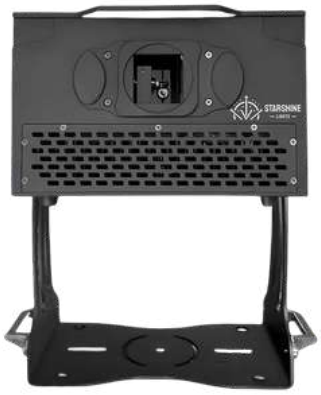
STARSHINE LIGHTS PRODUCT MANUAL

04 OUTDOOR LASER LIGHT PRODUCT MANUAL



Dear Customer,
This product integrates advanced technologies in optics, electronics, and digital graphics processing. It is specially designed and manufactured for outdoor cultural tourism lighting applications.
The fixture can trigger built-in beam programs in sync with music. When combined with fog or haze, it can create spectacular effects such as laser curtain walls and time tunnels, producing a powerful and unique spatial lighting atmosphere and presenting a vibrant, colorful laser world.

Package Contents

Tem	Quantity
Complete Laser Show System	1 unit
International Power Cable	1 pc
Computer Connection Cable	1 pc
User Manual	1 copy
Product Warranty Card	1 copy

Product Specifications and Features

1. 20W Full-Color RGB Laser Output
This product uses the latest high-brightness full-color laser technology. It features a compact and lightweight design, stable and reliable performance, and a long service life. The total power consumption is approximately 250W.

2. Advanced Animation Laser Show System
The animation laser show is powered by a high-capacity microcontroller control system and high-performance optical scanning galvanometers, enabling vivid laser text, graphics, patterns, and animation effects.

3. Built-In Beam Effects
The fixture includes 128 built-in beam effects specially designed for cultural tourism lighting projects and outdoor visual presentations.

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4. Multiple Playback and Control Options
A variety of playback and control methods are available, including:

- Sound-active triggering
- Manual console control
- DMX512 signal control
- PC control
- Laser control software system

These flexible control options allow the product to meet the requirements of different venues and applications.

5. International Standard DMX512 Compatibility
The fixture is fully compatible with the international standard DMX512 control protocol. It provides 21 control channels, allowing flexible operation and programming by users.

6. Master/Slave Synchronized Operation
Through master/slave configuration, multiple fixtures can operate synchronously for larger-scale laser shows and coordinated lighting effects.

Specification	Details
Control Signal	International Standard DMX512 Signal
Control Methods	DMX512 Control, Auto-Running Mode, Sound-Active Mode, Master/Slave Mode
Power Supply	AC 110–240V, 50/60Hz
Scanning Angle	±30°
Outdoor Operating Temperature	-50°C to 50°C
Temperature Control System	Built-in constant-temperature system with automatic temperature adjustment
Laser Source	All-solid-state semiconductor laser
Green Laser Wavelength	520nm
Red Laser Wavelength	638nm
Blue Laser Wavelength	445nm
Total Laser Power	20W RGB
Red Laser Power	6W
Green Laser Power	6W
Blue Laser Power	8W
Control Modes	Sound-Active, Auto-Running, DMX, ILDA
Software Compatibility	Compatible with all major laser control software systems
DMX Channels	21 Channels
Additional Control System	SD Laser Control System

Display Information

The display interface shows the following operating information:

Display Item	Description
DMX Address	Displays the current DMX address setting
Operating Mode	Displays the current operating mode
File	Displays the currently selected working file

Main Applications

This outdoor RGB laser show system is suitable for:

- Cultural tourism night attractions
- Outdoor scenic area lighting projects
- Festivals and large-scale celebrations
- Music events and live performances
- Theme parks and commercial plazas
- Laser tunnel and laser curtain wall effects
- Architectural and immersive outdoor lighting installations

Important Safety Notice

This product is a high-power laser lighting fixture intended for professional use only. Installation, operation, and programming must be carried out by trained personnel. Do not aim the laser beam directly at people, vehicles, aircraft, reflective surfaces, or unauthorized viewing areas. Always comply with local laser safety regulations and outdoor performance requirements before use.

