

03 OUTDOOR LASER LIGHT PRODUCT MANUAL



Chapter 1 Hardware and Interface Description

1.1 Status light



Blue light: power and SD card status indicators:

Off	No power
Slow blink	No SD card
Steady	SD card ready

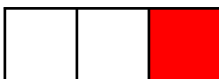


Green light: link indicators:
In DMX mode

Off	DMX board not connected
Slow blink	DMX board connected, but no DMX signal
Steady	DMX ready

In ILDA/ZLDA mode

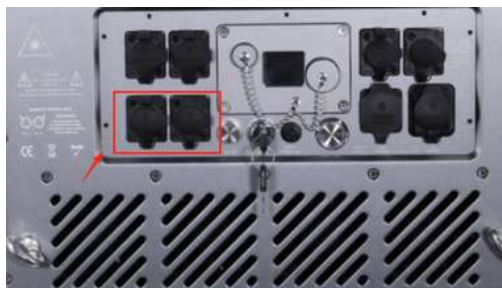
off	Didn't connect ILDA board
Slow blink	Already connect ILDA board, no ILDA signal
steady	ILDA connected



Red light: output indicators:

Off	No output
Steady	Output ready

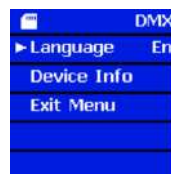
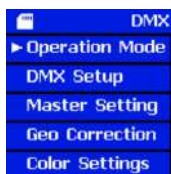




WARNING: this port is for "remote interlock" using **ONLY!!** must not be connected to DMX cable, otherwise it may damage the Controller!!!

Chapter 2: Menu

2.1 Main Menu



Menu item	Description	Default
[Operation Model]	Select operation mode, contains [DMX512], [ILDA], [ZLDA], [TEST] and [RJ45] etc mode	
[XXX Setup]	Settings of selected mode	
[Master Settings]	Box master settings	
[Geo Correction]	Geometric correction on the output of box	
[Color Settings]	Color settings to limit the maximum output range of colors	
[Language]	[中文] Simple Chinese [En] English	[中文]
[Device Info]	Device information	
[Exit Menu]	Save settings, and off the display	

2.2 Operation mode



Menu item	Description	Default
[DMX512]	DMX512 mode, the output data sourced from SD card, corresponding ZLDA format files in ":/dmx/" directory.	×
[ILDA Play]	ILDA mode, the output data sourced from SD card, corresponding ILDA format files in ":/ILDA/" directory.	×
[ZLDA Play]	ZLDA mode, the output data sourced from SD card, corresponding ZLDA format files in ":/ZLDA/" directory.	√
[TEST Play]	TEST mode, the output data sourced from SD card, corresponding ZLDA format files in ":/TEST/" directory.	×
[RJ45 Play]	The output data sourced from ILDA or ILDA-RJ45	×
[Exit]	Exit the current menu, and return the previous menu.	





2.3 DMX Setup

DMX Setup
▶ Start Addr 1
Timeout 3
Profile V3
Exit

Menu item	Description	Default
[Start Addr]	The starting address of the DMX data is 1-500.	1
[Timeout]	Unit: second, If no DMX message is received during this time, the DMX connection is considered disconnected and the output is turned off.	3
[Profile]	[V3] Compatibility with FB3 format control commands. [CH26] Format control commands for 26 channels. [V4] Compatibility with FB4 format control commands.	V3
[Exit]	Exit the current menu, and return the previous menu.	

2.4 ILDA Setup

ILDA Setup
▶ Play Mode cue
File Index 001
End Action list
Exit

Menu item	Description	Default
[Play mode]	[cue] indicates playing a single file, corresponding to the ILDA format files in the "./ILDA/CUE" directory. [list] indicates playing a list file, corresponding to the ILDA format files in the "./ILDA/LIST/001-999/" directory. [none] indicates no output	list
[File Index]	[xxx] indicates the current playing file number, range is 001-999. In [cue] option, indicates 001.ild-999.ild in the "./ILDA/CUE" directory. In [list] option, indicates files in the "./ILDA/LIST/001/" ~ "./ILDA/LIST/999/" directory.	1
[End Action]	In [loop] option, after reaching the end of the playing, it starts playing from the beginning again. In [stop] option, after reaching the end of the playing, it sets the laser output off. 【Randomly】 after the program ends, it will play a random program	loop
[Exit]	Exit the current menu, and return the previous menu.	

