User Manual

(FB4 Version)

(For all the animation lasers operated by FB4)

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.

CE RoHS ♻

Professional Stage Lighting

Getting Started

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

1．Security warning

1、 When the product is outputting a single laser beam, there must be no flammable substances within 10 meters.

2、 Prohibited to expose the laser light to human skin or eyes, as it poses a risk of damaging human health.

3、 Do not point your camera too close to the laser aperture, as it may burn out the camera!

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

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

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

7、 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.

8、 Do not attempt to dismantle and/or modify the product inner structure. Otherwise 2 years of warranty will get invalid.

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

2. Specification

(This user manual is for all the animation lasers operated by FB4, as different models differ on power, scanner, size etc., so they are marked by blanks)

Product Name	Animation laser	**Model No.**	
Power		**Diode Brand**	Nichia (import from Japan)
Light Source	（R）: * W/638nm；（G）: * W/525nm；（B）: * W/450nm；		
Input Voltage	110/240V；50/60HZ	**Power Consumption**	
Power Supply	Mornsun / Mean Well brand	**DMX Channel**	16/26CH
Scanning Angle	Max 60°	**Scanner**	
Laser Show	Text/graphic/animation/beam /LOGO/ customization	**Special Design**	Unique double-layer structure, with the optical path layer completely sealed
Heat Dissipation	High-speed air cooling (with built-in cooling fan system)	**IP Grade**	IP65 waterproof (Third-party quality inspection report)
Working Temperature	-40°C ~ 45°C-	**Diode Lifetime**	Over 20000 hours
Net Weight		**Product Size**	
Gross Weight		**Packing Size**	
Self Protection	When the laser beam is focused to the minimum point for a long time, it automatically light off.		
Analog Modulation	100k Analog. The power of the red, green and blue can be adjusted from 0 to 100. Adjust the power according to the show to optimize the alignment effect		
Control Mode	ILDA mode: international standard 25 pins (with inbuilt FB4 or external FB4, use it when controlled by computer software) DMX mode：XLR DMX512 (use it when controlled by console. If the laser has inbuilt FB4, a DMX sub-board must be installed) Auto mode: voice control/auto-run/master-slave mode (use it with no controller. Voice control cannot be used if the laser has inbuilt FB4)		
Packing	To prevent damage during transportation, professional flight case (shock-absorbing EPE foam + silent wheels) have been adopted for safety protection!		

Inbuilt FB4 connection

①1 inbuilt FB4 + 1 laser connection

Laptop

Laser

Internet cable

②1 inbuilt FB4 + lasers (no FB4) connection

Laptop

Laser1 inbuilt FB4

Laser2 no FB4

Internet cable

ILDA cable

③Inbuilt FB4s + lasers connection

Laptop

Laser1

Laser2

Internet cable

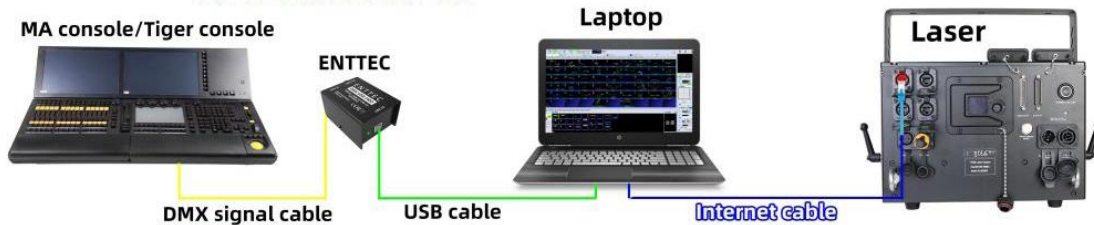Internet cable

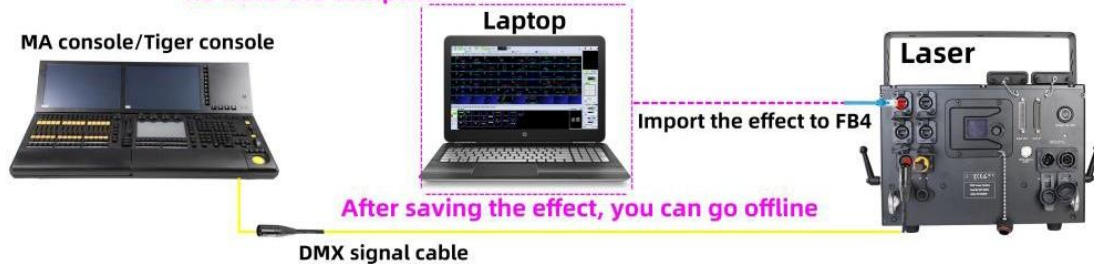## ④DMX512 console + laser software connection (ENTTEC signal conversion)

