Appendix A
DMX Control of Cyberlight®

Use this appendix to control your Cyberlight fixtures using DMX 512 modes 1, 2, and 3.

Overview

The Cyberlight is a block-addressed fixture; that is, you do not address it at an arbitrary DMX start channel, but rather at a *channel boundary.* There are two channel boundaries you can select: 15-channel and 20-channel. If you choose to control your Cyberlight on a 20-channel boundary, for example, each fixture takes up a contiguous *block* of 20 DMX channels.

Selecting a DMX Mode

The three DMX modes available for your Cyberlight provide three different levels of control and flexibility, and can be used with CLs, SVs, and CXs as summarized below:

- **Mode 1:** standard 20-channel control.
- **Mode 2 *(recommended)*:** enhanced 20-channel control. Mode 2 offers the same features as mode 1 but at greater resolution (for example, mode 2 supports frost strobing and 96 shutter strobe speeds while mode 1 does not support frost strobing and supports only eight shutter strobe speeds).
- **Mode 3:** minimal 15-channel minimal control. Mode 3 *does not* support color mixing or zoom. You can select mode 3 in two possible situations:
    - You are controlling only CXs on a link. Mode 3 utilizes all CX features but does not support color mixing or zoom, which are supported by CLs and SVs only.
    - You have do not have enough available DMX channels on the link to allocate 20 channels per Cyberlight fixture. (Mode 3 also supports up to 34 fixtures per link, while modes 1 and 2 both support up to 25 fixtures per link.)

Note Modes 1, 2 and 3 are supported by all Cyberlight models. If you have any Cyberlight CXs on the link, they will not respond to color mixing or zoom commands, but will otherwise respond to commands identically to CLs and SVs.

Performing Software Uploads Over a Link

Software uploads can be performed over a link using either a Link Card or the Cyberlight Upload Module. Fixtures automatically switch to LWR protocol for the upload, then switch back to DMX control after the upload has been successfully completed. Consult the Status Cue software documentation or the Upload Module for the procedure.

Note There are two things that can stop software uploads to a Cyberlight: a data distributor and certain High End Systems equipment on the same link. You must bypass any data distributors when performing a software upload on a link. Also review the section titled “Controlling Multiple High End Systems Fixtures on the Same Link” on page 2-3.

Address DIP Switches

Figure A-1 below shows a functional breakdown of the eight DMX address DIP switches, located on the Cyberlight fixture's rear panel. (Review "Identifying Rear Panel Components" on page 1-8 for the location of the switches).

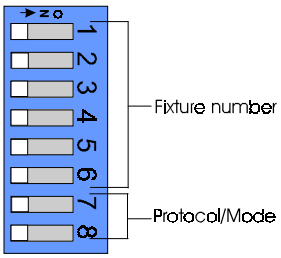

Figure A-1. The DMX address switch block allows you to select the control protocol (DMX 1, DMX 2, DMX 3, or LWR) and the fixture number.

Related Topics

Other information you might need to reference when assigning DMX channel numbers is summarized below:

- The section titled "Channel Boundaries" on page A-18 explains the relationship between fixture number (which you set with the address DIP switches) and actual DMX address ranges.
- The section titled "Choosing DMX 512 or LWR Protocol" on page 2-2 explains what to consider before selecting either DMX 512 or Lightwave Research (LWR) control protocol.
- The section titled "Controlling Multiple High End Systems Fixtures on the Same Link" on page 2-3 explains important considerations when mixing Cyberlight fixtures, Intellabeam fixtures, Emulator fixtures, and AF1000 fixtures on the same link.

Accessing Control Information

In order to access the control channel (channel 20 in 20-channel DMX modes 1 and 2 and channel 15 in 15-channel DMX mode 3), you must follow the procedure below:

1. Put the dim channel and the control channel at full.
2. Put the dim channel at zero and the control channel at full.
3. *(Must occur within 3 seconds)*: Put the dim channel at zero. Put the control channel at: 25% for home or 50% for shutdown.
4. Hold for an additional 3 seconds.

Rounding Conventions

The values displayed in the "Range" and "Channel Value" columns in the following tables may vary slightly depending on your controller's rounding convention.

