

MAC III AirFX DMX protocol

Firmware version 1.1.0

DMX channel	DMX value	Percent	Function	Fade type	Default value
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 - 64	20 - 25	Strobe, fast → slow		
	65 - 69	26 - 27	Shutter open		
	70 - 84	28 - 33	Opening pulse, fast → slow		
	85 - 89	34 - 35	Shutter open		
	90 - 104	36 - 41	Closing pulse, fast → slow		
	105 - 109	42 - 43	Shutter open		
	110 - 124	44 - 49	Random strobe, fast → slow		
	125 - 129	50 - 51	Shutter open		
	130 - 144	52 - 57	Random opening pulse, fast → slow		
	145 - 149	58 - 59	Shutter open		
	150 - 164	60 - 65	Random closing pulse, fast → slow		
	165 - 169	66 - 67	Shutter open		
	170 - 184	68 - 73	Burst pulse, fast → slow		
	185 - 189	74 - 75	Shutter open		
	190 - 204	76 - 81	Random burst pulse, fast → slow		
	205 - 209	82 - 83	Shutter open		
210 - 224	84 - 89	Electronic sine wave strobe, fast → slow			
225 - 229	90 - 91	Shutter open			
230 - 244	92 - 97	Electronic burst strobe, fast → slow			
245 - 255	98 - 100	Shutter open			
2	0 - 65535	0 - 100	Dimmer fade (MSB/LSB)	Fade	0
3			Closed → open		
4	0 - 255	0 - 100	Cyan White → full cyan	Fade	0
	0	0	Cyan range in random CMY color when random CMY selected on channel 9 Normal (full range)		
	1 - 127	1 - 50	Minimum cyan setting (127 = full cyan)		
	128 - 254	51 - 99	Maximum cyan setting (128 = no cyan)		
	255	100	Normal (full range)		
5	0 - 255	0 - 100	Magenta White → full magenta	Fade	0
	0	0	Magenta range in random CMY color when random CMY selected on channel 9 Normal (full range)		
	1 - 127	1 - 50	Minimum magenta setting (127 = full magenta)		
	128 - 254	51 - 99	Maximum magenta setting (128 = no magenta)		
	255	100	Normal (full range)		
6	0 - 255	0 - 100	Yellow White → full yellow	Fade	0
	0	0	Yellow range in random CMY color when random CMY selected on channel 9 Normal (full range)		
	1 - 127	1 - 50	Minimum yellow setting (127 = full yellow)		
	128 - 254	51 - 99	Maximum yellow setting (128 = no yellow)		
	255	100	Normal (full range)		
7	0 - 255	0 - 100	CTO Open (6000 K) → warm (3200 K)	Fade	0

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8			Color Wheel	Snap	0
			<i>Continuous Scroll</i>		
	0	0	Open		
	1 - 19	1 - 7	Open → Slot 1 - Blue		
	20	8	Slot 1		
	21 - 39	9 - 15	Slot 1 → Slot 2 - Green		
	40	16	Slot 2		
	41 - 59	17 - 23	Slot 2 → Slot 3 - Orange		
	60	24	Slot 3		
	61 - 79	25 - 31	Slot 3 → Slot 4 - Minus green		
	80	32	Slot 4		
	81 - 99	33 - 39	Slot 4 → Slot 5 - Yellow		
	100	40	Slot 5		
	101 - 119	41 - 47	Slot 5 → Slot 6 - Deep blue (Congo)		
	120	48	Slot 6		
	121 - 139	49 - 55	Slot 6 → Slot 7 - Red		
	140	56	Slot 7		
	141 - 159	57 - 63	Slot 7 → Open		
	160	64	Open		
			<i>Stepped Scroll (snap to full color positions)</i>		
	161 - 164	65 - 66	Slot 7 - Red		
	165 - 168	67 - 68	Slot 6 - Deep blue (Congo)		
	169 - 172	69 - 70	Slot 5 - Yellow		
	173 - 176	71 - 72	Slot 4 - Minus green		
	177 - 180	73 - 74	Slot 3 - Orange		
	181 - 184	75 - 76	Slot 2 - Green		
	185 - 188	77 - 78	Slot 1 - Blue		
189 - 192	79 - 80	Open			
		<i>Continuous Rotation</i>			
193 - 214	81 - 86	CW, Fast → Slow			
215 - 221	87 - 88	Stop (This will stop wherever the wheel is at the time)			
222 - 243	89 - 94	CCW, Slow → Fast			
		<i>Random color</i>			
244 - 247	95 - 96	Fast			
248 - 251	97 - 98	Medium			
252 - 255	99 - 100	Slow			
9	0 - 18	0 - 6	Color shake/ random CMY	Snap	0
			<i>No function</i> (Note: use DMX value 005 - 010 when setting calibration values on channel 22)		
	19 - 57	7 - 22	Color wheel: fast narrow shake → slow wide shake, around currently selected color		
			<i>Random CMY: set min./ max. CMY range limits on channels 4 - 6</i>		
	58 - 83	23 - 32	Fast		
	84 - 109	33 - 42	Medium		
	110 - 135	43 - 52	Slow		
136 - 255	53 - 100	<i>No function</i>			

