

AL640WX

6 x 40 W Laser Bee Eye Moving Head

RGBW PIXELS · RGB HALO · ANIMATION LASER — USER MANUAL

Beam, wash, vortex, kaleidoscope and animated-laser fixture



LASER SAFETY Avoid direct eye or skin exposure to laser radiation. Never aim the beam at people, aircraft or vehicles. Operate only where applicable laser-safety requirements are satisfied.

English Edition — Specifications subject to change without notice

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MODEL IDENTIFICATION This manual is organized for model AL640WX. Confirm the model, voltage rating, laser labeling and firmware shown on the actual fixture before installation or programming.

The source document identifies the product as a six-emitter 40 W laser bee-eye fixture. This edition uses the complete model designation AL640WX supplied with the product files.

1 Safety Information

DANGER Disconnect AC power and allow the fixture to cool completely before opening the housing, cleaning, inspection or service.

- Use the fixture only with the voltage and frequency marked on its product label. Connect it to a properly grounded supply.
- This is a Class I electrical appliance. Never defeat the protective earth connection.
- Protect power and data cables from crushing, sharp edges, heat and other damage. Replace damaged cables before use.
- Use the fixture indoors in a dry, well-ventilated location. Keep ventilation openings clear and protect the product from moisture and condensation.
- Do not look into the LED or laser output. Do not use optical instruments to view the beam and do not expose people to the output path.
- Never aim laser output at people, animals, aircraft, vehicles, reflective surfaces or public areas where exposure cannot be controlled.
- Installation, operation, calibration and service must be performed by trained personnel. Do not modify the fixture.
- For suspended installation, use suitable clamps and an independently rated safety cable. Keep the area below the fixture clear during installation and service.

CONDENSATION If the fixture is moved between environments with a large temperature difference, leave it disconnected until it reaches room temperature and all condensation has evaporated.

LASER COMPLIANCE The source manual does not state a laser class, wavelength, divergence or accessible-emission limit. Check the product label and comply with all local licensing, operator, audience-scanning and controlled-area requirements before use.

2 Product Overview

The AL640WX combines six 40 W RGBW bee-eye emitters, an RGB animation laser and an RGB halo ring in a moving-head platform. Its continuously rotating front lens supports beam, wash, vortex and kaleidoscope looks, while independent pixel and laser controls provide layered effects.

2.1 Package Contents

Item	Quantity
AL640WX fixture	1
User manual	1
Power cable	1
DMX signal cable	1

2.2 Technical Specifications

Parameter	Specification
Input voltage	AC 100–240 V, 50/60 Hz
Rated power	350 W
Main light source	6 × 40 W OSRAM RGBW 4-in-1 LEDs
Laser source	8 W RGB laser
Rated LED life	50,000 hours
Color system	RGBW color mixing; linear CTO
Zoom range	4.5°–45°
Pan / tilt	540° / 270°, 16-bit control
DMX personalities	49CH / 73CH
Control modes	DMX512 / RDM / Sound / Auto 1 / Auto 2
Connections	3-pin DMX in/out; optional 5-pin; power input/output daisy chain
Display	1.77-inch LCD; Chinese/English menu; error and temperature display
Ingress protection	IP20 — indoor use

SOURCE NORMALIZATION The specification states 270° tilt, while the source DMX table describes Channel 3 as 0–205°. This edition preserves both values and flags the channel-table entry for firmware verification. Use the actual fixture behavior when creating a console profile.

2.3 Main Functions

- Beam, wash, vortex and kaleidoscope effects from a continuously rotating front lens.
- Six independently controllable RGBW pixels in the 73-channel personality.
- Animated RGB laser with pattern, color, scan, rotation, movement, zoom and wave controls.
- RGB halo dimming, strobe, built-in color/effect selection and effect speed.
- DMX512 and RDM support with sound-active and automatic programs.

3 Setup and Installation

3.1 AC Power

Before connecting power, check that the product-label rating matches the local supply. Connect the fixture to protective earth. When linking power between fixtures, do not exceed the connector, cable or circuit rating.

3.2 DMX Data Connection

Use shielded, two-conductor twisted-pair cable intended for RS-485/DMX512. Connect the controller to DMX IN, then link DMX OUT to the next fixture. Keep data wiring separate from mains wiring where practical.

3-pin XLR	Signal
Pin 1	Shield / signal common
Pin 2	Data –
Pin 3	Data +

TERMINATION At the last fixture in a long or unstable DMX chain, connect a 120 Ω , 1 W resistor between pins 2 and 3 of a male XLR plug and insert it into DMX OUT.

