

AL1940WZ

19 x 40 W LED Bee Eye Moving Head Halo

RGBW 4-IN-1 - ROTATING HONEYCOMB LENS - USER MANUAL

Beam, wash, pixel-pattern and halo effects in one moving-head fixture



READ BEFORE USE Keep this manual with the fixture. Installation, operation and service must be performed by qualified personnel.

English Edition - Specifications subject to change without notice

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MODEL IDENTIFICATION This manual is for model AL1940WZ. Confirm the model, voltage, firmware and product-label ratings before installation or programming.

1 Safety Information

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

- This professional fixture must be installed, operated and serviced by qualified personnel.
- Use only AC 100-240 V, 50/60 Hz. Connect to a protected, correctly grounded Class I supply.
- Do not operate the fixture with a damaged housing, lens, connector, cable, mounting point or safety attachment.
- After a large temperature change, leave the fixture disconnected until it reaches ambient temperature and all condensation has evaporated.
- Do not look directly into the LEDs at close range. Flashing light may trigger seizures in susceptible people.
- Keep combustible material at least 0.5 m from the fixture and keep every ventilation opening unobstructed.
- For overhead installation, use rated clamps and an independently rated secondary safety cable.
- Carry the fixture by its fixed handles or base. Never lift it by the moving head.
- Do not modify the fixture or bypass protective devices. Refer internal repair to qualified service personnel.

IP20 / PROTECTED INDOOR USE The specification identifies the fixture as IP20. Keep it away from rain, splashing water, condensation and excessive dust. Do not use it outdoors without a suitable rated enclosure.

2 Product Overview and Specifications

The AL1940WZ combines nineteen individually controlled 40 W RGBW LEDs, a motorized 7°-45° zoom, a rotating honeycomb lens and a pixel-controlled halo ring. It can produce narrow beams, broad washes, animated patterns, color effects and synchronized halo looks for stages, theatres, broadcast studios, clubs and rental productions.

2.1 Technical Specifications

Parameter	Specification
Input voltage	AC 100-240 V, 50/60 Hz
Rated power	750 W (Chinese source specification)
Light source	19 x 40 W RGBW 4-in-1 LEDs; individual LED control
Optics	Motorized 7°-45° zoom; rotating honeycomb lens
Dimming / strobe	0-100% dimming; 1-25 Hz electronic strobe with effects
Control	DMX512 / Auto / Sound-active / RDM
DMX personalities	21CH / 26CH / 35CH / 43CH / 78CH / 92CH / 97CH / 119CH
Pan	540° with 16-bit fine control
Tilt	250° with 16-bit fine control (specification page)
Display	Chinese / English menu display
Protection	Position memory, automatic reset, fan and temperature protection
Ingress protection	IP20
Fixture dimensions	434 x 260 x 577 mm
Carton dimensions	480 x 380 x 510 mm
Net / gross weight	16.2 kg / 18.7 kg
Two-unit flight case	990 x 430 x 610 mm; case 22 kg; loaded gross 56 kg

TILT VALUES IN SOURCE The source specification lists 250° tilt, while its setup menu lists selectable 270° / 180° / 90° limits and one channel page contains a different figure. This manual preserves those source values. Verify the actual firmware and mechanical limit before programming.

2.2 Main Functions

- RGBW color mixing with color-temperature and macro controls.
- Individual LED pixel control for animated static and dynamic patterns.
- Rotating honeycomb lens for beam, wash and kaleidoscopic effects.
- Independent pixel halo ring with dimmer, strobe, color macro and speed controls.
- Smooth 16-bit pan and tilt, position feedback and automatic correction.
- Eight DMX personalities for compact, pattern and full pixel programming.

2.3 Supplied Items

Package contents: AL1940WZ fixture x 1; power cable x 1; DMX signal cable x 1; quick-lock brackets x 2; safety cable x 1; user manual x 1.

3 Setup and Installation

3.1 AC Power

Before connecting power, verify that the product-label voltage and frequency match the local supply. Complete mounting and data connections before applying power. Disconnect by holding the plug, not by pulling the cable.

3.2 Rigging

STRUCTURAL RATING The support, mounting hardware and every attachment must be rated for at least ten times the fixture load or the higher factor required by local regulations. Keep people clear of the area below during installation and service.