2.5 ZLDA Setup

ZLDA Setup
▶ Play Mode cue
File Index 001
End Action list
Exit

Menu item	Description	Default
[Play mode]	[cue] indicates playing a single file, corresponding to the ZLDA format files in the "./ZLDA/CUE" directory. [list] indicates playing a list file, corresponding to the ZLDA format files in the "./ZLDA/LIST/001-999/" directory. [none] indicates no output	list
[File Index]	[xxx] indicates the current playing file number, range is 001-999. In [cue] option, indicates 001.zld-999.zld in the "./ZLDA/CUE" directory. In [list] option, indicates files in the "./ZLDA/LIST/001/" ~ "./ZLDA/LIST/999/" directory.	1
[End Action]	In [loop] option, after reaching the end of the playing, it starts playing from the beginning again. In [stop] option, after reaching the end of the playing, it sets the laser output off. 【Randomly】 after the program ends, it will play a random program	loop
[Exit]	Exit the current menu, and return the previous menu.	



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2.6 TEST Setup

TEST Setup
▶ Output <input checked="" type="checkbox"/>
File Index 001
Brightness 100
Master Size 100
Exit

Menu item	Description	Default
[Output]	Set laser output ON or Off	√
[File index]	[xxx] indicates the current playing file number, range is 001-999. Indicates 001.zld~999.zld in the ":/TEST" directory.	1
[Brightness]	0~100%	100
[Master Size]	0~100%	100
[Exit]	Exit the current menu, and return the previous menu.	

2.7 RJ45 Setup

Menu item	Description	Default
[Exit]	Exit the current menu, and return the previous menu.	

2.8 Master Settings

Master Setting
▶ Scan Rate 30
Color Shift 4
Rescan 999
Each Play T 2
TurnOffTime 30

Master Setting
▶ Animate Mode 1
Animate Rate 1
Target FPS 10
Single Prt <input checked="" type="checkbox"/>
InterLock <input checked="" type="checkbox"/>

Menu item	Description	Default
[Scan Rate]	The laser output rate is measured in kilopoints per second (K), range is 5-40K.	30
[Color Shift]	The number of points for color shift, range is 0-15.	4
[Rescan]	After the playback is disconnected, the duration in milliseconds for which the laser will set output off, range is 100-999 ms.	999
[Each Play T]	The minimum duration which playing each frame, unit is second, range is 1-20 s.	2
[TurnOffTime]	The screen timeout duration when there is no user interaction, measured in seconds. The valid range is from 5 to 60 seconds. A value of 60 seconds means the screen will remain on continuously.	30
[Animate Mode]	1: Play as Point, 2: Play as Frame.	1
[Animate Rate]	If Animate mode is 1, this item is enabled otherwise disabled. 1: Full speed. 2: 1/2 Speed. 3: 1/3 Speed.	1
[Target FPS]	If Animate mode is 2, this item is enabled otherwise disabled. The frame rate of the playback, measured in frames per second (fps), range is 1-40.	10
[Single Prt]	If the item is checked. The output is one point, and it's at full power output. The color of the point can be adjusted in Color Settings->Single	x
[InterLock]	check: the output is only available after the interlock signal becomes active. Unchecked: ignore the interlock's signal.	x
[Exit]	Exit the current menu, and return the previous menu.	



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2.9 Geo Correction

Geo Correction	Geo Correction	Geo Correction
▶ Master Size 100	▶ Z Angle 0	▶ XY Swap <input checked="" type="checkbox"/>
X Scale 100	X Position 0	Exit
Y Scale 100	Y Position 0	
X Shear 0	X Invert <input checked="" type="checkbox"/>	
Y Shear 0	Y Invert <input checked="" type="checkbox"/>	

Menu item	Description	Default
[Master Size]	0~100%	50
[X Scale]	0~100%	100
[Y Scale]	0~100%	100
[X Shear]	-100~100%	0
[Y Shear]	-100~100%	0
[Z Angle]	0~359	0
[X Position]	-100~100%	0
[Y Position]	-100~100%	0
[X Invert]	0 1	x
[Y Invert]	0 1	x
[XY Swap]	0 1	x
[Exit]	Exit the current menu, and return the previous menu.	

2.10 Color Settings

Color Settings	Color Settings
▶ Brightness 100	▶ Point Start 0
Red 100	Point End 100
Green 100	Exit
Blue 100	
Single 0	

Menu item	Description	Default
[Brightness]	0~100%	100
[Red]	0~100%	100
[Green]	0~100%	100
[Blue]	0~100%	100
[Single]	0~255 color index, 0 is using the default color , 1-255 is using the specified color for all programs.	0
[Point Start]	0~100%	0
[Point End]	0~100%	100
[Exit]	Exit the current menu, and return the previous menu.	