Control Modes and Display Interface

Control Modes

The fixture supports the following control modes:

- Sound-Active Mode
- Auto-Running Mode
- DMX Mode
- ILDA Mode

The ILDA mode is compatible with all major laser control software systems.

Channels and SD Laser Control System

The fixture supports 21 DMX channels and an SD card laser control system.
When the unit is powered on, the main display shows the following information:

Display Item	Description
DMX Address	Displays the current DMX address
Working Mode	Displays the current operating mode
File	Displays the current working file
Version	Displays the current software version

Main Panel Operation

- On the main panel, press the button to enter the menu.
- In ILD mode or PRG mode, double-press the button on the main panel to change the folder.
- After entering the menu, double-press the button to exit.

Menu Display and Settings

Menu Item	Function	Setting Range / Description
DMX Address	DMX address setting	1–512
Display Mode	Operating mode selection	AUTO / PRG / ILD / SOUND
PRG Mode	Playlist playback mode	Plays PRG files. The second line of the display shows the name of the current playlist.
ILDA Mode	ILDA file playback mode	Plays ILDA files in a loop. Supports files with the .ILD extension; the extension is not case-sensitive.
Sound Mode	Sound-active mode	Plays the built-in sound-controlled programs according to the detected music signal.
Auto Mode	Automatic playback mode	Plays the built-in automatic programs.
Phase Setting	Phase adjustment	Press UP or DOWN to change the phase setting.
Sound	Sound sensitivity setting	Adjustable from 0 to 100.
SD File	SD card folder selection	Selects the required program folder on the SD card.
Size	Graphic size setting	Adjustable from 10 to 100.
Phasic	Pattern direction setting	Sets the direction of the projected graphics. This setting only changes the phase of the built-in programs.
Speed	Playback speed setting	Adjusts the playback speed according to the scanner performance. Do not set the speed too high, as excessive speed may damage the galvanometer scanner.
DMX Status	DMX signal loss setting	Sets the operating status of the fixture when no DMX signal is detected.
Display Mode	Mode playback setting	Plays programs according to the selected display mode.
Blackout	Laser output off	Disables laser output when the selected condition occurs.
Hold	Previous status hold	Keeps the fixture operating in its previous status when the selected condition occurs.
Slave Mode	Slave operation setting	The fixture operates as a slave unit and is controlled by the master fixture when a master signal is received.
Master Mode	Master operation setting	The fixture plays programs and outputs the master control signal. Only one fixture may be set as the master within one system; otherwise, signal conflicts may occur.
X Phase	Horizontal phase setting	Changes the horizontal phase for both built-in programs and external ILDA input signals.
Y Phase	Vertical phase setting	Changes the vertical phase for both built-in programs and external ILDA input signals.

Operating Mode Descriptions

PRG Mode
In PRG Mode, the fixture plays program playlist files stored on the SD card. The second line of the display shows the name of the currently selected playlist.

ILDA Mode
In ILDA Mode, the fixture repeatedly plays a selected ILDA file. The supported file extension is .ILD, and the system does not distinguish between uppercase and lowercase letters in the extension.

Sound-Active Mode
In Sound-Active Mode, the fixture runs its built-in sound-controlled programs. The projected effects respond to the detected audio signal or music beat.

Auto Mode
In Auto Mode, the fixture automatically runs its built-in laser programs without requiring an external control signal.

Master/Slave Mode
In Master/Slave Mode, multiple fixtures can run synchronously.

- Master Fixture: Plays the selected program and sends the control signal to the connected slave fixtures.
- Slave Fixture: Receives the signal from the master fixture and operates in synchronization with it.

I**mportant:** Only one fixture may be set as the master in a connected system. Setting more than one master fixture may cause signal conflicts or abnormal operation.

