DEEPSEA® POWER & LIGHT

LED Matrix® - 3R SeaLite®

Operator's Manual

LED Matrix®-3 SeaLite®	
Record product serial number below as it appears on the nameplate.	
Serial #	
Connector Type	

Pin-outs
- Postive = Pin ____
- Negative = Pin ____
- Ground = Pin ____
- Dimming (if applicable) = Pin ____

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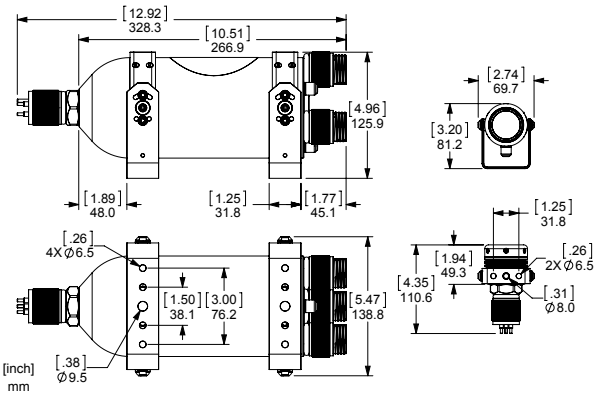
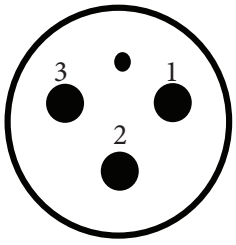
Specification Overview

Mechanical Specifications	
Body Material	Hard Anodized Aluminum (7075)
Window Material	Sapphire
Mounts	High Strength Stainless Steel Yoke (standard)
Weight of Ballast	Air: 3.49 kg [7.7 lbs] Water: 1.53 kg [3.38 lbs]
Weight of Light Head	Air: 0.35 kg [0.8 lbs] Water: 0.23 kg [0.5 lbs]
Implodible Volume of the Ballast	737.42 cm^3 [45 in^3]
Environmental Specifications	
Depth Rating	6,000 m [20,000 ft]
Test Pressure	10,000 psi
Operation Temp.	10º C to 40º C [14º F to 104º F]
Optical Specifications	
Color	Standard: Day Light White Optional: Red, Blue
Lumens in the Water	18,000 Lumens Typical (measured with all 3 light-heads on)
Color Temp	Standard: 5000K - 6500K
Beam Pattern (FWHP)	Flood: 77º Medium: 52°
Electrical Specifications	
Input	85 - 150 VAC @ 50/60Hz, 75 - 200 VDC, 375W max or 150 VAC - 250 VAC @ 50/60Hz, 200 - 300 VDC, 375W max
Dimming	AC phase control dimmer

Dimensions



Standard Connector



BH3MP

1 = Hot (DC+)
2 = Neutral (DC -)
3 = Chassis

**Other connectors and pin-out options are available upon request.*

** Specifications subject to change without notice.*

Table of Contents

Safety Symbol

In this operator's manual and on the product, safety symbols are used to communicate important safety information. This section is provided to improve understanding of these symbols.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER indicates a hazardous situation which, if not avoided, could result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, could result in damage to the product or bodily harm.

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE indicates information that relates to the protection of property.

This symbol means read the operator's manual carefully before using the equipment. The operator's manual contains important information on the safe and proper operation of the equipment.

This symbol means always wear safety glasses with side shields or goggles when handling or using this equipment to reduce the risk of eye injury.

This symbol indicates the risk of electrical shock.

General Notes & Warnings

Do not run this LED Matrix- 3R SeaLite outside the recommended voltage range.

Do not operate any high voltage electrical equipment without using a Ground Fault Interrupt circuit for safety, especially when divers are in the water!

Do not remove the set screws in the collar on the LED Matrix- 3R SeaLite body as these hold the light body and light head together.