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2.11 Device Info

Device Info	
▶ Firmware	2.15
Date(YM)	24.01
Reset Param	X
Upgrade	
Exit	

Menu item	Description	Default
[Firmware]	X.XX indicates Major.Minor version.	---
[Date(YM)]	XX.XX indicates the firmware year and month.	---
[Reset Param]	Restore factory settings for parameters.	x
[Upgrade]	Upgrade the box firmware. The SD card must have firmware.	
[Exit]	Exit the current menu, and return the previous menu.	

Chapter 3: DMX512 Description

3.1 V3 Profile

Below the layout of the 16-channel fixture profile, the configuration is as follows(255-scale):

Channels	Value	Description	Width
1	0-255 DMX modes	0-31 Blackout 33-95 Four channels 97-159 Eight channels 161-223 Twelve channels 225-255 Sixteen channels	8 Bit
2	0-255 Page index (9 pages in total)	0-15 Page 1 17-31 Page 2 33-47 Page 3 49-63 Page 4 65-79 Page 5 81-95 Page 6 97-111 Page 7 113-127 Page 8 129-255 Page 9	8 Bit
3	0-255 Cue Index (48 cues in total)	0-32 None active 33-35 Cue 1 37-39 Cue 2 .. - ... 221-223 Cue 48 225-255 None active	8 Bit
4	0-255 Cue Speed	0-15 Full Speed 17-31 Pause 33-255 25 till 200%	8 Bit
5	0-255 Dimmer	0 till 100%	8 Bit
6	0-255 Zoom	0 till 100%	8 Bit
7	0-255 Size X	-100 till 100%	8 Bit
8	0-255 Size Y	-100 till 100%	8 Bit
9	0-255 Angle Z	0 till 360 degrees	8 Bit



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10	0-255 Position X	0 = left, 128 = Center, 255 = Right	8 Bit
11	0-255 Position Y	0 = top, 128 = center, 255 = bottom	8 Bit
12	0-255 Visible points	Zero Points till 100% of points visible	8 Bit
13	0-255 Scan Rate	0-31 Default speed 33-223 6K till 29K 225-255 30K	8 Bit
14	0-255 Cue release	0-31 Default 33-95 Hold 97-159 Loop 161-223 Next 225-255 Stop	8 Bit
15	0-255 Color Scroll	0-31 Original cue color 33-223 Color Scroll 225-255 White	8 Bit
16	Reserved	Reserved	8 Bit

Below the layout of the 16-channel fixture profile, the configuration is as follows(100-scale):

channels	value	description	witch
1	0-100 DMX modes	0-12 Blackout 13-37 Four channels 39-62 Eight channels 64-90 Twelve channels 92-100 Sixteen channels	8 Bit
2	0-100 Page index (9 pages in total)	0-5 Page 1 7-12 Page 2 13-18 Page 3 20-24 Page 4 26-30 Page 5 32-36 Page 6 38-43 Page 7 45-49 Page 8 51-100 Page 9	8 Bit



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3	0-100 Cue Index (48 cues in total)	0-12 None active 13 Cue 1 15 Cue 2 16 Cue 3 18 Cue 4 20 Cue 5 21 Cue 6 23 Cue 7 24 Cue 8 26 Cue 9 27 Cue 10 29 Cue 11 30 Cue 12 32 Cue 13 34 Cue 14 35 Cue 15 37 Cue 16 38 Cue 17 40 Cue 18 41 Cue 19 43 Cue 20 45 Cue 21 46 Cue 22 48 Cue 23 49 Cue 24 51 Cue 25 52 Cue 26 54 Cue 27 56 Cue 28 57 Cue 29 59 Cue 30 60 Cue 31 62 Cue 32 63 Cue 33 65 Cue 34 67 Cue 35 68 Cue 36 70 Cue 37 71 Cue 38 73 Cue 39 74 Cue 40 76 Cue 41 78 Cue 42 79 Cue 43 81 Cue 44 82 Cue 45 84 Cue 46 85 Cue 47 87 Cue 48 225-255 ---	8 Bit
4	0-100 Cue Speed	0-5 Full Speed 7-12 Pause 13-100 25% ~ 200%	8 Bit
5	0-100 Dimmer	0% ~ 100%	8 Bit
6	0-100 Zoom	0% ~ 100%	8 Bit
7	0-100 Size X	-100% ~ 100%	8 Bit
8	0-100 Size Y	-100% ~ 100%	8 Bit
9	0-100 Angle Z	0~360度	8 Bit
10	0-100 Position X	0 = Left, 50 = Center, 100 = Right	8 Bit
11	0-100 Positon Y	0 = Top, 50 = Center, 100 = Bottom	8 Bit



