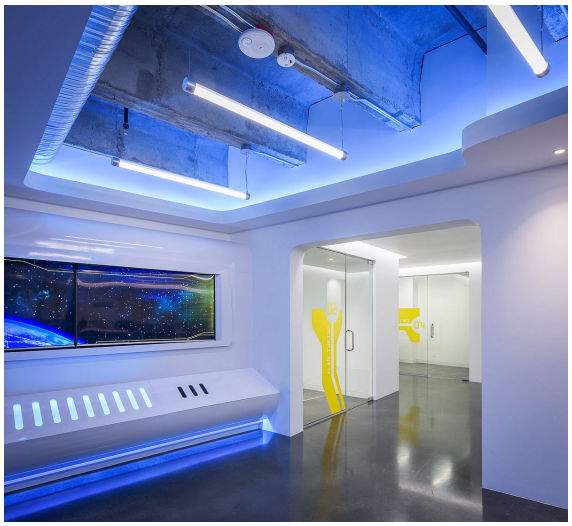
DMX512
INFORMATION GUIDE

WHAT IS DMX512 & RDM?

DMX512 (Digital Multiplex 512) is a communication standard (based on EIA-485/RS-485) for digital communication networks, typically used in stage lighting and control, but also in other various lighting applications.

DMX drivers are installed in DMX-enabled luminaires and programmed to specific DMX addresses to properly zone and control your fixtures.

RDM (Rapid Device Management) is a protocol enhancement to DMX512, which allows a commissioner to remotely program multiple or individual DMX decoders to a unique DMX address. This is performed by simply connecting an RDM controller to the first DMX driver in a series run. All DMX drivers/decoders ALW specifies are RDM-compatible.



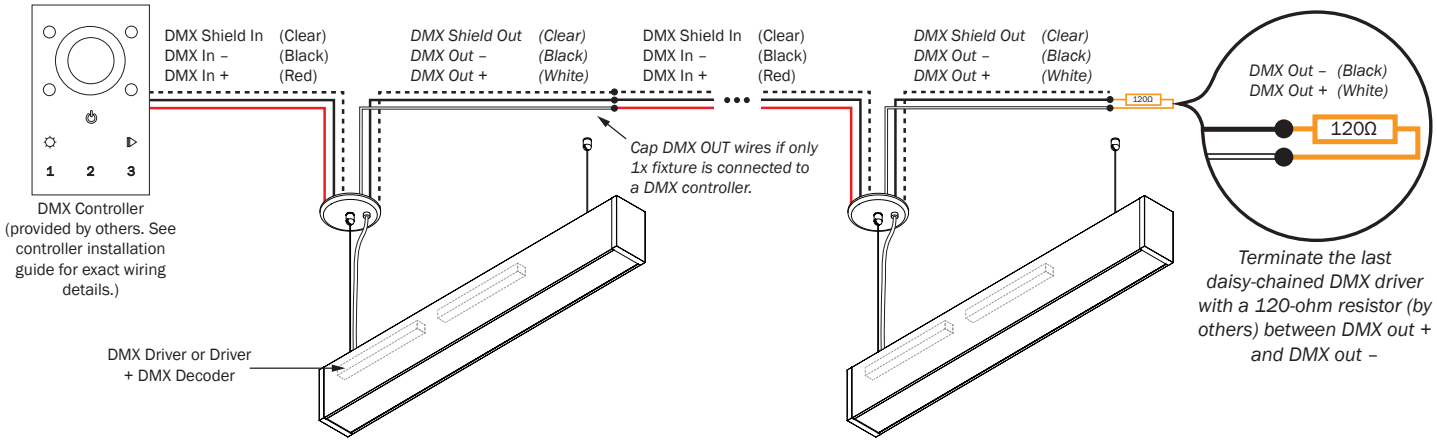
HOW IS A DMX FIXTURE SPECIFIED AND INSTALLED?

To specify a DMX-enabled luminaire, simply choose DMX in the driver selection on the spec sheet, and choose the appropriate LED lamping you'd like to control (ex.: Standard white CCT, RGB, RGBW, or Tunable lamping).

DMX systems can be very tricky to install so it's important DMX luminaires are installed and connected to the appropriate power source by a licensed electrician but then commisioned by a DMX commisioning agent.

