MAC III Profile DMX protocol

Applicable when running firmware version: 1.7.0

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function
				Strobe/shutter
		0 - 19	0 - 7	Shutter closed (Lamp Switches to 800 watt mode after shutter is closed for 10 seconds)
		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
1	**1**	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	**2**	0 - 255	0 - 100	**Dimmer fade (MSB)** Closed → open
-	**3**	0 - 255	0 - 100	**Dimmer fade, fine (LSB)**
		0 - 255	0 - 100	**Cyan** White → full cyan
3	**4**			**Cyan range in random CMY color** when random CMY selected on channel 14 (16-bit) or 15 (16-bit extended)
		0	0	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)
		0 - 255	0 - 100	**Magenta** White → full magenta
4	**5**			**Magenta range in random CMY color** when random CMY selected on channel 14 (16-bit) or 15 (16-bit extended)
		0	0	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)
		0 - 255	0 - 100	**Yellow** White → full yellow
5	**6**			**Yellow range in random CMY color** when random CMY selected on channel 14 (16-bit) or 15 (16-bit extended)
		0	0	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)
6	**7**	0 - 255	0 - 100	**CTO** Open (6000 K) → warm (3200 K)

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function
				Color Wheel
				Continuous Scroll
		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 - Congo (deep blue)
		120	48	Slot 6
		121 - 139	49 - 55	Slot 6 → Slot 7 - Red
		140	56	Slot 7
		141 - 159	57 - 63	Slot 7 → Open
7	**8**	160	64	Open
				Stepped Scroll (snap to full color positions)
		161 - 164	65 - 66	Slot 7 - Red
		165 - 168	67 - 68	Slot 6 - Congo (deep blue)
		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
				Continuous Rotation
		193 - 214	81 - 86	CW, Fast → Slow
		215 - 221	87 - 88	Stop (This will stop wherever the color wheel is at the time)
		222 - 243	89 - 94	CCW, Slow → Fast
				Random color
		244 - 247	95 - 96	Fast
		248 - 251	97 - 98	Medium
		252 - 255	99 - 100	Slow
				Gobo wheel 1: gobo selection, indexing, shake, rotation
				Indexed gobo: set indexed angle on channel 9 (16-bit) or 10 (16-bit ext.)
		0 - 9	0 - 4	Open
		10 - 14	4 - 5	Gobo 1 - 4-D cone
		15 - 19	5 - 8	Gobo 2 - 5 circles in line
		20 - 24	8 - 10	Gobo 3 - Snow storm
		25 - 29	10 - 12	Gobo 4 - Spikes
		30 - 34	12 - 14	Gobo 5 - Pin wheel
				Continuous gobo rotation: set gobo rotation speed on channel 9 (16-bit) or 10 (16-bit ext.)
		35 - 39	14 - 16	Gobo 1 - 4-D cone
		40 - 44	16 - 18	Gobo 2 - 5 circles in line
		45 - 49	18 - 20	Gobo 3 - Snow storm
		50 - 54	20 - 22	Gobo 4 - Spikes
8	**9**	55 - 59	22 - 24	Gobo 5 - Pin wheel
				Gobo shake centered on indexed position: set indexed angle on channel 9 (16-bit) or 10 (16-bit ext.). Shake angle increments in following steps: 10°, 15°, 30°, 45°, 60°, 90°, 135°, 180°, 270° and 360°
		60 - 89	24 - 34	Gobo 1 - 4-D cone, 360° slow → 10° fast
		90 - 119	35 - 45	Gobo 2 - 5 circles in line, 360° slow → 10° fast
		120 - 149	46 - 56	Gobo 3 - Snow storm, 360° slow → 10° fast
		150 - 179	57 - 67	Gobo 4 - Spikes, 360° slow → 10° fast
		180 - 209	68 - 78	Gobo 5 - Pin wheel, 360° slow → 10° fast
				Continuous gobo wheel scroll with continuous gobo rotation: set gobo rotation speed on channel 9 (16-bit) or 10 (16-bit extended)
		210 - 232	79 - 89	CW gobo wheel scroll, fast → slow*
		233 - 255	90 - 100	CCW gobo wheel scroll, slow* → fast
				**If gobo crossfading is enabled in control menu (PERSONALITY → GOBO X-FADE), slow = 5% speed. If gobo crossfading is disabled, slow = 30% speed*