DMX 512 Mode 1 – Standard Cyberlight® DMX Control

Each Cyberlight fixture in DMX mode 1 uses 20 channels of the DMX 512 protocol thus providing control for up to 25 fixtures (512 / 20 = 25.6 fixtures). Use the procedure below to control your Cyberlight with DMX mode 1:

1. Set the fixture to DMX mode 1 by setting address switch 7 to OFF and address switch 8 to ON.

2. Set address switches 1 through 5 to correspond to the desired fixture number, as shown in Table A-1. Note that Cyberlight CX fixtures configured for 20-channel mode work properly and can be mixed with Cyberlight fixtures; they do not respond to the color mixing, zoom, or variable frost constructs.

3. Refer to Table A-2 for the Cyberlight DMX 20-channel assignments.

Table A-1: Addressing Fixtures in 20-Channel DMX 512 Mode 1

Cyberlight Fixture	Fixture Address Switches ON	DMX Channel Number	Cyberlight Fixture	Fixture Address Switches ON	DMX Channel Number
Fixture 1	none	001	Fixture 14	1, 3, and 4	261
Fixture 2	1	021	Fixture 15	2, 3, and 4	281
Fixture 3	2	041	Fixture 16	1, 2, 3, and 4	301
Fixture 4	1 and 2	061	Fixture 17	5	321
Fixture 5	3	081	Fixture 18	1 and 5	341
Fixture 6	1 and 3	101	Fixture 19	2 and 5	361
Fixture 7	2 and 3	121	Fixture 20	1, 2, and 5	381
Fixture 8	1, 2, and 3	141	Fixture 21	3 and 5	401
Fixture 9	4	161	Fixture 22	1, 3, and 5	421
Fixture 10	1 and 4	181	Fixture 23	2, 3, and 5	441
Fixture 11	2 and 4	201	Fixture 24	1, 2, 3, and 5	461
Fixture 12	1, 2, and 4	221	Fixture 25	4 and 5	481
Fixture 13	3 and 4	241			

Table A-2: Cyberlight DMX Assignments Mode 1

Channel	Assignment	Range	Construct Parameter
Channel 1	Pan coarse adjustment		Position
Channel 2	Pan fine adjustment		Position
Channel 3	Tilt coarse adjustment		Position
Channel 4	Tilt fine adjustment		Position

Table A-2: *Cyberlight DMX Assignments Mode 1*

Channel	Assignment	Range	Construct Parameter
Channel 5	Color Wheel	Full 0	Color 1 (open) Half color 1 and 2 Color 2 Half color 2 and 3 Color 3 Half color 3 and 4 Color 4 Half color 4 and 5 Color 5 Half color 5 and 6 Color 6 Half color 6 and 7 Color 7 Half color 7 and 8 Color 8 Half color 8 and 1 Forward spin speed 8 Forward spin speed 7 Forward spin speed 6 Forward spin speed 5 Forward spin speed 4 Forward spin speed 3 Forward spin speed 2 Forward spin speed 1 Reverse spin speed 1 Reverse spin speed 2 Reverse spin speed 3 Reverse spin speed 4 Reverse spin speed 5 Reverse spin speed 6 Reverse spin speed 7 Reverse spin speed 8 Color 1 (open)
Channel 6	Cyan (Red)		Color Mix
Channel 7	Magenta (Green)		Color Mix
Channel 8	Yellow (Blue)		Color Mix