Attention： 1.Console controls the computer software in real time to replace effect

2.Suitable for large indoor bars or large outdoor concerts.
Tiger or MA console is recommended

3.This connection is for use by QS software. If it is Beyond software
no need to add ENTTEC

MA console/Tiger console   ENTTEC   **Laptop**   **Laser**

DMX signal cable   **USB cable**   **Internet cable**

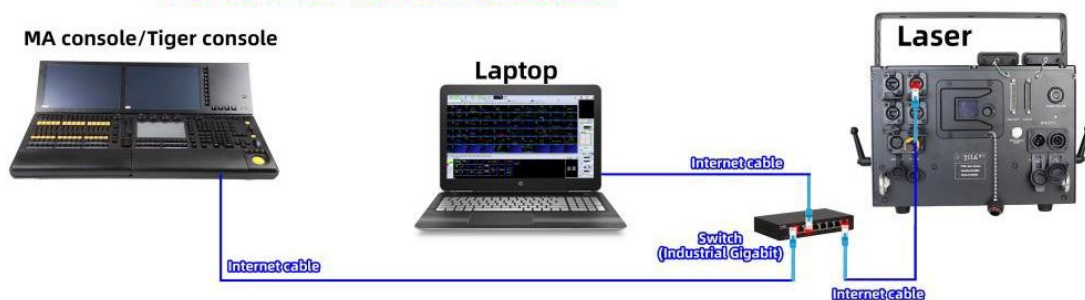## ⑤FB4 with DMX sub-board   Offline control

Attention： 1.First, the effects in QS need to be imported into FB4 by computer software

2. Then go offline, and the console can control the effects within FB4,
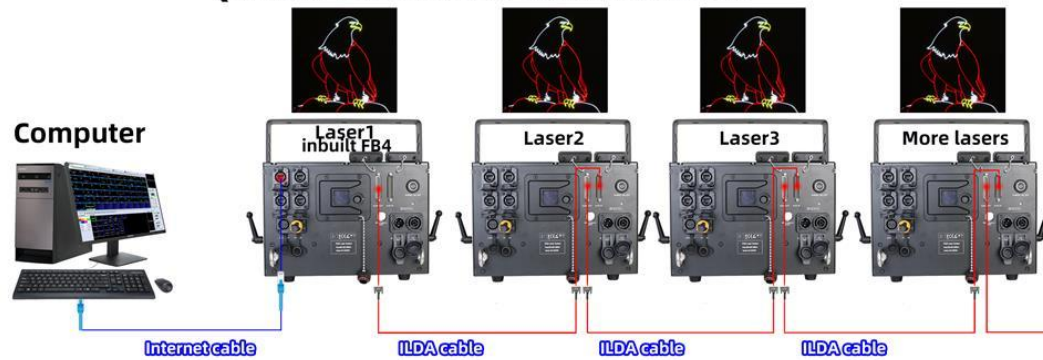no need the computer

