

DMX Operation

Channel Mapping

These tables assume a DMX start address of 1. When a different starting address is used, this address becomes channel 1 function and other functions follow in sequence. (There is only one DMX mode for this luminaire, which is Enhanced 16-bit Mode.)



Table 3-1: VL3000 Spot Luminaire Enhanced 16-Bit Mode

DMX Channel	Parameter	Range
1	Intensity	0-255
2	Hi Byte Pan	0-65535
3	Lo Byte Pan	0-65535
4	Hi Byte Tilt	0-65535
5	Lo Byte Tilt	0-65535
6	Edge	0-255
7	Zoom	0 (small) - 255 (big)
8	CTO Mixer	0 (open) - 255 (diffused)
9	Blue Mixer	0 (open) - 255 (full saturation)
10	Amber Mixer	0 (open) - 255 (full saturation)
11	Magenta Mixer	0 (open) - 255 (full saturation)
12	Color Wheel	0-216 / 217-255 (spins)
13	Gobo Wheel 1	0-216 / 217-255 (spins)
14	Hi Byte Gobo 1 Index/Rot	0-65535
15	Lo Byte Gobo 1 Index/Rot	
16	Gobo Wheel 2	0-216 / 217-255 (spins)
17	Hi Byte Gobo 2 Index/Rot	0-65535
18	Lo Byte Gobo 2 Index/Rot	
19	Gobo Wheel 3	0-216 / 217-255 (spins)
20	Hi Byte Gobo 3 Index/Rot	0-65535
21	Lo Byte Gobo 3 Index/Rot	
22	Beam Iris	0 (small) - 255 (open)
23	Strobe	0 (open) - 255 (max)
24	Focus Time	0-255
25	Color Time	0-255
26	Beam Time	0-255
27	Gobo Time	0-255
28	Control	0-255



Table 3-2: VL3000 Wash Luminaire Enhanced 16-Bit Mode

DMX Channel	Parameter	Range
1	Intensity	0-255
2	Hi Byte Pan	0-65535
3	Lo Byte Pan	0-65535
4	Hi Byte Tilt	0-65535
5	Lo Byte Tilt	0-65535
6	Edge	0-255
7	CTO Mixer	0 (open) - 255 (diffused)
8	Blue Mixer	0 (open) - 255 (full saturation)
9	Amber Mixer	0 (open) - 255 (full saturation)
10	Magenta Mixer	0 (open) - 255 (full saturation)
11	Color Wheel	0-216 / 217-255 (spins)
12	Strobe	0 (open) - 255 (max)
13	Focus Time	0-255
14	Color Time	0-255
15	Beam Time	0-255
16	Control	0-255

Control Channel Functions

Control channel functions allow special actions such as reset, lamp on/off and partial recalibration. These must be executed with zero time transition or with timing disabled. Discrete values must be used; not manual controls such as faders or encoders (see chart below for values).

Reset - resets all luminaire mechanisms.

Lamp On or Lamp Off - switches lamp on or off.

Partial Recalibration - resets only the target mechanism (color, gobo, zoom, etc.) without affecting others.

Table 3-3: Control Channel Functions

Control Channel Function	Control Channel Value		
	% Value	DMX Value	
		For 3 Secs or Greater	After 3 Secs
Luminaire Reset	32-33	81-87	0
Lamp Off	65-67	165-171	0
Lamp On	98-100	249-255	0
Partial Recalibration of:			
- Color	40	100-104	0
- Gobos	45	112-116	0
- Edge/Zoom/Iris	50	126-130	0
- Dimmer/Strobe	55	138-142	0

To use control channel functions:

- Step 1. Select an action to be sent.
- Step 2. Set control channel value for desired action (for example, 84 for reset). Hold value for 3 seconds.
- Step 3. Set control channel value to zero. (This must occur without any scaling values. Action will be voided if other values are detected between action value and zero.)

Note: A numerical keypad is required for sending values. An encoder or fader does not allow for a quick value change, which is required to effect the control functions.

DMX Mapping

Color Control

The luminaire's color system is composed of a color mixing mechanism and a fixed color wheel. The follow sections describe these components.

Color Mixing

The color mixing mechanism is made up of four graduated color disks: blue, amber, magenta and CTO (color temperature orange). These disks provide full-spectrum color crossfades from pastel to saturated color.

