Instruction Manual

（RGB 3W Animation Laser Lighting）

This user manual contains important information about the safe installation and use of this product. Please read and follow the instruction carefully and keep this manual in a safe place for future reference.

Professional stage lighting

Getting Started

Thanks for choosing our product, please read and follow the instruction carefully and keep this manual in a safe place for future reference.

This high power laser projector is made of Aluminum housing, with elegant appearance, energy-saving, long lifetime, suitable for indoor use.

The product is designed and produced strictly as per CE standard, in accord with international DMX512 protocol. One product can be controlled alone or many products can be controlled together for big shows, theaters, studios, KTV, walls of the hotel etc..

1. Security warning:

1、When unpacking and before disposing of the carton, check if there is any transportation damage before using the product. Should there be any damage caused by transportation, consult your dealer and do not use the apparatus.

2、Do not install the product or project the beam onto inflammable surfaces. Minimum distance is 5 M.

3、The product is only intended for installation, operation and maintenance by qualified personnel.

4、Product should install in a cool place. Keep away from the wall 50cm.

5、Avoid direct exposure to the light from the lamp. The light is harmful to eyes.

6、Keep the optical system clean. Do not touch the laser reflect lens with bare hands. Do not use any alcohol liquid or any other liquid to clean the optical system. Use medicinal absorbent cotton to clean it.

7、Please do not attempt to dismantle and/or modify the product inner structure. Otherwise 1 year of warranty will get invalid.

8、Before installation, ensure that the voltage and frequency of power supply match the power requirement of the product.

9、It is essential that each product is correctly earthed and that electrical installation conforms to all relevant standards.

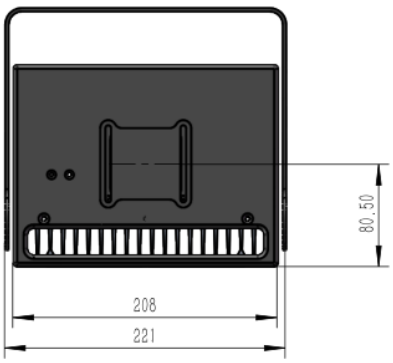
10、Make sure that the power-cord is never crimped or damaged by sharp edges. Never let the power-cord come into contact with other cables. Only handle the power-cord by the plug. Never pull out the plug by tugging the power-cord.

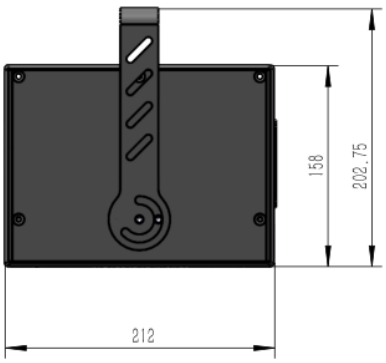
11、There is no user serviceable parts inside the product, do not open the housing and never operate the product with the cover removed.

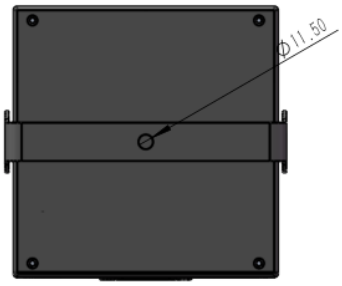
2. Technical parameters:

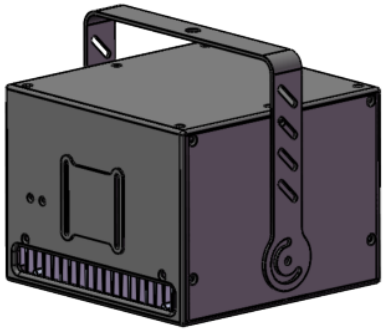
Description	parameters
Laser power	3W
Product name	RGB 3W animation laser lighting
Red laser module:	638nm 500mW laser diode
Green laser module:	525nm 1W laser diode
Blue laser module:	445nm 2W laser diode
Special effect	Different patterns of colorful beam, wave and line
Beam size:	3*5mm
Connector In	ILDA、SD card、DMX、Mic
Connector Out	ILDA、DMX
Voltage & power	220Vac,50/60Hz (±10%), 100W
Scanner	40Kpps
Working/Storage temperature	—20 -40℃
Net weight	6.5kg
Size (L x W x H):	212×221×158mm
Control mode	ILDA、SD card、Auto、DMX 512、Sound
Other features	Air cooling, RGB brightness adjustable individually, XY mirror image & pattern size adjustable, XY scanner system, optical components hermetically sealed, 10 Second warm-up time, low-power scanning electronic protection system, no special maintenance needed.
Laser Safety	keyed power switch, chain device, safety current protection for scanning failure.