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12	0-100 Visible points	Zero Points till 100% of points visible	8 Bit
13	0-100 Scan Rate	0-12 Default speed 13-87 6K ~ 29K 89-100 30K	8 Bit
14	Reserved		8 Bit
15	0-100 Color	0-12 Original cue color 13-87 Color Scroll 89-100 White	8 Bit
16	Reserved	Reserved	8 Bit

3.2 V4 Profile

Below the layout of the 39-channel fixture profile, the configuration is as follows:

- Place ZQS05 in 'Setup Mode' (Note: There is a two-second delay before initializing 'Settings Mode'), and now restrict the area where the laser can be projected.
- Place ZQS05 in 'Play Mode' for live performance and program playback capability.

During 'Setup Mode', channels 14 to 39 will ignore changes from DMX.

During 'Play Mode', channels 2 to 13 will ignore changes from DMX.

(255-scale)

Channels	Value	Description	Width
1	0-255 Fixture Modes	0-239 Blackout / Safe 240-240 Setup Mode 251-251 Playback mode	8 Bit
2	0-255 Max Intensity	Defines the max intensity that can be used during playback mode (Range 0 till 100)	8 Bit
3	0--255 Test frames	Allows enabling test frames during setup mode (1= test frame 1, 255 = test frame 255)	8 Bit
45	0-65535 Size X	Defines the maximum width that can be used during playback mode (Range -100 till 100%, 0 = 32768)	16 Bit
67	0-65535 Size Y	Defines the maximum height that can be used during playback mode (Range -100 till 100%, 0 = 32768)	16 Bit
89	0-65535 Position X	Defines the horizontal position that can be used during playback mode (Range -100 till 100%, 0 = 32768)	16 Bit
1,011	0-65535 Position Y	Defines the vertical position that can be used during playback mode (Range -100 till 100%, 0 = 32768)	16 Bit
1,213	0-65535 Rotation Z	Defines the rotation angle that can be used during playback mode (Range 0 till 360 degrees)	16 Bit
14	0-255 Pages	Page Index, 255 pages in total 1 = page 1, 255 = page 255	8 Bit
15	0-255 Cues	Cue Index, 255 Cues in total (1 = cue 1, 255 = cue 255)	8 Bit
16	0-255 Cue speed	Cue speed (0 = Original, 1 - 255 = 1% till 255%)	8 Bit
17	0-255 Dimmer	Defines the maximum brightness limited by setup mode (Range 0 till 100%)	8 Bit



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1.819	0-65535 Zoom	Allows to zoom the cue limited by setup mode (Range 0 till 100%)	16 Bit
2.021	0-65535 X Size	Defines the maximum width limited by setup mode (Range -100 till 100%, 0 = 32768)	16 Bit
2.223	0-65535 Y Size	Defines the maximum height limited by setup mode (Range -100 till 100%, 0 = 32768)	16 Bit
2.425	0-65535 Z Angle	Defines the rotation angle limited by setup mode (Range 0 till 359 degrees)	16 Bit
2.627	0-65535 Z Rotation	Continues rotation from -60 till 60 Rpm (Range, 0 = Original, 1 till 32767 = -100% till -1% rotation, 32768 = keep angle but do not rotate, 32769 till 65535 = 1% till 100% rotation)	
2.829	0-65535 X Position	Allows for changing the horizontal position of the cue limited by setup mode (Range -100 till 100%, center = 32768)	16 Bit
3.031	0-65535 Y Position	Allows for changing the vertical position of the cue limited by setup mode (Range -100 till 100%, center = 32768)	16 Bit
32	0-255 Scan Rate	Defines the painting speed of the laser beam. (5k till original 30K)	8 Bit
33	0-255 Red	Intensity range from 0 till 100%	8 Bit
34	0-255 Green	Intensity range from 0 till 100%	8 Bit
35	0-255 Blue	Intensity range from 0 till 100%	8 Bit
36	0-255 Alpha	Allows you to shift between original cue color or RGB control. (Range, 0 = original, 1-255 = 0 till 100% alpha blending)	8 Bit
37	0-255 Points start	Allows you to remove points from the start point of a cue (Range from 100 till 0% visibility)	8 Bit
38	0-255 Points end	Allows you to remove points from the end point of a cue (Range from 1000 till 0% visibility)	8 Bit
39	0-255 Strobe	0 = Strobe disabled 1-255 = Strobe from 1 to 20 Hz	8 Bit