MA console/Tiger console   **Laptop**   **Laser**

Import the effect to FB4

After saving the effect, you can go offline

DMX signal cable

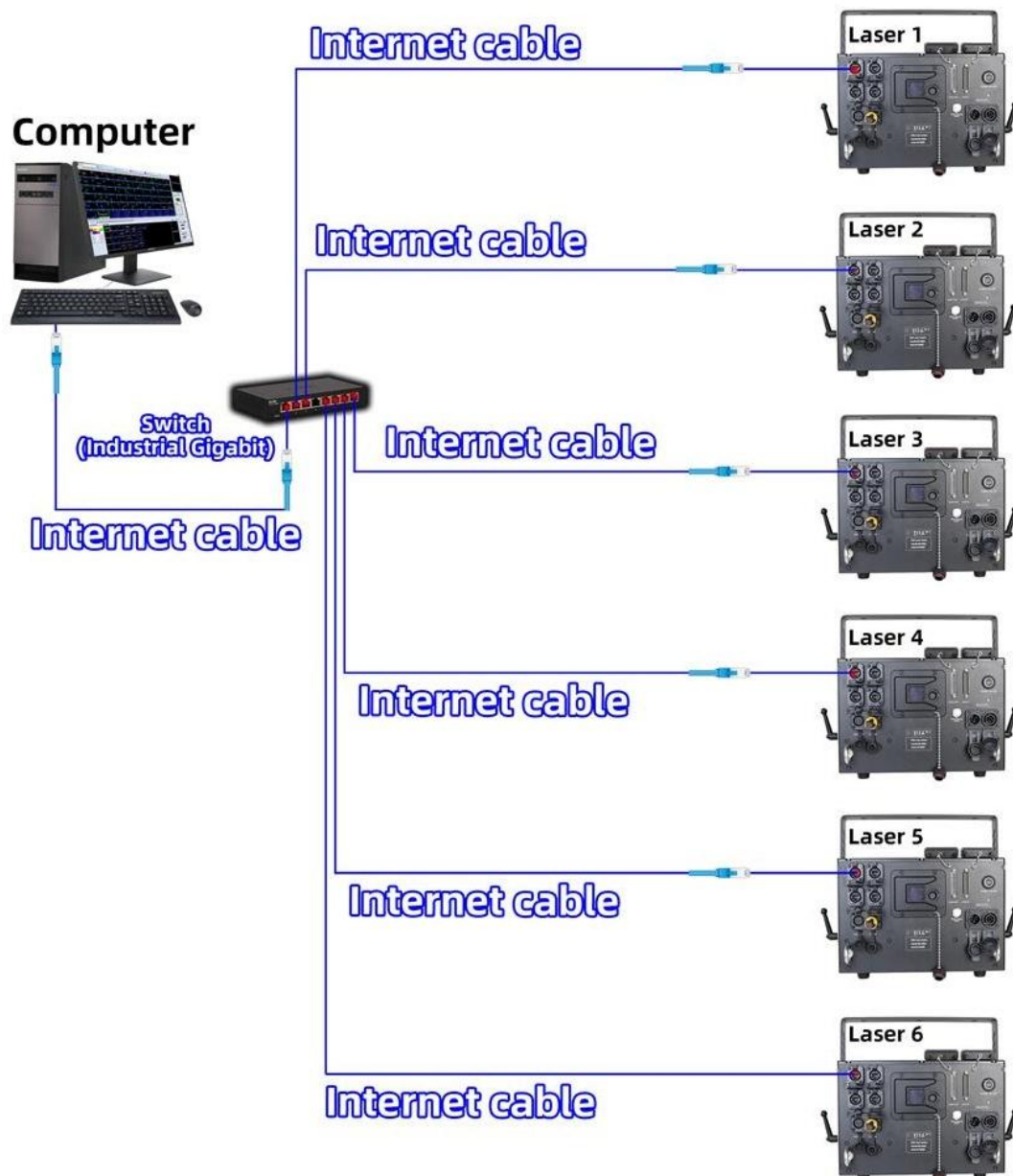## ⑥DMX512 console + laser software connection (for Beyond software)   Real time control

Attention： 1.If the software is Pangolin Beyond, the laser can be controlled in real time

2.FB4 does not need a dmx sub-board.

MA console/Tiger console   **Laptop**   **Laser**

Internet cable

Internet cable

Switch (Industrial Gigabit)

Internet cable

5

1 inbuilt FB4 + lasers (no FB4) connection
(With identical animation)

Computer

Laser1 inbuilt FB4　　Laser2　　Laser3　　More lasers

Internet cable　　ILDA cable　　ILDA cable　　ILDA cable

Inbuilt FB4s + lasers connection

Computer

Internet cable — Laser 1

Internet cable — Laser 2

Internet cable — Laser 3

Internet cable — Laser 4

Internet cable — Laser 5

Internet cable — Laser 6

Switch
(Industrial Gigabit)

Internet cable

External FB4 connection

①1 external FB4 + 1 laser connection

Laptop   FB4   Laser

Internet cable   ILDA cable

②1 external FB4 + lasers connection（With identical animation）

Laptop — FB4 — Laser — Laser

Internet cable   ILDA cable   ILDA cable

③external FB4s + lasers connection（(control each laser independently)）

Laptop — FB4 — Laser

Switch (Industrial Gigabit)   Internet cable   FB4 — Laser

Internet cable   ILDA cable

Internet cable   ILDA cable

④DMX512 console + laser software connection (ENTTEC signal conversion)
Real time control