DMX Signal Loss Status
The DMX Status setting determines how the fixture responds when no DMX signal is detected.

Setting	Description
Display Mode	The fixture plays programs according to the selected operating mode.
Blackout	The laser output is turned off.
Hold	The fixture remains in the operating status used before the DMX signal was lost.

Graphic Adjustment Settings
Size Setting
The Size function adjusts the projected graphic size. The adjustable range is from 10 to 100.
Phase Setting
The Phase function changes the orientation or direction of the projected graphics. Use the UP and DOWN buttons to modify the phase setting.
X Phase Setting
The X Phase function adjusts the horizontal orientation of graphics generated by both the built-in programs and external ILDA input signals.
Y Phase Setting
The Y Phase function adjusts the vertical orientation of graphics generated by both the built-in programs and external ILDA input signals.

Speed Setting
The Speed function adjusts the playback speed of the laser graphics and animations.
Caution: The playback speed must be set according to the performance of the galvanometer scanner. Do not set the speed excessively high, as this may cause unstable graphics or damage the scanner system.

Sound Sensitivity Setting
The Sound setting adjusts the sensitivity of the built-in microphone in Sound-Active Mode.

Setting Range	Description
0–100	Adjusts the sensitivity of the fixture to external sound or music signals.

A higher value increases sound sensitivity, allowing the fixture to respond more easily to quieter music or audio signals.

Laser Output Lock and Color Power Settings

Laser Lock

When the Laser Lock function is enabled, the laser output is activated according to the selected operating mode and system settings.

Red Power

Controls the output power of the red laser source in the following operating modes:

- Auto-Running Mode
- Sound-Active Mode
- ILD Mode
- PRG Mode

Green Power

Controls the output power of the green laser source in the following operating modes:

- Auto-Running Mode
- Sound-Active Mode
- ILD Mode
- PRG Mode

Blue Power

Controls the output power of the blue laser source in the following operating modes:

- Auto-Running Mode
- Sound-Active Mode
- ILD Mode
- PRG Mode

Maintenance, Troubleshooting, Installation and Safety Instructions

Routine Maintenance

Perform regular maintenance on the product to ensure stable operation and optimum laser output.
After extended use, dust may accumulate on the surface of the optical lens at the laser output aperture, reducing the laser output power. To maintain optimum projection performance, clean the lens with professional lens-cleaning paper or a cotton swab lightly moistened with alcohol.

Important Cleaning Instructions:

- Do not clean the lens with a wet cloth.
- Do not use chemical solvents or unsuitable cleaning agents on the lens.
- Cleaning frequency should be determined according to operating frequency and the surrounding environment.
- Cleaning the optical lens once every 20 days is recommended under normal operating conditions.
- Regularly wipe the surface of the housing with a clean, dry towel.
- Inspect and clean the cooling fans regularly to ensure proper ventilation and heat dissipation.

Troubleshooting Guide

Fault	Possible Cause and Solution
The fixture does not emit light or does not operate	1. Check whether the power cable is properly connected to the fixture and whether the power fuse has blown.2. Check whether the input voltage matches the rated voltage specified for the fixture.
No response in Sound-Active Mode	1. The sound sensitivity control may be set to the minimum level. Adjust the sensitivity setting and try again.
The fixture emits light normally but cannot be controlled by the controller	1. Check whether the DMX starting address of the fixture has been set correctly.2. Check whether the DMX signal cable is damaged or incorrectly connected.
In Master/Slave Mode, the master fixture operates normally but the slave fixture operates abnormally	1. Make sure that only one fixture is set as the master. The master fixture must not be connected to a DMX controller and should be set to Sound-Active Mode or Auto-Running Mode.2. If the master fixture has been configured correctly but the problem remains, check the signal connection cables between the fixtures.
Buttons do not respond	1. Check whether any button is stuck or has failed to return to its normal position.
Laser output becomes dim or brightness decreases significantly	1. Check whether the laser module has reached the end of its service life.2. Check whether the internal or external optical lenses are dirty, and keep them clean.