⚠ WARNING

After each deployment, carefully check to make sure the light has not flooded by shaking and listening for water, or visual inspection for moisture inside the LED window. Also look into the holes on the forward bracket and verify the head is tightly mated to the rear housing. It is possible for some lights to partially flood and then reseal themselves while underwater. Upon surfacing, the light would then be internally pressurized, a potentially dangerous situation. Additionally, if the power remains on when the light has partially flooded, it is possible for electrolytic generation of an explosive mixture of hydrogen and oxygen gases. If a light appears flooded upon removal from the water as evidenced by water or moisture on the inside of the window, it should be treated as potentially dangerous. Make sure that the power is disconnected as soon as a flooded condition is suspected. Point the light away from persons and valuables.

The LED Matrix -3R SeaLite's Diver Bottle has a unique design to prevent possible internal pressure buildup in that the Driver Bottle housing will 'pop' slightly between the housing and the remote cap and relieve any internal pressure over 100 psi. Make a visual inspection after each deployment to ensure that the housing and remote cap are not askew. Also look into the holes on the forward bracket (remote cap end with 3 connectors) and verify that the Driver Bottle housing is tightly mated to the remote cap. If the head looks slightly askew or if the housing and remote cap do not look tight, do not re-deploy until investigating with care and opening the housing to check for leakage. In all cases, be sure the housing is re-seated properly before re-deployment.

DANGER

A Ground Fault Interrupt should be used whenever high voltage lights are being utilized; when divers are in the water this is especially critical! Do not operate AC-powered lights without a GFCI! Additionally, all high voltage lights should be case grounded for safety.

The light uses a 'high side driver', which means the LED light engine is connected directly to the line. DO NOT allow personnel to come into contact with the LED connections while the light is energized as lethal voltages will be present. Contact DSPL for further information if this is not clear.

⚠ WARNING

The LED Matrix- 3R SeaLite has thermal protection designed into the LED light engine and the electronic driver. If the light is operated in air for an extended period of time the useful life the LED's may degrade and the external temperature of the housing will reach temperatures that may be painful to human touch. If the light is operated briefly for testing purposes in air, be sure to let it cool down for a couple of minutes before immersing it in water to minimize thermal shock to the components. It is also a good idea to turn the light off a few seconds prior to removing it from the water as part of normal recovery procedures, as this will minimize buildup of scale on the LED window and housing components.

The LED Matrix- 3R SeaLite is made from superior strength aluminum alloy 7075 to make it as lightweight as possible. It has been hard anodized and fitted with strategically placed sacrificial zinc anodes to resist corrosion of the body. Be sure to regularly inspect these zincs for depletion and replace them before they are fully corroded. These lights are not designed for long term immersion of more than several weeks. Designers and end users must employ a system-wide corrosion prevention scheme that includes this strong, but less noble metal.

Pre Dive Inspection:

Ensure the connectors are tight. Occasionally twisting of the connector occurs when unscrewing the locking sleeve which will cause it to loosen from the body. Should this occur, tighten the connector until you feel the connector body engage the housing, and then apply additional light torque to fully seat. A loose connector may cause the light to flood.

1. Engage the locking sleeve and tighten to finger tight, never use a wrench.
2. Turn on light to check operation. Turn off and let cool before deployment.
3. Check conditions of anodes. Clean and replace as needed.

Post Dive Inspection:

1. Rinse your LED Matrix- 3R SeaLite in fresh water after every dive.
2. Check conditions of anodes. Clean and replace as needed.
3. Wipe sapphire port with a soft clean towel
4. Occasionally remove the crash guard and inspect for signs of corrosion or biofouling.
5. Grease threads of 316SS screws with AquaShield Lubricant for improved corrosion resistance.

Troubleshooting and Maintenance:

Problems and Causes

There are three main elements of your LED Matrix-3R SeaLite to consider when a problem is detected.

1. Power connector and cable
2. Driver and interface board, including the fuse
3. Remote light heads and their respective cables and connectors

If your LED Matrix-3R SeaLite is not operational, make certain power is being delivered to the mating connector on the appropriate pins. If power is being supplied please follow the table below for troubleshooting procedures.