Attention： 1.Console controls the computer software in real time to replace effect
2.Suitable for large indoor bars or large outdoor concerts. Tiger or MA console is recommended
3.This connection is for use by QS software. If it is Beyond software，no need to add ENTTEC

MA console/Tiger console — ENTTEC — Laptop — FB4 — Laser

DMX signal cable   USB cable   Internet cable   ILDA cable
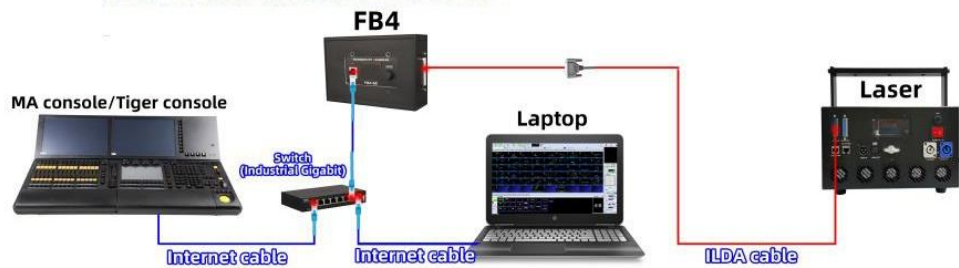
⑤FB4 WITH DMX SUB-BOARD
Offline control

Attention： 1.First, the effects in QS need to be imported into FB4 by computer software
2. Then go offline, and the console can control the effects within FB4, no need the computer
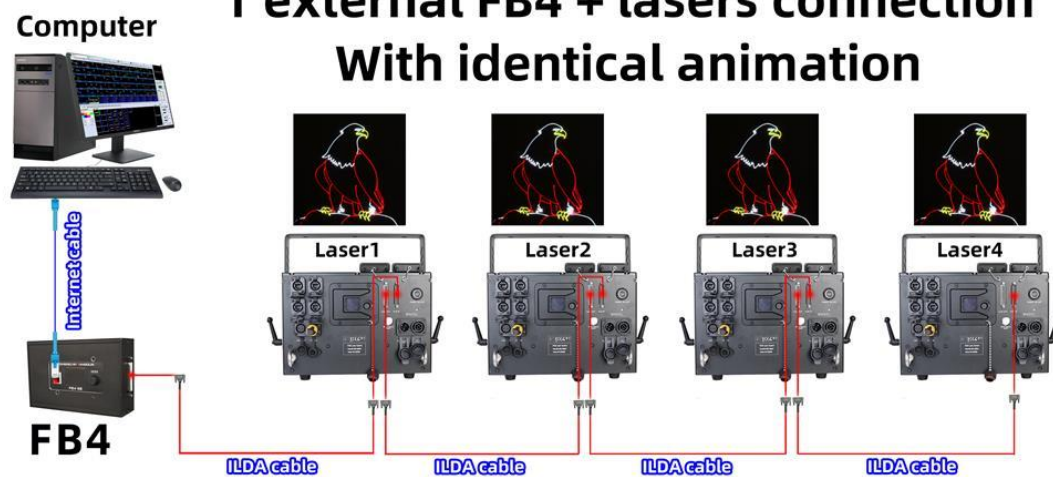