Table A-2: *Cyberlight DMX Assignments Mode 1*

Channel	Assignment	Range	Construct Parameter
Channel 9	Static litho	Full 0	Litho 1 (open) Litho 2 Litho 3 Litho 4 Litho 5 Litho 6 Litho 7 Litho 8 Forward spin speed 8 Forward spin speed 7 Forward spin speed 6 Forward spin speed 5 Forward spin speed 4 Forward spin speed 3 Forward spin speed 2 Forward spin speed 1 Reverse spin speed 1 Reverse spin speed 2 Reverse spin speed 3 Reverse spin speed 4 Reverse spin speed 5 Reverse spin speed 6 Reverse spin speed 7 Reverse spin speed 8 Litho 1 (open)
Channel 10	Rotating Litho Select the litho to rotate forward/reverse with this channel. Then use Channel 11 to set the rotation speed. For rotating litho position parameters select the litho position to index with this channel. Then use Channel 11 to set the rotational position (index value) from 0 to 360 degrees.	Full 0	Position 3 (open) Reverse rotate 5 Reverse rotate 4 Reverse rotate 2 Reverse rotate 1 Forward rotate 5 Forward rotate 4 Forward rotate 2 Forward rotate 1 Position 5 Position 4 Position 3 (open) Position 2 Position 1 Position 3 (open)
Channel 11	Rotate (use with Channel 10)		For Rotating Litho rotate mode use Ch 11 to set rotate speed For Rotating Litho position mode use Ch 11 to set the index from 0 to 360 degrees
Channel 12	Zoom		Zoom in/out
Channel 13	Focus		Focus in/out
Channel 14	Iris		Iris open/close

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Table A-2: *Cyberlight DMX Assignments Mode 1*

Channel	Assignment	Range	Construct Parameter
Channel 15	Effects Wheel	Full 0	Effect 4 (open) Effect 8 Effect 7 Effect 6 Effect 5 Effect 4 Effect 3 Effect 2 Effect 1 Effect 4 (open)
Channel 16	Frost		Frost in/out
Channel 17	Shutter	Full 0	Open Closed Strobe speed 8 Strobe speed 7 Strobe speed 6 Strobe speed 5 Strobe speed 4 Strobe speed 3 Strobe speed 2 Strobe speed 1 Open Closed
Channel 18	Dim		Dim open/close
Channel 19	Motor Speed	Full 0	Speed 99 Speed 1 Speed 94
Channel 20*	Control		50% fader – shutdown 25% fader – home

* - Make sure you first follow the instructions in the section titled “Accessing Control Information” on page A-2.

DMX 512 Mode 2 – Enhanced Cyberlight® DMX Control

Each Cyberlight fixture in DMX mode 2 uses 20 channels of the DMX 512 protocol thus providing control for up to 25 fixtures (512 / 20 = 25.6 fixtures). Use the procedure below to control your Cyberlight with DMX mode 2:

1. Set the Cyberlight fixture to DMX mode 2 by setting address switch 7 to ON and address switch 8 to OFF.

2. Set address switches 1 through 5 to correspond to the desired fixture number, as shown in Table A-3. Note that Cyberlight CX fixtures configured for 20-channel mode work properly and can be mixed with Cyberlight fixtures; they do not respond to the color mixing, zoom, and frost constructs.

3. Refer to Table A-4 for the Cyberlight DMX mode 2 channel assignments.

Table A-3: Addressing Fixtures in 20 Channel DMX 512 Mode 2

Cyberlight Fixture	Fixture Address Switches ON	DMX Channel Number	Cyberlight Fixture	Fixture Address Switches ON	DMX Channel Number
Fixture 1	none	001	Fixture 14	1, 3, and 4	261
Fixture 2	1	021	Fixture 15	2, 3, and 4	281
Fixture 3	2	041	Fixture 16	1, 2, 3, and 4	301
Fixture 4	1 and 2	061	Fixture 17	5	321
Fixture 5	3	081	Fixture 18	1 and 5	341
Fixture 6	1 and 3	101	Fixture 19	2 and 5	361
Fixture 7	2 and 3	121	Fixture 20	1, 2, and 5	381
Fixture 8	1, 2, and 3	141	Fixture 21	3 and 5	401
Fixture 9	4	161	Fixture 22	1, 3, and 5	421
Fixture 10	1 and 4	181	Fixture 23	2, 3, and 5	441
Fixture 11	2 and 4	201	Fixture 24	1, 2, 3, and 5	461
Fixture 12	1, 2, and 4	221	Fixture 25	4 and 5	481
Fixture 13	3 and 4	241			

The “Channel Value (%)” column in Table A-4 below has values you should use if your controller has dimmer-type controls. The “Channel Value (numerical)” column has values you should use if you are using the Status Cue system or another controller that uses digital or numerical controls.

