# **Quad © Luminaire DMX Control Protocol \***

Revision: 1.12 27-Feb-18

Standard Protocol							
Channel	Construct						
Channel	Pan Coarse						
2	Pan Fine						
3	Tilt Coarse						
4	Tilt Fine						
5	Mix Color Function						
6	Shutter/LED Function						
7	Shutter						
8	Dim Coarse						
9	Dim Fine						
10	Mspeed						
11	Macros						
12	Macro Speed						
13	Macro Xfade time						
14	Control						
15	Indigo Highlighter Function						
16	Indigo Highlighter Dim						
17	LED 1 X						
18	LED 1 Y						
19	LED 1 Red						
20	LED 1 Red LED 1 Green						
21	LED 1 Blue						
22	LED 1 White						
23	LED 1 Function						
24	LED 1 Dim Coarse						
25	LED 1 Dim Fine						
26	LED 2 X						
27	LED 2 Y						
28	LED 2 Red						
29	LED 2 Green						
30	LED 2 Blue						
31	LED 2 White						
32	LED 2 Function						
33	LED 2 Dim Coarse						
34	LED 2 Dim Fine						
35	LED 3 X						
36	LED 3 Y						
37	LED 3 Red						
38	LED 3 Green						
39	LED 3 Blue						
40	LED 3 White						
41	LED 3 Function						
42	LED 3 Dim Coarse						
43	LED 3 Dim Fine						
44							
	LED 4 X						
45	LED 4 Y						
46	LED 4 Red						
47	LED 4 Green						
48	LED 4 Blue						
49	LED 4 White						
50	LED 4 Function						
51	LED 4 Dim Coarse						
52	LED 4 Dim Fine						

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# **Quad © Luminaire Standard DMX Control Protocol \***

Channel	Marketing Construct	Description	Decimal Low	Decimal High	Percent Low			Hex High	Controller Default
1	Pan	Pan Coarse	0	255	0%			FFh	
2	Pan	Pan Fine	0	255	0%	100%		FFh	
3	Tilt	Tilt Coarse	0	255	0%	100%		FFh	
4	Tilt	Tilt Fine	0	255	0%	100%		FFh	
7	TIIC	RGB	0	15	0%	6%	00h		
		RBG	16	30	6%	12%	10h	1Eh	
		BRG	31	45	12%	18%		2Dh	
		BGR	46	60	18%	24%		3Ch	
		GRB	61	75	24%	29%		4Bh	
		GBR	76	90	30%	35%		5Ah	
5	Mix Color	CMY	91	105	36%	41%	5Bh	69h	
	Function	CYM	106	120	42%	47%	6Ah	78h	0
		YCM	121	135	47%	53%	79h	87h	
		YMC	136	150	53%	59%	88h	96h	
		MCY	151	165	59%	65%	97h	A5h	
		MYC	166	180	65%	71%	A6h	B4h	
		Cycle	181	195	71%	76%	B5h	C3h	
		Random	196	210	77%	82%		D2h	
		Reserved (Note 7)	211	255	83%	100%	D3h	FFh	
	Shutter/	Normal Strobe Functions	0	31	0%	12%	00h	1Fh	
6	LED	Random Random strobe	32	63	13%	25%	20h	3Fh	0
	Functions	Synchronous Random Strobe	64	95	25%	37%	40h	5Fh	U
		Reserved (Note 7)	96	255	38%	100%	60h	FFh	
		Close	0	23	0%	9%	00h	17h	
7	Shutter	Strobe Rate (slow to fast)	24	229	9%	90%	18h	E5h	255
		Open	230	255	90%	100%	E6h	FFh	
8	Dim Coarse	Close	0		0%		00h		0
		Open	255		100%		FFh		
9	Dim Fine		0		0%		00h		0
			255		100%		FFh		
		Disable	0	3	0%	1%		03h	
10	Mspeed	Longest (252.7 seconds)	4		2%		04h		0
		Shortest (0.15 seconds)	255		100%		FFh		
		Macro off	0		0%		00h		
		Macro 1	1		0%		01h		
	Inclusive	Macro 2	2		1%		02h		
11	Macro	Macro 3	3		1%		03h		0
	(Note 1)		4.40		500/		051		
		Macro 142	142	055	56%	4000/	8Eh		
		Reserved (Note 7)	143	255	56%	100%	8FN	FFh	
		Animated Macro Operation (Note 1)			00/	0.407	001	0.51	
		Reverse Play Speed Fast to x1	0	62	0%	24%		3Eh	
40		Reverse Play Speed x1	63	400	25%	0%		00h	
12	Inclusive Macro	Reverse Play speed x 1 to slow	64	126	25%	49%		7Eh	h h
	Speed	Stop	127	128	50%	50%		80h	
		Forward Play Speed slow to x1	129	191	51%	75%		BFh	
		Forward Play speed x 1	192	OFF	75%	0%		00h	
		Forward Play speed x 1 to fast	193	255	76%	100%	CIN	FFh	