(100-scale)

Channels	Value	Description
1	0-100 Fixture Modes	0-58 Blackout / Safe 60-70 Setup Mode 80-90 Playback mode 95-100 Blackout / Safe
2	0-100 Max Intensity	Defines the max intensity that can be used during playback mode (Range 0 till 100)
3	0-100.0 Test frames	Allows enabling test frames during setup mode (0.4 = test frame 1, 0.8 = test frame 2, 1-- = test frame 255)



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4~5	0-100.0 Size X	Defines the maximum width that can be used during playback mode (Range -100 till 100%, 0 = 50%)
6~7	0-100.0 Size Y	Defines the maximum height that can be used during playback mode (Range -100 till 100%, 0 = 50%)
8~9	0-100.0 Position X	Defines the horizontal position that can be used during playback mode (Range -100 till 100%, 0 = 50%)
10~11	0-100.0 Position Y	Defines the vertical position that can be used during playback mode (Range -100 till 100%, 0 = 50%)
12~13	0-100.0 Rotation Z	Defines the rotation angle that can be used during playback mode (Range 0 till 360 degrees)
14	0-100 Pages	Page Index, 255 pages in total. 0.4 = page 1, 100 = page 255
15	0-100 Cues	Cue Index, 255 Cues in total (0.4 = cue 1, 0.8 = cue 2, 100 = cue 255)
16	0-100 Cue speed	Cue speed (0 = Original, 0.4 - 100.0 = 1% ~ 255%)
17	0-100 Dimmer	(0 ~ 100%)
18~19	0-100.0 Zoom	(0 ~ 100%)
20~21	0-100.0 X Size	(-100 ~ 100%, 0 = 0 Size)
22~23	0-100.0 Y Size	(-100 ~ 100%, 0 = 0Size)
24~25	0-100.0 Z Angle	Defines the rotation angle limited by setup mode (Range 0 till 359 degrees)
26~27	0-100.0 Z Rotation	Continues rotation from -60 till 60 Rpm (Range, 0 = Original, 0.1 ~ 49.9 = -100% ~ -1% rotation, 50.0 = keep angle but do not rotate, 50.1 ~ 100.0 = 1% till 100% rotation)
28~29	0-100 X Position	(-100 ~ 100%, 50.0 = Center)
30~31	0-100 Y Position	(-100 ~ 100%, 50.0 = Center)
32	0-100 Scan rate	(5k ~ 30K) 50 = 17.5k, 60 = 20k, 80 = 25k, 100 = 30k
33	0-100 Red	(0 ~ 100%)
34	0-100 Green	(0 ~ 100%)
35	0-100 Blue	(0 ~ 100%)
36	0-100 Alpha	Allows you to shift between original cue color or RGB control. (Range, 0 = original, 0.4 - 100 = 0 till 100% alpha blending)
37	0-100 Points start	(0 ~ 100%)
38	0-100 Points end	(0 ~ 100%)
39	0-100 Strobe	0 = Strobe disabled 0.4-100.0 = 1 to 20 Hz

3.3 26 CH (255-scale)



