

SolaHyBeam 2000® Luminaire DMX Control Protocol *

Revision: 1.4

27-Feb-18

Standard Protocol	
Channel	Construct
1	Pan Coarse
2	Pan Fine
3	Tilt Coarse
4	Tilt Fine
5	Mix Color Function
6	Cyan
7	Magenta
8	Yellow
9	CTO
10	Static Color 1 Function
11	Static Color 1 Position
12	Gobo 1 Function
13	Gobo 1 Position
14	Gobo 1 Rotate Function
15	Gobo 1 Rotate Coarse
16	Gobo 1 Rotate Fine
17	Blade 1 Angle A
18	Blade 1 Angle B
19	Blade 2 Angle A
20	Blade 2 Angle B
21	Blade 3 Angle A
22	Blade 3 Angle B
23	Blade 4 Angle A
24	Blade 4 Angle B
25	Frame Rotation Coarse
26	Frame Rotation Fine
27	Frost 1
28	Frost 2
29	Focus Coarse
30	Focus Fine
31	Zoom Coarse
32	Zoom Fine
33	Iris
34	Shutter/LED Function
35	Shutter/LED
36	Dim Coarse
37	Dim Fine
38	Mspeed
39	Control

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Channel	Marketing Construct	Description	Decimal Low	Decimal High	Percent Low	Percent High	Hex Low	Hex High	Controller Defaults		
1	Pan	Pan Coarse	0	255	0%	100%	00h	FFh	127		
2	Pan	Pan Fine	0	255	0%	100%	00h	FFh	255		
3	Tilt	Tilt Coarse	0	255	0%	100%	00h	FFh	127		
4	Tilt	Tilt Fine	0	255	0%	100%	00h	FFh	255		
5	Color Mix Function	Pure Mix	0	31	0%	12%	00h	1Fh	0		
		Cycle	32	47	13%	18%	20h	2Fh			
		Random	48	63	19%	25%	30h	3Fh			
		Continuous	64	79	25%	31%	40h	4Fh			
		Reserved (Note 3)	80	255	31%	100%	50h	FFh			
6 7 8	Cyan Magenta Yellow	Pure Mix							255		
		Full Saturation	0		100%		00h				
		Open	255		0%		FFh				
		Cycle & Random Modes. Scan Speed controlled by Cyan Channel									
		Slow Rate	0		0%		00h				
		Fast Rate	255		100%		FFh				
		Continuous mode (NOTE 1)									
Positioning from 0-360 degrees			0	255	0%	100%	00h	FFh			
9	CTO	Full Saturation	0		0%		00h		255		
		Open (White)	255		100%		FFh				
10	Static Color 1 Function	Full Speed Control									
		Indexed	0	15	0%	6%	00h	0Fh	48		
		Forward Spin	16	31	6%	12%	10h	1Fh			
		Reverse Spin	32	47	13%	18%	20h	2Fh			
		Continuous (Note 1)	48	63	19%	25%	30h	3Fh			
		Fast Scan	64	79	25%	31%	40h	4Fh			
		Random	80	95	31%	37%	50h	5Fh			
Reserved (Note 3)	96	255	38%	100%	60h	FFh					
11	Static Color 1 Position	Indexed, Scan & Blink modes									
		1. Open (White)	0	16	0%	6%	00h	10h	0		
		2. (Open/Red)	17	32	7%	13%	11h	20h			
		3. (Red)	33	48	13%	19%	21h	30h			
		4. (Red/Blue)	49	64	19%	25%	31h	40h			
		5. (Blue)	65	80	25%	31%	41h	50h			
		6. (Blue/Green)	81	96	32%	38%	51h	60h			
		7. (Green)	97	112	38%	44%	61h	70h			
		8. (Green/Orange)	113	128	44%	50%	71h	80h			
		9. (Orange)	129	144	51%	56%	81h	90h			
		10. (Orange/Magenta)	145	160	57%	63%	91h	A0h			
		11. (Magenta)	161	176	63%	69%	A1h	B0h			
		12. (Magenta/Dark Blue)	177	192	69%	75%	B1h	C0h			
		13. (Dark Blue)	193	208	76%	82%	C1h	D0h			
		14. (Dark Blue/Open)	209	224	82%	88%	D1h	E0h			
		1. Open (White)	225	255	88%	100%	E1h	FFh			
		Spin & Random modes									
		Stop	0		0%	0%	00h	00h			
		Slowest to fastest	255		100%	0%	FFh	00h			
		Continuous mode									
Positioning from 0-360 degrees			0	255	0%	100%	00h	FFh			

