



AO10

RGB ANIMATION LASER PROJECTOR

Product Manual & App User Guide



RGB

Full color

IP65

Housing rating

12 / 21 CH

DMX profiles

APP

Bluetooth control

CREATE, CONNECT AND CONTROL

Thank you for choosing AO10. This guide combines fixture operation with mobile program creation, playback and download workflows. Use it to configure the projector, patch a DMX controller, connect a compatible ILDA system and build shows from a phone.

READ BEFORE POWERING ON

Laser output can cause serious eye injury. Set up a controlled projection area and read the safety instructions before installation, testing or playback.

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Menu names and available app features may vary with the installed firmware and account permissions.





Guide contents

Start with safety and initial setup. For console programming, go directly to the DMX reference. For phone operation, follow the app chapters in order.

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CHOOSE A CONTROL METHOD

Standalone: Auto or Sound for built-in playback.

Phone: Bluetooth app for creation and program management.

Console: DMX512 with the 12-channel or 21-channel profile.

Laser software: Compatible ILDA output hardware.

Multiple fixtures: One master with compatible AO10 slaves.





Safety and installation

LASER RADIATION - AVOID EXPOSURE

Never look into the aperture or aim output at eyes, people, animals, cameras, vehicles or aircraft. Keep direct beams and reflections away from all accessible areas. Do not use this guide as authorization for audience scanning.

PLAN A CONTROLLED PROJECTION AREA

Use trained operators. Aim the full scan area at a suitable non-reflective surface or controlled beam termination. Remove mirrors and reflective objects from the beam path. Restrict access during alignment, and check all positions, sizes and movement effects before a show.

Keep scan protection enabled. A stationary or unexpectedly concentrated beam requires immediate shutdown. An app Stop button or DMX blackout is an operational control, not a substitute for physical safety measures or an emergency shutdown system.

MOUNTING AND ELECTRICAL SUPPLY

01 Inspect the fixture

Check the enclosure, optical window, bracket, fasteners and cables for transport damage. Do not energize damaged equipment.

02 Secure the installation

Use a support and mounting hardware suitable for the fixture and location. For overhead mounting, use an independent safety cable secured to a suitable attachment point. Tighten the tilt locks and keep the fixture stable.

03 Connect safely

Disconnect mains power before installation, cabling or service. Use the supply voltage marked on the fixture and a protective-earth connection. Electrical installation and internal servicing must be performed by qualified personnel.

OUTDOOR USE AND COOLING

Maintain intact seals, correctly seated connectors and suitable weather protection for every external connection. Do not immerse the fixture or pressure-wash it. Route cables to prevent water collecting at connectors. Keep ventilation and heat-dissipation surfaces clear, and keep flammable materials away.

Allow a cold or damp fixture to reach a dry, stable condition before powering on. Stop operation if there is abnormal heat, noise, smell, scanning or light output.

STARSHINE LIGHTS / OPERATOR REFERENCE

Product reference

ITEM	AO10 REFERENCE
Product type	Full-color RGB animation laser projector
Laser output versions	2 W / 3 W / 5 W / 6 W / 8 W; check the ordered version and fixture label.
Housing protection	IP65
Scanner listing	25 KPPS; retain the factory scan configuration.
Control methods	Bluetooth app, DMX512, ILDA, Auto, Sound and Master/Slave
DMX profiles	12-channel standard / 21-channel professional
Bluetooth range	Listed up to 8 m; actual range depends on the installation.
Power supply	Use the rating printed on the supplied fixture.
Package contents	AO10 projector, mounting bracket, power cable and user manual

Model specifications: [Starshine Lights AO10 product page](#). Electrical ratings and output power must match the supplied unit.

FIRST STARTUP

01 Start with the output area secured

Mount and aim the fixture before connecting power. Keep people outside the beam area.

02 Allow initialization

Power on and allow the startup self-test to finish (approximately five seconds in the supplied controller guide). Do not adjust the optics internally.

03 Select one control source

Choose Auto, Sound, app, DMX or ILDA as required. Disconnect unused control sources if they override the selected mode.

04 Verify with a simple pattern

Begin at low brightness and a modest scan size. Confirm position, color, blanking and shutdown before using complex effects.

