AL1960WR

19 x 60 W LED Super Bee Eye Moving Head

RGBW 4-IN-1 - MOTORIZED ZOOM - CONTINUOUS HONEYCOMB-LENS ROTATION

High-output beam, wash, pixel-graphics and shape effects in one professional moving-head fixture

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

English Edition | Professionally translated and technically standardized

Contents

MODEL IDENTIFICATION This edition is organized for model AL1960WR. Before installation, confirm the model, mains rating, connector configuration, firmware and protection marking shown on the actual fixture.

SOURCE RECONCILIATION The supplied source contains conflicting voltage, zoom-angle and dimension statements. This edition preserves each documented value, flags the conflicts and treats the product label and production firmware as the final authority.

Quick Reference

Item	Source value
Input	AC 90-240 V or AC 100-240 V, 50/60 Hz; verify product label
Rated power	1,350 W
Light source	19 x 60 W RGBW 4-in-1 LEDs
DMX modes	21 / 35 / 78 / 92 / 97 channels
Movement	Pan 540° / Tilt 250°; 16-bit fine control
Protection	IP20 / protected indoor use

1 Safety Information

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

- This is a professional entertainment-lighting fixture. Installation, operation and service must be performed by trained, qualified personnel.
- Use indoors in a dry, protected location. The final specification states IP20; do not expose the fixture to rain, splashing water, condensation, icing or corrosive environments.
- Connect only to a protected, correctly grounded Class I supply within the rating printed on the product label. Never defeat the protective earth connection.
- After a major temperature change, leave the fixture disconnected until it reaches room temperature and all condensation or ice has disappeared.
- Do not operate the fixture with a damaged housing, lens, cable, connector, mounting point, bracket or secondary attachment.
- Do not look directly into the LEDs at close range. Intense light and strobe effects can cause eye discomfort and may affect photosensitive people.
- Keep combustible materials at least 0.5 m from the fixture and keep every air inlet and outlet unobstructed.
- Keep cables away from sharp edges, hot surfaces, moving parts and public traffic. Disconnect power by holding the plug or connector, never by pulling the cable.
- Do not modify the fixture or bypass protective devices. Internal repair, calibration and component replacement require qualified service personnel.

1.1 Suspended Installation

- The supporting structure and every load-bearing component must support at least ten times the fixture load, or the higher factor required by local regulations.
- Use the two supplied quick-lock brackets with correctly rated clamps and suitable M8 clamp fasteners.
- Lock every quick-lock fastener completely and attach an independently rated safety cable to the designated safety point, not to a carrying handle.
- Keep people clear of the area below the fixture during installation, focusing, inspection and removal.
- Allow unobstructed clearance for the full pan, tilt, zoom and front-lens rotation movement before applying power.

HOT SURFACES The housing and optical assembly can become hot during use. Allow adequate cooling time before handling.

