READ ENTIRELY BEFORE INSTALLATION

DMX (Digital Multiplex) is a reliable and durable system for controlling LED lighting; however, if installed or connected incorrectly, issues such as flickering, unpredictable behavior, and slow response times can occur. This guide covers the best practices for wiring DMX systems to ensure smooth, trouble-free operation.

For ease of wiring, all Day-O-Lite luminaires equipped with DMX drivers include standard internal DMX wiring harnesses terminated with male RJ45 connectors. Female/female RJ45 adapters (included) may be used for easy fixture-to-fixture plug-in connection.

The connection of DMX wiring from the fixture to the DMX controller (by others) must comply with the following:

- Installation of DMX control systems (by others) and system commissioning should only be performed by individuals experienced with the DMX protocol and its various wiring and set-up requirements as noted below.

- Do not connect mains power to any DMX wires or to DMX+, DMX-, and DMX shield/common driver ports. Doing so will damage the driver and possibly the controller, and will void the warranty on all components supplied by Day-O-Lite.

- DMX is a three-wire signal bus (daisy-chain) system. Drivers (whether one or multiple within a fixture) are connected in parallel by a single three-wire cable. See illustration page 2.

- Use twisted-pair cables specifically designed for DMX/RS-485. These cables have an impedance of 120Ω and a low capacitance (e.g., Belden 9841 or 3105a). Cat5 and Cat6 wire may also be used with an impedance of 100Ω.

- If shielded cable is used, connect the shield/common to ground at one end of the cable only. The controller should already have its shield/common terminal connected to ground. Connecting both ends of the shield/common to ground may create a ground loop, which can cause electrical noise, hum, or interference in the system.

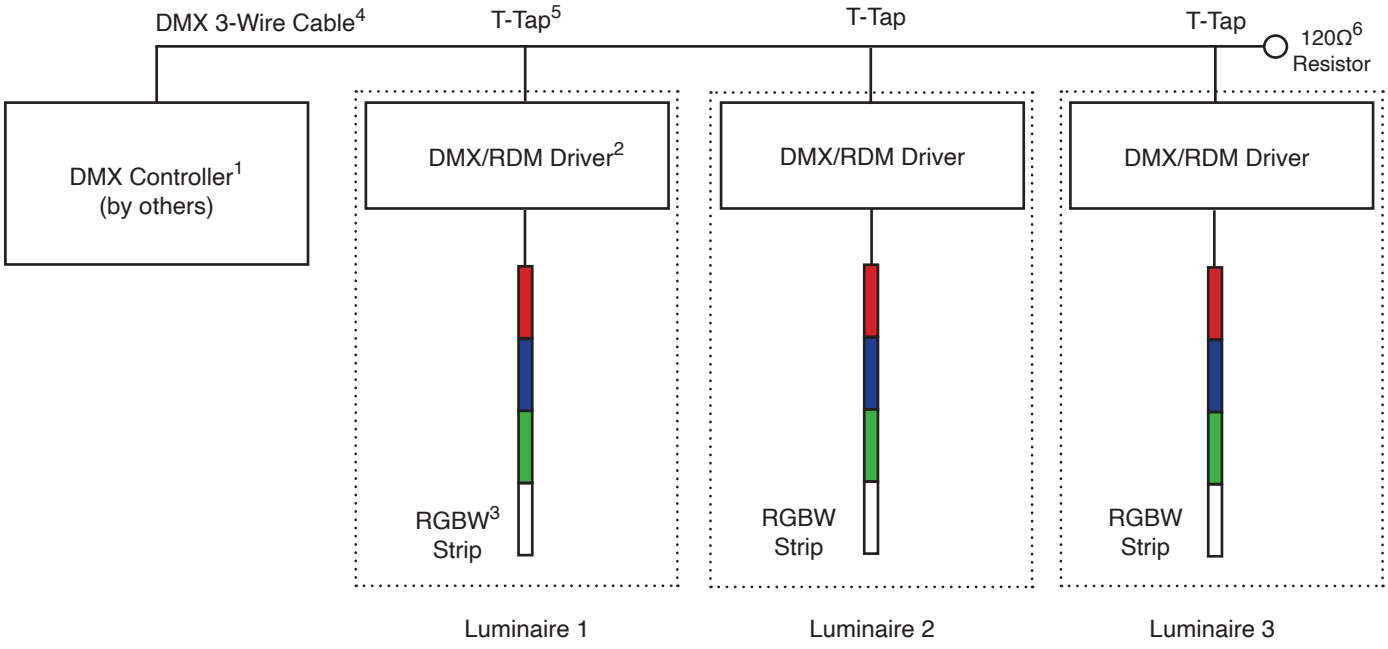
- Do not exceed a maximum of 32 drivers (unit loads) in any DMX universe. If repeaters or splitters are used, they should be considered unit loads themselves. A luminaire may contain more than one driver, making it more than one unit load. The number of drivers in each fixture is denoted by a sticker on the exterior of the luminaire.

