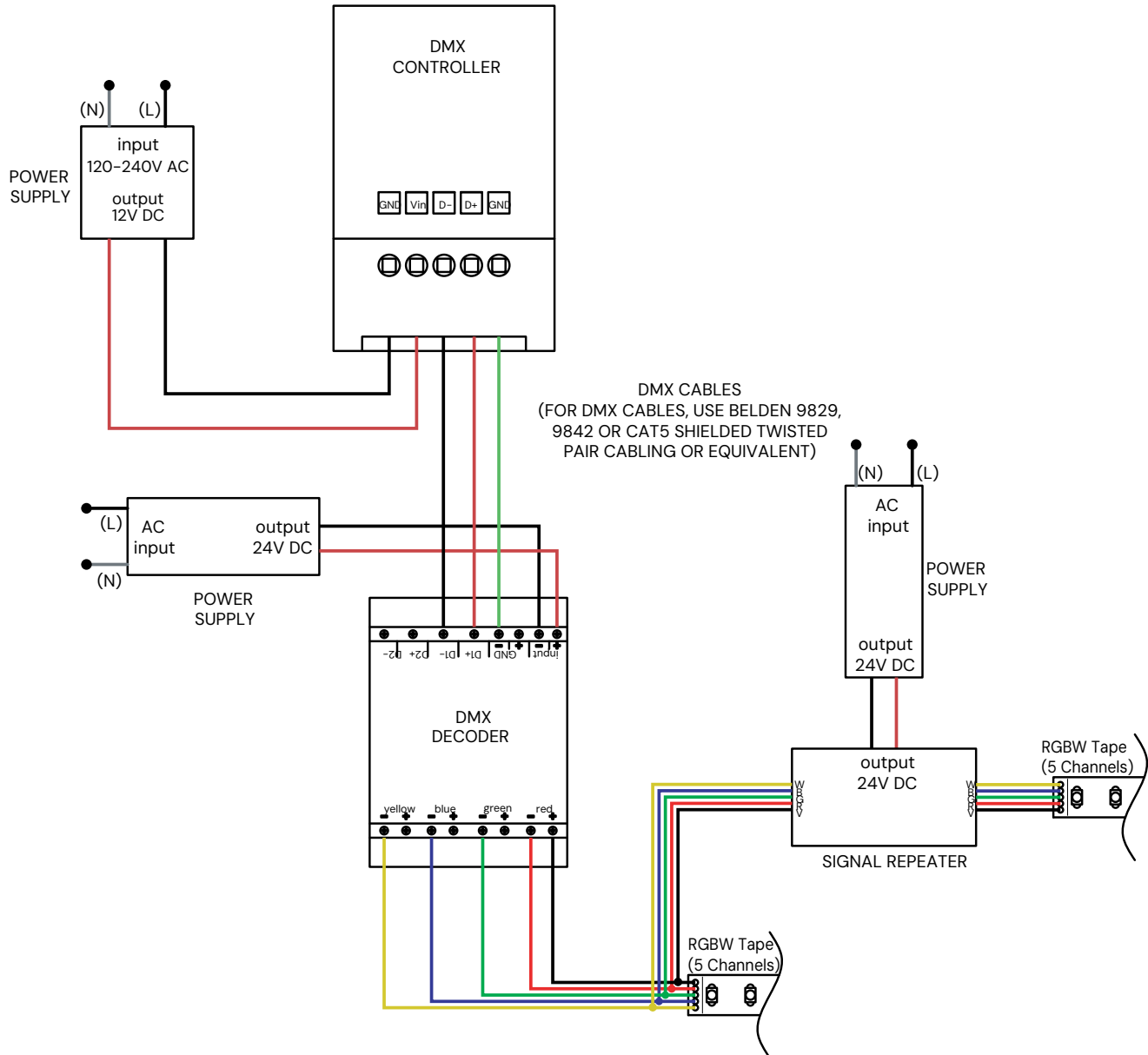
⚠️ READ ALL INSTRUCTIONS BEFORE INSTALLATION AND RETAIN FOR FUTURE REFERENCE. INSTALLATION MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN. DMX ADDRESSING, PROGRAMMING, AND CONTROL ARE REQUIRED AND MUST BE PROVIDED BY OTHERS.

RGBW WIRING DIAGRAM – DMX3Z

DMX Controller, 3Zone, RGBW
Do not use wire nuts for any DMX connections.