1. Inspect the fixture, quick-lock brackets, clamps, M8 fasteners, mounting points, safety cable and support structure.
2. Attach rated clamps to the supplied brackets and lock the brackets securely into the base.
3. Attach an independently rated safety cable to the designated point and the supporting structure.
4. Confirm unobstructed clearance for the complete pan, tilt, zoom and rotating-lens movement.
5. Recheck every attachment before applying power. Inspect the installation regularly.

3.3 DMX512 Connection

Use shielded twisted-pair cable designed for RS-485/DMX512. Connect the controller to DMX IN, then link DMX OUT to the next fixture. Assign a unique start address to every independently controlled fixture.

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

TERMINATION At the final fixture in a long or electrically noisy DMX chain, connect a 120 ohm resistor between pins 2 and 3 of a male XLR plug and insert it into DMX OUT.

4 Control Panel and Menu

Use MENU to return or move through the menu, UP/DOWN to change a value, and ENTER to open or save a setting. Hold MENU for approximately 3 seconds to activate the display lock. Labels may vary slightly with firmware revision.

Menu	Item	Option / Range	Operation
Address	DMX Address	001-512	Set the fixture start address.
Run Mode	DMX Personality	21 / 26 / 35 / 43 / 78 / 92 / 97 / 119CH	Select the controller footprint.
Run Mode	Test / Manual	Auto Test / Manual	Run a test or control functions manually.
Run Mode	Standalone	Auto / Sound	Select automatic or sound-active operation.
Setup	Pan Reverse	Off / On	Reverse pan direction.
Setup	Tilt Reverse	Off / On	Reverse tilt direction.
Setup	Screen Reverse	Off / On	Rotate the display.
Setup	No DMX Signal	Hold	Hold the last state when signal is lost.
Setup	Pan Angle	540° / 360° / 180°	Limit the pan travel.
Setup	Tilt Angle	270° / 180° / 90°	Limit the tilt travel as listed by the source menu.
Setup	Dehumidification Time	085	Service/environment setting; use only as directed.
Setup	Language	English / Chinese	Select the display language.
Setup	Dimmer Response	Smooth / Fast	Select dimmer response behavior.
Setup	Dimmer Curve	Linear / Square / Inverse Square / S Curve	Select the output curve.
Setup	Reset	Confirm	Reset the fixture.
Setup	Factory Set	Confirm	Restore factory settings.
System Info	Status	Version / Mode / Address / Temperature / Hours	View fixture information.

TEMPERATURE MESSAGES Open = thermistor circuit open; Short = thermistor circuit shorted; Hot = over-temperature. Disconnect power and refer persistent sensor or temperature faults to qualified service.

5 DMX512 Channel Reference

Select the same personality on the fixture and controller. DMX values run from 000 to 255 unless a narrower range is shown. Fine channels provide 16-bit resolution when paired with their coarse channel.

5.1 21-Channel Personality (K10)

CH	Function	DMX Value	Description
1	Red	000-255	0-100%
2	Red Fine	000-255	16-bit fine
3	Green	000-255	0-100%
4	Green Fine	000-255	16-bit fine
5	Blue	000-255	0-100%
6	Blue Fine	000-255	16-bit fine
7	White	000-255	0-100%
8	White Fine	000-255	16-bit fine
9	Linear CTO	000-255	Linear color-temperature adjustment
10	Color Macro	000-255	Built-in color macro
11	Strobe	000-003 / 004-103 / 104-107 / 108-207 / 208-212 / 213-251 / 252-255	Blackout / synchronized 1-25 Hz / open / pulse fast-slow / open / random slow-fast / open
12	Master Dimmer	000-255	0-100%
13	Dimmer Fine	000-255	16-bit fine
14	Pan	000-255	Position
15	Pan Fine	000-255	16-bit fine
16	Tilt	000-255	Position
17	Tilt Fine	000-255	16-bit fine
18	Reserved	000-255	No function
19	Reset	000-250 / 251-255	No function / Reset; hold 5 seconds
20	Zoom	000-255	Narrow to wide
21	Lens Rotation	000-127 / 128-189 / 190-191 / 192-255	0-60° position / CCW fast-slow / stop / CW slow-fast