	1	Otal's Massa Ossacl's a (Nata 4)							
		Static Macro Operation (Note 1)		100					
		Disable	0	128	0%	50%	00h	80h	
		Longest (63.8 seconds)	129		51%		81h		
13	Inclusive Macro	Shortest (0.15 seconds)	255		100%		FFh		
	X fade	Animated Macro Operation (Note 1)							128
		Stop	0		0%		00h		
		Decreasing xfade time	1	127	0%	50%		7Fh	
		Programmed xfade time x1	128		50%		80h		
		Increasing xfade time	129	255	51%	100%	81h	FFh	
		The Control channel should not be crossfade	d. No sh	nutter cha	nnel requ	uirement	i		
		Safe (normal operation )	0	15	0%	6%	00h	0Fh	
		Pan & Tilt Mspeed Off	16	31	6%	12%	10h	1Fh	
		Display/LED's Off (send 20 packets)	32	47	13%	18%	20h	2Fh	
		Display/LED's On (send 20 packets)	48	63	19%	25%	30h	3Fh	
		Home All (send 20 packets)	64	79	25%	31%	40h	4Fh	
		Shutdown (send 80 packets)	80	95	31%	37%	50h	5Fh	
14	Control	Reserved (Note 7)	96	111	38%	44%		6Fh	
	(Note 2)	Module X Mirror On (Note 3)	112	127	44%	50%		7Fh	
	(**************************************	Module X Mirror Off (Note 3)	128	143	50%	56%		8Fh	0
		Module Y Mirror On (Note 3)	144	159	56%	62%	90h		
		Module Y Mirror Off (Note 3)	160	175	63%	69%	A0h		
		Module X/Y Swap On	176	191	69%	75%	B0h	BFh	
		Module X/Y Swap Off	192	207	75%	81%	C0h	CFh	
		Home Modules (only modules home LEDs							
		off) (send 20 packets)	208	223	82%	87%	D0h	DFh	
		Motion Only Macro Mode	224	239	88%	94%	E0h	EFh	
		White Balance On (Note 6)	240	247	94%	97%	F0h	F7h	
		White Balance Off	248	255	97%	100%	F8h	FFh	
		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		
15	Indigo Highlighter	Reserved (Note 7)	68	127	27%	50%		7Fh	0
	Function	Indigo Highlighter Independent Dim Mode							0
		Continuous	128	143	50%	56%	80h	8Fh	
		Periodic Strobe (slow to fast)	144	169	56%	66%		A9h	
		Random Strobe (slow to fast)	170	195	67%	76%	AAh	C3h	
		Reserved (Note 7)	196	255	77%	100%	C4h	FFh	
16	Indigo Highlighter	Indigo Highlighter Off	0		0%		00h		0
	Dim	Indigo Highlighter 100%	255		100%		FFh		0

17	LED 1 X	LED 1 X shift (NOTE 5)	0	255	0%	100% 00h	FFh	127
18	LED 1 Y	LED 1 Y shift (NOTE 5)	0	255	0%	100% 00h	FFh	0
		RGB Control		•	•			
		Red Off	0		0%	00h		
		Red Full Saturation	255		100%	FFI	)	
		RBG Control	•					
		Red Off	0		0%	00h	1	
		Red Full Saturation	255		100%	FFI	)	
		BRG Control	•					
		Blue Off	0		0%	00h	1	
		Blue Full Saturation	255		100%	FFI	1	
		BGR Control						
		Blue Off	0		0%	00h	1	
		Blue Full Saturation	255		100%	FFI	)	
		GRB Control	•					
		Green Off	0		0%	00h		
		Green Full Saturation	255		100%	FFI		
		GBR Control	<u> </u>		<u> </u>			
		Green Off	0		0%	00h		
		Green Full Saturation	255		100%	FFI	1	
19	LED 1 Red	CMY Control	•					
	(Note 4)	Red Full Saturation	0		0%	00h	1	255
		Red Off	255		100%	FFI	1	
		CYM Control	•					
		Red Full Saturation	0		0%	00h	1	
		Red Off	255		100%	FFI	)	
		YCM Control						
		Blue Full Saturation	0		0%	00h	1	
		Blue Off	255		100%	FFI	)	
		YMC Control						
		Blue Full Saturation	0		0%	00h		
		Blue off	255		100%	FFI	)	
		MCY Control	•					
		Green Full Saturation	0		0%	00h	1	
		Green Off	255		100%	FFI	1	
		MYC Control	<u> </u>		<u> </u>			
		Green Full Saturation	0		0%	00h		
		Green Off	255		100%	FFI	)	
		Cycle & Random Modes. Scan Speed control	olled by F	Red Chan	nel			
		Slow Rate	0		0%	00h		
		Fast Rate	255		100%	FFI	)	

