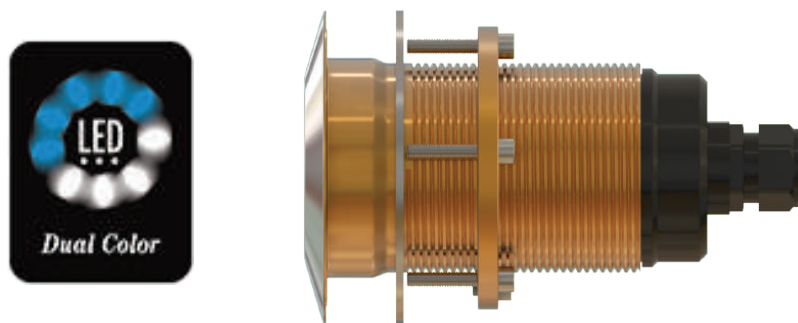


TIX 403, TIX 803 & TIX 1603 Thru-Hull Light Lumishore SUPRA (dual colour) light Installation and Operating Guide



Congratulations! You have purchased a LUMISHORE advanced technology underwater light. Every care has been taken to ensure your Thru-Hull light arrives in perfect condition, so please enjoy the ultimate experience in underwater lighting.

LUMISHORE Thru-Hull high intensity lights are designed for those owners who prefer the integrity of a thru-hull installation in a light that employs the most powerful, efficient and cost effective underwater LED lighting on the market today. The LUMISHORE Thru-Hull is suitable for many sizes and types of water-craft, including Sports Boats, Cruisers, Yachts and Super Yachts.

Please read the following pages before attempting installation to ensure complete understanding of the LUMISHORE LED lights.

