

DMX protocol

Applicable when running MAC Quantum Profile firmware version 1.1.0.

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Function	Fade type	Default value
1	1	0 - 19	Strobe/shutter effect Shutter closed	Snap	30
		20 - 49	Shutter open		
		50 - 200	Strobe, slow → fast		
		201 - 210	Shutter open		
		211 - 255	Random strobe, slow → fast		
2	2	0 - 255	Dimmer fade (MSB) Closed → open	Fade	0
	3	0 - 65535	Dimmer fade (LSB) Closed → open	Fade	0
3	4	0 - 255	Cyan 0 → 100%	Fade	0
4	5	0 - 255	Magenta 0 → 100%	Fade	0
5	6	0 - 255	Yellow 0 → 100%	Fade	0
6	7		Color wheel	Snap	0
			<i>Continuous Scroll (split colors possible)</i>		
		0	Open		
		1 - 14	Open → Slot 1		
		15	Slot 1 (Blue)		
		16 - 29	Slot 1 → Slot 2		
		30	Slot 2 (Green)		
		31 - 44	Slot 2 → Slot 3		
		45	Slot 3 (CTC 3200 K)		
		46 - 59	Slot 3 → Slot 4		
		60	Slot 4 (Magenta)		
		61 - 74	Slot 4 → Slot 5		
		75	Slot 5 (Congo Blue)		
		76 - 89	Slot 5 → Slot 6		
		90	Slot 6 (Red)		
		91 - 104	Slot 6 → Open		
		105 - 160	Open		
			<i>Stepped Scroll (snap to full color positions)</i>		
		161 - 163	Slot 1 (Blue)		
		164 - 166	Slot 2 (Green)		
		167 - 169	Slot 3 (CTC 3200 K)		
		170 - 172	Slot 4 (Magenta)		
		173 - 175	Slot 5 (Congo Blue)		
		176 - 178	Slot 6 (Red)		
179 - 192	Open				
	<i>Continuous Rotation</i>				
193 - 214	CW, Fast → Slow				
215 - 221	Stop (This will stop the color wheel wherever it is at the time)				
222 - 243	CCW, Slow → Fast				
	<i>Random color</i>				
244 - 247	Fast				
248 - 251	Medium				
252 - 255	Slow				

Table 1: DMX Protocol

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Function	Fade type	Default value
7	8		Gobo selection, indexing, shake, rotation <i>Indexed gobo: set indexed angle on channels 9/10 (16-bit) or 10/11 (16-bit ext.)</i> 0 - 4 Open 5 - 9 Gobo 1 (Spidey) 10 - 14 Gobo 2 (Wind My Mill) 15 - 19 Gobo 3 (Limbo) 20 - 24 Gobo 4 (Ray Brush) 25 - 29 Gobo 5 (Whirlpool) 30 - 34 Gobo 6 (To Boldly Go) <i>Continuous gobo rotation: set gobo rotation speed on channels 9/10 (16-bit) or 10/11 (16-bit ext.)</i> 35 - 39 Gobo 1 40 - 44 Gobo 2 45 - 49 Gobo 3 50 - 54 Gobo 4 55 - 59 Gobo 5 60 - 64 Gobo 6 <i>Gobo shake centered on indexed position: set indexed angle on channels 9/10 (16-bit) or 10/11 (16-bit ext.). Shake angle adjusts in following steps: 360°, 270°, 180°, 135°, 90°, 60°, 45°, 30°, 15° and 10°</i> 65 - 88 Gobo 1 shake, 360° slow → 10° fast 89 - 112 Gobo 2 shake, 360° slow → 10° fast 113 - 136 Gobo 3 shake, 360° slow → 10° fast 137 - 160 Gobo 4 shake, 360° slow → 10° fast 161 - 184 Gobo 5 shake, 360° slow → 10° fast 185 - 209 Gobo 6 shake, 360° slow → 10° fast <i>Continuous gobo wheel scroll with indexed gobo: set gobo indexed angle on channels 8 and 9 (16-bit) or 9 and 10 (16-bit extended)</i> 210 - 232 CW gobo wheel scroll, fast → slow 233 - 255 CCW gobo wheel scroll, slow* → fast	Snap	0
			Gobo indexing angle or rotation speed (16-bit fine, MSB and LSB) <i>If indexed gobo is selected on channel 7 (16-bit) or 8 (16-bit ext.)</i> 0 - 65535 Gobo indexing, -197.5° → +197.5° (default DMX value 32768 sets gobo to 0°) <i>If continuous gobo rotation is selected on channel 7 (16-bit) or 8 (16-bit ext.)</i> 0 - 600 No gobo rotation, gobo indexed at 0° 601 - 32130 CW rotation, fast → slow 32131 - 32895 No gobo rotation, gobo stops at current position 32896 - 64515 CCW rotation, slow → fast 64516 - 65535 No gobo rotation, gobo indexed at 90°	Fade	32768