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function
				Gobo wheel 1: gobo indexing, direction, speed (MSB)
				If indexed gobo is selected on channel 8 (16-bit) or 9 (16-bit ext.)
		0 - 255	0 - 100	Gobo indexing, 0 → 395°
				If continuous gobo rotation is selected on channel 8 (16-bit) or 9 (16-bit ext.)
9	**10**	0 - 2	0	No gobo rotation
		3 - 126	1 - 50	CW, fast → slow
		127 - 129	51	No gobo rotation
		130 - 253	52 - 99	CCW, slow → fast
		254 - 255	100	No gobo rotation
				Gobo wheel 1: gobo fine indexing or rotation speed (LSB)
				If indexed gobo is selected on channel 8 (16-bit) or 9 (16-bit ext.)
10	**11**	0 - 255	0 - 100	Gobo indexing, fine
				If continuous gobo rotation is selected on channel 8 (16-bit) or 9 (16-bit ext.)
		0 - 255	0 - 100	Gobo rotation speed, fine
				Gobo wheel 2: gobo selection, indexing, shake, rotation
				Indexed gobo: set indexed angle on channel 12 (16-bit) or 13 (16-bit ext.)
		0 - 9	0 - 4	Open
		10 - 14	4 - 5	Gobo 1 - Lasercone single
		15 - 19	5 - 8	Gobo 2 - Mikado
		20 - 24	8 - 10	Gobo 3 - Limbo/Crystal
		25 - 29	10 - 12	Gobo 4 - Cloud flames
		30 - 34	12 - 14	Gobo 5 - Gridlock
				Continuous gobo rotation: set gobo rotation speed on channel 12 (16-bit) or 13 (16-bit ext.)
		35 - 39	14 - 16	Gobo 1 - Lasercone single
		40 - 44	16 - 18	Gobo 2 - Mikado
		45 - 49	18 - 20	Gobo 3 - Limbo/Crystal
		50 - 54	20 - 22	Gobo 4 - Cloud flames
11	**12**	55 - 59	22 - 24	Gobo 5 - Gridlock
				Gobo shake centered on indexed position: set indexed angle on channel 9 (16-bit) or 10 (16-bit ext.). Shake angle increments in following steps: 10°, 15°, 30°, 45°, 60°, 90°, 135°, 180°, 270° and 360°
		60 - 89	24 - 34	Gobo 1 - Lasercone single, 360° slow → 10° fast
		90 - 119	35 - 45	Gobo 2 - Mikado, 360° slow → 10° fast
		120 - 149	46 - 56	Gobo 3 - Limbo/Crystal, 360° slow → 10° fast
		150 - 179	57 - 67	Gobo 4 - Cloud flames, 360° slow → 10° fast
		180 - 209	68 - 78	Gobo 5 - Gridlock, 360° slow → 10° fast
				Continuous gobo wheel scroll with continuous gobo rotation: set gobo rotation speed on channel 9 (16-bit) or 10 (16-bit ext.)
		210 - 232	79 - 89	CW gobo wheel scroll, fast → slow*
		233 - 255	90 - 100	CCW gobo wheel scroll, slow* → fast
				**If gobo crossfading is enabled in control menu (PERSONALITY → GOBO X-FADE), slow = 5% speed. If gobo crossfading is disabled, slow = 30% speed*
				Gobo wheel 2: gobo indexing, gobo rotation direction, speed (MSB) The default value for this channel = 128
				If indexed gobo is selected on channel 11 (16-bit) or 12 (16-bit ext.)
		0 - 255	0 - 100	Gobo indexing, 0 → 395°
				If continuous gobo rotation is selected on channel 11 (16-bit) or 12 (16-bit ext.)
12	**13**	0 - 2	0	No gobo rotation
		3 - 126	1 - 50	CW, fast → slow
		127 - 129	51	No gobo rotation
		130 - 253	52 - 99	CCW, slow → fast
		254 - 255	100	No gobo rotation
				Gobo wheel 2: gobo fine indexing or rotation speed (LSB)
				If indexed gobo is selected on channel 11 (16-bit) or 12 (16-bit ext.)
13	**14**	0 - 255	0 - 100	Gobo indexing, fine
				If continuous gobo rotation is selected on channel 11 (16-bit) or 12 (16-bit ext.)
		0 - 255	0 - 100	Gobo rotation speed, fine

