

DMX protocol

Applicable when running MAC Viper Performance firmware version: 1.0.0

Basic Mode	16-bit Mode	DMX Value	Percent	Function	Fade type	Default value	
1	1	0 - 19	0 - 7	Strobe/shutter Shutter closed (Lamp switches to 800 watt mode after shutter is closed for 10 seconds)	Snap	30	
		20 - 49	8 - 19	Shutter open			
		50 - 200	20 - 78	Strobe, slow → fast			
		201 - 210	79 - 82	Shutter open			
		211 - 255	82 - 100	Random strobe, slow → fast			
2	2	0 - 65535	0 - 100	Dimmer fade (MSB) Closed → open	Fade	0	
	3			Dimmer fade, fine (LSB)	Fade	0	
3	4	0 - 255	0 - 100	Cyan White → full cyan	Fade	0	
4	5	0 - 255	0 - 100	Magenta White → full magenta	Fade	0	
5	6	0 - 255	0 - 100	Yellow White → full yellow	Fade	0	
6	7	0 - 255	0 - 100	CTO Open (6000 K) → warm (3200 K)	Fade	0	
7	8	Color Wheel				Snap	0
		<i>Continuous Scroll</i>					
		0	0	Open			
		1 - 14	1 - 5	Open → Slot 1			
		15	6	Slot 1			
		16 - 29	6 - 11	Slot 1 → Slot 2			
		30	12	Slot 2			
		31 - 44	12 - 17	Slot 2 → Slot 3			
		45	18	Slot 3			
		46 - 59	18 - 23	Slot 3 → Slot 4			
		60	23	Slot 4			
		61 - 74	24 - 29	Slot 4 → Slot 5			
		75	29	Slot 5			
		76 - 89	30 - 35	Slot 5 → Slot 6			
		90	35	Slot 6			
		91 - 104	36 - 41	Slot 6 → Slot 7			
		105	41	Slot 7			
		106 - 119	41 - 46	Slot 7 → Open			
		120 - 160	47 - 63	Open			
		<i>Stepped Scroll (snap to full color positions)</i>					
		161 - 163	63 - 64	Slot 1			
		164 - 166	64 - 65	Slot 2			
		167 - 169	65 - 66	Slot 3			
		170 - 172	66 - 67	Slot 4			
		173 - 175	68	Slot 5			
		176 - 178	69 - 70	Slot 6			
		179 - 181	70 - 71	Slot 7			
182 - 192	71 - 75	Open					
<i>Continuous Rotation</i>							
193 - 214	75 - 84	CW, Fast → Slow					
215 - 221	84 - 86	Stop (This will stop the color wheel wherever it is at the time)					
222 - 243	87 - 95	CCW, Slow → Fast					
<i>Random color</i>							
244 - 247	95 - 96	Fast					
248 - 251	97 - 98	Medium					
252 - 255	98 - 100	Slow					