Problem	Problem Cause	Recommended Action
Light doesn't turn on.	Not plugged in.	Secure all connections
	GFCI tripped.	Check light for obvious problems, then reset GFCI.
	Cable Defective.	Check continuity from one end to the other. Meg test if possible.
	Insufficient voltage.	Make sure power is adequate. Check position of phase control dimmer.
	Fuse blown.	Return to factory.
	Interface board blown.	Return to factory.
	Driver board blown.	Return to factory.

Light flooded.	Water on interior.	Check for internal pressure by loosening connector. Return to factory.

External Maintenance

Recommended spares:

- 1 ea: O-Ring service kit (lint-free wipes (Kimwipes), isopropyl alcohol, DC-111 Silicone Grease, food grade silicone lubricant, dust-off canned air, brass or plastic O-ring removal tool)…. User Supplied
- 1 ea: AquaShield Lubricant 14oz…. User Supplied
- 1 ea: LED Matrix-3R SeaLite O-Ring spares kit (P/N: 712-025-607-0A-03)
- Includes 8 ea. Spare collar bracket screws (P/N: 712-025-082-0A-01)
- 1 ea: LED Matrix-3R SeaLite Replacement Anode Set (P/N: 712-025-608-0A-03)

Optional Spares:

- 1 ea: Crash Guard (P/N: 712-025-098-0A)

Replacing the Zinc Anodes

Tools required: Flat blade screwdrivers, Pliers

1. Be certain the LED Matrix-3R SeaLite is powered off.
2. Using the flat blade screwdriver, remove the 6 screws holding the crash guard to the body. Remove crash guard.
3. Using pliers, unscrew the worn anodes.
4. Clean surface of light body under anodes with soft cloth and isopropyl alcohol.
5. Using AquaShield Lubricant, lube both sides of the nylon washers, external threads of the anode bolt, base of the anodes, internal threads of the mounting hole on the lighthead, and on the surface of the lighthead under the anode.
6. Install anodes in lighthead finger tight.
7. Using pliers on body of anode, apply LIGHT torque to slightly compress nylon washer. Don't worry about scratching the anode, it will corrode anyway. If excess lubricant is in the tapped hole, the anode bolt will go in slowly as the excess lubricant is displaced and squeezes out.
8. Lubricate 316SS tapped screw holes with AquaShield Lubricant.
9. Lubricate 316SS screws with AquaShield Lubricant.
10. Replace Crash Guard. Replace Screws. Using a flat blade screw driver, tighten to firm.

Internal Maintenance

There are no field serviceable parts. Return light to factory.

RMA Procedure for Repair

Should it be necessary to return your light to the factory, leave the connectors partially unscrewed. For warranty and non-warranty repairs please contact DeepSea Power & Light for a RMA number prior to returning your item. Please have your light model number, serial number and any other pertinent information along with a description of the problem, on hand when you call, or include them in a fax or e-mail. When shipping your item, be sure that the freight is pre-paid (CODs will not be accepted) and that the RMA number is clearly printed on the outside of the box.

All shipments should be sent to the address below:
DeepSea Power & Light
Attn: RMA ####
4033 Ruffin Road
San Diego, CA 92123-1817
U.S.A
Tel: (858) 576-1261
Fax: 858-576-0219

e-mail: RMA@deepsea.com

Limited Warranty

Seller warrants that the goods (except internal electronic components) sold under this contract will be free from defect in material and workmanship for a period of one year from the date of shipment from the factory, if they have been properly used. Internal electronic components are warranted for 90 days from the date of shipment from the factory, if they have been properly used. This warranty will be limited to the repair or replacement of parts and the necessary labor and services required to repair the goods. IT IS EXPRESS LY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY. This warranty is the exclusive and only warranty to pass with the goods under this contract. No agent, employee, or representative of the Seller has any authority to bind Seller to any information, representation, or warranty

concerning the goods sold under this contract, and unless an affirmation, representation, or warranty made by an agent, employee, or representative is specifically included within this contract, it will not be enforceable by Buyer. If notice of defect is given to DeepSea Power & Light, Inc. within such 90 day or one year warranty period, the sole obligation of DeepSea Power & Light, Inc. shall be to furnish new or repaired parts free of charge in exchange for parts which have been proved defective and does not include any other costs such as the cost of removal of the defective part, installation, labor, or consequential damages of any kind, the exclusive remedy being to require DeepSea Power & Light, Inc. to furnish such new parts. Under no circumstances shall the Buyer be entitled to recover any incidental damages as that term is defined in Commercial Code §2715.