Table 3-4: DMX Map for Blue, Amber, Magenta and CTO Colors

% Value	DMX Value	Action
0	0	Open
100	255	Full Saturation

Fixed Color Wheel

The fixed color wheel offers timed changes, half and full frame positions, and various spin rates in either direction. The wheel contains seven positions, one being open. The following illustration shows the standard positions and color configuration:

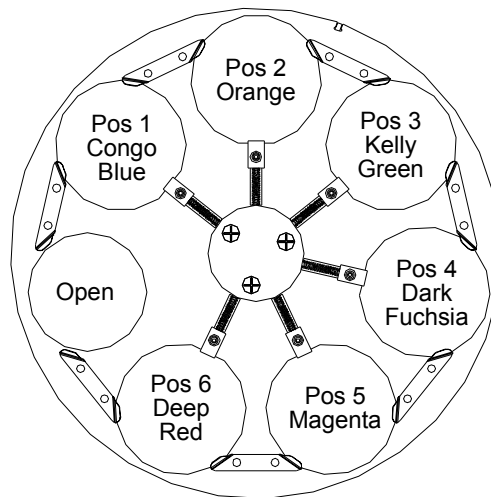


Figure 3-1: Fixed Color Wheel Positions

Table 3-5: Color Wheel Standard Configuration Chart

Position	Color Filter	Part Number
1	Congo Blue	41.9678.0305.03
2	Orange	41.9678.0305.05
3	Kelly Green	41.9678.0305.02
4	Dark Fuchsia	41.9678.0305.06
5	Magenta	41.9678.0305.04
6	Deep Red	41.9678.0305.01

Table 3-6: DMX Map for Fixed Color Wheel

Position	DMX Value	Action
1	0	Open
1.5	15	Half
2	31	Center
2.5	48	Half
3	62	Center
3.5	77	Half
4	93	Center
4.5	109	Half
5	124	Center
5.5	140	Half
6	155	Center
6.5	171	Half
7	186	Center
7.5	201	Half

Beam Control

Strobe

Table 3-7: DMX Map for Strobe

% Value	DMX Value	Action
0	0-2	Open
1	3-5	Closed
2	6-7	Slow Random
3	8-10	Med Random
4	11-12	Fast Random
5-100	13-255	Speed Range

Gobo/Effects Control

Gobo Wheels 1 and 2

These wheels have six positions, one being open. The following illustration shows the standard gobo configurations:

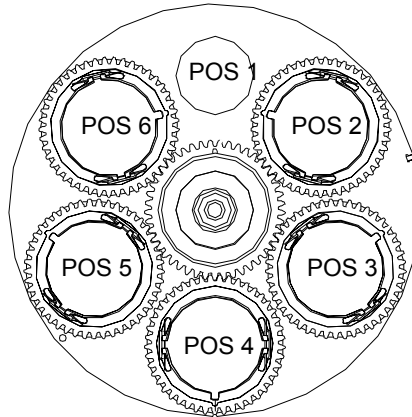


Figure 3-2: Gobo Wheels 1 and 2 Positions

Table 3-8: Gobo Wheel 1 Standard Configuration Chart

Position	Gobo Style	Part Number
1	open	n/a
2	Alpha Rays	41.6030.7029
3	Night Sky	41.6030.5011
4	Tribal Break-up	41.6030.5523
5	Pebbles	41.6030.7002
6	Glacier Gag	41.6030.8503

Table 3-9: Gobo Wheel 2 Standard Configuration Chart

Position	Gobo Style	Part Number
1	open	n/a
2	Palm Leaves	41.6030.5503
3	Shock Break-up	41.6030.7018
4	Uneven Bars	41.6030.4211
5	Ice Blocks Gag	41.6030.8509
6	Droplets Gag	41.6030.8506

Gobo Wheel 3

This wheel has five positions, one being open. The following illustration shows the standard gobo configurations:

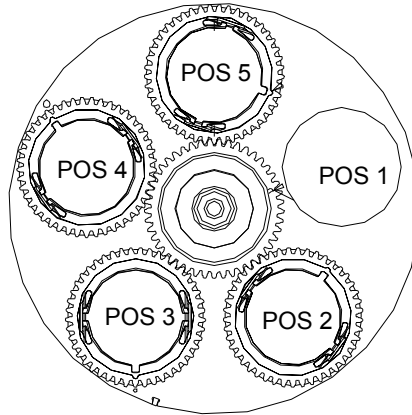


Figure 3-3: Gobo Wheel 3 Positions

Table 3-10: Gobo Wheel 3 Standard Configuration Chart

Position	Gobo Style	Part Number
1	open	n/a
2	3-Side Prism	41.6030.8003
3	Color Gobo	41.6030.8801
4	Triangle Break-up	41.6030.7024
5	Circle of Ovals	41.6030.6011