3.3 DMX Addressing

Set each fixture's start address so that its channel range does not overlap another fixture unless synchronized control is intended. The next start address equals the current address plus the selected channel count.

49CH fixture	Start address
Fixture 1	A001
Fixture 2	A050
Fixture 3	A099

3.4 Rigging

1. Inspect the fixture, mounting hardware and support structure before installation.
2. Attach an appropriately rated clamp to the fixture's mounting point and secure it to the structure.
3. Attach an independently rated safety cable through the designated safety point; do not use handles or cables as safety anchors.
4. Confirm that the moving head and laser output have adequate clearance throughout the programmed pan and tilt range.
5. After installation, recheck every fastener and establish a periodic inspection schedule.

4 Control Panel and Menu

Use ENTER to open or save the selected item, UP and DOWN to change a value, and MENU/EXIT to return without saving. The display can rotate automatically to match the fixture orientation. Menu wording may vary with firmware revision.

Menu	Options	Operation
Address	001–512	Set the DMX start address.
Run Mode	DMX / Sound / Auto 1 / Auto 2	Select console control, sound-active or an automatic program.
Channel Mode	49CH / 73CH	Select the DMX personality used by the controller profile.
Pan / Tilt Invert	Off / On	Reverse movement direction to suit the installation.
Hall / Optical Correction	Off / On	Enable sensor-based position correction.
Signal Hold	Off / On	Choose whether the last DMX state is retained after signal loss.
Screen Saver	Off / On	Control automatic display blanking.
Screen Flip	Off / On / Auto	Set normal, inverted or automatic display orientation.
Synchronized Update	Off / On	Apply supported output changes synchronously.
Language	/ English	Choose the display language.
Factory Reset	Confirm	Restore default settings.

4.1 Manual Control and Calibration

In Manual Control, select a channel, press ENTER to edit, use UP/DOWN to set 0–255, and press ENTER again to save. EXIT cancels the unsaved change.

Calibration item	Range	Meaning
Pan / Tilt / Zoom home	0–255	Home-position offset; 127 = no offset
Pan / Tilt / Zoom travel	0–255	Movement-range calibration; factory reference 127
Pan / Tilt motor strength	0–255	Motor drive strength; factory reference 127
Other motor strength	0–255	Effect-motor drive strength; factory reference 127
Microphone sensitivity	Firmware value	Sound-active input sensitivity
Change password	Protected	Update access password for calibration settings

CALIBRATION Record original values before adjustment. Incorrect home, travel or motor-strength values can cause abnormal positioning or mechanical stress.

4.2 Reset and Information

Item	Action
Effect motor reset	Reset effect motors without resetting pan/tilt.
Movement motor reset	Reset pan and tilt motors.
Reset all	Perform a complete fixture reset.
Reset errors	Clear stored error information after the cause has been corrected.
DMX monitor	View received channel values.
Sensor status	View Hall, X-axis and Y-axis sensor state.
Hardware / software	View hardware and firmware versions.

5 DMX Channel Reference

Select 49CH or 73CH on the fixture and use the matching controller personality. The first 29 channels are common to both modes. The 49CH personality then adds 20 laser channels; the 73CH personality adds 24 RGBW pixel channels followed by 20 laser channels.

Mode	Channel map
49CH	1–29 common fixture/halo + 30–49 laser
73CH	1–29 common fixture/halo + 30–53 six RGBW pixels + 54–73 laser

PROFILE VERIFICATION The source laser table contains an overlapping halo-strobe range and misaligned scan rows. This edition normalizes halo strobe to 4–250 and reconstructs laser scan as 0–127 line scan / 128–255 point scan. Verify both behaviors on the installed firmware before show programming.

