OceanLED

INSTALLATION & OPERATION MANUAL

EXPLORE SERIES E3
Colours DMX

Preface

READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL

⚙ CAUTION

(Risk Group 2): Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to the eye.

❗ WARNINGS

Prior to installing your OceanLED Light, carefully review and adhere to all included safety warnings and instructions to prevent potential property damage, serious injury, or fatality. Furthermore, ensure compliance with local regulations regarding the use of coloured lighting in your area.

Do not operate lights out of water for a period longer than 5 minutes followed by an OFF period of at least 1 hour. Exceeding this may cause damage to the light unit.

Ensure the bonding point of the light is fitted to the cathodic protection system on the vessel. Check conductivity between earth bonding point and aluminium bronze front bezel. If mounting the light to metal, carbon fibre or wooden hull, ensure that suitable measures have been put in place to account for the effects of galvanic corrosion or wood deterioration, i.e., use of Delrin sleeve components (Isolation Kit).

Salt is highly corrosive, especially to metal and certain surfaces. While OceanLED lights use saltwater-resistant materials, installation screws and fasteners must be marine-grade stainless steel or equivalent and should be inspected annually to ensure long-term performance.

Never connect/disconnect lights with power applied as irreversible damage may occur. Ensure polarity of power connections is correct. Failure to do this may invalidate the warranty.

Explore E3 light is for mounting directly to a flat surface. Ensure front of lights are always fully submerged and not fitted on planning / running surfaces that may impact on water since this may damage the product. Also ensure the rear of the light is in a dry area and not subject to a wet environment. Failure to do this may invalidate the warranty.

Remove the protectors from the connectors on the rear of the light ONLY if the connector will be used immediately. If the connectors on the light(s) are not in use, leave protector(s) on.

Do not submerse your cable ends in water; cable and connections exposed to underwater submersion will not be covered by warranty.

Never Use Solvents! Cleaners, fuel, and other products that may contain strong solvents, such as acetone, that attack many plastics greatly reducing their strength and irreversibly damaging the special lens coatings and cable sheathings.

Never clean lights using a high-pressure jet wash – this will invalidate warranty.

Do not coat the light's glass/lens with any product, including but not limited to clear antifouling paints or similar, without consulting OceanLED for advice. Failure to do so will void your warranty.

If bottom painting ensure the coating is applied as instructed in the "Finalising The Installation" section. Failure to do so will invalidate your warranty.

⚡ DANGER, RISK OF ELECTRIC SHOCK OR ELECTROCUTION

This underwater light must be installed by a licensed or certified electrician in accordance with all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to swimmers, installers, or others due to electrical shock, and may also cause damage to property. Always disconnect the power to the light at the circuit breaker before servicing the light.

Contents

PRETEST

Always test the lights prior to installation. Failure to do this may result in additional installation time and could invalidate the warranty.

IMPORTANT NOTICE

Attention Installer: This manual contains important information about the installation, operation, and safe use of this product. This information should be given to the owner and/ or operator of this equipment.

WARRANTY COVERAGE

Please refer to www.oceanled.com/warranty for full warranty statement.

1 Installation Checklist

1. Decide on light spacing – OceanLED recommendations available. Rear of lights and electrical connections must never be exposed to wet environments inside the hull. See page 14 for optional Rear Enclosure.

2. Ensure correct cable gauge is used (refer to relevant cable gauge chart).

3. Choose the appropriate control system (on/off switch, momentary switch, DMX control).

4. Select the correct length light fixture (An extension kit is required for hulls thicker than 55mm).

5. Prepare the hull (An isolation kit is required for conductive hull materials or wooden hulls).

6. Ensure the lights have been fitted following the correct reflector orientation.

7. Correct marine sealant applied evenly around bezel. Ensure fully watertight seal is created after sealant cures.

8. Correct clamping of light fixture onto hull.

9. Light(s) correctly bonded and vessel bonding system check carried out (refer to relevant schematic and test procedures).

10. Test installation BEFORE entering water. Never connect/ disconnect lights whilst powered ON. Never leave lights ON out of water for longer than 5 minutes followed by an off period of 1 hour. Never leave vessel unchecked for a few days after install. Always check routinely for a few days after installation to ensure the install is correct and fully sealed.

11. Troubleshooting if required - most issues can be resolved by following the guidelines.

2 Overview

<div style="border:1px solid">

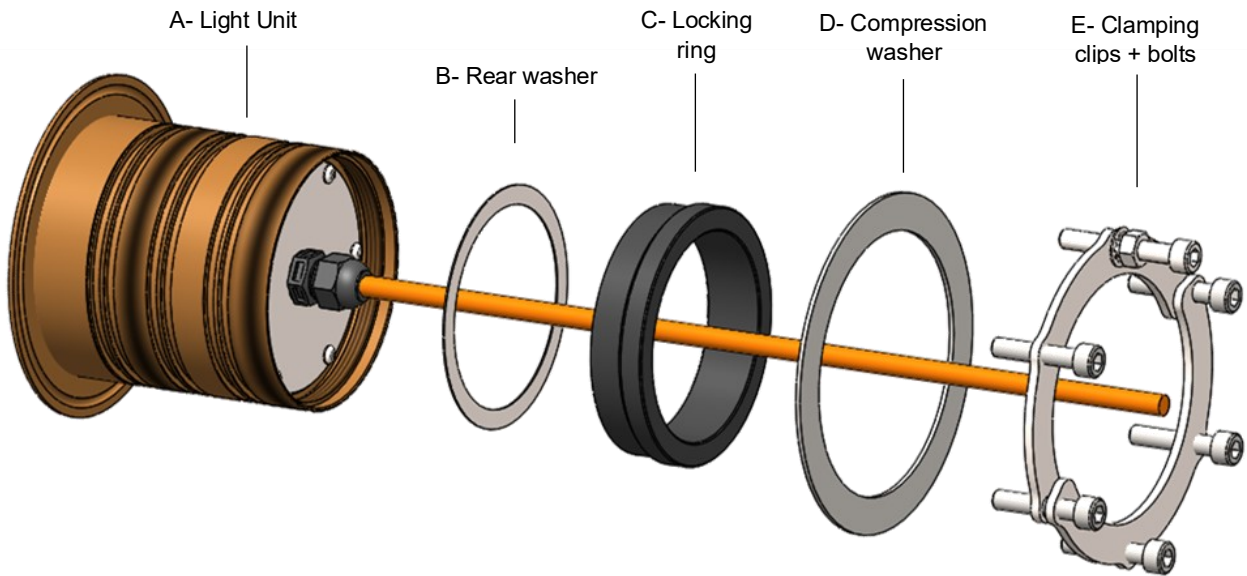**Identifying your model**

Explore E3 Colours DMX

</div>

Packaging contents

BOX CONTENTS
E3 Colours DMX Light & Cable
In-line Fuse Kit
Explore XFM Clamping Kit
Explore Removal Tool Kit
Installation Manual

Product components breakdown

A- Light Unit

B- Rear washer

C- Locking ring

D- Compression washer

E- Clamping clips + bolts

Explore E3 Colours DMX

Power Source Requirements

Most installations will utilize on-board 12/24V DC power supply from a marine battery.

If AC power is being used on the vessel, an Explore AC Power Kit must be purchased. If an AC to DC power supply is being used, it is important to allow for at least a 15% reserve to account for voltage fluctuations caused by variables beyond your control, such as ambient temperature and supply voltage fluctuations. This reserve ensures that your lights always receive the proper voltage and prevents overloading of the power supply, which could lead to premature failure. Please refer to the chart below to determine the power supply requirements.

Power Consumption and Recommended Fuse values

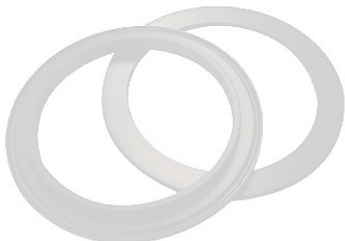| Model	Current @ 12V DC	Current @ 24V DC	Max Nominal Power consumption	15% reserve in Watts	Recommended fuse 12V/24V DC
E3 Colours DMX	5.5A	2.4A	66W	76W	10A

3 Preparing the Hull

When installing an Explore unit, it is important to ensure that there is sufficient space inside the vessel to remove the insert for maintenance or after-sales services. For example, the XFM unit requires an additional 100mm / 4" of space from the rear of the mounting tube to allow for insert removal. Please refer to the overall dimensions in Appendix Section 7.1 .

Make sure that the area surrounding the part of the light inside the vessel has a diameter of 100mm / 4" free from any insulation material.

OceanLED recommends using a qualified installer or technician for any modifications to your vessel. Additionally, please consult the manufacturer for more detailed information regarding modifications and installation procedures.

If lights are to be fitted to a conductive or wooden hull, an Isolation Kit must be used. Contact OceanLED for additional details.

DELRIN ISOLATION KIT Isolation of the metal parts of the Explore XFM Series Light from conductive or wooden hulls to prevent galvanic corrosion issues. The isolation kit is easily fitted to the rear of the light fixture using a suitable adhesive. **PART NUMBER** **001-500638 -** Explore XFM Delrin Isolation Sleeve Kit	

Depth/Spacing

Ideally mount your lights at similar depth levels to ensure matching colour consistency through the water. Deeper lights will look duller and possibly differ in colour compared to shallower mounted units.

SPACING / INSTALL DEPTH	E3
Recommended Spacing	0.5-1.2m (2-4')
Recommended Installation depth (From the light waterline)	250-300mm (10-12")

Hull Thickness

Maximum hull thickness:

- Standard - 55mm (2.16")
- With Extension Kit - 119mm (4.7")

Hole Cut Out

Hole Cut out size - 83mm (3.27") / With Isolation Kit 89mm (3.5")

Overall Dimensions

See overall dimension schematic – See Appendix (Section 7.1)

4 Installation

4.1 INSTALLING THE LIGHT FIXTURE (HULL THICKNESS UP TO 55MM)

E3 Kit Includes

Explore E3 Light   **Clamping Kit**   **Removal Tool**

Additional items required not supplied by OceanLED:

- Marine sealant - 3M 4200 or equivalent
- Cable ties
- Waterproof Cable Connectors / Junction Box* (optional)
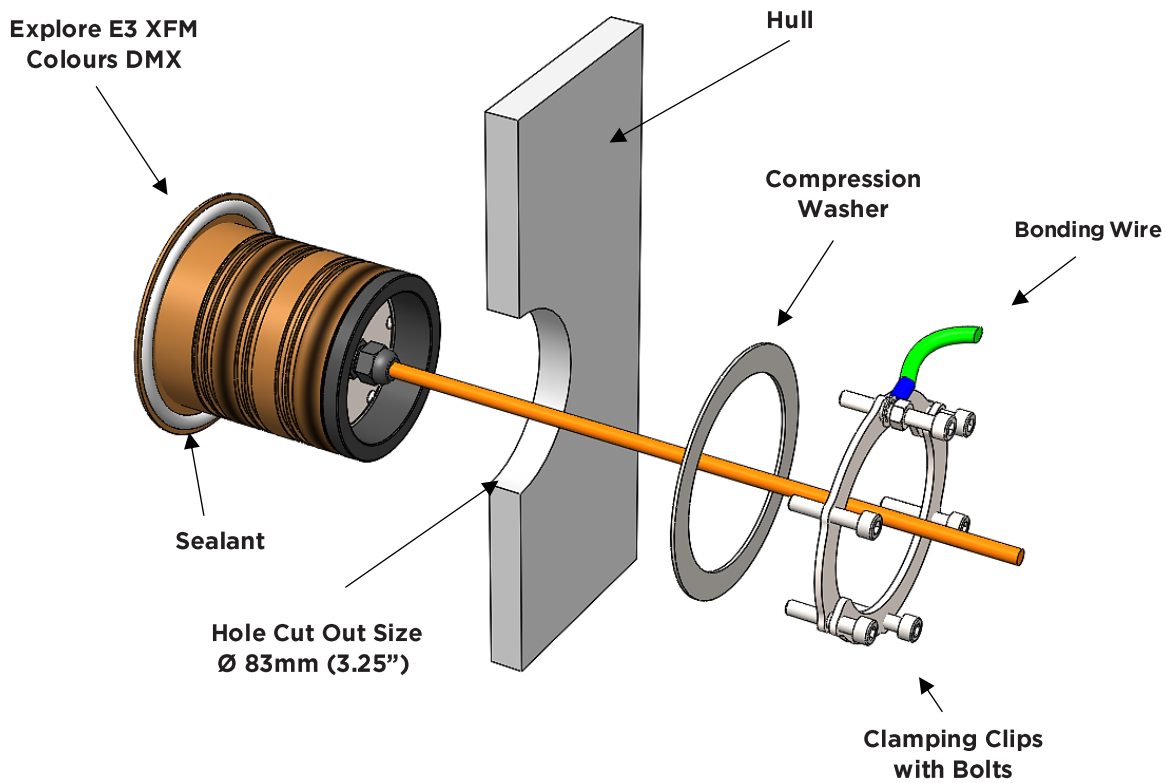- Allen key (5mm)
- Thread lock - Loctite 243 or equivalent.

