

A RECIPE FOR DMX SUCCESS

DMX SERIES – ARTICLE 1

Adapted from a talk given by Thomas Ladd and Simon Hicks at LEDucation 2022

NB: This article is the first in a three-article series aimed at construction and electrical engineering professionals who work in lighting installation but have not worked with lighting fixtures controlled by the DMX protocol. It does not cover DMX distribution over Ethernet.

When DMX is on the spec, who do you need to ensure the project is a success? What goes into making a DMX dream team?

An experienced controls team behind the lighting manufacturer and sales agent? A controls manufacturer that has experience controlling DMX fixtures and engineering DMX systems? A specialist integrator to manage the DMX installation, plus an installer with a few DMX projects under their belt? Yes, certainly, all of this! But even if your project doesn't have such a team available, it's possible for others to fill the gaps – with just a measure of time and a dash of inclination.

DMX IN THE MIX

DMX in architecture first entered the mainstream to control colour-changing lighting on façades and bridges. It was never really considered for white light that's used for functional lighting – but that's changing, particularly in the US. The possibilities of DMX control are exploding, and we can see evidence of this as more and more fixtures come to market that use DMX for control.

Traditionally, lighting fixtures largely had just a single element to control – the intensity. Fixtures could be dimmed, have different set intensities and turn on and off, using control technologies like dimmers, relays, 0-10V and DALI. With the advance into LED, many project designers went beyond traditional controls into DMX because of the exciting possibilities it opened up – a digitally addressable lighting fixture could be sent control signals to operate a host of features, such as tuneable white control, dimming to nearly zero percent, dynamic colour control, and more. These lighting fixtures could also feedback critical data over the same DMX wires using remote device management (RDM).

What this meant for lighting installers and engineers is that they had to start thinking about more than just power requirements for projects – they had to incorporate a new digital technology into the mix, with new DMX wiring topology and new DMX control equipment, and it had to be documented and detailed for installation. Designers, who now had all these new possibilities in front of them, also had to think about more detailed specifications for the DMX control objectives. In short, projects with DMX now involved many more disciplines across the architectural spectrum, from the initial lighting design to the finished delivery.

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THE DMX ESSENTIALS

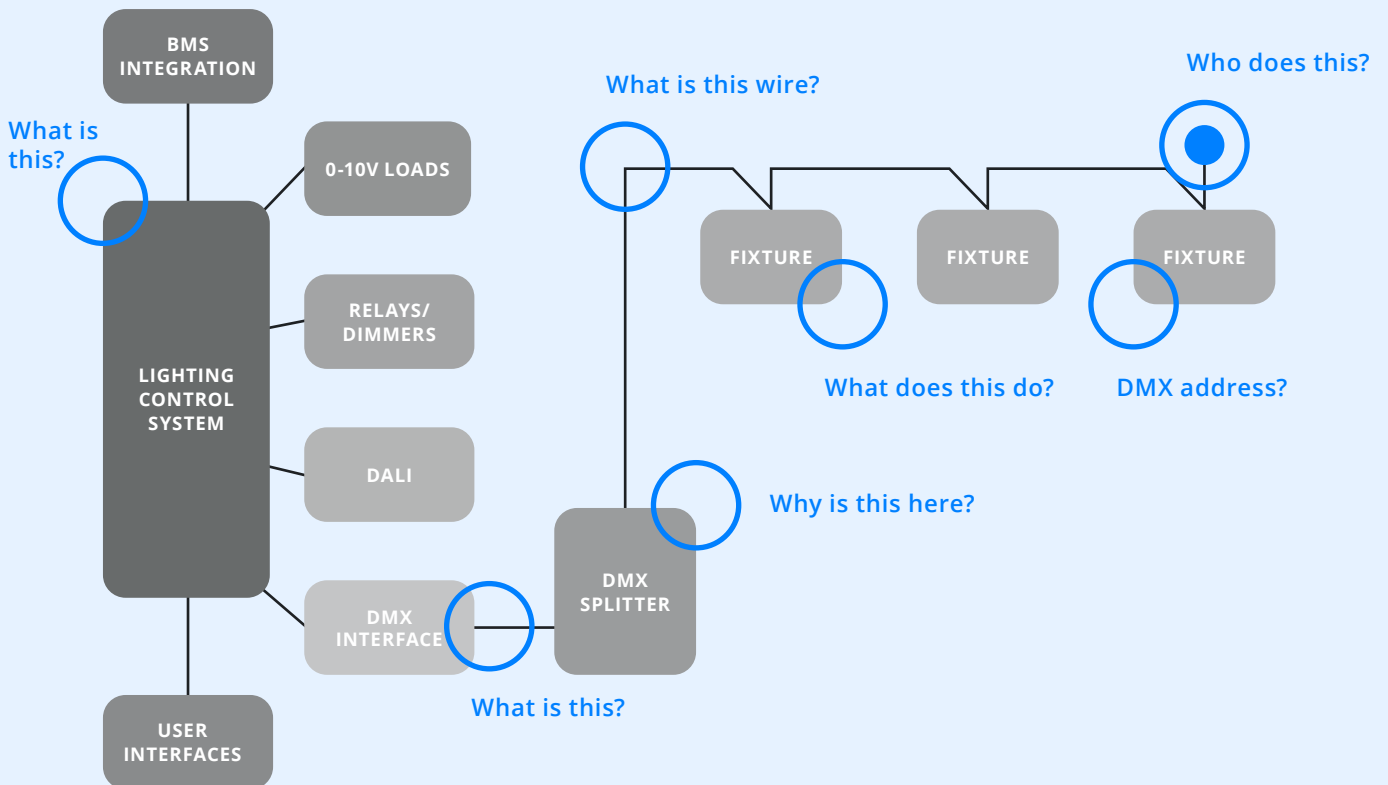
With the rise of DMX, many architectural proposals today are specifying fixtures for DMX control. But making sure those plans turn into desired results requires the right ingredients, or essential processes. With those in place, any team can more easily create their own recipe for DMX success.