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function
				Color/CMY macros, gobo crossfading speed
		0 - 18	0 - 6	No effect (Note: this value is used for setting calibration values on ch. 27/30)
		19 - 57	7 - 22	Color wheel: fast narrow shake → slow wide shake, around currently selected color
				Random CMY: set min./ max. CMY range limits on channels 3 - 5 (16-bit) or 4 - 6 (16-bit ext.)
14	**15**	58 - 83	23 - 32	Fast
		84 - 109	33 - 42	Medium
		110 - 135	43 - 52	Slow
				If enabled in PERSONALITY → GOBO X-FADE control menu:
		136 - 207	53 - 82	Gobo crossfading speed slow → fast
		208 - 255	83 - 100	*No function*
				Gobo animation wheel: position and function
		0 - 5	0 - 2	Open
		6 - 10	2 - 4	Horizontal indexed position: set indexing on ch. 16 (16-bit) or 17 (16-bit ext.)
		11 - 15	4 - 6	Vertical indexed position: set indexing on ch. 16 (16-bit) or 17 (16-bit ext.)
		16 - 20	6 - 8	Horizontal position, continuous rotation: set direction & speed on ch. 16 (16-bit) or 17 (16-bit ext.)
15	**16**	21 - 25	8 - 10	Vertical position, continuous rotation: set direction & speed on ch. 16 (16-bit) or 17 (16-bit ext.)
		26 - 110	10 - 43	Angled position, vertical → horizontal, continuous rotation: set direction & speed on ch. 16 (16-bit) or 17 (16-bit ext.)
		111 - 195	44 - 76	Angled position, horizontal → vertical: set indexing on ch. 16 (16-bit) or 17 (16-bit ext.)
		196 - 255	77 - 100	Angled position, vertical → open: set indexing on ch. 16 (16-bit) or 17 (16-bit ext.)
				Gobo animation wheel: indexed angled position, rotation direction and speed
				If indexed angled position is selected on channel 15 (16-bit) or 16 (16-bit ext.):
		0 - 255	0 - 100	Indexed angle, 0°→ 395°
16	**17**			*If continuous rotation is selected on channel 15 (16-bit) or 16 (16-bit ext.):*
		0 - 2	0	No animation wheel rotation
		3 - 126	1 - 50	CW, fast → slow
		127 - 129	51	No animation wheel rotation
		130 - 253	52 - 99	CCW, slow → fast
		254 - 255	100	No animation wheel rotation
				Beam effect (prism)
		0 -19	0 - 7	Beam effect off
		20 - 39	7 - 16	Beam effect indexing: set angle on ch. 18 (16-bit) or 19 (16-bit ext.)
17	**18**	40 - 59	17 - 24	Beam effect rotation: set direction and speed on ch. 18 (16-bit) or 19 (16-bit ext.)
		60 - 79	25 - 29	Beam effect off
		80 - 255	30 - 100	*Reserved for future use*
				Beam effect (prism) indexing, direction, speed
				If beam effect indexing is selected on channel 17 (16-bit) or 18 (16-bit ext.):
		0 - 255	0 - 100	Indexed angle 0° - 395°
18	**19**			*If beam effect rotation is selected on channel 17 (16-bit) or 18 (16-bit ext.):*
		0 - 2	0	No beam effect rotation
		3 - 126	1 - 50	CW, fast → slow
		127 - 129	51	No beam effect rotation
		130 - 253	52 - 99	CCW, slow → fast
		254 - 255	100	No beam effect rotation
				Iris
		0 - 199	0 - 77	Open → closed
		200 - 215	78 - 84	Closed
19	**20**	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
20	**21**			**Focus (MSB)**
		0 - 255	0 - 100	Infinity → near
-	**22**	0 - 255	0 - 100	**Focus, fine (LSB)**
				Zoom (MSB)
21	**23**	0 - 255	0 - 100	Flood → spot

