

SolaSpot 2000® Luminaire DMX Control Protocol *

Revision: 1.2

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	Gobo 2 Function
18	Gobo 2 Position
19	Gobo 2 Rotate Function
20	Gobo 2 Rotate Coarse
21	Gobo 2 Rotate Fine
22	Animation 1 Function
23	Animation 2 Function
24	Prism 1 Function
25	Prism 2 Function
26	Prism 1&2 Rotate Coarse
27	Prism 1&2 Rotate Fine
28	Frost
29	Focus Coarse
30	Focus Fine
31	Zoom Coarse
32	Zoom Fine
33	Auto Focus
34	Auto Focus Fine
35	Iris
36	Shutter/LED Function
37	Shutter/LED
38	Dim Coarse
39	Dim Fine
40	Mspeed
41	Control
42	Indigo Highlighter Function
43	Indigo Highlighter Dim

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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		
		Reserved (Note 3)	64	255	25%	100%	40h	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	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	Full Speed Control								
		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	31	0%	12%	00h	1Fh	
		2. (Seashell)	32	63	13%	25%	20h	3Fh	
		3. (Crescent)	64	95	25%	37%	40h	5Fh	
		4. (Abstract)	96	127	38%	50%	60h	7Fh	
		5. (Fracture)	128	159	50%	62%	80h	9Fh	
		6. (Zebra)	160	191	63%	75%	A0h	BFh	
		7. (Shower)	192	223	75%	87%	C0h	DFh	
		1. (Open)	224	255	88%	100%	E0h	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	
16	Gobo 1 Rotate Fine	Indexed Mode							255
		Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh	
17	Gobo 2 Function	Full Speed Control							0
		Indexed	0	15	0%	6%	00h	0Fh	
		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			
18	Gobo 2 Position	Indexed, Scan & Blink modes							0
		1. (Open)	0	31	0%	12%	00h	1Fh	
		2. (Strikes)	32	63	13%	25%	20h	3Fh	
		3. (Triangles)	64	95	25%	37%	40h	5Fh	
		4. (Woven)	96	127	38%	50%	60h	7Fh	
		5. (Dense Foliage)	128	159	50%	62%	80h	9Fh	
		6. (Ice)	160	191	63%	75%	A0h	BFh	
		7. (Tunnel)	192	223	75%	87%	C0h	DFh	
		1. (Open)	224	255	88%	100%	E0h	FFh	
		Spin & Random modes							
Rotate Stop	0	3	0%	1%	00h	03h			
Slowest to fastest	4	255	2%	100%	04h	FFh			
19	Gobo 2 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			
20	Gobo 2 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	
21	Gobo 2 Rotate Fine	Indexed Mode							255
		Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh	