Table A-4: *Cyberlight DMX Assignments Mode 2*

Channel	Assignment	Channel Value (%)	Channel Value (numerical)	Construct Parameter
Channel 1	Pan coarse adjustment	0-100%	0-255	Position
Channel 2	Pan fine adjustment	0-100%	0-255	Position
Channel 3	Tilt coarse adjustment	0-100%	0-255	Position
Channel 4	Tilt fine adjustment	0-100%	0-255	Position
Channel 5	Color Wheel *Full Speed*	Full 98 96 94 93 91 90 88 87 85 83 82 80 79 77 76	255 250 245 240 237 232 230 224 222 217 211 209 204 201 196 194	Color 1 (open) Half color 1 and 2 Color 2 Half color 2 and 3 Color 3 Half color 3 and 4 Color 4 Half color 4 and 5 Color 5 Half color 5 and 6 Color 6 Half color 6 and 7 Color 7 Half color 7 and 8 Color 8 Half color 8 and 1
	Color Wheel *Mspeed*	74 73 71 70 68 66 65 63 62 61 59 57 56 54 52 51	189 186 181 179 173 168 166 161 158 156 150 145 143 138 133 130	Color 1 (open) Half color 1 and 2 Color 2 Half color 2 and 3 Color 3 Half color 3 and 4 Color 4 Half color 4 and 5 Color 5 Half color 5 and 6 Color 6 Half color 6 and 7 Color 7 Half color 7 and 8 Color 8 Half color 8 and 1

Table A-4: *Cyberlight DMX Assignments Mode 2*

Channel	Assignment	Channel Value (%)	Channel Value (numerical)	Construct Parameter
	Color Wheel *Spin Speed*	50 ↑ 26 25 ↑ 0 0	127 ↑ 66 64 ↑ 2 0	Forward spin speed – fastest • • • Forward spin speed – slowest Reverse spin speed – slowest • • • Reverse spin speed – fastest Color 1 (open)
Channel 6	Cyan (Red)	0-100%	0-255	Color Mix
Channel 7	Magenta (Green)	0-100%	0-255	Color Mix
Channel 8	Yellow (Blue)	0-100%	0-255	Color Mix
Channel 9	Static litho *Full Speed*	Full 98 96 94 93 91 90 88 87 85 83 82 80 79 77 76	255 250 245 240 237 232 230 224 222 217 211 209 204 201 196 194	Litho 1 (open) Litho 1 shake wide Litho 2 Litho 2 shake wide Litho 3 Litho 3 shake wide Litho 4 Litho 4 shake wide Litho 5 Litho 5 shake wide Litho 6 Litho 6 shake wide Litho 7 Litho 7 shake wide Litho 8 Litho 8 shake wide
	Static litho *Mspeed*	74 73 71 70 68 66 65 63 62 61 59 57 56 54 52 51	189 186 181 179 173 168 166 161 158 156 150 145 143 138 133 130	Litho 1 (open) Litho 1 shake narrow Litho 2 Litho 2 shake narrow Litho 3 Litho 3 shake narrow Litho 4 Litho 4 shake narrow Litho 5 Litho 5 shake narrow Litho 6 Litho 6 shake narrow Litho 7 Litho 7 shake narrow Litho 8 Litho 8 shake narrow

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Table A-4: *Cyberlight DMX Assignments Mode 2*

