

appendix a

DMX PROTOCOL

DMX Channel				Start code = 0						
DMX1	DMX2	DMX3	DMX4	Value	Percent	Function				
<p style="text-align: center;">1</p> <p>Note: If the DMX reset (dRES) and/or DMX lamp off (dLOF) commands are turned off in the menu, they can be enabled by setting color wheel 1 to cyan 401(144-148) and color wheel 2 red 308 (157-160).</p>				0 - 19	0 - 7	Shutter closed				
				20 - 49	8 - 19	Shutter open				
				50 - 72	20 - 28	Strobe, fast→slow				
				73 - 79	29 - 31	Shutter open				
				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, see note				
				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: time > 5 seconds, see note				
				2				0 - 255	0 - 100	Dimmer Closed → open
				<p style="text-align: center;">3</p>						COLOR 1
										Continuous scroll
0 - 16	0 - 6	White → Blue 111								
16 - 32	6 - 13	Blue 111 → Red 301								
32 - 48	13 - 19	Red 301 → Magenta 507								
48 - 64	19 - 25	Magenta 507 → Green 202								
64 - 80	25 - 31	Green 202 → Yellow 604								
80 - 96	31 - 38	Yellow 604 → Purple 502								
96 - 112	38 - 44	Purple 502 → Blue 101								
112 - 128	44 - 50	Blue 101 → Pink 312								
128 - 144	50 - 56	Pink 312 → Cyan 401								
		Fixed color positions								
145 - 148	57 - 58	Cyan 401								
149 - 152	58 - 60	Pink 312								
153 - 156	60 - 61	Blue 101								
157 - 160	62 - 63	Purple 502								
161 - 164	63 - 64	Yellow 604								
165 - 168	65 - 66	Green 202								
169 - 172	66 - 67	Magenta 507								
173 - 176	68 - 69	Red 301								
177 - 180	69 - 71	Blue 111								
181 - 184	71 - 72	White								
		Continuous rotation								
185 - 215	73 - 84	CW, fast → slow								
216 - 245	85 - 96	CCW, slow → fast								
246 - 255	96 - 100	Enable alternate color functions.								

DMX Channel				Start code = 0		
DMX1	DMX2	DMX3	DMX4	Value	Percent	Function
				COLOR 2: Normal Functions		
				Continuous scroll		
				0 - 16	0 - 6	White → CTC 3200-4100
				16 - 32	6 - 13	CTC 3200-4100 → CTC 3200-5600
				32 - 48	13 - 19	CTC 3200-5600 → Blue 104
				48 - 64	19 - 25	Blue 104 → Blue 108
				64 - 80	25 - 31	Blue 108 → Green 206
				80 - 96	31 - 38	Green 206 → Red 308
				96 - 112	38 - 44	Red 308 → Yellow 603
				112 - 128	44 - 50	Yellow 603 → CTC 5500-2900
				128 - 144	50 - 56	CTC 5500-2900 → CTC 5500-4200
				Fixed color positions		
				145 - 148	57 - 58	CTC 5500-4200
				149 - 152	58 - 60	CTC 5500-2900
				153 - 156	60 - 61	Yellow 603
				157 - 160	62 - 63	Red 308
				161 - 164	63 - 64	Green 206
				165 - 168	65 - 66	Blue 108
				169 - 172	66 - 67	Blue 104
				173 - 176	68 - 69	CTC 3200-5600
				177 - 180	69 - 71	CTC 3200-4100
				181 - 184	71 - 72	White
				Continuous rotation		
				185 - 215	73 - 84	CW, fast → slow
				216 - 245	85 - 96	CCW, slow → fast
				Random color		
				246 - 248	96 - 97	Fast
				249 - 251	98 - 98	Medium
				252 - 255	99 - 100	Slow
				Alternate Functions (Channel 3 set from 246 to 255.)		
				0 - 255	0 - 100	67 different colors in following order: white, purple, pink, magenta, red, orange, yellow, green, cyan, blue, black
				Rotating Gobo Selection		
				0 - 55	0 - 22	Open gobo
				Indexing - set position on channel 6		
				56 - 75	22 - 29	Gobo 1
				76 - 95	30 - 37	Gobo 2
				96 - 115	38 - 45	Gobo 3
				116 - 135	45 - 53	Gobo 4
				136 - 155	53 - 61	Gobo 5
				Continuous rotation - set velocity on channel 6		
				156 - 175	61 - 69	Gobo 5
				176 - 195	69 - 76	Gobo 4
				196 - 215	77 - 84	Gobo 3
				216 - 235	85 - 92	Gobo 2
				236 - 255	93 - 100	Gobo 1
				Rotating Gobo Index and Rotation (Select mode and gobo on channel 5.)		
				Indexing		
				0 - 126	0 - 49	Index CCW from default
				127	50	Default index
				128 - 255	50 - 100	Index CW from default
				Continuous rotation		
				0 - 2	0 - 1	Static
				3 - 127	1 - 50	CW, slow → fast
				128 - 252	50 - 98	CCW, fast → slow
				253 - 255	99 - 100	Static

