

Borealis R

LED Moving Wash/Beam



User Manual

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1. Introduction and Setup

Unpacking and In the Box

Thank you for having chosen this professional moving head. You will see you have acquired a powerful and versatile moving light. First, Unpack the device.

Inside the box you should find:

- a. Moving Head 1 unit
- b. DMX Signal Cable 1 pc
- c. Power Cable 1 pc
- d. User Manual 1 unit
- e. Omega Clamps 2 units

(Flight case, Safety cable and Clamps are optional, please contact your dealer)

Please check carefully that there is no damage from shipping. Should there be any problems, please consult your dealer and don't use the light until you've verified it's good to go!

Mounting and Operation

Before installation, please read the user manual carefully, then prepare Omega Brackets (2 pcs), Clamps (2 pcs), and Safety Cable (1 pc).

Clamp Mounting: The Borealis R provides a unique mounting bracket assembly that integrates the bottom of the base, and the safety cable rigging point in one unit.

When mounting this fixture to truss be sure to secure an appropriately rated clamp to the included omega bracket using a M10 screw fitted through the center hole of the omega bracket.

As an added safety measure be sure to attached at least one properly rated safety cable to the fixture using on of the safety cable rigging point integrated in the base assembly.

Features

- ◆ Extremely small, fast and powerful LED moving head.
- ◆ DMX Channels: 14 and 25 channel modes
- ◆ Operation modes: DMX 512, Master/Slave
- ◆ Perfect for stage, theatre, church, studio, and more!

- ◆ If using a 230V 50Hz power supply, DO NOT connect in series more than 9 units; use another main supply for the next 9 fixtures.
- ◆ If using a 120V 60Hz power supply, DO NOT connect in series more than 4 units;
- ◆ Use another main supply for the next 5 fixtures.
- ◆ Input Voltage:AC 100V~240V, 50/60Hz
- ◆ Power consumption: 300W
- ◆ Drive current: 850mA
- ◆ LED Lighting source: 19 X 15W RGBW LEDs
- ◆ LED backlight source: 30PCS RGB Tri LEDs
- ◆ Dimension: 222 X 370 X 314mm
- ◆ Weight: 9kg
- ◆ Beam Angle:10°~60° Motorized Zoom

Safety Precautions

Thank you for your patronage. We are confident that our excellent products and service can satisfy you. For your own safety, please read this user manual carefully before installing the device.



CAUTION!

Keep this device away from rain and moisture!

In order to install, operate, and maintain the lighting safely correctly. We suggest that the installation and operation should be done by the verified technician and follow the instruction strictly.



CAUTION!

Unplug mains lead before opening the housing.

Any person involved with the installation, operation and maintenance of this device has to:

- be qualified
- follow carefully the instructions of this manual

Customer Support

WARRANTY POLICY

GAMMA LED Vision warrants its products for the periods set below from the date of purchase to be free of manufacturer and workmanship defects. Warranty does not cover normal wear and tear caused by force, negligence or misuse of products. GAMMA LED Vision is not responsible for any damages or injury caused by misuse or improper handling of the products and in accordance with instructions and specifications of manual.

Warranty terms are as follows:

LED Fixtures:

Indoor: 2 Years

Outdoor (IP 54 or higher): 1 Year

Lamp Fixtures: 1 year / excludes the lamp

LED Video Products:

Indoor: 2 Years

Outdoor (IP 54 or higher): 1 Year

Controllers: 2 years

Batteries: 6 months

All Trussing Related Products and Accessories: 1 Year

Please visit WWW.GAMMALEDVISION.COM for complete Limited Warranty terms and contact information.