Channel	Assignment	Channel Value (%)	Channel Value (numerical)	Construct Parameter
	Static litho *Spin Speed*	50 ↑ 26 25 ↑ 0 0	127 ↑ 66 64 ↑ 2 0	Forward spin speed – fastest • • • Forward spin speed – slowest Reverse spin speed – slowest • • • Reverse spin speed – fastest Litho 1 (open)
Channel 10	Rotating Litho *Full Speed* Select the litho to rotate (forward/reverse) with this channel. Then use Channel 11 to set the rotation speed. For rotating litho position parameters select the litho position to index with this channel. Then use Channel 11 to set the rotational position (index value) from 0 to 360 degrees.	Full 98 95 91 87 83 80 76 72 68 64 61 58 54	255 250 242 232 222 212 204 194 184 173 163 156 150 138	Position 3 (open) Reverse rotate 5 Reverse rotate 4 Reverse rotate 2 Reverse rotate 1 Forward rotate 5 Forward rotate 4 Forward rotate 2 Forward rotate 1 Position 5 Position 4 Position 3 (open) Position 2 Position 1
	Mspeed	50 46 42 39 36 32 28 24 20 17 13 10 5 0	127 117 107 99 92 82 71 61 51 43 33 26 13 0	Reverse rotate 5 Reverse rotate 4 Reverse rotate 2 Reverse rotate 1 Forward rotate 5 Forward rotate 4 Forward rotate 2 Forward rotate 1 Position 5 Position 4 Position 3 (open) Position 2 Position 1 Position 3 (open)
Channel 11	Rotate (use with Channel 10)	0-100%	0-255	For Rotating Litho rotate mode use Ch 11 to set rotate speed For Rotating Litho position mode use Ch 11 to set the index from 0 to 360 degrees
Channel 12	Zoom	0-100%	0-255	Zoom in/out
Channel 13	Focus	0-100%	0-255	Focus in/out
Channel 14	Iris	0-100%	0-255	Iris open/close

Table A-4: *Cyberlight DMX Assignments Mode 2*

Channel	Assignment	Channel Value (%)	Channel Value (numerical)	Construct Parameter
Channel 15	Effects Wheel Full Speed	Full 96 91 85 80 73 67 62 56	255 245 232 217 204 186 171 158 143	Effect 4 – (open) Effect 8 – cyan color corrector Effect 7 – diffusion Effect 6 – wide angle Effect 5 – magenta color corrector Effect 4 – (open) Effect 3 – yellow color corrector Effect 2 – CYM tri-color mosaic Effect 1 – prism
Channel 15	Effects Wheel *Mspeed*	50 44 37 33 27 21 14 8 0	127 112 94 84 69 54 36 20 0	Effect 8 – cyan color corrector Effect 7 – diffusion Effect 6 – wide angle Effect 5 – magenta color corrector Effect 4 – (open) Effect 3 – yellow color corrector Effect 2 – tri color mosaic (C-Y-M) Effect 1 – prism Effect 4 – (open)
Channel 16	Frost *Frost variable* None to full	Full ↑ 50	255 ↑ 129	Frost – frost free • • • Frost – frost full
	Frost *Full Frost Strobing* (Frost in)	50 ↑ 0 0	126 ↑ 2 0	Frost strobing – fastest • • • Frost strobing – slowest Frost – frost free
Channel 17	Shutter *Strobe* 50 % duty cycle	Full 98 97 ↑ 1 1 0	255 250 247 ↑ 4 1 0	Open Closed Strobe speed – fastest • • • Strobe speed – slowest Open Closed
Channel 18	Dim	100 ↑ 0	255 ↑ 0	No dim Full dim (blackout)
Channel 19	Motor Speed	Full ↑ 0	255-200 ↑ 21 0	Speed 99 • • • Speed 1 Speed 95

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Table A-4: *Cyberlight DMX Assignments Mode 2*

Channel	Assignment	Channel Value (%)	Channel Value (numerical)	Construct Parameter
Channel 20*	Control	50% 25%	128 64	shutdown home

* - Make sure you first follow the instructions in the section titled “Accessing Control Information” on page A-2.

DMX 512 Mode 3 – Cyberlight® 15-Channel DMX Control

Each Cyberlight fixture in DMX mode 3 uses 15 channels of the DMX 512 protocol thus providing control for up to 34 fixtures (512 / 15 = 34.1 fixtures). Use the procedure below to control your Cyberlight with DMX mode 3:

1. Set the Cyberlight fixture to DMX mode 3 by setting address switches 7 and 8 to ON.
2. Set address switches 1 through 6 as shown in Table A-5.
3. Refer to Table A-6 for the Cyberlight 15-channel assignments.