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10	11		Static gobo wheel gobo selection, wheel rotation, random gobo	Fade	0
			<i>Continuous gobo wheel scrolling</i>		
		0	Open		
		1 - 14	Open → Gobo 1		
		15	Gobo 1		
		16 - 29	Gobo 1 → Gobo 2		
		30	Gobo 2		
		31 - 44	Gobo 2 → Gobo 3		
		45	Gobo 3		
		46 - 59	Gobo 3 → Gobo 4		
		60	Gobo 4		
		61 - 74	Gobo 4 → Gobo 5		
		75	Gobo 5		
		76 - 89	Gobo 5 → Gobo 6		
		90	Gobo 6		
		91 - 104	Gobo 6 → Gobo 7		
		105	Gobo 7		
		106 - 119	Gobo 7 → Gobo 8		
		120	Gobo 8		
		121 - 134	Gobo 8 → Gobo 9		
		135	Gobo 9		
		136 - 149	Gobo 9 → Gobo 10		
		150	Gobo 10		
		151 - 164	Gobo 10 → Open		
165	Open				
	<i>Stepped gobo wheel scrolling</i>				
166 - 167	Gobo 1				
168 - 169	Gobo 2				
170 - 171	Gobo 3				
172 - 173	Gobo 4				
174 - 175	Gobo 5				
176 - 177	Gobo 6				
178 - 179	Gobo 7				
180 - 181	Gobo 8				
182 - 183	Gobo 9				
184 - 185	Gobo 10				
186 - 192	Open				
	<i>Continuous gobo wheel rotation</i>				
193 - 214	CW gobo wheel rotation, fast → slow				
215 - 221	Gobo wheel stops at its current position				
222 - 243	CCW gobo wheel rotation, slow → fast				
	<i>Random gobos</i>				
244 - 247	Fast				
248 - 251	Medium				
252 - 255	Slow				
11	12		Prism rotation	Snap	0
		0 - 2	Open		
		3 - 126	CW prism rotation, fast → slow		
		127 - 129	Prism stops at its current position		
		130 - 253	CCW prism rotation, slow → fast		
254 - 255	Open				
12	13		Iris	Fade	0
		0 - 200	Open → closed		
		201 - 225	Animate fast → slow		
		226 - 230	Iris stops at current position		
231 - 255	Animate reverse slow → fast				
13	14		Zoom (MSB)	Fade	
		0 - 255	Wide → narrow		
	15		Zoom fine (LSB)	Fade	32768
		0 - 65535	Wide → narrow		
14	16		Focus (MSB)	Fade	
		0 - 255	Far → near		
	17		Focus fine (LSB)	Fade	32768
		0 - 65535	Far → near		

