

**Table 3-2: Enhanced 16-Bit Mode – Models VL1000 TS/AS**

DMX Channel	Parameter	Range
1	Dimmer *	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	Diffusion	0 (open) - 255 (diffused)
9	Blue	0 (open) - 255 (full saturation)
10	Amber	0 (open) - 255 (full saturation)
11	Magenta	0 (open) - 255 (full saturation)
12	Rotating Gobo	0-127 index 128-255 rotate
13-14	Gobo Index (13 = Hi Byte) (14 = Lo Byte)	Index: 0-65535 Rotate: 0 (cw max) - 32599 (cw min) 32600-33047 (stop) 33048 (ccw min) - 65535 (ccw max)
15	Frame 1A	0 (open) - 255 (closed)
16	Frame 1B	0 (open) - 255 (closed)
17	Frame 2A	0 (open) - 255 (closed)
18	Frame 2B	0 (open) - 255 (closed)
19	Frame 3A	0 (open) - 255 (closed)
20	Frame 3B	0 (open) - 255 (closed)
21	Frame 4A	0 (open) - 255 (closed)
22	Frame 4B	0 (open) - 255 (closed)
23	Rotate Frame	0-255 128 center
24	Focus Time	0-255
25	Color Time	0-255
26	Beam Time	0-255
27	Control	0-255

\* Dimmer refers to either an external dimmer for VL1000TS models or an internal dimmer for VL1000AS models. Regardless, this channel must be included for both profiles.

## 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:			
- Blue/Amber/Magenta/Diffuser *	40	100-104	0
- Rotating Gobo/Index *	45	113-117	0
- Edge/Zoom *	50	126-130	0
- Beam Size Iris/Shutter *	55	138-142	0

\* For arc models, the dimmer will close during each recalibration action.

### 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.

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**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.

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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.)

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## **DMX Data Display**

The DMX data display shows the data received for the given luminaire and does not show the entire stream of 512 bytes. It shows only the number of channels used for the given luminaire model in 16-bit enhanced mode.

For example, a VL1000TS luminaire with an address of 40 will show DMX Channels 1-27 which would correlate to DMX Channels 40-66.

# DMX Mapping

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## Color Mixing

The color mixing mechanism is a CYM subtractive color mixing system made up of a graduated color system for cyan, yellow, and magenta.

**Table 3-4: DMX Map for Cyan**

<b>% Value</b>	<b>DMX Value</b>	<b>Action</b>
0	0	Open
100	255	Closed or Full Saturation

**Table 3-5: DMX Map for Yellow**

<b>% Value</b>	<b>DMX Value</b>	<b>Action</b>
0	0	Open
100	255	Closed or Full Saturation

**Table 3-6: DMX Map for Magenta**

<b>% Value</b>	<b>DMX Value</b>	<b>Action</b>
0	0	Open
100	255	Closed or Full Saturation

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## Rotating Gobo Wheel

The function operates in two modes: INDEX Mode and ROTATE Mode. The DMX values corresponding to these modes are as follows:

- DMX values 0-127 will select each gobo in Indexing mode.
- DMX values 128-255 will select each gobo in Rotating mode.

**Table 3-7: DMX Map for Gobo Index/Rotate**

Position	Indexing	Rotating	Function
1	0	128	Open
2	18	146	Gobo 1
3	41	169	Gobo 2
4	63	191	Gobo 3
5	86	214	Gobo 4
6	108	236	Gobo 5

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## Index/Rotation

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

**Table 3-8: Index/Rotation Range**

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

# Luminaire Timing

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## Timing Channel Information

Timing channel control improves the timed moves of certain groups of parameters. We provide three timing channels, one for Focus (Pan and Tilt), one for color parameters and one for beam parameters. Timing channels support time values of up to six minutes.

**Table 3-9: 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		◆	
Color Wheel		◆	
Diffusion			◆
Beam			◆
Edge			◆
Zoom			◆
Rotating Gobo			◆
Gobo Index (HiByte/LoByte)			◆
Shutter (all 9 motors)			◆

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

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**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.

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**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.

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**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.

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

**Table 3-10: 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

**Table 3-10: Timing Channels Map (Continued)**

<b>% Value</b>	<b>DMX</b>	<b>= Seconds</b>
	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
	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



Table 3-10: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	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
	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

Table 3-10: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	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
	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

Table 3-10: Timing Channels Map (Continued)

% Value	DMX	= Seconds
	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
	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

**Table 3-10: Timing Channels Map (Continued)**

<b>% Value</b>	<b>DMX</b>	<b>= Seconds</b>
	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
	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

Table 3-10: Timing Channels Map (Continued)

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