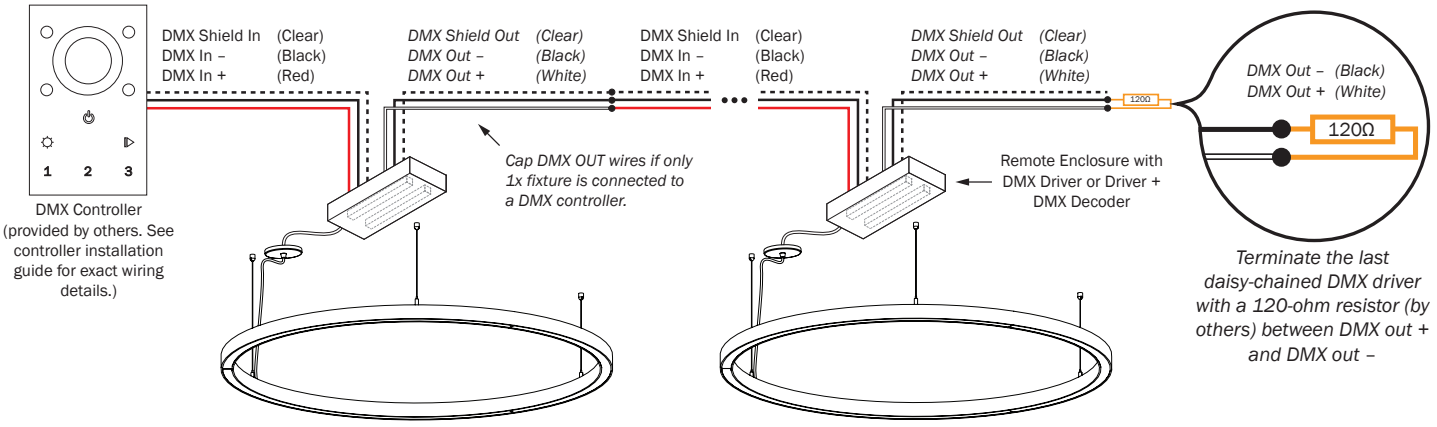
TYPICAL SYSTEM DIAGRAMS*

DMX SYSTEM DIAGRAM - INTEGRAL DMX DRIVERS



*Incoming power is not illustrated in diagram. Only DMX data wiring is illustrated.

DMX SYSTEM DIAGRAM - REMOTE DMX DRIVERS*



*Incoming power is not illustrated in diagram. Only DMX data wiring is illustrated.

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DMX DRIVER AND/OR DECODER FACTORY PRESETS

The chart below shows factory preset information for DMX drivers and/or decoders.

LAMPING TYPE	QTY LED CHANNELS	DMX ADDRESS	DIMMING CURVE	RESOLUTION
SINGLE COLOR LEDS (MIN, LOW, MED, HI, MAX, CUSTOM)	1	001	Linear	8 Bit
TUNE	2	001	Linear	8 Bit
RGB	3	001	Gamma	8 Bit
RGBW	4	001	Gamma	8 Bit

SETTING THE DMX ADDRESS FOR SINGLE ZONES

The DMX driver address must be programmed to match the specified luminaire lamping type and desired zone (group of fixtures simultaneously controlled together).

Example 1: If you have one or more single color luminaires *all operating in the same zone*, then each DMX driver will be addressed to 001. This is because single color LEDs have only one channel to control.

Example 2: If you have one or more RGBW luminaires *all operating in the same zone,* then each DMX driver will be addressed to 004. This is because RGBW LEDs have 4 channels to control (Red = 1, Green = 2, Blue = 3, White =4).

As a standard procedure, ALW addresses DMX drivers to 001 at the factory and does not assign additional DMX addresses. ALW recommends that DMX addressing be done via RDM by a qualified commissioning agent. Multi-zone system layouts may have different DMX addresses for each DMX node.

LAMPING TYPE	DMX ADDRESS FOR FIRST NODE
SINGLE COLOR LEDS (MIN, LOW, MED, HI, MAX, CUSTOM)	001
TUNE	002
RGB	003
RGBW	004

IMPORTANT NOTES FOR INSTALLER/COMMISIONER

- ALW provides DMX controllable luminaires with 3-conductor DMX IN and DMX OUT leads (Data +, Data -, Shield) for fixture-to-fixture daisy chaining.
- The “shield” conductor of a 3-conductor DMX data cable is also sometimes referred to as a “Ground”. *Never ground the data cable shield conductor to a j-box or to a power circuit.* The shield is specific to the DMX data.
- Always use data cable specifically designed for DMX/RS-485 such as Belden 9841 or 3105a. These cables have an impedance of 120-ohms.
- All DMX drivers or DMX decoders ALW uses are RDM compatible for efficient commissioning.
- If only 1x DMX fixture is connected to a DMX controller then the DMX OUT wires can be capped off. See diagrams on page 1.
- Do not exceed 30 DMX drivers/decoders in a single daisy-chain. If more than 30 DMX drivers/decoders are required, a DMX booster/repeater must be installed to boost the DMX signal. ALW does not provide DMX boosters/repeaters. Review drawings thoroughly to understand quantity of components used for each fixture type.
- Do not exceed 300 meters (984 feet) when running DMX cable between the DMX controller and the last DMX driver/decoder in daisy-chained run.
- The last DMX driver/decoder in a daisy-chained line must be terminated with a 120-ohm resistor to prevent reflections. A 120-ohm resistor must be connected between the DMX+ and DMX- leads of the luminaires’ DMX OUT leads.
- As a standard procedure, ALW addresses DMX drivers to 001 at the factory *and does not assign additional DMX addresses*. ALW recommends that DMX addressing be done via RDM by a qualified commissioning agent. The number of addresses required per fixture will vary according to fixture control and system layout.