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Channels	Value	Description	Width
1	0-255 Page index	0~3 Blackout 4~7 Page 1 8~11 Page 2 12~15 Page 3 252~255 Page 63	8 Bit
2	0-255 Cue index	0~3 Blackout 4~7 Cue 1 8~11 Cue 2 12~15 Cue 3 252~255 Cue 63	8 Bit
3	0-255 Cue speed	(0 = Full speed, 1 - 255 = 1% ~ 255%)	8 Bit
4	0-255 Dimmer	(0 ~ 100%)	8 Bit
5-6	0-65535 Zoom	(0 ~ 100%)	16 Bit
7-8	0-65535 Size X	(-100 ~ 100%, 0 = 32768)	16 Bit
9-10	0-65535 Size Y	(-100 ~ 100%, 0 = 32768)	16 Bit
11-12	0-65535 Angle Z	0 till 360 degrees	16 Bit
13-14	0-65535 Rotattion Z	Rotation spdd is -60 ~ 60 Rpm (0 = original, 1 ~ 32767 = -100% ~ -1% rotation, 32768 = keep angle but do not rotate, 32769 ~ 65535 = 1% ~ 100% rotation)	
15-16	0-65535 Position X	(-100 ~ 100%, 0 = 32768)	16 Bit
17-18	0-65535 Position Y	(-100 ~ 100%, 0 = 32768)	16 Bit
19	0-255 Scan rate	(5k ~ 30K)	8 Bit
20	0-255 Red	(0 ~ 100%)	8 Bit
21	0-255 Green	(0 ~ 100%)	8 Bit
22	0-255 Blue	(0 ~ 100%)	8 Bit
23	0-255 Alpha	(0 = original, 1-255 = 0 ~ 100% alpha blending)	8 Bit
24	0-255 Points start	(0 ~ 100%)	8 Bit
25	0-255 Points end	(0 ~ 100%)	8 Bit
26	0-255 strobe	0 = Strobe disabled 1-255 = 1 to 20 Hz	8 Bit

(100-scale)



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Channels	Value	Description
1	0-100 Page index	1 Blackout 2 Page 1 4 Page 2 5 Page 3 7 Page 4 8 Page 5 10 Page 6 11 Page 7 13 Page 8 15 Page 9 16 Page 10 18 Page 11 19 Page 12 21 Page 13 22 Page 14 24 Page 15 26 Page 16 27 Page 17 29 Page 18 30 Page 19 32 Page 20 33 Page 21 35 Page 22 37 Page 23 38 Page 24 40 Page 25 41 Page 26 43 Page 27 44 Page 28 46 Page 29 48 Page 30 49 Page 31 51 Page 32 52 Page 33 54 Page 34 55 Page 35 57 Page 36 59 Page 37 60 Page 38 62 Page 39 63 Page 40 65 Page 41 66 Page 42 68 Page 43 70 Page 44 71 Page 45 73 Page 46 74 Page 47 76 Page 48 77 Page 49 79 Page 50 80 Page 51 82 Page 52 84 Page 53 85 Page 54 87 Page 55 88 Page 56 90 Page 57 91 Page 58 93 Page 59 95 Page 60 96 Page 61 98 Page 62 99 Page 63





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2	0-100 Cue index	1 Blackout 2 Cue 1 4 Cue 2 5 Cue 3 7 Cue 4 8 Cue 5 10 Cue 6 11 Cue 7 13 Cue 8 15 Cue 9 16 Cue 10 18 Cue 11 19 Cue 12 21 Cue 13 22 Cue 14 24 Cue 15 26 Cue 16 27 Cue 17 29 Cue 18 30 Cue 19 32 Cue 20 33 Cue 21 35 Cue 22 37 Cue 23 38 Cue 24 40 Cue 25 41 Cue 26 43 Cue 27 44 Cue 28 46 Cue 29 48 Cue 30 49 Cue 31 51 Cue 32 52 Cue 33 54 Cue 34 55 Cue 35 57 Cue 36 59 Cue 37 60 Cue 38 62 Cue 39 63 Cue 40 65 Cue 41 66 Cue 42 68 Cue 43 70 Cue 44 71 Cue 45 73 Cue 46 74 Cue 47 76 Cue 48 77 Cue 49 79 Cue 50 80 Cue 51 82 Cue 52 84 Cue 53 85 Cue 54 87 Cue 55 88 Cue 56 90 Cue 57 91 Cue 58 93 Cue 59 95 Cue 60 96 Cue 61 98 Cue 62 99 Cue 63
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3	0-100 Cue speed	(0 = original, 0.4 - 100.0 = 1% ~ 255%)
4	0-100 Dimmer	(0 ~ 100%)
5-6	0-100.0 Zoom	(0 ~ 100%)
7-8	0-100.0 Size X	(-100 ~ 100%, 50.0 = 0 size)
9-10	0-100.0 Size Y	(-100 ~ 100%, 50.0 = 0 size)
11-12	0-100.0 Angle Z	Defines the rotation angle limited by setup mode (Range 0 till 359 degrees)
13-14	0-100.0 Rotation Z	Continues rotation from -60 till 60 Rpm (Range, 0 = Original, 0.1 ~ 49.9 = -100% ~ -1% rotation, 50.0 = keep angle but do not rotate, 50.1 ~ 100.0 = 1% till 100% rotation)
15-16	0-100.0 Position X	(-100 ~ 100%, 50.0 = Center)
17-18	0-100.0 Position Y	(-100 ~ 100%, 50.0 = Center)
19	0-100 Scan rate	(5k ~ 30K) 50 = 17.5k, 60 = 20k, 80 = 25k, 100 = 30k
20	0-100 Red	(0 ~ 100%)
21	0-100 Green	(0 ~ 100%)
22	0-100 Blue	(0 ~ 100%)
23	0-100 Alpha	(0 = original, 0.4 - 100.0 = 0 ~ 100% alpha blending)
24	0-100 Points start	(0 ~ 100%)
25	0-100 Points end	(0 ~ 100%)
26	0-100 Strobe	0 = strobe disabled. 0.4-100.0 = 1 to 20 Hz