3. Product size display:


80.50
208
221


158
202.75
212


Ø11.50



4. Main function:

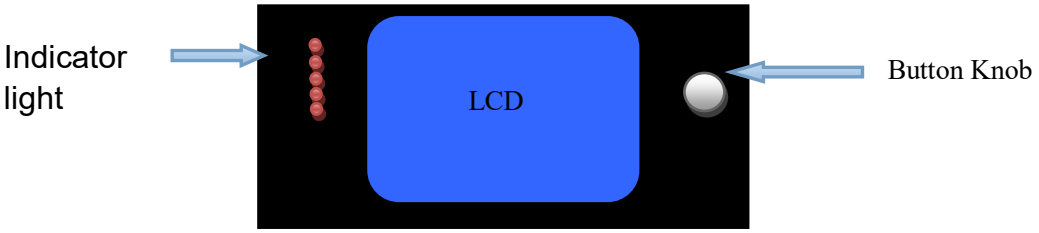
Auto mode: from the LCD display ILDA Lock option, click ON/OFF to start the Auto mode.

ILDA mode: When you use software to control the laser, connect the ILDA cable to the computer.

ILDA to RJ45: from the "ILDA Lock" option, select "on" mode, connect the signal cable.

DMX mode: connect the DMX cable to the lighting console, then ready to operate.

5. LCD display as follows:



Using the tap button and LCD menu display function, the menu operation is easy.
From the button and knob to select the function.
Click to select the function, double-click to return to the main menu.

The LCD function display description:

Auto/自走	SD List/ SD 列表
Sound/声控	exFlash/存储列表
DMX: x	Setting/设置
Slave/从机	Device/设备参数

DMX: x - x represents the current address code.

Main Menu	Secondary Menu	Project	Range	Default	Function	Description
Auto Menu		**Auto Menu**			Title	Click the title to return to upper level menu
		Show	Max 25	0 Default	Built-in show	On editing mode title bar will display the actual serial number
		Display the built-in program		{Default"},{"Northernlighting"}{"Triangle1"}, {"Triangle2"},{"Line"}{"Round1"},{"Round2"},{"		

				Rectangular 1"},{" Rectangular 2"},{"Curve"},{"Grating 1"},{"Grating 2"},{"grating 3"},{"Hybrid"},{"Custom 1"},		
		step	Max 128	Cycle	Choose the number of show	Cycle cycleplay the numbered effect cue
		Serial number: Group value: Item value		Serial number value step Group value and subscript item value indicate built-in data corresponding subscrip, you can edit and modify those data.		
		rate	1-49	5	Play rate	Set auto play rate
Sound Menu		**Sound Menu**			title	Click title to return to upper menu, on the right there is sound control strobe logo
		Show	Max 25	0	Built in show program	Enter editing mode the title bar will display the actual serial number
		Display the built-in show		{Default"},{"Northernlight"}{"Triangle1"}, {"Triangle2"},{"Line"}{"Round1"},{"Round2"},{" Rectangular1"},{"Rectangular2"},{"Curve"},{"Grating 1"},{"Grating2"},{"grating3"},{"Hybrid"},{"Custom 1"},		
		step	Max 128	Cycle	Choose the show number	Cycle cycleplay the numbered effect cue
		Serial number: Group value: Item value		Serial numbered step Group value and subscript item value indicate built-in data corresponded subscrip, you can edit and modify these data later by software		
		Sensitivity	1-25	5	Sound sensitivity	Bigger value getts bigger action effect, vice versa.
		Clear		Remove noise	When power on it will automatically remove once, please keep quiet. Approx. 1 second done. If the sound mode acts like the auto mode, please click this key.	
DMX Menu		**DMX Menu**			title	Click title to return

						to upper menu,on the right there is DMX signal strobe bar logo and sound control stobe square logo.
		Type	1-9	6 26ch	DMX channel selection	9 types DMX program: "1 12ch": simple and easy "2 16ch": ADAPTS to previous touch screen boards "3 17ch": balance "4 18ch":17ch+total dimmer channel "5 20ch" "6 23ch" "7 25ch" : complete function "8 26ch":25ch+total dimmer channel "9 27ch":26ch+boundary channel
		start add	1-512	1	set	DMX start adress
Slave Menu		**Slave Menu**			Title	Click title to return to upper menu
		slave mode		slave	Make sure master not on slave, Dmx, SD mode. Disconnect dmx console, only one master, other are slaves	
SD Program	This menu can be only seen with SD card	**SD Program**			Title	Click title to return to upper menu
		Show	Max 10	Cycle	Play program	Cycle play all the program (0-10)Play corresponding programs Each program contains multiple files. In ILDA_user software you can open play/ play.list to check the program.
		Display program name		Play files ".csv" in the play folder		
		File	Max 83	Cycle	Play file	Cycle play all the programs

						(0-299)Play corresponding programs
		Display program name		Ilda file name		
		Mode	auto/sound	Auto	Indicates sound or auto play	
		Rate	1-50	1	Play rate, 1 fastest, 50 slowest	Play the file with the set speed, bigger value results in faster speed. Default: play at the set frame rate in the SD card. It is not the scanner speed.
exF List Menu		exF List Menu			Title	Click the menu to return to upper level
		Show 文册	Max 5	Cycle	Play program	Cycle play all the list. Open the following files in ILDA_user software to check: updata/ ex_play.list: including gobo, cartoon, animal, beam, customization. updata/ ex_play_cn.list: including gobo, cartoon,animation,beam ,customization.
		Dispaly the program name		It is file “.csv” in updata folder		
		File	Max 25	Cycle	Paly the file	Cycle play all the file
		Dispaly the file name		It is ilda file name		
		Mode	auto/sound	Auto	Indicates sound trigger or autoplay.	
		Rate	1-50	1	Play rate,1 is slowest, 50 fastest.	Play the file with the set speed, bigger value get faster speed. Default: play with the frame rate set in the memory chip.

