TERRALEC LTD Solutions For Entertainment

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DMX BASICS

DMX is short for digital multiplexer, which is a universal protocol designed for the lighting industry allowing for controlling of intelligent fixtures like scanners, moving heads, LED par cans, dimmer packs, fog machines etc.

DMX allows you to control many fixtures channels, normally up to 512 with varying channels from 0-255 (0-100%).

This will give control of channels like gobo selection, up and down movements, colours and dimming etc.

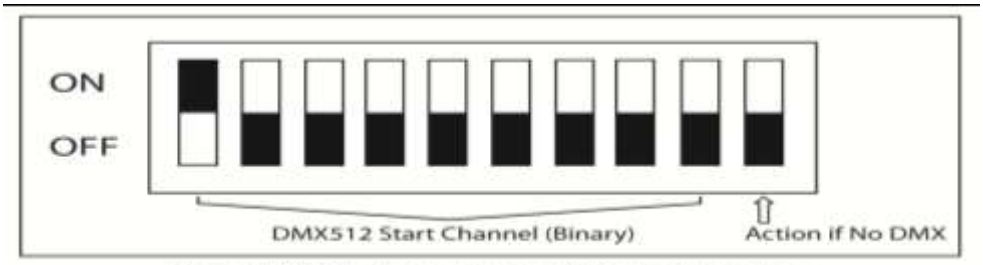
DMX is a very good system as all this information can be sent down one cable, used in conjunction with a DMX controller with memory all your channel settings can be saved and recalled easily.

DMX was designed so that all manufacturers can use the same protocol/language to control their fixtures allowing the end user to use any make of fixture on their DMX controller as long as both are DMX compatible, and the controller has enough channels to control the fixture that is attached.

Fixtures have an input and output DMX socket, allowing you to connect from the controller to the first fixture then from that fixture to the next (this is called daisy chaining).

Sockets are normally 3 pin XLR but can be 5 pin XLR as well.

DMX fixtures need to have a DMX address set, as this is so they can then decode the correct information from the controller. This is normally done by a digital display panel, where the address can be changed by simple up and down buttons; the address ranges from 1-512. In addition to this it can be controlled by a row of small switches, called dip switches; there the required address is converted to a binary number.



Normal DIP Switch assignments: DMX start channel = 1

To work out your dip switch settings you can simply download a DMX calculator from the internet or see our table further on.

The order in which fixtures are connected in a DMX line does not influence the DMX address, a fixture set to DMX address 1 can be put in a DMX line from beginning, middle or end, as it is set to address 1 it knows to take information from that point onwards.

DMX Wiring

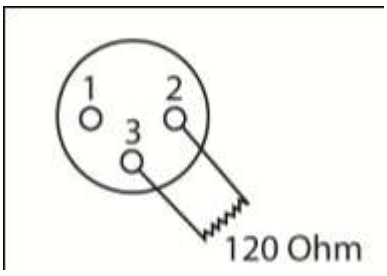
3 PIN	5 PIN
PIN 1 GND	PIN 1 GND
PIN 2 -	PIN 2 -
PIN 3 +	PIN 3 +
	PIN 4 NOT USED
	PIN 5 NOT USED

3 pin wiring is more common, 5 pin is the correct way. 3 pin may be used to save on cost. With 5 pin connections, not all pins are used, though it is worth checking your manual for your fixture, as some lights use the unused pins for low voltage control. 5 pin would be better so there is no confusion over mixer leads and DMX leads in big rigs, sending a mixers 48v phantom power down a DMX cable could damage the DMX light.

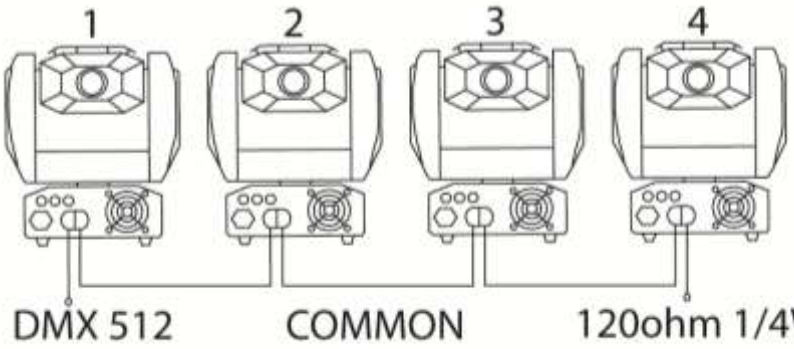
When making cables try and used proper DMX cable and do not connect pin 1 GND to the outer casing of the connector as you might do with audio cables as this may cause erratic behaviour from your fixture.

Do not make Y leads to split cables to fixtures; always use the in and out sockets or a DMX splitter as again this may cause erratic behaviour from your fixture.

We recommend you to put a DMX terminator in any fixture which hasn't got a DMX lead connected from the output socket to another fixture; this again is to reduce erratic behaviour from your fixtures. A DMX terminator is simply a male XLR plug with 120 ohms, ¼ watt resistor soldered across pin 2 & 3.



Example of a DMX line



Ch1	Ch2	Ch3	Ch4	Colour	
Pan	Tilt	Shutter/Shaking	Gobo	Normal	Split
540°	270°	246-255 Open	255 Fastest speed Gobo change	255 Fastest speed Rainbow Effect	255 Fastest speed Rainbow Effect
		247 Fastest speed shaking	128 Slowest speed Gobo change		
			120-127	128 Slowest speed Rainbow effect	128 Slowest speed Rainbow effect
			111-119	118-127 Pink	121-127 Pink
			103-110	107-117 Yellow	113-120 Yellow+Pink
			094-102	096-106 Orange	106-112 Yellow
			086-083	086-095 Light Green	098-105 Orange+Yellow
		132 Slowest speed shaking	077-085	075-085 UV Purple	091-097 Orange
		131 Fastest speed shutter	069-076	064-074 Blue	083-090 Light Green+Orange
			060-068	054-063 Red	076-082 Light Green
			052-059	043-053 Amber	068-075 UV Purple
			044-051	032-042 Light Blue	061-067 Blue
			035-043	022-031 Magenta	053-060 Red+Blue
			0-26-034	011-021 Green	046-052 Red
		16 Slowest speed shutter	018-025	000-010 White	038-045 Amber
		008-015 Open	009-017		031-037 Light Blue
			000-008		023-030 Magenta
		000-007 Blackout			016-022 Green+Magenta
					008-016 Green
0°	0°				000-007 White

Each fixture takes up 5 DMX Channels (See Above)

The controller is a fairly basic 24 channel.

So you have a cable from the controller to the first fixture cable from first to second and so on, the last light has a DMX terminator plugged in.

Fixture 1 would be set to DMX address:

1 dipswitch number 1 on.

Fixture 2 would be set to DMX address:

6 dipswitch numbers 2 & 3 on.

Fixture 3 would be set to DMX address:

11 dipswitch numbers 1, 2 & 4 on.

Fixture 4 would be set to DMX address:

16 dipswitch number 5 on.

We would recommend you to fully read manuals for your light and controller as some controllers tell you what each fixture address needs to be, and some lights need other settings changed to make them work.

When setting address you need to make sure fixtures don't overlap from one to the next.

You can set 2 fixtures to the same address, and as long as they are the same fixture (i.e. same channel layout) they will then do the same as each other.