RGBW WIRING DIAGRAM (MC3)

Informational Wiring Diagram Only for RGBW configuration with DMX drivers
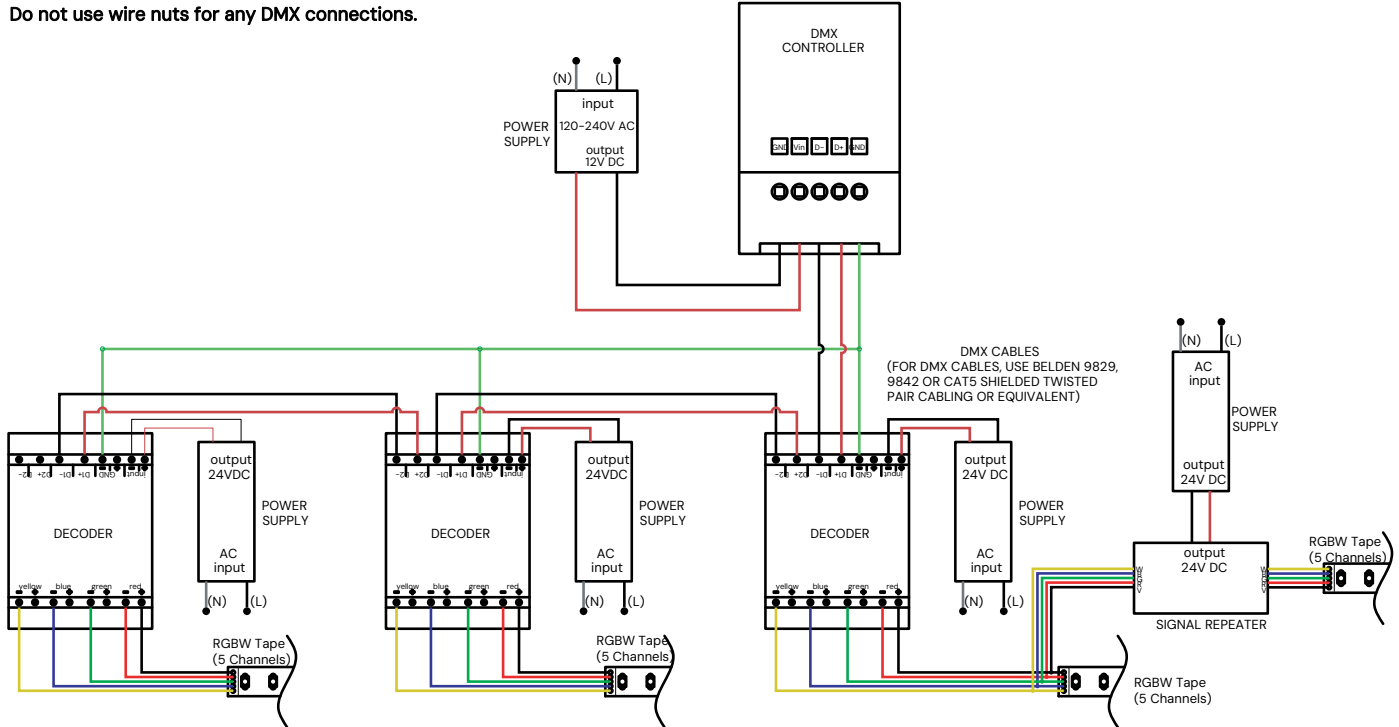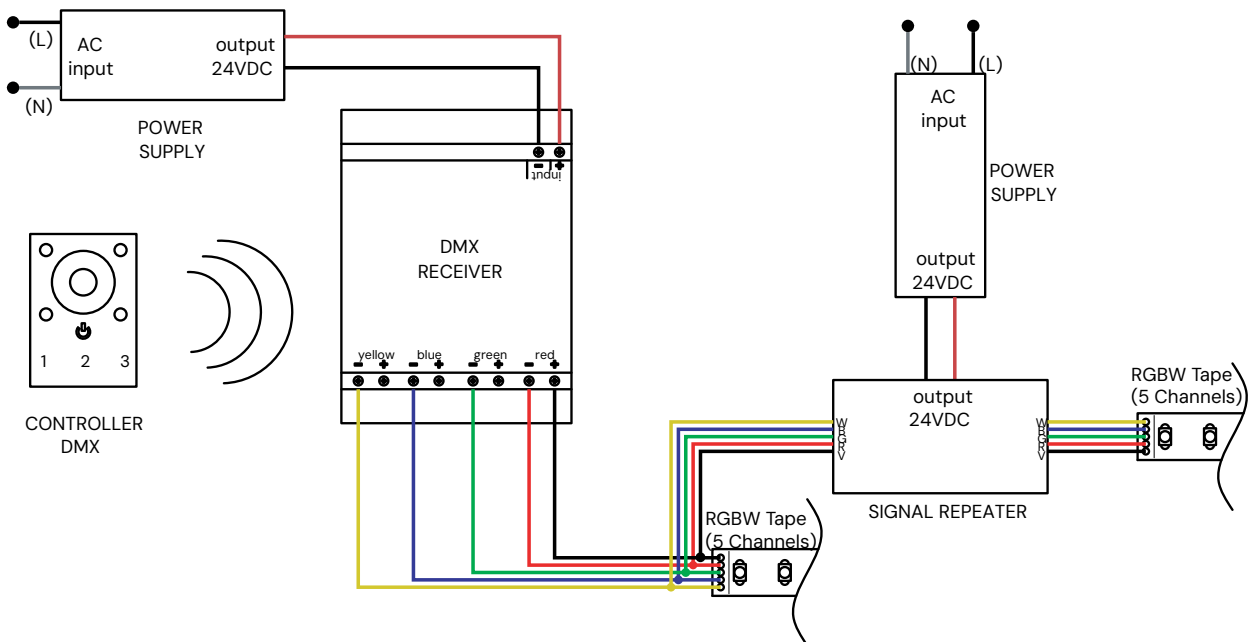**Do not use wire nuts for any DMX connections.**

