

# x.Spot/x.SpotXtreme Standard DMX Protocol

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
<b>BASIC FIXTURE FUNCTIONS</b>					
1	Pan Coarse	Coarse-adjusts pan to approximately 2 degrees of desired position	0-255	0-100	00-FF
2	Pan Fine	Fine-adjusts pan position in increments less than 1 degree	0-255	0-100	00-FF
3	Tilt Coarse	Coarse-adjusts tilt to approximately 2 degrees of desired position	0-255	0-100	00-FF
4	Tilt Fine	Fine-adjusts tilt position in increments less than 1 degree	0-255	0-100	00-FF
5	Lamp Function	Normal Shutter Functions	0-31	0-12	00-1F
		Lamp Assisted Strobes <i>boosts the Lamp above 700 Watts for periodic and random strobes set in Shutter channel 6.</i>	32-63	13-25	20-3F
		Lamp Effects <i>boosts the lamp above 700 watts for Boost to White, Boost to Black, or Lightning effects set in Shutter channel 6.</i>	64-95	35-37	40-5F
		Dual Dimming <i>adds electronic dimming to the mechanical dimming set in the Dim channel 7. (0%–100%)</i>	96-127	38-50	60-7F
		Electronic Dimming Only <i>Lamp output varies from a minimum–700W; does not go to black</i>	128-159	50-62	80-9F
		Reserved	160-191	63-75	A0-BF
		Reserved	192-223	75-88	C0-DF
		Normal Shutter Functions	224-255	88-100	E0-FF
6	Shutter, Normal Function <i>Lamp Function channel set from 0-31</i>	Close	0-23	0-9	00-17
		Periodic Strobe (variable)	24-49	9-19	18-31
		Random/Random Strobe (variable)	50-75	20-29	32-4B
		Random/Synchronous Strobe (variable)	76-101	30-40	4C-65
		Ramp Open/Snap Shut (variable)	102-127	40-50	66-7F
		Snap Open/Ramp Shut (variable)	128-153	50-60	80-99
		Ramp Open/Ramp Shut (variable)	154-179	60-70	9A-B3
		Random Ramp/Snap (variable)	180-205	71-80	B4-CD
		Random Snap/Ramp (variable)	206-231	81-91	CE-E7
		Open	232-255	91-100	E8-FF

<b>Chan #</b>	<b>Parameter</b>	<b>Description</b>	<b>Value (dec.)</b>	<b>Value (%)</b>	<b>Value (hex)</b>
<b>6</b>	<b>Shutter, Lamp Assisted Strobes</b> <i>Lamp Function channel set from 32–63</i>	Close	0-23	0-9	00-17
		Periodic Strobe (variable, Lamp assisted)	24-49	9-19	18-31
		Random/Rand Strobe (variable, Lamp assisted)	50-75	20-29	32-4B
		Random/Sync (variable, Lamp assisted)	76-101	30-40	4C-65
		Ramp Open/Snap Shut (variable)	102-127	40-50	66-7F
		Snap Open/Ramp Shut (variable)	128-153	50-60	80-9A
		Ramp Open/Ramp Shut (variable)	154-179	60-70	9A-B3
		Random Ramp/Snap (variable)	180-205	71-80	B4-CD
		Random Snap/Ramp (variable)	206-231	81-91	CE-E7
	Open	232-255	91-100	E8-FF	
	<b>Shutter, Lamp Effect</b> <i>Lamp Function channel set from 64–95</i>	Close	0-23	0-9	00-17
		Periodic lamp strobes	24-49	9-19	18-31
		Random random lamp strobes	50-75	20-29	32-4B
		Synchronous random lamp strobes	76-101	30-40	4C-65
		Boost lamp 1.0 second, black	102-105	40-41	66-69
		Boost lamp 0.75 second, black	106-109	42-43	6A-6D
		Boost lamp 0.66 second, black	110-113	43-44	6E-71
		Boost lamp 0.5 second, black	114-117	45-46	72-75
		Boost lamp 0.33 second, black	118-121	46-47	76-79
		Boost lamp 0.25 second, black	122-127	48-50	7A-7F
		Boost lamp 1.0 second, white	128-131	50-51	80-83
		Boost lamp 0.75 second, white	132-135	52-53	84-87
		Boost lamp 0.66 second, white	136-139	53-55	88-8B
		Boost lamp 0.50 second, white	140-143	55-56	8C-8F
		Boost lamp 0.33 second, white	144-147	56-58	90-93
		Boost lamp 0.25 second, white	148-153	58-60	94-99
		Lightning strike 1	154-157	60-62	9A-9D
		Lightning strike 2	158-161	62-63	9E-A1
		Lightning strike 3	162-165	64-65	A2-A5
		Lightning strike 4	166-169	65-66	A6-A9
		Lightning strike 5	170-173	67-68	AA-AD
		Lightning strike 6	174-179	68-70	AE-B3
Reserved. Default Black.		180-231	71-91	B4-E7	
Open	232-255	91-100	E8-FF		