		RGB Control				
		Green Off	0	0%	00h	
		Green Full Saturation	255	100%	FFh	
		RBG Control				
		Blue Off	0	0%	00h	
		Blue Full Saturation	255	100%	FFh	
		BRG Control				
		Red Off	0	0%	00h	
		Red Full Saturation	255	100%	FFh	
		BGR Control				
		Green Off	0	0%	00h	
		Green Full Saturation	255	100%	FFh	
		GRB Control				
		Red Off	0	0%	00h	
		Red Full Saturation	255	100%	FFh	
		GBR Control				
		Blue Off	0	0%	00h	
		Blue Full Saturation	255	100%	FFh	255
20	LED 1 Green	CMY Control				200
		Green Full Saturation	0	0%	00h	
		Green Off	255	100%	FFh	
		CYM Control				
		Blue Full Saturation	0	0%	00h	
		Blue Off	255	100%	FFh	
		YCM Control				
		Red Full Saturation	0	0%	00h	
		Red Off	255	100%	FFh	
		YMC Control				
		Green Full Saturation	0	0%	00h	
		Green Off	255	100%	FFh	
		MCY Control				
		Red Full Saturation	0	0%	00h	
		Red Off	255	100%	FFh	
		MYC Control				
		Blue Full Saturation	0	0%	00h	
		Blue Off	255	100%	FFh	

		RGB Control					
	Ī	Blue Off	0	0%	(	00h	
	ſ	Blue Full Saturation	255	100%	I	FFh	
		RBG Control					
		Green Off	0	0%		00h	
		Green Full Saturation	255	100%	F	FFh	
		BRG Control					
		Green Off	0	0%		00h	
		Green Full Saturation	255	100%	F	FFh	
		BGR Control					
		Red Off	0	0%		00h	
		Red Full Saturation	255	100%	F	FFh	
		GRB Control					
		Blue Off	0	0%		00h	
		Blue Full Saturation	255	100%	F	FFh	
		GBR Control					
		Red Off	0	0%		00h	
		Red Full Saturation	255	100%	F	FFh	255
21 LED 1	Blue	CMY Control					255
		Blue Full Saturation	0	0%		00h	
		Blue Off	255	100%	ŀ	FFh	
		CYM Control					
		Green Full Saturation	0	0%		00h	
		Green Off	255	100%	ŀ	FFh	
		YCM Control					
		Green Full Saturation	0	0%		00h	
		Green Off	255	100%	ŀ	FFh	
		YMC Control					
		Red Full Saturation	0	0%		00h	
		Red Off	255	100%	ŀ	FFh	
		MCY Control					
		Blue Full Saturation	0	0%		00h	
		Blue Off	255	100%	F	FFh	
		MYC Control					
1		Red Full Saturation	0	0%		00h	
		Red Off	255	100%	F	FFh	

