

DMX PROTOCOL

DMX channel		Start code = 0		
8-bit	16-bit	Value	Percent	Function
1		0 - 19	0 - 7	Shutter, Strobe, Reset, Lamp On/Off Shutter closed
		20 - 49	8 - 19	Shutter open
		50 - 72	20 - 28	Strobe, fast→slow
		73 - 79	29 - 31	Shutter open, lamp power reduced (MAC 2000 E only)
		80 - 99	31 - 39	Opening pulse, fast →slow
		100 - 119	39 - 47	Closing pulse, fast →slow
		120 - 127	47 - 50	Shutter open
		128 - 147	50 - 58	Random strobe, fast
		148 - 167	58 - 65	Random strobe, medium
		168 - 187	66 - 73	Random strobe, slow
		188 - 190	74 - 75	Shutter open
		191 - 193	75 - 76	Random opening pulse, fast
		194 - 196	76 - 77	Random opening pulse, slow
		197 - 199	77 - 78	Random closing pulse, fast
		200 - 202	78 - 79	Random closing pulse, slow
		203 - 207	80 - 81	Shutter open
		208 - 217	82 - 85	Reset fixture ¹
		218 - 227	85 - 89	Shutter open
		228 - 237	89 - 93	Lamp power on
		238 - 247	93 - 97	Shutter open
248 - 255	97 - 100	Lamp power off (hold 5 seconds) ²		
2		0 - 255	0 - 100	Intensity 0 → 100%
3		0 - 255	0 - 100	Cyan White → Cyan
		0 - 127	0 - 50	Cyan limit for random CMY color At least 0 → 100%
		128 - 255	50 - 100	At most 0 → 100%
4		0 - 255	0 - 100	Magenta White → Magenta
		0 - 127	0 - 50	Magenta limit for random CMY color At least 0 → 100%
		128 - 255	50 - 100	At most 0 → 100%
5		0 - 255	0 - 100	Yellow White → Yellow
		0 - 127	0 - 50	Yellow limit for random CMY color At least 0 → 100%
		128 - 255	50 - 100	At most 0 → 100%
6		0 - 255	0 - 100	CTC Cold → Warm (0-178 mireds)

¹ If reset is disabled, i.e., *dRES=OFF*, the command executes only when position 7 is selected on the color wheel and gobo 5 is selected on both gobo wheels.

² If lamp off is disabled, i.e., *dLOF=OFF*, the command executes only when position 7 is selected on the color wheel and gobo 5 is selected on both gobo wheels.

