

Intellaspot Luminaire DMX Control Protocol *

Channel	Marketing Construct	Description	Decimal Low	Decimal High	Percent Low	Percent High	Hex Low	Hex High
1	Pan	Pan Coarse	0	255	0%	100%	00h	FFh
2	Pan	Pan Fine	0	255	0%	100%	00h	FFh
3	Tilt	Tilt Coarse	0	255	0%	100%	00h	FFh
4	Tilt	Tilt Fine	0	255	0%	100%	00h	FFh
5	Color Mix Function	Full Speed Control						
		Pure Mix (note 1)	0	15	0%	6%	00h	0Fh
		Continuous (note 1)	16	31	6%	12%	10h	1Fh
		Spin	32	47	13%	18%	20h	2Fh
		Cycle	48	63	19%	25%	30h	3Fh
		Random	64	79	25%	31%	40h	4Fh
		Blink	80	95	31%	37%	50h	5Fh
		Pure Mix no QP (note 2)	96	111	38%	44%	60h	6Fh
		Continuous no QP (note 2)	112	127	44%	50%	70h	7Fh
		MSpeed Control						
		Pure Mix (note 1)	128	143	50%	56%	80h	8Fh
		Continuous (note 1)	144	159	56%	62%	90h	9Fh
		Spin	160	175	63%	69%	A0h	AFh
		Cycle	176	191	69%	75%	B0h	BFh
		Random	192	207	75%	81%	C0h	CFh
		Blink	208	223	82%	87%	D0h	DFh
		Pure Mix no QP (note 2)	224	239	88%	94%	E0h	EFh
		Continuous no QP (note 2)	240	255	94%	100%	F0h	FFh
6 7 8	Cyan Magenta Yellow	Pure Mix						
		Full Saturation	0		100%		00h	
		Open	255		0%		FFh	
		Continuous						
		Open	0	5	0%	2%	00h	05h
		Split colors	5	40	2%	16%	05h	28h
		Variable full saturation to open	40	248	16%	97%	28h	F8h
		Open	248	255	97%	100%	F8h	FFh
		Cycle & Random Modes. Scan Speed controlled by Cyan Channel						
		Slow Rate	0		0%		00h	
		Fast Rate	255		100%		FFh	
		Spin mode						
		Continuous Positioning	0	127	0%	50%	00h	7Fh
		Reverse Spin fastest-slowest	128	187	50%	73%	80h	BBh
Spin Stop	188	195	74%	76%	BCh	C3h		
Forward Spin slowest-fastest	196	255	77%	100%	C4h	FFh		
9	CTO	Full Saturation	0		0%		00h	
		Open (White)	255		100%		FFh	
10	Static Color Function	Full Speed Control						
		Indexed	0	15	0%	6%	00h	0Fh
		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
		Blink	96	127	38%	50%	60h	7Fh
		MSpeed Control						
		Indexed	128	143	50%	56%	80h	8Fh
		Forward Spin	144	159	56%	62%	90h	9Fh
		Reverse Spin	160	175	63%	69%	A0h	AFh
		Continuous	176	191	69%	75%	B0h	BFh
		Fast Scan	192	207	75%	81%	C0h	CFh
		Random	208	223	82%	87%	D0h	DFh
		Blink	224	255	88%	100%	E0h	FFh
Indexed, Scan & Blink modes								
1. Open (White)			0	23	0%	9%	00h	17h
2. (Open/Blue)			24	42	9%	16%	18h	2Ah