Index/Rotation

The gobo wheels operate in two modes: INDEX Mode and ROTATE Mode. The corresponding values are given in the DMX Map Tables below. Gobos will also behave as follows:

- Gobo wheels will only stop at whole images.
- It is not necessary for the wheel to complete a full revolution to change a gobo from indexing mode to rotating mode.
- Timed moves are only available using the Gobo Time channel (27).
- Spins are variable from DMX 217-236 for CCW fast to slow, and 237-255 for CW slow to fast.

Table 3-11: DMX Map for Gobo Wheels 1 and 2

Position	Indexing	Rotating	Function
1	0-7	100-116	Open
2	8-25	117-134	Gobo 1
3	26-44	135-153	Gobo 2
4	45-63	154-172	Gobo 3
5	64-82	173-191	Gobo 4
6	83-99	192-209	Gobo 5

Table 3-12: DMX Map for Gobo Wheel 3

Position	Indexing	Rotating	Function
1	0-10	98-119	Open
2	11-33	120-141	Gobo 1
3	34-54	142-163	Gobo 2
4	55-75	164-184	Gobo 3
5	76-97	185-206	Gobo 4

The Gobo Index function utilizes 16-bit control which offers enhanced resolution whether in INDEX or ROTATE mode.

Table 3-13: Index/Rotation Range

Function	Range
Index	0-65535
Rotate	0 (cw max) - 32599 (cw min) 32600-33047 (stop)

Luminaire Timing

Timing Channel Information

Timing channel control improves the timed moves of certain groups of parameters. We provide up to four timing channels, one for focus (Pan and Tilt), one for color parameters, one for beam parameters, and one for gobo wheel position (spot version only).

Types of timing control:

- **Timing Control Channel:** the luminaire uses its timing channel value to calculate a smooth continuous movement for a given time and transition.
- **Console Timing:** the console calculates the time duration between the DMX increments to be sent for a given time and transition.

Guidelines:

- Timing channels support time values of up to six minutes.
- To use a timing channel instead of console timing, it is necessary to set the timing channel to the desired value and set cue and/or parameter time to zero. A combination of time controls can produce unexpected results.
- The default value setting in the profile should be 255 (proportional control) to allow smooth movement when using console timing.
- The timing channel data should change as a snap. A zero value will give the fastest move, however, without any smoothing this can appear "steppy" in console timed moves.

Note: Some parameters have been excluded from the timing channels. Wheel spin and gobo rotation rate changes are not affected by timing channels.



Table 3-14: VL3000 Spot Luminaire Channel Function / Timing Channel Relationship

Channel Function	Timing Channel			
	Focus Time	Color Time	Beam Time	Gobo Time
Pan (Hi Byte/Lo Byte)	◆			
Tilt (Hi Byte/Lo Byte)	◆			
Blue		◆		
Amber		◆		
Magenta		◆		
CTO		◆		
Color Wheel		◆		
Zoom			◆	
Edge			◆	
Beam Iris			◆	
Gobo Wheels 1, 2 and 3				◆



Table 3-15: VL3000 Wash Luminaire Channel Function / Timing Channel Relationship

Channel Function	Timing Channel		
	Focus Time	Color Time	Beam Time
Pan (Hi Byte/Lo Byte)	◆		
Tilt (Hi Byte/Lo Byte)	◆		
Blue		◆	
Amber		◆	
Magenta		◆	
CTO		◆	
Color Wheel		◆	
Beam Spreader			◆

A timing value of zero is full speed. A time value of 100% (or 255 in DMX) enables the associated parameter(s) to follow cue fade time (console time) rather than the timing channel.

Note: The particular storing syntax for your console, as well as instructions on how to write part cues, can be found in the operation manual for that console.

To use these channels, you must:

- Step 1. Create the cue, including color, gobo, edge and diffusion as required.
- Step 2. Decide which fixtures and which parameter groups will use timing channels.
- Step 3. Assign a value to the particular timing channel(s) you wish to use (for timing information, see chart on next page).
- Step 4. Set console timing (or cue fade time) for parameters and timing channels to zero seconds.
- Step 5. Store cue.

