

DMX Troubleshooting Guide

To make the most of your DMX equipment, you must first understand the limitations of the DMX protocol. All DMX dimmers and fixtures are prone to interference from reflection (an electrical phenomenon), signal noise, and other electrical faults.

The two primary solutions for most DMX problems are *Opto-Isolation* and *Termination*. This guide will cover their use, as well as troubleshooting steps such as properly ordering a daisy-chain network.

Opto-Isolation:

Opto-Isolators take a DMX signal and re-distribute it to one or more chains while preventing electrical or signal interference on one chain from affecting the rest of the network. Separate chains for similar brands or devices are recommended when possible, though this is not necessary.

-While not strictly necessary on small networks, opto-isolators are always recommended simply as a precautionary measure to protect expensive DMX control boards and computers from harm.

-Certain devices, particularly older dimmers, can have compatibility issues when used in the same chain as newer devices, causing problems such as flicker and incorrect DMX values. Using an opto-splitter to isolate these packs can alleviate these issues.

-When using **RatPac** Dimmers in a chain with other brands of dimmer (Particularly Strand CD80 series), it is advisable to place **RatPacs** first in the chain followed by the other dimmers. Make sure the last pack in the chain is terminated.

-A related device called an *Opto-Splitter* will also amplify the DMX signal for each port, allowing for the use of longer signal cables. These devices require power, and a battery backup is recommended.

Termination:

DMX devices are designed with the ability to network in a daisy-chain configuration.

-Each chain must be terminated at the last device in the chain to prevent issues from reflection, signal errors, and interference.

-Many packs feature built-in termination methods. **RatPac** Dimmers can engage onboard terminator with an easy-to-use DIP switch (SW3, #1). If it's the last pack in the chain, flip the switch to terminate.



Location of DMX Terminator switch on RatPac Dimmers

-If the last pack in the chain doesn't have a DMX terminator switch, use an external terminator. They're easy to make if you don't have one. You can find directions online.