SCAN SPEED IS A HARDWARE LIMIT

A controller menu may show 30 KPPS as an example. This does not establish the installed scanner rating. Do not increase the AO10 factory scan speed without manufacturer confirmation.



STARSHINE LIGHTS / OPERATOR REFERENCE

Display and operating modes

Rotate the menu selector left or right to highlight a menu item. Press OK to open or confirm it; use Return / Back to leave a menu. Interface wording can differ between firmware versions.

STATUS INDICATOR REFERENCE

STATE	RED / GREEN INDICATION
Laser key lock	Red and green flash slowly.
Safety protection active	Red on; green off.
DMX or Slave	Red off; green flashes quickly.
Auto	Red off; green flashes slowly.
Sound	Red off; green on.
ILDA	Red off; green flashes quickly.

CONTROL AND PLAYBACK MENUS

MENU	SETTING / USE
DMX Control	Select DMX512 for console control or DMX + Slave for slave operation. Choose 12 CH or 21 CH and set the start address.
DMX signal status	Connected indicates signal reception; disconnected indicates no DMX signal. Reception alone does not confirm a correct console patch.
Fast Play / Trigger Play	Select Auto or Sound. Show: All selects all programs; List: All selects all playlists.
Playback adjustments	Size X / Size Y: pattern dimensions. Bright: overall brightness. Auto speed and sound sensitivity: 0-100.
ILDA Settings	ILDA-DB25 selects the DB25 input. An ILDA network-cable option may appear on equipped versions; see page 7.
Running status	Displays the current light operating status.

BEFORE CHANGING MODE

Stop playback and check the beam area. A mode change, restored preset or saved playlist may start output immediately.





Configuration settings

LASER SETTINGS

SETTING	FUNCTION / OPERATOR GUIDANCE
Scan speed / Test pattern	Scanner rate and test-pattern selection. Keep the factory scan rate; use a simple test pattern during alignment.
Color settings	RGB color selection; individual R Max, G Max and B Max values up to 255.
Inversion	Invert X, invert Y or swap X/Y to suit mounting orientation.
Size	Adjust horizontal and vertical scan dimensions.
Position	Adjust horizontal and vertical placement; the controller guide shows 128 as the reference center. Recheck the complete beam area after changes.

GENERAL SETTINGS

SETTING	FUNCTION / OPERATOR GUIDANCE
Safety protection	Keep ON. The source describes suppression of single-point emission. Do not disable it for normal use.
Master / Host	Enable on the master only. Disable when using the fixture as a slave or independent console-controlled unit.
Laser modulation	Analog or TTL configuration. Retain the factory setting; this menu does not convert the installed laser hardware.
DMX Trigger	Trigger Run switches to DMX when a signal is received. Manual Run requires manual mode selection; use it on the master in a Master/Slave chain.
Thermostat	Temperature monitoring setting. Retain the factory configuration; do not disable protection to clear a fault.

SYSTEM SETTINGS

Language: English or Chinese; select English.

Backlight: Always on, off after 15 seconds, or lock after 15 seconds.

Display: Normal or 180-degree rotation. **Skin:** Themes 1-4.

Restore defaults: The supplied guide shows a confirmation change from 111 to 222. Follow the actual screen prompt and record your settings first.

System information: View software, hardware and firmware identifiers. The upgrade menu is reserved in the supplied guide; use only updates supplied for your unit.



STARSHINE LIGHTS / OPERATOR REFERENCE

DMX, ILDA and Master/Slave

DMX CONNECTION AND ADDRESSING

Connect the controller DMX OUT to AO10 DMX IN, then link DMX OUT to the next fixture. Use shielded DMX cable and terminate the last fixture with a suitable DMX terminator. Keep signal cables away from strong interference sources.

3-PIN XLR	SIGNAL
Pin 1	Ground / shield
Pin 2	Data -
Pin 3	Data +

Choose the same channel profile on the fixture and console. The next independent start address equals the current start address plus the selected channel count.