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DMX channel	DMX value	Percent	Function	Fade type	Default value	
10	0 - 9	0 - 4	Aerial FX selection, indexing, rotation, shake <i>Indexed aerial effect gobo selection: set indexed angle on channel 11</i> Open	Snap	0	
	10 - 14	4 - 5				Slot 1 - Eyeball
	15 - 19	5 - 8				Slot 2 - Cut Box
	20 - 24	8 - 10				Slot 3 - Organic Delight
	25 - 29	10 - 12	Slot 4 - Four Dots			
	30 - 34	12 - 14	<i>Continuous gobo rotation: set gobo rotation direction and speed on channel 11</i> Slot 1 - Eyeball			
	35 - 39	14 - 16				Slot 2 - Cut Box
	40 - 44	16 - 18				Slot 3 - Organic Delight
	45 - 49	18 - 20				Slot 4 - Four Dots
	50 - 79	20 - 31	<i>Gobo shake centered on indexed position: set indexed position on channel 11. Shake speed increases as shake angle decreases. Angle increments in following steps: 10°, 15°, 30°, 45°, 60°, 90°, 135°, 180°, 270° and 360°</i> Slot 1 - Eyeball, 360° slow → 10° fast shake			
80 - 109	31 - 43	Slot 2 - Cut Box, 360° slow → 10° fast shake				
110 - 139	43 - 54	Slot 3 - Organic Delight, 360° slow → 10° fast shake				
140 - 169	55 - 66	Slot 4 - Four Dots, 360° slow → 10° fast shake				
170 - 212	66 - 83	<i>Continuous aerial FX wheel scroll with continuous gobo rotation: set gobo rotation direction and speed on channel 11</i> CW aerial FX wheel scroll, fast → slow*				
213 - 255	83 - 100		CCW aerial FX wheel scroll, slow* → fast			
			<i>*If gobo crossfading is enabled in control menu (PERSONALITY → GOBO X-FADE), slow = 5% speed. If gobo crossfading is disabled, slow = 30% speed</i>			
11	0 - 255	0 - 100	Aerial FX gobo indexing, rotation direction and speed (MSB) <i>If indexed gobo (static or shake) is selected on channel 10</i> Gobo indexing, 0 → 395°	Fade	128	
	0 - 2	0	<i>If continuous gobo rotation is selected on channel 10</i> No gobo rotation			
	3 - 126	1 - 50	CW gobo rotation, fast → slow			
	127 - 129	51	No gobo rotation			
	130 - 253	52 - 99	CCW gobo rotation, slow → fast			
	254 - 255	100	No gobo rotation			
12	0 - 255	0 - 100	Aerial FX gobo indexing or rotation speed, fine (LSB) <i>If indexed gobo (static or shake) is selected on channel 10</i> Gobo indexing, fine	Fade	128	
	0 - 255	0 - 100	<i>If continuous gobo rotation is selected on channel 10</i> Gobo rotation speed, fine			
13	0 - 199	0 - 77	Iris Open → closed	Fade	0	
	200 - 215	78 - 84				Closed
	216 - 229	85 - 89				Opening pulse, fast → slow
	230 - 243	90 - 94				Closing pulse, fast → slow
	244 - 249	95 - 97				Random opening pulse, fast → slow
	250 - 255	98 - 100				Random closing pulse, fast → slow
14	0 - 255	0 - 100	Wash effect No wash → full wash (Note: use DMX value 030 when resetting pan and tilt limits on channel 22)	Fade	0	
15	0 - 255	0 - 100	Focus Infinity → near	Fade	128	
16	0 - 255	0 - 100	Zoom Flood → spot	Fade	128	
17	0 - 65535	0 - 100	Pan (MSB/LSB)	Fade	32768	
18			Left → right			
19	0 - 65535	0 - 100	Tilt (MSB/LSB)	Fade	32768	
20			Left → right			