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8	9	0 - 9	0 - 4	Gobo selection, indexing, shake, rotation <i>Indexed gobo: set indexed angle on channels 9/10 (16-bit) or 10/11 (16-bit ext.)</i> Open	Snap	0
		10 - 14	4 - 5	Gobo 1		
		15 - 19	5 - 8	Gobo 2		
		20 - 24	8 - 10	Gobo 3		
		25 - 29	10 - 12	Gobo 4		
		30 - 34	12 - 13	Gobo 5		
		35 - 39	14 - 16	<i>Continuous gobo rotation: set gobo rotation speed on channels 9/10 (16-bit) or 10/11 (16-bit ext.)</i> Gobo 1		
		40 - 44	16 - 17	Gobo 2		
		45 - 49	18 - 19	Gobo 3		
		50 - 54	20 - 21	Gobo 4		
		55 - 59	21 - 23	Gobo 5		
		60 - 89	23 - 35	<i>Gobo shake centered on indexed position: set indexed angle on channels 9/10 (16-bit) or 10/11 (16-bit ext.). Shake angle increments in following steps: 10°, 15°, 30°, 45°, 60°, 90°, 135°, 180°, 270° and 360°</i> Gobo 1, 360° slow → 10° fast		
		90 - 119	35 - 46	Gobo 2, 360° slow → 10° fast		
		120 - 149	47 - 58	Gobo 3, 360° slow → 10° fast		
150 - 179	59 - 70	Gobo 4, 360° slow → 10° fast				
180 - 209	70 - 82	Gobo 5, 360° slow → 10° fast				
210 - 232	82 - 91	<i>Continuous gobo wheel scroll with continuous gobo rotation: set gobo rotation speed on channels 9/10 (16-bit) or 10/11 (16-bit extended)</i> CW gobo wheel scroll, fast → slow				
233 - 255	91 - 100	CCW gobo wheel scroll, slow* → fast				
9	10	0 - 65535	0 - 100	Gobo indexing angle, rotation speed (16-bit fine, MSB and LSB) <i>If indexed gobo is selected on channel 8 (16-bit) or 9 (16-bit ext.)</i> Gobo indexing, -197.5° → +197.5° (default DMX value 32768 sets gobo to 0°) <i>If continuous gobo rotation is selected on channel 8 (16-bit) or 9 (16-bit ext.)</i>	Fade	32768
				0 - 600		
10	11	601 - 32130	1 - 49	CW, fast → slow		
		32131 - 32895	49 - 50	No gobo rotation, gobo stops at current position		
		32896 - 64515	50 - 99	CCW, slow → fast		
		64516 - 65535	100	No gobo rotation, gobo indexed at 90°		
11	12	0 - 10	0 - 4	Animation wheel rotation Open	Snap	0
		11 - 20	4 - 8	Indexed (set indexing angle on channel 12/13)		
		21 - 30	8 - 12	Open		
		31 - 40	12 - 16	Continuous rotation (set rotation speed and directions on channel 12/13)		
		41 - 50	16 - 20	Position 1		
		51 - 60	20 - 23	Position 2		
		61 - 70	24 - 27	Position 3		
		71 - 80	28 - 31	Position 4		
		81 - 90	32 - 35	Position 5		
		91 - 100	36 - 39	Position 6		
		101 - 110	39 - 43	Position 7		
111 - 255	43 - 100	Open				
12	13	0 - 255	0 - 100	Animation wheel indexed angle, rotation speed and direction <i>If indexing is selected on channel 11/12</i> Indexed angle	Snap	127
		0 - 2	0 - 1	<i>If continuous rotation is selected on channel 11/12</i> Stop, indexed at 0°		
		3 - 126	1 - 49	CW rotation, fast → slow		
		127 - 129	50	Stop, wheel stops at its current position		
		130 - 253	51 - 99	CCW rotation, fast → slow		
		254 - 255	99 - 100	Stop, indexed at 90°		

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13	14	0 - 255	0 - 100	Framing blade 1, position Out → in	Fade	0
14	15	0 - 126 127 - 128 129 - 255	0 - 49 50 51 - 100	Framing blade 1, angle Angle – Parallel Angle +	Fade	127
15	16	0 - 255	0 - 100	Framing blade 2, position Out → in	Snap	0
16	17	0 - 126 127 - 128 129 - 255	0 - 49 50 51 - 100	Framing blade 2, angle Angle – Parallel Angle +	Fade	127
17	18	0 - 255	0 - 100	Framing blade 3, position Out → in	Fade	0
18	19	0 - 126 127 - 128 129 - 255	0 - 49 50 51 - 100	Framing blade 3, angle Angle – Parallel Angle +	Fade	127
19	20	0 - 255	0 - 100	Framing blade 4, position Out → in	Fade	0
20	21	0 - 126 127 - 128 129 - 255	0 - 49 50 51 - 100	Framing blade 4, angle Angle – Parallel Angle +	Fade	127
21	22	0 - 126 127 - 128 129 - 255	0 - 49 50 51 - 100	Frame indexing angle Minimum (-55°) 0° Maximum (+55°)	Fade	127
22	23	0 - 255	0 - 100	Frost No frost → Full frost	Fade	0
23	24	0 - 10 11 - 138 139 - 255	0 - 4 4 - 54 54 - 100	Prism Prism off Prism indexing: set angle on ch. 24 (16-bit) or 25 (16-bit ext.) Prism rotation: set direction and speed on ch. 24 (16-bit) or 25 (16-bit ext.)	Snap	0
24	25	0 - 126 128 129 - 255 0 - 2 3 - 126 127 - 129 130 - 253 254 - 255	0 - 49 50 51 - 100 0 1 - 50 51 52 - 99 100	Prism indexing angle, rotation speed and direction <i>If prism indexing is selected on channel 23 (16-bit) or 24 (16-bit ext.):</i> Angle – 0° Angle + <i>If prism rotation is selected on channel 23 (16-bit) or 24 (16-bit ext.):</i> Prism stop, indexed at 0° CW rotation, fast → slow Prism stop at its current position CCW rotation, slow → fast Prism stop, indexed at 45°	Fade	128
25	26	0 - 255	0 - 100	Iris Open → closed	Fade	0
26	27	0 - 65535	0 - 100	Zoom, 16-bit (MSB and LSB) Flood → spot	Fade	32768
	28					
27	29	0 - 65535	0 - 100	Focus, 16-bit (MSB and LSB) Infinity → near	Fade	32768
	30					
28	31	0 - 65535	0 - 100	Pan, 16-bit (MSB and LSB) Left → right (32768 = neutral)	Fade	32768
29	32					
30	33	0 - 65535	0 - 100	Tilt, 16-bit (MSB and LSB) Up → down (32768 = neutral)	Fade	32768
31	34					