5.1 Common Channels 1–29 — 49CH and 73CH

Channel	Function	DMX Value	Description
1	Pan	0–255	0–540°
2	Pan Fine	0–255	16-bit fine adjustment
3	Tilt	0–255	0–205° (source channel table)
4	Tilt Fine	0–255	16-bit fine adjustment
5	Pan/Tilt Speed	0–255	Fast to slow
6	Zoom	0–255	Narrow to wide (4.5°–45° nominal)
7	Rotating Lens	0–255	0–127: 0–60° position; 128–188: CCW fast→slow; 189–193: stop; 194–255: CW slow→fast
8	Master Dimmer	0–255	Linear dimming, dark to full
9	Strobe	0–255	0–19 blackout; 20–24 open; 25–69 standard; 70–89 fast-open/slow-close; 90–109 slow-open/fast-close; 110–129 random; 130–149 random fast-open/slow-close; 150–169 random slow-open/fast-close; 170–189 pulse; 190–209 random pulse; 210–229 fade; 230–244 pulse 2; 245–255 open
10	Red	0–255	Main red dimmer
11	Green	0–255	Main green dimmer
12	Blue	0–255	Main blue dimmer
13	White	0–255	Main white dimmer
14	Linear CTO	0–255	Linear color-temperature control
15	Color Macro	0–255	Built-in color macros
16	Built-in Effect	0–255	0–19 dimmer mode; 20–255 effects 1–13, allocated in 20-value steps
17	Effect Speed / Direction	0–255	0–127 forward fast→slow; 128 stop; 129–255 reverse slow→fast
18	Background Red	0–255	Background red dimmer
19	Background Green	0–255	Background green dimmer
20	Background Blue	0–255	Background blue dimmer
21	Background White	0–255	Background white dimmer
22	Reset	0–255	0–25 none; 26–76 effect-motor reset (hold 5 s); 77–127 pan/tilt reset (hold 5 s); 128–255 full reset (hold 5 s)
23	Halo Dimmer	0–255	Halo-ring master dimmer
24	Halo Strobe	0–255	0–3 blackout; 4–250 synchronized strobe; 251–255 open
25	Halo Red	0–255	Halo red dimmer
26	Halo Green	0–255	Halo green dimmer
27	Halo Blue	0–255	Halo blue dimmer
28	Halo Effect	0–255	0–51 built-in colors; 52–55 effect 1; 56–59 effect 2; 60–251 effects 3–50 (four values each); 252–255 effect 51
29	Halo Effect Speed	0–255	Slow to fast

5.2 49CH Laser Extension — Channels 30–49

Channel	Function	DMX Value	Description
30	Laser Dimmer	0-255	0 off; 1–255 intensity 1–100%
31	Laser Strobe	0-255	1–255 strobe-speed selection
32	Horizontal Position	0-255	0–255 position; 128 center; effective with laser output enabled
33	Vertical Position	0-255	0–255 position; 128 center; effective with laser output enabled
34	Pattern File	0-255	Select a pattern from the fixture library
35	Laser Color	0-255	0–63 fixed colors; 64–95 fixed-color/change speed; 96–127 color-change speed; 128–159 color-change/water-flow speed; 160–223 water-flow speed; 224–255 gradient speed
36	Scan Speed	0-255	0–127 line-scan speed; 128–255 point-scan speed (reconstructed from source table)
37	Pattern Effect	0-255	Select pattern/effect library in 8-value steps
38	Trigger	0-255	0–26 default auto speed; 27–127 auto speed; 128–255 sound sensitivity
39	Z Rotation	0-255	1–127 angle; 128–255 rotation speed
40	X Rotation	0-255	1–127 angle; 128–255 rotation speed
41	Y Rotation	0-255	1–127 angle; 128–255 rotation speed
42	Horizontal Move	0-255	1–127 position; 128–255 movement speed
43	Vertical Move	0-255	1–127 position; 128–255 movement speed
44	Laser Zoom	0-255	1–127 size; 128–255 zoom speed
45	Gradual Draw	0-255	1–255 gradient/drawing speed
46	XY Wave	0-255	1–127 X-wave speed; 128–255 Y-wave speed
47	Laser Red	0-255	Red laser intensity
48	Laser Green	0-255	Green laser intensity
49	Laser Blue	0-255	Blue laser intensity

5.3 73CH Pixel Extension — Channels 30–53

Channel	Function	DMX Value	Description
30	Pixel 1 Red	0-255	Pixel 1 red dimmer
31	Pixel 1 Green	0-255	Pixel 1 green dimmer
32	Pixel 1 Blue	0-255	Pixel 1 blue dimmer
33	Pixel 1 White	0-255	Pixel 1 white dimmer
34	Pixel 2 Red	0-255	Pixel 2 red dimmer
35	Pixel 2 Green	0-255	Pixel 2 green dimmer
36	Pixel 2 Blue	0-255	Pixel 2 blue dimmer
37	Pixel 2 White	0-255	Pixel 2 white dimmer
38	Pixel 3 Red	0-255	Pixel 3 red dimmer
39	Pixel 3 Green	0-255	Pixel 3 green dimmer
40	Pixel 3 Blue	0-255	Pixel 3 blue dimmer
41	Pixel 3 White	0-255	Pixel 3 white dimmer
42	Pixel 4 Red	0-255	Pixel 4 red dimmer
43	Pixel 4 Green	0-255	Pixel 4 green dimmer
44	Pixel 4 Blue	0-255	Pixel 4 blue dimmer
45	Pixel 4 White	0-255	Pixel 4 white dimmer
46	Pixel 5 Red	0-255	Pixel 5 red dimmer
47	Pixel 5 Green	0-255	Pixel 5 green dimmer
48	Pixel 5 Blue	0-255	Pixel 5 blue dimmer

