

Bolt Luminaire DMX Control Protocol *

Channel Reduced	Channel Standard	Construct	Description	Decimal Low	Decimal High	Percent Low	Percent High	Hex Low	Hex High
1	1	Pan	Pan Coarse	0	255	0%	100%	00h	FFh
2	2	Pan	Pan Fine	0	255	0%	100%	00h	FFh
3	3	Tilt	Tilt Coarse	0	255	0%	100%	00h	FFh
4	4	Tilt	Tilt Fine	0	255	0%	100%	00h	FFh
5	5	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
			Slow Scan	64	79	25%	31%	40h	4Fh
			Fast Scan	80	95	31%	37%	50h	5Fh
			Random	96	111	38%	44%	60h	6Fh
			Blink	112	127	44%	50%	70h	7Fh
			MSpeed 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
			Slow Scan	64	79	25%	31%	40h	4Fh
			Fast Scan	80	95	31%	37%	50h	5Fh
Random	96	111	38%	44%	60h	6Fh			
Blink	112	127	44%	50%	70h	7Fh			
6	6	Static Color	Indexed, Scan & Blink modes						
			Position 1 (Open)	0	25	0%	10%	00h	19h
			Position 2 (Red)	26	50	10%	20%	1Ah	32h
			Position 3 (Yellow)	51	75	20%	29%	33h	4Bh
			Position 4 (Indigo)	76	100	30%	39%	4Ch	64h
			Position 5 (Dark Magenta)	101	125	40%	49%	65h	7Dh
			Position 6 (Cyan)	126	150	49%	59%	7Eh	96h
			Position 7 (Green)	151	175	59%	69%	97h	AFh
			Position 8 (Amber)	176	200	69%	78%	B0h	C8h
			Position 9 (Pink)	201	225	79%	88%	C9h	E1h
			Position 10 (Dark Blue)	226	250	89%	98%	E2h	FAh
			Position 1 (Open)	251	255	98%	100%	FBh	FFh
			Spin & Random modes						
			Rotate Stop	0	3	0%	1%	00h	03h
Slowest to fastest	4	255	2%	100%	04h	FFh			
7	7	Static Gobo 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
			Slow Scan	64	79	25%	31%	40h	4Fh
			Fast Scan	80	95	31%	37%	50h	5Fh
			Random	96	111	38%	44%	60h	6Fh
			Blink	112	127	44%	50%	70h	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
			Slow Scan	192	207	75%	81%	C0h	CFh
			Fast Scan	208	223	82%	87%	D0h	DFh
Random	224	239	88%	94%	E0h	EFh			
Blink	240	255	94%	100%	F0h	FFh			
			Indexed, Scan & Blink modes						
			Position 1 (Open)	0	31	0%	12%	00h	1Fh
			Position 2 (Crosshatch)	32	63	13%	25%	20h	3Fh
			Position 3 (Stars)	64	95	25%	37%	40h	5Fh

8	8	Static Gobo Position	Position 4 (Tunnel)	96	127	38%	50%	60h	7Fh		
			Position 5 (Foliage)	128	159	50%	62%	80h	9Fh		
			Position 6 (Bolt)	160	191	63%	75%	A0h	BFh		
			Position 7 (Bars)	192	223	75%	87%	C0h	DFh		
			Position 8 (Burst)	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		
9	9	Rotating Gobo 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		
			Slow Scan	64	79	25%	31%	40h	4Fh		
			Fast Scan	80	95	31%	37%	50h	5Fh		
			Random	96	111	38%	44%	60h	6Fh		
			Blink	112	127	44%	50%	70h	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		
			Slow Scan	192	207	75%	81%	C0h	CFh		
			Fast Scan	208	223	82%	87%	D0h	DFh		
			Random	224	239	88%	94%	E0h	EFh		
			Blink	240	255	94%	100%	F0h	FFh		
10	10	Rotating Gobo Position	Indexed, Scan & Blink modes								
			Position 1 (Open)	0	15	0%	6%	00h	0Fh		
			Position 2 (Psy-Dye)	16	47	6%	18%	10h	2Fh		
			Position 3 (Gatlin Red)	48	79	19%	31%	30h	4Fh		
			Position 4 (Techno Wedge)	80	111	31%	44%	50h	6Fh		
			Position 5 (Instars)	112	143	44%	56%	70h	8Fh		
			Position 6 (Paper Stack)	144	175	56%	69%	90h	AFh		
			Position 7 (Framed)	176	207	69%	81%	B0h	CFh		
			Position 8 (Bright Stars)	208	239	82%	94%	D0h	EFh		
			Position 1 (Open)	240	255	94%	100%	F0h	FFh		
			Spin & Random modes								
			Rotate Stop	0	3	0%	1%	00h	03h		
Slowest to fastest	4	255	2%	100%	04h	FFh					
11	11	Rotating Gobo 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 Animate Rotate	64	79	25%	31%	40h	4Fh		
			Reverse Animate Rotate	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 Animate Rotate	192	207	75%	81%	C0h	CFh		
			Reverse Animate Rotate	208	223	82%	87%	D0h	DFh		
			Reserved	224	255	88%	100%	E0h	FFh		

12	12	Rotating Gobo 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
13	13	Rotating Gobo Rotate Fine	Rotate Slowest to Fastest	4	255	2%	100%	04h	FFh
			Indexed Mode						
			Low Order Byte 0-360 degrees	0	255	0%	100%	00h	FFh
14	14	Focus	Focus Out	0		0%		00h	
			Focus In	255		100%		FFh	
15	15	Iris	Iris Closed	0		0%		00h	
			Iris Open	255		100%		FFh	
16	16	Shutter	Closed	0	2	0%	1%	00h	02h
			Periodic Strobe (slow to fast)	3	84	1%	33%	03h	54h
			Random Random Strobe	85	167	33%	65%	55h	A7h
			Open	168	255	66%	100%	A8h	FFh
17	17	Dim High	Off	0		0%		00h	
			On 100% in Standard Protocol	255		100%		FFh	
N/A	18	Dim Low (Note 1)	Dim Fine in Enhanced Protocol	0	255	0%	100%	00h	FFh
18	19	Mspeed	Disable	0	3	0%	1%	00h	03h
			Longest (252.7 seconds)	4		2%		04h	
			Shortest (0.15 seconds)	255		100%		FFh	
19	20	Macro (Note 2)	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			
20	21	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. (Note 3)						
			Display Off (send 20 packets)	20	28	8%	11%	14h	1Ch
			Display On (send 20 packets)	30	38	12%	15%	1Eh	26h
			Home All (send 20 packets)	40	48	16%	19%	28h	30h
			Shutdown (send 80 packets)	71	80	28%	31%	47h	50h
			No shutter channel requirement.						
			TBD	81	255	32%	100%	51h	FFh

NOTES

Note 1 Dim Low is only used in Standard Protocol.

Note 2 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 3 Control channel should return to Safe after issuing of the desired command.

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