2. Setup and Operation

Using the LCD Menu and Buttons

Main Menu	Sub-Menu	Description
Control Mode	DMX Address	Use the keys to choose the address value
	Auto Mode	Standalone mode.
	DMX 14CH Mode	This mode is simpler and lacks the backlight effect.
	DMX 25CH Mode	This mode contains the full backlight functionality.
	ESC	
Setting	Pan Reverse	Yes/No/Esc
	Tilt Reverse	Yes/No/Esc
	LCD Reverse	On/Off/Esc
	Color Dimmer	On/Off/Esc
	Chinese	There is a Chinese language option
	Backlight	Only the 25ch mode has this option.
Information	Display System	This is the date we manufactured the LCD board
	Master System	This is the date we manufactured the main board
	ESC	
Manual Control	Strobe	Use the Up/Down keys to change the speed of strobe
	Dimmer	Use the Up/Down keys to adjust the fixture brightness from dark to full bright (0~100%)
	Zoom	Use the Up/Down keys to adjust the optical lens angle.
	Pan Axis	Use the Up/Down keys to adjust the fixture's Pan
	Pan Fine	Pan fine
	Tilt Axis	Use the Up/Down keys to adjust the fixture's Tilt
	Tilt Fine	Tilt fine
	Reset	
	Function	Function for the back light LED board
	Red	Use the Up/Down keys to add/ reduce the brightness of red when using the AWB function
	Green	Use the Up/Down keys to add/ reduce the brightness of green when using the AWB function.
	Blue	Use the Up/Down keys to add/ reduce the brightness of blue when using the AWB function.
	Color Mixing	Use the Up/Down keys to choose the mixing color, from color presets.
	LED off	LED dimming OFF

	LED off to on	LED Dimming is from 0~100%
	LED on	LED dimming full on
	LED on to off	LED dimming full on to dark (Macro)
	Pan/Tilt Speed	Use the Up/Down keys to change the speed of Pan/Tilt
Reset	All Reset	Reset all parameters of the light
	Pan Reset	Reset Pan
	Tilt Reset	Reset Tilt
	Zoom Reset	Reset Zoom
	Default	Set the default settings
	ESC	
ESC		

DMX Setup

Address Setting

If you use a DMX controller to control the units, you have to set DMX address from 1 to 512 so that the units can receive DMX signal.

- Rotate MENU knob or press MENU to enter menu mode, select DMX Functions
- Press knob to confirm
- Press knob to select DMX Address
- Press knob to confirm, the current address will blink on the display
- Use the Up/Down keys to adjust the address from 0 to 512
- Press the knob to store.

DMX Basics

DMX512 stands for digital multiplex 512. This means that 512 channels are controlled digitally through 1 data cable.

A channel is a set of 255 steps that are assigned to control attributes in each light. This may be a color like red, green or blue, and intensity, strobe, pan/tilt or other attributes.

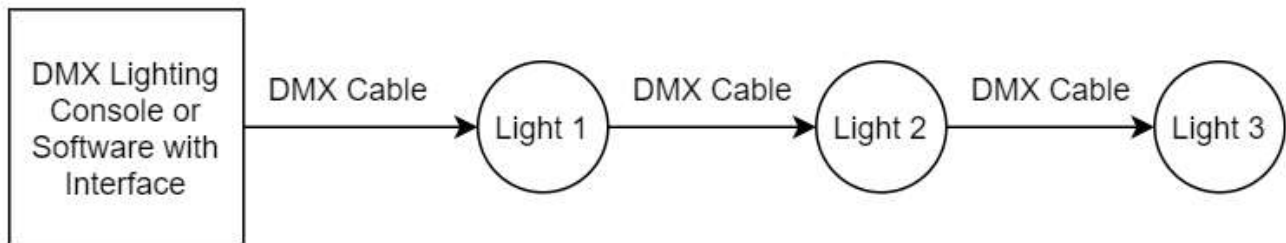
Multiple sets of 512 "universes" may be used. Only 1 universe will travel on a DMX cable, but through networked DMX (Art-Net or sACN E1.31), many universes can travel over a network.

DMX Wiring

DMX works by connecting 1 or multiple lights to the output of a DMX lighting console or software with a DMX interface.

DMX lights connect in what is called a "daisy-chain". Your first DMX cable will plug its male DMX connector into the female DMX connector on your lighting console. The remaining female connector will then connect to the DMX input on your first light.