11	Static Color Position	3. (Blue)	43	61	17%	24%	2Bh	3Dh	
		4. (Blue/Amber)	62	80	24%	31%	3Eh	50h	
		5. (Amber)	81	99	32%	39%	51h	63h	
		6. (Amber/Green)	100	118	39%	46%	64h	76h	
		7. (Green)	119	137	47%	54%	77h	89h	
		8. (Green/Pink)	138	156	54%	61%	8Ah	9Ch	
		9. (Pink)	157	175	62%	69%	9Dh	AFh	
		10. (Pink/Red)	176	194	69%	76%	B0h	C2h	
		11. (Red)	195	213	76%	84%	C3h	D5h	
		12. (Red/Open)	214	232	84%	91%	D6h	E8h	
		1. Open (White)	233	255	91%	100%	E9h	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	
		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	
		Blink	80	95	31%	37%	50h	5Fh	
		TBD/Indexed	96	127	38%	50%	60h	7Fh	
		MSpeed Control							
		Indexed	128	143	50%	56%	80h	8Fh	
		Forward Wheel Spin	144	159	56%	62%	90h	9Fh	
		Reverse Wheel Spin	160	175	63%	69%	A0h	AFh	
		Scan	176	191	69%	75%	B0h	BFh	
		Random	192	207	75%	81%	C0h	CFh	
		Blink	208	223	82%	87%	D0h	DFh	
TBD/Indexed	224	255	88%	100%	E0h	FFh			
13	Gobo 1 Position	1. (Open)	0	15	0%	6%	00h	0Fh	
		2. (Sharp Burst)	16	47	6%	18%	10h	2Fh	
		3. (Fracture)	48	79	19%	31%	30h	4Fh	
		4. (Psy Spin, Red)	80	111	31%	44%	50h	6Fh	
		5. (Skull)	112	143	44%	56%	70h	8Fh	
		6. (Psy Dye, Indigo)	144	175	56%	69%	90h	AFh	
		7. (Triangle)	176	207	69%	81%	B0h	CFh	
		8. (Dense Foliage)	208	239	82%	94%	D0h	EFh	
		1. (Open)	240	255	94%	100%	F0h	FFh	
14	Gobo 1 Rotate Function	Full Speed Control							
		Indexed	0	15	0%	6%	00h	0Fh	
		Forward Rotate	16	31	6%	12%	10h	1Fh	
		Reverse Rotate	32	47	13%	18%	20h	2Fh	
		Blink	48	63	19%	25%	30h	3Fh	
		Forward Strobe Rotate (Gobo animate)	64	79	25%	31%	40h	4Fh	
		Reverse Strobe Rotate (Gobo animate)	80	95	31%	37%	50h	5Fh	
		Reserved	96	127	38%	50%	60h	7Fh	
		MSpeed Control							
		Indexed	128	143	50%	56%	80h	8Fh	
		Forward Rotate	144	159	56%	62%	90h	9Fh	
		Reverse Rotate	160	175	63%	69%	A0h	AFh	
		Blink	176	191	69%	75%	B0h	BFh	
		Forward Strobe Rotate (Gobo animate)	192	207	75%	81%	C0h	CFh	
		Reverse Strobe Rotate (Gobo animate)	208	223	82%	87%	D0h	DFh	
Reserved	224	255	88%	100%	E0h	FFh			
15	Gobo 1 Rotate Coarse	Indexed/Blink Modes							
		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							
		Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh	
		Full Speed Control							
		Indexed	0	15	0%	6%	00h	0Fh	