Table 3: DMX protocol

DMX channel		Start code = 0		
8-bit	16-bit	Value	Percent	Function
7				Color/Gobo Wheel
		0 - 20	0 - 7	Continuous scroll
		20 - 40	7 - 16	White → Position 1
		40 - 60	16 - 23	Position 1 → Position 2
		60 - 80	23 - 31	Position 2 → Position 3
		80 - 100	31 - 39	Position 3 → Position 4
		100 - 120	39 - 47	Position 4 → Position 5
		120 - 140	47 - 55	Position 5 → Position 6
		140 - 160	55 - 63	Position 6 → Position 7
				Position 7 → Open
				Stepped scroll
		160 - 163	63 - 64	Position 7 (Dots)
		164 - 167	64 - 65	Position 6 (Highways)
		168 - 171	66 - 67	Position 5 (Triple Cone)
		172 - 175	67 - 68	Position 4 (UV)
		176 - 179	69 - 70	Position 3 (Blue 111)
	180 - 183	70 - 72	Position 2 (Green 201)	
	184 - 187	72 - 73	Position 1 (Red 308)	
	188 - 191	74 - 75	Open	
			Continuous rotation	
	192 - 217	75 - 85	CW, fast → slow	
	218 - 243	85 - 95	CCW, slow → fast	
			Random CMY color (set limits on ch. 3 - 5)	
	244 - 247	96 - 97	Random color, fast	
	248 - 251	97 - 98	Random color, medium	
	252 - 255	99 - 100	Random color, slow	
8				Gobo Wheel 1, Gobo & Function
		0 - 9	0 - 3	Open
				Indexed gobo rotation
		10 - 14	3 - 5	Gobo 1 (Jet Fan)
		15 - 19	5 - 7	Gobo 2 (Pipe Dreams)
		20 - 24	7 - 9	Gobo 3 (Double Worms)
		25 - 29	9 - 11	Gobo 4 (Inverted King Star)
		30 - 34	11 - 13	Gobo 5 (Limbo)
				Continuous gobo rotation
		35 - 39	13 - 15	Gobo 1
		40 - 44	15 - 17	Gobo 2
		45 - 49	17 - 19	Gobo 3
		50 - 54	19 - 21	Gobo 4
		55 - 59	21 - 23	Gobo 5
				Indexed gobo shake
		60 - 74	23 - 29	Gobo 1, shake slow → fast
		75 - 89	29 - 35	Gobo 2, shake slow → fast
		90 - 104	35 - 40	Gobo 3, shake slow → fast
		105 - 119	41 - 46	Gobo 4, shake slow → fast
		120 - 134	47 - 52	Gobo 5, shake slow → fast
			Rotating gobo shake	
	135 - 149	53 - 58	Gobo 1, shake slow → fast	
	150 - 164	59 - 64	Gobo 2, shake slow → fast	
	165 - 179	65 - 70	Gobo 3, shake slow → fast	
	180 - 194	70 - 76	Gobo 4, shake slow → fast	
	195 - 209	76 - 82	Gobo 5, shake slow → fast	
			Gobo wheel rotation	
	210 - 232	82 - 91	CW, slow → fast	
	233 - 255	91 - 100	CCW, fast → slow	

Set position / velocity on next channel. Fine position on ch. 10 (16-bit).

Table 3: DMX protocol

DMX channel		Start code = 0		
8-bit	16-bit	Value	Percent	Function
9	9	0 - 255	0 - 100	Gobo Wheel 1, Position/Velocity Coarse Position (MSB), Min → Max
		0 - 2	0 - 1	Rotation velocity
		3 - 127	1 - 50	No rotation
		128 - 252	50 - 98	CCW, slow → fast
		253 - 255	99 - 100	CW, fast → slow No rotation
-	10	0 - 255	0 - 100	Gobo Wheel 1, Fine Position Fine Position (LSB), Min → Max
10	11	0 - 9	0 - 3	Gobo Wheel 2, Gobo & Function Open
		10 - 14	3 - 5	Indexed gobo rotation
		15 - 19	5 - 7	Gobo 1 (Limbo Donut)
		20 - 24	7 - 9	Gobo 2 (Triangle Cones)
		25 - 29	9 - 11	Gobo 3 (Congo Star)
		30 - 34	11 - 13	Gobo 4 (Space Sun)
				Gobo 5 (Waves)
		35 - 39	13 - 15	Continuous gobo rotation
		40 - 44	15 - 17	Gobo 1
		45 - 49	17 - 19	Gobo 2
		50 - 54	19 - 21	Gobo 3
		55 - 59	21 - 23	Gobo 4
				Gobo 5
		60 - 74	23 - 29	Indexed gobo shake
		75 - 89	29 - 35	Gobo 1, shake slow → fast
		90 - 104	35 - 40	Gobo 2, shake slow → fast
		105 - 119	41 - 46	Gobo 3, shake slow → fast
		120 - 134	47 - 52	Gobo 4, shake slow → fast
				Gobo 5, shake slow → fast
		135 - 149	53 - 58	Rotating gobo shake
		150 - 164	59 - 64	Gobo 1, shake slow → fast
		165 - 179	65 - 70	Gobo 2, shake slow → fast
		180 - 194	70 - 76	Gobo 3, shake slow → fast
195 - 209	76 - 82	Gobo 4, shake slow → fast		
		Gobo 5, shake slow → fast		
210 - 232	82 - 91	Gobo wheel rotation		
233 - 255	91 - 100	CW, slow → fast CCW, fast → slow		
11	12	0 - 255	0 - 100	Gobo Wheel 2, Position/Velocity Coarse Position (MSB), Min → Max
		0 - 2	0 - 1	Rotation velocity
		3 - 127	1 - 50	No rotation
		128 - 252	50 - 98	CCW, slow → fast
		253 - 255	99 - 100	CW, fast → slow No rotation
-	13	0 - 255	0 - 100	Gobo Wheel 2, Fine Position Fine Position (LSB), Min → Max

Set position / velocity on next channel. Fine position on ch. 13 (16-bit).