Table A-5: Addressing Fixtures in 15 Channel DMX 512 Mode 3

Cyberlight Fixture	Fixture Address Switches ON	DMX Channel Number	Cyberlight Fixture	Fixture Address Switches ON	DMX Channel Number
Fixture 1	none	001	Fixture 18	1 and 5	256
Fixture 2	1	016	Fixture 19	2 and 5	271
Fixture 3	2	031	Fixture 20	1,2, and 5	286
Fixture 4	1 and 2	046	Fixture 21	3 and 5	301
Fixture 5	3	61	Fixture 22	1, 3, and 5	316
Fixture 6	1 and 3	076	Fixture 23	2, 3, and 5	331
Fixture 7	2 and 3	091	Fixture 24	1, 2, 3, and 5	346
Fixture 8	1, 2, and 3	106	Fixture 25	4 and 5	361
Fixture 9	4	121	Fixture 26	1, 4, and 5	376
Fixture 10	1 and 4	136	Fixture 27	2, 4, and 5	391
Fixture 11	2 and 4	151	Fixture 28	1, 2, 4, and 5	406
Fixture 12	1, 2, and 4	166	Fixture 29	3, 4, and 5	421
Fixture 13	3 and 4	181	Fixture 30	1, 3, 4, and 5	436
Fixture 14	1, 3, and 4	196	Fixture 31	2, 3, 4, and 5	451
Fixture 15	2, 3, and 4	211	Fixture 32	1, 2, 3, 4,and 5	466
Fixture 16	1, 2, 3, and 4	226	Fixture 33	6	481
Fixture 17	5	241	Fixture 34	1 and 6	496

Table A-6: Cyberlight DMX Assignments Mode 3

Channel	Assignment	Range %	Construct Parameter
Channel 1	Pan coarse adjustment		Position
Channel 2	Pan fine adjustment		Position
Channel 3	Tilt coarse adjustment		Position
Channel 4	Tilt fine adjustment		Position
Channel 5	Color Wheel *Full Speed*	Full 98 96 94 93 91 90 88 87 85 83 82 80 79 77 76	Color 1 (open) Half color 1 and 2 Color 2 Half color 2 and 3 Color 3 Half color 3 and 4 Color 4 Half color 4 and 5 Color 5 Half color 5 and 6 Color 6 Half color 6 and 7 Color 7 Half color 7 and 8 Color 8 Half color 8 and 1
	Color Wheel *Mspeed*	74 73 71 70 68 66 65 63 62 61 59 57 56 54 52 51	Color 1 (open) Half color 1 and 2 Color 2 Half color 2 and 3 Color 3 Half color 3 and 4 Color 4 Half color 4 and 5 Color 5 Half color 5 and 6 Color 6 Half color 6 and 7 Color 7 Half color 7 and 8 Color 8 Half color 8 and 1
	Color Wheel *Spin Speed*	50 ↑ 26 25 ↑ 0 0	Forward spin speed – fastest • • • Forward spin speed – slowest Reverse spin speed – slowest • • • Reverse spin speed – fastest Color 1 (open)

Table A-6: Cyberlight DMX Assignments Mode 3

Channel	Assignment	Range %	Construct Parameter
Channel 6	Static litho *Full Speed*	Full 98 96 94 93 91 90 88 87 85 83 82 80 79 77 76	Litho 1 (open) Litho 1 shake wide Litho 2 Litho 2 shake wide Litho 3 Litho 3 shake wide Litho 4 Litho 4 shake wide Litho 5 Litho 5 shake wide Litho 6 Litho 6 shake wide Litho 7 Litho 7 shake wide Litho 8 Litho 8 shake wide
	Static litho *Mspeed*	74 73 71 70 68 66 65 63 62 61 59 57 56 54 52 51	Litho 1 (open) Litho 1 shake narrow Litho 2 Litho 2 shake narrow Litho 3 Litho 3 shake narrow Litho 4 Litho 4 shake narrow Litho 5 Litho 5 shake narrow Litho 6 Litho 6 shake narrow Litho 7 Litho 7 shake narrow Litho 8 Litho 8 shake narrow
	Static litho *Spin Speed*	50 ↑ 26 25 ↑ 0 0	Forward spin speed – fastest • • • Forward spin speed – slowest Reverse spin speed – slowest • • • Reverse spin speed – fastest Litho 1 (open)

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Table A-6: Cyberlight DMX Assignments Mode 3