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
6	<b>Shutter, Electronic Dimming:</b> <i>Lamp Function channel set from 128-159</i>	Close	0-23	0-9	00-17
		Periodic Strobe (variable)	24-49	9-19	18-31
		Random/Rand Strobe (variable)	50-75	20-29	32-4B
		Random/Sync (variable)	76-101	30-40	4C-65
		Ramp Open/Snap Shut (variable)	102-127	40-50	66-7F
		Snap Open/Ramp Shut (variable)	128-153	50-60	80-99
		Ramp Open/Ramp Shut (variable)	154-179	60-70	9A-B3
		Random Ramp/Snap (variable)	180-205	71-80	B4-CD
		Random Snap/Ramp (variable)	206-231	81-91	CE-E7
	Open	232-255	91-100	E8-FF	
7	<b>Dim</b>	Mechanical dimming only, from closed–open	0-255	0-100	00-FF
		Mechanical + electronic dimming from closed–open <i>Lamp Control channel 5 set from 96–127</i>	0-255	0-100	00-FF
8	<b>Frost</b>	Open (No Frost)	0	0	00
		Variable Frost (open to closed)	1-127	1-49	01-7F
		Full Frost	128-135	50-53	80-87
		Periodic Frost Strobe (slow to fast)	136-151	53-59	88-97
		Random Frost Strobe (slow to fast)	152-167	60-66	98-A7
		Ramp Open/Snap Shut	168-183	66-72	A8-B7
		Snap Open/Ramp Shut	184-199	72-78	B8-C7
		Ramp Open/Ramp Shut	200-215	78-84	C8-D7
		Random Ramp/Snap	216-231	85-91	D8-E7
		Random Snap/Ramp	232-247	91-97	E8-F7
			Open (No Frost)	248-255	97-100
9	<b>Focus Function</b>	ZoomTrack	0-31	0-12	00-1F
		Manual Focus	32-63	13-24	20-3F
		Reserved	64-95	25-37	40-5F
		Reserved	96-127	38-49	60-7F
		Reserved	128-159	50-62	80-9F
		Reserved	160-191	63-74	A0-BF
		Reserved	192-223	75-87	C0-DF
		Reserved	224-255	88-100	E0-FF
10	<b>Focus</b>	Auto or Manual Focus from In to Out	0-255	0-100	00-FF
11	<b>Zoom</b>	Zoom from In to Out	0-255	0-100	00-FF
12	<b>MSpeed</b>	(see “MSpeed Conversion Table in Appendix B)			

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
13	Macro (MacroSpeed controlled via Mspeed)	Macro Off	0-5	0-2	00-05
		Pan sweep from small to large angle	6-62	2-24	06-3E
		Macro Off	63-65	25-26	3F-41
		Tilt sweep from small to large angle	66-122	26-48	42-7A
		Macro Off	123-125	48-49	7B-7D
		Clockwise circle from small to large	126-160	49-63	7E-A0
		Macro Off	161-163	63-64	A1-A3
		Counterclockwise circle from small to large	164-198	64-78	A4-C6
		Reserved	199-255	78-100	C7-FF
14	Control (Set Shutter Channel to "0" to access Control channel settings except for Pan/Tilt)	Safe	0-9	0-4	00-09
		Pan and Tilt Mspeed Off	10-19	4-8	0A-13
		Display Off	20-28	8-11	14-1C
		Display Dim	30-38	12-15	1E-26
		Display Bright	40-48	16-19	28-30
		Home All	60-68	24-27	3C-44
		Lamp On	80-88	31-35	50-58
		Lamp Off	90-98	35-38	5A-62
		Shutdown	120-130	47-51	78-82
		Reserved	131-149	51-58	83-95
		Home Pan/Tilt	160-168	63-66	A0-A8
		Home Color System	170-178	67-70	AA-B2
		Home Gobo System	180-188	70-74	B4-BC
		Home Strobe/Dim	190-198	75-78	78-C6
		Home Focus/Zoom/Frost	200-208	78-82	C8-D0
Home Iris	210-218	82-86	D2-DA		
<b>SLOT 1: SIX-WHEEL COLOR MIXING MODULE</b>					
15	Static Color Function	<b>Full Speed Control</b>			
		Indexed	0 - 15	0-6	0-0F
		Forward Spin	16-31	6-12	10-1F
		Reverse Spin	32-47	13-18	20-2F
		Continuous	48-63	19-25	30-3F
		Slow Scan	64-79	25-31	40-4F
		Fast Scan	80-95	31-37	50-5F
		Random	96-111	38-44	60-6F
Blink-Indexed	112-127	44-50	70-7F		

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
15	Static Color Function	<b>MSpeed Control</b>			
		Indexed	128-143	50-56	80-8F
		Forward Spin	144-159	57-62	90-9F
		Reverse Spin	160-175	63-69	A0-AF
		Continuous	176-191	69-75	B0-BF
		Slow Scan	192-207	75-81	C0-CF
		Fast Scan	208-223	82-88	D0-DF
		Random	224-239	88-94	E0-EF
		Blink	240-255	94-100	F0-FF
16	Static Color Position	<b>Indexed, Scan, and Blink Modes</b>			
		Color Position 1 Open (White)	0-23	0-9	0-17
		Position 1 2	24-42	2-17	18-2A
		Position 2	43-61	17-24	2B-3D
		Position 2 3	62-80	24-31	3E-50
		Position 3	81-99	32-38	51-62
		Position 3 4	100-118	39-46	63-76
		Position 4	119-137	47-54	77-89
		Position 4 5	138-156	54-61	8A-9C
		Position 5	157-175	62-69	9D-AF
		Position 5 6	176-194	69-76	B0-C2
		Position 6	195-213	77-84	C3-D5
		Position 6 1	214-232	84-91	D6-E8
		Position 1 Open (White)	233-255	91-100	E9-FF
		<b>Spin Mode</b>			
		Spin Stop	0	0	0
		Forward Spin Slowest to Fastest	4-255	2-100	.04-FF
		Reverse Spin Slowest to Fastest	4-255	2-100	.04-FF
		<b>Random Mode</b>			
		Random Stop	0	2-100	.04-FF
Random Slowest to Fastest	4-255	2-100	.04-FF		
<b>Continuous Mode</b>					
Positioning from 0-360 degrees	0-255	0-100	0-FF		
17	Mix Color Function	<b>Full Speed Control</b>			
		Pure Mix	0-15	0-6	0-0F
		Continuous	16-31	6-12	10-1F
		Reserved	32-47	13-18	20-2F
		Spin (Wheel Spin speed, direction, or fixed position set individually on CYM channels.)	48-63	19-25	30-3F
		Cycle (Rate set by Cyan channel)	64-79	25-31	40-4F
		Reserved	80-95	31-37	50-5F
		Random (Rate set by Cyan channel.)	96-111	38-44	60-6F
Blink (Defined using Continuous wheel operation)	112-127	44-50	70-7F		