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Declaration

This product has been fully inspected under strict factory quality-control procedures before shipment and is supplied in good working condition with complete packaging.

All users must strictly follow the warnings, installation requirements, operating instructions, and safety precautions stated in this manual.

Any damage, malfunction, injury, or loss resulting from misuse, improper installation, unauthorized modification, failure to follow the operating instructions, or operation outside the specified conditions is not covered by the product warranty.

The manufacturer and distributor shall not be responsible for laser-related injury, equipment damage, or other losses caused by incorrect operation, negligence, unauthorized servicing, or failure to comply with the safety requirements stated in this manual.

Installation Instructions

Before Installation

1. Before installing the fixture, confirm that the available power supply voltage matches the rated voltage marked on the fixture.
2. Installation must be carried out by qualified professionals. Securely install the fixture using appropriate mounting clamps and adjust it to a suitable projection angle.
3. When installing the equipment, ensure that there are no extremely flammable or explosive materials, including decorations or similar items, within at least 0.5 meters of the fixture. Maintain a minimum clearance of 30 cm between the fixture and any wall.
4. Ensure that the cooling fans and ventilation openings are not blocked by other equipment, decorative materials, or installation structures.
5. For safety, use a secondary safety cable capable of supporting at least 10 times the weight of the fixture. Pass the safety cable through the designated safety cable attachment point for secondary suspension protection.
6. For electrical safety, the ground wire must be properly connected to a reliable earth ground before operation.

Operating Precautions

1. Operate the fixture strictly in accordance with the procedures described in this user manual. Do not disassemble or modify the fixture without authorization. Any malfunction must be inspected and repaired by qualified personnel.
2. This product is intended for outdoor use only. Ensure that the fixture is protected against water ingress, moisture, and strong vibration. Do not operate the fixture in excessively dusty environments.
3. Due to the characteristics of semiconductor laser sources, the recommended stable operating environment is between -15°C and 30°C. After 10 hours of continuous operation, switch off the fixture for at least 10 minutes to allow the laser module to cool completely before operating it again. Failure to do so may shorten the service life of the laser source.
4. The fixture must be installed securely and protected against strong vibration or impact. Do not operate the fixture while it is shaking or unstable. The distance between the fixture and the illuminated target should be greater than 500 meters.
5. Prevent foreign objects from entering the housing, as this may result in equipment failure or damage.
6. During operation, ensure that all exhaust outlets and ventilation paths remain clear and unobstructed.
7. Before switching on the power, check that the power plug is firmly connected. Ensure that the power supply is properly grounded to prevent electric shock.
8. Do not switch the fixture on and off frequently, as this may shorten the service life of the laser system. Avoid unnecessary extended operation whenever possible.
9. Do not remove or damage the warranty label. If the warranty label is removed or damaged, warranty service may no longer be available.
10. Do not observe the laser source through telescopes, binoculars, cameras with optical zoom, magnifying equipment, or other optical viewing devices, as this may increase the risk of eye injury.
11. Do not touch the product with wet hands. Do not pull the power cable forcefully.
12. There are no user-serviceable parts inside the fixture. Do not open the housing.
13. If the brightness of the semiconductor laser source decreases significantly, or if any other damage occurs, contact the distributor or authorized service provider immediately.
14. When transporting the fixture again, protect it against vibration and impact. Use the original packaging whenever possible.