						It is not the scanner speed。	
Setting Menu	Scan-speed	test pattern	Circle				
			TOP				
			color				
			rect				
		Linkage	Yes/no	Yes	Scan parameter to link or not (default linked)	Yes： scan rate，prelight，blanking are subject to scan speed. No：scan parameter is independent, not subject to scan speed	
		Scan Speed	″42K7″ ″39K1″ ″36K1″ ″33K5″ ″31K3″ ″29K3″ ″26K1″ ″20K4″ ″15K2″ “10K″	33K5	Scan speed	Actual products may fix or limit the scanning speed, when testing the scan speed please set linkage at No and the scan rate at max）	
		-Scan rate	5-50	45	Scanner scan frame rate	The difference with the scan speed: it is affected by the number of points in the current graphic. To avoid simple graphic playing with excessive rate under the current scan speed, to protect the scanner.	
		- prelight :	1-50	5	Pre-light delay	Pre-light delay: the time that the laser module waiting for the scanner to reach the designated spot before lighting up.	Because laser module speed is faster than scanner

						This parameter may need to be adjusted for tightly controlled blanking dot effect	speed, it is related to the minimum step response time of scanner and the signal output speed of the control board
		-Blanking:	1-50	2	Blanking time	Blanking time, laser module lag the scanner work time	
	DB25-ILDA XY	X Mirror	Yes/no	No	X mirror		
		Y Mirror	Yes/no	No	Y mirror		
		ildaSwitch	Off/on/ auto	Auto	Ilda switch setting	off: switch to built-in program. on : switch to DB25 connector ILDA auto: when connecting DB25 , play DB25 connector ILDA. When disconnecting DB25 , play the built-in program	
	XY [internal XY]	XY Size	0-100	100	Total size	X and Y change at the same time	
		X Size	0-100	100	X Size		
		Y Size	0-100	100	Y Size		
		X Position	0-100	50	X deviation position		
		Y Position	0-100	50	Y deviation position		

		X Mirror	yes, no	No	X mirror	
		Y Mirror	yes, no	No	Y mirror	
		XY Swap	yes, no	No	XY swap	
	Color	Color	Single, RtoG,RtoB, GtoR, GtoB, BtoR, BtoG, RGB/全彩	RGB	Color type	RtoG,RtoB, GtoR, GtoB, BtoR, BtoG, suitable for 2 pcs laser heads. For example when you use RtoG, red will overlap green
		type	"turn off" "normal" "all is bright"			All is bright: there is no blanking dots
		Laser	"ANG" " TTL"			With "ANG" ALL, Red, Green, Blue range is 0-100 With "TTL" ALL, Red, Green, Blue range is 0-1
		ALL	0-100	100	Total brightness	When modified, red , green and blue will change at the same time
		Red	0-100	100	Red brightness	
		Green	0-100	100	Green brightness	
		Blue	0-100	100	Blue brightness	
	FFT/Sound	Clear			Clear noise	When turn on laser it will clear automatically once, please keep quiet when it is clearing. Approx. a second after pressing the button will finish clearing noise.
		run times	5-30	5	Sound softness	Bigger value for better softness, smaller

						value for better sense of motion.	
		black delay	1-50	10	Black delay time	0.1 second to 5 seconds	
		Threshold	0-100	22	Sound threshold	Sound threshold value: sound over the value will trigger <sound event>, indicated with red line.	
		start Freq	0-31	6	movement start frequency	To be placed before the rhythm sound frequency, the interval color is yellow	
		end Freq	0-31	26	Movement end frequency	To be placed after the rhythm sound frequency, the interval color is yellow	
	SD [SD card]	max point	100-1300	1300	Max point for each frame	Extra points exceeding this quantity will be discarded or continue playing depending on “frame_split”	Max 1300, When choose ”ilda ”file ,please consider this, don’t exceed the value. in the future will be max 2000
		frame_split	yes, no	no	frame_split function	No:discard the latter points. Yes: the latter points will continue playing alone at a single frame, but the	retention function

						pattern will flash.	
	DMX [DMX]	Dmx speed	0-150	15	Dmx interval of same action	0：complete real-time respond with dmx step. Bigger value get better action softness. Modifying dmx step will automatically modify Dmx speed, Dmx speed = dmx cross * 3. If want separate setting of Dmx speed, after set it please don’t set “dmx step” anymore.	
		dmx step	0-50	5	Dmx action fade in	0：complete real-time respond. Bigger value gets better action softness with no flicker, but with more delay time.	
	[catch DMX]	Catch DMX	0-512		unused	DMX channel number to catch, normally unsued	
	Safe THR		off,1-100	off	Protection threshold	off：unprotected, （1-100）bigger value gets bigger protection range	
	shutter use			off		When “on”: any unsafe situations will emit low level signal to shutter. Default is “off”	
	Interpolate		yes, no	yes	Choose interpolate	Low speed will have interpolate,fast speed will not have. It depend on human visual effect.	
Device Detail	Language		Ch/ En			Only switch to other menu, that the language will change.	
	closed time		No 30 seconds 1 minute 3 minute	5 min		The time that the LCD screen light off after the last operation. Rotating the knob,	

