DMX lights

DMX (stage) lights

What is DMX?

DMX (Digital Multiplex), aka DMX512, is the industry standard protocol for controlling lighting and effects in clubs, theatres and tons of other places.

At its core, DMX data consists of a list of 512 numbers, each between 0 and 255, usually referred to as 'channels'. This data gets sent through an XLR-style cable from the lighting controller to the lights.

Most light fixtures (and other DMX-enabled devices) usually have both a DMX-in and DMX-out port. This allows them to be daisy-chained together, meaning you can control multiple lights through just one cable.

Some lights might have one function (e.g. dimmer), while others might have a whole range of controllable functions like Red, Green, Blue, White, Dimmer, Strobe, Pan, Tilt, etc.. This means that each light takes a specific number of channels to control it, and that number will differ between lights.

All lights have a function to set their 'DMX address', indicating which of the 512 channels are meant for that light.

For example: if one light takes **eight** channels to control it, and the next one takes **fourteen** channels;

- The first light would be set to DMX **address 1**, and takes DMX **channels 1-8**.
- The second light would then be set to **address 9**, and take **channels 9-23**.
- The third light would be **address 24**, etc.

In general, for controlling *any* light, you will want to look up the User Manual for that model to find out which channels control which function of the light.

Just scroll down to find a table like this:

DMX protocol

DMX	Value	Function	Fade type	Default
		Strobe and Pulse effects		
1	0–7	Off	Snap	12
	8–15	Open		
	16–131	Strobe, slow to fast		
	132–139	Open		
	140–181	Pulse, fast close & slow open		
	182–189	Open		
	190–231	Pulse, fast open & slow close		
	232–239	Open		
	240–247	Strobe random		
	248–255	Open		
2	0–255	**Dimming Coarse** 0 →100%	Fade	0
3	0–255	**Dimming Fine**	Fade	0
4	0–255	**Red** 0 → 100%	Fade	0
5	0–255	**Green** 0 → 100%	Fade	0
6	0–255	**Blue** 0 → 100%	Fade	0
7	0–255	**White** 0 → 100%	Fade	0
		"Color Wheel" Effect (Color Presets)		
8	0–10	Open	Snap	0
	11–15	Color 1		
	16–20	Color 2		
	21–25	Color 3		
	26–30	Color 4		
	31–35	Color 5		
	36–40	Color 6		
	41–45	Color 7		
	46–50	Color 8		
	51–55	Color 9		
	56–60	Color 10		
	61–65	Color 11		
	66–70	Color 12		
	71–75	Color 13		
	76–80	Color 14		
	81–85	Color 15		
	86–90	Color 16		
	91–95	Color 17		
	96–100	Color 18		
	101–105	Color 19		

DMX	Value	Function	Fade type	Default
8	106–110	Color 20	Snap	0
	111–115	Color 21		
	116–120	Color 22		
	121–125	Color 23		
	126–130	Color 24		
	131–135	Color 25		
	136–140	Color 26		
	141–145	Color 27		
	146–150	Color 28		
	151–155	Color 29		
	156–160	Color 30		
	161–165	Color 31		
	166–170	Color 32		
	171–175	Color 33		
	176–180	Color 34		
	181–185	Color 35		
	186–190	Color 36		
	191–192	Open		
		Color Scroll		
	193–214	Ascending, fast → slow		
	215–221	Stop (at current position)		
	222–243	Descending, slow → fast		
		Random Slots		
	244–247	Fast		
	248–251	Medium		
	252–255	Slow		
9	0–255	**Zoom** wide → narrow	Fade	128
10	0–255	**Pan** 0° → 540°	Fade	128
11	0–255	**Pan** (fine control)	Fade	128
12	0–255	**Tilt** 0° → 220°	Fade	128
13	0–255	**Tilt** (fine control)	Fade	128
14		**Fixture Control Settings**	Snap	0
	0–9	No function (disables calibration)		
	10–14	Reset fixture		
	15–54	No function		
	55–59	Enable calibration		
	60–74	No function		
	75–79	Pan & Tilt Speed = Normal		
	80–89	Pan & Tilt Speed = Fast (default)		
	90–94	Pan & Tilt Speed = Slow		

How to use the Dark Lab lights

The permanently mounted stage lights in the lab are all daisy-chained together. There is a little switch box where you can select what controls the lights: i.e. the lighting desk, a USB DMX interface, or the wireless DMX receiver (ask the Kit Room or a Dark Lab technician for the wireless DMX transmitter).
We also have DMX shields that can plug into your Arduino.

All lights in the Lab are labeled with their DMX (starting) addresses. Please refer to the User Manuals of the lights to know which consecutive channels correspond to which functions:

Martin Rush Batten 1 Hex User Manual

Martin Rush MH6 Wash User Manual

The Eurolite lighting desk has already been set up to work with our specific lights, so you won't need to worry about addresses and channels if you just want to change the colours!
If you want to incorporate DMX into your projects and make it interactive through code (using e.g. a USB or Arduino DMX interface to connect to the lights), you will need to keep the above in mind though!

What DMX equipment is available to take home?

We also have a few lights and DMX interfaces that you can take home. These are bookable through [ORB](), our online loan store and equipment booking system. Feel free to have a look, or have a go! The technicians will be happy to help with any questions you might have.