

DEESEA
POWER & LIGHT



LED Matrix® - 1 SeaLite®



Operator's Manual

LED Matrix - 1 SeaLite

Record product serial number below as it appears on the nameplate.

Serial #

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San Diego, CA
92123- 1817 USA

www.deepsea.com
sales@deepsea.com



Specification Overview

Mechanical Specifications	
Body Material	Hard Anodized Aluminum (7075)
Window Material	Sapphire
Mounts	High Strength Stainless Steel Mounting Yoke (standard)
Air Weight	4.70 lbs (2.13 kg)
Water Weight	2.23 lbs (1.01 kg)
Implodible Volume	TBD
Environmental Specifications	
Depth Rating	6000 m (20,000 ft)
Test Pressure	10,000 psi
Crush Depth	> 26,000 psi
Operation Temp.	-10° C to 40° C (14° F to 104° F)
Optical Specifications	
Color	Red, White, Blue
Lumens in the Water	6,000 Lumens Typical
Color Temp.	6900° K (White LED)
Beam Pattern (FWHP)	Flood: 60°
Electrical Specifications	
Input	85 - 150V AC @ 50/60Hz, 75-200V DC, 375W max or 150V AC - 250V AC @ 50/60Hz, 200-300V DC, 375W max
Dimming	AC Phase Control Only
LED Lifespan	50,000 hours

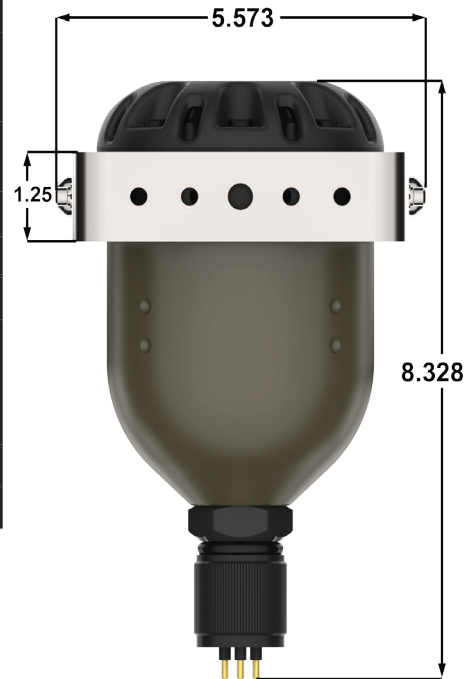
Standard Connector



BH3MP
 1 = Hot (DC +)
 2 = Neutral (DC -)
 3 = Chassis

*Other connectors available

Dimensions



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Safety Symbol

In this operator's manual and on the product, safety symbols and signal words are used to communicate important safety information. This section is provided to improve understanding of these signal words and 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, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, will 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 Matrix 1 SeaLite outside the recommended voltage range.

Do not remove the set screws in the collar on the Matrix 1 SeaLite body as these hold the light body and light head together.



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.



Thermal Warning: The LED Matrix-1 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.

Corrosion Warning: The LED Matrix-1 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.

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. The Matrix-1 has a unique design to prevent possible internal pressure buildup in that the light head assembly will 'pop' slightly and relieve any internal pressures over 100 psi. If the head looks slightly askew be sure to investigate for possible leaks. 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 valuable equipment and confirm whether or not it is internally pressurized by loosening the back connector two or three turns.

Pre Dive Inspection:

The LED Matrix-1 SeaLite is shipped for immediate use. Please observe the following maintenance guidelines to ensure the light will continue to perform reliably.

- Ensure the connector is tight. Occasionally twisting of the connector occurs when unscrewing the locking sleeve which will cause it to loosen from the body.
- Engage the locking sleeve and tighten to finger tight, never use a wrench.
- Turn on light to check operation. Turn off and let cool before deployment.
- Check conditions of anodes. Clean and replace as needed.

Post Dive Inspection:

- Rinse your LED Matrix-1 SeaLite in fresh water after every dive.
- Check conditions of anodes. Clean and replace as needed.
- Wipe sapphire port with a soft clean towel
- Occasionally remove the crash guard and inspect for signs of corrosion or biofouling.
- 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-1 SeaLite to consider when a problem is detected.