			5 minute 10 minute 30 minute 1 hour			screen will light up again. No：always light up.
	RESET parameter				reset parameter value is the initial value	Device will restart after reset
	REV		V1.3.2		Device version number	
					Chip and memory information	
					memory usage information	history record, this time record, current record
					Stored information	
	T:x + date		Data/date		Program generated date	Date in English format
			T:x		X indicates the saved times of operation	

6. Channel description:

12 channel mode

channel	value	function	description
1	0-39	off	
	40-79	sound	
	80-119	auto	
	120-159	Animation(storage)	
	160-199	animation（sd）	
	200-255	Dmx auto	
2	0	off	
	1	Fixed color	
	2-15	7 segment pure color	One color every 2 values
	16-19	7 segment pure color change	
	20-33	7 segment color	switch to a segment

			every 2 values
	34-37	7 segment color change	
	38-154	Toning section	Check the manual
	155-255	Toning flow	
3	0-255	graphic	Step value:2
4	0-127	Manual vertical movement	
	128-191	Forward automatic vertical movement	
	192-255	Reverse automatic movement	
5	0-127	Manual horizontal movement	
	128-191	Forward automatic horizontal movement	
	192-255	Reverse automatic horizontal movement	
6	0-127	Manual vertical flip	
	128-255	Automatic vertical flip	
7	0-127	Manual horizontal flip	
	128-255	Automatic horizontal flip	
8	0-127	Manual rotation	
	128-191	Forward automatic rotation	
	192-255	Reverse automatic rotation	
9	0-85	Forward automatic zoom	
	86-170	Reverse automatic zoom	
	171-255	Alternate automatic zoom	
10	0-255	Graphical size	
11	0-63	Normal display	
	64-127	Highlight display (with points)	The smaller value, the more points
	128-191	Segment display	The smaller value, the more segments
	192-255	Points display	
12	0-127	Gradual draw 1	
	128-255	Gradual draw 2	

16channel mode

<table>
<tr><td>channel</td><td></td><td>value</td><td colspan="3"></td><td>remark</td></tr>
<tr><td rowspan="10">1</td><td rowspan="10">Mode selection</td><td>0-70</td><td colspan="3">Laser off</td><td></td></tr>
<tr><td>71-90</td><td colspan="3">Storage manual mode</td><td rowspan="3"></td></tr>
<tr><td>91-110</td><td>Storage automatic mode</td><td rowspan="3">Former 3 channels workable</td></tr>
<tr><td>111-130</td><td>Storage sound mode</td></tr>
<tr><td>131-150</td><td colspan="3">SD manual mode</td><td rowspan="3"></td></tr>
<tr><td>151-170</td><td>SD automatic mode</td><td rowspan="3">Former 3 channels workable</td></tr>
<tr><td>171-190</td><td>SD sound mode</td></tr>
<tr><td>191-210</td><td colspan="3">Built-in material manual mode</td><td rowspan="3">Play the static pattern in storage</td></tr>
<tr><td>211-230</td><td>Built-in material automatic mode</td><td rowspan="2">Former 3 channels workable</td></tr>
<tr><td>231-255</td><td>Built-in material sound mode</td></tr>
<tr><td rowspan="3">2</td><td rowspan="3">Play list selection</td><td rowspan="2">0-249</td><td rowspan="2">Storage mode</td><td rowspan="2">SD mode</td><td colspan="2">Built-in</td></tr>
<tr><td>manual</td><td>Auto,sound</td></tr>
<tr><td>50 values=1 play storage list</td><td>25 values=1 play list</td><td></td><td>10 values= 1 effect list</td></tr>
<tr><td>250-255</td><td>cycle</td><td>cycle</td><td></td><td>cycle</td></tr>
<tr><td rowspan="3">3</td><td rowspan="3">Graphic selection</td><td rowspan="2">0-249</td><td rowspan="2">Storage mode</td><td rowspan="2">SD mode</td><td colspan="2">Built-in material mode</td></tr>
<tr><td>manual</td><td>Auto ,sound</td></tr>
<tr><td>10 values=1 play storage list</td><td>3 values=1 play file</td><td>3 values=1 pattern</td><td>2 values= 1 effect list</td></tr>
<tr><td>250-255</td><td>cycle</td><td>cycle</td><td>cycle</td><td>cycle</td></tr>
<tr><td rowspan="4">4</td><td rowspan="4">X axial movement</td><td>0</td><td colspan="3">Don’t shift, default center position</td><td></td></tr>
<tr><td>1-127</td><td colspan="3">Manual horizontal shift</td><td></td></tr>
<tr><td>128-191</td><td colspan="3">Automatic right shift, shift speed is proportional to push rod value</td><td></td></tr>
<tr><td>192-255</td><td colspan="3">Automatic left shift, shift speed is proportional to push rod value</td><td></td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">Y axial movement</td><td>0</td><td colspan="3">Don’t shift, default center position</td><td></td></tr>
<tr><td>1-127</td><td colspan="3">Manual vertical shift</td><td></td></tr>
</table>