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32	35			Fixture control/settings (hold for number of seconds indicated to activate)				
		0 - 9	0 - 4	No function (disables calibration) – 5 sec.				
		10 - 14	4 - 5	Reset entire fixture – 5 sec.				
		15 - 19	6 - 7	Reset dimmer and shutter only – 5 sec.				
		20 - 24	8 - 9	Reset CMY, CTO and color wheel only – 5 sec.				
		25 - 29	10 - 11	Reset effects (gobo and animation wheels, iris, prism, frost, zoom, focus) only – 5 sec.				
		30 - 34	12 - 13	Reset pan and tilt only – 5 sec.				
		35 - 39	14 - 15	Reset framing – 5 sec.				
		40 - 44	16 - 17	Lamp on				
		45 - 49	18 - 19	Lamp off – 5 sec.				
		50 - 54	20 - 21	No function				
		55 - 59	21 - 23	Enable calibration – 5 sec.				
		60 - 64	23 - 25	Linear dimming curve – 1 sec. (menu override, setting unaffected by power off/on)				
		65 - 69	25 - 27	Square law dimming curve – 1 sec. (menu override, factory default setting, setting unaffected by power off/on)				
		70 - 74	28 - 29	Inverse square law dimming curve – 1 sec. (menu override, setting unaffected by power off/on)				
		75 - 79	29 - 31	S-curve dimming curve – 1 sec. (menu override, setting unaffected by power off/on)				
		80 - 84	32 - 33	Normal pan and tilt speed – 1 sec. (menu override - setting returns to MENU setting after power on/off)				
		85 - 89	34 - 35	Fast pan and tilt speed – 1 sec. (default setting, menu override - setting returns to MENU setting after power on/off)				
		90 - 94	35 - 37	Slow pan and tilt speed – 1 sec. (menu override - setting returns to MENU setting after power on/off)				
		95 - 99	37 - 39	Effect shortcuts = ON – 1 sec. (default setting, menu override, setting stays at factory default ON at power off/on)				
				100 - 104	39 - 41	Effect shortcuts = OFF – 1 sec. (menu override, setting returns to factory default ON at power off/on)	Snap	0
				105 - 109	41 - 43	Disable zoom/focus linking – 1 sec.		
				110 - 114	43 - 45	Enable zoom/focus linking, near distance – 1 sec.		
				115 - 119	45 - 46	Enable zoom/focus linking, medium distance (default setting) – 1 sec.		
				120 - 124	47 - 48	Enable zoom/focus linking, far distance – 1 sec.		
				125 - 126	49	Ballast output full, set to 100% (default setting)		
				127 - 128	50	Ballast output reduced to 90%		
				129 - 130	50 - 51	Ballast output reduced to 80%		
				131 - 132	51 - 52	Ballast output reduced to 70%		
				133 - 134	52	Ballast output reduced to 60%		
				135 - 144	53 - 56	No function		
				145 - 149	57 - 58	Auto blackout = ON – 1 sec.		
				150 - 154	59 - 60	Auto blackout = OFF – 1 sec. (default setting)		
				155 - 159	61 - 62	Turn on display – 1 sec.		
				160 - 164	62 - 63	Turn off display – 1 sec.		
				165 - 169	64 - 66	Store pan and tilt calibration – 5 sec.		
				170 - 174	66 - 68	Store dimmer calibration – 5 sec.		
				175 - 179	68 - 70	Store cyan calibration – 5 sec.		
				180 - 184	70 - 72	Store magenta calibration – 5 sec.		
				185 - 189	72 - 74	Store yellow calibration – 5 sec.		
				190 - 194	74 - 76	Store CTC calibration – 5 sec.		
				195 - 199	76 - 78	Store all CMY and CTC calibration – 5 sec.		
				200 - 204	78 - 80	Store gobo wheel current slot index calibration – 5 sec.		
				205 - 214	80 - 84	No function		
				215 - 219	84 - 86	Store prism calibration – 5 sec.		
				220 - 224	86 - 88	Store iris calibration – 5 sec.		
				225 - 229	88 - 89	Store focus calibration – 5 sec.		
		230 - 234	90 - 91	Store zoom calibration – 5 sec.				
		235 - 239	92 - 93	Store pan calibration – 5 sec.				
		240 - 244	94 - 95	Store tilt calibration – 5 sec.				
		245 - 249	96 - 97	Reset all calibration values to factory defaults – 5 sec.				
		250 - 255	98 - 100	No function				
-	36			Reserved for future use				
-	37			Reserved for future use				

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-	38			Reserved for future use		
-	39			Reserved for future use		
-	40			Reserved for future use		

Table 1: DMX Protocol

MSB = Most significant byte

LSB = Least significant byte