		RGB Control						
		White Off	0	I	0%	I	00h	1
		White Full	255		100%		FFh	1
		RBG Control		l	10070		1	
		White Off	0	Π	0%	Π	00h	1
		White Full	255		100%		FFh	1
		BRG Control	233		100 /6		[1 1 11]	1
		White Off	0	l	0%	I	00h	1
		White Full	255		100%		FFh	1
		BGR Control	200		100 /6		ILLII	1
		White Off	0	I	0%	I	00h	
							FFh	
		White Full	255		100%		<u> </u> rrn	
		GRB Control		ı	00/	ı	Look	
		White Off	0		0%		00h	
		White Full	255	<u> </u>	100%		FFh	
		GBR Control		1		T	Lagi	
		White Off	0		0%		00h	
		White Full	255		100%		FFh	255
22	LED 1 White	CMY Control			•	•	, ,	200
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		CYM Control						
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		YCM Control						
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		YMC Control						
		White Off	0		0%		00h	
		White Full	255		100%		FFh	1
		MCY Control						1
		White Off	0		0%		00h	1
		White Full	255		100%		FFh	1
		MYC Control						1
		White Off	0		0%		00h	1
		White Full	255		100%		FFh	1
		LED 1 Dim Tracking Mode						
		Continuous	0	15	0%	6%	00h 0Fh	1
		Periodic Strobe (slow to fast)	16	41	6%	16%	10h 29h	
		Random Strobe (slow to fast)	42	67	16%	26%	2Ah 43h	
23	LED 1 Function	Reserved (Note 7)	68	127	27%	50%	44h 7Fh	1
		LED 1 Independent Dim Mode						0
		Continuous	128	143	50%	56%	80h 8Fh	1
		Periodic Strobe (slow to fast)	144	169	56%	66%	90h A9h	1
		Random Strobe (slow to fast)	170	195	67%	76%	AAh C3h	1
		Reserved (Note 7)	196	255	77%	100%	C4h FFh	1
24	LED 1 Dim Coarse	,	0	200	0%	10070	00h	
47	LLD I DIIII Coaise	LED 1 100%	255		100%		FFh	0
25	LED 1 Dim Fire	LLD 1 100/0	0		0%			
∠5	LED 1 Dim Fine		255	-	100%		00h FFh	0
	1		∠33	]	100%		ILLII	

26	LED 2 X	LED 2 X shift (NOTE 5)	0	255	0%	100%   00h   FFh	127
27	LED 2 Y	LED 2 Y shift (NOTE 5)	0	255	0%	100%   00h   FFh	0
		RGB Control		•	•		
		Red Off	0		0%	00h	
		Red Full Saturation	255		100%	FFh	
		RBG Control					
		Red Off	0		0%	00h	
		Red Full Saturation	255		100%	FFh	
		BRG Control					
i		Blue Off	0		0%	00h	
		Blue Full Saturation	255		100%	FFh	
		BGR Control					
i		Blue Off	0		0%	00h	
		Blue Full Saturation	255		100%	FFh	
		GRB Control					
		Green Off	0		0%	00h	
		Green Full Saturation	255		100%	FFh	
		GBR Control					
		Green Off	0		0%	00h	
		Green Full Saturation	255		100%	FFh	
		CMY Control					
		Red Full Saturation	0		0%	00h	255
		Red Off	255		100%	FFh	
28	LED 2 Red	CYM Control					
	(Note 4)	Red Full Saturation	0		0%	00h	
		Red Off	255		100%	FFh	
		YCM Control					
		Blue Full Saturation	0		0%	00h	
i		Blue Off	255		100%	FFh	
i		YMC Control					
		Blue Full Saturation	0		0%	00h	
		Blue off	255		100%	FFh	
		MCY Control					
		Green Full Saturation	0		0%	00h	
		Green Off	255		100%	FFh	
		MYC Control					
		Green Full Saturation	0		0%	00h	
		Green Off	255		100%	FFh	
		Cycle & Random Modes. Scan Speed contr	olled by F	Red Chan			
		Slow Rate	0		0%	00h	
		Fast Rate	255		100%	FFh	

		RGB Control				
		Green Off	0	0%	00h	
		Green Full Saturation	255	100%	FFh	
		RBG Control				
		Blue Off	0	0%	00h	
		Blue Full Saturation	255	100%	FFh	
		BRG Control				
		Red Off	0	0%	00h	
		Red Full Saturation	255	100%	FFh	
		BGR Control				
		Green Off	0	0%	00h	
		Green Full Saturation	255	100%	FFh	
		GRB Control				
		Red Off	0	0%	00h	
		Red Full Saturation	255	100%	FFh	
		GBR Control				
		Blue Off	0	0%	00h	
		Blue Full Saturation	255	100%	FFh	255
29	LED 2 Green	CMY Control				200
		Green Full Saturation	0	0%	00h	
		Green Off	255	100%	FFh	
		CYM Control				
		Blue Full Saturation	0	0%	00h	
		Blue Off	255	100%	FFh	
		YCM Control	1			
		Red Full Saturation	0	0%	00h	
		Red Off	255	100%	FFh	
		YMC Control				
		Green Full Saturation	0	0%	00h	
		Green Off	255	100%	FFh	
		MCY Control				
		Red Full Saturation	0	0%	00h	
		Red Off	255	100%	FFh	
		MYC Control				
		Blue Full Saturation	0	0%	00h	
		Blue Off	255	100%	FFh	