PROFILE	FIXTURE 1	FIXTURE 2	FIXTURE 3	LAST START*
12 CH	001	013	025	501
21 CH	001	022	043	492

*Highest start address that fits the complete profile within a 512-channel universe. Identical fixtures may share an address only when identical control is intended. The supplied guide recommends a signal run within 100 m; use a suitable DMX splitter/repeater when necessary.

MASTER/SLAVE SYNCHRONIZATION

Set exactly one AO10 as Master / Host and select its Auto or Sound playback. Set the master DMX Trigger to Manual Run. Set every slave to DMX + Slave, with Host disabled, and connect the fixtures in a DMX chain. Do not connect an external DMX controller to a chain while a master is transmitting.

ILDA CONTROL

Power off before connecting or disconnecting the ILDA cable. Connect a compatible laser controller to the DB25 ILDA input and select the appropriate input mode if required. The supplied guide describes automatic DB25 recognition. Confirm controller output, scan limits and blanking before enabling the laser.

NETWORK-CABLE ILDA IS NOT STANDARD ETHERNET

Use this menu only if the supplied AO10 has the matching hardware and manufacturer-confirmed cable pinout. Do not connect it to a router, network switch or PoE port. Exit the network-cable ILDA mode manually before selecting another mode. ILDA 1 / ILDA 2 Run entries are reserved.





DMX reference: channels 1-8

These channels are shared by the 12 CH and 21 CH profiles. All values are decimal (0-255). Channel functions can vary with the installed fixture profile; use the manufacturer profile matching your firmware.

CH	FUNCTION	VALUE	DESCRIPTION
1	Master output	0	Blackout.
1	Master output	1-255	Output enabled; brightness from 1-100% as described by the controller profile.
2	Red brightness	0-255	Red output from 0-100%.
3	Green brightness	0-255	Green output from 0-100%.
4	Blue brightness	0-255	Blue output from 0-100%.
5	Pattern selection	0-255	Select a pattern within the active group.
6	Pattern size	0-255	Size changes from large to small.
7	Horizontal position	1-255	Select X position; 128 is the center reference.
8	Vertical position	1-255	Select Y position; 128 is the center reference.

A PRACTICAL FIRST LOOK

01 Patch the profile

Set the start address and choose 12 CH or 21 CH on both the console and fixture.

02 Prepare the beam area

Use a safe projection surface. Set X and Y position near 128 and choose a modest pattern size.

03 Select content and color

Choose the required pattern group on channel 11, then the pattern on channel 5. Raise only the required RGB channels.

04 Enable output carefully

Raise channel 1 slowly, verify the pattern, then add movement or color effects. Return channel 1 to 0 for an operational blackout.

UNSPECIFIED VALUES

Values not defined in this reference are not assigned a behavior. In particular, the supplied table does not describe value 0 for channels 7 and 8. Verify such values against the matching fixture profile before programming cues.





DMX reference: channels 9-12

Shared by both profiles. Channel 9 selects color behavior; channel 10 selects a color-speed range or a strobe-speed range. Confirm interactions with the active pattern and modulation configuration.

CH	FUNCTION	VALUE	DESCRIPTION
9	Fixed colors	0-63	Select from seven fixed colors.
9	Color-change effects	64-95	Color-change effect / speed range.
9	Color-change effects	96-127	Additional color-change range; the supplied table does not give a separate effect name.
9	Flow effects	128-159	Flow effect / speed range.
9	Flow effects	160-191	Additional flow range; no separate effect name is specified.
9	Flow effects	192-223	Additional flow range; no separate effect name is specified.
9	Gradient effect	224-255	Gradient effect / speed range.
10	Color speed	1-128	Adjust color-effect speed.
10	Strobe	129-255	Select strobe speed.
11	Static pattern group	0-127	Select a static-pattern group.
11	Dynamic pattern group	128-255	Select a dynamic-pattern group.
12	Auto playback	0-127	Automatic playback speed selection.
12	Sound playback	128-255	Sound-response sensitivity selection.

PROGRAMMING NOTES

Select the pattern group before choosing the individual pattern. Verify every programmed cue on the actual fixture, including transitions between Auto and Sound ranges. Value 0 for channel 10 is not described in the supplied profile; do not assume it is a defined strobe-off setting.