12	Gobo 1 Function	Indexed	0	15	0%	6%	00h	0Fh	0	
		Forward Wheel Spin	16	31	6%	12%	10h	1Fh		
		Reverse Wheel Spin	32	47	13%	18%	20h	2Fh		
		Scan	48	63	19%	25%	30h	3Fh		
		Random	64	79	25%	31%	40h	4Fh		
		Reserved (Note 3)	80	255	31%	100%	50h	FFh		
13	Gobo 1 Position	Indexed, Scan & Blink modes							0	
		1. (Open)	0	27	0%	11%	00h	1Bh		
		2. (Spokes)	28	55	11%	22%	1Ch	37h		
		3. (Dots)	56	84	22%	33%	38h	54h		
		4. (Perfora)	85	112	33%	44%	55h	70h		
		5. (Monovekto)	113	140	44%	55%	71h	8Ch		
		6. (Bars)	141	169	55%	66%	8Dh	A9h		
		7. (Psych)	170	197	67%	77%	AAh	C5h		
		8. (Rays)	198	225	78%	88%	C6h	E1h		
		1. (Open)	226	255	89%	100%	E2h	FFh		
		Spin & Random modes								
		Rotate Stop	0	3	0%	1%	00h	03h		
		Slowest to fastest	4	255	2%	100%	04h	FFh		
14	Gobo 1 Rotate Function	Full Speed Control						0		
		Indexed	0	15	0%	6%	00h		0Fh	
		Forward Rotate	16	31	6%	12%	10h		1Fh	
		Reverse Rotate	32	47	13%	18%	20h		2Fh	
		Forward Strobe Rotate (Gobo animate)	48	63	19%	25%	30h		3Fh	
		Reverse Strobe Rotate (Gobo animate)	64	79	25%	31%	40h		4Fh	
		Reserved (Note 3)	80	255	31%	100%	50h		FFh	
15	Gobo 1 Rotate Coarse	Indexed/Blink Modes						127		
		Position 0-360 degrees	0	255	0%	100%	00h		FFh	
		Forward/Reverse/Forward Strobe/Reverse Strobe Rotate Modes								
		Rotate Stop	0	3	0%	1%	00h		03h	
		Rotate Slowest to Fastest	4	255	2%	100%	04h		FFh	
16	Gobo 1 Rotate Fine	Indexed Mode						255		
		Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh		
17	Blade 1 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
18	Blade 1 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
19	Blade 2 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
20	Blade 2 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
21	Blade 3 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
22	Blade 3 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
23	Blade 4 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
24	Blade 4 Angle	Out of the light path	0		0%		00h		0	
		Full in the light path	255		100%		FFh			
25	Frame Rotation Coarse	Frame Angle Negative	0	127	0%	50%	00h	7Fh	0	
		Frame Angle 0 degrees	128		50%		80h			
		Frame Angle positive	129	255	51%	100%	81h	FFh		
26	Frame Rotation Fine	Frame Angle Negative	0	127	0%	50%	00h	7Fh	0	
		Frame Angle 0 degrees	128		50%		80h			
		Frame Angle positive	129	255	51%	100%	81h	FFh		