		128-191	Automatic downward shift, shift speed is proportional to push rod value	
		192-255	Automatic upward shift, shift speed is proportional to push rod value	
6	Zoom run	0	No zoom, default 100% size	
		1-51	Manually adjust the size, the bigger value, the bigger pattern	
		52-119	From small to large, zoom speed is proportional to the push rod value	
		120-187	From large to small,zoom speed is proportional to push rod value	
		188-255	Zoom in and out alternately, zoom speed is proportional to push rod value	
7	Rotate around the Y-axis	0	No rotation	Rotate the Y-axis that is change on X-axis
		0-127	Manual rotation	
		128-255	Auto rotation, the bigger value, the faster rotation.	
8	Rotate around the X-axis	0	No rotation	
		0-127	Manual rotation	
		128-255	Auto rotation, the bigger value, the faster rotation.	
9	Rotate around the Z-axis （Center point）	0	No rotation	
		1-127	Manual rotation, one loop clockwise	
		128-191	Automatic clockwise rotation, the bigger vale, the faster rotation.	
		192-255	Automatic counterclockwise rotation, the bigger vale, the faster rotation.	
10	Gradual draw	0	No draw	Gradual draw is only effective when playing the internal material
		1-127	automatic gradual draw 1	
		128-255	automatic gradual draw 2	
11	wave	0-9	No wave	
		10-199	The speed of wave is adjustable	
		200-255	The amplitude of wave is adjustable	

12	Point-line mode	0-63	Display normally	
		64-127	Display bright piont(add the point on the line)	The smaller value, the more dots
		128-191	Display segments	The smaller value, the more segments
		192-255	Display point	
13	Edit color/RGB	0-1	Fixed color	
		2-15	7 segments of pure color	one color every 2 values
		16-19	7 segments of pure color change	
		20-33	7 segments of RGB	Switch a segment every 2 values
		34-37	7 segment RGB change	
		38-154	Adjust color segment	
		155-255	Adjust color segment flow	
14	Red brightness control	0-255	0-100% brightness output	0 indicate 100%, the bigger value, the lower brightness.
15	Green brightness control	0-255	0-100% brightness output	0 indicate 100%, the bigger value, the lower brightness.
16	Blue brightness control	0-255	0-100% brightness output	0 indicate 100%, the bigger value, the lower brightness.

18 channel mode

Channel	function	value	control			
CH1	Dimmer	0-63	All off			
		64-127	on	Default speed, will affect auto and animation speed		
		128-255		Speed from slow to fast, will affect auto and animation speed, one speed every 5 value.		
CH2	Model	0-49	auto	1 group every 10 value		group: refer to the menu on the screen
		50-99	sound	1 group every 10 value		show
		100-200	animation	1 group every 10 value	Set the groups from the	

		200-255	graphic	1 group every 10 value	ILDA software in PC	
CH3	gobo /frame	0-249	Auto,sound	animation	gobo	
	Pattern.frame		1 auto effect every 3 value	1 animation every 3 value	1 static gobo every 3 value	
		250-255	cyclic selected group (choose it on the second channel)			
CH4	strobe	0-10	No strobe			
		11-199	Auto strobe,speed from slow to fast			
		200-249	Sound-activated strobe			
		250-255				
CH5	color	0-1	Fixed color			
		2-15	7 segments pure color	1 color every 2 values		
		16-19	7 segments pure color change			
		20-33	7 segments RGB	Switch a segment every 2 values		
		34-37	7 segments RGB change			
		38-154	Adjust segment			
		155-255	Adjust segment flow	Fix the flow speed		
CH6	Dispaly	0-63	Normal display			
		64-127	Bright point display			
		128-191	Segment display			
		192-255	Point display			
CH7	X move	0-125	Manually adjust position			
		126-185	Automatic left and right cyclic movement			
		186-225	Automatic jump left and right cyclic movement			
		226-245	Automatic irregular jumping			
		246-255	sound activated irregular jumping			
CH8	Y move	0-125	Manually adjust position			
		126-185	Automatic up and down cyclic movement			
		186-225	Automatic jump up and down cyclic movement			
		226-245	Automatic irregular jumping			
		246-255	sound activated irregular jumping			
CH9	zoom	0-10	No zoom			
		11-87	Manually adjust size			
		88-150	Zoom in			
		151-200	Zoom out			
		201-255	Cyclic zoom in and out			
CH10		0	No rotation			

	Rotation around Y-axis	1-128	Manual adjustment
		129-255	Auto rotation
CH11	Rotation around X-axis	0	No rotation
		1-128	Manual rotation
		129-255	Auto rotation
CH12	Rotation around Z-axis	0	No rotation
		1-128	Manual adjustment
		129-192	Automatic clockwise rotation
		193-255	Automatic counterclock rotation
CH13	Gradual draw	0-10	No Gradual draw
		10-74	Manually adjust gradual draw
		75-104	auto gradual draw (increase)
		105-144	auto Gradually draw (decrease)
		145-184	auto cyclic gradual draw
		185-224	End to end cyclic gradual draw (increase)
		225-255	End to end cyclic gradual draw (decrease)
CH14	X wave	0-9	No wave
		10-69	small amplitude wave
		70-129	middle amplitude wave
		130-189	big amplitude wave
		190-255	max amplitude wave
CH15	Y wave	0-9	No wave
		10-69	small amplitude wave
		70-129	middle amplitude wave
		130-189	big amplitude wave
		190-255	max amplitude wave
CH16	Red modulation	0-255	Red from brightest to blackout
CH17	Green modulation	0-255	green from brightest to blackout
CH18	Blue modulation	0-255	blue from brightest blackout