Table 3: DMX protocol

DMX channel		Start code = 0				
8-bit	16-bit	Value	Percent	Function		
12	14	0	0	Effect Wheel Selection and Macros Effect selection Open		
		1 - 175	1 - 68	Variable frost, 0 → 100%		
		176 - 183	69 - 72	Effect 1, indexed rotation		
		184 - 191	72 - 75	Effect 2, indexed rotation		
		192 - 199	75 - 78	Effect 1, continuous rotation		
		200 - 207	78 - 81	Effect 2, continuous rotation		
		208 - 215	81 - 84	Open		
				Macro selection		
				216 - 220	85 - 86	1
				221 - 225	87 - 88	2
				226 - 230	89 - 90	3
				231 - 235	91 - 92	4
				236 - 240	92 - 94	5
				241 - 245	94 - 96	6
		246 - 250	96 - 98	7		
		251 - 255	98 - 100	8		
13	15	0 - 255	0 - 100	Effect Wheel, Position / Velocity Position, Min → Max		
				Rotation velocity		
		0 - 2	0 - 1	No rotation		
		3 - 127	1 - 50	CCW, slow → fast		
		128 - 252	50 - 98	CW, fast → slow		
		253 - 255	99 - 100	No rotation		
14	16	0 - 199	0 - 78	Iris Open → closed		
		200 - 215	78 - 84	Closed		
		216 - 229	85 - 90	Pulse opening, fast → slow		
		230 - 243	90 - 95	Pulse closing, fast → slow		
		244 - 246	96 - 96	Random pulse opening, fast		
		247 - 249	97 - 98	Random pulse opening, slow		
		250 - 252	98 - 99	Random pulse closing, fast		
		253 - 255	99 - 100	Random pulse closing, slow		
15	17	0 - 255	0 - 100	Focus Infinity → near		
16	18	0 - 255	0 - 100	Zoom Flood → spot		
17	19	0 - 255	0 - 100	Pan Coarse (MSB) Left → right (128 = neutral)		
-	20	0 - 255	0 - 100	Pan Fine (LSB) Left → right		
18	21	0 - 255	0 - 100	Tilt Coarse (MSB) Up → down (128 = neutral)		
-	22	0 - 255	0 - 100	Tilt Fine (LSB) Up → down		
19	23	0 - 2	0	Pan/Tilt Speed Tracking		
		3 - 242	1 - 95	Fast → slow		
		243 - 245	95 - 96	Tracking, PTSP = SLOW (slow pan/tilt speed)		
		246 - 248	96 - 97	Tracking, PTSP = NORM (normal pan/tilt speed)		
		249 - 251	98	Tracking, PTSP = FAST (fast pan/tilt speed)		
		252 - 255	99 - 100	Blackout		
20	24	0 - 2	0 - 1	Effect Speed (Dimmer, Color, Gobos, Effects, Indexed Rotation, Iris, Focus, and Zoom) Tracking		
		3 - 239	1 - 94	Fast → slow		
		240 - 242	94 - 95	Tracking, STUd = OFF (studio mode off)		
		243 - 245	95 - 96	Tracking, STUd = ON (studio mode on)		
		246 - 248	96 - 97	Tracking, SCUT = OFF (shortcuts off)		
		249 - 251	98 - 98	Tracking, SCUT = ON (shortcuts on)		
		252 - 255	99 - 100	Fast. <i>Blackout "speed" for color wheel</i>		

Set position / velocity on next channel.

Table 3: DMX protocol