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DMX Guidelines

- DMX systems are not the same as power wiring or other low-voltage control wiring systems used in lighting, such as DALI, 0-10V, or other proprietary systems.
- DMX is a high-speed data transmission protocol with switching frequencies approaching 200 kHz; therefore, DMX systems need to be treated as high-speed transmission lines, with the appropriate care given to their wiring.
- All DMX wiring must adhere to the DMX standard, DMX 512-A (ANSI E1.11-2008 (R2013).
- While every effort has been made to include as much information as possible, this document is not a comprehensive guide to designing, installing, and commissioning a DMX lighting control system. Please consult the appropriate professional(s) for additional information.

DEFINITIONS

DMX Signal	a repeating chain data output by a DMX controller comprised of one 8-bit start code packet followed by 512 8-bit data packets. The first data packet is slot 1, the second slot 2, etc. The entire chain is repeated 44 times per second
Device	a DMX controller, a DMX-controlled fixture, or a DMX splitter
DMX controller	a device where the DMX signal originates (sometimes called a "console") Each DMX system requires a talker
DMX Decoder	a device that receives the DMX signal from a DMX controller. DMX decoders can be standalone or paired with a power supply
DMX Cable	DMX uses a cable consisting of two twisted pairs plus a shield to carry data. The cable must be specifically impedance-matched for the digital DMX signal of 120 ohms. The standard cable is Belden 9829 or approved equal. Cable and conductors carrying DMX signals should not be run near AC power cables. Line transients and other electromagnetic noise may cause interference with the DMX signal. Wiring must use a Daisy chain topology. The max distance on any run of DMX cable is 1000FT from the DMX controller to the last DMX decoder on the run.
DMX splitter	a device that receives a DMX signal on its input, then duplicates that signal on its output(s). The input and output signals are usually isolated, and the signal is "boosted" back to full voltage at each output (thereby compensating for voltage drop in long wiring runs). Their mains or low-voltage supply must power DMX splitters
DMX Fixture	a light fixture that requires a DMX decoder that receives a DMX signal and changes its behavior based on those commands. Decoders may be equipped with both "input" and "output" connections for the DMX signal
DMX network	ALL devices, cabling, and interconnections in a DMX-controlled lighting system, including the controller, fixtures, and splitters (if used)
Data Bus	a continuous run of daisy-chained devices originating at the output of a DMX controller or DMX splitter. No more than 32 devices should be connected to a single bus per the DMX-512A standard
Terminator	a 120Ω resistance installed at the end of a DMX bus between the data plus and data minus to eliminate signal reflection back into the network
Channel	a DMX-controlled element within a DMX fixture. For example, an RGB fixture has three channels: one for red, green, and blue
Address	the number of the first channel a DMX fixture reads from the DMX signal. Addresses are set manually at the DMX decoder
Pixel	a dot on a pixel tape that can be treated as a separate combination of RED, GREEN, BLUE, and WHITE (RGBW). Pixels can be addressed individually. Pixel LED requires DMX signal to operate

APPROVED CABLES (TO BE PROVIDED BY OTHERS)

BELDEN 9829	https://catalog.belden.com/techda-ta/EN/9829_techdata.pdf
BELDEN 9842	https://catalog.belden.com/techda-ta/EN/9842_techdata.pdf
BELDEN 9729	https://catalog.belden.com/techda-ta/EN/9729_techdata.pdf

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Basic Troubleshooting Steps

- Is the DMX terminated? Many people treat the fitting of a termination resistor as optional, but although DMX may work without it, in this state, a slight change to the DMX network, like adding another cable, may stop the system from working or cause intermittent effects like flicker of dimmers, twitching of moving lights and so on. Adding termination can help eliminate these effects
- Is the cabling DMX approved and intact? DMX may continue to work partially even under extreme conditions like having one-half of the data pair broken. If you have a fixture that is misbehaving, take it and connect it directly to the DMX source with a short jumper cable. If it now works, there is an issue with your cabling to be investigated
- Is the device OK? Damage to device DMX receivers can occur in many ways; lightning storms are a common problem. If the device doesn't respond to DMX when connected directly to a known good DMX source via a known suitable cable, the device itself may need service to repair a damaged DMX input
- Does the device support full-speed DMX? The DMX512 standard allows a wide range of timings for the DMX signal's parameters.
- Is your fixture illuminated but not changing color? Have you addressed the decoder to the proper address? Do other fixtures work upstream of this fixture? The DMX through may have stopped working. Try giving each segment DMX data directly to narrow down transmission errors.
- DMX lighting control system. Please consult the appropriate professional(s) for additional information.

Example of DMX Wiring

Wiring to be daisy chained from DMX controller through all DMX drivers

*Contact Alcon Tech support for additional assistance