17	Gobo 2 Function	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	
		Blink	80	95	31%	37%	50h	5Fh	
		TBD/Indexed	96	127	38%	50%	60h	7Fh	
		MSpeed Control							
		Indexed	128	143	50%	56%	80h	8Fh	
		Forward Wheel Spin	144	159	56%	62%	90h	9Fh	
		Reverse Wheel Spin	160	175	63%	69%	A0h	AFh	
		Scan	176	191	69%	75%	B0h	BFh	
		Random	192	207	75%	81%	C0h	CFh	
		Blink	208	223	82%	87%	D0h	DFh	
		TBD/Indexed	224	255	88%	100%	E0h	FFh	
18	Gobo 2 Position	1. (Open)	0	15	0%	6%	00h	0Fh	
		2. (Red Chicklet)	16	47	6%	18%	10h	2Fh	
		3. (Animation Litho)	48	79	19%	31%	30h	4Fh	
		4. (Blades)	80	111	31%	44%	50h	6Fh	
		5. (Fusion Fire, clear)	112	143	44%	56%	70h	8Fh	
		6. (Valiant)	144	175	56%	69%	90h	AFh	
		7. (Gatlin Gun, Indigo)	176	207	69%	81%	B0h	CFh	
		8. (Multidot)	208	239	82%	94%	D0h	EFh	
		1. (Open)	240	255	94%	100%	F0h	FFh	
19	Gobo 2 Rotate Function	Full Speed Control							
		Indexed	0	15	0%	6%	00h	0Fh	
		Forward Rotate	16	31	6%	12%	10h	1Fh	
		Reverse Rotate	32	47	13%	18%	20h	2Fh	
		Blink	48	63	19%	25%	30h	3Fh	
		Forward Strobe Rotate (Gobo animate)	64	79	25%	31%	40h	4Fh	
		Reverse Strobe Rotate (Gobo animate)	80	95	31%	37%	50h	5Fh	
		Reserved	96	127	38%	50%	60h	7Fh	
		MSpeed Control							
		Indexed	128	143	50%	56%	80h	8Fh	
		Forward Rotate	144	159	56%	62%	90h	9Fh	
		Reverse Rotate	160	175	63%	69%	A0h	AFh	
		Blink	176	191	69%	75%	B0h	BFh	
		Forward Strobe Rotate (Gobo animate)	192	207	75%	81%	C0h	CFh	
Reverse Strobe Rotate (Gobo animate)	208	223	82%	87%	D0h	DFh			
Reserved	224	255	88%	100%	E0h	FFh			
20	Gobo 2 Rotate Coarse	Indexed/Blink Modes							
		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							
		Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh	
22	Effect Function	Full Speed Control							
		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	96	127	38%	50%	60h	7Fh	
		MSpeed Control							
		Disengaged	128	143	50%	56%	80h	8Fh	
		Continuous	144	159	56%	62%	90h	9Fh	
		Forward Spin	160	175	63%	69%	A0h	AFh	
		Reverse Spin	176	191	69%	75%	B0h	BFh	
		Forward Strobe Rotate (Effect animate)	192	207	75%	81%	C0h	CFh	
Reverse Strobe Rotate (Effect animate)	208	223	82%	87%	D0h	DFh			
Reserved	224	255	88%	100%	E0h	FFh			
23	Effect Rotate Coarse	Continuous mode							
		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	
24	Effect Rotate Fine	Continuous mode							
		Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh	
25	Animation Function	Full Speed Control							
		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 (Animation animate)	64	79	25%	31%	40h	4Fh	
		Reverse Strobe Rotate (Animation animate)	80	95	31%	37%	50h	5Fh	
		Reserved	96	127	38%	50%	60h	7Fh	
		MSPeed Control							
		Disengaged	128	143	50%	56%	80h	8Fh	
		Continuous	144	159	56%	62%	90h	9Fh	
		Forward Spin	160	175	63%	69%	A0h	AFh	
		Reverse Spin	176	191	69%	75%	B0h	BFh	
		Forward Strobe Rotate (Animation animate)	192	207	75%	81%	C0h	CFh	
Reverse Strobe Rotate (Animation animate)	208	223	82%	87%	D0h	DFh			
Reserved	224	255	88%	100%	E0h	FFh			
26	Animation Rotate	Continuous mode							
		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	
27	Soft Edge	Rotate Slowest to Fastest	4	255	2%	100%	04h	FFh	
		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	
28	Focus Function	Open (hard edge)	168	225	66%	88%	A8h	E1h	
		Manual Focus	0	15	0%	6%	00h	0Fh	
		Auto Focus Animation	16	31	6%	12%	10h	1Fh	
		Auto Focus Gobo 1	32	47	13%	18%	20h	2Fh	
		Auto Focus Gobo 2	48	63	19%	25%	30h	3Fh	
		Auto Focus Iris	64	79	25%	31%	40h	4Fh	
29	Focus Coarse	Reserved	80	255	31%	100%	50h	FFh	
		Focus In	0		0%		00h		
30	Focus Fine	Focus Out	255		100%		FFh		
		Focus In	0		0%		00h		
31	Zoom Coarse	Focus Out	255		100%		FFh		
		Zoom In	0		0%		00h		
32	Zoom Fine	Zoom Out	255		100%		FFh		
		Zoom In	0		0%		00h		
33	Iris	Zoom Out	255		100%		FFh		
		Iris Closed	0		0%		00h		
34	Shutter/ Lamp Functions	Iris Open	255		100%		FFh		
		Normal Shutter Functions	0	31	0%	12%	00h	1Fh	
		Random Random strobe	32	63	13%	25%	20h	3Fh	
		Synchronous Random Strobe	64	95	25%	37%	40h	5Fh	
		Lamp Functions (note 3)	96	127	38%	50%	60h	7Fh	
35	Shutter	Normal Shutter Functions	128	255	50%	100%	80h	FFh	
		Normal/Random/Sync Random shutter functions. (Note 3)							
		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	
		Lamp functions. Accessed when the Control channel is set in the range 96 to 127. (Note 4)							
		Close	0	23	0%	9%	00h	17h	
		Periodic lamp strobes	24	49	9%	19%	18h	31h	
		Random random lamp strobes	50	75	20%	29%	32h	4Bh	
		Synchronous random lamp strobes	76	101	30%	40%	4Ch	65h	
		Boost lamp 1.0 second, black	102	105	40%	41%	66h	69h	
		Boost lamp 0.75 second, black	106	109	42%	43%	6Ah	6Dh	
		Boost lamp 0.66 second, black	110	113	43%	44%	6Eh	71h	
		Boost lamp 0.5 second, black	114	117	45%	46%	72h	75h	
Boost lamp 0.33 second, black	118	121	46%	47%	76h	79h			
Boost lamp 0.25 second, black	122	127	48%	50%	7Ah	7Fh			