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Safety Warnings

1. Disconnect the power supply completely before performing any installation, inspection, cleaning, or maintenance work.
2. The laser hazard classification stated for this fixture is Class III B. Direct viewing of the laser beam is hazardous. Never intentionally look into the laser aperture or expose eyes or skin directly to the laser beam.
3. Maintain a safe distance of more than 100 meters between the laser fixture or laser projection area and combustible materials, unless a different professionally assessed safe distance is specified for the actual installation environment.
4. The fixture requires a power supply of 220V / 110V ±10%. If the available supply voltage is outside this range or is unstable, use a suitable voltage stabilizing device. Unstable or incorrect voltage may seriously affect the service life and operating performance of the laser system.
5. This fixture must only be installed and operated by trained professionals familiar with high-power laser lighting equipment and applicable safety requirements.
6. Do not project laser beams toward people, animals, vehicles, roads, aircraft, flight paths, reflective surfaces, or uncontrolled public viewing areas.
7. Outdoor laser operation must comply with all applicable local regulations, venue safety requirements, aviation restrictions, and laser safety standards before the fixture is powered on.

Important Notice Before Professional Use

This high-power outdoor laser fixture is designed for professional cultural tourism lighting projects, scenic-area shows, festivals, architectural lighting, and other controlled outdoor applications.
Before installation and operation, the operator must complete an appropriate risk assessment, confirm safe projection zones, establish restricted access areas where required, and verify that the installation complies with all applicable local laws and safety regulations.

Operating Instructions

1. Selecting the Operating Mode

PC Control Mode

When the PC switch is set to ON, the system enters PC Control Mode.
In this mode, the laser system can be controlled using Pangolin laser control software to create and play professional laser show programs.

Stand-Alone and DMX Operating Modes

When the PC switch is set to OFF, different operating modes can be selected using the function buttons on the fixture.
Press the MODE button repeatedly to cycle through the following display options:
“0000” → “Auto” → “d001” → “SLAV”

Display	Mode / Function	Description
0	Operating Hour Counter	Displays the accumulated operating hours of the laser system.
Auto	Auto-Running Mode	The fixture automatically plays its built-in laser programs.
d001	DMX Control Mode / DMX Address	Indicates DMX control operation. The displayed number represents the DMX starting address.
SLAV	Slave Mode	The fixture operates as a slave unit and follows the signal from the master fixture.

2. DMX Controller Operation

Connect the laser fixture and the DMX controller to the power supply, then connect the DMX signal cable correctly.
Once connected, the laser fixture can be controlled through the DMX controller, including functions such as:

- Laser color selection
- Pattern selection
- Pattern movement and transformation
- Effect playback speed
- Other programmed laser show functions

Power Supply and Signal Connection

1. Power Supply Requirements

Before connecting the fixture to the power supply, confirm that the voltage and frequency of the power source match the specifications marked on the product label.

Power Supply Option	Voltage Range	Frequency
Universal Voltage Version	AC 100–240V	50/60Hz
Low-Voltage Version	AC 100–120V	60Hz
High-Voltage Version	AC 200–240V	50/60Hz

Important: Use only the power supply specification applicable to the purchased fixture version.

2. Fixture Power Connection and Control

Use the designated power connector to connect the laser fixture to the main power supply.
Before powering on the fixture, always check that:

- The voltage marked on the product label matches the supplied voltage.
- The frequency marked on the product label matches the supplied power frequency.
- The power cable is firmly and correctly connected.
- The fixture is properly grounded.
- All DMX or PC control signal cables are securely connected before operation.

Incorrect voltage, frequency, or cable connection may cause abnormal operation or permanent damage to the fixture.

DMX Channel Table

The DMX channel functions are described in the following channel table.

Channel	Function	DMX Value	Description
CH1	Shutter / Laser Output	0–5	Laser output off / blackout.
		6–128	Laser output on. Applies forward color flow to the color selected by CH6. The higher the value, the faster the color change speed.
		129–249	Laser output on. Applies reverse color flow to the color selected by CH6. The higher the value, the faster the color change speed.
		250–255	Laser output on. CH6 color selection remains active without color flow change.
CH2	Mode Selection	0–49	Auto Mode. The higher the value, the faster the playback speed.
		50–99	Sound-Active Mode. The higher the value, the faster the playback speed.
		100–149	Stored File Sequential Playback Mode. The higher the value, the faster the playback speed.
		150–199	SD File Loop Playback Mode. The higher the value, the faster the playback speed.
		200–255	DMX Manual Mode.