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DMX channel	DMX value	Percent	Function	Fade type	Default value
21	0 - 9	0 - 4	Fixture control/settings <i>No function</i>	Snap	0
	10 - 14	4 - 5	Reset entire fixture ⁽¹⁾		
	15 - 19	6 - 7	Reset dimmer and shutter only ⁽¹⁾		
	20 - 24	8 - 9	Reset CMYC and color wheel only ⁽¹⁾		
	25 - 29	10 - 11	Reset FX module only ⁽¹⁾		
	30 - 34	12 - 13	Reset zoom and focus only ⁽¹⁾		
	35 - 39	14 - 15	Reset pan and tilt only ⁽¹⁾		
	40 - 44	16 - 17	<i>No function</i>		
	45 - 49	18 - 19	Lamp on		
	50 - 54	20 - 21	Lamp off ^(1, 2)		
	55 - 59	21 - 23	<i>No function</i> (Note: this value is used for managing pan/tilt limits and storing calibration values on channel 22)		
	60 - 64	23 - 25	Dimmer curve = Optically linear (menu override, unaffected by power off/on) ⁽²⁾		
	65 - 69	26 - 27	Dimmer curve = Square law (menu override, factory default setting, unaffected by power off/on) ⁽²⁾		
	70 - 74	27 - 29	Dimmer curve = Inverse square law (menu override, unaffected by power off/on) ⁽²⁾		
	75 - 79	29 - 31	Dimmer curve = S-curve (menu override, unaffected by power off/on) ⁽²⁾		
	80 - 84	31 - 33	<i>No function</i>		
	85 - 89	34 - 35	Pan & tilt speed = Normal (menu override, but returns to control menu setting after power off/on) ⁽²⁾		
	90 - 94	35 - 37	Pan & tilt speed = Fast (menu override, but returns to control menu setting after power off/on) ⁽²⁾		
	95 - 99	37 - 39	Pan & tilt speed = Slow (menu override, but returns to control menu setting after power off/on) ⁽²⁾		
	100 - 139	39 - 54	<i>No function</i>		
	140 - 144	55 - 56	Parameter shortcuts = On (menu override, stays at factory default setting On after power off/on) ⁽²⁾		
	145 - 149	57 - 58	Parameter shortcuts = Off (menu override, but returns to factory default setting On after power off/on) ⁽²⁾		
	150 - 154	59 - 60	<i>No function</i>		
	155 - 159	61 - 62	Disable zoom/focus linking ⁽²⁾		
	160 - 164	63 - 64	Enable zoom/focus linking, near distance ⁽²⁾		
	165 - 169	64 - 66	Enable zoom/focus linking, medium distance (factory default setting) ⁽²⁾		
	170 - 174	66 - 68	Enable zoom/focus linking, far distance ⁽²⁾		
	175 - 194	68 - 76	<i>No function</i>		
	195 - 199	76 - 78	Ballast output set to 100%		
	200 - 204	78 - 80	Ballast output reduced, set to 90%		
	205 - 209	80 - 82	Ballast output reduced, set to 80%		
	210 - 214	82 - 84	Ballast output reduced, set to 70%		
	215 - 219	84 - 86	Ballast output reduced, set to 60%		
220 - 234	86 - 91	<i>No function</i>			
235 - 239	92 - 93	Illuminate display on fixture ⁽²⁾			
240 - 244	94 - 95	Turn off display on fixture			
245 - 255	96 - 100	<i>No function</i>			
		⁽¹⁾ If DMX Reset or DMX Lamp Off are disabled in the control menus, a full or partial reset command or a lamp off command can be executed only if Slot 1 is selected on the color wheel (DMX value 20 on channel 8)			
		⁽²⁾ Value must be held for 5 seconds to activate			