		Boost lamp 1.0 second, white	128	131	50%	51%	80h	83h
		Boost lamp 0.75 second, white	132	135	52%	53%	84h	87h
		Boost lamp 0.66 second, white	136	139	53%	55%	88h	8Bh
		Boost lamp 0.5 second, white	140	143	55%	56%	8Ch	8Fh
		Boost lamp 0.33 second, white	144	147	56%	58%	90h	93h
		Boost lamp 0.25 second, white	148	153	58%	60%	94h	99h
		Lightning strike 1	154	157	60%	62%	9Ah	9Dh
		Lightning strike 2	158	161	62%	63%	9Eh	A1h
		Lightning strike 3	162	165	64%	65%	A2h	A5h
		Lightning strike 4	166	169	65%	66%	A6h	A9h
		Lightning strike 5	170	173	67%	68%	AAh	ADh
		Lightning strike 6	174	179	68%	70%	AEh	B3h
		To be determined. Default Black.	180	231	71%	91%	B4h	E7h
		Open	232	255	91%	100%	E8h	FFh
36	Dim	Close	0		0%		00h	
		Open	255		100%		FFh	
37	Mspeed	Disable	0	3	0%	1%	00h	03h
		Longest (252.7 seconds)	4		2%		04h	
		Shortest (0.15 seconds)	255		100%		FFh	
38	Macro (Note 5)	Macro off	0	5	0%	2%	00h	05h
		Pan Sweep, small to large	6	62	2%	24%	06h	3Eh
		Macro off	63	65	25%	25%	3Fh	41h
		Tilt Sweep, small to large	66	122	26%	48%	42h	7Ah
		Macro off	123	125	48%	49%	7Bh	7Dh
		Clockwise Circle, small to large	126	160	49%	63%	7Eh	A0h
		Macro off	161	163	63%	64%	A1h	A3h
		Counterclockwise Circle, small to large	164	198	64%	78%	A4h	C6h
		Reserved. Macro off.	199	255	78%	100%	C7h	FFh
39	Control	The Control channel should not be crossfaded. No shutter channel requirement.						
		Safe (normal operation)	0	9	0%	4%	00h	09h
		Pan & Tilt Mspeed Off	10	19	4%	7%	0Ah	13h
		Shutter channel to 0 for access to the following commands.						
		Display/LED's Off (send 20 packets)	20	28	8%	11%	14h	1Ch
		Display/LED's On (send 20 packets)	40	48	16%	19%	28h	30h
		Home All (send 20 packets)	60	68	24%	27%	3Ch	44h
		Lamp On (send 20 packets)	80	88	31%	35%	50h	58h
		Lamp Off (send 20 packets)	90	98	35%	38%	5Ah	62h
		Shutdown (send 80 packets)	120	130	47%	51%	78h	82h
		Lamp EM (economode) (700W)	140	148	55%	58%	8Ch	94h
		Lamp SM (standard mode) (850W)	150	158	59%	62%	96h	9Eh
		Dim Curve 1 (Legacy)	180	188	71%	74%	B4h	BCh
		Dim Curve 2	190	198	75%	78%	BEh	C6h
		TBD	199	255	78%	100%	C7h	FFh
Enhanced Protocol Mode only (note 6)								
40	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
		TBD	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
		TBD	196	255	77%	100%	C4h	FFh
41	Indigo Highlighter Dim	Indigo Highlighter Off	0		0%		00h	
		Indigo Highlighter 100%	255		100%		FFh	

NOTES

Note 1 Quick path applies - These modes will pass through the open aperture.

Note 2 Non Quick path modes will not pass through open aperture.

Note 3 Strobes transition smoothly from mechanical strobes to electronic strobes. Periodic strobes support 1 - 8.6 Hz operation. Electronic strobes support 8.6 - 20 Hz operation.

Note 4 Lamp Functions boost the lamp above 850 watts for boost to white, boost to black, or lightning effects set in the shutter channel 18.

Note 5 The pan and tilt coarse channels set the center position of the position macro.

The Mspeed channel is used to control the speed of the macros.

0-4 Default speed of 2.5 seconds.

5-255 Minimum speed of 1/2 second with a maximum of 25 seconds.

With the Mspeed set at the default value of DMX 0-4 all internal effects complete moves at appr. 2.5 seconds.

This provides a pleasing look for customers not wanting the additional variation given by using the Mspeed channel.

With Mspeed set between DMX 5-255 all internal effects complete moves at selected Mspeed time (up to 25 secs).

Those fixture types that support On Board Programming also support the Internal Effects as part of the On Board programming features. The Internal Effects will operate as an additional programming parameter labeled MACR.

Note 6 Standard protocol uses 39 DMX channels, and is compatible with software releases prior to 0.0.55. Enhanced protocol uses 41 DMX channels.

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