DMX Channel				Start code = 0		
DMX1	DMX2	DMX3	DMX4	Value	Percent	Function
7 gMOD = FIX				0 - 9	0 - 4	Fixed Gobos
				10 - 19	4 - 8	Fixed gobo positions
				20 - 29	8 - 11	Open gobo
				30 - 39	12 - 15	Gobo 1
				40 - 49	16 - 19	Gobo 2
				50 - 59	20 - 23	Gobo 3
				60 - 69	24 - 27	Gobo 4
				70 - 79	27 - 31	Gobo 5
				80 - 89	31 - 35	Gobo 6
				90 - 102	35 - 40	Gobo 7
						Gobo 8
						Gobo 9
						Gobo shake, fast → slow
				103 - 119	40 - 47	Gobo 9
				120 - 136	47 - 53	Gobo 8
				137 - 153	54 - 60	Gobo 7
				154 - 170	60 - 67	Gobo 6
				171 - 187	67 - 73	Gobo 5
				188 - 204	74 - 80	Gobo 4
				205 - 221	80 - 87	Gobo 3
222 - 238	87 - 93	Gobo 2				
239 - 255	94 - 100	Gobo 1				
7 gMOD = SCRL				0 - 180	0 - 70	Fixed Gobos
				0	0	Continuous scroll
				20	8	Full positions:
				40	16	Open
				60	24	Gobo 1
				80	31	Gobo 2
				100	39	Gobo 3
				120	47	Gobo 4
				140	55	Gobo 5
				160	63	Gobo 6
				180	70	Gobo 7
						Gobo 8
						Gobo 9
						Gobo shake
				181 - 183	71 - 72	Gobo 9 shake
				184 - 186	72 - 73	Gobo 8 shake
				187 - 189	73 - 74	Gobo 7 shake
				190 - 192	74 - 75	Gobo 6 shake
				193 - 195	75 - 76	Gobo 5 shake
				196 - 198	77 - 78	Gobo 4 shake
199 - 201	78 - 79	Gobo 3 shake				
202 - 204	79 - 80	Gobo 2 shake				
205 - 207	80 - 81	Gobo 1 shake				
		Continuous rotation				
208 - 231	82 - 91	CW, fast → slow				
232 - 255	92 - 100	CCW, slow → fast				
8				0 - 255	0 - 100	Focus
						Infinity → 2 meters
9				0 - 199	0 - 78	Iris
				200 - 215	78 - 84	Open → close
				216 - 229	85 - 90	Close
				230 - 243	90 - 95	Opening pulse, fast → slow
				244 - 246	96 - 96	Closing pulse, fast → slow
				247 - 249	97 - 98	Random opening pulse, fast
				250 - 252	98 - 99	Random opening pulse, slow
				253 - 255	99 - 100	Random closing pulse, fast
						Random closing pulse, slow