25 channel mode

channel	function	value	Control			
CH1	Dimmer	0-10	All off	0-10 darkest, 255 standard brightness. Correspond to alpha channel in the color, you can regard it as transparency.		
		11-255	brightness			
CH2	Mode	0-4	off			group: refer to the show in the menu on screen
		5-49	auto	5-9: group 1		
				10-19: group 2		
				20-29: group 3		

<table>
<tr><td rowspan="6"></td><td rowspan="6"></td><td></td><td></td><td>30-39：group 4</td><td colspan="2" rowspan="2"></td><td></td></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td><td>40-49：group 5</td><td></td></tr>
<tr><td>50-99</td><td>sound</td><td>1 group every 10 value</td><td colspan="2"></td><td></td></tr>
<tr><td>100-200</td><td>animation</td><td>1 group every 10 value</td><td colspan="2" rowspan="2">Set the groups in the PC ILDA software</td><td></td></tr>
<tr><td>200-255</td><td>graphic</td><td>1 group every 10 value</td><td></td></tr>
<tr><td rowspan="3">CH3</td><td>gobo /frame</td><td rowspan="2">0-249</td><td>Auto/sound</td><td colspan="2">animation</td><td colspan="2">graphic</td></tr>
<tr><td>graphic/frame</td><td>One auto effect every 3 value</td><td colspan="2">One animation every 3 value</td><td colspan="2">1 static graphic every 3 values</td></tr>
<tr><td></td><td>250-255</td><td colspan="3">Cyclically selected group (select from channel 2)</td><td colspan="2"></td></tr>
<tr><td rowspan="3">CH4</td><td>Speed</td><td>0-4</td><td colspan="5">Default speed</td></tr>
<tr><td></td><td>5</td><td colspan="5">When speed is 0, graphic is static</td></tr>
<tr><td></td><td>6-255</td><td colspan="5">1 speed every 5 value, speed from slow to fast.</td></tr>
<tr><td rowspan="9">CH5</td><td>In Color</td><td>0-3</td><td colspan="5">Fixed color</td></tr>
<tr><td></td><td>4-6</td><td>pass</td><td rowspan="2">Overall color change</td><td colspan="3">RGB, In Color and Out Color channel were pushed here, from Color Drawing channel to get overall color change</td></tr>
<tr><td></td><td>7-9</td><td>Channel 7 (Color Drawing)</td><td colspan="3">Pure color, In Color and Out Color channel were pushed here, from Color Drawing channel to get overall color change</td></tr>
<tr><td></td><td>10-127</td><td>Color change</td><td rowspan="5">Fade in and out of color change</td><td>White segment</td><td colspan="2">Check the file</td></tr>
<tr><td></td><td rowspan="2">128-191</td><td></td><td rowspan="2">Pure color</td><td>ANG</td><td>64 color</td></tr>
<tr><td></td><td></td><td>TTL</td><td>7 segment color</td></tr>
<tr><td></td><td rowspan="2">192-255</td><td></td><td rowspan="2">RGB</td><td>ANG</td><td>64 color</td></tr>
<tr><td></td><td></td><td>TTL</td><td>7 segment RGB color</td></tr>
<tr><td>CH6</td><td>Color Drawing</td><td>0-63</td><td colspan="2">manual</td><td>Fade in</td><td colspan="2">Color depends on “In Color” channel</td></tr>
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<table>
<tr><td rowspan="5"></td><td>Color transfer</td><td>64-127</td><td colspan="2"></td><td>Fade out</td><td>Color depends on “Out Color” channel</td></tr>
<tr><td></td><td>128-159</td><td colspan="2" rowspan="4">auto</td><td>Fade out</td><td></td></tr>
<tr><td></td><td>160-191</td><td>Fade in</td><td></td></tr>
<tr><td></td><td>192-223</td><td>Cyclic fade in and out</td><td></td></tr>
<tr><td></td><td>224-255</td><td>Fade in and out connect</td><td></td></tr>
<tr><td rowspan="10">CH7</td><td>Out Color</td><td>0-3</td><td colspan="4">Fixed color</td></tr>
<tr><td></td><td>4-6</td><td>pass</td><td rowspan="2">Overall color change</td><td colspan="2">RGB, In Color and Out Color channel were pushed here, from Color Drawing channel to get overall color change</td></tr>
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<tr><td></td><td rowspan="2">192-255</td><td></td><td rowspan="2">RGB</td><td>ANG</td><td>64 color</td></tr>
<tr><td></td><td></td><td>TTL</td><td>7 segment RGB color</td></tr>
<tr><td rowspan="2">CH8</td><td>Move X</td><td>0</td><td colspan="2" rowspan="2">X manual move</td><td>Default middle position</td><td>Same position as channel 127</td></tr>
<tr><td></td><td>1-255</td><td>location</td><td>127/middle, The ends of the graph are inverted</td></tr>
<tr><td rowspan="3">CH9</td><td>auto Move X</td><td>0-84</td><td colspan="2" rowspan="3">X auto move</td><td>Forward direction</td><td rowspan="3">The bigger value, the faster speed (Up or down depends on the direction setting of the system)</td></tr>
<tr><td></td><td>85-169</td><td>Reverse</td></tr>
<tr><td></td><td>170-255</td><td>Up and down cyclic</td></tr>
<tr><td>CH10</td><td>Move Y</td><td>0</td><td colspan="2">Y manual move</td><td>Default middle position</td><td>Same position as channel 127</td></tr>
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		1-255		location	127/middle, The ends of the graph are inverted
CH11	auto Move Y	0-84	Y auto move	Forward direction	The bigger value, the faster speed (Up or down depends on the direction setting of the system)
		85-169		Reverse	
		170-255		Up and down cyclic	
CH12	scale	0-127	manual	size	Default 0/max
		128-169	auto	Zoom in	The bigger value, the faster speed
		170-211		Zoom out	
		212-255		Zoom cyclically	
CH13	center rotation	0-127	manual	rotate	
		128-191	auto	Counterclockwise rotation	The bigger value, the faster speed
		192-255		Clockwise rotation	
CH14	Rotate X	0-127	manual	X rotation	
		128-191	auto	X rotation	The bigger value, the faster speed
		192-255		X deformation rotation	
CH15	Rotate Y	0-127	manual	rotation	
		128-191	auto	Y rotation	The bigger value, the faster speed
		192-255		Y deformation rotation	
CH16	Wave X	0-127	manual	X wave	Wave period and amplitude are determined by
		128-191	auto	X forward wave	setting from Wave ref channel
		192-255		X Reverse wave	
CH17	Wave Y	0-127	manual	Y wave	Wave period and amplitude are determined by
		128-191	auto	Y forward wave	setting from Wave ref channel
		192-255		Y Reverse wave	
CH18	Wave ref	0-63	Periodic parameters	1 period	The bigger value, the smaller amplitude.

