

DMX protocol

MAC Aura PXL firmware version 1.2.0.

Compact DMX Mode

Channel	DMX Value	Function	Fade type	Default value
Strobe / Intensity				
1	0 - 19	Strobe/shutter effect Shutter closed	Snap	30
	20 - 49	Shutter open		
	50 - 200	Strobe, slow → fast		
	201 - 210	Shutter open		
	211 - 255	Random strobe, slow → fast		
2	0 - 65535	Dimmer (16-bit)	Fade	0
3		Overall intensity 0 → 100%		
Color: all 19 Beam pixels and all Aura pixels controlled as one single pixel				
4	0 - 65535	Red, 16-bit	Fade	65535
5		Intensity 0 → 100%		
6	0 - 65535	Green, 16-bit	Fade	65535
7		Intensity 0 → 100%		
8	0 - 65535	Blue, 16-bit	Fade	65535
9		Intensity 0 → 100%		
10	0 - 10	CTC Disabled	Fade	0
	11 - 171	Color temperature 2000 K to 10 000 K in 50 K steps		
	172 - 255	10 000 K		
11	0 -10	Virtual color wheel Indexing, solid colors Open	Snap	0
	11	Moroccan pink (Lee 790)		
	13	Pink (Lee 157)		
	15	Special rose pink (Lee 332)		
	17	Follies pink (Lee 328)		
	19	Fuchsia pink (Lee 345)		
	21	Surprise pink (Lee 194)		
	23	Congo blue (Lee 181)		
	25	Tokyo blue (Lee 071)		
	27	Deep blue (Lee 120)		
	29	Just blue (Lee 079)		
	31	Medium blue (Lee 132)		
	33	Double CT blue (Lee 200)		
	35	Slate blue (Lee 161)		
	37	Full CT blue (Lee 201)		
	39	Half CT blue (Lee 202)		
	41	Steel blue (Lee 117)		
	43	Lighter blue (Lee 353)		
	45	Light blue (Lee 118)		
	47	Medium blue green (Lee 116)		
49	Dark green (Lee 124)			
51	Primary green (Lee 139)			
53	Moss green (Lee 089)			
55	Fern green (Lee 122)			
57	Jas green (Lee 738)			
59	Lime green (Lee 088)			

Table 1: Compact DMX Mode

Channel	DMX Value	Function	Fade type	Default value
11 cont.	61	Spring yellow (Lee 100)	Snap	0
	63	Deep amber (Lee 104)		
	65	Chrome orange (Lee 179)		
	67	Orange (Lee 105)		
	69	Gold amber (Lee 021)		
	71	Millennium gold (Lee 778)		
	73	Deep golden amber (Lee 135)		
	75	Flame red (Lee 164)		
	77	Red magenta		
	79	Medium lavender		
	81	Pure white		
	83	Pure red		
	85	Pure yellow		
	87	Pure green		
	89	Pure cyan		
	91	Pure blue		
	93	Pure magenta		
	95	Peacock blue (LEE 115)		
	97	Dark lavender (LEE 180)		
	99	Double CT orange (LEE 287)		
	101	Full CT orange (LEE 204)		
	103	Half CT orange (LEE 205)		
	105	Deep Straw (LEE 015)		
107- 190	<i>No function</i>			
	Continuous rotation			
191 - 214	CW, fast → slow			
215 - 219	Stop (wheel stops at current color)			
220 - 243	CCW slow → fast			
	Random colors			
244 - 247	Fast			
248 - 251	Medium			
252 - 255	Slow			
Beam angle				
12	0 - 255	Zoom Narrow → wide	Fade	128
Movement				
13	0 - 65535	Pan, 16-bit	Fade	32768
14		Left → right (32768 = neutral)		
15	0 - 65535	Tilt, 16-bit	Fade	32768
16		Forward → backward (32768 = neutral)		
Control / Settings				
17		Fixture control/settings <i>(hold for number of seconds indicated to activate)</i>		
	0 - 9	<i>No function (disables calibration) – 5 sec.</i>		
	10 - 14	Reset entire fixture – 5 sec.		
	15 - 16	<i>No function</i>		
	17	Reset beam only– 5 sec.		
	18	Reset pan and tilt only – 5 sec.		
	19 - 22	<i>No function</i>		
	23	Linear dimming curve – 1 sec. (menu override, setting unaffected by power off/on)		
	24	Square law dimming curve – 1 sec. (menu override, default setting, setting unaffected by power off/on)		
	25	Inverse square law dimming curve – 1 sec. (menu override, setting unaffected by power off/on)		
	26	S-curve dimming curve– 1 sec. (menu override, setting unaffected by power off/on)		
	27	<i>No function</i>		
	28	Fast pan and tilt speed– 1 sec. (default setting, menu override - setting returns to MENU setting after power on/off)		
	29	Smooth pan and tilt speed– 1 sec. (menu override - setting returns to MENU setting after power on/off)		
	30 - 35	<i>No function</i>		
	36	Video tracking = ON – 1 sec.		
	37	Video tracking = OFF (default) – 1 sec.		
	38	Extended color mode (default) – 1 sec.		
39	Calibrated color mode – 1 sec.			
40 - 51	<i>No function</i>			