*Optional 4-Way Junction box available from OceanLED. Please contact OceanLED or your representative for further information.

DO NOT remove the light cartridge from the mounting tube during installation. The light cartridge MUST stay fitted inside the mounting tube throughout the installation process to avoid the introduction of potential contaminants that may damage the product. The light cartridge can only be removed for maintenance or after sales purposes and OceanLED must be contacted prior to any light cartridge being removed from the mounting tube.

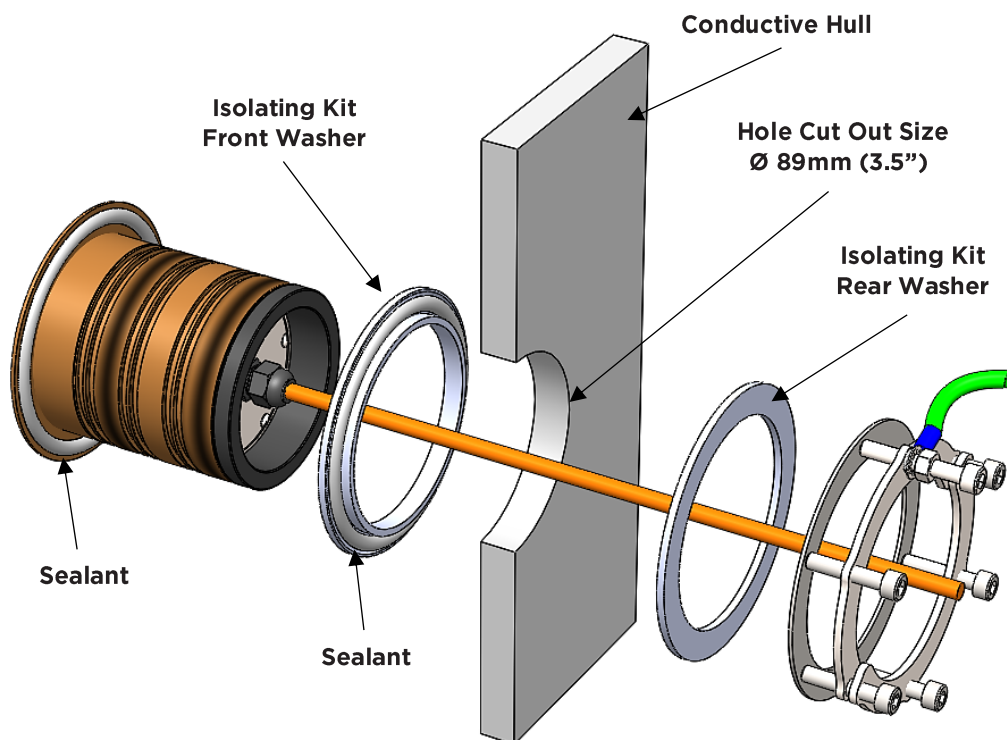**OceanLED recommends dry fitting all products. When installing, be sure that the light fits the area and secures to the hull using the appropriate hardware before applying any sealant.**

When applying sealant to the light fixture, use OceanLED packaging material such as the light cardboard box when placing the light on the ground face down to prevent lens damage.

Installation Overview

Explore E3 XFM Colours DMX

Hull

Compression Washer

Bonding Wire

Sealant

Hole Cut Out Size Ø 83mm (3.25")

Clamping Clips with Bolts

Exploded view of standard assembly

Isolating Kit Front Washer

Conductive Hull

Hole Cut Out Size Ø 89mm (3.5")

Isolating Kit Rear Washer

Sealant

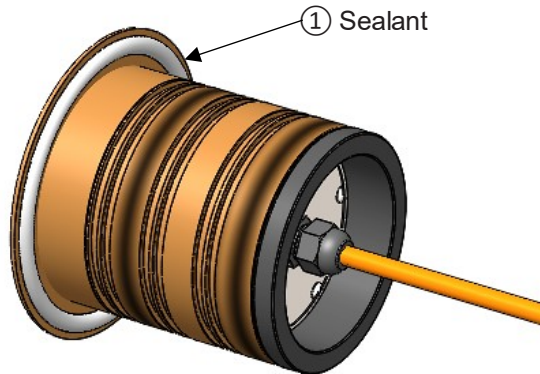**Sealant**

*Exploded view of the assembly with the Delrin Isolation Kit*

Installation (Once hull preparation is complete)

1. Test light(s) before fitting. Before proceeding with the fitting of the light(s), it is essential to test them to ensure their functionality. Testing the lights before installation allows you to verify that they are in proper working condition and producing the desired illumination. Once the lights have been tested and confirmed to be in good working condition, they can be safely fitted onto the hull.

2. Apply sealant ① to the rear of the mounting tube assembly's bezel to ensure a complete unbroken seal around the light. Make sure sealant fills in the recess groove on the reverse of the light bezel.

① Sealant

If using a Delrin Isolation Kit, insert the Isolation Kit front washer into the drilled hole and apply marine sealant to seal between the Front Washer and the hull.

3. To ensure the correct light orientation, please follow these steps: Position the light with the red arrow sticker ③ on the rear lid pointing up, perpendicular to the waterline. When viewing from the front, make sure the OceanLED logo ② remains horizontal with the waterline.

② OceanLED Logo

③ Red Arrow Indicator pointing upwards perpendicular to waterline
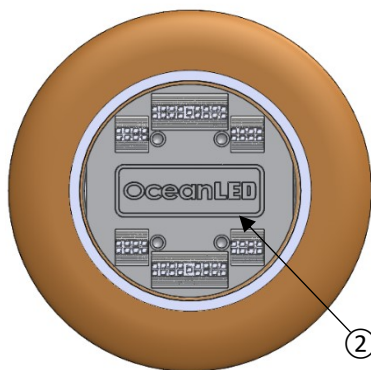
E3 Colours DMX Front View
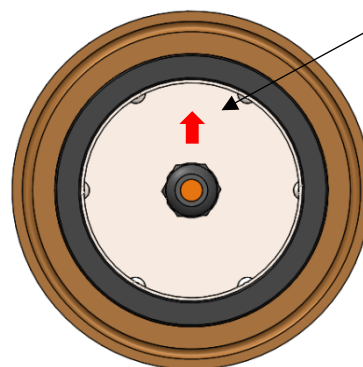
E3 Colours DMX Rear View

4. Feed the light cable through the hole in the hull and insert the complete light unit ④ (mounting tube assembly + light cartridge) into the hull ⑤, pressing the light hard into the hull and twist slightly to spread the sealant behind the light to ensure good adhesion.

🔧 **This process is made much easier if a second person is inside the hull to receive the light and install the locking equipment whilst supporting the light from the outside. Breakages due to lights falling out of the hull are NOT covered under warranty and can cause serious bodily injury as can any falling object.**
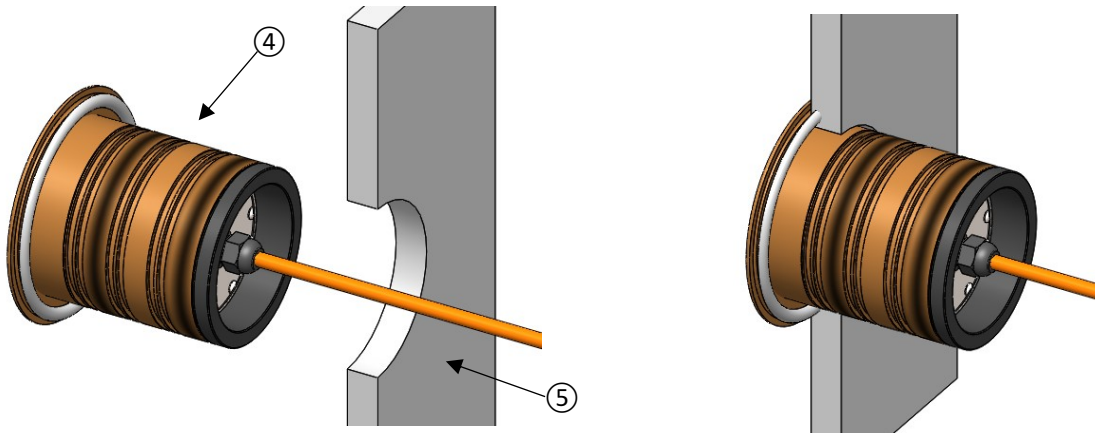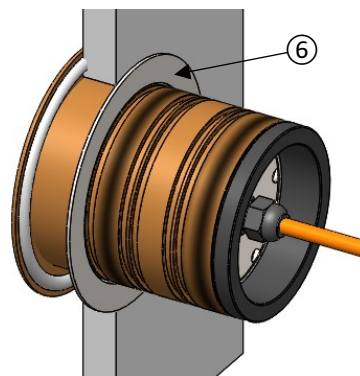
5. Insert the stainless-steel compression washer ⑥ over the mounting tube.

If using a Delrin Isolation Kit, insert the Isolation Kit flat washer over the mounting tube and locate it flush with the hull.