Ideally, by the time a project reaches pricing stage, every element of the DMX system must be in someone’s scope so that no detail falls between the cracks. It’s also important to know exactly what equipment to order, so costly changes don’t occur later on. Who is responsible for what may vary from project to project, and even during the course of a project, but the elements that make up **a complete working system for DMX** remain the same:

- **FIXTURES:** You need to know your fixtures. How are they controlled? How should they be installed?
- **WIRING:** Fixtures need to be wired and the wiring has to work.
- **ADDRESSES:** Fixtures need to be addressed and you need to know who is going to do this.
- **PROGRAMMING:** The control system needs to be programmed to match the fixtures’ addresses.
- **SCENES:** The lighting scenes need to be created, and they need to make sense for the use-cases of the installation.
- **INTEGRATION:** Do any lighting scenes need to be triggered through on integration with another system?

WHAT WE NEED TO KNOW

Drawings are prepared and spec packages created. These will be the guiding documents that the project teams use for pricing and installation. Will they contain all the information we need to know?



Some of the answers you’ll need: What’s this terminator? Who puts that there? What wire is needed? What’s a splitter and why is it there? Does this fixture need an address? Who does that?

THE ULTIMATE INGREDIENT

DMX and other emerging technologies that allow digital control of lighting fixtures are here to stay and will form part of the future of lighting. We hope this evolution includes the presence of more substantial DMX information in construction documents for projects at the outset, such as what we've outlined here. Certainly, we're already seeing better documented DMX system requirements and responsibilities as DMX becomes a more common load type.

We believe DMX success begins with enabling people to better understand it by having information that's important to system design and installation readily available. Ultimately, the success of the recipe lies in the preparation.

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READ NEXT

ARTICLE 2

THE BASICS OF A DMX SYSTEM

How does a DMX controller communicate with DMX fixtures? How do lighting fixtures need to be commissioned? How is the signal carried and what cable is needed? What's the cable topology? What is termination and why? Where can it go wrong? You'll find some answers here.


ARTICLE 3


THE BALLROOM PROJECT: A DMX CASE STUDY

We take a slow waltz through the various stages of a lighting project for a ballroom. Learn the steps along the way, including how to wire up fixtures, how to control them, and the tasks involved in the installation and commissioning process.

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