22	Animation 1 Function	Disengaged	0	3	0%	1%	00h	03h	0	
		Engaged, static	4	6	2%	2%	04h	06h		
		Engaged, motion stopped	7	8	3%	3%	07h	08h		
		Engaged, Forward Spin speed slow to fast	9	70	4%	27%	09h	46h		
		Engaged, Reverse Spin speed slow to fast	71	131	28%	51%	47h	83h		
		Engaged, Forward Strobe rotate slow to fast	132	193	52%	76%	84h	C1h		
		Engaged, Reverse Strobe Rotate slow to fast	194	255	76%	100%	C2h	FFh		
23	Animation 2 Function	Disengaged	0	3	0%	1%	00h	03h	0	
		Engaged, static	4	6	2%	2%	04h	06h		
		Engaged, motion stopped	7	8	3%	3%	07h	08h		
		Engaged, Forward Spin speed slow to fast	9	70	4%	27%	09h	46h		
		Engaged, Reverse Spin speed slow to fast	71	131	28%	51%	47h	83h		
		Engaged, Forward Strobe rotate slow to fast	132	193	52%	76%	84h	C1h		
		Engaged, Reverse Strobe Rotate slow to fast	194	255	76%	100%	C2h	FFh		
24	Prism 1 Function	Full Speed Control								0
		Disengaged	0	15	0%	6%	00h	0Fh		
		Continuous	16	31	6%	12%	10h	1Fh		
		Forward Spin	32	47	13%	18%	20h	2Fh		
		Reverse Spin	48	63	19%	25%	30h	3Fh		
		Forward Strobe Rotate (Effect animate)	64	79	25%	31%	40h	4Fh		
		Reverse Strobe Rotate (Effect animate)	80	95	31%	37%	50h	5Fh		
		Reserved (Note 3)	96	255	38%	100%	60h	FFh		
25	Prism 2 Function	Full Speed Control								0
		Disengaged	0	15	0%	6%	00h	0Fh		
		Continuous	16	31	6%	12%	10h	1Fh		
		Forward Spin	32	47	13%	18%	20h	2Fh		
		Reverse Spin	48	63	19%	25%	30h	3Fh		
		Forward Strobe Rotate (Effect animate)	64	79	25%	31%	40h	4Fh		
		Reverse Strobe Rotate (Effect animate)	80	95	31%	37%	50h	5Fh		
		Reserved (Note 3)	96	255	38%	100%	60h	FFh		
26	Prism 1 & 2 Rotate Coarse	Continuous mode								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		
27	Prism 1 & 2 Rotate Fine	Continuous mode								255
28	Frost	Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh		
		Open (hard edge)	0		0%	0%	00h	00h	0	
		Variable edge hard to soft)	1	127	0%	50%	01h	7Fh		
		Soft Edge	128	135	50%	53%	80h	87h		
		Periodic strobe	136	151	53%	59%	88h	97h		
		Random strobe	152	167	60%	65%	98h	A7h		
Reserved (Note 3)	168	225	66%	88%	A8h	E1h				
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	Auto Focus	Auto Focus Off	0	15	0%	6%	00h	0Fh	0	
		5m	16	31	6%	12%	10h	1Fh		
		7.5m	32	47	13%	18%	20h	2Fh		
		10m	48	255	19%	100%	30h	FFh		
34	Auto Focus Fine	Focus In Fine	0		0%		00h		0	
		Focus Out Fine	255		100%		FFh			
35	Iris	Iris Closed	0		0%		00h		255	
		Iris Open	255		100%		FFh			

36	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	
37	Shutter/LED	Normal/Random/Sync Random shutter functions.							255
		Close	0	23	0%	9%	00h	17h	
		Strobe Rate (slow to fast)	24	229	9%	90%	18h	E5h	
		Open	230	255	90%	100%	E6h	FFh	
38	Dim Coarse	Close	0		0%		00h		0
		Open	255		100%		FFh		
39	Dim Fine		0		0%		00h		0
			255		100%		FFh		
40	Mspeed	Disable	0	3	0%	1%	00h	03h	0
		Longest (252.7 seconds)	4		2%		04h		
		Shortest (0.15 seconds)	255		100%		FFh		
41	Control	The Control channel should not be crossfaded. No shutter channel requirement.							0
		Safe (normal operation)	0	9	0%	4%	00h	09h	
		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	
		Fan Control Modes (NOTE 1)							
		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	130	41%	51%	68h	82h	
		Audio Sync	131	160	51%	63%	83h	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			
42	Indigo Highlighter Function	Indigo Highlighter Dim Tracking Mode							0
		Continuous	0	15	0%	6%	00h	0Fh	
		Periodic Strobe (slow to fast)	16	41	6%	16%	10h	29h	
		Random Strobe (slow to fast)	42	67	16%	26%	2Ah	43h	
		Reserved (Note 3)	68	127	27%	50%	44h	7Fh	
		Indigo Highlighter Independent Dim Mode							
		Continuous	128	143	50%	56%	80h	8Fh	
		Periodic Strobe (slow to fast)	144	169	56%	66%	90h	A9h	
		Random Strobe (slow to fast)	170	195	67%	76%	AAh	C3h	
Reserved (Note 3)	196	255	77%	100%	C4h	FFh			
43	Indigo Highlighter Dim	Indigo Highslihter Off	0		0%		00h		0
		Indigo Highlighter 100%	255		100%		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: 0x512

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