Table 1: Compact DMX Mode

Channel	DMX Value	Function	Fade type	Default value
17 cont.	52	Control panel display = ON (default) – 1 sec.	Snap	0
	53	Control panel display = OFF – 1 sec.		
	54	Regulated fan speed, fixed light output intensity (default) – 1 sec.		
	55	Full fan speed, regulated light output intensity – 1 sec.		
	56	Medium fan speed, regulated light output intensity – 1 sec.		
	57	Low fan speed, regulated light output intensity – 1 sec.		
	58	Ultra-low fan speed, regulated light output intensity – 1 sec.		
	59 - 60	<i>No function</i>		
	61	Hibernation mode = ON – 5 sec.		
	62	Hibernation mode = OFF (default) – 5 sec.		
	63 - 64	<i>No function</i>		
	65	Pan and tilt limits = ON – 5 sec.		
	66	Pan and tilt limits = OFF (default) – 5 sec.		
	67	Store lower pan limit – 5 sec.		
	68	Store upper pan limit – 5 sec.		
	69	Store lower tilt limit – 5 sec.		
	70	Store upper tilt limit – 5 sec.		
	71	Reset pan and tilt limits – 5 sec.		
	72	Tungsten emulation = ON – 1 sec.		
	73	Tungsten emulation = OFF (default) – 1 sec.		
	74 - 84	<i>No function</i>		
	85	Low-noise LED mode = ON – 1 sec.		
	86	Low-noise LED mode = OFF (default) – 1 sec.		
	87 - 99	<i>No function</i>		
	100	Enable calibration – 5 sec.		
101	Store pan and tilt calibration – 5 sec.			
102	Store dimmer calibration – 5 sec.			
103 - 113	<i>No function</i>			
114	Store zoom calibration – 5 sec.			
115 - 198	<i>No function</i>			
199	Reset all calibration values to factory default – 5 sec.			
200 - 255	<i>No function</i>			

Table 1: Compact DMX Mode

Basic DMX Mode

Channels 1- 17 in Basic Mode are identical to Compact Mode apart from channels 1 - 11. In Compact Mode, channels 1 - 11 control the whole fixture (Beam and Aura) as one unit. In Basic Mode, channels 1 - 11 control the Beam only, and channels 24 - 32 control the Aura.