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
17	Mix Color Function	<b>MSpeed Control</b>			
		Pure Mix	128-143	50-56	80-8F
		Continuous	144-159	57-62	90-9F
		Reserved	160-175	63-69	A0-AF
		Spin (Wheel Spin speed, direction, or fixed position set individually on CYM channels.)	176-191	69-75	B0-BF
		Cycle (Rate set by Cyan channel)	192-207	75-81	C0-CF
		Reserved	208-223	82-88	D0-DF
		Random (Rate set by Cyan channel.)	224-239	88-94	E0-EF
		Blink	240-255	94-100	F0-FF
18	Cyan	<b>Pure Mix Mode</b>			
		Full Cyan	0	0	00
		Open	255	100	FF
		<b>Continuous and Blink Modes</b>			
		Full Cyan	0	0	0
		Open	127	50	7F
		Full Cyan	128	50	80
		Open	255	100	FF
		<b>Spin Mode</b>			
		Continuous Positioning	0-127	0-50	00-7F
		Reverse Spin fastest	128-157	50-62	80-9D
		Reverse Spin slowest	158-187	62-73	9E-BB
		Spin Stop	188-195	74-77	BC-C3
		Forward Spin slowest	196-225	77-88	C4-E1
		Forward Spin fastest	226-255	89-100	E2-FF
		<b>Cycle and Random Modes</b>			
Slow Rate	0	0	00		
Fast Rate	255	100	FF		
19	Magenta	<b>Pure Mix Mode</b>			
		Full Magenta	0	0	00
		Open	255	100	FF
		<b>Continuous and Blink Modes</b>			
		Full Magenta	0	0	0
		Open	127	50	7F
		Full Magenta	128	50	80
		Open	255	100	FF
		<b>Spin Mode</b>			
		Continuous Positioning	0-127	0-50	00-7F
		Reverse Spin fastest	128-157	50-62	80-9D
		Reverse Spin slowest	158-187	62-73	9E-BB
		Spin Stop	188-195	74-77	BC-C3
		Forward Spin slowest	196-225	77-88	C4-E1
		Forward Spin fastest	226-255	89-100	E2-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
20	Yellow	<b>Pure Mix Mode</b>			
		Full Yellow	0	0	00
		Open	255	100	FF
		<b>Continuous and Blink Modes</b>			
		Full Yellow	0	0	0
		Open	127	50	7F
		Full Yellow	128	50	80
		Open	255	100	FF
		<b>Spin Mode</b>			
		Continuous Positioning	0-127	0-50	00-7F
		Reverse Spin fastest	128-157	50-62	80-9D
		Reverse Spin slowest	158-187	62-73	9E-BB
		Spin Stop	188-195	74-77	BC-C3
		Forward Spin slowest	196-225	77-88	C4-E1
Forward Spin fastest	226-255	89-100	E2-FF		
21	Color Temperature Orange	<b>Always in Continuous Mode</b>			
		Open	0	0	0
		Full CTO	170	67	AA
		Beam Flatness (only used in models equipped with Beam Flatener prior to 2002)	213	84	D5
		Open	255	100	FF
22	Color Temperature Blue	<b>Always in Continuous Mode</b>			
		Beam flatten	0	0	0
		Open	43	17	2B
		Full CTB	213	84	D5
		Beam Flatness (only used in models equipped with Beam Flatener prior to 2002)	255	100	FF
<b>SLOT 2: DUAL ROTATING GOBOS MODULE</b>					
23	Gobo1 Function	<b>Full Speed Control</b>			
		Indexed	0 - 15	0-6	0-0F
		Forward Wheel Spin	16-31	6-12	10-1F
		Reverse Wheel Spin	32-47	13-18	20-2F
		Scan	48-63	19-25	30-3F
		Random	64-79	25-31	40-4F
		Blink	80-95	31-37	50-5F
		TBC	96-111	38-44	60-6F
Continuous	112-127	44-50	70-7F		

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
23	Gobo1 Function	<b>MSpeed Control</b>			
		Indexed	128-143	50-56	80-8F
		Forward Wheel Spin	144-159	57-62	90-9F
		Reverse Wheel Spin	160-175	63-69	A0-AF
		Scan	176-191	69-75	B0-BF
		Random	192-207	75-81	C0-CF
		Blink	208-223	82-88	D0-DF
		TBC	224-239	88-94	E0-EF
	Continuous	240-255	94-100	F0-FF	
24	Gobo 1 Position.	<b>Indexed/Blink/Scan Modes</b>			
		Position 1 (Open)	0-15	0-6	0-0F
		Position 2	16-47	6-18	10-2F
		Position 3	48-79	19-31	30-4F
		Position 4	80-111	31-44	50-6F
		Position 5	112-143	44-56	70-8F
		Position 6	144-175	57-69	90-AF
		Position 7	176-207	69-81	B0-CF
		Position 8	208-239	82-94	D0-EF
		Position 1 (Open)	240-255	94-100	F0-FF
		<b>Spin Mode</b>			
		Spin Stop	0-3	0-1	0-3
		Spin Forward Slowest to Fastest	4-255	2-100	4-FF
		Spin Reverse Slowest to Fastest	4-255	2-100	4-FF
		<b>Random Mode</b>			
		Random Stop	0-3	0-1	0-3
		Random Slowest to Fastest	4-255	2-100	4-FF
		<b>Continuous Mode</b>			
Positioning from 1-360 degrees	0-255	100	FF		
25	Gobo 1 Rotate Function	<b>Full Speed Control</b>			
		Indexed	0-15	0-6	0-0F
		Forward Rotate	16-31	6-12	10-1F
		Reverse Rotate	32-47	13-18	20-2F
		Scan	48-63	19-25	30-3F
		Blink	64-79	25-31	40-4F
		Reserved	80-95	31-37	50-5F
		Reserved	96-111	38-44	60-6F
		Reserved	112-127	44-50	70-7F



Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
25	Gobo 1 Rotate Function	<b>MSpeed Control</b>			
		Indexed	128-143	50-56	80-8F
		Forward Rotate	144-159	57-62	90-9F
		Reverse Rotate	160-175	63-69	A0-AF
		Scan	176-191	69-75	B0-BF
		Blink	192-207	75-81	C0-CF
		Reserved	208-223	82-88	D0-DF
		Reserved	224-239	88-94	E0-EF
		240-255	94-100	F0-FF	
26	Gobo 1 Rotate Coarse	<b>Indexed /Scan/Blink Modes</b>			
		Position 0-360 degrees	0-255	0-100	0-FF
		<b>Rotate Mode</b>			
		Rotate Stop	0-3	0-1	0-3
		Forward Rotate Slowest to Fastest	4-255	2-100	4-FF
		Reverse Rotate Slowest to Fastest	4-255	2-100	4-FF
		<b>Scan Mode</b>			
Scan Slowest to Fastest	0-255	0-100	0-FF		
27	Gobo 1 Rotate Fine	<b>Indexed Mode</b>			
		Low Order Byte 0-360 degrees	0-255	0-100	0-FF
28	Effects Function	<b>Full Speed Control</b>			
		Indexed	0 - 15	0-6	0-0F
		Forward Wheel Spin	16-31	6-12	10-1F
		Reverse Wheel Spin	32-47	13-18	20-2F
		Scan	48-63	19-25	30-3F
		Random	64-79	25-31	40-4F
		Blink	80-95	31-37	50-5F
		TBC	96-111	38-44	60-6F
		Continuous	112-127	44-50	70-7F
		<b>MSpeed Control</b>			
		Indexed	128-143	50-56	80-8F
		Forward Wheel Spin	144-159	57-62	90-9F
		Reverse Wheel Spin	160-175	63-69	A0-AF
		Scan	176-191	69-75	B0-BF
		Random	192-207	75-81	C0-CF
		Blink	208-223	82-88	D0-DF
		TBC	224-239	88-94	E0-EF
Continuous	240-255	94-100	F0-FF		

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
29	Effects Position	<b>Indexed/Blink/Scan Modes</b>			
		Position 1 (Open)	0-15	0-6	0-0F
		Position 2	16-47	6-18	10-2F
		Position 3	48-79	19-31	30-4F
		Position 4	80-111	31-44	50-6F
		Position 5	112-143	44-56	70-8F
		Position 6	144-175	57-69	90-AF
		Position 7	176-207	69-81	B0-CF
		Position 8	208-239	82-94	D0-EF
		Position 1 (Open)	240-255	94-100	F0-FF
		<b>Spin Mode</b>			
		Spin Stop	0-3	0-1	0-3
		Forward Spin Slowest to Fastest	4-255	2-100	4-FF
		Reverse Spin Slowest to Fastest	4-255	2-100	4-FF
		<b>Random Mode</b>			
		Random Stop	0-3	0-1	0-3
		Random Slowest to Fastest	4-255	2-100	4-FF
<b>Continuous Mode</b>					
Positioning from 1-360 degrees	0-255	100	FF		
30	Effects Rotate Function	<b>Full Speed Control</b>			
		Indexed	0-15	0-6	0-0F
		Forward Rotate	16-31	6-12	10-1F
		Reverse Rotate	32-47	13-18	20-2F
		Scan	48-63	19-25	30-3F
		Blink	64-79	25-31	40-4F
		Reserved	80-95	31-37	50-5F
		Reserved	96-111	38-44	60-6F
		Reserved	112-127	44-50	70-7F
		<b>MSpeed Control</b>			
		Indexed	128-143	50-56	80-8F
		Forward Rotate	144-159	57-62	90-9F
		Reverse Rotate	160-175	63-69	A0-AF
		Scan	176-191	69-75	B0-BF
		Blink	192-207	75-81	C0-CF
		Reserved	208-223	82-88	D0-DF
		Reserved	224-239	88-94	E0-EF
		Reserved	240-255	94-100	F0-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
31	Effects Rotate Coarse	<b>Indexed/Blink Modes</b>			
		Position from 0-360 degrees	0-255	0-100	0-FF
		<b>Continuously Variable Forward Rotate Mode</b>			
		Rotate Stop	0-3	0-1	0-3
		Forward Rotate Slowest to Fastest	4-255	2-100	4-FF
		Reverse Rotate Slowest to Fastest	4-255	2-100	4-FF
32	Effects Rotate Fine	<b>Scan Mode</b>			
		Scan Slowest to Fastest	0-255	0-100	0-FF
		<b>Indexed Mode</b>			
		Low Order Byte position from 0-360 degrees	0-255	0-100	0-FF
<b>SLOT 3: ROTATING GOBO 2 AND IRIS MODULE</b>					
33	Gobo 2 Function	<b>Full Speed Control</b>			
		Indexed	0 - 15	0-6	0-0F
		Forward Wheel Spin	16-31	6-12	10-1F
		Reverse Wheel Spin	32-47	13-18	20-2F
		Scan	48-63	19-25	30-3F
		Random	64-79	25-31	40-4F
		Blink	80-95	31-37	50-5F
		TBC	96-111	38-44	60-6F
		Continuous	112-127	44-50	70-7F
		<b>MSpeed Control</b>			
		Indexed	128-143	50-56	80-8F
		Forward Wheel Spin	144-159	57-62	90-9F
		Reverse Wheel Spin	160-175	63-69	A0-AF
		Scan	176-191	69-75	B0-BF
		Random	192-207	75-81	C0-CF
		Blink	208-223	82-88	D0-DF
TBC	224-239	88-94	E0-EF		
Continuous	240-255	94-100	F0-FF		
34	Gobo 2 Position	<b>Indexed/Scan/Blink Modes</b>			
		Position 1 (Open)	0-15	0-6	0-0F
		Position 2	16-47	6-18	10-2F
		Position 3	48-79	19-31	30-4F
		Position 4	80-111	31-44	50-6F
		Position 5	112-143	44-56	70-8F
		Position 6	144-175	57-69	90-AF
		Position 7	176-207	69-81	B0-CF
		Position 8	208-239	82-94	D0-EF
		Position 1 (Open)	240-255	94-100	F0-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)		
34	Gobo 2 Position	<b>Spin Mode</b>					
		Spin Stop	0-3	0-1	0-3		
		Forward Spin Slowest to Fastest	4-255	2-100	4-FF		
		Reverse Spin Slowest to Fastest	4-255	2-100	4-FF		
		<b>Random Mode</b>					
		Random Stop	0-3	0-1	0-3		
		Random Slowest to Fastest	4-255	2-100	4-FF		
		<b>Continuous Mode</b>					
	Positioning from 1-360 degrees	0-255	100	FF			
35	Gobo 2 Rotate Function	<b>Full Speed Control</b>					
		Indexed	0-15	0-6	0-0F		
		Forward Rotate	16-31	6-12	10-1F		
		Reverse Rotate	32-47	13-18	20-2F		
		Scan	48-63	19-25	30-3F		
		Blink	64-79	25-31	40-4F		
		Reserved	80-95	31-37	50-5F		
		Reserved	96-111	38-44	60-6F		
		Reserved	112-127	44-50	70-7F		
		<b>MSpeed Control</b>					
		Indexed	128-143	50-56	80-8F		
		Forward Rotate	144-159	57-62	90-9F		
		Reverse Rotate	160-175	63-69	A0-AF		
		Scan	176-191	69-75	B0-BF		
		Blink	192-207	75-81	C0-CF		
		Reserved	208-223	82-88	D0-DF		
		Reserved	224-239	88-94	E0-EF		
		Reserved	240-255	94-100	F0-FF		
		36	Gobo 2 Rotate Coarse	<b>Indexed/Blink Modes</b>			
				Position from 0-360 degrees	0-255	0-100	0-FF
<b>Continuously Variable Forward Rotate Mode</b>							
Rotate Stop	0-3			0-1	0-3		
Forward Rotate Slowest to Fastest	4-255			2-100	4-FF		
Reverse Rotate Slowest to Fastest	4-255			2-100	4-FF		
<b>Scan Mode</b>							
	Scan Slowest to Fastest	0-255	0-100	0-FF			
37	Gobo 2 Rotate Fine	<b>Indexed Mode</b>					
		Low Order Byte position from 0-360 degrees	0-255	0-100	0-FF		