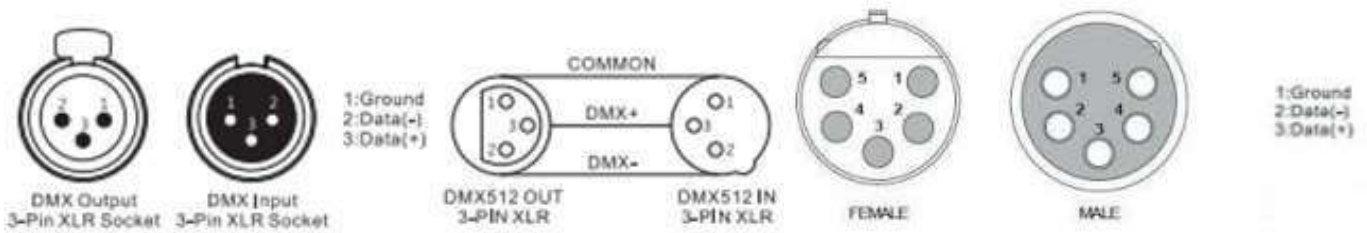
You may then connect your next fixture to the output of your first light, and continue the chain.



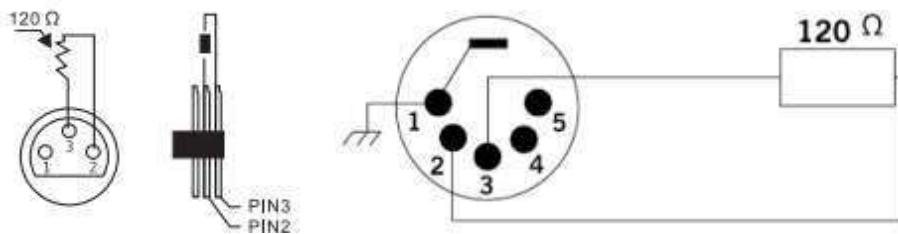
32 Fixture Rule – DMX only allows you to connect up to 32 fixtures in a single daisy chain for signal strength. Sometimes, depending on the fixtures and cable length, this number is less (or more).

DMX Cables can be 3-pin or 5-pin. These use the same type of data, and in the 5-pin only pins 1, 2, and 3 are used. The cable should be a 2 conductor, shielded cable of at least 110 ohms resistance. Microphone cable is not DMX cable.

Please refer to the diagram below:



For installations where the DMX cable has to run a long distance or is in an electrically noisy environment, it is recommended to use a DMX terminator. This helps in preventing corruption of the digital control signal by electrical noise and reflections. The DMX terminator is simply an XLR plug with a $120\ \Omega$ resistor connected between pins 2 and 3, which is then plugged into the output XLR socket of the last fixture in the chain. Please see illustrations below:



DMX Modes and Configuration

The Borealis R has multiple DMX modes, sometimes called "personalities", "profiles", or as we will use here "modes".

In general, modes with more DMX channels offer a greater level of control or options but take up more of your output channels on your lighting console or software. In the case of the Borealis R, the 25 Channel mode offers control of the backlight effect, whereas the 14 Channel does not. This is the biggest difference between the 2.

Modes with less DMX channels often offer less control, but may be plenty for your needs. *Depending on your needs and control solution, you may not need channels for automated programs, strobes, or macros – your console may have great effects! In this case, you can use a lesser channel mode and fit more lights per DMX universe.*

View the DMX mode charts below to find the mode that best suits your needs.

14CH	25CH	Function	Value	Detailed information
1	1	Strobe	0-19	Strobe Closed
			20-24	Dimming
			25-64	Strobe 1 : Strobe (Fast→Slow)
			65-69	Open the light
			70-84	Strobe 2 : Opening pulse (Fast→Slow)
			85-89	Open the light
			90-104	Strobe 3 : closing pulse (Fast→Slow)
			105-109	Open
			110-124	Strobe 4 : Radom Strobe (Fast→Slow)
			125-129	Open
			130-144	Strobe5Random Opening Pulse (Fast→Slow)
			145-149	Open
			150-164	Strobe 6 : Random Closing Pulse (Fast→Slow)
			165-169	Open
			170-184	Strobe 7 : Burst Pulse (Fast→Slow)
			185-189	Open
190-204	Strobe 8 : Random burst			

				pulse (Fast→Slow)
			205-209	Open
			210-224	Strobe 9 : Sine wave strobe (Fast→Slow)
			225-229	Open
			230-244	Strobe 10 : Strobe (Fast→Slow)
			245-255	Open
2	2	Dimming	0-255	Master Dimming Control
3	3	Zoom	0-255	Zoom function
4	4	Pan	0-255	Pan (0°-540°)
5	5	Pan Fine	0-255	Pan Fine
6	6	Tilt	0-255	Tilt (0°-270°)
7	7	Tilt Fine	0-255	Tilt Fine
8	8	Reset	0-49	No Function
			50-70	Pan Reset
			71-90	Tilt Reset
			91-110	Zoom Reset
			111-199	No Function
			200-255	System Reset
9	9	Static Color Macro	0-9	Open
			10-14	Color 1
			15-19	Color 2
			20-24	Color 3
			25-29	Color 4
			30-34	Color 5
			35-39	Color 6
			40-44	Color 7
			45-49	Color 8
			50-54	Color 9
			55-59	Color 10
			60-64	Color 11
			65-69	Color 12
			70-74	Color 13