					Automatic wave in small amplitude can get water ripple effect
	Wave parameters: period and amplitude	64-127		2 period	Same as above
		128-191		3 period	
		192-255		4 period	
CH19	Show Point	0-9	none		
		10-129	line scanning	30 — 4 points	The smaller value, the more points, the less brightness
					The bigger value, the less points, the more brightness
		130-191	Point scanning	Dispaly 16 points , equal division	The bigger value, the more brightness
		192-255		Dispaly 8 points , equal division	
CH20	Color	0-2	bright		
		3-255	strobe	The more close to value 255, the slower strobe, a strobe speed every 3 values	
CH21	Array	0	array		
		1-63		1 picture 8 position	X or Y movement may be effected (channels 9-12),depending on array position, meanwhile the multi-graph array will accelerate the original movement speed.
		64-127		2 picture 4 position	
		128-175		3 picture 3 position	
		176-255		4 picture 2 position	
CH22	Border	0-63	Out border fold	Real-time action, no interpolation	Pliancy function, applied to all manual functions, can make the movement smoother and cleaner
	出界	64-127		Smooth movement and	Interpolation mainly solves the gap problem

				interpolation	when the slow motion occurs.
		128-191	Out border blackout	Real-time action, no interpolation	
		192-255		Smooth movement and interpolation	
CH23	red	0-255	Red from brightest to extinguish		
CH24	green	0-255	green from brightest to extinguish		
CH25	blue	0-255	blue from brightest to extinguish		

27 channel mode

channel	function	value	function				
CH1	Dimmer	0-10	off		0-10 darkest, 255 standard brightness. Just like alpha channel of color. You can regard it as transparency.		
		11-255	brightness				
CH2	Model	0-63	64-127	128-191	192-255	inclusion relation	inclusion relation
		off	Auto effect(the first 6 channels work)	SD	storage		
CH3	gobo /frame	0-249	Interval value: 2	Interval value: 2	Interval value: 2	one	one
		250-255	Cycle ch-4 Specify the effect	Cycle ch-4 Specify the effect	Cycle ch-4 Specify the effect	File/scenes inclued e many	group/sho
					Exception Ch-5:0-19 not cycle	gobo/frame	Include many
CH4	file/ scene	0-249	Interval value: 10	Interval value: 10	Interval value: 10		File/scenes