🔧 **The stainless-steel compression washer does not need to be flat to the hull, a slightly uneven surface can be compensated by the washer.**

6. Take the two Clamping Clips ⑦ and align them to form a circle, ensuring that you pair one threaded hole with one non-threaded hole. Use one of the provided screws ⑧ to secure the clips together, positioning them approximately halfway down the length of the screw. Insert the clips into the appropriate grooves on the outside of the mounting tube ⑨, considering the hull thickness. Make sure the end of the screw is close to the washer. Use the remaining screws to fix the two clips together. Keep the longer screw aside for connecting the light to the vessel's cathodic protection system. Once connected, tighten this screw to the same position as the others.
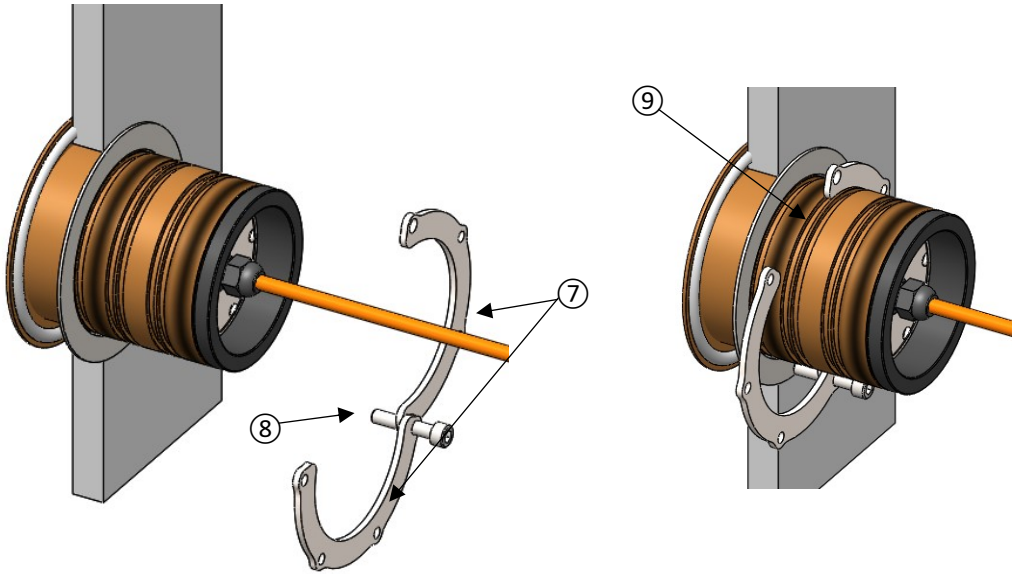
7. Use a 5mm Allen key to tighten the locking screws, ensuring that you apply thread lock at the point where the threads make contact with the locking ring. Apply a torque of 2Nm. Take care not to over-tighten the locking screws, as this could potentially damage the mounting tube. Please note that any damage caused by over-tightening will not be covered under warranty.
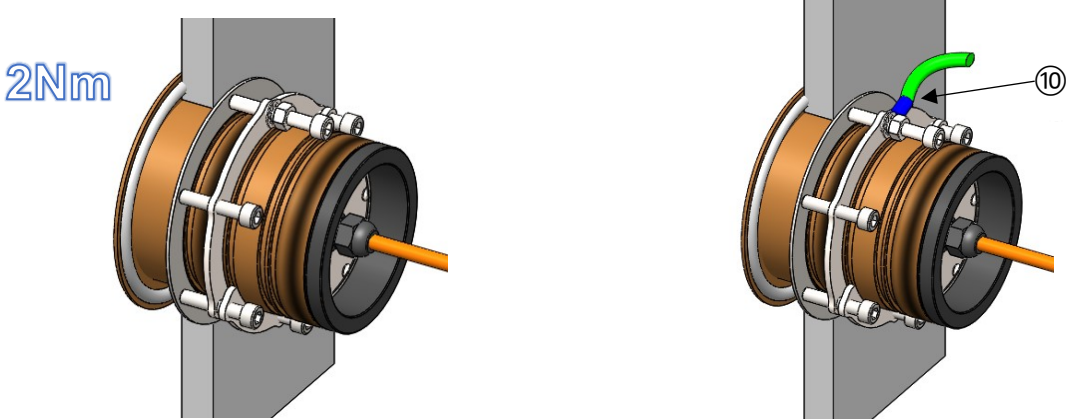
8. Once you have tightened the unit to your satisfaction, you will notice sealant squeezing out around the edges of the light. Take a thinner or cleaner and apply it to a cloth. Use the cloth to carefully wipe off any excess sealant, ensuring a clean seal. **Avoid any contact with the lens.** If you do not observe sealant squeezing out from the light's body, it indicates that you haven't used enough sealant, or the unit isn't tightened sufficiently to the hull. Thoroughly inspect the installation to ensure the seal you have applied is completely watertight. If you have any doubts, remove the light, re-apply sealant, and reinstall it.

9. Attach the bonding cable ⑩ to the remaining screw and secure it in place using the provided nut and shake-proof washer. Use a 5mm Allen key to tighten the locking screw, applying thread lock at the point where the threads make contact with the locking ring.

> **!** **BONDING: It is essential to connect the light to the vessel's bonding/cathodic protection system. After installation, it is mandatory to ensure that there is uninterrupted continuity between the vessel's cathodic protection system and the outer bezel of the mounting tube assembly. For detailed instructions, please refer to the bonding schematic in Appendix Chapter 7.**

4.2 INSTALLING THE LIGHT FIXTURE (HULL THICKNESS ABOVE 55MM)

Extension Kit Includes	
Mounting Tube	**Compression Tube**

Additional items required not supplied by OceanLED:

- Thread lock - Loctite 243 or equivalent.

Attach the mounting tube extension kit to the rear of the standard light mounting tube, and subsequently follow the instructions provided in section 4.1.
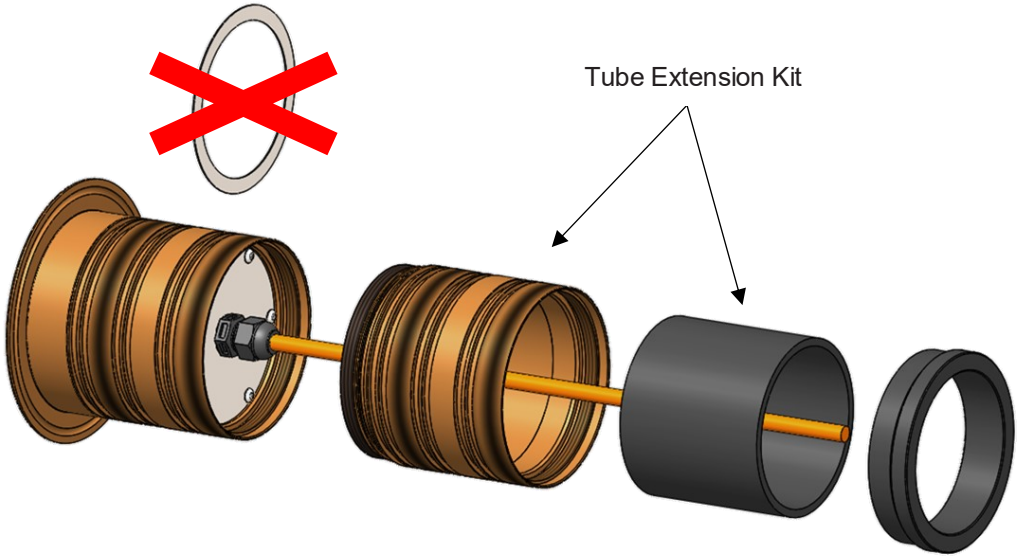
Extension Kit Assembly Overview

1. Remove the locking ring ① and the rear washer ② from the mounting tube ③. Please note that the rear washer will not be needed anymore.
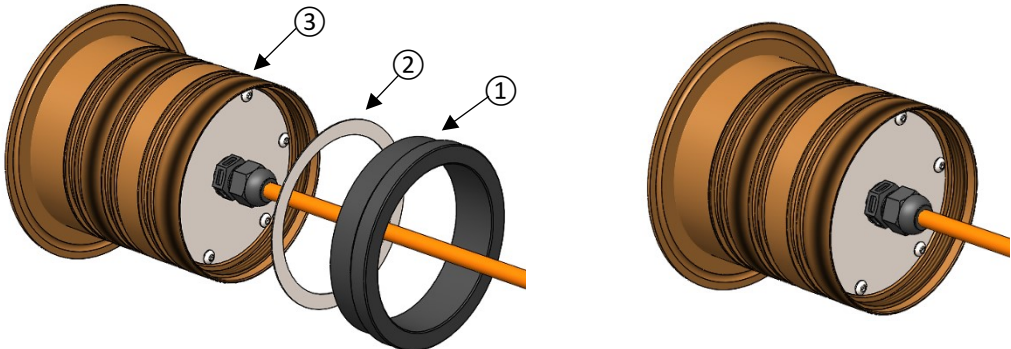
2. Apply thread lock (such as Loctite 243 or an equivalent product) to the threaded part ④ of the additional mounting tube ⑤. Then, firmly fasten the additional tube ⑤ by screwing it all the way down onto the rear of the mounting tube ③.
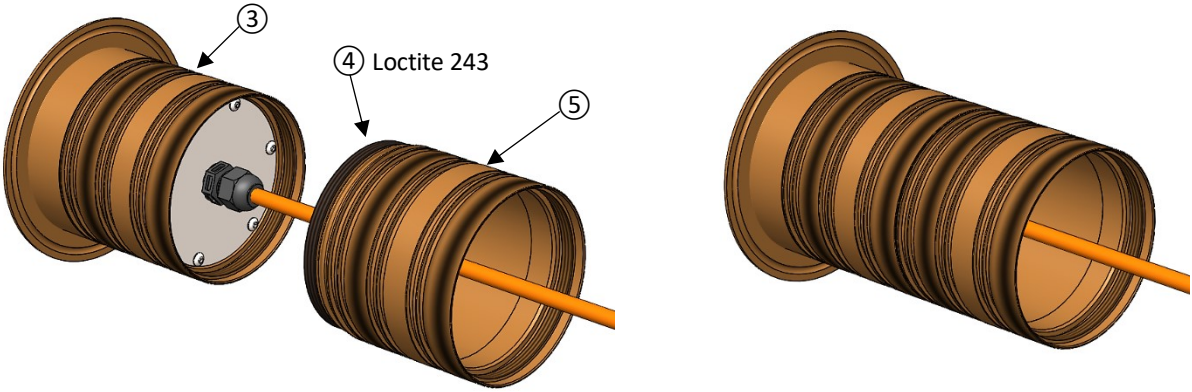
3. Insert the compression tube ⑥ into the mounting tube extension ⑤ and carefully slide it down until it reaches the light cartridge, ensuring it is fully inserted into the tube ⑦.
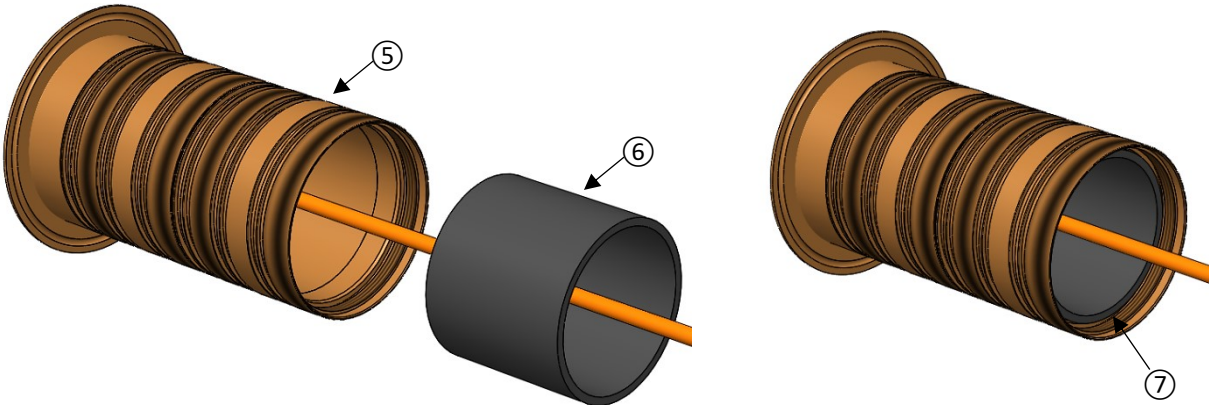
4. Tightly screw the locking ring ① back onto the mounting tube extension ⑤. Proceed to follow the steps outlined in section 4.1 for preparation and installation, as the same methods apply.
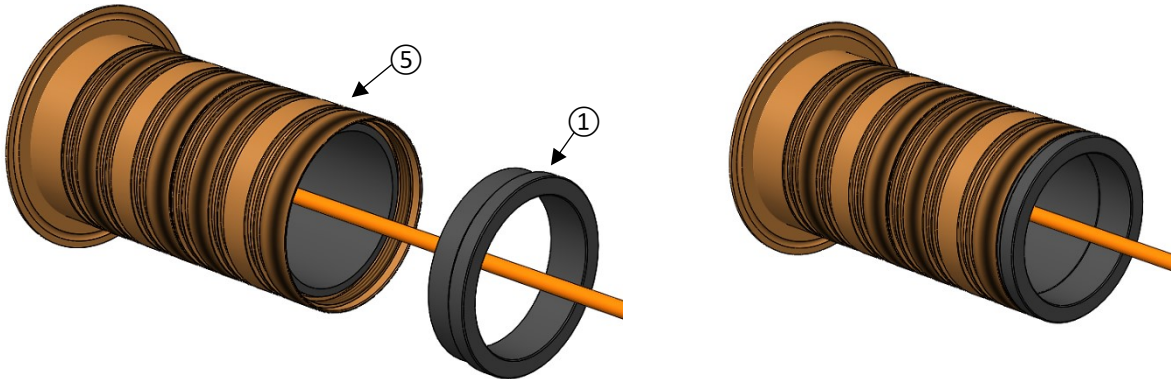
4.3 INSTALLATION OF OPTIONAL REAR ENCLOSURE