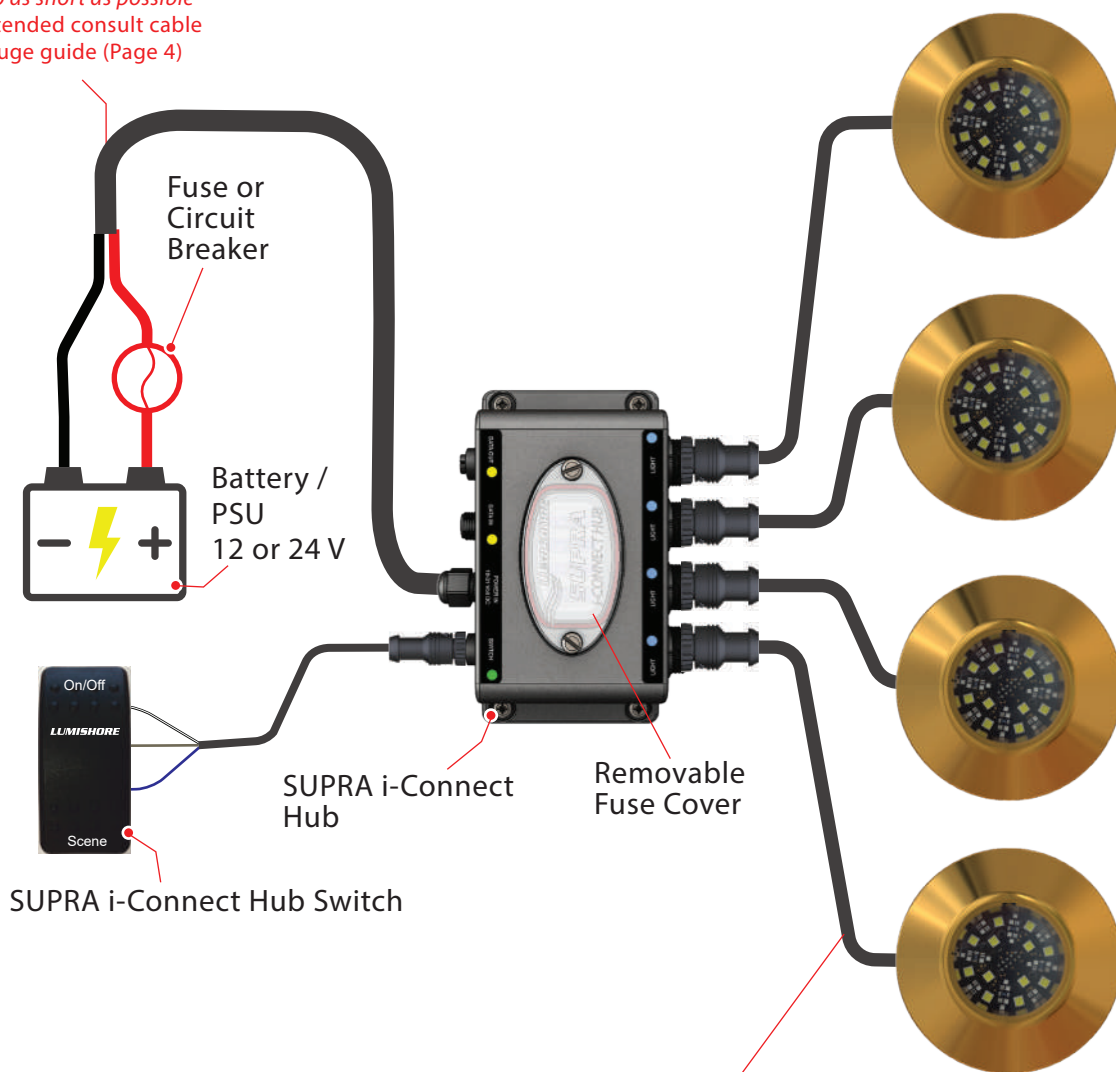
BEFORE YOU START

- **High Intensity LED light – Do not stare into the LED module at close proximity.**
- Always ensure that the vessel's power source and battery are disconnected or isolated prior to installation.
- A qualified professional should carry out both the electrical and mechanical installation. If in doubt please contact LUMISHORE.
- Always use a suitable fuse or circuit breaker to protect the complete system.
- The Thru-Hull may be installed into GRP (Glass Reinforced Plastic or Fibreglass) and wooden hulls.
- For metal hull or carbon fibre installations an isolation kit will be required.
- The light should be installed 6" - 10" (150-250mm) below the minimum load water line.
- For best results install the lights between 2.5ft (0.8m) and 6.5ft (2m) apart.
- Never try to install or remove light with the vessel in the water.
- Lights should not be exposed to any temperatures in excess of 150°F (65°C). For example, next to hot engine components or where exhaust emissions could be expelled onto the light while underwater.
- Do not over tighten the retaining bolts. A force of **3Nm** on each bolt should not be exceeded.
- All LUMISHORE products should have a bonding to the DC system via bonding strap for galvanic protection.
- Choose a location - The light must be installed onto a flat (not curved) surface. Mount on transom or side hull only.

Planning the Installation & Wiring Diagram

The TIX SUPRA lighting system will typically consist of several Lumishore TIX lights and a SUPRA i-Connect Hub and SUPRA i-Connect switch. These can be powered from a DC power source (e.g. battery), or an AC/DC power supply via a suitable fuse or circuit breaker.

2 Core Power cable
keep as short as possible
If extended consult cable
gauge guide (Page 4)



3m(10ft) Pre-installed cable and Connector
Extend using PN:24-0247 (See Pg. 4)

- Plan the cable routing and work out the Power cable lengths. Check the cable AWG required in the tables on Pg. 4
- Mount The SUPRA i-Connect Hub in a dry, well ventilated location.
- Each light is supplied with 3m (10ft) length cable with pre installed connector. Do Not Cut - Preterminated Extension cables are available, see Pg. 4 for further details.
- Install the correct fuse for the model light and vessel voltage - see fuse table Pg. 4.
- Ensure the fuse cover is reinstalled correctly.
- All Power connections need to be made waterproof using a suitable junction box or waterproof connectors.
- Ensure any unused ports on the i-Connect hub have the waterproof caps installed.
- All pre installed connectors are keyed - do not force and ensure they are aligned correctly.



Ensure correct electrical polarity. Incorrect installation will invalidate warranty!

