

## What is DMX and RDM

### Overview:

The general reference to DMX really includes two different protocols—DMX512A and RDM. DMX is a one-way protocol with no way to receive information from the luminaire of its starting DMX address. These devices only receive commands from the DMX encoder (e-Node x4100 gateway or other third-party DMX encoder or console). In this case, starting DMX addresses that are necessary for communication to these devices can then only be set up using dip switches or dials typically found on the back of the DMX fixture.

RDM (Remote Device Management) ANSI E1.20 Remote Device Management is an enhancement to the DMX protocol which adds bidirectional communication between the fixture or its decoder (build-in or separate electronics). DMX fixtures that are not compatible with RDM typically only can receive commands to trigger their functions (vary their individual RGBW or other channels within an 8- or 16-bit environment). More sophisticated luminaires that are compatible with RDM enable starting DMX addresses to be read and changed as well as the user selection of luminaire profiles (mapping of color channels per channel and the data bit data structure- 8- or 16-bit precision).

### Advantages of RDM Devices

- Access to luminaire starting DMX address via 3 wire data cabling
- RDM devices can send status and fault information back to the controlling console

### Wiring

DMX requires a three wire (typically shielded) Category or DMX-type lighting cable. DMX requires a daisy chain wiring topology and unless a DMX optical splitter is provided, there is not the provision for any "T"s or wire splitting otherwise.

### Smart Luminaires (no update of firmware on ours)

Although DMX was not designed to be a two-way protocol which enables starting DMX channel and channel assignment information to be able to be communicated back to the Lighting or Automation controller, Converging Systems has enhanced the implementation of the protocol with the e-Node 2100/4100 gateways by providing derived two-way feedback of color state, color temperature and HSV/RGB, RGBW values. This information that is provided back the Lighting or Automation controller platform (i.e., Control4, ELAN/NICE, Crestron, RTI, URC, etc.) effectively makes DMX a bi-directional protocol.



## **DMX Addressing and fixture Types**

The typical concept of DMX in the industry assumed that the initial assignment of DMX addresses to each fixture was rather static or “baked in.” Without RDM, if there were a desire to change the associations or addressing of a single luminaire or a bank of luminaries, manual re-setting of DIP switches is mandatory. Even for fixtures mounted at locations where a ladder would not be required, to reach the fixture, there still would be the inevitable requirement that the fixture would need to be removed from the wall or ceiling to access and change the dip switches or dials.