5.2 26-Channel Personality (Standard)

CH	Function	DMX Value	Description
1	Pan	000-255	Position
2	Pan Fine	000-255	16-bit fine
3	Tilt	000-255	Position
4	Tilt Fine	000-255	16-bit fine
5	Pan / Tilt Speed	000-255	Fast to slow
6	Zoom	000-255	Narrow to wide
7	Lens Rotation	000-127 / 128-189 / 190-191 / 192-255	0-60° position / CCW fast-slow / stop / CW slow-fast
8	Master Dimmer	000-255	0-100%
9	Strobe	000-003 / 004-200 / 201-255	Open / synchronized fast-slow / random slow-fast
10	Red	000-255	0-100%
11	Green	000-255	0-100%
12	Blue	000-255	0-100%
13	White	000-255	0-100%
14	Linear CTO	000-255	Linear color-temperature adjustment
15	Color Macro	000-255	Built-in color macro
16	Static Effect	000-009 / 010-184 / 185-194 / 195-255	None / Effects 1-35 (5 values each) / Effect 36 / Effect 37
17	Dynamic Effect	000-004 / 005-016 / 017-255	None / Effect 1 / Effects 2-80 (3 values each)
18	Dynamic Speed	000-127 / 128-255	Forward fast-slow / reverse slow-fast
19	Background Red	000-255	0-100%
20	Background Green	000-255	0-100%
21	Background Blue	000-255	0-100%
22	Background White	000-255	0-100%
23	Halo Strobe	000-003 / 004-250 / 251-255	Blackout / synchronized slow-fast / open
24	Halo Macro	000-001 / 002-051 / 052-054 / 055-250 / 251-255	None / fixed colors / dynamic 1 / dynamic effects 2-50 / effect 51
25	Halo Effect Speed	000-255	Slow to fast
26	Reset	000-239 / 240-255	No function / Reset; hold 5 seconds

5.3 35-Channel Personality

CH	Function	DMX Value	Description
1	Red	000-255	0-100%
2	Red Fine	000-255	16-bit fine
3	Green	000-255	0-100%
4	Green Fine	000-255	16-bit fine
5	Blue	000-255	0-100%
6	Blue Fine	000-255	16-bit fine
7	White	000-255	0-100%
8	White Fine	000-255	16-bit fine
9	Linear CTO	000-255	Linear color-temperature adjustment
10	Color Macro	000-255	Built-in color macro
11	Strobe	000-003 / 004-203 / 204-255	Open / synchronized 1-25 Hz / random
12	Master Dimmer	000-255	0-100%
13	Dimmer Fine	000-255	16-bit fine
14	Pan	000-255	Position
15	Pan Fine	000-255	16-bit fine
16	Tilt	000-255	Position
17	Tilt Fine	000-255	16-bit fine
18	Reserved	000-255	No function
19	Reset	000-250 / 251-255	No function / Reset; hold 5 seconds
20	Zoom	000-255	Narrow to wide
21	Lens Zoom / Rotation	000-127 / 128-191 / 192-255	0-60° position / CW rotation / CCW rotation
22	Pattern Selection	000-255	Pattern selection
23	Pattern Speed	000-255	Effect speed
24	Pattern Fade	000-255	Fade amount
25	Pattern Red	000-255	0-100%
26	Pattern Green	000-255	0-100%
27	Pattern Blue	000-255	0-100%
28	Pattern White	000-255	0-100%
29	Pattern Dimmer	000-255	0-100%
30	Background Dimmer	000-255	0-100%
31	Pattern Transition	000-255	Transition control
32	Pattern Angle / Position	000-255	Angle or position
33	Foreground Strobe	000-003 / 004-203 / 204-255	Open / synchronized / random
34	Background Strobe	000-003 / 004-203 / 204-255	Open / synchronized / random
35	Background Selection	000-255	Background selection