The OceanLED Explore Series XFM Rear Enclosure is designed to provide enhanced protection from temporary submersion inside the hull, making it ideal for installations that require increased protection. The Enclosure can be easily retrofitted to existing Explore XFM installations or incorporated into new installations. For detailed instructions on how to install the rear enclosure, please refer to the installation manual supplied with the rear enclosure.
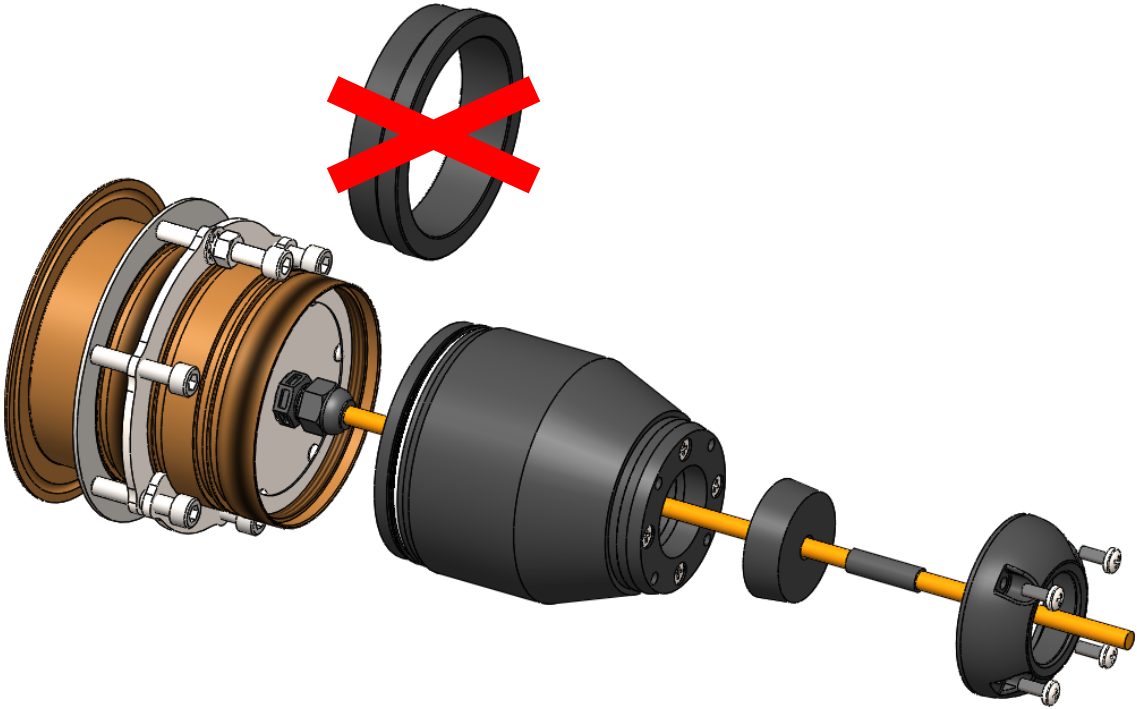
Explore Rear Enclosure Assembly Overview
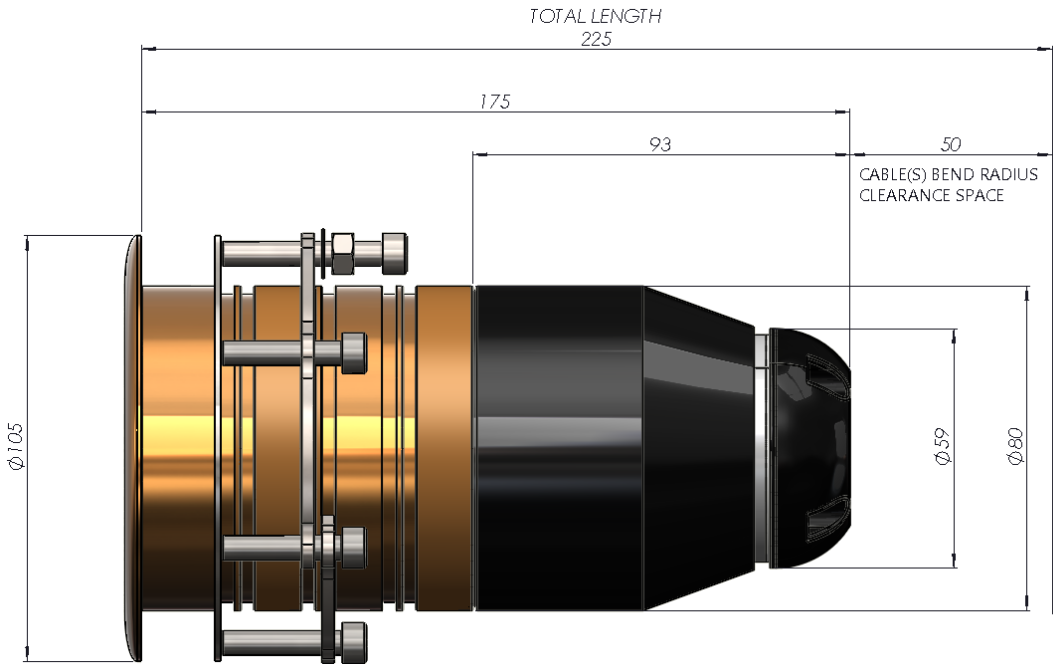
General Dimensions of the Rear Enclosure Assembly

4.4 ELECTRICAL INSTALLATION

Additional items required not supplied by OceanLED:

- Waterproof connectors/ / Power Junction Box */ 2-Way DMX Junction Box**
- Sufficient cable to connect to DC Power Source
- Power switch / Fuse / Breaker
- Push switch (Normally closed, momentary type) – optional for lights used in the DC switch mode
- Cable ties

*Optional 4-Way Junction box – simple fused Junction Box for splitting and distributing DC power (12/24V DC), available from OceanLED. Please contact OceanLED or your representative for further information.

**Optional 2-Way DMX Junction box, for splitting and distributing DC power (12/24V DC) and DMX signals, available from OceanLED. Please contact OceanLED or your representative for further information.

! **Always consult a qualified electrician when connecting OceanLED light fixtures.**

When connecting light units, please note that all OceanLED lights will operate within a specific voltage range. Please check the electrical information to ensure cable gauge follow the recommendations.

Always ensure that the bare cables are adequately protected. Be cautious not to expose the bare wire ends to bilge water before making waterproof connections. Accumulated water in the connectors and cables can lead to corrosion. Additionally, over time, water can also work its way into the unit along the inside of the cable due to capillary action causing the light to fail. Please note that such failures caused by water damage will NOT be covered under warranty.

For comprehensive instructions on DC connections, please refer to the ABYC codes of practice and other relevant codes and ordinances governing DC connections.

Where multiple lights are fitted, and especially on 12V systems, it is advised to use a relay system to supply the switched power to the lights, to reduce load on the switch and voltage drops caused by long cable runs to the switch location.

E3 Colours DMX operating modes

The Explore E3 Colours DMX can be used in two different modes: DMX mode (e.g., using the OceanDMX RC controller kit) or simple DC switch mode. In DMX mode, you can control the light using the OceanDMX RC controller kit or a compatible DMX controller. Alternatively, in the simple DC switch mode, you can change colour modes by toggling the power switch on/off.

E3 Colours DMX operated by switch (DC Switch Mode)

In the simple DC switch mode, you can change colour modes by toggling the power switch on/off. The rating of the switch will depend on the system voltage used and the number of lights installed. To simplify the process of changing modes, you may choose to install an additional in-line push switch. When using the push switch, it should disconnect the power supply to the lights.

To use the light in DC switched mode, follow these steps: Connect the DC power +Ve to the RED wire and DC power -Ve to the BLACK, BROWN, and YELLOW wires.

DC SWITCH MODE - Electrical Connection Diagram Example

FUSE/BREAKER (NOT SUPPLIED)

POWER SWITCH/ RELAY (NOT SUPPLIED)

Optional PUSH TO BREAK SWITCH DC Mode Only (NOT SUPPLIED)

Explore E3 Colours DMX LIGHTS

RED

+

12/24V

-

BLACK

IN LINE FUSE

+

12/24V DC

-

IN LINE FUSE

IN LINE FUSE

POWER CABLING (not supplied)
Use the tables in the Appendix (Section 7.3 & 7.4) as a guide to the required cable gauge.

+

12/24V DC

-

Red
Brown
Yellow
Black

E3 COLOURS DMX CABLE

2m Connection Cable (hardwired to the light)

E3 Colours DMX operated by DMX controller

When connecting Sport Colours DMX lights with an Ocean DMX controller or a third-party DMX controller, please refer to the table below and consult the installation manual of the controller for the correct connection method. It's important to note that when using the lights with a DMX controller, the cable from the light to the junction box cannot be extended. OceanLED recommends using a 2-way DMX Junction Box for efficient distribution of power and the DMX signal.

+

DMX-

DMX+

-

12/24V DC

Red
Brown
Yellow
Black

E3 COLOURS DMX CABLE

2m Connection Cable (hardwired to the light)
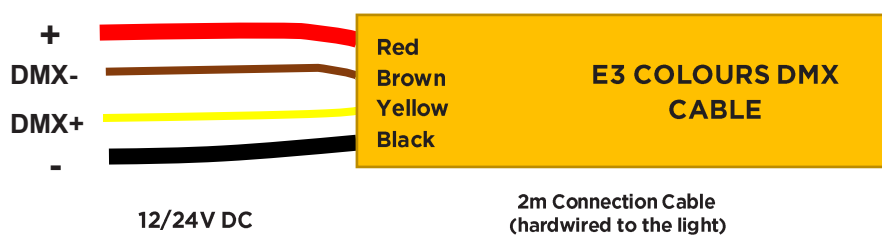
Cable colour	Signal
Black	-Ve
Yellow	DMX +
Brown	DMX -
Red	+Ve

Electrical Installation Process

1. Depending on the model and the number of lights installed, it is necessary to select the appropriate power cable size to connect the DC power source (breaker/fuse panel) to the light locations. This ensures a consistent power supply to the light units. To prevent voltage drop problems, it is crucial to use tinned marine-grade cables of the correct gauge. Please refer to the tables in the Appendix (Section 7.3 & 7.4) as a guide for selecting the required cable gauge.