Channel	Assignment	Range %	Construct Parameter
Channel 7	Rotating Litho *Full Speed* Select the litho to rotate (forward/reverse) with this channel. Then use Channel 11 to set the rotation speed. For rotating litho position parameters select the litho position to index with this channel. Then use Channel 11 to set the rotational position (index value) from 0 to 360 degrees.	Full 98 95 91 87 83 80 76 72 68 64 61 58 54	Position 3 (open) Reverse rotate 5 Reverse rotate 4 Reverse rotate 2 Reverse rotate 1 Forward rotate 5 Forward rotate 4 Forward rotate 2 Forward rotate 1 Position 5 Position 4 Position 3 (open) Position 2 Position 1
	Mspeed	50 46 42 39 36 32 28 24 20 17 13 10 5 0	Reverse rotate 5 Reverse rotate 4 Reverse rotate 2 Reverse rotate 1 Forward rotate 5 Forward rotate 4 Forward rotate 2 Forward rotate 1 Position 5 Position 4 Position 3 (open) Position 2 Position 1 Position 3 (open)
Channel 8	Rotate (use with Channel 7)		For Rotating Litho rotate mode use Ch 8 to set rotate speed For Rotating Litho position mode use Ch 8 to set the index from 0 to 360 degrees
Channel 9	Focus		Focus in/out
Channel 10	Iris		Iris open/close
Channel 11	Effects Wheel Full Speed	Full 96 91 85 80 73 67 62 56	Effect 4 – (open) Effect 8 – cyan color corrector Effect 7 – diffusion Effect 6 – wide angle Effect 5 – magenta color corrector Effect 4 – (open) Effect 3 – yellow color corrector Effect 2 – cym tri color mosaic Effect 1 – prism
Channel 11	Effects Wheel *Mspeed*	50 44 37 33 27 21 14 8 0	Effect 8 – cyan color corrector Effect 7 – diffusion Effect 6 – wide angle Effect 5 – magenta color corrector Effect 4 – (open) Effect 3 – yellow color corrector Effect 2 – tri color mosaic (C-Y-M) Effect 1 – prism Effect 4 – (open)

Table A-6: Cyberlight DMX Assignments Mode 3

Channel	Assignment	Range %	Construct Parameter
Channel 12	Shutter *Strobe* 50 % duty cycle	Full 98 97 ↑ 1 1 0	Open Closed Strobe speed – fastest • • • Strobe speed – slowest Open Closed
Channel 13	Dim		Dim open/close
Channel 14	Motor Speed	Full ↑ 0	Speed 97 • • • Speed 1 Speed 94
Channel 15*	Control		50% fader – shutdown 25% fader – home

* - Make sure you first follow the instructions in the section titled “Accessing Control Information” on page A-2.

Channel Boundaries

This section describes the relationship between DMX address and fixture number, and explains how to mix fixtures using DMX modes 1 or 2 with DMX mode 3 on the same link.

Overview

DMX 512 protocol provides 512 channels that are divided among all the fixtures connected to the controller in a particular link. The number of channels that a fixture uses depends on the requirements and design of the fixture. In theory, you could have one fixture that uses 512 channels, two fixtures that use 256 channels, four fixtures that use 128 channels, up to 512 fixtures that use one channel each.

Each Cyberlight fixture uses a contiguous block of channels with each block having a unique starting address. The block of channels assigned to each address defines its *channel boundary.* Channel boundaries can start at any address, even or odd. The exact address depends on the fixture's addressing scheme.

Cyberlight DMX modes 1 and 2 are each on 20-channel boundaries while mode 3 is on a 15-channel boundary.

Correlation of Fixture Number and DMX Address

Table A-7 and Table A-8 correlate DMX mode fixture numbering to actual DMX 512 addresses.