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function
-	**24**	0 - 255	0 - 100	**Zoom, fine (LSB)**
22	**25**	0 - 255	0 - 100	**Pan** (MSB) Left → right (128 = neutral)
23	**26**	0 - 255	0 - 100	**Pan, fine (LSB)**
24	**27**	0 - 255	0 - 100	**Tilt (MSB)** Left → right (128 = neutral)
25	**28**	0 - 255	0 - 100	**Tilt, fine (LSB)**
26	**29**			**Fixture control/settings**
		0 - 9	0 - 1	*No function*
		10 - 14	2 - 3	Reset entire fixture(1)
		15 - 19	4 - 5	Reset dimmer and shutter only(1)
		20 - 24	6 - 7	Reset CMYC and color wheel only(1)
		25 - 29	8 - 9	Reset effects module (gobo wheels 1 & 2, gobo animation, iris, prism) only(1)
		30 - 34	10 - 11	Reset zoom and focus only(1)
		35 - 39	12 - 13	Reset pan and tilt only(1)
		40 - 44	14 - 15	*No function*
		45 - 49	16 - 17	Lamp on
		50 - 54	18 - 19	Lamp off (1, 2)
		55 - 59	20 - 21	*No function* (Note: this value is used for setting calibration values on ch. 27/30)
		60 - 64	22 - 23	Dimmer curve = **Optical linear** (menu override, setting unaffected by power off/on)(2)
		65 - 69	24 - 25	Dimmer curve = **Square law** (menu override, factory default setting, setting unaffected by power off/on)(2)
		70 - 74	26 - 27	Dimmer curve = **Inverse square law** (menu override, setting unaffected by power off/on)(2)
		75 - 79	28 - 29	Dimmer curve = **S-curve** (menu override, setting unaffected by power off/on)(2)
		80 - 84	30 - 31	*No function*
		85 - 89	32 - 33	Pan & tilt speed = Normal (menu override - Setting returns to MENU setting after power on/off)(2)
		90 - 94	34 - 35	Pan & tilt speed = Fast (menu override - Setting returns to MENU setting after power on/off)(2)
		95 - 99	36 - 37	Pan & tilt speed = Slow (menu override - Setting returns to MENU setting after power on/off)(2)
		100 - 139	38 - 53	*No function*
		140 - 144	54 - 55	Parameter shortcuts = ON (menu override, setting stays at factory default ON at power off/on)(2)
		145 - 149	56 - 57	Parameter shortcuts = OFF (menu override, setting returns to factory default ON at power off/on)(2)
		150 - 154	58 - 59	*No function*
		155 - 159	60 - 61	Disable zoom/focus linking(2)
		160 - 164	62 - 63	Enable zoom/focus linking, near distance(2)
		165 - 169	64 - 65	Enable zoom/focus linking, medium distance (factory default setting)(2)
		170 - 174	66 - 67	Enable zoom/focus linking, far distance(2)
		175 - 199	68 - 77	*No function*
		200 - 204	78 - 79	Ballast output full, set to 1500 W
		205 - 209	80 - 81	Ballast output reduced, output set to 1200 W
		210 - 214	82 - 83	Ballast output reduced, output set to 1100 W
		215 - 219	84 - 85	Ballast output reduced, output set to 1000 W
		220 - 224	86 - 87	Ballast output reduced, output set to 900 W
		225 - 239	88 - 93	*No function*
		240 - 244	94 - 95	Illuminate display on fixture(2)
		245 - 249	96 - 97	*No function*
		250 - 255	98 - 100	Trigger event log (inserts new dynamic content into current report)

(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 7 in16-bit or 8 in 16-bit ext.)