MODULATION AND BRIGHTNESS

Smooth brightness adjustment depends on the installed modulation hardware. Keep the factory Analog / TTL setting and do not change it merely to obtain a different dimming response.





DMX reference: channels 13-21

The 21 CH professional profile adds the following controls to channels 1-12. They are not present in the 12 CH profile.

CH	FUNCTION	VALUE	DESCRIPTION
13	Rotation	1-255	Rotation speed selection.
14	Horizontal flip	1-255	Horizontal flip speed selection.
15	Vertical flip	1-255	Vertical flip speed selection.
16	Horizontal movement	1-255	Horizontal movement speed selection.
17	Vertical movement	1-255	Vertical movement speed selection.
18	Zoom	1-255	Zoom speed selection.
19	Progressive drawing	1-255	Progressive drawing effect speed.
20	Line scanning	0-127	Line-scan effect speed selection.
20	Point scanning	128-255	Point-scan effect speed selection.
21	Horizontal wave	1-127	Horizontal wave speed selection.
21	Vertical wave	128-255	Vertical wave speed selection.

BUILD MOVEMENT PROGRESSIVELY

Establish a stable base pattern first. Add one movement channel at a time, inspect the full travel area and then combine effects. Rotation, flips, zoom and waves can move parts of a pattern outside its original footprint.

The supplied profile does not specify stop points, direction splits or speed direction for these movement channels. Do not infer them from other fixture profiles. Value 0 is unspecified for channels 13-19 and 21.

SCANNING EFFECTS VS. SCANNER CONFIGURATION

Channel 20 selects an effect behavior. It does not establish a new hardware scanner rating. Maintain the factory scan settings and avoid complex patterns at excessive scan size.





App setup and connection

The supplied app guide calls the Android app Lingdong Zhihui and identifies LovelyDraw for iOS. App names, screens and login options may vary by version and region. Obtain the supported app from Starshine Lights if the listing is unclear.

INSTALL AND CONNECT

01 Install the app

iOS: search for LovelyDraw in the Apple App Store and verify the listing with the supplier if needed. Android: use the supplier-provided QR code or installation link; verify the publisher before installing an APK.

02 Sign in and select English

Open Personal Center or Add Device to access login. Use an available email or phone login method. In Personal Center > Language Settings, select English. Logout is also in Personal Center.

03 Enable Bluetooth

Enable Bluetooth on the phone and allow the permissions requested for nearby-device discovery. Power the AO10 and keep it close during first pairing.

04 Search inside the app

Tap Add Device > Start Search (or Search Again). Select the intended device, tap Connect and wait for confirmation. Auto Connect can be enabled for future use.

05 Manage remembered devices

Open More Devices to view previously connected units. A device may appear as BLEAPP. Use its right-side menu to Disconnect Device or Remove Device.

DEVICE BINDING AND PERMISSIONS

LEVEL	ACCESS
No permission	Connection is not permitted.
Basic permission	Program playback.
Advanced permission	Program design and playback.

Open Personal Center > Device Settings > Bind Device and enter the binding key shown by the device. Use Unbind to release the binding. If the key is unavailable or access is insufficient, contact the supplier; do not assume pairing alone grants design access.

IF CONNECTION FAILS

Stop output, restart the projector, then search again. Check phone permissions, proximity and whether another phone is connected. Confirm the intended device before enabling Auto Connect.





Programs and downloads

CLASSIC PROGRAMS AND MY PROGRAMS

Classic Programs: Tap once to play; double-tap to open details. Use Select to choose patterns or Select All to include all patterns. The player provides Previous, Pause, Next and Stop, with loop, shuffle, sequential and single playback modes.

My Programs: Store your own logo, text and geometric programs. Tap Add, enter a name and tap Finish. Long-press a program to rename or delete it. Deletion is not recoverable in the supplied guide; keep a separate copy of important source artwork.

BUILD A DEVICE PLAYLIST

01 Choose patterns

Open Device Programs > Playlist. Under Select Program, tap Select and add patterns in the desired order.

02 Arrange the list

Open My List and the required playlist. Tap Select to remove patterns or move them up and down.

03 Save and test

Tap Save, then verify the complete sequence. Saved device content can start automatically when the projector is powered on.