CH3	Pattern / File Selection	0–249	Auto Mode / Sound-Active Mode: One effect is selected for every 2 DMX values.Stored File Mode: One stored playback item is selected for every 10 DMX values.SD Mode: One playlist is selected for every 10 DMX values.DMX Manual Mode: One pattern is selected for every 2 DMX values.
		250–255	Loop playback in Auto Mode, Sound-Active Mode, Stored File Mode, SD Mode, and DMX Manual Mode.
CH4	Pattern Group / Folder Selection	0–249	Auto Mode / Sound-Active Mode: One effect group is selected for every 10 DMX values.Stored File Mode: One stored playback group is selected for every 20 DMX values.SD Mode: One file is selected for every 20 DMX values.DMX Manual Mode: One pattern group is selected for every 10 DMX values.
		250–255	Loop playback in Auto Mode, Sound-Active Mode, Stored File Mode, and SD Mode.
CH5	Color Strobe	0	Constant light output; no strobe effect.
		1–255	Strobe adjustment from slow to fast. The higher the value, the faster the strobe speed.
CH6	Color Selection	0–20	Selects preset colors: White, Red, Blue, Magenta, Cyan, Yellow, and Green.
		21–23	Original color output.
		24–255	Selects colors according to the color segment table.
CH7	X Position	0–255	Manual horizontal position adjustment.
CH8	Automatic X Movement	0–75	Automatic left-to-right cyclic movement.
		76–145	Automatic jumping left-to-right cyclic movement.
		146–215	Automatic irregular jumping movement.
		216–255	Sound-active irregular jumping movement.
CH9	Y Position	0–255	Manual vertical position adjustment.
CH10	Automatic Y Movement	0–75	Automatic up-and-down cyclic movement.
		76–145	Automatic jumping up-and-down cyclic movement.
		146–215	Automatic irregular jumping movement.
		216–255	Sound-active irregular jumping movement.
CH11	Zoom / Pattern Size	0–10	No zoom effect.
		11–87	Manual pattern size adjustment.
		88–150	Automatic enlargement / zoom in.
		151–200	Automatic reduction / zoom out.
		201–255	Cyclic zoom effect.

CH12	X-Axis Rotation	0	No rotation.
		1–128	Manual X-axis rotation adjustment.
		129–255	Automatic X-axis rotation.
CH13	Y-Axis Rotation	0	No rotation.
		1–128	Manual Y-axis rotation adjustment.
		129–255	Automatic Y-axis rotation.
CH14	Center Rotation	0	No rotation.
		1–128	Manual center rotation adjustment.
		129–192	Automatic clockwise rotation.
		193–255	Automatic counterclockwise rotation.
CH15	Progressive Drawing Effect	0–10	No progressive drawing effect.
		11–74	Manual progressive drawing adjustment.
		75–104	Automatic progressive drawing with increasing effect.
		105–144	Automatic progressive drawing with decreasing effect.
		145–184	Automatic cyclic progressive drawing effect.
		185–224	Connected-loop progressive drawing with increasing effect.
		225–255	Connected-loop progressive drawing with decreasing effect.
CH16	X-Axis Wave Effect	0–9	No wave effect.
		10–69	Small-amplitude wave effect.
		70–129	Medium-amplitude wave effect.
		130–189	Large-amplitude wave effect.
		190–255	Maximum-amplitude wave effect.
CH17	Y-Axis Wave Effect	0–9	No wave effect.
		10–255	Information not provided. Please complete according to the confirmed factory DMX protocol chart.

2. DMX Controller Operation

Connect the laser fixture and the DMX controller to the power supply, then connect the DMX signal cable correctly.

Once connected, the laser fixture can be controlled through the DMX controller, including functions such as:

- Laser color selection
- Pattern selection
- Pattern movement and transformation
- Effect playback speed
- Other programmed laser show functions