	RGB Control				
	Blue Off	0	0%	00h	
	Blue Full Saturation	255	100%	FFh	
	RBG Control				
	Green Off	0	0%	00h	
	Green Full Saturation	255	100%	FFh	
	BRG Control				
	Green Off	0	0%	00h	
	Green Full Saturation	255	100%	FFh	
	BGR Control				
	Red Off	0	0%	00h	
	Red Full Saturation	255	100%	FFh	
	GRB Control				
	Blue Off	0	0%	00h	
	Blue Full Saturation	255	100%	FFh	
	GBR Control				
	Red Off	0	0%	00h	
	Red Full Saturation	255	100%	FFh	255
30 LED 2 Blu					200
	Blue Full Saturation	0	0%	00h	
	Blue Off	255	100%	FFh	
	CYM Control				
	Green Full Saturation	0	0%	00h	
	Green Off	255	100%	FFh	
	YCM Control	<del></del>			
	Green Full Saturation	0	0%	00h	
	Green Off	255	100%	FFh	
	YMC Control				
	Red Full Saturation	0	0%	00h	
	Red Off	255	100%	FFh	
	MCY Control				
	Blue Full Saturation	0	0%	00h	
	Blue Off	255	100%	FFh	ļ
	MYC Control				
	Red Full Saturation	0	0%	00h	
	Red Off	255	100%	FFh	

		RGB Control						
		White Off	0	I	0%	I	00h	
		White Full	255		100%		FFh	
		RBG Control	200	l	10070		1	
		White Off	0	l	0%	Π	00h	
		White Full	255		100%		FFh	
		BRG Control	200		10070		[111]	
		White Off	0	ı	0%	ı	00h	
		White Full	255		100%		FFh	
		BGR Control	200		10070		[1 1 11]	
		White Off	0	ı	0%	ı	00h	
		White Full	255		100%		FFh	
		GRB Control	200		100%		[FFII]	
			1 0	l I	00/	Γ	00h	
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		GBR Control		I	00/	ı	LOOK!	
		White Off	0		0%	ļ	00h	
~.	LED CMU	White Full	255		100%		FFh	255
31	LED 2 White	CMY Control	1 ^	ı	007	ı	Look	
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		CYM Control		1		ı		
i		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		YCM Control	1	T	,	_	,	
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		YMC Control	1	•		•	,	
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		MCY Control						
		White Off	0		0%		00h	
i		White Full	255		100%		FFh	
1		MYC Control						
1		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		LED 2 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	
32	LED 2 Function	Reserved (Note 7)	68	127	27%	50%	44h 7Fh	0
		LED 2 Independent Dim Mode						U
		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 7)	196	255	77%	100%	C4h FFh	
33	LED 2 Dim Coarse	LED 2 Off	0		0%		00h	_
		LED 2 100%	255		100%		FFh	0
34	LED 2 Dim Fine		0		0%		00h	
i			255		100%		FFh	0

35	LED 3 X	LED 3 X shift (NOTE 5)	0	255	0%	100%   00h   F	Fh	127
36	LED 3 Y	LED 3 Y shift (NOTE 5)	0	255	0%	100%   00h   F	Fh	0
		RGB Control			•			
		Red Off	0		0%	00h		
		Red Full Saturation	255		100%	FFh		
		RBG Control						
		Red Off	0		0%	00h		
		Red Full Saturation	255		100%	FFh		
		BRG Control						
		Blue Off	0		0%	00h		
		Blue Full Saturation	255		100%	FFh		
		BGR Control						
		Blue Off	0		0%	00h		
		Blue Full Saturation	255		100%	FFh		
		GRB Control						
		Green Off	0		0%	00h		
		Green Full Saturation	255		100%	FFh		
		GBR Control						
		Green Off	0		0%	00h		
		Green Full Saturation	255		100%	FFh		
37	LED 3 Red	CMY Control						
	(Note 4)	Red Full Saturation	0		0%	00h		255
		Red Off	255		100%	FFh		
		CYM Control						
		Red Full Saturation	0		0%	00h		
		Red Off	255		100%	FFh		
		YCM Control						
		Blue Full Saturation	0		0%	00h		
		Blue Off	255		100%	FFh		
		YMC Control	<del>-</del>					
		Blue Full Saturation	0		0%	00h		
		Blue off	255		100%	FFh		
		MCY Control						
		Green Full Saturation	0		0%	00h		
		Green Off	255		100%	FFh		
		MYC Control						
		Green Full Saturation	0		0%	00h		
		Green Off	255		100%	FFh		
		Cycle & Random Modes. Scan Speed contr	olled by F	Red Chan	nel			
		Slow Rate	0		0%	00h		
		Fast Rate	255		100%	FFh		