2 Product Overview and Specifications

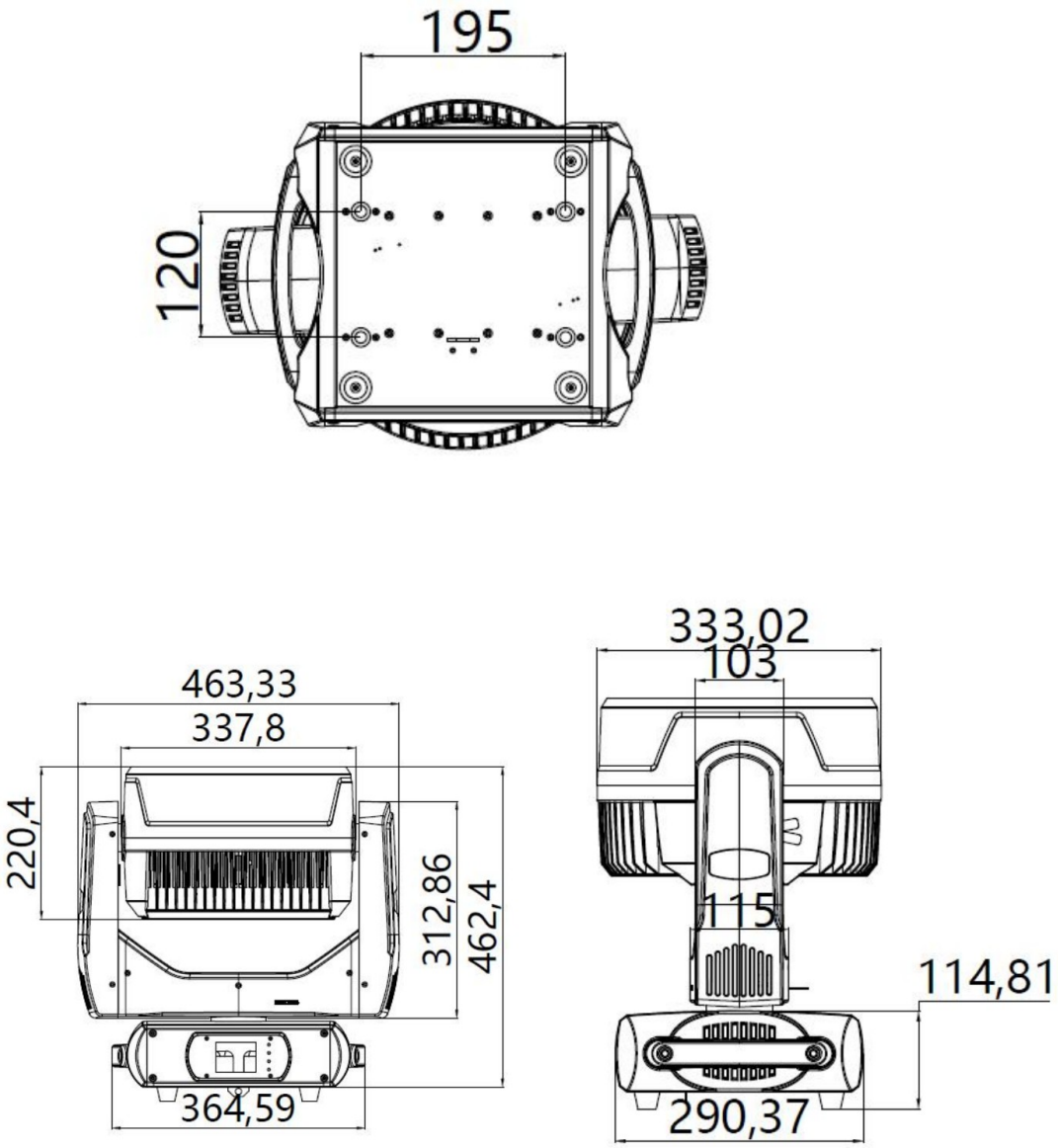
The AL1960WR combines nineteen individually controllable 60 W RGBW emitters with motorized zoom and a continuously rotating honeycomb lens. It produces high-output beams, broad washes, RGBW pixel graphics, shape animations and kaleidoscopic effects for concerts, theatres, studios, clubs, attractions and rental productions.

2.1 Technical Specifications

Parameter	Source specification
Input voltage	AC 90-240 V, 50/60 Hz on the specification page; AC 100-240 V in the safety section
Rated power	1,350 W
Light source	19 x 60 W high-output RGBW 4-in-1 LEDs; individual LED/pixel control
Zoom	Motorized 7°-45° on the specification page; photometric page labels 11° and 55° test angles
Front lens	Continuously rotating honeycomb lens for beam, wash and kaleidoscopic effects
Dimming	0-100% linear dimming; Linear, Inverse Square, Square and S-Curve menu options
Strobe	1-25 Hz with multiple strobe effects
Pan / tilt	540° pan / 250° tilt with 16-bit fine control and position memory
Control	DMX512 / Auto / Sound-active / RDM
DMX personalities	21 CH / 35 CH / 78 CH / 92 CH / 97 CH
Display	Chinese / English; normal or inverted orientation; 60-second timeout or always on
Cooling / protection	Fan cooling, automatic temperature detection and over-temperature shutdown
Ingress protection	IP20 / protected indoor use
Fixture dimensions	465 x 300 x 510 mm in the specification text; see drawing and discrepancy note
Carton	620 x 570 x 490 mm; 1 fixture per carton
Net / gross weight	21.4 kg / 25.5 kg
Two-unit flight case	780 x 520 x 790 mm; loaded gross weight 74.5 kg

VERIFY BEFORE PUBLICATION OR INSTALLATION Use the rating label on the production fixture for the permitted mains range. Confirm the actual zoom endpoints and overall dimensions before preparing photometric claims, road-case foam or installation drawings.

2.2 Product Dimensions



DIMENSION DISCREPANCY The drawing shows maxima of approximately 463.33 mm wide, 290.37 mm deep and 462.4 mm high in the illustrated head position, while the specification text states 465 x 300 x 510 mm. Preserve installation clearance for full movement and confirm the production chassis.