ONE-CLICK DOWNLOAD

01 Select the content

Open One-Click Download. Choose from My Programs and Classic Programs; Select enables multiple pattern choices across programs.

02 Choose a destination

Tap Download, select a slot such as Download 1 or Download 2, and tap Confirm. Keep the connection and power stable until the transfer finishes.

03 Manage downloaded programs

Open Download / Device Programs. Use Select or Select All to choose visible playback patterns, then Save. Edit can remove patterns; deleted downloaded patterns must be downloaded again.

SAVE, DOWNLOAD AND STARTUP ARE DIFFERENT

Creating content in My Programs does not by itself confirm that it is stored on the projector. Complete the download or device save, then test playback in the intended mode. Secure the beam area before every power cycle because saved programs may resume automatically.





Text and animation effects

CREATE A TEXT PROGRAM

01 Enter the message

Open Text Playback, enter the text and tap Create. The text appears on the canvas.

02 Set the composition

Adjust Pattern Size, Horizontal Movement and Vertical Movement. Use short text and simple lettering for a clear projected result.

03 Preview and choose playback

Tap Play only when the projection area is secure. Use the playback-mode control to choose loop or another available mode.

04 Save or download

Save important work to My Programs. If a complex text program exceeds the device buffer or plays poorly in real time, simplify it or download it for device playback.

ADD AND REFINE EFFECTS

Open Effects to add movement, rotation, scaling and other available animation. Each effect can be added, copied, deleted or fine-tuned, with an individual playback duration.

CONTROL	PURPOSE
Switch Pattern Operation	Switch between available pattern adjustments.
Add	Create another effect.
Copy	Duplicate the selected effect.
Delete	Remove the selected effect.
Fine-Tune	Adjust effect parameters and duration.
Confirm	Save the effect changes.

Create text → Set size and position → Add one effect → Preview → Confirm → Save / Download

Check every transition, especially when combining movement with scaling. Keep the complete sequence inside the controlled projection area.

READABILITY TIP

Laser graphics are traced as points and lines. Short text, clean outlines and restrained motion are usually easier to read than dense artwork or many overlapping effects.





Drawing and image conversion

DRAWING PLAYBACK

Open Drawing Playback. The main tools are Edit, Draw, Image, Font Settings and the text input field. Select a tool to reveal its functions around the canvas.

TOOL GROUP	AVAILABLE OPERATIONS
Edit / selection	New, Delete, Undo, Show Points, Select Points, Select All and Center.
Geometry editing	Interpolation, Rotate, Resize, Horizontal Alignment, Vertical Alignment, Merge Objects and Convert Line to Points.
Canvas / blanking	Zoom In, Zoom Out, Reset Zoom, Line Light On and Line Light Off.
Draw	Brush, Line, Horizontal Line, Vertical Line, Circle, Triangle, Square, Hexagon, Trapezoid, Diamond, Star and Cross.
Text	Choose Font Settings, enter text, then use Horizontal Text or Vertical Text.
Image	Capture or select an image for outline conversion.

CONVERT A LOGO OR IMAGE

01 Select an image

Open Image Playback and choose Capture or Photo. Start with a simple, high-contrast image.

02 Refine the outline

Use New, Edit and Settings. Select an outline by its number and remove unwanted outlines with Delete. Adjust conversion precision, point spacing and curvature.

03 Inspect the result

Use Zoom In, Zoom Out and Reset Zoom to inspect the geometry. Select Image lets you replace the source.

04 Preview and confirm

Tap Play to preview within the safe projection area, then Confirm to finish. Save the resulting program and download it if device playback is required.

LASER GRAPHICS ARE OUTLINES

Image conversion creates traced laser artwork, not full-color photographic video. Remove small details and redundant points if the result flickers or looks distorted. Line Light Off is a drawing/blanking tool, not an emergency shutdown control.





Schedules and live control

SCHEDULED PLAYBACK

01 Prepare a playlist

Create and save a non-empty playlist in Device Programs > Playlist.

02 Add a schedule

Open Scheduled Playback > Add. Set the start time, end time and playlist.