		RGB Control						
		Green Off	0		0%	00h		
		Green Full Saturation	255		100%	FFh		
		RBG Control						
		Blue Off	0		0%	00h		
		Blue Full Saturation	255		100%	FFh		
		BRG Control						
		Red Off	0		0%	00h		
		Red Full Saturation	255		100%	FFh		
		BGR Control						
		Green Off	0		0%	00h		
		Green Full Saturation	255		100%	FFh		
		GRB Control						
		Red Off	0		0%	00h		
		Red Full Saturation	255		100%	FFh		
		GBR Control						
		Blue Off	0		0%	00h	255	
		Blue Full Saturation	255		100%	FFh		
38	LED 3 Green	CMY Control						
		Green Full Saturation	0		0%	00h		
		Green Off	255		100%	FFh		
		CYM Control	, ,	· •	T			
		Blue Full Saturation	0		0%	00h		
		Blue Off	255		100%	FFh		
		YCM Control		Ī	1			
		Red Full Saturation	0		0%	00h		
		Red Off	255		100%	FFh		
		YMC Control		Ī	1			
		Green Full Saturation	0		0%	00h		
		Green Off	255		100%	FFh		
		MCY Control		1	1			
		Red Full Saturation	0		0%	00h		
		Red Off	255		100%	FFh		
		MYC Control	1 - 1	-		Tan I		
		Blue Full Saturation	0		0%	00h		
		Blue Off	255		100%	FFh		

	RO	GB Control							
	Bli	ue Off	0		0%	1	00h		
		ue Full Saturation	255		100%		FFh		
	RE	RBG Control							
		reen Off	0		0%		00h		
	Gr	reen Full Saturation	255		100%		FFh		
		BRG Control							
		reen Off	0		0%		00h		
		reen Full Saturation	255		100%		FFh		
	BC	GR Control							
	Re	ed Off	0		0%		00h		
	Re	ed Full Saturation	255		100%		FFh		
	GI	RB Control							
		ue Off	0		0%		00h		
	<u> </u>	ue Full Saturation	255		100%		FFh		
	GI	GBR Control							
		ed Off	0		0%		00h	255	
	Re	ed Full Saturation	255		100%		FFh		
39 LED 3		CMY Control						200	
		ue Full Saturation	0		0%		00h		
		ue Off	255		100%		FFh		
		CYM Control							
		reen Full Saturation	0		0%		00h		
		reen Off	255		100%	l	FFh		
		CM Control							
		reen Full Saturation	0		0%		00h		
		reen Off	255		100%		FFh		
		MC Control							
	Re	ed Full Saturation	0		0%		00h		
		ed Off	255		100%		FFh		
		CY Control							
		ue Full Saturation	0		0%		00h		
		ue Off	255		100%		FFh		
		YC Control							
1		ed Full Saturation	0		0%		00h		
	Re	ed Off	255		100%		FFh		

	1	RGB Control						
		White Off	0	I	0%	I	00h	
		White Full	255		100%		FFh	
		RBG Control	200	l	10070		1 • • • • • • •	
		White Off	0	l	0%	Ι	00h	
		White Full	255		100%		FFh	
		BRG Control	233		100 /6		1 1 1 1	
		White Off	0	I	0%	I	00h	
		White Full	255		100%		FFh	
		BGR Control	200		100 /6		FFII	
		White Off	0	I	0%	I	00h	
							FFh	
		White Full	255		100%		FFN	
		GRB Control		ı	00/	ı	001-	
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		GBR Control		ı	001	T	Look	
		White Off	0		0%		00h	
		White Full	255		100%		FFh	255
40	LED 3 White	CMY Control		<u> </u>			1 . 1	233
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		CYM Control						
i		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		YCM Control						
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		YMC Control						
		White Off	0		0%		00h	
		White Full	255		100%		FFh	
		MCY Control						
		White Off	0		0%		00h	
i		White Full	255		100%		FFh	
		MYC Control						
i		White Off	0		0%		00h	
L		White Full	255		100%		FFh	
		LED 3 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	
41	LED 3 Function	Reserved (Note 7)	68	127	27%	50%	44h 7Fh	
		LED 3 Independent Dim Mode						0
		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 7)	196	255	77%	100%	C4h FFh	
42	LED 3 Dim Coarse	` ,	0		0%	120,3	00h	
, <u>, , , , , , , , , , , , , , , , , , </u>	LLD 0 Dilli 00aise	LED 3 100%	255		100%		FFh	0
43	LED 3 Dim Fine		0		0%		00h	
73	LLD 3 DIIII FIIIE		255		100%		FFh	0
			200		100/0		11.11	