FB4 with DMX sub-board

MA console/Tiger console — Laptop — Laser

Import the effect to FB4

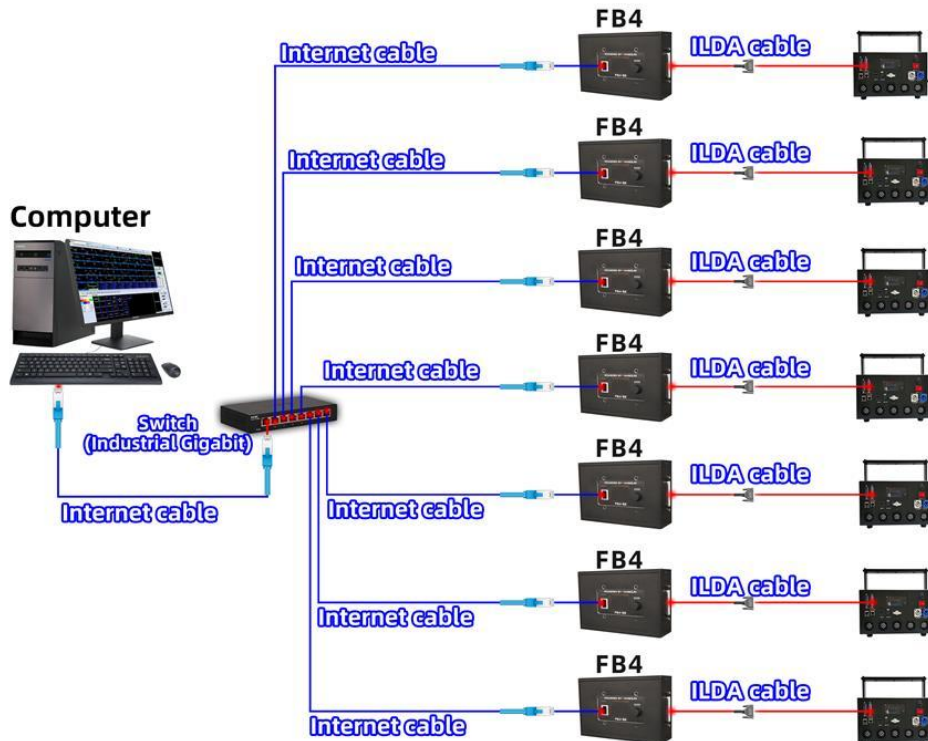DMX signal cable   ILDA cable

After saving the effect, you can go offline

Attention: 1.If the software is Pangolin Beyond, the laser can be controlled in real time
2.FB4 does not need a dmx sub-board.

FB4

MA console/Tiger console

Laptop

Laser

Switch (Industrial Gigabit)

Internet cable Internet cable ILDA cable

1 external FB4 + lasers connection
With identical animation

Computer

Internet cable

FB4

Laser1 **Laser2** **Laser3** **Laser4**

ILDA cable ILDA cable ILDA cable ILDA cable

External FB4s + lasers connection
(Control each laser independently)

FB4

Internet cable — ILDA cable

FB4

Internet cable — ILDA cable

FB4

Internet cable — ILDA cable

Computer

FB4

Internet cable — ILDA cable

FB4

Internet cable — ILDA cable

Switch
(Industrial Gigabit)

Internet cable

FB4

Internet cable — ILDA cable

Internet cable

FB4

Internet cable — ILDA cable

External FB3 connection

①1 external FB3 + 1 laser connection

Laptop

FB3

Laser

Laptop

USB cable

ILDA cable

②1 external FB3 + lasers connection (with identical animation)

Laptop   FB3   Laser   Laser

USB cable   ILDA cable   ILDA cable

③external FB3s + lasers connection (control each laser independently)

Laptop   FB3   Laser1

ILDA cable

USB splitter   USB cable   FB3   Laser2

USB cable   ILDA cable

④DMX512 console + laser software connection (ENTTEC signal conversion)