SD card file structure

4.1 DMX and ArtNet file structure

DMX and ArtNet playback both use files in the ":\DMX/" directory. The file names range from P001C001.zld to P255C255.zld. Here, "P" represents Page and "C" represents Cue.

For the 16-channel DMX command, the Page index and Cue Index correspond to P001C001.zld to P009C048.zld, supporting a total of 432 files.

For the 39-channel DMX command, the Pages and Cues correspond to P001C001.zld to P255C255.zld, supporting a total of 65,025 files.

During DMX and ArtNet playback, if the corresponding Pages and Cues files cannot be found, the laser output will be turned off.

名称	修改日期	类型	大小
P001C001.zld	2021/11/16 10:25	ZLD 文件	4 KB
P001C002.zld	2021/11/16 10:25	ZLD 文件	2 KB
P001C003.zld	2021/11/16 10:25	ZLD 文件	2 KB
P001C004.zld	2021/11/16 10:25	ZLD 文件	4 KB
P001C005.zld	2021/11/16 10:25	ZLD 文件	2 KB
P001C006.zld	2021/11/16 10:25	ZLD 文件	3 KB
P001C007.zld	2021/11/16 10:25	ZLD 文件	833 KB
P001C008.zld	2021/11/16 10:25	ZLD 文件	3 KB
P001C009.zld	2021/11/16 10:25	ZLD 文件	1,566 KB
P001C010.zld	2021/11/16 10:25	ZLD 文件	2,111 KB
P001C011.zld	2021/11/16 10:25	ZLD 文件	721 KB
P001C012.zld	2021/11/16 10:25	ZLD 文件	136 KB
P001C013.zld	2021/11/16 10:25	ZLD 文件	4,321 KB
P001C014.zld	2021/11/16 10:25	ZLD 文件	21 KB
P001C015.zld	2021/11/16 10:25	ZLD 文件	2 KB
P001C016.zld	2021/11/16 10:25	ZLD 文件	794 KB
P001C017.zld	2021/11/16 10:25	ZLD 文件	511 KB
P001C018.zld	2021/11/16 10:25	ZLD 文件	4,679 KB
P001C019.zld	2021/11/16 10:25	ZLD 文件	3,000 KB

4.2 ZLDA file structure

ZLDA playback is divided into two scenarios, one is [cue], other is [list], corresponds the files in ":\ZLDA\CUE/" and ":\ZLDA\LIST/" directory.

名称	修改日期	类型	大小
cue	2022/5/25 15:18	文件夹	
list	2022/5/25 15:22	文件夹	

a. Cue mode

In the ":\ZLDA\CUE/" directory, the file names range from 001.zld to 999.zld, and the file names correspond to the menu option [File Index]. A total of 999 files are supported. In ZLDA cue mode playback, if the corresponding file is not found, the laser output will be turned off.

名称	修改日期	类型	大小
001.zld	2021/11/16 10:25	ZLD 文件	2 KB
002.zld	2021/11/16 10:25	ZLD 文件	2 KB
003.zld	2021/11/16 10:25	ZLD 文件	4 KB
004.zld	2021/11/16 10:25	ZLD 文件	2 KB
005.zld	2021/11/16 10:25	ZLD 文件	3 KB
006.zld	2021/11/16 10:25	ZLD 文件	833 KB
007.zld	2021/11/16 10:25	ZLD 文件	3 KB
008.zld	2021/11/16 10:25	ZLD 文件	1,566 KB
009.zld	2021/11/16 10:25	ZLD 文件	2,111 KB
010.zld	2021/11/16 10:25	ZLD 文件	721 KB
011.zld	2021/11/16 10:25	ZLD 文件	136 KB
012.zld	2021/11/16 10:25	ZLD 文件	4,321 KB
013.zld	2021/11/16 10:25	ZLD 文件	21 KB
014.zld	2021/11/16 10:25	ZLD 文件	2 KB
015.zld	2021/11/16 10:25	ZLD 文件	794 KB
016.zld	2021/11/16 10:25	ZLD 文件	511 KB



b. List mode

In the ":\ZLDA\LIST/" directory, it is possible to create 999 directories numbered from 001 to 999. Each directory serves as a list corresponding to the file name selected in the [File Index] menu option.

