

# SolaFrame 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 Function
11	Static Color 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	Blade 1 Angle A
20	Blade 1 Angle B
21	Blade 2 Angle A
22	Blade 2 Angle B
23	Blade 3 Angle A
24	Blade 3 Angle B
25	Blade 4 Angle A
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27	Frame Rotate Course
28	Frame Rotate Fine
29	Animation Function
30	Prism Function
31	Prism Rotate Coarse
32	Prism Rotate Fine
33	Frost
34	Focus Coarse
35	Focus Fine
36	Zoom Coarse
37	Zoom Fine
38	Auto Focus
39	Auto Focus Fine
40	Iris
41	Shutter/LED Function
42	Shutter/LED
43	Dim Coarse
44	Dim Fine
45	Mspeed
46	Control
47	Indigo Highlighter Function
48	Indigo Highlighter Dim

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## SolaFrame 2000® Luminaire DMX Control Protocol \*

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						
9	CTO	Full Saturation	0		0%		00h		255		
		Open (White)	255		100%		FFh				
10	Static Color 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 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/Purple)	145	160	57%	63%	91h	A0h			
		11. (Purple)	161	176	63%	69%	A1h	B0h			
		12. (Purple/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. (Animation)	32	63	13%	25%	20h	3Fh	
		3. (Rip Wheel)	64	95	25%	37%	40h	5Fh	
		4. (Curved Lines)	96	127	38%	50%	60h	7Fh	
		5. (Technowedge)	128	159	50%	62%	80h	9Fh	
		6. (Rings)	160	191	63%	75%	A0h	BFh	
		7. (Psydye)	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	Rotate Slowest to Fastest	4	255	2%	100%	04h	FFh	255
		Indexed Mode							
17	Gobo 2 Function	Low Order Byte 0-360 degrees							0
		0	255	0%	100%	00h	FFh		
		Full Speed Control							
		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	1. (Open)	0	15	0%	6%	00h	0Fh	255
		2. (Tunnel)	16	47	6%	18%	10h	2Fh	
		3. (Bars)	48	79	19%	31%	30h	4Fh	
		4. (Fan)	80	111	31%	44%	50h	6Fh	
		5. (Breakup)	112	143	44%	56%	70h	8Fh	
		6. (Burst)	144	175	56%	69%	90h	AFh	
		7. (Fracture)	176	207	69%	81%	B0h	CFh	
		8. (Crosshatch)	208	239	82%	94%	D0h	EFh	
		1. (Open)	240	255	94%	100%	F0h	FFh	
19	Blade 1 Angle A	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
20	Blade 1 Angle B	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
21	Blade 2 Angle A	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
22	Blade 2 Angle B	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
23	Blade 3 Angle A	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
24	Blade 3 Angle B	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
25	Blade 4 Angle A	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
26	Blade 4 Angle B	Out of the light path	0		0%		00h	0	
		Full in the light path	255		100%		FFh		
27	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	
28	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	

29	Animation 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, speed slow to fast	9	255	4%	100%	09h	FFh	
30	Prism 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	
		Reserved (Note 3)	64	255	25%	100%	40h	FFh	
31	Prism 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	
32	Prism Rotate Fine	Continuous mode						255	
33	Frost	Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh	0
		Open (hard edge)	0		0%	0%	00h	00h	
		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	
34	Focus Coarse	Reserved (Note 3)	168	225	66%	88%	A8h	E1h	127
		Focus In	0		0%		00h		
35	Focus Fine	Focus Out	255		100%		FFh		255
		Focus In	0		0%		00h		
36	Zoom Coarse	Focus Out	255		100%		FFh		127
		Zoom In	0		0%		00h		
37	Zoom Fine	Zoom Out	255		100%		FFh		255
		Zoom In	0		0%		00h		
38	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	
39	Auto Focus Fine	Focus In Fine	0		0%		00h		0
		Focus Out Fine	255		100%		FFh		
40	Iris	Iris Closed	0		0%		00h		255
		Iris Open	255		100%		FFh		
41	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	
		Normal Shutter Functions	96	255	38%	100%	60h	FFh	
42	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
43	Dim Coarse	Open	230	255	90%	100%	E6h	FFh	0
		Close	0		0%		00h		
44	Dim Fine	Open	255		100%		FFh		0
		Close	0		0%		00h		
45	Mspeed		255		100%		FFh		0
		Disable	0	3	0%	1%	00h	03h	
		Longest (252.7 seconds)	4		2%		04h		
		Shortest (0.15 seconds)	255		100%		FFh		

46	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 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	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	
		47	Indigo Highlighter Function	Indigo Highlighter Dim Tracking Mode					
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	
48	Indigo Highlighter Dim	Indigo Highlighter 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	40
Blue	72
Green	110
Orange	144
Purple	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: 0x568

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