Channel	DMX Value	Function	Fade type	Default value
Beam P3 Mix				
18	0 - 26	Beam P3 Mix <i>DMX Mode</i> Beam output fully controlled by DMX (P3 pixel data ignored)	Snap	0
	27	<i>Mixed Mode</i> Beam output fully controlled by DMX (P3 pixel data ignored)		
	27 - 227	Progressive crossfade from DMX to P3 control		
	228	Beam output fully controlled by P3 (DMX data ignored)		
	229 - 255	<i>Video Mode</i> P3 pixel control with DMX superimposed (DMX channels 'color' the P3 pixel data)		
Macro FX				
19	0 - 255	FX1 selection (see Table 5 on page 35) Effect selection (adjust speed and direction on DMX channel 20)	Snap	0
20	0 - 126	FX1 speed Effect reversed fast → slow	Fade	128
	127 - 129	Effect stops		
	130 - 255	Effect forward slow → fast		
21	0 - 255	FX2 selection (see Table 5 on page 35) Effect selection (adjust speed and direction on DMX channel 22)	Snap	0
22	0 - 126	FX2 speed Effect reversed fast → slow	Fade	128
	127 - 129	Effect stops		
	130 - 255	Effect forward slow → fast		
23	0	FX synchronization No sync	Snap	36
	1	Offset shift 10°		
	2	Offset shift 20°		
	3	Offset shift 30°		
	4	Offset shift 40°		
	5	Offset shift 50°		
	6	Offset shift 60°		
	7	Offset shift 70°		
	8	Offset shift 80°		
	9	Offset shift 90°		
	10	Offset shift 100°		
	11	Offset shift 110°		
	12	Offset shift 120°		
	13	Offset shift 130°		
	14	Offset shift 140°		
	15	Offset shift 150°		
	16	Offset shift 160°		
	17	Offset shift 170°		
	18	Offset shift 180°		
	19	Offset shift 190°		
	20	Offset shift 200°		
	21	Offset shift 210°		
	22	Offset shift 220°		
	23	Offset shift 230°		
	24	Offset shift 240°		
	25	Offset shift 250°		
	26	Offset shift 260°		
	27	Offset shift 270°		
	28	Offset shift 280°		

Table 2: Basic DMX Mode

Channel	DMX Value	Function	Fade type	Default value
23 cont.	29	Offset shift 290°	Snap	36
	30	Offset shift 300°		
	31	Offset shift 310°		
	32	Offset shift 320°		
	33	Offset shift 330°		
	34	Offset shift 340°		
	35	Offset shift 350°		
	36	Synchronized: all fixtures start FX cycles at same time		
	37 - 100	<i>No function</i>		
	101 - 120	Random start (Channel 20 controls overall speed)		
121 - 140	Random duration			
141 - 255	<i>No function</i>			
Aura control				
24	0 - 19	Aura strobe shutter Shutter closed	Snap	30
	20 - 49	Shutter open		
	50 - 200	Strobe slow → fast		
	201 - 210	Shutter open		
	211 - 255	Random strobe slow → fast		
25	0 - 65535	Aura dimmer (16-bit) Intensity 0 - 100%	Fade	0
26				
27	0 - 255	Aura Red 0 - 100%	Fade	255
28	0 - 255	Aura Green 0 - 100%	Fade	255
29	0 - 255	Aura Blue 0 - 100%	Fade	255
30	0 - 10	Aura CTC Disabled	Fade	0
	11 - 171	Color temperature 2000 K to 10 000 K in 50 K steps		
	172 - 255	10 000 K		
31	0 - 10	Aura virtual color wheel Indexing, solid colors Open	Snap	0
	11	Moroccan pink (Lee 790)		
	13	Pink (Lee 157)		
	15	Special rose pink (Lee 332)		
	17	Follies pink (Lee 328)		
	19	Fuchsia pink (Lee 345)		
	21	Surprise pink (Lee 194)		
	23	Congo blue (Lee 181)		
	25	Tokyo blue (Lee 071)		
	27	Deep blue (Lee 120)		
	29	Just blue (Lee 079)		
	31	Medium blue (Lee 132)		
	33	Double CT blue (Lee 200)		
	35	Slate blue (Lee 161)		
	37	Full CT blue (Lee 201)		
	39	Half CT blue (Lee 202)		
	41	Steel blue (Lee 117)		
	43	Lighter blue (Lee 353)		
	45	Light blue (Lee 118)		
	47	Medium blue green (Lee 116)		
	49	Dark green (Lee 124)		
	51	Primary green (Lee 139)		
	53	Moss green (Lee 089)		
	55	Fern green (Lee 122)		
	57	Jas green (Lee 738)		
	59	Lime green (Lee 088)		
	61	Spring yellow (Lee 100)		
63	Deep amber (Lee 104)			