2.3 Package Contents

Item	Quantity
AL1960WR fixture	1
Power cable	1
DMX signal cable	1
Quick-lock mounting brackets	2
Safety cable	1
User manual	1

3 Setup, Rigging and Data Connections

3.1 Unpacking and Inspection

1. Unpack carefully and inspect the fixture, lenses, mounting points, cables and accessories for transport damage.
2. Confirm that the product-label voltage and frequency match the local mains supply.
3. Record the model, firmware version and connector configuration for the controller profile and service records.
4. Do not power a fixture that appears damaged or incomplete; retain the packaging and contact the supplier.

3.2 Rigging Procedure

1. Verify the load rating of the structure, clamps, fasteners, brackets and safety cable.
2. Attach rated clamps to the two quick-lock brackets using suitable M8 fasteners.
3. Insert and fully lock the brackets in the fixture base.
4. Attach the independently rated safety cable to the designated fixture point and the supporting structure.
5. Check movement clearances and 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. Avoid star wiring unless an approved DMX splitter is used.

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 line, connect a 120 ohm resistor between pins 2 and 3 of a male XLR plug and insert it into DMX OUT.

3.4 Addressing

Personality	Example consecutive start addresses
21 CH	001, 022, 043
35 CH	001, 036, 071
78 CH	001, 079, 157
92 CH	001, 093, 185
97 CH	001, 098, 195

4 Control Panel and Menu

Use the menu/navigation keys to highlight an item, adjust its value and confirm/save the selection. Menu order and English wording may vary slightly with firmware revision.

Menu group	Item	Option / range	Purpose
Address	DMX Address	001-512	Set the DMX start address.
Fixture Setup	Channel Mode	21 / 35 / 78 / 97 / 92 CH	Select the controller footprint.
Fixture Setup	Run Mode	DMX / Sound / Auto	Select controlled or standalone operation.
Fixture Setup	Pan Reverse	On / Off	Reverse pan direction.
Fixture Setup	Tilt Reverse	On / Off	Reverse tilt direction.
Fixture Setup	Fan Control	Silent / Low / Medium / High	Select the cooling-fan mode.
Fixture Setup	Dimmer Curve	Linear / Inverse Square / Square / S-Curve	Select the dimming response.
Fixture Setup	Fast Blackout	On / Off	Select rapid output cutoff behavior.
Fixture Setup	No DMX State	Blackout / Hold	Choose the response to signal loss.
Manual Control	Channel Values	000-255 per channel	Test fixture functions manually.
Display	Language	Chinese / English	Select the display language.
Display	Orientation	Normal / Reverse	Rotate the display for the installation.
Display	Display Mode	60 s / Always On	Set the display timeout.
Reset	Reset All	Execute / Cancel	Reinitialize the fixture.
Reset	Factory Default	Execute / Cancel	Restore factory settings.

LOSS OF SIGNAL Choose Blackout or Hold according to the production safety plan and test the selected behavior before the fixture is placed in service.

4.1 Information, Sensors and Calibration

Menu	Item	Range / status	Purpose / note
Fixture Information	Power-On Time / Total Time / Power-On Count	Status values	Review operating history.
Sensor Check	Pan / Tilt / Zoom / Rotation Sensor	Status values	Review motion-sensor states.
Software Version	Display / Motor / Dimmer / Network Version	Version values	Record before profile or service work.
Factory Setup	Password	000-255	Access source-listed service settings.
Calibration	Pan / Tilt / Zoom / Zoom Rotation	000-255	Adjust motor home-position offsets.
Calibration	Red and further output channels	000-255	Adjust source-listed output calibration values.

CALIBRATION WARNING Record every original value before adjustment. Incorrect offsets or output values can cause abnormal movement, reduced output or uneven color. Calibration should be performed only by qualified service personnel.