<b>Chan #</b>	<b>Parameter</b>	<b>Description</b>	<b>Value (dec.)</b>	<b>Value (%)</b>	<b>Value (hex)</b>
<b>38</b>	<b>Iris</b>	Closed	0	0	0
		Variable Iris	1-127	1-50	01-7F
		Open	128-135	50-53	80-87
		Periodic Strobe (Variable)	136-151	53-59	88-97
		Random Strobe (Variable)	152-167	60-66	98-A7
		Ramp Open/Snap Shut (Variable)	168-183	66-72	A8-B7
		Snap Open/Ramp Shut (Variable)	184-199	72-78	B8-C7
		Ramp Open/Ramp Shut (Variable)	200-215	78-84	C8-D7
		Random Ramp/Snap (Variable)	216-231	85-91	D8-E7
		Random Snap/Ramp (Variable)	232-247	91-97	E8-F7
Open	248-255	97-100	F8-FF		

# x.Spot® and x.SpotXtreme Reduced Protocol

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
<b>BASIC FIXTURE FUNCTIONS</b>					
1	<b>Pan Coarse</b>	Coarse-adjusts pan to approximately 2 degrees of desired position	0-255	0-100	00-FF
2	<b>Pan Fine</b>	Fine-adjusts pan position in increments less than 1 degree	0-255	0-100	00-FF
3	<b>Tilt Coarse</b>	Coarse-adjusts tilt to approximately 2 degrees of desired position	0-255	0-100	00-FF
4	<b>Tilt Fine</b>	Fine-adjusts tilt position in increments less than 1 degree	0-255	0-100	00-FF
5	<b>Lamp Function</b>	Normal Shutter Functions	0-31	0-12	00-1F
		Lamp Assisted Strobes <i>boosts the Lamp above 700 Watts for periodic and random strobes set in Shutter channel 6.</i>	32-63	13-25	20-3F
		Lamp Effects <i>boosts the lamp above 700 watts for Boost to White, Boost to Black, or Lightning effects set in Shutter channel 6.</i>	64-95	35-37	40-5F
		Dual Dimming <i>adds electronic dimming to the mechanical dimming set in the DIM channel 7. (0%–100%)</i>	96-127	38-50	60-7F
		Electronic Dimming Only <i>Lamp output varies from a minimum–700W; does not go to black</i>	128-159	50-62	80-9F
		Reserved	160-191	63-75	A0-BF
		Reserved	192-223	75-88	C0-DF
		Normal Shutter Functions	224-255	88-100	E0-FF
6	<b>Shutter, Normal Function</b> <i>Lamp Function channel set from 0-31</i>	Close	0-23	0-9	00-17
		Periodic Strobe (variable)	24-49	9-19	18-31
		Random/Random Strobe (variable)	50-75	20-29	32-4B
		Random/Synchronous Strobe (variable)	76-101	30-40	4C-65
		Ramp Open/Snap Shut (variable)	102-127	40-50	66-7F
		Snap Open/Ramp Shut (variable)	128-153	50-60	80-99
		Ramp Open/Ramp Shut (variable)	154-179	60-70	9A-B3
		Random Ramp/Snap (variable)	180-205	71-80	B4-CD
		Random Snap/Ramp (variable)	206-231	81-91	CE-E7
		Open	232-255	91-100	E8-FF
	<b>Shutter, Lamp Assisted Strobes</b> <i>Lamp Function channel set from 32–63</i>	Close	0-23	0-9	00-17
		Periodic Strobe (variable, Lamp assisted)	24-49	9-19	18-31
		Random/Rand Strobe (variable, Lamp assisted)	50-75	20-29	32-4B
		Random/Sync (variable, Lamp assisted)	76-101	30-40	4C-65
		Ramp Open/Snap Shut (variable)	102-127	40-50	66-7F
		Snap Open/Ramp Shut (variable)	128-153	50-60	80-9A
		Ramp Open/Ramp Shut (variable)	154-179	60-70	9A-B3
		Random Ramp/Snap (variable)	180-205	71-80	B4-CD
		Random Snap/Ramp (variable)	206-231	81-91	CE-E7
		Open	232-255	91-100	E8-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
6	<b>Shutter, Lamp Effect</b> <i>Lamp Function channel set from 64-95</i>	Close	0-23	0-9	00-17