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22	0 - 39	0 - 15	Fixture adjustments/calibration (menu override) <i>No function</i>	Snap	0
	40 - 44	16 - 17	Enable pan/tilt limitation ⁽⁴⁾		
	45 - 49	18 - 19	<i>No function</i>		
	50 - 54	20 - 21	Disable pan/tilt limitation ⁽⁴⁾		
	55 - 59	21 - 23	<i>No function</i>		
	60 - 64	23 - 25	Set pan/tilt limit: head must stay inside defined limits (create safe zone) ⁽⁴⁾		
	65 - 69	25 - 27	<i>No function</i>		
	70 - 74	27 - 29	Set pan/tilt limit: head must stay outside defined limits (create no-go zone) ⁽⁴⁾		
	75 - 79	29 - 31	<i>No function</i>		
	80 - 84	31 - 33	Store current pan position as lower pan limit ⁽⁴⁾		
	85 - 89	33 - 35	Store current pan position as upper pan limit ⁽⁴⁾		
	90 - 94	35 - 37	<i>No function</i>		
	95 - 99	37 - 39	Store current tilt position as lower tilt limit ⁽⁴⁾		
	100 - 104	39 - 41	Store current tilt position as upper tilt limit ⁽⁴⁾		
	105 - 109	41 - 43	<i>No function</i>		
	110 - 114	43 - 45	Reset pan and tilt limits ⁽³⁾		
	115 - 124	45 - 48	<i>No function</i>		
	125 - 129	49 - 50	Store dimmer calibration ⁽⁴⁾		
	130 - 134	51 - 52	Store cyan calibration ⁽⁴⁾		
	135 - 139	53 - 54	Store magenta calibration ⁽⁴⁾		
	140 - 144	55 - 56	Store yellow calibration ⁽⁴⁾		
	145 - 149	57 - 58	Store CTC calibration ⁽⁴⁾		
	150 - 154	59 - 60	Store CMYC calibration ⁽⁴⁾		
	155 - 159	61 - 62	Store AirFX gobo wheel slots calibration ⁽⁴⁾		
	160 - 214	63 - 84	<i>No function</i>		
	215 - 219	84 - 86	Store iris calibration ⁽⁴⁾		
	220 - 224	86 - 88	Store focus calibration ⁽⁴⁾		
	225 - 229	88 - 89	Store zoom calibration ⁽⁴⁾		
	230 - 234	90 - 91	Store pan calibration ⁽⁴⁾		
	235 - 239	92 - 93	Store tilt calibration ⁽⁴⁾		
	240 - 244	94 - 95	<i>No function</i>		
245 - 249	96 - 97	Reset all calibrations to factory default ⁽⁴⁾			
250 - 255	98 - 100	<i>No function</i>			
		⁽³⁾ To activate:			
		• Value must be held for 5 seconds			
		• The CMY channels 4, 5 and 6 must all be set to DMX value 232			
		• The wash effect channel 14 must be set to DMX value 030.			
		⁽⁴⁾ To activate:			
		• Value must be held for 5 seconds			
		• Shake and Random CMY channel 9 must be set to DMX value 005 - 010			
		• Fixture control channel 21 must be set to DMX value 055 - 059.			

Table 2: MAC III AirFX DMX Protocol

MSB = Most significant byte

LSB = Least significant byte