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

CH	Function	DMX Value	Description
1	Red	000-255	Red intensity
2	Red Fine	000-255	16-bit red fine
3	Green	000-255	Green intensity
4	Green Fine	000-255	16-bit green fine
5	Blue	000-255	Blue intensity
6	Blue Fine	000-255	16-bit blue fine
7	White	000-255	White intensity
8	White Fine	000-255	16-bit white fine
9	Linear CTO	000-255	Color temperature, high to low
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 / strobe slow-fast / open / reverse strobe / open / random strobe / open
12	Master Dimmer	000-255	Overall intensity
13	Dimmer Fine	000-255	16-bit master-dimmer fine
14	Pan	000-255	Pan position
15	Pan Fine	000-255	16-bit pan fine
16	Tilt	000-255	Tilt position
17	Tilt Fine	000-255	16-bit tilt fine
18	Function	000-255	Reserved
19	Reset	000-127 / 128-255	Reserved / fixture reset
20	Zoom	000-255	Narrow to wide
21	Lens Rotation	000-127 / 128-190 / 191-192 / 193-255	0°-60° position / CCW fast-slow / stop / CW slow-fast

5.2 35-Channel Personality

Channels 1-21 are identical to the 21-channel personality. Channels 22-35 add the foreground/background shape engine.

CH	Function	DMX Value	Description
1	Red	000-255	Red intensity
2	Red Fine	000-255	16-bit red fine
3	Green	000-255	Green intensity
4	Green Fine	000-255	16-bit green fine
5	Blue	000-255	Blue intensity
6	Blue Fine	000-255	16-bit blue fine
7	White	000-255	White intensity
8	White Fine	000-255	16-bit white fine
9	Linear CTO	000-255	Color temperature, high to low
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 / strobe slow-fast / open / reverse strobe / open / random strobe / open
12	Master Dimmer	000-255	Overall intensity
13	Dimmer Fine	000-255	16-bit master-dimmer fine
14	Pan	000-255	Pan position
15	Pan Fine	000-255	16-bit pan fine
16	Tilt	000-255	Tilt position
17	Tilt Fine	000-255	16-bit tilt fine
18	Function	000-255	Reserved
19	Reset	000-127 / 128-255	Reserved / fixture reset
20	Zoom	000-255	Narrow to wide
21	Lens Rotation	000-127 / 128-190 / 191-192 / 193-255	0°-60° position / CCW fast-slow / stop / CW slow-fast
22	Shape Selection	000-255	Select a built-in foreground shape; map in Section 6
23	Shape Speed	000-063 / 064-158 / 159-160 / 161-255	Static / fast-slow / stop / slow-fast
24	Shape Fade	000-015 / 016-255	No fade / fade enabled with curve selection
25	Shape Red	000-255	Foreground red intensity
26	Shape Green	000-255	Foreground green intensity
27	Shape Blue	000-255	Foreground blue intensity
28	Shape White	000-255	Foreground white intensity
29	Shape Dimmer	000-255	Foreground master intensity
30	Background Dimmer	000-255	Background master intensity
31	Shape Transition	000-004 / 005-255	No transition delay / 100 ms to 4 s
32	Shape Offset	000-255	Shape angle or density
33	Foreground Strobe	000-003 / 004-103 / 104-107 / 108-207 / 208-212 / 203-251 / 252-255	Blackout / pulse slow-fast / open / even strobe slow-fast / open / random slow-fast / open
34	Background Strobe	000-003 / 004-103 / 104-107 / 108-207 / 208-212 / 203-251 / 252-255	Blackout / pulse slow-fast / open / even strobe slow-fast / open / random slow-fast / open
35	Background Selection	000-008 / 009-023 / 024-255	No function / select background pattern / no selection

PRINTED OVERLAP IN CH 33 AND CH 34 The source prints the random-strobe band as 203-251, which overlaps the 208-212 open band. The value is retained here rather than silently changed; verify the firmware behavior before programming.

5.3 Pixel Personalities

Mode	Base channels	Pixel channels	Pixel components
78 CH	1-21 = 21 CH	22-78	19 pixels x RGB
92 CH	1-35 = 35 CH	36-92	19 pixels x RGB
97 CH	1-21 = 21 CH	22-97	19 pixels x RGBW

PIXEL ORDER Confirm physical LED numbering with a low-level test scene before creating position-dependent graphics.

5.3.1 78-Channel Pixel Map

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

5.3.2 92-Channel Pixel Map

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

92 CH STRUCTURE This footprint contains 35 base/shape channels plus 57 RGB pixel channels: 19 pixels x RGB.

5.3.3 97-Channel Pixel Map

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

6 Shape Engine

The 35 CH and 92 CH personalities divide the 19-pixel face into a selected foreground shape and the remaining background. The center LED is Ring 1, the next six LEDs form Ring 2, and the outer twelve LEDs form Ring 3.