Note: Avoid changing timing channel values in a fading cue. This can cause unexpected behavior in the luminaire as the timing channel value is updated over time. Timing channel values and the final destination of the parameters affected by the timing channel should always be sent in a zero count.

Timing channels can be set in either % or 0-255 (DMX) modes, with the following values assigned:

Table 3-16: Timing Channels Map

% Value	DMX	= Seconds
	0	Full Speed
	1	0.2
	2	0.4
1	3	0.6
	4	0.8
2	5	1
	6	1.2
	7	1.4
3	8	1.6
	9	1.8
4	10	2
	11	2.2
	12	2.4
5	13	2.6
	14	2.8
6	15	3
	16	3.2
	17	3.4
7	18	3.6
	19	3.8
8	20	4
	21	4.2
	22	4.4
9	23	4.6
	24	4.8
10	25	5
	26	5.2
	27	5.4
11	28	5.6
	29	5.8
	30	6
12	31	6.2
	32	6.4
13	33	6.6
	34	6.8
	35	7.0
14	36	7.2
	37	7.4
15	38	7.6

Table 3-16: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	39	7.8
	40	8
16	41	8.2
	42	8.4
17	43	8.6
	44	8.8
	45	9
18	46	9.2
	47	9.4
19	48	9.6
	49	9.8
	50	10
20	51	10.2
	52	10.4
	53	10.6
21	54	11
	55	11
22	56	12
	57	12
	58	13
23	59	13
	60	14
24	61	14
	62	14
	63	15
25	64	15
	65	16
26	66	16
	67	16
	68	17
27	69	17
	70	18
28	71	18
	72	18
	73	19
29	74	19
	75	20
30	76	20
	77	20
	78	21
31	79	21
	80	21

Table 3-16: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	81	22
32	82	22
	83	23
33	84	23
	85	23
	86	24
34	87	24
	88	25
35	89	25
	90	25
	91	26
36	92	26
	93	27
37	94	27
	95	27
	96	28
38	97	28
	98	29
39	99	29
	100	29
	101	30
40	102	30
	103	30
	104	31
41	105	31
	106	32
42	107	32
	108	32
	109	33
43	110	33
	111	34
44	112	34
	113	34
	114	35
45	115	35
	116	36
46	117	36
	118	36
	119	37
47	120	37
	121	38
48	122	38

Table 3-16: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	123	38
	124	39
49	125	39
	126	39
	127	40
50	128	40
	129	41
51	130	41
	131	41
	132	42
52	133	42
	134	43
53	135	43
	136	43
	137	44
54	138	44
	139	45
55	140	45
	141	45
	142	46
56	143	46
	144	47
57	145	47
	146	47
	147	48
58	148	48
	149	49
59	150	49
	151	49
	152	50
60	153	50
	154	50
	155	51
61	156	51
	157	52
62	158	52
	159	52
	160	53
63	161	53
	162	54
64	163	54
	164	54

Table 3-16: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	165	55
65	166	55
	167	56
66	168	56
	169	56
	170	57
67	171	57
	172	58
68	173	58
	174	58
	175	59
69	176	59
	177	59
	178	60
70	179	60
	180	65
71	181	65
	182	65
	183	70
72	184	70
	185	75
73	186	75
	187	75
	188	80
74	189	80
	190	85
75	191	85
	192	85
	193	90
76	194	90
	195	95
77	196	95
	197	95
	198	100
78	199	100
	200	110
79	201	110
	202	110
	203	120
80	204	120
	205	120
81	206	130

Table 3-16: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	207	130
	208	140
82	209	140
	210	140
	211	150
83	212	150
	213	160
84	214	160
	215	160
	216	170
85	217	170
	218	180
86	219	180
	220	180
	221	190
87	222	190
	223	200
88	224	200
	225	200
	226	210
89	227	210
	228	210
	229	220
90	230	220
	231	230
91	232	230
	233	230
	234	240
92	235	240
	236	250
93	237	250
	238	250
	239	260
94	240	260
	241	270
95	242	270
	243	270
	244	280
96	245	280
	246	290
97	247	290
	248	290

Table 3-16: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	249	300
98	250	300
	251	310
99	252	310
	253	310
	254	310
100	255	Follows Cue Data