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15 16	18 19	0 - 65535	Pan, 16-bit (MSB and LSB) Left → right (32768 = neutral)	Fade	32768
17 18	20 21	0 - 65535	Tilt, 16-bit (MSB and LSB) Up → down (32768 = neutral)	Fade	32768
19	22	0 - 9 10 - 14 15 16 17 18 19 - 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 - 51 52 53 54 55 56 57 58 59 - 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 - 198 199 200 - 255	Fixture control/settings <i>(hold for number of seconds indicated to activate)</i> <i>No function (disables calibration) – 5 sec.</i> Reset entire fixture – 5 sec. <i>No function</i> Reset color only – 5 sec. Reset beam only – 5 sec. Reset pan and tilt only – 5 sec. <i>No function</i> Linear dimming curve – 1 sec. (menu override, setting unaffected by power off/on) Square law dimming curve – 1 sec. (menu override, factory default setting, setting unaffected by power off/on) Inverse square law dimming curve – 1 sec. (menu override, setting unaffected by power off/on) S-curve dimming curve – 1 sec. (menu override, setting unaffected by power off/on) <i>No function</i> Fast pan and tilt speed – 1 sec. (default setting, menu override - setting returns to MENU setting after power on/off) Smooth pan and tilt speed – 1 sec. (menu override - setting returns to MENU setting after power on/off) Parameter shortcuts = ON (default) Parameter shortcuts = OFF Disable focus tracking Enable focus tracking on near distance Enable focus tracking on medium distance Enable focus tracking on far distance <i>No function</i> Turn on control panel display – 1 sec. Turn off control panel display – 1 sec. Regulated fan speed, fixed light output intensity = full (default) Fixed fan speed = full, regulated light output intensity Fixed fan speed = medium, regulated light output intensity Fixed fan speed = low, regulated light output intensity Fixed fan speed = ultra low, regulated light output intensity <i>No function</i> Enable calibration – 5 sec. Store pan and tilt calibration – 5 sec. Store dimmer calibration – 5 sec. Store cyan calibration – 5 sec. Store magenta calibration – 5 sec. Store yellow calibration – 5 sec. <i>No function</i> Store all CMY calibration – 5 sec. Store rot. gobo wheel current slot index calibration – 5 sec. <i>No function</i> Store static gobo wheel calibration – 5 sec. <i>No function</i> Store iris calibration – 5 sec. Store focus calibration – 5 sec. Store zoom calibration – 5 sec. <i>No function</i> 199 Reset all calibration values to factory defaults – 5 sec. <i>No function</i>	Snap	0
-	23	0 - 255	FX1 selection (see Table 2) Effect selection (adjust on DMX channel 24)	Snap	0
-	24	0 - 126 127 - 128 129-255	FX1 adjustment Effect reversed fast → slow Effect stops Effect slow → fast	Fade	128

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Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Function	Fade type	Default value
-	25	0 - 255	FX2 selection (see Table 2) Effect selection (adjust on DMX channel 24)	Snap	0
-	26	0 - 126 127 - 128 129-255	FX2 adjustment Effect reversed fast → slow Effect stops Effect slow → fast	Fade	128
-	27	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 - 100 101 - 120 121 - 140 141 - 255	FX synchronization No sync Offset shift 10° Offset shift 20° Offset shift 30° Offset shift 40° Offset shift 50° Offset shift 60° Offset shift 70° Offset shift 80° Offset shift 90° Offset shift 100° Offset shift 110° Offset shift 120° Offset shift 130° Offset shift 140° Offset shift 150° Offset shift 160° Offset shift 170° Offset shift 180° Offset shift 190° Offset shift 200° Offset shift 210° Offset shift 220° Offset shift 230° Offset shift 240° Offset shift 250° Offset shift 260° Offset shift 270° Offset shift 280° Offset shift 290° Offset shift 300° Offset shift 310° Offset shift 320° Offset shift 330° Offset shift 340° Offset shift 350° Synchronized: all fixtures start FX cycles at same time <i>Reserved</i> Random start (FX 1 adjust controls overall speed) Random duration <i>Reserved</i>	Snap	0

Table 1: DMX Protocol

MSB = Most significant byte

LSB = Least significant byte