	File/scenes	250-255	Cycle all	Cycle ch-5 Specify the effect	Cycle ch-5 Specify the effect		
					Exception Ch-5:0-19 not cycle		
CH5	Group/show	0-249	No-effect	Interval value: 20	Interval value: 20		
	Group/show	250-255		Cycle all	Cycle all		
CH6	Control	0-4	auto	default speed			
		5-127		Every 5 is a speed, speed from slow to fast			
		128-132	sound	Default sensitivity			
		133-255		Every 5 is a sensitivity, sensitivity from low to high			
CH7	In Color	0-3	Fixed color				
		4-6	pass	overall color change	RGB, In Color and Out Color channel were pushed here, from Color Drawing channel to get overall color change		
		7-9	7channel(Color Drawing)		Pure color, In Color and Out Color channel were pushed here, from Color Drawing channel to get overall color change		
		10-127	change color	Fade in and out	White segment	Check the file	
		128-191			Pure color	ANG	64 color
						TTL	7 segment color
		192-255			RGB	ANG	64 color
						TTL	7 segment RGB color
CH8	Color Drawing	0-63	manual		Fade in		Color depends on “In Color” channel
	Color transfer	64-127			Fade out		Color depends on “Out Color” channel
		128-159	auto		Fade out		

		160-191		Fade in		
		192-223		Cyclic Fade in and out		
		224-255		Fade in and out connect		
CH9	Out Color	0-3	Fixed color			
		4-6	pass	Overal l color change	RGB, In Color and Out Color channel were pushed here, from Color Drawing channel to get RGB change.	
		7-9	7channel(Color Drawing)		Pure color, In Color and Out Color channel were pushed here, from Color Drawing channel to get pure color change.	
		10-127	Change color	Fade in and out change color	White segment	Check the file
		128-191			Pure color	ANG	64 color in table
						TTL	Refer to TTL color table:7 segment pure color
		192-255			RGB	ANG	64 color in table
						TTL	Refer to TTL color table:7 segment RGB color
CH10	Move X	0	X manual movement		Default middle position		Same as channel 127/ position
		1-255			Location		127/ Middle, inverted at both ends
CH11	auto Move X	0-84	X automatic movement		Forward direction		The bigger value, the faster speed (up or down depending on the direction set by the system)
		85-169			reverse		
		170-255			Up and down cyclically		
CH12	Move Y	0	Y manual movement		Default middle position		Same as channel 127/ position
		1-255			Location		127/ Middle, inverted at both ends

CH13	auto Move Y	0-84	Y automatic movement	Forward direction	The bigger the value, the faster the speed (up or down depending on the direction set by the system)
		85-169		reverse	
		170-255		Up and down cyclically	
CH14	scale	0-127	manual	size	Default 0/max
	zoom	128-169	auto	Zoom in	The bigger the value, the faster the speed
		170-211		Zoom out	
		212-255		Cyclic zoom	
CH15	center rotate	0-127	manual	rotate	
		128-191	auto	Counterclockwise rotation	The bigger the value, the faster the speed
		192-255		Clockwise rotation	
CH16	Rotate X	0-127	manual	X flip	
	X rotation	128-191	auto	X flip	The bigger the value, the faster the speed
		192-255		X Deformation flip	
CH17	Rotate Y	0-127	manual	Y rotation	
	Y rotation	128-191	auto	Y rotation	
		192-255		Y Deformation flip	
CH18	Wave X	0-127	manual	X wave	Wave period and amplitude are determined by Wave ref channel
		128-191	auto	X forward wave	
		192-255		X reverse wave	
CH19	Wave Y	0-127	manual	Y wave	Wave period and amplitude are determined by Wave ref channel
		128-191	auto	Y forward wave	
		192-255		Y reverse wave	
CH20	Wave ref	0-63	Period parameters	Period 1	

	Wave parameters: period and amplitude	64-127		Period 2	The bigger value, the smaller amplitude. Automatic wave in small amplitude can get water ripple effect.
		128-191		Period 3	
		192-255		Period 4	
CH21	Show Point	0-9			
	Display point	10-129	Line scanning	Display 30-4 points	The smaller value, the more points, the less brightness
					The bigger value, the less points, the more brightness
		130-191	Point scanning	Display point 16, equal division	The bigger value, the more brightness
		192-255		Display point 8, equal division	
CH22	Color	0-2	bright		
	strobe	3-255	strobe	The more close to 255, the slower strobe, every 3 values is a strobe speed.	
CH23	Array	0	array		
	array	1-63		1 graph 8 position	X or Y movement may be affected (9-12 channels), depending on the array position, meanwhile multigraph arrays speed up the original motion.
		64-127		2 graph 4 position	
		128-175		3 graph 3 position	
		176-255		4 graph 2 position	
CH24	Border	0-63	Out border fold	Real-time action, no interpolation	Pliancy function, applied to all manual functions, can make the movement smoother and cleaner
		64-127		Smooth movement and interpolation	Interpolation mainly solves the gap problem when the slow motion occurs.
		128-191	Out border blackout	Real-time action, no	

				interpolation	
		192-255		Smooth movement and interpolation	
CH25	red	0-255	Red from brightest to extinguish		
CH26	green	0-255	green from brightest to extinguish		
CH27	blue	0-255	blue from brightest to extinguish		

7. Safety instructions

For safety reasons, please follow the following instructions:

 Do not disassemble or alter the unit.

 Do not drop flammable liquids, water and metals into the machine.

Avoid using the unit in the following situations:

 The relative humidity is too high.

 oscillation or collision environment.

Note:

 if you encounter serious difficulties in use, please stop immediately, and inquire agents or manufacturers for inspection.

 Do not disassemble the unit, there are no internal repair parts.

 Please request inspection by qualified personnel.