			75-79	Color 14
			80-84	Color 15
			85-89	Color 16
			90-94	Color 17
			94-99	Color 18
			100-104	Color 19
			105-109	Color 20
			110-114	Color 21
			115-119	Color 22
			120-124	Color 23
			125-129	Color 24
			130-134	Color 25
			135-139	Color 26
			140-144	Color 27
			145-149	Color 28
			150-154	Color 29
			155-159	Color 30
			160-164	Color 31
			165-169	Color 32
			170-174	Color 33
			175-179	Open light
			180-229	Color Rainbow Macro (Fast-->Slow)
			230-255	No Function
10	10	Red	0-255	Red dimming (Entire beam of fixture)
11	11	Green	0-255	Green dimming (Entire beam of fixture)
12	12	Blue	0-255	Blue dimming (Entire beam of fixture)
13	13	White	000-255	White dimming (Entire beam of fixture)
14	14	CTO	0-19	Open
			20-255	Color Temperature Variable 10,000k-2000k. Changes the beam to calibrated white, no colors available.
	15	Macros Set 1	0-9	No Function
			10-12	Dimming-Sync –Strobe Out of Sync

		Selection	13-15	Strobe- Sync
			16-18	Dimming+Strobe- Sync
			19-21	Ring-Colors-Sync
			22-24	Ring-Total-Sync
			25-99	No Function
			100-102	RING Colors 1-Offset dynamic effect
			103-105	RING Colors 2-Offset dynamic effect
			106-108	RING Colors 3-Offset dynamic effect
			109-111	RING Colors 4-Offset dynamic effect
			112-114	RING Colors 5-Offset dynamic effect
			115-117	RING Colors 6-Offset dynamic effect
			118-120	RING Colors 7-Offset dynamic effect
			121-123	RING Colors 8-Offset dynamic effect
			124-126	RING Colors 9-Offset dynamic effect
			127-129	RING Colors 10-Offset dynamic effect
			130-132	RING Colors 11-Offset dynamic effect
			133-135	RING Colors 12-Offset dynamic effect
			136-138	RING Colors 13-Offset dynamic effect
			139-141	RING Colors 14-Offset dynamic effect
			142-159	Reserved
			160-162	Color-zoom-gradient-input
			163-165	Color-zoom-gradient-zoom out
			166-168	Color-zoom-fade in-zoom in
		169-255	Reserved	
	16	Macros Set 1 Speed	0-255	Speed of Macros Set 1, Slow to Fast
	17	Macros Set 2 Selection	0-9	Empty
			10-12	Dimmer-sync-strobe out of sync
			13-15	Strobe-Sync
			16-18	Dimmer + strobe-sync
			19-21	Halo-Color-Sync
			22-24	Halo-Color-Sync
			25-99	Reserved
			100-102	Ring control color 1-offset dynamic effect
			103-105	Ring control color 2-offset dynamic effect

			106-108	Ring control color 3-offset dynamic effect
			109-111	Ring control color 4-offset dynamic effect
			112-114	Ring control color 5-offset dynamic effect
			115-117	Ring control color 6-offset dynamic effect
			118-120	Ring control color 7-offset dynamic effect
			121-123	Ring control color 8-offset dynamic effect
			124-126	Ring control color 9-offset dynamic effect
			127-129	Ring control color 10-offset dynamic effect
			130-132	Ring control color 11-offset dynamic effect
			133-135	Ring control color 12-offset dynamic effect
			136-138	Ring control color 13-offset dynamic effect
			139-141	Ring control color 14-offset dynamic effect
			142-159	Reserved
			160-162	Color-zoom-gradient-input
			163-165	Color-zoom-gradient-zoom out
			166-168	Color-zoom-fade in-zoom in
			169-255	Reserved
	18	Macros Set 2 Speed	0-255	Speed of Macros Set 2, Slow to Fast
	19	Macros Set Selection	0-169	Macros Set 1 Active
			170-255	Macros Set 2 Active
	20	Backlight Strobe	0-19	Close Strobe
			20-24	Open Light
			25-64	Strobe Closed
			65-69	Dimming