Layer / task	Channels	Programming guidance
Overall output	CH 11 Strobe; CH 12 Master Dimmer	Open the common output before evaluating either layer.
Foreground shape	CH 22	Select the built-in foreground pattern.
Foreground motion	CH 23 / 24 / 31 / 32	Set speed, fade, transition and angle/density.
Foreground color / level	CH 25-29; CH 33	Set RGBW, foreground dimmer and foreground strobe.
Background color	CH 1 / 3 / 5 / 7	Use the common RGBW coarse channels for background color.
Background level / group	CH 30 / 34 / 35	Set background dimmer, strobe and selected ring group.
Lens effect	CH 21	Add continuous honeycomb-lens rotation as required.

6.1 Basic Programming Sequence

1. Select the 35 CH or 92 CH personality, open CH 11 Strobe and raise CH 12 Master Dimmer.
2. Raise CH 29 Shape Dimmer, open CH 33 Foreground Strobe and set CH 25-28 foreground RGBW.
3. Select a shape with CH 22 and adjust CH 23, 24, 31 and 32.
4. For a background layer, set CH 1, 3, 5 and 7, then raise CH 30 and open CH 34; select a group with CH 35.
5. Add CH 21 lens rotation and verify the complete cue on the production firmware.

SOURCE COUNT DISCREPANCY The prose says 54 foreground shapes are available, while the printed table continues through Shape 64 and leaves the description for DMX value 66 blank. The table below follows the printed value map.

6.2 Foreground Shape Value Map

DMX Value	Shape	Description	Source note
000-007	0	Off	
008	1	Inner ring	
009	2	Middle ring	
010	3	Outer ring	
011	4	Reserved / no function	K20 reserved
012	5	Inner + middle rings	
013	6	Inner + outer rings	
014	7	Reserved / no function	K20 reserved
015	8	Inner-middle-outer single-ring sequence	Random color when Shape RGBW = 0
016	9	Inner + middle + outer full-ring sequence	Random color when Shape RGBW = 0
017	10	Single-ring sequence with on/off steps	Random color when Shape RGBW = 0
018	11	Full-ring sequence with on/off steps	Random color when Shape RGBW = 0
019	12	Random single pixel	Random color when Shape RGBW = 0
020	13	Random two pixels	Random color when Shape RGBW = 0
021	14	Rainbow 1	Dynamic speed adjustable
022	15	Rainbow 2	Fixed motion speed; color-change speed adjustable
023	16	Fan	
024	17	Bar 1	
025	18	Half moon	
026	19	Large triangle chase	
027	20	Split 1	
028	21	Arc 1	
029	22	Arc 2	
030	23	Bar 2	Size variation
031	24	Random burst	Random color when Shape RGBW = 0
032	25	Split 2	
033	26	Reserved / no function	K20 reserved
034	27	Reserved / no function	K20 reserved
035	28	Small triangle switch	
036	29	Diagonal, 6 pixels	
037	30	Diagonal, 4 pixels	
038	31	Bar left/right switch	
039	32	Bar up/down switch	
040	33	Bar 3	Spiral switch
041	34	Reserved / no function	K20 reserved
042	35	Arc left/right switch	
043	36	Reserved / no function	K20 reserved
044	37	Arc up/down switch	
045	38	Mirror	
046	39	Pixel animation 1	
047	40	Pixel animation 2	

DMX Value	Shape	Description	Source note
048	41	Pixel animation 3	
049	42	Pixel animation 4	
050	43	Pixel animation 5	
051	44	Half arc	
052	45	Concave/convex arc	
053	46	Pixel animation 6	
054	47	Vertical two-pixel switch	
055	48	Two-pixel segmented jump	
056	49	Outer-ring pair + middle-ring single-pixel split	
057	50	Concave/convex 1	
058	51	Concave/convex 2	
059	52	Concave/convex 3	
060	53	Vertical single-pixel jump	
061	54	Vertical random jump	
062	55	Horizontal random jump	Random color when Shape RGBW = 0
063	56	Outer-ring random jump	Random color when Shape RGBW = 0
064	57	Reserved / no function	K20 reserved
065	58	Outer + middle rings random	
066	59	Undocumented in source	Description cell is blank
067	60	Middle-ring single-pixel switch	
068	61	Outer-ring single-pixel switch	
069	62	Reserved / no function	K20 reserved
070	63	Outer-middle-inner single-pixel spiral	
071-255	64	Reserved	

7 Photometric Data

Source illuminance values for the page labeled 11° beam angle:

Color	3 m	4 m	5 m	6 m	8 m	10 m
Red	22,000 lx	21,500 lx	14,620 lx	10,000 lx	5,900 lx	3,400 lx
Green	43,000 lx	39,500 lx	27,200 lx	18,700 lx	10,900 lx	6,730 lx
Blue	77,000 lx	62,800 lx	45,100 lx	31,300 lx	18,200 lx	11,350 lx
White	72,000 lx	60,500 lx	43,000 lx	29,500 lx	17,200 lx	10,600 lx
RGBW	132,100 lx	124,600 lx	99,200 lx	77,600 lx	49,000 lx	30,600 lx

Source illuminance values for the page labeled 55° beam angle:

Color	3 m	4 m	5 m
Red	1,190 lx	680 lx	460 lx
Green	2,170 lx	1,250 lx	830 lx
Blue	3,940 lx	2,270 lx	1,500 lx
White	3,610 lx	2,080 lx	1,370 lx
RGBW	10,400 lx	6,000 lx	3,960 lx

MEASUREMENT NOTE The photometric page labels the tests as 11° and 55°, while the specification page states a 7°-45° zoom. Values are reproduced from the source and may vary with LED binning, calibration, mains conditions, optical cleanliness and measurement method.

8 Inspection, Maintenance and Cleaning

DISCONNECT POWER Isolate the fixture from AC power, prevent reconnection and allow all parts to cool before inspection or cleaning.

8.1 Condition-Based Inspection

- Check all installation screws, clamps, brackets, mounting points and the safety cable for looseness, wear, deformation or corrosion.
- Inspect the housing, lens, connectors and supporting structure for damage or deformation.
- Check that pan, tilt, zoom and honeycomb-lens rotation move smoothly without imbalance, impact, grinding noise or obstruction.
- Inspect the power cable for cuts, abrasion, overheating or damaged insulation.
- Verify that all 19 LEDs produce consistent RGBW output at matched test values and review any stored sensor or temperature fault.

8.2 Cleaning Schedule

1. Clean the external optical surface approximately weekly, or more often in dusty, smoky or touring environments.
2. Clean the rear fan and air inlets approximately monthly and remove any blockage from the dust-cover intake.
3. Have a qualified electrical technician inspect internal connections approximately every three months, adjusted for operating conditions.
4. Use a soft, lint-free cloth lightly dampened with water or a mild suitable cleaner. Do not use abrasive material, alcohol, aggressive solvent or excessive liquid.
5. Allow the fixture to dry completely and inspect every connector and attachment before reconnecting power.

8.3 Service

There are no user-serviceable internal parts documented in the source. Internal cleaning, fan or power-supply service, motor work, firmware service and calibration must be performed by qualified personnel. Obtain replacement parts from the supplier or authorized dealer.

9 Troubleshooting and Service

Symptom	Checks / corrective action
No power or display	Verify the protected branch supply, product-label rating, power connector seating and cable condition. Disconnect immediately if a cable or connector is damaged.
No DMX response	Confirm DMX mode, start address and personality; inspect polarity and cable continuity; test directly from the controller; terminate the final fixture when required.
Incorrect channels	Confirm that the controller profile matches 21, 35, 78, 92 or 97 CH. Do not use an unverified profile from another fixture family.
Output is dark	Raise Master Dimmer, open Strobe and set RGBW levels; review the selected No DMX state and any manual-control values.
Uneven pixel color	Send equal RGBW test values; inspect the lens and review output calibration. Record values before adjustment.
Pan / tilt fault	Remove mechanical obstructions, verify invert settings, execute Reset All and review the pan/tilt sensor information.
Zoom or lens does not move	Remove obstructions, reset the fixture, review zoom/rotation sensor status and refer persistent mechanical faults to qualified service.
Unexpected shape behavior	Verify 35 or 92 CH mode, foreground/background dimmers, source strobe overlap and firmware-specific shape mapping.
Fixture overheats or shuts down	Disconnect power, allow cooling, clean the fan and external airflow paths, select a suitable fan mode and refer persistent faults to qualified service.

9.1 Information to Record Before Service

- Model and serial number from the actual product label.
- Mains voltage, firmware versions, operating hours and selected personality.
- Exact sensor/error indication and the steps required to reproduce the fault.
- Controller model/profile, start address, cabling layout and a copy of the affected cue values.

PRODUCTION VERIFICATION Before publication or sale, confirm the final product-label mains range, zoom endpoints, dimensions, connector configuration, RDM behavior and firmware-specific response for the overlapping strobe values and undocumented Shape 59.