

DMX512 Quick Reference Guide

Introduction

The Digital Multiplex is primarily for the control of stage lighting and effects but has been adopted for the use of architectural lighting because of its accurate and fine control over colour and dimming across a broad range of fixtures.

Note: The information in this guide is provided in good faith. Standards change and individual manufactures may have different requirements. Morban accept no responsibility for the accuracy of the information supplied within.

There are 512 addresses each of which can transmit a digital value of 0-255. Depending on the device these values then determine the brightness, colour, position, function etc. These values are sent continuously at audio speeds (250,000 baud) potentially allowing synchronisation with music etc. However when used with many traditional lighting control systems the speed and complexity of control is reduced to that required for slow colour change and dimming.

A single DMX512 network is referred to as a universe. Where a fixture or driver has multiple channels eg: Red, Green & Blue then the DMX address normally refers to the first channel eg Red has DMX address of 1, Green 2 and Blue 3.

Wiring Topology

- Daisy chain layout only
- Max cable length is 1,200m with no more than 32 devices on a single leg
- Shielded stranded cable is preferred eg: Belden 9502
- Star wiring is only allowed when using opto-isolated DMX splitters
- A 120 Ohm termination resistor is required over D+ & D- lines at the end of the DMX bus (& start with the DNG485)
- Adopt standard data cabling placement i.e. not parallel with mains cables unless provided with 300mm separation. Cross mains cables at 90 degrees etc.
- Only one Master (controller) on the bus with multiple slaves (fixtures).

Connectors

Wiring can often be manufacture specific so always refer to the instructions supplied with the DMX device. Having said that these are some common adopted standards...

3-Pin XLR	Function
1	Common
2	Data -
3	Data +

5-Pin XLR	Function
1	Common
2	Data -
3	Data +
4	Spare
5	Spare

RJ45 Pin	Cat5 Cable Colour	Function
1	Orange/White	Data +
2	Orange	Data -
3	Green/White	Spare
4	Blue	Spare
5	Blue/White	Spare
6	Green	Spare
7	Brown/White	Common
8	Brown	Common



In the case of XLR connectors receiving devices typically have a male connector and transmitting a female

When used with a Phillips Dynalite DNG485...

- Limited to control of architectural lighting (slow colour fades and basic fitting control)
- Can be configured as a DMX receiver or a transmitter but not both at the same time.
- A 120 ohm termination resistor is required at both ends of the DMX bus