Channel	Function	DMX Value	Description
49	Pixel 5 White	0-255	Pixel 5 white dimmer
50	Pixel 6 Red	0-255	Pixel 6 red dimmer
51	Pixel 6 Green	0-255	Pixel 6 green dimmer
52	Pixel 6 Blue	0-255	Pixel 6 blue dimmer
53	Pixel 6 White	0-255	Pixel 6 white dimmer

5.4 73CH Laser Extension — Channels 54-73

Channel	Function	DMX Value	Description
54	Laser Dimmer	0-255	0 off; 1-255 intensity 1-100%
55	Laser Strobe	0-255	1-255 strobe-speed selection
56	Horizontal Position	0-255	0-255 position; 128 center; effective with laser output enabled
57	Vertical Position	0-255	0-255 position; 128 center; effective with laser output enabled
58	Pattern File	0-255	Select a pattern from the fixture library
59	Laser Color	0-255	0-63 fixed colors; 64-95 fixed-color/change speed; 96-127 color-change speed; 128-159 color-change/water-flow speed; 160-223 water-flow speed; 224-255 gradient speed
60	Scan Speed	0-255	0-127 line-scan speed; 128-255 point-scan speed (reconstructed from source table)
61	Pattern Effect	0-255	Select pattern/effect library in 8-value steps
62	Trigger	0-255	0-26 default auto speed; 27-127 auto speed; 128-255 sound sensitivity
63	Z Rotation	0-255	1-127 angle; 128-255 rotation speed
64	X Rotation	0-255	1-127 angle; 128-255 rotation speed
65	Y Rotation	0-255	1-127 angle; 128-255 rotation speed
66	Horizontal Move	0-255	1-127 position; 128-255 movement speed
67	Vertical Move	0-255	1-127 position; 128-255 movement speed
68	Laser Zoom	0-255	1-127 size; 128-255 zoom speed
69	Gradual Draw	0-255	1-255 gradient/drawing speed
70	XY Wave	0-255	1-127 X-wave speed; 128-255 Y-wave speed
71	Laser Red	0-255	Red laser intensity
72	Laser Green	0-255	Green laser intensity
73	Laser Blue	0-255	Blue laser intensity

6 Routine Maintenance

ATTENTION Disconnect AC power, allow the fixture to cool and ensure the laser cannot emit before inspection or cleaning.

- Inspect the housing, mounting points, safety cable, power cable, connectors and ventilation openings.
- Remove loose dust with a soft brush, lint-free cloth, vacuum cleaner or clean dry compressed air.
- Clean optical surfaces with lint-free optical tissue lightly moistened with purified water or a cleaner suitable for the surface coating. Do not scratch lenses or coatings.
- Check that fans turn freely and that vents are not obstructed. Do not force debris deeper into the fixture.
- After service, refit all covers and safety devices before reconnecting power.

Cleaning frequency depends on dust, fog-fluid residue, airflow and operating hours. Establish a recurring interval based on inspection results and the installation environment.

7 Troubleshooting and Service

Symptom	Check
Fixture does not power on	Verify the supply, protective earth, circuit protection, cable, connector and product-label rating.
No DMX response	Confirm DMX mode, start address, selected 49CH/73CH personality, controller patch, cable polarity and termination.
Unexpected channel behavior	Confirm that the controller profile matches the selected personality and verify the installed firmware.
Movement error	Remove obstructions, run the appropriate reset and inspect the Hall/X/Y sensor status.
Laser effect differs from profile	Verify the pattern library and firmware; test the reconstructed scan ranges before programming a show.
Output is reduced or unstable	Check temperature, ventilation, fan operation, optical cleanliness and power quality.
Red ERR indicator	Open the information/error page, record the message, correct the cause and then clear the stored error.

SERVICE There are no user-serviceable laser or high-voltage parts inside. Refer internal repair, optical alignment, laser service and calibration to qualified personnel.

7.1 Warranty and Support

Damage caused by misuse, unauthorized modification, incorrect installation or operation outside the specified conditions may be excluded from warranty coverage. Keep the purchase record and warranty documentation, and include the model, serial number, firmware version and a clear fault description when requesting service.

End of manual