Table 2: Basic DMX Mode

Channel	DMX Value	Function	Fade type	Default value
31 cont.	65	Chrome orange (Lee 179)	Snap	0
	67	Orange (Lee 105)		
	69	Gold amber (Lee 021)		
	71	Millennium gold (Lee 778)		
	73	Deep golden amber (Lee 135)		
	75	Flame red (Lee 164)		
	77	Red magenta		
	79	Medium lavender		
	81	Pure white		
	83	Pure red		
	85	Pure yellow		
	87	Pure green		
	89	Pure cyan		
	91	Pure blue		
	93	Pure magenta		
	95	Peacock blue (LEE 115)		
	97	Dark lavender (LEE 180)		
	99	Double CT orange (LEE 287)		
	101	Full CT orange (LEE 204)		
	103	Half CT orange (LEE 205)		
	105	Deep Straw (LEE 015)		
	107 - 190	<i>No function</i>		
	Continuous rotation			
191 - 214	CW, fast → slow			
215 - 219	Stop (wheel stops at current color)			
220 - 243	CCW slow → fast			
	Random colors			
244 - 247	Fast			
248 - 251	Medium			
252 - 255	Slow			
32		Aura P3 Mix	Snap	0
	0 - 26	<i>DMX Mode</i> Output fully controlled by DMX (P3 pixel data ignored)		
	27	<i>Mixed Mode</i> Output fully controlled by DMX (P3 pixel data ignored)		
	27 - 227	Progressive crossfade from DMX to P3 control		
	228	Output fully controlled by P3 (DMX data ignored)		
229 - 255	<i>Video Mode</i> P3 pixel control with DMX superimposed (DMX channels 'color' the P3 pixel data)			

Table 2: Basic DMX Mode

Extended DMX Mode

DMX channels 1 - 32 in Extended Mode are identical to Basic Mode. Note that, as in Basic Mode, channels 1 - 11 control the Beam only, and channels 24 - 32 control the Aura.

Channel	DMX Value	Function	Fade type	Default value
Beam pixel color (pixel color control of 19 x Beam LEDs, global Beam RGB channels are added using HTP)				
33	0 - 255	Beam pixel 1 Red 0 - 100%	Fade	0
34	0 - 255	Beam pixel 1 Green 0 - 100%	Fade	0
35	0 - 255	Beam pixel 1 Blue 0 - 100%	Fade	0
36	0 - 255	Beam pixel 2 Red 0 - 100%	Fade	0
37	0 - 255	Beam pixel 2 Green 0 - 100%	Fade	0
38	0 - 255	Beam pixel 2 Blue 0 - 100%	Fade	0
39	0 - 255	Beam pixel 3 Red 0 - 100%	Fade	0
40	0 - 255	Beam pixel 3 Green 0 - 100%	Fade	0
41	0 - 255	Beam pixel 3 Blue 0 - 100%	Fade	0
42	0 - 255	Beam pixel 4 Red 0 - 100%	Fade	0
43	0 - 255	Beam pixel 4 Green 0 - 100%	Fade	0
44	0 - 255	Beam pixel 4 Blue 0 - 100%	Fade	0
45	0 - 255	Beam pixel 5 Red 0 - 100%	Fade	0
46	0 - 255	Beam pixel 5 Green 0 - 100%	Fade	0
47	0 - 255	Beam pixel 5 Blue 0 - 100%	Fade	0
48	0 - 255	Beam pixel 6 Red 0 - 100%	Fade	0
49	0 - 255	Beam pixel 6 Green 0 - 100%	Fade	0
50	0 - 255	Beam pixel 6 Blue 0 - 100%	Fade	0
51	0 - 255	Beam pixel 7 Red 0 - 100%	Fade	0
52	0 - 255	Beam pixel 7 Green 0 - 100%	Fade	0
53	0 - 255	Beam pixel 7 Blue 0 - 100%	Fade	0
54	0 - 255	Beam pixel 8 Red 0 - 100%	Fade	0
55	0 - 255	Beam pixel 8 Green 0 - 100%	Fade	0
56	0 - 255	Beam pixel 8 Blue 0 - 100%	Fade	0
57	0 - 255	Beam pixel 9 Red 0 - 100%	Fade	0
58	0 - 255	Beam pixel 9 Green 0 - 100%	Fade	0
59	0 - 255	Beam pixel 9 Blue 0 - 100%	Fade	0