5.4 43-Channel Personality

CH	Function	DMX Value	Description
1	Red	000-255	0-100%
2	Red Fine	000-255	16-bit fine
3	Green	000-255	0-100%
4	Green Fine	000-255	16-bit fine
5	Blue	000-255	0-100%
6	Blue Fine	000-255	16-bit fine
7	White	000-255	0-100%
8	White Fine	000-255	16-bit fine
9	Linear CTO	000-255	Linear color-temperature adjustment
10	Color Macro	000-255	Built-in color macro
11	Strobe	000-003 / 004-203 / 204-255	Open / synchronized 1-25 Hz / random
12	Master Dimmer	000-255	0-100%
13	Dimmer Fine	000-255	16-bit fine
14	Pan	000-255	Position
15	Pan Fine	000-255	16-bit fine
16	Tilt	000-255	Position
17	Tilt Fine	000-255	16-bit fine
18	Reserved	000-255	No function
19	Reset	000-239 / 240-255	No function / Reset; hold 5 seconds
20	Zoom	000-255	Narrow to wide
21	Lens Rotation	000-127 / 128-189 / 190-191 / 192-255	0-60° position / CCW fast-slow / stop / CW slow-fast
22	Pattern Select	000-007 / 008-014 / 015-087 / 088-255	None / static pattern / dynamic pattern / none
23	Pattern Speed	000-127 / 128-255	CCW slow-fast / dynamic slow-fast
24	Pattern Fade	000-255	Fade amount
25	Pattern Red	000-255	0-100%
26	Pattern Green	000-255	0-100%
27	Pattern Blue	000-255	0-100%
28	Pattern White	000-255	0-100%
29	Pattern Dimmer	000-255	0-100%
30	Background Dimmer	000-255	0-100%
31	Pattern Transition	000-255	Transition control
32	Pattern Angle / Position	000-255	Angle or position
33	Foreground Strobe	000-003 / 004-203 / 204-255	Open / synchronized / random
34	Background Strobe	000-003 / 004-203 / 204-255	Open / synchronized / random
35	Background Select	000-008 / 009-015 / 016-255	None / background choices / none
36	Shape Frequency	000-255	Shape frequency
37	Halo Dimmer	000-255	0-100%
38	Halo Strobe	000-003 / 004-250 / 251-255	Open / synchronized slow-fast / open
39	Halo Red	000-255	0-100%
40	Halo Green	000-255	0-100%
41	Halo Blue	000-255	0-100%
42	Halo Macro	000-001 / 002-051 / 052-054 / 055-250 / 251-255	None / fixed colors / dynamic 1 / dynamic effects 2-50 / effect 51
43	Halo Speed	000-255	Slow to fast

5.5 78-Channel Personality (K10)

Channels 1-21 use the same functions and values as the 21-channel personality. Channels 22-78 provide direct RGB control of all nineteen LEDs.

CH	Function	DMX Value	Description
22-24	LED 1	000-255 each	Red / Green / Blue; 0-100% per component
25-27	LED 2	000-255 each	Red / Green / Blue; 0-100% per component
28-30	LED 3	000-255 each	Red / Green / Blue; 0-100% per component
31-33	LED 4	000-255 each	Red / Green / Blue; 0-100% per component
34-36	LED 5	000-255 each	Red / Green / Blue; 0-100% per component
37-39	LED 6	000-255 each	Red / Green / Blue; 0-100% per component
40-42	LED 7	000-255 each	Red / Green / Blue; 0-100% per component
43-45	LED 8	000-255 each	Red / Green / Blue; 0-100% per component
46-48	LED 9	000-255 each	Red / Green / Blue; 0-100% per component
49-51	LED 10	000-255 each	Red / Green / Blue; 0-100% per component
52-54	LED 11	000-255 each	Red / Green / Blue; 0-100% per component
55-57	LED 12	000-255 each	Red / Green / Blue; 0-100% per component
58-60	LED 13	000-255 each	Red / Green / Blue; 0-100% per component
61-63	LED 14	000-255 each	Red / Green / Blue; 0-100% per component
64-66	LED 15	000-255 each	Red / Green / Blue; 0-100% per component
67-69	LED 16	000-255 each	Red / Green / Blue; 0-100% per component
70-72	LED 17	000-255 each	Red / Green / Blue; 0-100% per component
73-75	LED 18	000-255 each	Red / Green / Blue; 0-100% per component
76-78	LED 19	000-255 each	Red / Green / Blue; 0-100% per component

5.6 92-Channel Personality

Channels 1-35 use the same functions and values as the 35-channel personality. Channels 36-92 provide direct RGB control of all nineteen LEDs.