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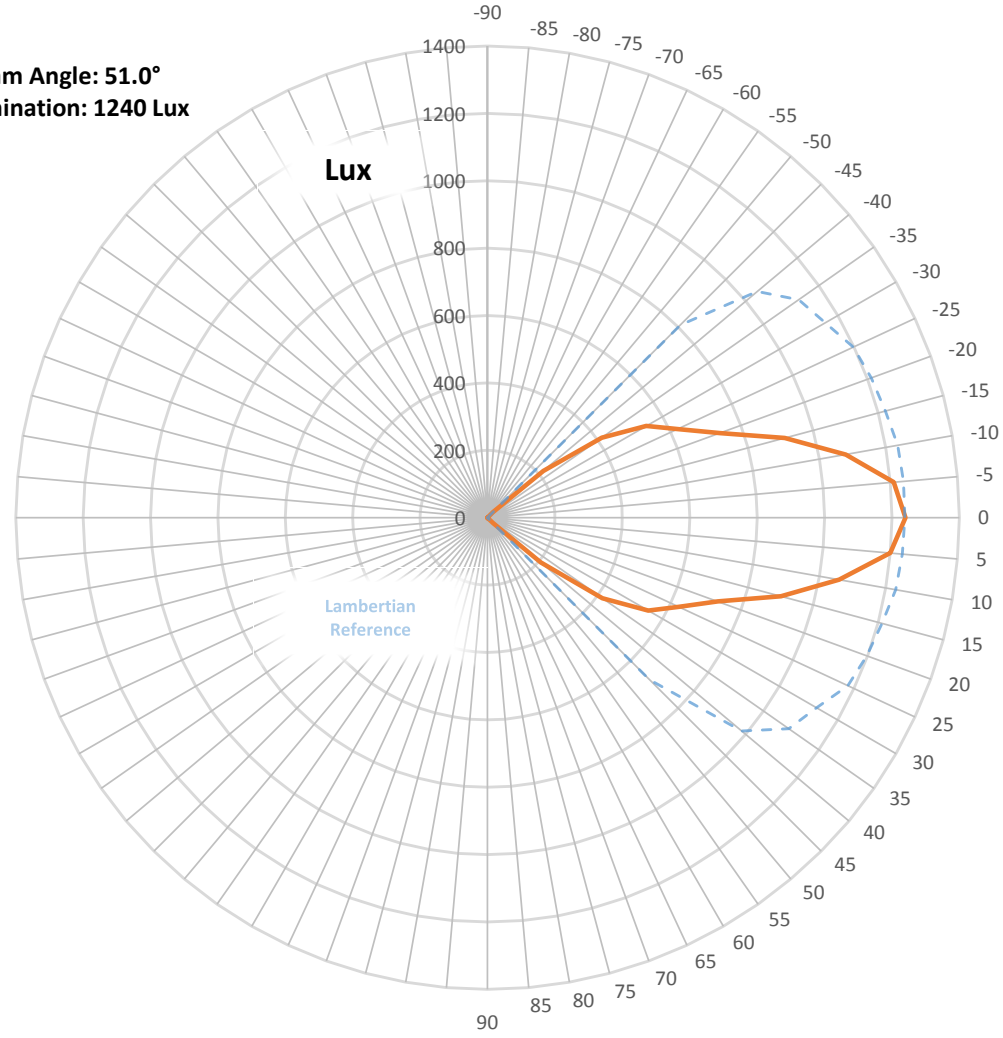
Appendix A

Beam Patterns

Beam Pattern Radial Lux Distribution

FWHP Beam Angle: 51.0°
Peak Illumination: 1240 Lux



Beam Pattern Angular Distribution