			70-84	Strobe 1 : Strobe (Fast→Slow)
			85-89	Open the light
			90-104	Strobe 2 : Opening pulse (Fast→Slow)
			105-109	Open the light
			110-124	Strobe 3 : closing pulse (Fast→Slow)
			125-129	Open the light
			130-144	Strobe 4 : Radom Strobe (Fast→Slow)
			145-149	Open the light
			150-164	Strobe5Random Opening Pulse (Fast→Slow)
			165-169	Open the light
			170-184	Strobe 6 : Random Closing Pulse (Fast→Slow)
			185-189	Open the light
			190-204	Strobe 7 : Burst Pulse (Fast→Slow)
			205-209	Open the light
			210-224	Strobe 8 : Random burst pulse (Fast→Slow)
			225-229	Open the light
			230-244	Strobe 9 : Sine wave strobe (Fast→Slow)
			245-255	Open the light
	21	Backlight LED dimming	0-255	Backlight dimming, 0-100%
	22	Backlight LED function	0-9	Open Dimming
			10-14	Color 1
			15-19	Color 2
			20-24	Color 3
			25-29	Color 4
			30-34	Color 5
			35-39	Color 6
			40-44	Color 7
			45-49	Color 8
			50-54	Color 9
			55-59	Color 10
			60-64	Color 11

			65-69	Color 12
			70-74	Color 13
			75-79	Color 14
			80-84	Color 15
			85-89	Color 16
			90-94	Color 17
			95-99	Color 18
			100-104	Color 19
			105-109	Color 20
			110-114	Color 21
			115-119	Color 22
			120-124	Color 23
			125-129	Color 24
			130-134	Color 25
			135-139	Color 26
			140-144	Color 27
			145-149	Color 28
			150-154	Color 29
			155-159	Color 30
			160-164	Color 31
			165-169	Color 32
			170-174	Color 33
			175-179	Open
			180-229	Overall color flow display (Fast-->Slow)
			230-255	Open
	23	Backlight Red	0-255	Backlight Red dimming
	24	Backlight Green	0-255	Backlight Green dimming
	25	Backlight Blue	0-255	Backlight Blue dimming

3. Maintenance

Routine Maintenance

Fixture Cleaning

The cleaning of internal and external optical lenses and/or mirrors must be carried out periodically to optimize light output. Cleaning frequency depends on the environment in which the fixture operates: damp, smoky or particularly dirty surroundings can cause greater accumulation of dirt on the unit's optics.

- ◆ Clean with soft, damp cloth.
- ◆ Always dry the parts carefully.
- ◆ Clean the external optics at least every 20 days.

Use an air compressor (oil-free) or electronics vacuum to clean the fan inlets and outlets when you notice they are dusty or dirty. Like any other electronics fan, always use an object to block the fan from spinning while you clean it, and blow air so that the dirt blows out of the fixture!

Troubleshooting Problems

The following are a few common problems that may occur during operation. Here are some suggestions for easy troubleshooting:

A. The unit does not work and you do not hear any fans running when it's plugged in:

- Check that the unit is plugged in to a working power outlet.
- Press the menu button to confirm that the unit is powered on. If the screen does not light up, the unit has no power.

B. Not Responding to the DMX Controller

- Check DMX cables to verify that they are plugged in and functional.