CH	Function	DMX Value	Description
36-38	LED 1	000-255 each	Red / Green / Blue; 0-100% per component
39-41	LED 2	000-255 each	Red / Green / Blue; 0-100% per component
42-44	LED 3	000-255 each	Red / Green / Blue; 0-100% per component
45-47	LED 4	000-255 each	Red / Green / Blue; 0-100% per component
48-50	LED 5	000-255 each	Red / Green / Blue; 0-100% per component
51-53	LED 6	000-255 each	Red / Green / Blue; 0-100% per component
54-56	LED 7	000-255 each	Red / Green / Blue; 0-100% per component
57-59	LED 8	000-255 each	Red / Green / Blue; 0-100% per component
60-62	LED 9	000-255 each	Red / Green / Blue; 0-100% per component
63-65	LED 10	000-255 each	Red / Green / Blue; 0-100% per component
66-68	LED 11	000-255 each	Red / Green / Blue; 0-100% per component
69-71	LED 12	000-255 each	Red / Green / Blue; 0-100% per component
72-74	LED 13	000-255 each	Red / Green / Blue; 0-100% per component
75-77	LED 14	000-255 each	Red / Green / Blue; 0-100% per component
78-80	LED 15	000-255 each	Red / Green / Blue; 0-100% per component
81-83	LED 16	000-255 each	Red / Green / Blue; 0-100% per component
84-86	LED 17	000-255 each	Red / Green / Blue; 0-100% per component
87-89	LED 18	000-255 each	Red / Green / Blue; 0-100% per component
90-92	LED 19	000-255 each	Red / Green / Blue; 0-100% per component

5.7 97-Channel Personality

Channels 1-21 use the same functions and values as the 21-channel personality. Channels 22-97 provide direct RGBW control of all nineteen LEDs.

CH	Function	DMX Value	Description
22-25	LED 1	000-255 each	Red / Green / Blue / White; 0-100% per component
26-29	LED 2	000-255 each	Red / Green / Blue / White; 0-100% per component
30-33	LED 3	000-255 each	Red / Green / Blue / White; 0-100% per component
34-37	LED 4	000-255 each	Red / Green / Blue / White; 0-100% per component
38-41	LED 5	000-255 each	Red / Green / Blue / White; 0-100% per component
42-45	LED 6	000-255 each	Red / Green / Blue / White; 0-100% per component
46-49	LED 7	000-255 each	Red / Green / Blue / White; 0-100% per component
50-53	LED 8	000-255 each	Red / Green / Blue / White; 0-100% per component
54-57	LED 9	000-255 each	Red / Green / Blue / White; 0-100% per component
58-61	LED 10	000-255 each	Red / Green / Blue / White; 0-100% per component
62-65	LED 11	000-255 each	Red / Green / Blue / White; 0-100% per component
66-69	LED 12	000-255 each	Red / Green / Blue / White; 0-100% per component
70-73	LED 13	000-255 each	Red / Green / Blue / White; 0-100% per component
74-77	LED 14	000-255 each	Red / Green / Blue / White; 0-100% per component
78-81	LED 15	000-255 each	Red / Green / Blue / White; 0-100% per component
82-85	LED 16	000-255 each	Red / Green / Blue / White; 0-100% per component
86-89	LED 17	000-255 each	Red / Green / Blue / White; 0-100% per component
90-93	LED 18	000-255 each	Red / Green / Blue / White; 0-100% per component
94-97	LED 19	000-255 each	Red / Green / Blue / White; 0-100% per component

5.8 119-Channel Personality (K10)

Channels 1-43 use the same functions and values as the 43-channel personality. Channels 44-119 provide direct RGBW control of all nineteen LEDs.