Attention: 1.Console controls the computer software in real time to replace effect
2.Suitable for large indoor bars or large outdoor concerts.
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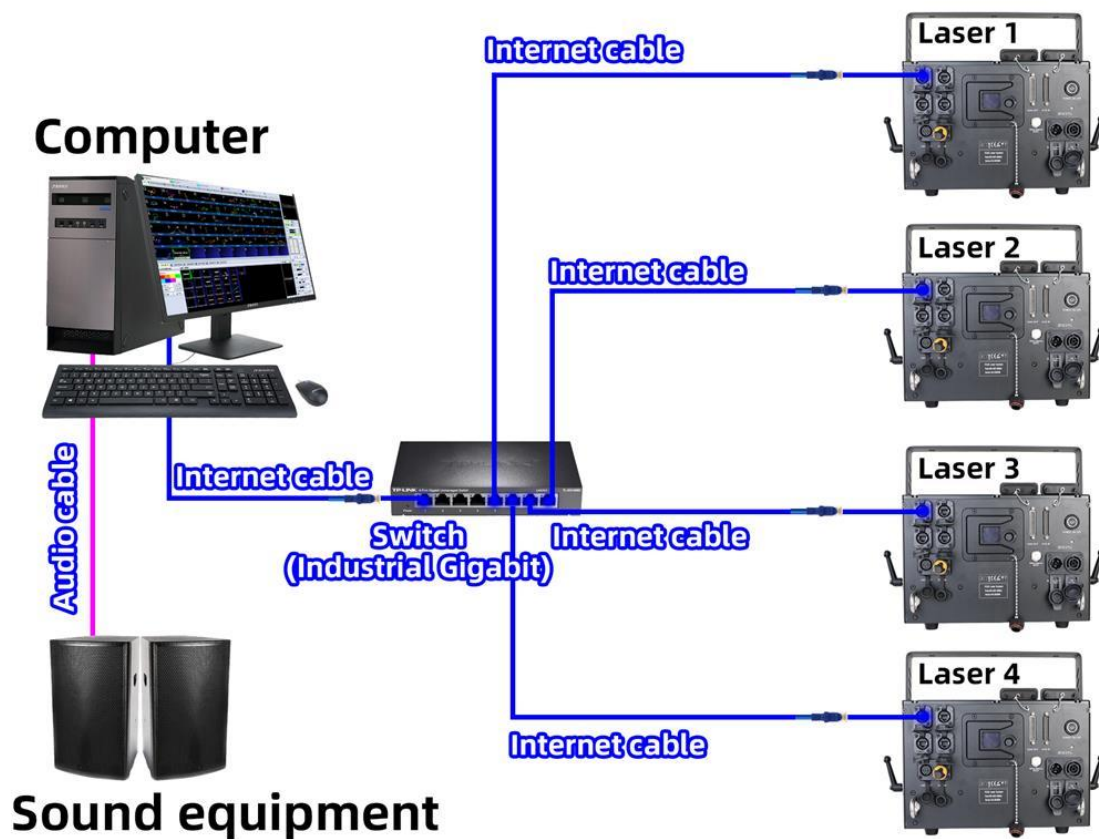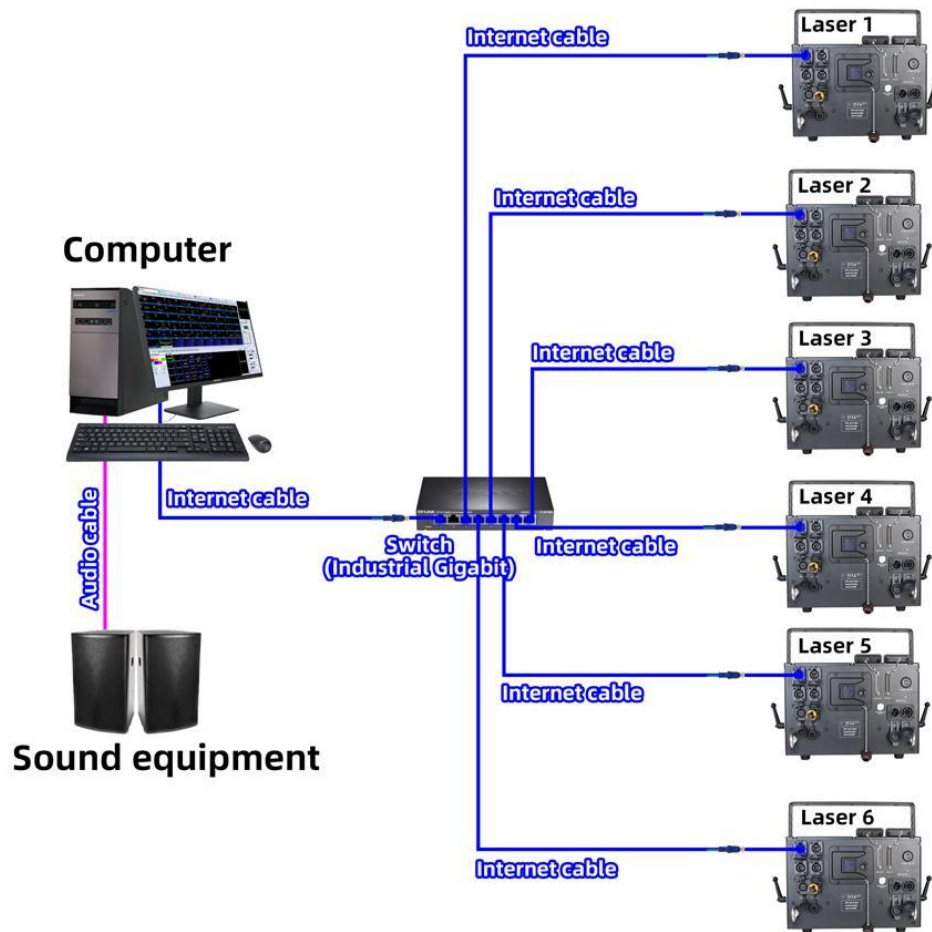3.This connection is for use by QS software. If it is Beyond software
no need to add ENTTEC