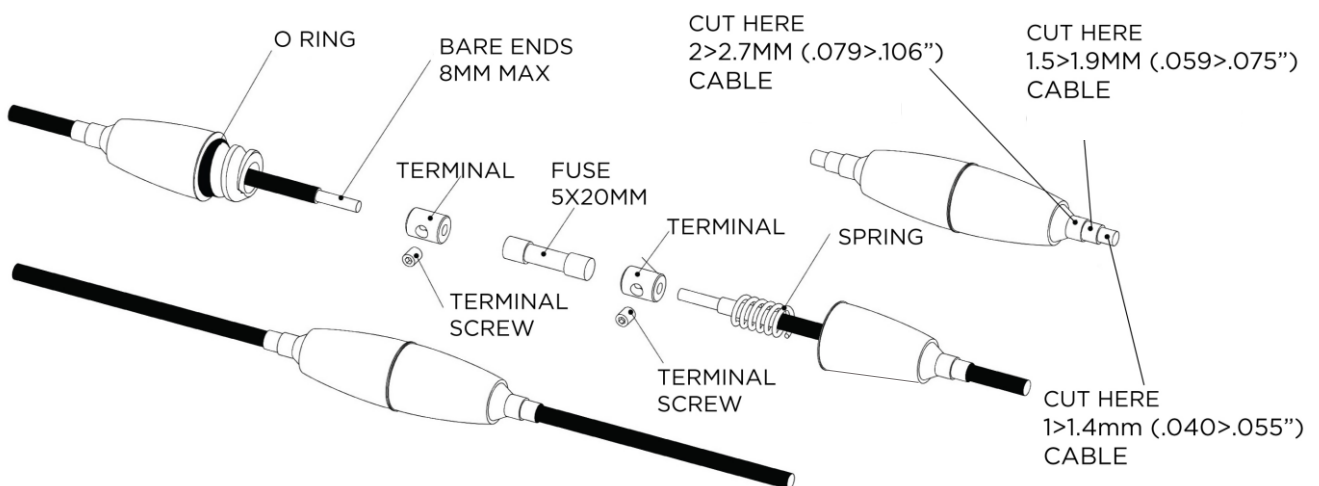2. To ensure proper protection of the cable/light unit, it is imperative to either fit the OceanLED supplied fuse to the power circuit of each light or use a suitable protection device. Additionally, it is important to ensure correct polarity. Failure to adhere to these requirements will result in voiding the unit's warranty. We recommend utilizing our 2-way fused DMX junction box for optimal performance. Please refer to the table in Section 2 for information on power consumption and the recommended fuse values.

3. To connect the lights to the DC system, use waterproof butt splices or IP66 waterproof junction boxes at both ends of the system. Remember, the red wire corresponds to +12/24V DC, the black wire represents the ground (GND), the brown wire indicates DMX-, and the yellow wire signifies DMX+. When using heat shrink, ensure that it fully covers the outer wire sheath. It is highly recommended to use glue-lined heat shrink for optimal water tightness.

> **!** **Please note that corrosion of the wire and/or water ingress into the light unit through the cable are NOT covered under warranty.**

4. Secure the cables, making sure that the cable is not subjected to excessive stress where it exits the light. It is essential to finish and test the light units **BEFORE** the vessel is submerged in water. Never install a new light fixture and then leave the vessel unchecked in the water for several days.

Fuse Kit wiring/assembly diagram

Example of the DC Installation - E3 Colours DMX with the OceanLED 2-Way Junction Box

Explore XFM Lighting System Control Options

| 3rd Party DMX Control System | OceanDMX RC | DMX Controller | OceanDMX WTP Plus | OceanBridge |

Or   Or   Or   Or

Details how to connect the DMX control device can be found in the product installation manual attached with the device.

DMX Control Cable

POWER CABLING (not supplied)

12/24V DC

SWITCH /RELAY

FUSE/ BREAKER

POWER SUPPLY (ON BOARD BATTERY) 12/24V DC

DMX Control Link Cable

OceanLED 2 Way DMX Junction Box

Last Junction Box to be terminated with onboard terminator

2m Connection Cable (hardwired to the light)

E3 Colours DMX Lights

Model	Current @ 12V DC	Current @ 24V DC	Max Nominal Power consumption
E3 Colours DMX	5.5A	2.3A	66W

4.5 FINALISING THE INSTALLATION

The Explore XFM mounting tube is constructed from corrosion resistant Aluminium Bronze and does not require further protection. The glass is pre-coated with a specialized Tritonium® coating which makes the surface of the glass lens a non-stick layer. Do not apply any additional coatings, such as foul-release products, to the front of the lens without consulting OceanLED. Failure to do so will void your warranty.

OceanLED does not recommend that bottom paint or any type of anti-fouling agent is applied to the glass and/or bezel, as damage may occur due to chemical incompatibility. If bottom painting of the bezel is deemed essential, then an area of at least 5mm should be left uncoated around the glass lens:
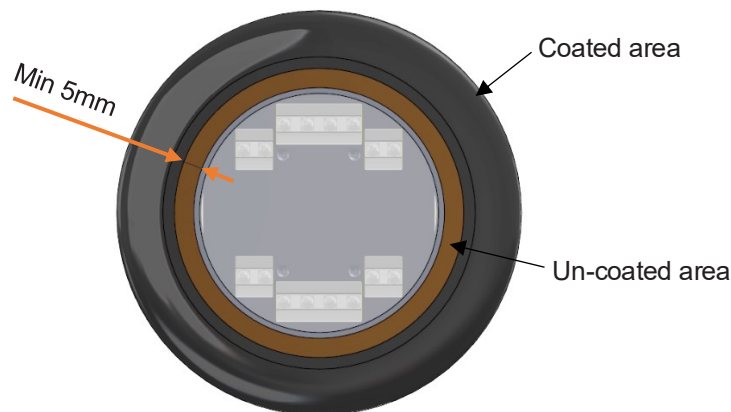
The protective lens sticker should be removed once all work on the vessel is complete.

! Do not coat the light's glass/lens with any product, including but not limited to clear antifouling paints or similar, without consulting OceanLED for advice. Failure to do so will void your warranty.

Do not use any un-authorised cleaning products to remove excess paint or antifoul off the glass or within 5mm of the glass. OceanLED recommends using Isopropyl Alcohol (IPA) only.

4.6 TEST YOUR INSTALLATION

Always test the lights **BEFORE** the vessel goes back into the water. At this final stage make sure all of the system is operational. If you have any issues, please contact your local OceanLED representative.

**! Never install a new light fixture then leave the vessel in the water unchecked for several days.
Never leave lights ON out of water for longer than 5 minutes followed by an off period of 1 hour.**

When the vessel is placed in the water, immediately check for leaks. Note that very small leaks may not be readily observed. It is best not to leave the vessel in the water for more than 3 hours before checking it again. If there is a small leak, there may be considerable bilge water accumulation after 24 hours. If a leak is observed, you must TAKE ACTION IMMEDIATELY to prevent damage.

5 Operation / Maintenance

5.1 DC SWITCH CONTROL

The E3 Colours DMX used in the DC switch mode has three modes of operation, single colour mode, strobe mode and cycle / programming mode:

1. Single colour mode – this mode is entered when the light is first turned on. The light will be a single colour, either a default white, or a previously selected colour.

2. Strobe mode – to enter this mode, turn off the light for less than 1 second, then back on again. The light will flash in a pseudo-random pattern - the colour will be the same as that in single colour mode.

3. Cycle / Program mode, to enter this toggle the power to the unit off twice for less than 1 second each time. The light will then slowly cycle and fade through the colour spectrum (see diagram below for cycle order). It can be left in cycling if required, or alternatively, once the light shows the desired colour this can be stored by switching the light off for more than 2 seconds. When the light is switched back on it will be back in single colour mode, displaying the previously selected colour.

Blue → White → Green → Blue → Red → Green
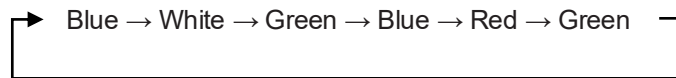
Colour Change Fade Cycle Order

NOTE: If during the above operations, one or more lights connected go out of sync, simply switch off the lights for more than 2 seconds, then re-enter cycle mode to re-select the colour.

NOTE: Cycle mode is not guaranteed to stay in sync between lights over time.

5.2 OCEANLED DMX CONTROL

To enable DMX control of all lights, the OceanLED 2-way DMX Junction Box must be used. Each junction box can power and control a maximum of two E3 Colours DMX lights. If the installation consists of more than two lights, additional DMX Junction Boxes will be required. The DMX Junction Boxes can be linked in a chain. Each junction box has a built-in DMX terminator that can be turned on or off.

The DMX standard recommends a maximum of 32 devices to be connected in one chain, and a maximum network length of 300m. If installation requires more lights than this, or a longer network length then please contact OceanLED for advice.

Please consult the manual for the purchased Ocean DMX Controller for more information on installation and operation.

DMX Addressing

- OceanLED E3 Colours DMX lights use 4 Channels DMX-512 standard for communication.

- As default the base address of the lights is set to DMX address 1.

- Colours lights use four DMX channels :

Channel 1, DMX address: 1 (base address)	Red
Channel 2, DMX address: 2	Green
Channel 3, DMX address: 3	Blue
Channel 4, DMX address: 4	White

- The default base address of the lights can be changed if required. This can either be done using a third party RDM (Remote Device Management) controller, or by using the OceanLED Explore Configuration Tool.

The Explore Configuration Tool is a USB interface that enables remote configuration of the E3 DMX Colours lights using a Windows PC. It allows you to set the base DMX address, change operating modes, and read stored parameters. Communication with the lights is established through the Remote Device Management (RDM) protocol over the existing DMX network. The Explore Configuration Tool kit is available for purchase from OceanLED. For further information, please reach out to your OceanLED representative. The kit includes a detailed installation manual.

5.3 MAINTENANCE

Marine growth can build up quickly on the light and can reduce the light's performance in just a few weeks. To help prevent this, all OceanLED lights have been coated with a specialized Tritonium® coating which helps to prevent marine growth from adhering to the glass. Lights should be cleaned with a boat brush or similar bi-weekly, or as needed to keep the lens of the light clean.

Growth varies greatly around the world and maintenance is imperative to the proper operation and longevity of the product. If heavy fouling occurs, growth can be removed from the lens using a plastic scraper and moderate pressure under water. If cleaning the lens while the boat is out of the water, wet the lens before scraping. Never scrape or try to remove barnacles from a dry lens.

! **Never use high pressure jet wash to clean the lens / bezel as this will damage the seals and void the warranty. Do not use harsh cleaning solvents, as they will damage the light seals and Tritonium coating.**

! **Do not coat the light's glass/lens with any product, including but not limited to clear antifouling paints or similar, without consulting OceanLED for advice. Failure to do so will void your warranty.**

! **If bottom painting ensure the coating is applied as instructed in the "Finalising The Installation" section. Failure to do so will invalidate your warranty.**

5.4 REPLACEMENT PARTS

The light source of this luminaire (light cartridge) shall only be replaced by the manufacturer or his service agent or a similar qualified person.

If the external flexible cable of this unit is damaged, contact your local OceanLED representative to arrange for replacement (cable must only be replaced by OceanLED, service agent or a similar qualified person).

Lost, broken and worn parts can be replaced on request and can be obtained through your local OceanLED representative.

5.5 LIGHT CARTRIDGE REMOVAL – SINGLE MOUNTING TUBE

❗ **Before proceeding with this operation, you MUST seek permission from either OceanLED or your OceanLED representative.**

DO NOT remove the light cartridge from the mounting tube during installation. The light cartridge MUST remain fitted inside the mounting tube throughout the installation process to prevent the introduction of potential contaminants that could damage the product.

Additional Tools required not supplied by OceanLED
- Allen key (2mm).

Removal Process
Please note that the back of the product, including the connections, may appear slightly different in the illustrations below as they are based on various models, however the removal process remains the same for all Explore models.

1. If the vessel is in the water, verify that the front glass is present and undamaged. Never attempt to remove a cartridge while the vessel is in water if there is suspected damage to the glass lens.