The beam effect (prism) is on (DMX value 80-89 on channel 17 in 16-bit or 18 in 16-bit ext.), and

Open gobo is selected on both gobo wheels (DMX value 0 on channels 8 and 9 in 16-bit or 11 and 12 in 16-bit ext.)

(2) Value must be held for 5 seconds to activate

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function
				Fixture adjustments/calibration
		0-39	0 -13	*No function: reserved for future use*
		40-44	14 - 15	Enable pan/tilt limits(4)
		45-49	16 - 17	*No function: reserved for future use*
		50-54	18 - 19	Disable pan/tilt limits(4)
		55-59	20 - 21	*No function: reserved for future use*
		60-64	22 - 23	Set pan/tilt limit: head must stay inside defined limits (create safe zone)(4)
		65-69	24 - 25	*No function: reserved for future use*
		70-74	26 - 27	Set pan/tilt limit: head must stay outside defined limits (create no-go zone)(4)
		75-79	28 - 29	*No function: reserved for future use*
		80-84	30 - 31	Store current pan position as lower pan limit(4)
		85-89	32 - 33	Store current pan position as upper pan limit(4)
		90-94	34 - 35	*No function: reserved for future use*
		95-99	36 - 37	Store current tilt position as lower tilt limit(4)
		100-104	38 - 39	Store current tilt position as upper tilt limit(4)
		105-109	40 - 41	*No function: reserved for future use*
		110-114	42 - 43	Reset pan and tilt limits(3)
		115-124	44 - 47	*No function: reserved for future use*
		125-129	48 - 49	Store dimmer calibration(4)
		130-134	50 - 51	Store cyan calibration(4)
		135-139	52 - 53	Store magenta calibration(4)
		140-144	54 - 55	Store yellow calibration(4)
		145-149	56 - 57	Store CTC calibration(4)
		150-154	58 - 59	Store CMYC calibration(4)
		155-159	60 - 61	Store gobo wheel 1 slots 1 – 5 index calibration(4)
		160-164	62 - 63	*No function: reserved for future use*
		165-169	64 - 65	*No function: reserved for future use*
27	**30**	170-174	66 - 67	*No function: reserved for future use*
		175-179	68 - 69	*No function: reserved for future use*
		180-184	70 - 71	Store gobo wheel 2 slots 1 – 5 index calibration(4)
		185-189	72 - 73	*No function: reserved for future use*
		190-194	74 - 75	*No function: reserved for future use*
		195-199	76 - 77	*No function: reserved for future use*
		200-204	78 - 79	*No function: reserved for future use*
		205-209	80 - 81	Store gobo animation wheel index calibration(4)
		210-214	82 - 83	Store beam effect (prism) index calibration(4)
		215-219	84 - 85	Store iris calibration(4)
		220-224	86 - 87	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	*No function: reserved for future use*
		245-249	96 - 97	Reset all calibrations to factory default(4)
		250-255	98 - 100	*No function: reserved for future use*
				(3) To activate: *Value must be held for 5 seconds* *The CMY channels (3, 4 and 5 in 16-bit mode or 4, 5 and 6 in 16-bit extended mode) must all be set to DMX value 232* *The beam effect channel (17 in 16-bit mode or 18 in 16-bit extended mode) must be set to DMX value 30.* *(4) To activate:* *Value must be held for 5 seconds* *Channel 14 in 16-bit/15 in 16-bit ext. must be set to DMX value 5 - 10* *Channel 26 in 16-bit/29 in 16-bit ext. must be set to 55 - 59.*

MSB = Most significant byte

LSB = Least significant byte