Table A-7: 20-Channel Addresses (Modes 1 and 2)

Fixture Number:DMX Address Range	**Fixture Number**:DMX Address Range	**Fixture Number**:DMX Address Range	**Fixture Number**:DMX Address Range	**Fixture Number**:DMX Address Range
1: 1-20	**6**: 101-120	**11**: 201-220	**16**: 301-320	**21**: 401-420
2: 21-40	**7**: 121-140	**12**: 221-240	**17**: 321-340	**22**: 421-440
3: 41-60	**8**: 141-160	**13**: 241-260	**18**: 341-360	**23**: 441-460
4: 61-80	**9**: 161-180	**14**: 261-280	**19**: 361-380	**24**: 461-480
5: 81-100	**10**: 181-200	**15**: 281-300	**20**: 381-400	**25**: 481-500

Table A-8: 15-Channel Addresses (Mode 3)

Fixture Number:DMX Address Range	**Fixture Number**:DMX Address Range	**Fixture Number**:DMX Address Range	**Fixture Number**:DMX Address Range	**Fixture Number**:DMX Address Range	**Fixture Number**:DMX Address Range
1: 1-15	**7**: 91-105	**13**: 181-195	**19**: 271-285	**25**: 361-375	**31**: 451-465
2: 16-30	**8**: 106-120	**14**: 196-210	**20**: 286-300	**26**: 376-390	**32**: 466-480
3: 31-45	**9**: 121-135	**15**: 211-225	**21**: 301-315	**27**: 391-405	**33**: 481-495
4: 46-60	**10**: 136-150	**16**: 226-240	**22**: 316-330	**28**: 406-420	**34**: 496-511
5: 61-75	**11**: 151-165	**17**: 241-255	**23**: 331-345	**29**: 421-435	
6: 76-90	**12**: 166-180	**18**: 256-270	**24**: 346-360	**30**: 436-450	

Mixing Modes on the Same Link

High End Systems recommends that you assign all Cyberlight fixtures on a particular link to the same DMX mode. This saves you from having to remember which commands are supported by which mode for which fixture. All Cyberlight models (CLs, CXs and SVs) are compatible with all three DMX modes. The only differences in functionality are between CXs and CLs/SVs; namely, CXs do not support zoom or color mixing. A CX will simply not respond to color mixing or zoom commands.

If you do wish to mix DMX modes on a particular link, however, you need to be aware that addressing 20-channel and 15-channel fixtures in an unplanned fashion can cause wasted channels because of boundary overlapping. For example, notice in Figure A-2 that to address two 20-channel fixtures and two 15-channels fixtures in the order, 20 - 15 - 20 - 15 would waste 35 channels. (Fixture numbers 2, 5 and 6 cannot be used because address ranges used by the fixtures would overlap.)

Addressing the same fixtures in a planned order, 20 - 20 - 15 - 15, would waste only 5 channels as Figure A-3 shows.

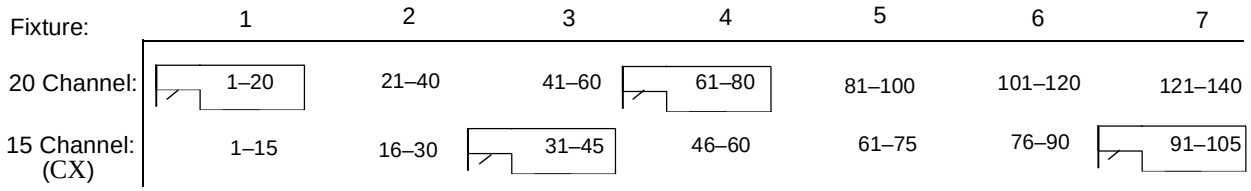

Figure A-2. Unplanned channel addressing wastes DMX addresses because of fixture boundary overlap.

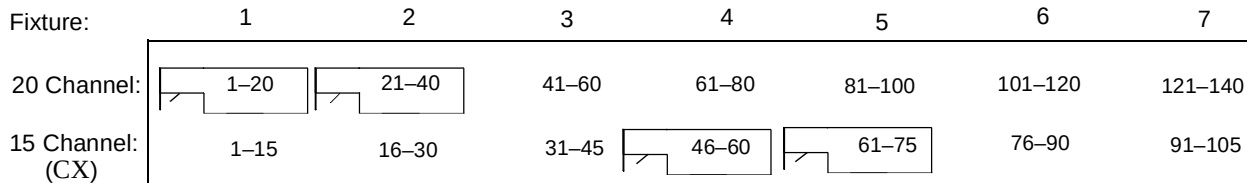

Figure A-3. Planned channel addressing wastes a minimum of DMX address space.