2. Turn power off and unplug all the connectors on the back of light.

3. Remove the locking ring ① and compression washer from the mounting tube.

4. Undo one of the six screws ② from the back of the light cartridge to allow the Explore Removal Tool ③ to be placed. To ease the removal process, another screw can be removed to act as a breather.
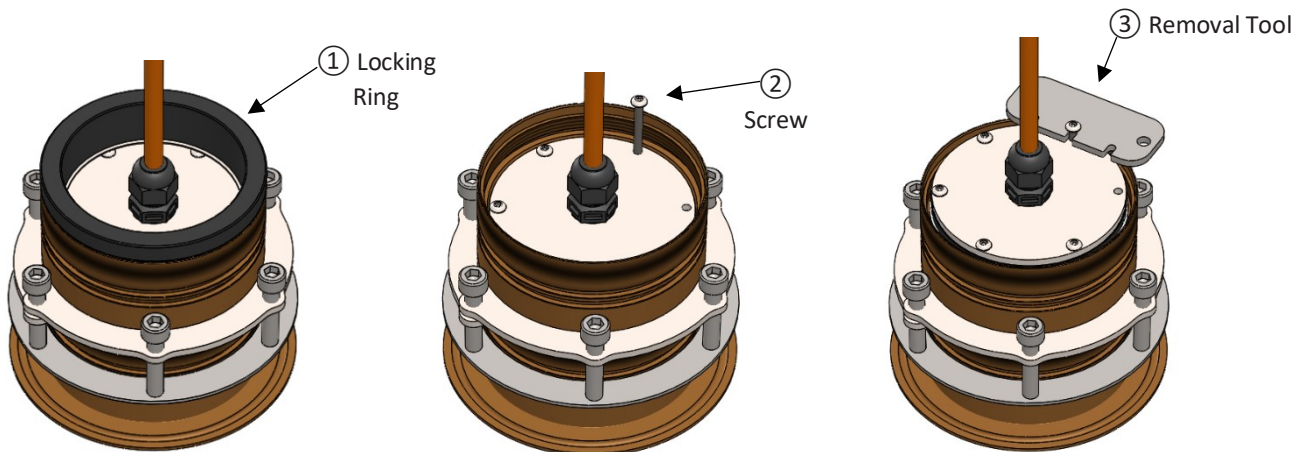
5. Place the Explore Removal Tool ③ under the head of the undone screw making sure that the screw engages with the slot on the tool, then fasten the screw in a clockwise motion. By tightening down the screw the light cartridge will be pulled out of the mounting tube.

6. Finish pulling the light cartridge out by hand with the help of the tool to fully remove it from the mounting tube.

5.6 LIGHT CARTRIDGE REMOVAL – EXTENDED MOUNTING TUBE

! **Before proceeding with this operation, you MUST seek permission from either OceanLED or your OceanLED representative.**

DO NOT remove the light cartridge from the mounting tube during installation. The light cartridge MUST remain fitted inside the mounting tube throughout the installation process to prevent the introduction of potential contaminants that could damage the product.

Additional Tools required not supplied by OceanLED:

- T-Handle Allen key (2mm) 80mm length.

Removal Process.

1. If the vessel is in the water, verify that the front glass is present and undamaged. Never attempt to remove a cartridge while the vessel is in water if there is suspected damage to the glass lens.

2. Turn power off and unplug all the connectors on the back of light.

3. Remove the locking ring ① and the compression tube ② from the mounting tube.
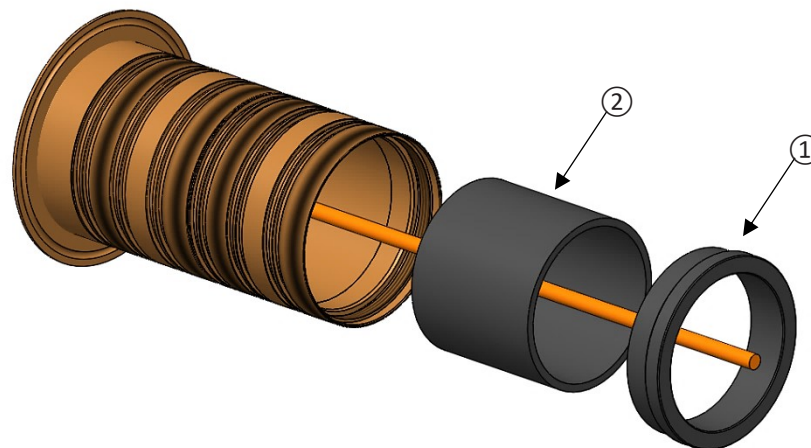
7. Undo and remove one of the six screws ③ from the back of the light cartridge to ease removal.

4. Loosen the other 5 screws ④ by the same height (approx. 15-20 full rotations of the Allen key) without removing them.

5. Insert the Explore Extended Removal Tool ⑤ into the mounting tube ensuring the cut-outs in the tool align with the screws. Twist the tool to align.

Not engaged
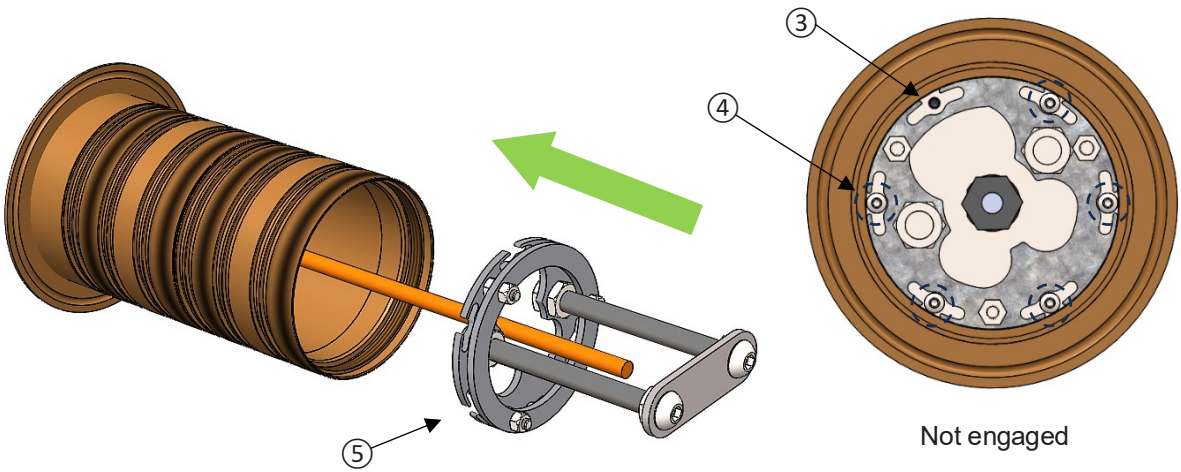
6. Twist the tool ⑦ to engage the screw heads. Once the screw heads are engaged ⑥ twist and pull the tool outwards ⑧ to extract the light.

Engaged
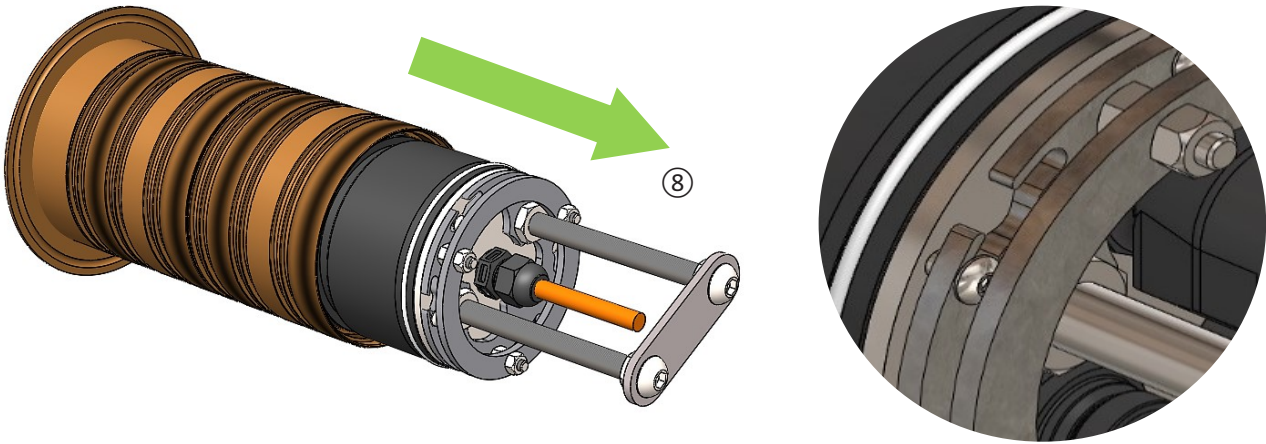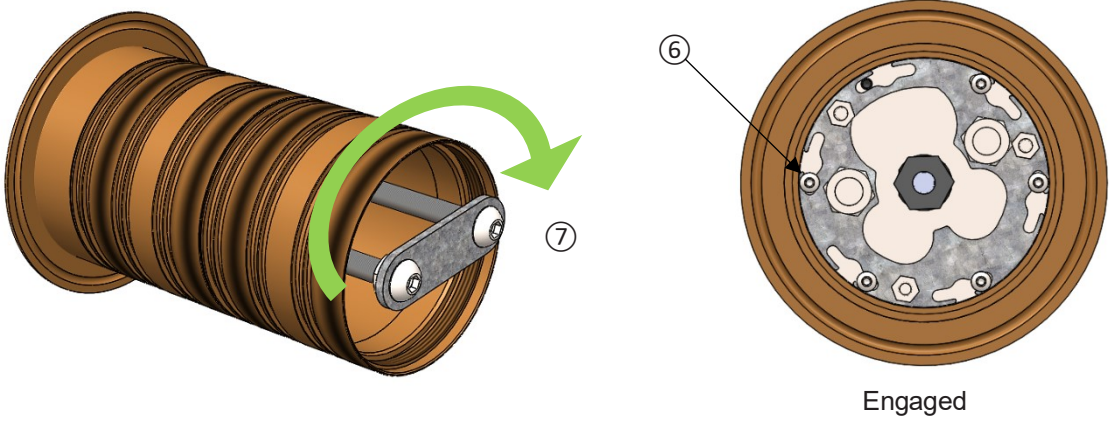
5.7 LIGHT CARTRIDGE INSTALLATION

Additional Tools required not supplied by OceanLED:

- Allen Key (2mm)

Before installing the light cartridge, clean the inside of the mounting tube with isopropyl alcohol cleaner and let it dry. Failure to do this may introduce potential contaminants that may damage the product.

Do not use any lubricant substances to facilitate the insertion of the light cartridge into the mounting tube. If assistance is needed during the insertion, OceanLED recommends using a small amount of Isopropyl Alcohol sprayed onto the O-Ring on the back of the light cartridge.

1. Inspect the mounting tube and light cartridge to ensure there are no contaminants (such as grease, debris, or dirt) or water present.

2. Use the 2mm Allen key to remove one of the screws ① on the back of the light cartridge to serve as a breather. Failure to do so will make the installation process significantly more difficult.

3. Align the light cartridge with the mounting tube ②, ensuring that the Red Arrow Indicator ③ is positioned at the top and centrally located on the back of the light cartridge.