CH	Function	DMX Value	Description
44-47	LED 1	000-255 each	Red / Green / Blue / White; 0-100% per component
48-51	LED 2	000-255 each	Red / Green / Blue / White; 0-100% per component
52-55	LED 3	000-255 each	Red / Green / Blue / White; 0-100% per component
56-59	LED 4	000-255 each	Red / Green / Blue / White; 0-100% per component
60-63	LED 5	000-255 each	Red / Green / Blue / White; 0-100% per component
64-67	LED 6	000-255 each	Red / Green / Blue / White; 0-100% per component
68-71	LED 7	000-255 each	Red / Green / Blue / White; 0-100% per component
72-75	LED 8	000-255 each	Red / Green / Blue / White; 0-100% per component
76-79	LED 9	000-255 each	Red / Green / Blue / White; 0-100% per component
80-83	LED 10	000-255 each	Red / Green / Blue / White; 0-100% per component
84-87	LED 11	000-255 each	Red / Green / Blue / White; 0-100% per component
88-91	LED 12	000-255 each	Red / Green / Blue / White; 0-100% per component
92-95	LED 13	000-255 each	Red / Green / Blue / White; 0-100% per component
96-99	LED 14	000-255 each	Red / Green / Blue / White; 0-100% per component
100-103	LED 15	000-255 each	Red / Green / Blue / White; 0-100% per component
104-107	LED 16	000-255 each	Red / Green / Blue / White; 0-100% per component
108-111	LED 17	000-255 each	Red / Green / Blue / White; 0-100% per component
112-115	LED 18	000-255 each	Red / Green / Blue / White; 0-100% per component
116-119	LED 19	000-255 each	Red / Green / Blue / White; 0-100% per component

6 Photometric Data

The source lists the following illuminance values for a 7° beam. Actual output varies with production tolerance, optical condition, mains voltage and measurement method.

Color	3 m	5 m	6 m	8 m	10 m
Red	20,000 lux	7,650 lux	5,160 lux	2,860 lux	1,840 lux
Green	40,000 lux	15,400 lux	10,300 lux	5,780 lux	3,720 lux
Blue	72,000 lux	29,200 lux	119,400 lux	10,860 lux	1,060 lux
White	64,600 lux	25,600 lux	17,100 lux	9,550 lux	6,150 lux
RGBW	129,000 lux	68,000 lux	47,400 lux	26,500 lux	17,000 lux

SOURCE DATA The blue row is non-monotonic: the source lists 119,400 lux at 6 m and 1,060 lux at 10 m. These values are reproduced without correction; verify them before publication or photometric planning.

7 Routine Maintenance

ATTENTION Disconnect AC power and allow the fixture to cool completely before inspection or cleaning.

- Inspect screws, brackets, clamps, safety attachments and the support structure for tightness, corrosion or deformation.
- Inspect the housing, lenses, mounting points, power cable and data connectors for damage or heat stress.
- Inspect pan, tilt, zoom and lens rotation for wear, obstruction, imbalance, resistance or abnormal noise.
- Clean optical surfaces with a soft, lint-free cloth. Do not use alcohol, solvents or abrasive materials on optics or plastic parts.
- Remove dust from fans and ventilation openings regularly. Cleaning frequency depends on the operating environment.
- Have internal electrical, thermal and mechanical systems inspected periodically by qualified service personnel.

8 Troubleshooting and Service

Symptom	Check
No light output	Verify AC supply, power connection, circuit protection, master dimmer, strobe/blackout values, active mode and controller output.
No DMX response	Confirm the start address, selected personality, controller patch, cable polarity, connectors and the controller's DMX output.
Unstable DMX	Use shielded twisted-pair cable, separate data from power wiring, inspect connectors and terminate the final fixture with 120 ohms.
Abnormal pan or tilt	Remove obstructions, check reverse/angle settings, run a reset and refer persistent encoder or drive faults to qualified service.
Zoom or lens does not move	Check the active channel values, remove obstructions, reset the fixture and refer persistent motor faults to service.
Reduced or unstable output	Check ventilation, fans, optical cleanliness, mains quality, temperature messages and dimmer settings.
Thermistor Open / Short / Hot	Disconnect power. Allow the fixture to cool and have the temperature sensor, wiring and cooling system inspected.

SERVICE There are no user-serviceable high-voltage parts inside. Refer internal repair, LED-module replacement, motor service and calibration to the manufacturer, its service agent or similarly qualified personnel.

8.1 Warranty and Support

Damage caused by misuse, ignored warnings, unauthorized repair, incorrect installation or operation outside the specified conditions may be excluded from warranty coverage. Include the model, serial number, firmware, active personality and a clear fault description when requesting support.

End of manual