		Periodic lamp strobes	24-49	9-19	18-31
		Random random lamp strobes	50-75	20-29	32-4B
		Synchronous random lamp strobes	76-101	30-40	4C-65
		Boost lamp 1.0 second, black	102-105	40-41	66-69
		Boost lamp 0.75 second, black	106-109	42-43	6A-6D
		Boost lamp 0.66 second, black	110-113	43-44	6E-71
		Boost lamp 0.5 second, black	114-117	45-46	72-75
		Boost lamp 0.33 second, black	118-121	46-47	76-79
		Boost lamp 0.25 second, black	122-127	48-50	7A-7F
		Boost lamp 1.0 second, white	128-131	50-51	80-83
		Boost lamp 0.75 second, white	132-135	52-53	84-87
		Boost lamp 0.66 second, white	136-139	53-55	88-8B
		Boost lamp 0.50 second, white	140-143	55-56	8C-8F
		Boost lamp 0.33 second, white	144-147	56-58	90-93
		Boost lamp 0.25 second, white	148-153	58-60	94-99
		Lightning strike 1	154-157	60-62	9A-9D
		Lightning strike 2	158-161	62-63	9E-A1
		Lightning strike 3	162-165	64-65	A2-A5
		Lightning strike 4	166-169	65-66	A6-A9
		Lightning strike 5	170-173	67-68	AA-AD
	Lightning strike 6	174-179	68-70	AE-B3	
	Reserved. Default Black.	180-231	71-91	B4-E7	
	Open	232-255	91-100	E8-FF	
	<b>Shutter, Electronic Dimming:</b> <i>Lamp Function channel set from 128-159</i>	Close	0-23	0-9	00-17
		Periodic Strobe (variable)	24-49	9-19	18-31
		Random/Rand Strobe (variable)	50-75	20-29	32-4B
Random/Sync (variable)		76-101	30-40	4C-65	
Ramp Open/Snap Shut (variable)		102-127	40-50	66-7F	
Snap Open/Ramp Shut (variable)		128-153	50-60	80-99	
Ramp Open/Ramp Shut (variable)		154-179	60-70	9A-B3	
Random Ramp/Snap (variable)		180-205	71-80	B4-CD	
Random Snap/Ramp (variable)		206-231	81-91	CE-E7	
Open		232-255	91-100	E8-FF	
7	<b>Dim</b>	Mechanical dimming only, from closed-open	0-255	0-100	00-FF

<b>Chan #</b>	<b>Parameter</b>	<b>Description</b>	<b>Value (dec.)</b>	<b>Value (%)</b>	<b>Value (hex)</b>
<b>8</b>	<b>Frost</b>	Open (No Frost)	0	0	00
		Variable Frost (open to closed)	1-127	1-49	01-7F
		Full Frost	128-135	50-53	80-87
		Periodic Frost Strobe (slow to fast)	136-151	53-59	88-97
		Random Frost Strobe (slow to fast)	152-167	60-66	98-A7
		Ramp Open/Snap Shut	168-183	66-72	A8-B7
		Snap Open/Ramp Shut	184-199	72-78	B8-C7
		Ramp Open/Ramp Shut	200-215	78-84	C8-D7
		Random Ramp/Snap	216-231	85-91	D8-E7
		Random Snap/Ramp	232-247	91-97	E8-F7
		Open (No Frost)	248-255	97-100	F8-FF
<b>9</b>	<b>Focus</b>	Auto or Manual Focus In to Out	0-255	0-100	00-FF
<b>10</b>	<b>Zoom</b>	Zoom from In to Out	0-255	0-100	00-FF
<b>11</b>	<b>Control</b> <i>(Set Shutter Channel to "0" to access Control channel settings except for Pan/Tilt Mspeed Off)</i>	Safe	0-9	0-4	00-09
		Pan and Tilt Mspeed Off	10-19	4-8	0A-13
		Display Off	20-28	8-11	14-1C
		Display Dim	30-38	12-15	1E-26
		Display Bright	40-48	16-19	28-30
		Home All	60-68	24-27	3C-44
		Lamp On	80-88	31-35	50-58
		Lamp Off	90-98	35-38	5A-62
		Shutdown	120-130	47-51	78-82
		Reserved	131-149	51-58	83-95
		Home Pan/Tilt	160-168	63-66	A0-A8
		Home Color System	170-178	67-70	AA-B2
		Home Gobo System	180-188	70-74	B4-BC
		Home Strobe/Dim	190-198	75-78	78-C6
		Home Focus/Zoom/Frost	200-208	78-82	C8-D0
		Home Iris	210-218	82-86	D2-DA



Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
<b>SLOT 1: SIX-WHEEL COLOR MIXING MODULE</b>					
12	<b>Color Function</b> <i>(Colormixing wheels perform continuous using Quick Path method for Indexed, Blink and Continuous)</i>	Indexed	0-15	0-6	0-0F
		Forward Spin	16-31	6-12	10-1F
		Reverse Spin	32-47	13-18	20-2F
		Continuous	48-63	19-25	30-3F
		Indexed	64-79	25-31	40-4F
		Slow Scan (defined using Indexed color wheel operation)	80-95	31-37	50-5F
		Fast ScanS (defined using Indexed color wheel operation)	96-111	38-44	60-6F
		Random - Static COlor pseudo-random color chase. Rate set by Static color channel.	112-127	44-50	70-7F
		Indexed Blink (defined using Continuous wheel operation)	128-143	51-56	80-8F
		TBD	144-239	57-62	90-9F
	Continuous	240-255	63-100	A0-FF	
13	<b>Static Color Position</b>	<b>Indexed Mode</b>			
		Color Position 1 Open (White)	0-23	0-9	0-17
		Position 1 2	24-42	2-17	18-2A
		Position 2	43-61	17-24	2B-3D
		Position 2 3	62-80	24-31	3E-50
		Position 3	81-99	32-38	51-62
		Position 3 4	100-118	39-46	63-76
		Position 4	119-137	47-54	77-89
		Position 4 5	138-156	54-61	8A-9C
		Position 5	157-175	62-69	9D-AF
		Position 5 6	176-194	69-76	B0-C2
		Position 6	195-213	77-84	C3-D5
		Position 6 1	214-232	84-91	D6-E8
		Position 1 Open (White)	233-255	91-100	E9-FF
		<b>Continuously Variable Forward Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Forward Spin Slowest to Fastest	4-255	2-100	04-FF
		<b>Continuously Variable Reverse Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Reverse Spin Slowest to Fastest	4-255	2-100	04-FF
<b>Random Mode</b>					
Random Stop	0-3	0-1	00-01		
Random Slowest to Fastest	4-255	2-100	04-FF		
14	<b>Cyan</b>	Full Cyan to Open (White)	0-255	0-100	00-FF
15	<b>Magenta</b>	Full Magenta to Open (White)	0-255	0-100	00-FF
16	<b>Yellow</b>	Full Yellow to Open (White)	0-255	0-100	00-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
17	<b>Color Temperature Orange</b> (Always in Continuous Mode)	Open	0	0	0
		Variable CTO	1-169	1-66	01-A9
		Full CTO	170	67	AA
		Beam Flatness (only used in models equipped with Beam Flatener prior to 2002)	171-213	68-84	AB-D5
		Open	214-255	85-100	D6-FF
18	<b>Color Temperature Blue</b> (Always in Continuous Mode)	Open	0	0	0
		Variable CTB	1-169	1-66	01-A9
		Full CTB	170	67	AA
		Beam Flatness (only used in models equipped with Beam Flatener prior to 2002)	171-213	68-84	AB-D5
		Open	214-255	85-100	D6-FF
<b>SLOT 2: DUAL ROTATING GOBOS MODULE</b>					
19	<b>Gobo1 Function</b>	Indexed	0 - 15	0-6	0-0F
		Forward Rotate	16-31	6-12	10-1F
		Reverse Rotate	32-47	13-18	20-2F
		Forward Wheel Spin	48-63	19-25	30-3F
		Reverse Wheel Spin	64-79	25-31	40-4F
		Scan	80-95	31-37	50-5F
		Random	96-111	38-44	60-6F
		Blink Wheel	112-127	44-50	70-7F
		Blink Aperture	128-143	50-56	80-8F
		Reserved	144-239	57-94	9F-EF
		Continuous	240-255	95-100	F0-FF
20	<b>Gobo 1 Position</b>	<b>Indexed Mode</b>			
		Color Position 1 Open (White)	0-15	0-6	0-0F
		Position 2	16-47	6-12	10-1F
		Position 3	48-79	13-18	20-2F
		Position 4	80-111	19-25	30-3F
		Position 5	112-143	25-31	40-4F
		Position 6	114-175	31-37	50-5F
		Position 7	176-207	38-44	60-6F
		Position 8	208-239	44-50	70-7F
		Position 1 Open (White)	240-255	50-56	80-8F
		<b>Forward Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Forward Spin Slowest to Fastest	4-255	2-100	04-FF
		<b>Reverse Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Reverse Spin Slowest to Fastest	4-255	2-100	04-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
20	Gobo 1 Position (continued)	<b>Scan Mode</b>			
		Position 1 Open (White)	0-15	0-6	0-0F
		Position 2	16-47	6-12	10-1F
		Position 3	48-79	13-18	20-2F
		Position 4	80-111	19-25	30-3F
		Position 5	112-143	25-31	40-4F
		Position 6	114-175	31-37	50-5F
		Position 7	176-207	38-44	60-6F
		Position 8	208-239	44-50	70-7F
		Position 1	240-255	50-56	80-8F
		<b>Random Mode</b>			
		Random Stop	0-3	0-1	00-01
Random Slowest to Fastest	4-255	2-100	04-FF		
21	Gobo 1 Rotate	<b>Indexed / Continuous Modes</b>			
		Position 0-360 degrees	0-255	0-100	0-FF
		<b>Forward Wheel Spin//Continuous Variable Forward Rotate Modes</b>			
		Rotate Stop	0-3	0-1	0-3
		Forward Rotate Slowest to Fastest	4-255	2-100	4-FF
		<b>Reverse Wheel Spin//Continuous Variable Reverse Rotate Modes</b>			
		Rotate Stop	0-3	0-1	0-3
		Reverse Rotate Slowest to Fastest	4-255	2-100	4-FF
<b>Scan Mode</b>					
Scan Slowest to Fastest	0-255	0-100	0-FF		
22	Effects Function	Indexed	0 - 15	0-6	0-0F
		Forward Rotate	16-31	6-12	10-1F
		Reverse Rotate	32-47	13-18	20-2F
		Forward Wheel Spin	48-63	19-25	30-3F
		Reverse Wheel Spin	64-79	25-31	40-4F
		Scan	80-95	31-37	50-5F
		Random	96-111	38-44	60-6F
		Blink Wheel	112-127	44-50	70-7F
		Blink Aperture	128-143	50-56	80-8F
		Reserved	144-239	57-94	9F-EF
Continuous	240-255	95-100	F0-FF		