1. Connector and cable
2. Driver and interface board, including the fuse
3. Light engine

If your LED Matrix-1 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.
Light flooded.	Driver board blown.	Return to factory.
	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 (Kim-wipes), 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-1 SeaLite O-Ring spares kit (P/N: 712-025-607-0A-01)
- 1 ea: LED Matrix-1 SeaLite Replacement Anode Set (P/N: 712-025-608-0A-01)

Optional Spares:

- 1 ea: Crash Guard (P/N: 712-025-068-0A-01)

Replacing the Zinc Anodes

Tools required: Flat blade screwdrivers, Pliers

1. Be certain the LED Matrix-1 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 lighthouse, and on the surface of the lighthouse under the anode.
6. Install anodes in lighthouse 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 the factory.

RMA Procedure for Repair

Should it be necessary to return your light to the factory, leave the connector 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.

Terms and Conditions of Sale

No terms or conditions, other than those stated herein, whether contained in customer's purchase order or shipping forms or elsewhere, and no agreement or understanding, oral or written, in any way purporting to modify or negate these terms and conditions shall be binding on DeepSea Power & Light, Inc.

Acceptance of Orders

- A. Acceptance of binding purchase orders are subject to final written approval by DeepSea Power & Light, Inc.
- B. DeepSea Power & Light, Inc. will accept orders and bill in accordance with list prices and terms, even though incorrect list prices, discounts and terms may appear on the Purchase Order.

Terms

Upon approved credit the following terms will apply:

- A. Standard terms are net cash 30 days from date of invoice, unless otherwise specified. Invoices bear the date of shipment and are mailed from San Diego, CA within one business day of the shipment.
- B. Any portion of the Invoice amount which has not been paid within 30 days of the invoice date will accrue a monthly service charge equal to the maximum rate permitted under Section 1, Article XV of the California Constitution as amended by Proposition 2 effective November 7, 1979 (i.e., Federal Reserve discount rate plus five (5) percent per annum) commencing 31 days after the invoice date. In the event of any litigation arising out of this contract or any efforts by seller to enforce any of the terms of this contract, or to receive payment of any sum under this contract, the prevailing party shall be entitled to recover its reasonable attorney's fees and costs. This contract shall be interpreted in accordance with the laws of the State of California and venue for any dispute arising out of this contract shall be San Diego County, California.

Title and Risk of Loss

- A. Unless otherwise specified in accepted purchase order, all products are shipped F.O.B. DeepSea Power & Light, Inc. plant, San Diego, CA and title to the property passes to the buyer at the time of shipment. Buyer assumes all risk of damage to or loss or destruction of said property and no loss, injury or destruction of said property shall release buyer from the obligation to pay for this shipment.
- B. Unless otherwise specified in accepted purchase

order, DeepSea Power & Light, Inc. shall have the option of partial or complete shipment of orders, and shall have the right to select the date of shipment, type of carrier, and routing of shipment on behalf of Customer. DeepSea Power & Light, Inc. will make best efforts to meet quoted shipment dates, but does not guarantee to ship products within the time quoted. DeepSea Power & Light, Inc. shall not be held responsible for any failure to make delivery of all or any part of product or nonperformance of services attributable to governmental action, strike or other labor dispute, riots, storm, flood, epidemic, fire damage to or destruction in whole or in part of products, lack of or inability to obtain raw materials, labor fuel, or supplies, or any act of God or other cause, contingency or circumstances within or without the United States not subject to DeepSea Power & Light, Inc.'s control which prevents or hinders manufacture or delivery of product or performance of services.

Termination

Purchase Orders accepted by DeepSea Power & Light, Inc. are not cancellable by Buyer unless all details are agreed upon in writing by DeepSea Power & Light, Inc. and Buyer, including Buyer's agreement to assume termination charges required by DeepSea Power & Light, Inc.

Notices

Notice of Sufficiency of Technical Data

The technical drawings and data published in our manual, bulletins or literature is not guaranteed. It is considered sufficient technical data to allow proper identification of equipment type, size and use for ordering purposes. All drawings and measurements are approximate and not to scale. Performance and function for which the product is intended will depend upon lighting conditions, visibility, cable size and termination. Technical data is subject to change without notice. Additional detailed engineering information may be available upon request. DeepSea Power & Light, Inc. assumes no responsibility for proper selection or installation of its products.

Fair Labor Practices

We hereby certify that products and services are

produced in compliance with all applicable requirements of Sections 6, 7 and 12 of the Fair Labor Standards Act of 1938 as amended, and of regulations and orders of the United States Department of Labor issued under Section 14 thereof. DeepSea Power & Light, Inc. complies with Executive Order 11256 prohibiting discrimination in employment because of race, creed, sex, color, or national origin.



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