In the ":\ZLDA\LIST\001/" directory, the file names range from 001.zld to 999.zld. Additionally, a play.txt file is required to indicate the playback order.

名称	修改日期	类型	大小
000.zld	2021/11/16 10:25	ZLD 文件	4 KB
001.zld	2021/11/16 10:25	ZLD 文件	2 KB
002.zld	2021/11/16 10:25	ZLD 文件	2 KB
003.zld	2021/11/16 10:25	ZLD 文件	4 KB
004.zld	2021/11/16 10:25	ZLD 文件	2 KB
005.zld	2021/11/16 10:25	ZLD 文件	3 KB
006.zld	2021/11/16 10:25	ZLD 文件	833 KB
007.zld	2021/11/16 10:25	ZLD 文件	3 KB
008.zld	2021/11/16 10:25	ZLD 文件	1,566 KB
009.zld	2021/11/16 10:25	ZLD 文件	2,111 KB
010.zld	2021/11/16 10:25	ZLD 文件	721 KB
play.txt	2022/5/25 18:35	文本文档	1 KB

The content of the play.txt file should be as follows, allowing customization of the number of files and their playback order. Each file name should be placed on a separate line. Only file names from 001 to 999 are allowed, and no other content should be included in the file.

In the ZLDA list mode playback, if a corresponding file cannot be found, the laser output will be turned off.



4.3 ILDA file structure

Similar to ZLDA playback, but the file format is *.ild.

4.4 TEST file structure

In the ":\TEST/" directory, the file names range from 001.zld to 999.zld, and each file name corresponds to an entry in the menu as [File Index]. A total of 999 files are supported. You can place some files that are only used for testing purposes in this directory.

In the TEST mode playback, if a corresponding file cannot be found, the laser output will be turned off.

名称	修改日期	类型	大小
000.zld	2021/11/16 10:25	ZLD 文件	4 KB
001.zld	2021/11/16 10:25	ZLD 文件	2 KB
002.zld	2021/11/16 10:25	ZLD 文件	2 KB
003.zld	2021/11/16 10:25	ZLD 文件	4 KB
004.zld	2021/11/16 10:25	ZLD 文件	2 KB
005.zld	2021/11/16 10:25	ZLD 文件	3 KB
006.zld	2021/11/16 10:25	ZLD 文件	833 KB
007.zld	2021/11/16 10:25	ZLD 文件	3 KB
008.zld	2021/11/16 10:25	ZLD 文件	1,566 KB
009.zld	2021/11/16 10:25	ZLD 文件	2,111 KB
010.zld	2021/11/16 10:25	ZLD 文件	721 KB



Chapter 5: Upgrade description

5.1 Via SD card upgrade firmware

a. Prepare firmware

Place the upgrade file in the root directory of the SD card, with the filename format "ZQSo5*****.zqb". The filename must have the prefix "ZQSo5" and the suffix ".zqb" for the device to recognize it.

名称	修改日期	类型	大小
CONFIG	2023/7/9 20:19	文件夹	
DMX	2023/7/9 20:19	文件夹	
ILDA	2023/7/9 20:19	文件夹	
TEST	2023/7/9 20:19	文件夹	
ZLDA	2023/7/9 20:19	文件夹	
ZQSo5-V2.21.zqb	2022/10/14 13:20	ZQB 文件	111 KB

b. Upgrade

Insert the SD card and power on the device. In the device information menu, locate the "Upgrade" option and click to enter the upgrade interface. If the firmware is invalid, you will not be able to access the upgrade interface.

Before proceeding with the upgrade, please carefully verify the version information. Click "Confirm" to initiate the upgrade process. Do not power off the device during the upgrade, as it may result in firmware loss.

Device Info	
▶ Firmare	2.15
Date(YM)	24.01
Reset Param	✗
Upgrade	
Exit	

Upgrade	
▶ Old Ver	2.15
New Ver	2.16
OK	
Exit	