4. Slowly push the light cartridge in until it reaches the front bezel, ensuring that the light cartridge remains aligned.
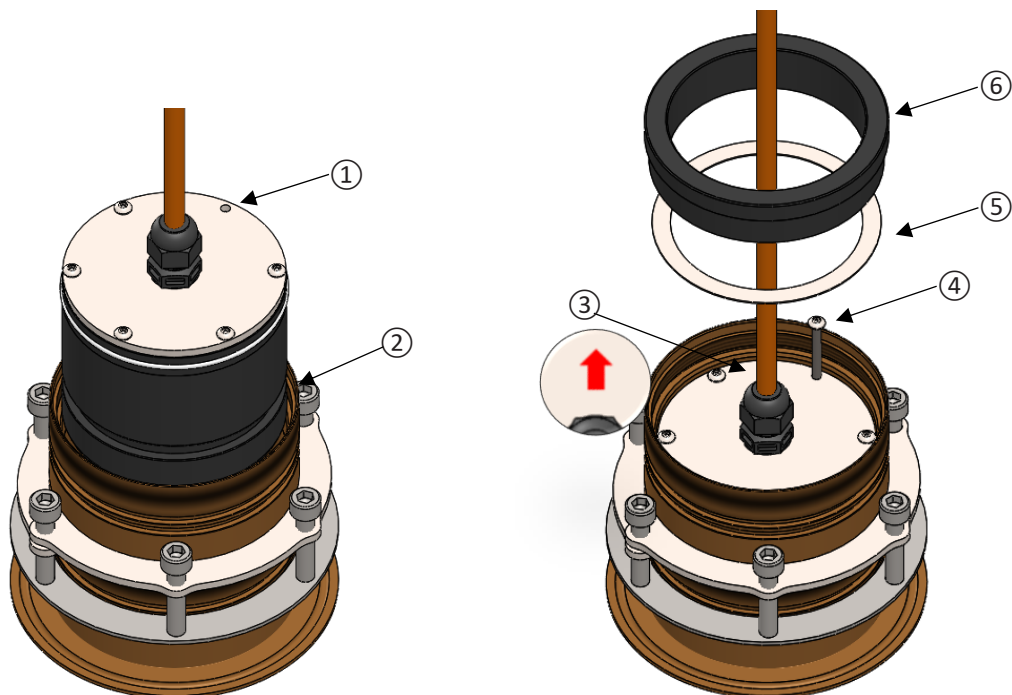
5. Using a 2mm Allen key (hexagonal key), re-install the screw ④. Also, re-install the compression washer ⑤ and locking ring ⑥, ensuring they are properly seated against the light cartridge.

6. Connect the power cable and test the light to ensure it is functioning properly.

6 <u>Troubleshooting</u>

| E3 Colours DMX			
PROBLEM	**CHECK**	**CAUSE**	**FIX**
Light does not look bright	Check that there is no marine growth on the lens	Marine growth	Clean the lens as per maintenance advice
	Check voltage supply to the light is between 11V and 32V DC (The light will still work between 9 and 11 volts however at reduced brightness)	Voltage is either too high or too low	Investigate reason for high or low voltage and fix
	Check voltage supply is stable and does not fluctuate	Voltage is fluctuating	Investigate reason for voltage fluctuation and fix
	Check that the electrical connections between the light and the supply cable have been made correctly and recommended cable gauge has been used	Poor electrical connection	Remake connection and seal joint correctly
	Confirm all LEDs are illuminated	1 or more LEDs are not working	Contact your dealer.
	Check lights to see if water is present inside the light	Water present	Contact your dealer.
	Check cable connections for corrosion	If corrosion is present	It is not advised to reuse the cable if water is present inside. Contact your dealer for a replacement. This is NOT covered by the warranty
Light has water inside	Check integrity of lens	Light will require replacing	This is not covered by the warranty - Contact your dealer for a replacement light. Only use genuine OceanLED parts
	Check connections to make sure they are not submerged in water	Light will require replacing	This is not covered by the warranty
	Check cable to make sure there is no damage to the cable	Cable will require replacing	This is not covered by the warranty. Only use genuine OceanLED parts
	Checked all factors that are above, and the light still does not work	Light faulty	Contact your dealer for a replacement light

E3 Colours DMX			
PROBLEM	**CHECK**	**CAUSE**	**FIX**
Light does not light up	Check that there is power supplied to the light cable connection.	Poor electrical connection.	Trace the cables back, checking at joints until break has been located.
	Check that the wiring polarity is correct, red to positive and black to negative.	Polarity incorrect.	Change the wiring polarity and seal joint correctly.
	Check that there is power supplied to the light cable connection.	Replace fuse.	If fuse keeps blowing, then there is short circuit in the light system that must be traced and rectified. If no external short can be located contact your local OceanLED representative.
Light/s do not respond to DMX controller	Check that the DMX electrical connections between the DMX controller and the light unit / Junction Box(es) have been made correctly.	DMX not connected or poor electrical connection.	Remake connection.
	Check the link cable connection between the Junction Boxes.	Damaged link cable.	Contact your dealer.
	Ensure the terminator has been turned ON in the last DMX Junction Box in the chain.	Terminator switched OFF.	Turn ON the onboard terminator in the last DMX Junction Box.
	If all of the above is ok, most likely there is a fault with the DMX controller, ensure the controller is working fine – please refer to the controller manual troubleshooting guide for more information.	Faulty DMX Controller.	Contact your dealer.

7 Appendix

7.1 OVERALL DIMENSIONS

Standard option

Extended option
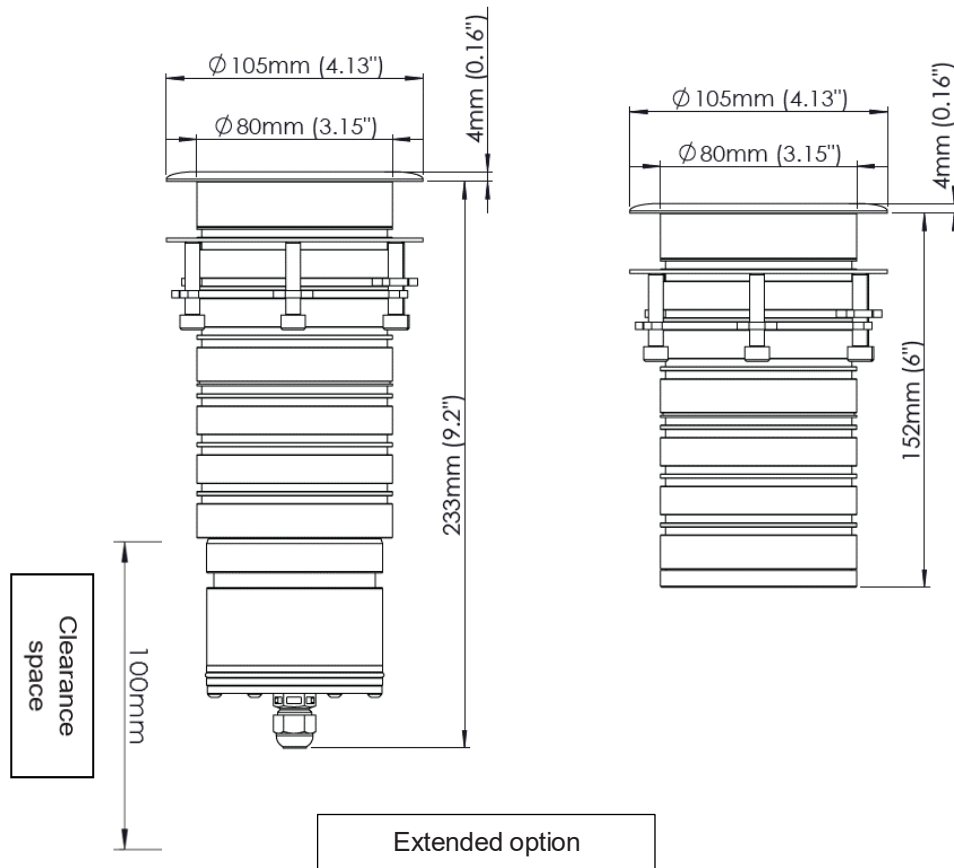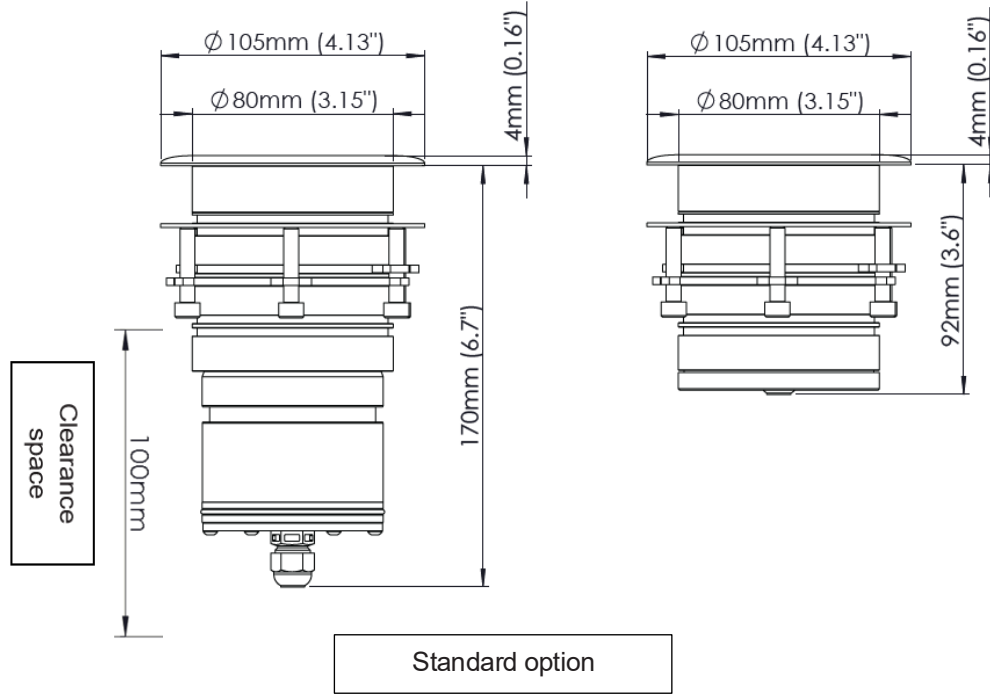
7.2 ACCESSORIES

4 WAY DC POWER JUNCTION BOX
P/N: #019901

Simple fused Junction Box for splitting and distributing DC power (12/24V DC).
Provides 1x DC power input and 4x individually fused independent outputs.

2-WAY DMX JUNCTION BOX
P/N: #013205

DMX and Power distribution box for the SPORT Colours DMX and E3 Colours DMX. Distributes power and DMX signals (12/24V DC). Provides 1x DC power input, DMX-In and DMX-Out and two DMX/ Power outputs. Boxes can be linked in chain. Each box has inbuilt on-board DMX terminator which can be turned on or off depending on the installation requirements.

DMX Cables (to link between 2-Way DMX Junction Boxes)

DMX Control Cable 3 metre, P/N: # 011703
DMX Control Cable 5 metre, P/N: # 011706
DMX Control Cable 10 metre, P/N: # 011707
DMX Control Cable 15 metre, P/N: # 011708
DMX Control Cable 20 metre, P/N: # 011709
DMX Control Cable 25 metre, P/N: # 011710

AC POWER SUPPLY (for the AC installations)
P/N: #001-600072

Input: 100-240VAC, Output: 24VDC/ 6.3A, 150W, IP67 Rated

Model	Current @ 24V DC	Max Nominal Power consumption	Number of lights that can be connected to AC Power Supply (including 10% power reserve)
E3 Colours DMX	2.3A	66W	2

Explore Configuration Tool
P/N: # 019909

The Explore Configuration Tool is a USB interface that enables remote configuration of the Explore Series lights using a Windows PC. It allows the setting of base DMX address, change of operating modes and readback of stored parameters. Communication with the lights is achieved using the Remote Device Management (RDM) protocol over the existing DMX network.

Products may vary from image shown.

7.3 ESSENTIAL TEST

! **Perform this bonding check after installation of the light and before moving the vessel back into the water.**

Refer to bonding information in the installation sections in this manual. If in doubt, please contact OceanLED.

1. Connect the light assembly to the cathodic protection system as explained in Section 4.

2. Measure the electrical continuity between the front bezel and the sacrificial anode. This test should give a reading of up to 0.5 Ω (Ohms). This procedure ensures proper electrical continuity between the front bezel, the mounting tube, and the sacrificial anode.