44	LED 4 X	LED 4 X shift (NOTE 5)	0	255	0%	100%	00h FFh	127				
45	LED 4 Y	LED 4 Y shift (NOTE 5)	0	255	0%	100%	00h FFh	0				
		RGB Control										
		Red Off	0		0%		00h					
		Red Full Saturation	255		100%		FFh					
		RBG Control										
		Red Off	0		0%		00h					
		Red Full Saturation	255		100%		FFh					
		BRG Control										
		Blue Off	0		0%		00h					
		Blue Full Saturation	255		100%		FFh					
		BGR Control										
i		Blue Off	0		0%		00h					
		Blue Full Saturation	255		100%		FFh					
		GRB Control										
		Green Off	0		0%		00h					
		Green Full Saturation	255		100%		FFh					
		GBR Control										
i		Green Off	0		0%		00h					
		Green Full Saturation	255		100%		FFh					
46	LED 4 Red	CMY Control										
	(Note 4)	Red Full Saturation	0		0%		00h	255				
		Red Off	255		100%		FFh					
		CYM Control										
		Red Full Saturation	0		0%		00h					
		Red Off	255		100%		FFh					
		YCM Control										
		Blue Full Saturation	0		0%		00h					
i		Blue Off	255		100%		FFh					
i		YMC Control										
		Blue Full Saturation	0		0%		00h					
		Blue off	255		100%		FFh					
		MCY Control										
		Green Full Saturation	0		0%		00h					
		Green Off	255		100%		FFh					
		MYC Control										
		Green Full Saturation	0		0%		00h					
i		Green Off	255		100%		FFh					
		Cycle & Random Modes. Scan Speed contr	olled by R	Red Chan	nel							
1		Slow Rate	0		0%		00h					
		Fast Rate	255		100%		FFh					

		RGB Control							
		Green Off	0	0%	00h				
		Green Full Saturation	255	100%	FFh				
		RBG Control							
		Blue Off	0	0%	00h				
		Blue Full Saturation	255	100%	FFh				
		BRG Control							
		Red Off	0	0%	00h				
		Red Full Saturation	255	100%	FFh				
		BGR Control							
		Green Off	0	0%	00h				
		Green Full Saturation	255	100%	FFh				
		GRB Control							
		Red Off	0	0%	00h				
		Red Full Saturation	255	100%	FFh				
		GBR Control							
		Blue Off	0	0%	00h	255			
		Blue Full Saturation	255	100%	FFh				
47	LED 4 Green	CMY Control							
		Green Full Saturation	0	0%	00h				
		Green Off	255	100%	FFh				
		CYM Control							
		Blue Full Saturation	0	0%	00h				
		Blue Off	255	100%	FFh				
		YCM Control	T - T		1 1				
		Red Full Saturation	0	0%	00h				
		Red Off	255	100%	FFh				
		YMC Control	T - T		1 1				
		Green Full Saturation	0	0%	00h				
		Green Off	255	100%	FFh				
		MCY Control			Tag: I				
		Red Full Saturation	0	0%	00h				
		Red Off	255	100%	FFh				
		MYC Control		1 00/	Logi				
		Blue Full Saturation	0	0%	00h				
		Blue Off	255	100%	FFh				