MA console/Tiger console   ENTTEC   Laptop   FB3   Laser

DMX signal cable   USB cable   USB cable   ILDA cable

⑤DMX512 console + laser software connection (for Beyond software)

Attention:
1. Console controls the computer software in real time to replace effect
2. Suitable for large indoor bars or large outdoor concerts. Tiger or MA console is recommended
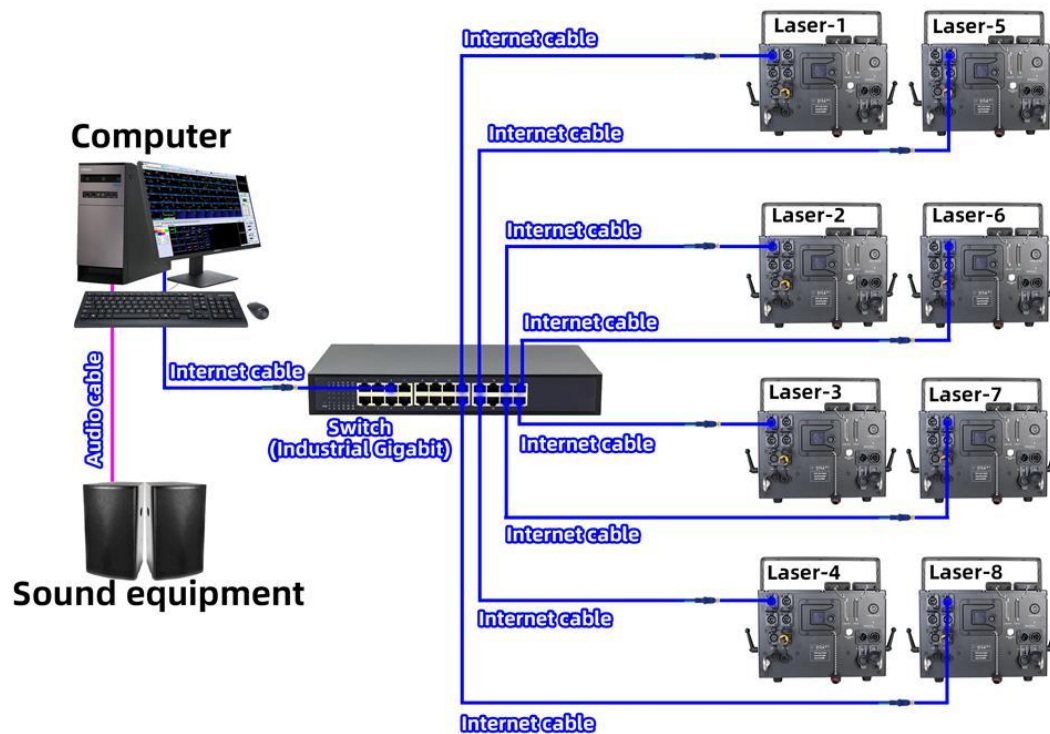3. This connection is Beyond software, no need to add ENTTEC

MA console/Tiger console — Laptop — FB3 — Laser

Internet cable — USB cable — ILDA cable

4 lasers connection

Computer

Internet cable — Laser 1

Internet cable — Laser 2

Audio cable

Internet cable — Switch (Industrial Gigabit)

Internet cable — Laser 3

Internet cable — Laser 4

Sound equipment

6 lasers connection

8 lasers connection

4. Interface main functions

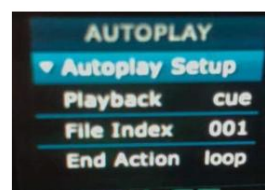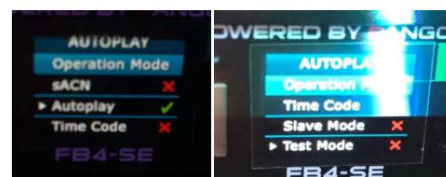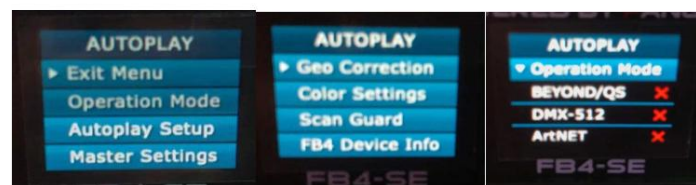| Operation Mode	
Beyond/QS	PC software mode
DMX-512	DMX512 console mode
ArtNet	Network port console mode
sACN	--
Autoplay	Auto play mode
Time code	Time code mode

LCD display：

With touch key knob and LCD menu display, the operation is easy.