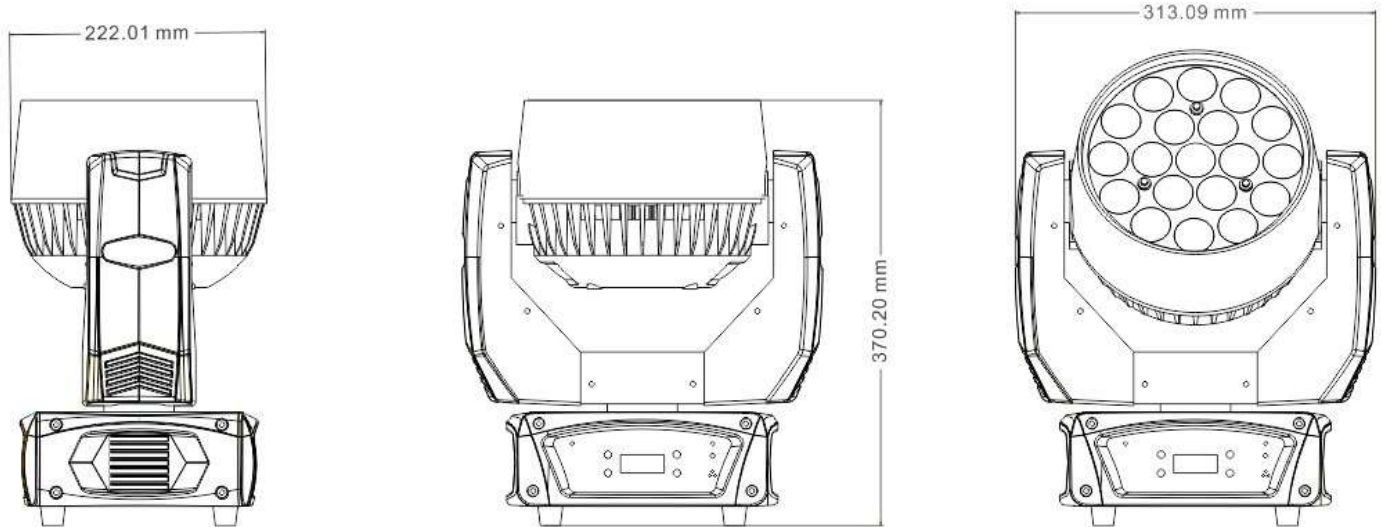
- Check the DMX address and mode – does it match the address and mode patched in the lighting console or software?
- Plug the light directly into the DMX controller with a cable that you know is good. Unplug all other lights – does it work?
- Try to use another DMX controller.

C. One of the functions is not working well

- The stepper motor might be damaged or the cable connected to the PCB is broken.
- The motor's drive IC on the PCB may be bad.

4. Technical Specifications

- ◆ Extremely small, fast and powerful LED moving head.
- ◆ DMX Channels: 14 and 25 channel modes
- ◆ Operation modes: DMX 512, Master/Slave
- ◆ Great built-in lighting shows under Master/Slave mode
- ◆ Blue LCD display for easy navigation
- ◆ Perfect for stage, theatre, church, studio, and more!
- ◆ If using a 230V 50Hz power supply, DO NOT connect in series more than 11 units; use another main supply for the next 11 fixtures.
- ◆ If using a 120V 60Hz power supply, DO NOT connect in series more than 5 units;
- ◆ Use another main supply for the next 5 fixtures.
- ◆ Input Voltage: AC 100V~240V, 50/60Hz
- ◆ Power consumption: 300W
- ◆ Drive current: 850mA
- ◆ LED Lighting source: 19 X 15W RGBW LEDs
- ◆ LED backlight source: 30PCS RGB Tri LEDs
- ◆ Dimension: 222 X 370 X 314mm
- ◆ Weight: 9kg
- ◆ Beam Angle:10°~60°



◆ **Housing Material:** The fixture adopts heat-resistant plastic and die-cast aluminum according to ISO international standards.

◆ **Control Mode**

Four control modes for your option, master-slave, sound activated, auto-run and DMX512.

Packaging Options:

a Flight case packing: (6 in 1)
1) LxWxH(CM): 105 x 70 x 65cm
Gross weight: 100kg

b Flight case packing: (4 in 1)
LxWxH(CM): 70 x 70 x 65cm
Gross weight: 65kg

c. Cardboard box: (2 in 1)
LxWxH(CM):36 x 25 x 46cm
Gross weight: 10.5kg

Photometric Reports

Testing report (Distance: 4 Meters, Spot Diameter: 1 Meter)			
Color	Wavelength	Driver Current	Lux
Red	627nm	850mA	1,283lux
Green	522nm	850mA	4,516lux
Blue	453nm	850mA	1,112lux
White	7117K	850mA	4,765lux
LED Full On (RGBW)		850mA	11,676lux