		RGB Control					
		Blue Off	0	0%	00h		
		Blue Full Saturation	255	100%	FFh		
	RBG Control						
		Green Off	0	0%	00h		
	Green Full Saturation	255	100%	FFh			
		BRG Control					
		Green Off	0	0%	00h		
		Green Full Saturation	255	100%	FFh		
		BGR Control					
		Red Off	0	0%	00h		
		Red Full Saturation	255	100%	FFh		
		GRB Control					
		Blue Off	0	0%	00h		
		Blue Full Saturation	255	100%	FFh		
		GBR Control					
		Red Off	0	0%	00h		
		Red Full Saturation	255	100%	FFh	255	
48	LED 4 Blue	CMY Control					
		Blue Full Saturation	0	0%	00h		
		Blue Off	255	100%	FFh		
		CYM Control					
		Green Full Saturation	0	0%	00h		
		Green Off	255	100%	FFh		
		YCM Control					
		Green Full Saturation	0	0%	00h		
		Green Off	255	100%	FFh		
		YMC Control					
		Red Full Saturation	0	0%	00h		
		Red Off	255	100%	FFh		
		MCY Control					
		Blue Full Saturation	0	0%	00h		
		Blue Off	255	100%	FFh		
		MYC Control					
		Red Full Saturation	0	0%	00h		
		Red Off	255	100%	FFh		

		RGB Control					
		White Off	0	ı	0%	00h	
		White Full	255		100%	FFh	
		RBG Control	233		10078	[1 1 11]	
		White Off	0	ı	0%	00h	
		White Full	255		100%	FFh	
		BRG Control	200		100%		
		White Off		Ī	00/	Look	
		White Full	0		0%	00h FFh	
		BGR Control	255		100%		
				ı	00/	Look	
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		GRB Control		T T	1 00/		
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		GBR Control		ı		100.1	
		White Off	0		0%	00h	
		White Full	255		100%	FFh	255
49	LED 4 White	CMY Control				1 1	255
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		CYM Control					
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		YCM Control					
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		YMC Control					
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		MCY Control					
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		MYC Control					
		White Off	0		0%	00h	
		White Full	255		100%	FFh	
		LED 4 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	
50	LED 4 Function	Reserved (Note 7)	68	127	27%	50% 44h 7Fh	0
		LED 4 Independent Dim Mode					0
		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 7)	196	255	77%	100% C4h FFh	
51	LED 4 Dim Coarse	` '	0		0%	00h	_
•		LED 4 100%	255		100%	FFh	0
52	LED 4 Dim Fine		0		0%	00h	
02			255		100%	FFh	0
			_00		.0070	1 1 1 1 1 1	

#### **NOTES**

1 142 Discrete Static and Multi-Step macros will be defined. These will require macro xfade and speed channels.

**Static Macro X fade and Playback operation:** When changing between static macros, the X fade time from channel 13 will be applied to the change. X fade will commence when the change is received.

## Playback speed operation

0-128 fastest playback time - crossfade off

129-255 time defined by table on accompanying chart noted on the Xfade Speed Times Tab.

## Multi-Step macro X fade and Playback operation:

#### X fade channel operation

0 stops crossfade

1-127 decreases crossfade time (\* <1)

128 cross fade speed is as programmed (\*1)

129-255 crossfade time (\* >1)

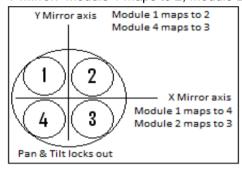
#### Playback speed operation

0-126 Reverse playback Fast to slow 127-128 Stop playback

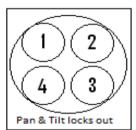
129-255 Forward playback slow to Fast

- 2 Module Calibration allows for fine calibration of X/Y LED module positions. Upon entering Calibration mode, the X/Y value offsets are stored to align all beams. These calibration values are retained in eeprom, and used as X/Y offsets to ensure that beams are aligned. This is now a menu option only.
- 3 X & Y Mirror affect all module parameters (X, Y, Red, Green, Blue, White, Function and Dim). See accompanying chart

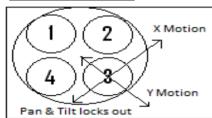
X mirror: Module 1 maps to 4, Module 4 maps to 1, Module 2 maps to 3, Module 3 maps to 2. Y mirror: Module 1 maps to 2, Module 2 maps to 1, Module 4 maps to 3, Module 3 maps to 4



4 LED modules are arranged according to the chart.



5 LED X Y shift is defined according to the drawing



- White balance adjusts RGB values for a balanced white output. Default is on, this value is not retained through a power cycle.
- 7 Reserved ranges should function according to the controller default value.
- 8 RDM Manufacturers ID: 0x4c52
- 9 RDM Device ID: 0x582
  - \* © 2015 High End Systems all rights reserved.