Turn the knob to see the function.

Click the knob to select the function, double click the knob to return to the main menu.

LCD menu and function introduction:

初级菜单	
Operation Mode	操作模式
Autoplay Setup	自走设置
Master Settings	激光灯设置
Geo correction	几何矫正
Color Settings	颜色设置
Scan Guard	光闸
FB4 Device Info	FB4版本信息

Operation Mode(操作模式选择)	
Beyond/QS	电脑软件模式
DMX-512	512控台模式
ArtNet	网口控台模式
sACN	没用过
Autoplay	自走模式
Time code	时间码模式

Autoplay Setup	
Playback	播放模式（cue 单个播放，list 列表播放）
File Index	文件序列
End action	结束动作（循环 或者停止）

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Color Settings	
Color Shift	颜色/闭光转换点（尾巴长短）
Red	红色亮度调节
Green	绿光亮度调节
Blue	蓝光亮度调节
Deep Blue	没有
Yellow	没有

Scan Guard	
Enable Guard	选X，没有光闸
Horizon Level	不做设置
Horizon Angle	不做设置
Min. Velocity	不做设置
Dwell Time	不做设置
Invert Y	不做设置

Master Settings	
Brightness Settings	亮度设置
Master Sizen	大小设置
X Scale	水平大小设置
Y Scale	垂直大小设置
Invert X	水平反向
Invert Y	垂直反向
Swap XY	X、Y互换
Rescan Time	重新扫描时间

备注：Master settings是全局设置

投影区域设置	
X scale	水平大小设置
Y Scale	垂直大小设置
X Position	水平位置设置
Y Position	垂直位置设置
Z Rotiation	旋转
X Shear	水平切割
Y Shear	垂直切割

5. DMX512 channels:（for DMX512 console operation）

Channel	Function	Description
1	Function	0..31-Light off 32..96- 4 Channel mode 97..160-8 Channel mode 161..224-12 Channel mode 225..255-16 Channel mode
2	Page selection	0..15-Page 1 16..31- Page 2 32..47- Page 3 .

		.
		.
		Maximum 9 pages
3	Program selection	0..31-Laser off
		32..35- Program 1
		36..39- Program 2
		40..43 Program 3
		.
		.
		.
		Maximum 48 programs per page
4	Play speed	0..15-100% Speed
		17..31-Blank
		32..255- 25%-200% Speed
5	Dimmer	0..255-0%-100%
6	Size	0..255-0%-100%
7	X size	0- Original pattern size
		1..255-0%-100% Pattern size
8	Y size	0- Original pattern size
		1..255-0%-100% Pattern size
9	Rotation	0..255- 0° -360°
10	X position	0-Left
		128-Center
		255-Right
11	Y position	0-Bottom
		128-Center
		255-Top
12	Visible point	0-All points invisible
		255-All points visible
13	Scanner speed	0..31-Default speed
		32..255-25%-200% Speed
14	Blank	Blank
15	Color	0..31 Original color
		32..224 Mixing color
		225-255-White
16	Blank	Blank

6. Safety Instructions

For safety reasons, please follow the following instructions:

◆ Do not disassemble or alter the product.

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

Avoid using the unit in the following situations：

◆ The relative humidity is too high.

◆ oscillation or collision environment.

Attention：

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

◆ Do not disassemble the product, there are no repair parts inside.

◆ Please request inspection by qualified personnel.

7. Warranty

We offer 2-year warranty and lifetime maintenance service. Within 2 years, any damage caused by the product's own quality issues can be repaired for free. 2 years later, material cost will be charged for the maintenance or replacement of parts.

The software included in the products can be upgraded and function improved for free in future.

The following product damages or other reasons not caused by our product itself are not covered by our company's free repair service:

1. Wrong installation.

2. Voltage not matched.

3. Not following the user manual and make wrong operation.

4. Any repair or modification not authorized by our company.

5. The product lacks necessary maintenance.

6. The required working environment was not provided.

7. Product damage caused by the user's secondary transportation

8. System failures caused by viruses or other software which is not offered by our company's etc..

9. Force majeure factors such as natural disasters (lightning strikes, earthquakes, tsunamis, floods, etc.) and unexpected situations

10. The power supply for the product must be effectively grounded.