DMX Channel				Start code = 0		
DMX1	DMX2	DMX3	DMX4	Value	Percent	Function
10 Fixture type = prism (default)				0 - 19	0 - 7	Prism Prism out
				20 - 79	8 - 31	Prism in, CCW rotation, fast → slow
				80 - 89	31 - 35	Prism in, no rotation
				90 - 149	35 - 58	Prism in, CW rotation, slow → fast
				150 - 215	59 - 84	Prism out
				Rotating prism and gobo macros		
				216 - 220	84 - 86	Macro 1
				221 - 225	87 - 88	Macro 2
				226 - 230	89 - 90	Macro 3
				231 - 235	91 - 92	Macro 4
10 Fixture type = frost (optional)				0 - 255	0 - 100	Variable Frost No frost → full frost
11				0 - 255	0 - 100	Pan Coarse (16-bit MSB) Left → right (128 = neutral)
-	12	-	12	0 - 255	0 - 100	Pan Fine (16-bit LSB) Left → right
12	13	12	13	0 - 255	0 - 100	Tilt Coarse (16-bit MSB) Up → down (128 = neutral)
-	14	-	14	0 - 255	0 - 100	Tilt Fine (16-bit LSB) Up → down
-	-	13	15	0 - 2 3 - 245 246 - 248 249 - 251 252 - 255	0 - 1 1 - 96 96 - 97 98 - 98 99 - 100	Pan/Tilt Speed Tracking mode Fast → slow Tracking at slow speed, overrides PTSP FAST Tracking at fast speed, overrides PTSP SLOW Blackout while moving
-	-	14	16	0 - 2 3 - 245 246 - 248 249 - 251 252 - 255	0 - 1 1 - 96 96 - 97 98 - 98 99 - 100	Effects Speed Dimmer, iris, focus and gobo indexing Tracking mode Fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Maximum speed Color 1, color 2, and fixed gobo if gMod = SCRL Tracking mode Speed, fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Blackout while moving Fixed gobo if gMod = FIX Normal (as set on effect channel), no blackout Normal, shortcuts disabled, overrides SCUT ON Normal, shortcuts enabled, overrides SCUT OFF Blackout while moving Rotating gobo and prism Normal (as set on effect channel), no blackout Blackout while moving Gobo shake speed if gMod = SCRL Fast Speed, fast → slow Fast
-	-	14	16	0 - 2 3 - 245 246 - 248 249 - 251 252 - 255	0 - 1 1 - 96 96 - 97 98 - 98 99 - 100	Effects Speed Dimmer, iris, focus and gobo indexing Tracking mode Fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Maximum speed Color 1, color 2, and fixed gobo if gMod = SCRL Tracking mode Speed, fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Blackout while moving Fixed gobo if gMod = FIX Normal (as set on effect channel), no blackout Normal, shortcuts disabled, overrides SCUT ON Normal, shortcuts enabled, overrides SCUT OFF Blackout while moving Rotating gobo and prism Normal (as set on effect channel), no blackout Blackout while moving Gobo shake speed if gMod = SCRL Fast Speed, fast → slow Fast
-	-	14	16	0 - 2 3 - 245 246 - 248 249 - 251 252 - 255	0 - 1 1 - 96 96 - 97 98 - 98 99 - 100	Effects Speed Dimmer, iris, focus and gobo indexing Tracking mode Fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Maximum speed Color 1, color 2, and fixed gobo if gMod = SCRL Tracking mode Speed, fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Blackout while moving Fixed gobo if gMod = FIX Normal (as set on effect channel), no blackout Normal, shortcuts disabled, overrides SCUT ON Normal, shortcuts enabled, overrides SCUT OFF Blackout while moving Rotating gobo and prism Normal (as set on effect channel), no blackout Blackout while moving Gobo shake speed if gMod = SCRL Fast Speed, fast → slow Fast
-	-	14	16	0 - 2 3 - 245 246 - 248 249 - 251 252 - 255	0 - 1 1 - 96 96 - 97 98 - 98 99 - 100	Effects Speed Dimmer, iris, focus and gobo indexing Tracking mode Fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Maximum speed Color 1, color 2, and fixed gobo if gMod = SCRL Tracking mode Speed, fast → slow Tracking with shortcuts disabled, overrides SCUT ON Tracking with shortcuts enabled, overrides SCUT OFF Blackout while moving Fixed gobo if gMod = FIX Normal (as set on effect channel), no blackout Normal, shortcuts disabled, overrides SCUT ON Normal, shortcuts enabled, overrides SCUT OFF Blackout while moving Rotating gobo and prism Normal (as set on effect channel), no blackout Blackout while moving Gobo shake speed if gMod = SCRL Fast Speed, fast → slow Fast