27	Frost 1	Open	0		0%		00h		0	
		Full Frost (Light Frost)	255		100%		FFh			
28	Frost 2	Open	0		0%		00h		0	
		Full Frost (Heavy Frost)	255		100%		FFh			
29	Focus Coarse	Focus In	0		0%		00h		127	
		Focus Out	255		100%		FFh			
30	Focus Fine	Focus In	0		0%		00h		255	
		Focus Out	255		100%		FFh			
31	Zoom Coarse	Zoom In	0		0%		00h		127	
		Zoom Out	255		100%		FFh			
32	Zoom Fine	Zoom In	0		0%		00h		255	
		Zoom Out	255		100%		FFh			
33	Iris	Iris Closed	0		0%		00h		255	
		Iris Open	255		100%		FFh			
34	Shutter/LED Functions	Normal Shutter Functions	0	31	0%	12%	00h	1Fh	0	
		Random Random strobe	32	63	13%	25%	20h	3Fh		
		Synchronous Random Strobe	64	95	25%	37%	40h	5Fh		
		Reserved (Note 3)	96	255	38%	100%	60h	FFh		
35	Shutter/LED	Normal/Random/Sync Random shutter functions.								
		Close	0	23	0%	9%	00h	17h	255	
		Strobe Rate (slow to fast)	24	229	9%	90%	18h	E5h		
		Open	230	255	90%	100%	E6h	FFh		
36	Dim Coarse	Close	0		0%		00h			0
		Open	255		100%		FFh			
37	Dim Fine		0		0%		00h		0	
			255		100%		FFh			
38	Mspeed	Disable	0	3	0%	1%	00h	03h	0	
		Longest (252.7 seconds)	4		2%		04h			
		Shortest (0.15 seconds)	255		100%		FFh			
39	Control	The Control channel should not be crossfaded. No shutter channel requirement.								
		Safe (normal operation)	0	9	0%	4%	00h	09h	0	
		Pan & Tilt Mspeed Off	10	19	4%	7%	0Ah	13h		
		Display Off (send 20 packets)	20	28	8%	11%	14h	1Ch		
		Display On (send 20 packets)	29	35	11%	14%	1Dh	23h		
		Reserved (Note 3)	36	48	14%	19%	24h	30h		
		Home All (send 20 packets)	49	68	19%	27%	31h	44h		
		Shutdown (send 80 packets)	69	75	27%	29%	45h	4Bh		
		No shutter channel requirement. (NOTE 2)								
		Studio fan control mode (send 20 packets)	76	82	30%	32%	4Ch	52h		
		Continuous fan control mode (send 20 packets)	83	89	33%	35%	53h	59h		
		Standard fan control mode (send 20 packets)	90	96	35%	38%	5Ah	60h		
		Disable Pan/Tilt motors	97	103	38%	40%	61h	67h		
		Reserved (Note 3)	104	160	41%	63%	68h	A0h		
		Internal Prog 1 scene 1-8 EEPROM	161	171	63%	67%	A1h	ABh		
		Internal Prog 2 scene 9-16 EEPROM	172	182	67%	71%	ACH	B6h		
		Internal Prog 3 scene 17-24 EEPROM	183	193	72%	76%	B7h	C1h		
		Internal Prog 4 scene 25-32 EEPROM	194	204	76%	80%	C2h	CCh		
		Internal Prog 5 scene 33-40 EEPROM	205	215	80%	84%	CDh	D7h		
Internal Prog 6 scene 41-48 EEPROM	216	226	85%	89%	D8h	E2h				
Internal Prog 7 scene 49-56 EEPROM	227	237	89%	93%	E3h	EDh				
Reserved (Note 3)	238	255	93%	100%	EEh	FFh				

NOTES

- 1 Continuous mode should take quickest path from 255-0, and 0-255.
Continuous mode color wheel aperture centers

Color	Center of color DMX value
Open	0
Red	337
Blue	72
Green	110
Orange	144
Magenta	184
Dark Blue	219

- 2 Fan control modes are not retentive. When the fixture is turned off it will default back to Standard mode.
- 3 Reserved ranges should function according to the controller default value.
- 4 RDM Manufacturers ID: 0x4c52
- 5 RDM Device ID: 0x57e

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