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
23	Effects Wheel Position	<b>Indexed Mode</b>			
		Color Position 1 Open (White)	0-15	0-6	0-0F
		Position 2	16-47	6-12	10-1F
		Position 3	48-79	13-18	20-2F
		Position 4	80-111	19-25	30-3F
		Position 5	112-143	25-31	40-4F
		Position 6	114-175	31-37	50-5F
		Position 7	176-207	38-44	60-6F
		Position 8	208-239	44-50	70-7F
		Position 1 Open (White)	240-255	50-56	80-8F
		<b>Forward Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Forward Spin Slowest to Fastest	4-255	2-100	04-FF
		<b>Reverse Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Reverse Spin Slowest to Fastest	4-255	2-100	04-FF
		<b>Scan Mode</b>			
		Position 1 Open (White)	0-15	0-6	0-0F
		Position 2	16-47	6-12	10-1F
		Position 3	48-79	13-18	20-2F
		Position 4	80-111	19-25	30-3F
		Position 5	112-143	25-31	40-4F
		Position 6	114-175	31-37	50-5F
		Position 7	176-207	38-44	60-6F
Position 8	208-239	44-50	70-7F		
Position 1	240-255	50-56	80-8F		
<b>Random Mode</b>					
Random Stop	0-3	0-1	00-01		
Random Slowest to Fastest	4-255	2-100	04-FF		
24	Effects Rotate	<b>Indexed / Continuous Modes</b>			
		Position 0-360 degrees	0-255	0-100	0-FF
		<b>Forward Wheel Spin//Continuous Variable Forward Rotate Modes</b>			
		Rotate Stop	0-3	0-1	0-3
		Forward Rotate Slowest to Fastest	4-255	2-100	4-FF
		<b>Reverse Wheel Spin//Continuous Variable Reverse Rotate Modes</b>			
		Rotate Stop	0-3	0-1	0-3
		Reverse Rotate Slowest to Fastest	4-255	2-100	4-FF
<b>Scan Mode</b>					
Scan Slowest to Fastest	0-255	0-100	0-FF		

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
<b>SLOT 3: ROTATING GOBO 2 AND IRIS MODULE</b>					
25	Gobo 2 Function	Indexed	0 - 15	0-6	0-0F
		Forward Rotate	16-31	6-12	10-1F
		Reverse Rotate	32-47	13-18	20-2F
		Forward Wheel Spin	48-63	19-25	30-3F
		Reverse Wheel Spin	64-79	25-31	40-4F
		Scan	80-95	31-37	50-5F
		Random	96-111	38-44	60-6F
		Blink Wheel	112-127	44-50	70-7F
		Blink Aperture	128-143	50-56	80-8F
		Reserved	144-239	57-94	9F-EF
		Continuous	240-255	95-100	F0-FF
26	Gobo 2 Position	<b>Indexed Mode</b>			
		Color Position 1 Open (White)	0-15	0-6	0-0F
		Position 2	16-47	6-12	10-1F
		Position 3	48-79	13-18	20-2F
		Position 4	80-111	19-25	30-3F
		Position 5	112-143	25-31	40-4F
		Position 6	114-175	31-37	50-5F
		Position 7	176-207	38-44	60-6F
		Position 8	208-239	44-50	70-7F
		Position 1 Open (White)	240-255	50-56	80-8F
		<b>Forward Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Forward Spin Slowest to Fastest	4-255	2-100	04-FF
		<b>Reverse Spin Mode</b>			
		Spin Stop	0-3	0-1	00-01
		Reverse Spin Slowest to Fastest	4-255	2-100	04-FF
		<b>Scan Mode</b>			
		Position 1 Open (White)	0-15	0-6	0-0F
		Position 2	16-47	6-12	10-1F
		Position 3	48-79	13-18	20-2F
		Position 4	80-111	19-25	30-3F
		Position 5	112-143	25-31	40-4F
		Position 6	114-175	31-37	50-5F
		Position 7	176-207	38-44	60-6F
		Position 8	208-239	44-50	70-7F
		Position 1	240-255	50-56	80-8F
		<b>Random Mode</b>			
		Random Stop	0-3	0-1	00-01
		Random Slowest to Fastest	4-255	2-100	04-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
27	Gobo 2 Rotate	<b>Indexed / Continuous Modes</b>			
		Position 0-360 degrees	0-255	0-100	0-FF
		<b>Forward Wheel Spin//Continuous Variable Forward Rotate Modes</b>			
		Rotate Stop	0-3	0-1	0-3
		Forward Rotate Slowest to Fastest	4-255	2-100	4-FF
		<b>Reverse Wheel Spin//Continuous Variable Reverse Rotate Modes</b>			
		Rotate Stop	0-3	0-1	0-3
		Reverse Rotate Slowest to Fastest	4-255	2-100	4-FF
		<b>Scan Mode</b>			
Scan Slowest to Fastest	0-255	0-100	0-FF		
28	Iris	Closed	0	0	0
		Variable Iris	1-127	1-50	01-7F
		Open	128-135	50-53	80-87
		Periodic Strobe (Variable)	136-151	53-59	88-97
		Random Strobe (Variable)	152-167	60-66	98-A7
		Ramp Open/Snap Shut (Variable)	168-183	66-72	A8-B7
		Snap Open/Ramp Shut (Variable)	184-199	72-78	B8-C7
		Ramp Open/Ramp Shut (Variable)	200-215	78-84	C8-D7
		Random Ramp/Snap (Variable)	216-231	85-91	D8-E7
		Random Snap/Ramp (Variable)	232-247	91-97	E8-F7
		Open	248-255	97-100	F8-FF