- DMX wiring must not exceed 1000 feet (300 meters) maximum between the controller and the last driver in the bus.

- To eliminate signal reflection and ensure data integrity, the last driver in the DMX bus must have a 120Ω resistor (1/2W) connected between the DMX+ and DMX- driver ports to terminate the run. Day-O-Lite includes a 120Ω resistor with each DMX fixture. It is up to the installer to determine the last driver in the DMX bus and install the resistor. Only one resistor is required per bus. Do not install multiple resistors on the same bus.

- DMX drivers supplied by Day-O-Lite are RDM capable for easy addressing with an RDM programming tool (by others).

TYPICAL WIRING DIAGRAM



[1]DMX Controller (by others) - touchscreen wall mount or standalone console.

[2]DMX/RDM Driver - DMX w/RDM (remote device management). No more than 32 drivers or unit loads may be wired together in a DMX universe. DMX drivers are not pre-addressed at the factory. If addressing is required it may be done with a compatible RDM device (by others).

[3]RGB, RGBW, RGBWW or Tunable White mid-power LED modules.

[4]DMX 3-Wire Twisted Pair Cable - DMX/RS-485 compatible (Belden 9841, 3105a, CAT5/6). Must not exceed 1000 feet from the controller to the last driver in the setup.

[5]T-Tap - single tap to DMX+/- and COM/Shield ports on driver or tag-end of DMX cable.

[6]120Ω Resistor (standard non-polarized) installed on the last driver between the DMX+/- leads.

TROUBLE SHOOTING

All Day-O-Lite DMX luminaires undergo rigorous testing before shipment to ensure proper operation and color matching of LED modules. If problems arise during installation and or commissioning, please refer to the following:

- Ensure that all DMX wiring connections between the fixture and the controller are secure and correctly polarized. DMX suitable cabling does not always come with the same coloring code. Make sure that the DMX+, DMX-, and shield/common wires at the fixture are connected securely to the corresponding wires from the controller, regardless of color code.

- Ensure that DMX-compatible wiring (as described above in the guide) is used and that no more than 32 unit loads (DMX drivers, splitters, repeaters) are connected on each bus. The driver count for each fixture is noted on a sticker on the back of the fixture.

- Ensure that no more than 1000 feet (300 meters) of DMX wiring/cable is between the controller and the last driver in the DMX bus.

- Ensure that a 120Ω resistor is installed properly between the DMX+ and DMX- ports on the last driver on the DMX bus.

- Check all wiring connections on the LED modules to ensure that no wire or wire connectors are loose, broken, or pinched. Wires may come loose during transportation and/or rough handling during storage and/or installation.

- If an LED module, or a portion of an LED module, is a different color than the rest of the same module/s or does not respond to the DMX controller, it may be due to a loose wire, a broken wire connector, or may be defective.

- If one or more diodes on an LED module are damaged or missing, the module needs to be replaced.

- Ensure that the DMX controller is capable of supporting the number of colors/channels of the fixture: 2 channels for tunable white, 3 channels for RGB, 4 channels for RGBW, and 5 channels for RGBWW.

- Wires in DMX cabling are typically stranded 22-gauge wire. Ensure that wires that are field stripped are intact and do not contain partially cut or missing strands.

- If issues persist after following the guidelines and troubleshooting guides above, please call Day-O-Lite at (401) 467-8232. Day-O-Lite cannot advise on the installation, wiring, and/or commissioning of third-party DMX controllers, repeaters, or splitters. The manufacturers of such devices must be consulted directly.

DMX WARRANTY STATEMENT

DMX devices (by others) used to control Day-O-Lite luminaires, including but not limited to functions such as on/off switching, dimming, tunable white, RGB, RGBW, or RGBWW color changing, must be installed and commissioned by individuals experienced in their integration and operation.

Day-O-Lite assumes no responsibility for luminaires that malfunction or are damaged due to Improper DMX wiring, commissioning, or by use of any third-party DMX control system, sensor, device, splitter, repeater, or switch connected to or interfacing with the luminaires. Day-O-Lite is not liable for irregular performance or damage to third-party control systems (wired or wireless) that result from their connection to Day-O-Lite luminaires.

See **Terms & Conditions / Warranty** below for the full Day-O-Lite product warranty.

https://www.dayolite.com/terms-conditions-warranty