Bonding Screw

Aluminium Bronze front bezel

YES!

Aluminium Bronze mounting tube

The Resistance reading between the bonding screw and the sacrificial anode will not prove any continuity between the light fixture and the bonding system.

< 0.5Ω

The Resistance reading between the front bezel and the sacrificial anode will show whether the light fixture is electrically connected to the bonding system of the vessel.

NO!

Sacrificial Anode

If you have any questions regarding the above, please contact OceanLED:

+44 (0) 1455 637505 or info@oceanled.com

7.4 CABLE GAUGE CHART 12V

Cable length (feet)*	Cable length (m)**	Supply & Return Cable Conductor Size Chart 3% drop for when using 12V DC supply — Circuit Current										
		2 Amp	4 Amp	6 Amp	8 Amp	10 Amp	15 Amp	20 Amp	25 Amp	30 Amp	40 Amp	50 Amps
0-5	0-2	18 AWG	18 AWG	16 AWG	16 AWG	14 AWG	12 AWG	12 AWG	10 AWG	10 AWG	8 AWG	8 AWG
5-10	2-3	18 AWG	16 AWG	14 AWG	12 AWG	12 AWG	10 AWG	8 AWG	8 AWG	6 AWG	6 AWG	4 AWG
10-15	3-5	16 AWG	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG
15-20	5-6	16 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG
20-25	6-8	14 AWG	12 AWG	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG
25-30	8-9	14 AWG	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG
30-35	9-11	14 AWG	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG
35-40	11-12	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG
40-45	12-14	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG
45-50	14-15	12 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG
50-55	15-17	12 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG
55-60	17-18	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	0 AWG	3/0 AWG	4/0 AWG
60-65	18-20	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG
65-70	20-21	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG
70-75	21-23	10 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	0 AWG	2/0 AWG	2/0 AWG	4/0 AWG	
75-80	23-24	10 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	
80-85	24-26	10 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	
85-90	26-27	10 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	
90-95	27-29	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	2/0 AWG	3/0 AWG	3/0 AWG		
95-100	29-30	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG	0 AWG	2/0 AWG	3/0 AWG	4/0 AWG		

*One-way cable length from supply (usually battery) to load.

7.5 CABLE GAUGE CHART 24V

Cable length (feet)*	Cable length (m)**	Supply & Return Cable Conductor Size Chart 3% drop for when using 24V DC supply Circuit Current										
		2 Amp	4 Amp	6 Amp	8 Amp	10 Amp	15 Amp	20 Amp	25 Amp	30 Amp	40 Amp	50 Amps
0-5	0-2	18 AWG	18 AWG	18 AWG	18 AWG	18 AWG	16 AWG	14 AWG	14 AWG	12 AWG	12 AWG	10 AWG
5-10	2-3	18 AWG	18 AWG	16 AWG	16 AWG	14 AWG	12 AWG	12 AWG	10 AWG	10 AWG	8 AWG	8 AWG
10-15	3-5	18 AWG	16 AWG	14 AWG	14 AWG	12 AWG	12 AWG	10 AWG	8 AWG	8 AWG	6 AWG	6 AWG
15-20	5-6	18 AWG	16 AWG	14 AWG	12 AWG	12 AWG	10 AWG	8 AWG	8 AWG	6 AWG	6 AWG	4 AWG
20-25	6-8	18 AWG	14 AWG	12 AWG	12 AWG	10 AWG	8 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG
25-30	8-9	16 AWG	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG
30-35	9-11	16 AWG	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG
35-40	11-12	16 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG
40-45	12-14	14 AWG	12 AWG	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	2 AWG
45-50	14-15	14 AWG	12 AWG	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG
50-55	15-17	14 AWG	12 AWG	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG
55-60	17-18	14 AWG	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG
60-65	18-20	14 AWG	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG
65-70	20-21	14 AWG	10 AWG	8 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG
70-75	21-23	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	2 AWG	0 AWG	2/0 AWG
75-80	23-24	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG
80-85	24-26	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG
85-90	26-27	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG
90-95	27-29	12 AWG	8 AWG	8 AWG	6 AWG	4 AWG	4 AWG	2 AWG	1 AWG	1 AWG	2/0 AWG	2/0 AWG
95-100	29-30	12 AWG	8 AWG	6 AWG	6 AWG	4 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2/0 AWG	3/0 AWG

*One-way cable length from supply (usually battery) to load.

7.6 INSTALLATION OF 2-WAY DMX JUNCTION BOX

1. Remove the lid of the Junction Box.
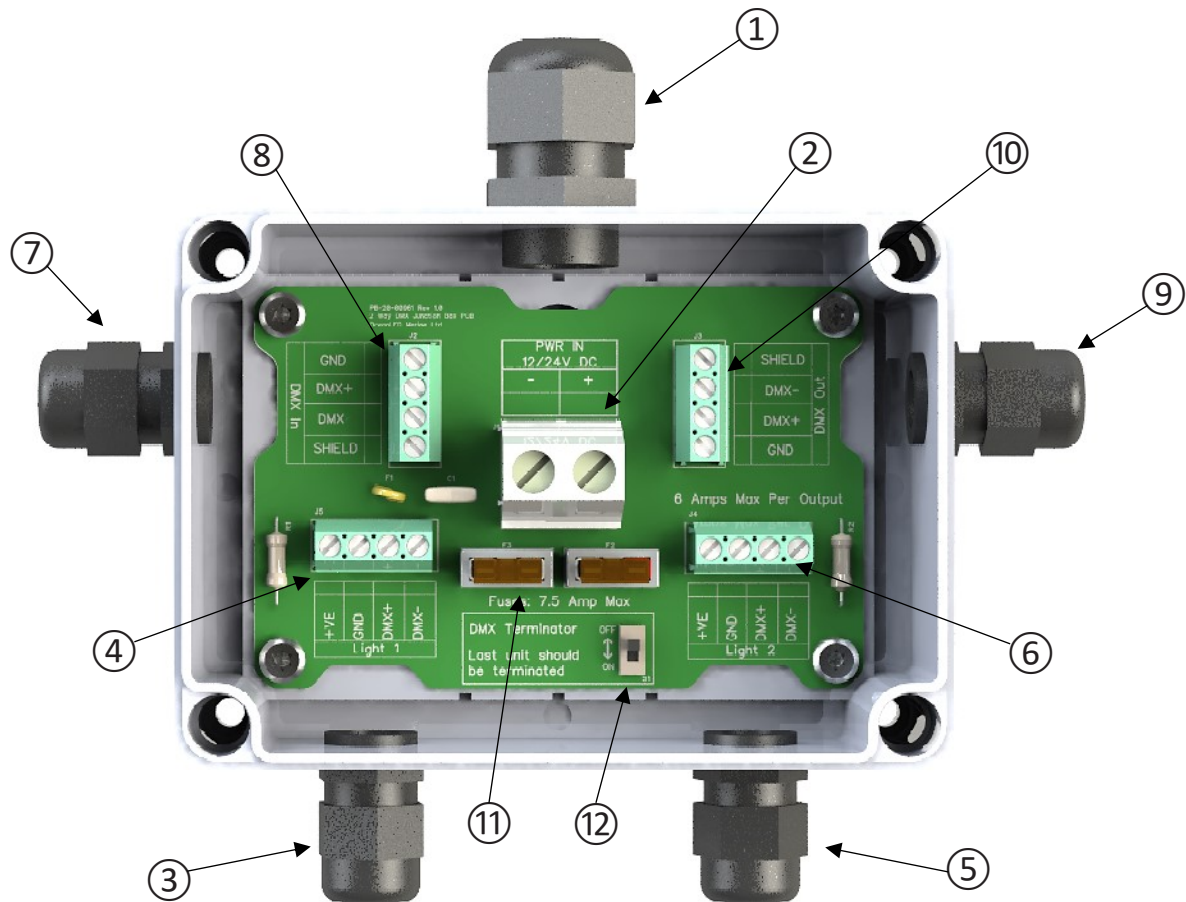
2. Loosen the M20 cable gland cap ① and feed the main power wires through the power input cable gland. The appropriate gauge of the supply cable will depend on the current draw of the connected lights and the length of the cable run from the fuse/breaker panel to the junction box. For the latest specifications of the lights being used, please refer to the spec sheet available at www.oceanled.com.

3. Insert the bare ends of the wires into the screw terminal ②, ensuring correct polarity (usually red for positive and black for negative). Tighten the screw terminals using a screwdriver and secure the M20 cable gland (hand tight only).

Name		Function	Connection
PWR In	+	DC Power +VE	Connect to a fuse +12/+24 VDC from fused panel / battery
	-	DC Power -VE	Connect to battery GND return

4. Loosen the "Light 1" M16 cable gland cap ③ and feed the first light cable through the gland and into the screw terminal ④ in the correct order. Use a flat-head screwdriver to tighten the screws on the screw terminal and secure the cable gland.

Explore E3 Colours DMX Connections:

Light 1 / Light 2	Wire colour
+VE	RED
GND	BLACK
DMX+	YELLOW
DMX-	BROWN

5. Loosen the "Light 2" M16 cable gland cap ⑤ and feed the cable of the second light through the gland and into the screw terminal ⑥ in the correct order. Use a flat-head screwdriver to tighten the screws on the screw terminal and secure the cable gland.

6. Loosen the DMX In cable gland cap ⑦, pass the DMX cable through the gland, and connect it to the DMX In screw terminal ⑧ in the correct order. Tighten the screws and secure the cable gland.

OceanLED DMX Link Cable connections:

Light 1 / Light 2	Wire colour
GND	BLACK
DMX+	YELLOW
DMX-	BROWN
SHIELD	SCREEN
Not Connected	RED

7. If only one DMX Junction Box is being used, switch on the DMX terminator ⑫ and seal the DMX Out cable gland with a blanking plug (not provided). Proceed to step 8.

8. If multiple boxes will be used, loosen the DMX Out cable gland cap ⑨, pass the DMX Link cable through the gland, and connect it to the DMX Out screw terminal ⑩ in the correct order. Tighten the screws and secure the cable gland. Keep the DMX terminator ⑫ off, but switch on the terminator ⑫ in the final Junction Box in the chain.

9. Ensure that the appropriate value fuses are installed for each output ⑪. The supplied fuses are rated 7.5 Amps. Refer to the corresponding light manual for the required fuse values. (Note: The required fuse type is mini-blade.)

10. Close the lid of the junction box and secure it using the provided four screws. Seal any unused cable glands with a blanking plugs (not provided).

11. Repeat the procedure for next Junction Box.

Note: Before closing the junction box and supplying power to the lights, please double-check all connections to ensure their accuracy. Test the whole system BEFORE the boat goes back into the water.

NOTES

NOTES

NOTES

8 <u>Warranty</u>

Please remove this page and keep for your files

Warranty Reminder:

- **Never use a high-pressure jet wash to clean the lens or bezel, as this can damage the seals and void the warranty.**

- **Do not coat the light's glass/lens with any product, including but not limited to clear antifouling paints or similar, without consulting OceanLED for advice. Failure to do so will void your warranty.**

- **If applying bottom paint, ensure the coating is applied as instructed in the "Finalising the Installation" section. Failure to follow these instructions will void your warranty.**

- **Do not submerge the cable ends in water. Cables and connections exposed to underwater submersion are not covered by warranty.**

- **Ensure the rear of the light is kept in a dry area and not exposed to a wet environment. Failure to do so may invalidate the warranty.**

Please remember that failure to follow these guidelines may result in the denial of warranty claims.

For technical assistance:

Europe: service@oceanled.com

The Americas: warranty@oceanledusa.com

Warranty Serial Code(s):

www.oceanled.com