Table 3: Extended DMX Mode

Channel	DMX Value	Function	Fade type	Default value
60	0 - 255	Beam pixel 10 Red 0 - 100%	Fade	0
61	0 - 255	Beam pixel 10 Green 0 - 100%	Fade	0
62	0 - 255	Beam pixel 10 Blue 0 - 100%	Fade	0
63	0 - 255	Beam pixel 11 Red 0 - 100%	Fade	0
64	0 - 255	Beam pixel 11 Green 0 - 100%	Fade	0
65	0 - 255	Beam pixel 11 Blue 0 - 100%	Fade	0
66	0 - 255	Beam pixel 12 Red 0 - 100%	Fade	0
67	0 - 255	Beam pixel 12 Green 0 - 100%	Fade	0
68	0 - 255	Beam pixel 12 Blue 0 - 100%	Fade	0
69	0 - 255	Beam pixel 13 Red 0 - 100%	Fade	0
70	0 - 255	Beam pixel 13 Green 0 - 100%	Fade	0
71	0 - 255	Beam pixel 13 Blue 0 - 100%	Fade	0
72	0 - 255	Beam pixel 14 Red 0 - 100%	Fade	0
73	0 - 255	Beam pixel 14 Green 0 - 100%	Fade	0
74	0 - 255	Beam pixel 14 Blue 0 - 100%	Fade	0
75	0 - 255	Beam pixel 15 Red 0 - 100%	Fade	0
76	0 - 255	Beam pixel 15 Green 0 - 100%	Fade	0
77	0 - 255	Beam pixel 15 Blue 0 - 100%	Fade	0
78	0 - 255	Beam pixel 16 Red 0 - 100%	Fade	0
79	0 - 255	Beam pixel 16 Green 0 - 100%	Fade	0
80	0 - 255	Beam pixel 16 Blue 0 - 100%	Fade	0
81	0 - 255	Beam pixel 17 Red 0 - 100%	Fade	0
82	0 - 255	Beam pixel 17 Green 0 - 100%	Fade	0
83	0 - 255	Beam pixel 17 Blue 0 - 100%	Fade	0
84	0 - 255	Beam pixel 18 Red 0 - 100%	Fade	0
85	0 - 255	Beam pixel 18 Green 0 - 100%	Fade	0
86	0 - 255	Beam pixel 18 Blue 0 - 100%	Fade	0
87	0 - 255	Beam pixel 19 Red 0 - 100%	Fade	0
88	0 - 255	Beam pixel 19 Green 0 → 100%	Fade	0
89	0 - 255	Beam pixel 19 Blue 0 → 100%	Fade	0

Table 3: Extended DMX Mode

Ludicrous DMX Mode

DMX channels 1 - 89 in Ludicrous Mode are identical to Extended Mode and Basic Mode. Note that, as in Basic and Extended Modes, channels 1 - 11 control the Beam only, and channels 24 - 32 control the Aura

Channel	DMX Value	Function	Fade type	Default value
Aura pixel color (pixel color control of 141 x Aura LEDs, global Aura RGB channels are added using HTP)				
90	0 - 255	Aura pixel 1 Red 0 - 100%	Fade	0
91	0 - 255	Aura pixel 1 Green 0 - 100%	Fade	0
92	0 - 255	Aura pixel 1 Blue 0 - 100%	Fade	0
...
510	0 - 255	Aura pixel 141 Red 0 - 100%	Fade	0
511	0 - 255	Aura pixel 141 Green 0 - 100%	Fade	0
512	0 - 255	Aura pixel 141 Blue 0 - 100%	Fade	0

Table 4: Ludicrous DMX Mode