03 Enable the schedule

Tap Play at the bottom and confirm Enable Schedule. Verify the selected schedule on the actual device.

04 Test before use

Check the time behavior and power-cycle behavior in a controlled test. The supplied guide does not define clock retention or time-zone synchronization.

AUTOMATIC START REQUIRES A SAFE INSTALLATION

A schedule can start laser output without another Play command. Enable schedules only when the projection area remains controlled and a trained operator can supervise and stop output. Disable schedules before transport, maintenance or repositioning.

REAL-TIME CONTROL

Tap Real-Time Control to open the control panel. Adjust the operating mode, pattern size, rotation, position and brightness as available.

MODE / CONTROL	OPERATION
App mode	Choose Auto or Sound. Adjust Auto Speed and Sound Control Sensitivity.
DMX512 mode	Set the DMX address and channel profile. The fixture receives DMX control in this mode.
Size / rotation / position	Adjust the projected pattern geometry. Check the full movement area after changes.
Brightness	Adjust source brightness when supported by the installed analog-modulation configuration.

ENDING A SESSION

Stop playback, disable schedules and confirm that output has stopped. Follow the installation shutdown procedure before disconnecting mains power. Do not rely on Bluetooth disconnection to stop output.



STARSHINE LIGHTS / OPERATOR REFERENCE

Care and troubleshooting

SYMPTOM	CHECK / ACTION
No power or display	Check the supply, isolator, cable and secure connections. Stop if a cable or connector is damaged.
Display on, no output	Check the selected mode, any fitted key/safety circuit, active schedule and master/RGB levels. A protection state requires investigation; do not bypass it.
DMX does not respond	Verify DMX signal status, cable pinout, address and matching 12/21 CH profile. Remove a transmitting master from a console chain.
App cannot connect	Check permissions, proximity, binding and other connected phones. Restart safely and search again.
Design tools unavailable	Check account/device binding and the required Advanced permission.
ILDA does not respond	Check the selected input, compatible controller output and cable. Power off before reseating the cable.
Flicker or distorted graphics	Try a simpler pattern and smaller scan size. Reduce unnecessary points or download the program. Retain the factory scan speed.
Unexpected playback on startup	Check saved device programs, Auto mode and enabled schedules before power cycling.
Single point / abnormal scanning	Stop laser output immediately and isolate power. Have the fixture inspected by qualified service personnel.

CLEANING AND INSPECTION

Disconnect power and allow the fixture to cool. Clean the external optical window with a suitable optical cleaner and a soft, lint-free cloth; apply cleaner to the cloth, not into the fixture. Do not use abrasive materials or open the housing for routine cleaning.

Before each installation, inspect the bracket, fasteners, safety cable, power and signal cables, connectors and seals. Remove external dust from cooling surfaces as needed. Shorten cleaning intervals in dusty or hazy environments. Store dry and protect the optical window during transport.

STARSHINE LIGHTS SUPPORT

Provide **AO10**, the ordered power version, serial number, firmware information, control mode and a clear description of the fault. Photos of the display and external connections can help; never film directly into the laser aperture.

www.starshinelights.com

Keep this manual with the fixture for future reference.





App navigation quick reference

Use these English navigation maps alongside the app. They summarize the supplied workflows; button positions and wording may change between app versions.

CONNECT AND PREPARE

01 ADD DEVICE

Start Search / Search Again



02 CONNECT

Select the intended AO10



03 PREPARE

Set language and permissions

CREATE AND STORE A PROGRAM

01 CREATE

Text / Drawing / Image Playback



02 SAVE

Name and store in My Programs



03 DOWNLOAD

Choose a slot and confirm

PREPARE DEVICE PLAYBACK

01 PLAYLIST

Add and arrange patterns



02 SAVE

Save the device playlist



03 TEST

Verify output and startup behavior

ANDROID INSTALLATION QR



Android app installation

This is the QR code supplied with the app instructions. Scan it with a phone browser and verify the app publisher before installing.

If the link is unavailable or the package is unclear, request the current AO10-compatible app from Starshine Lights.

iOS APP

Search for LovelyDraw in the Apple App Store. Confirm the supported listing with Starshine Lights if several similar names appear.