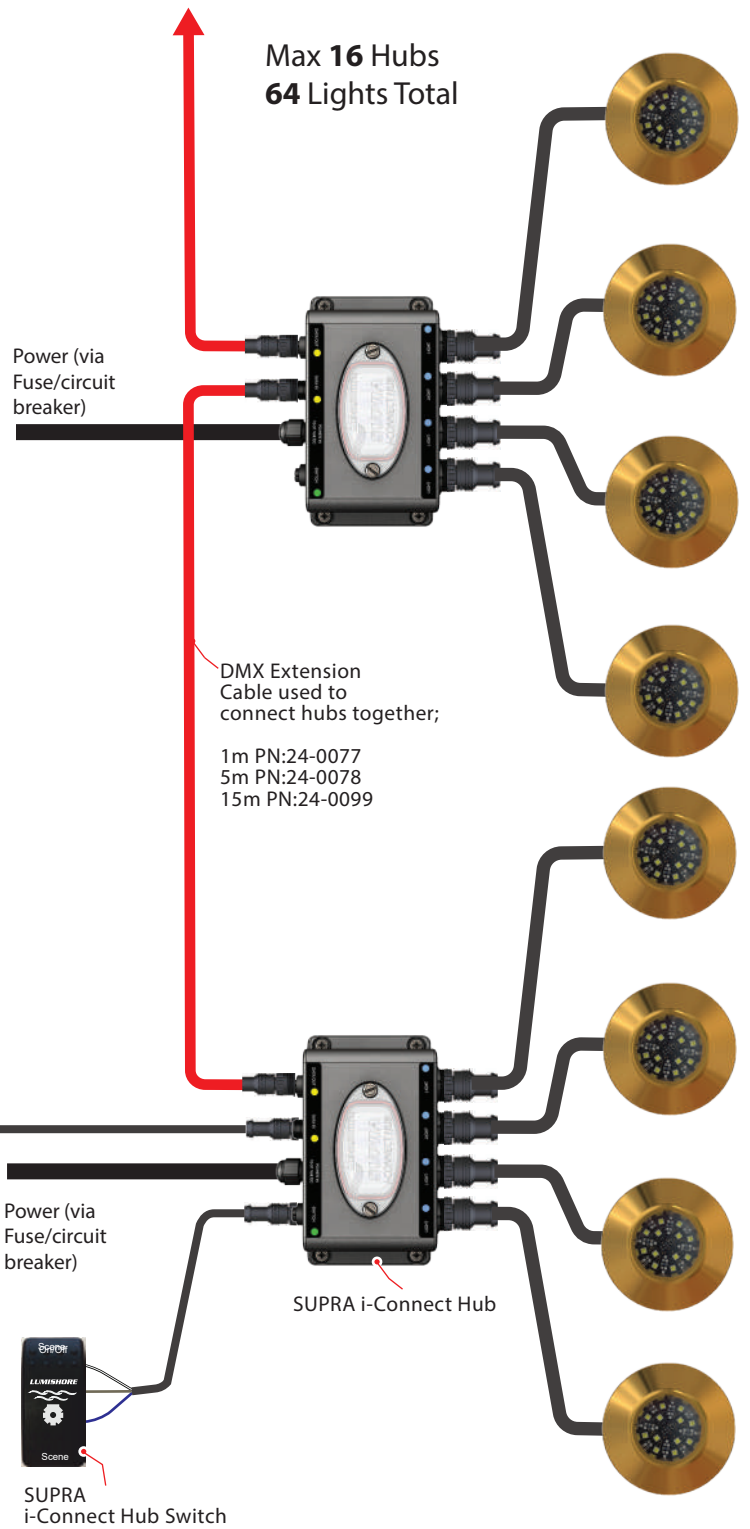
Optional MFD Control

LUMI LINK™

The world's first marine lighting API (Application Programming Interface) allowing plug-&-play integration of Lumishore underwater lighting systems with certified Multi-Function Displays (MFDs) creating a centralized control platform for the entire vessel reducing helm clutter and simplifying vessel operation.



>4 Lights Install



Power Cable Extension

It is important to use the correct cable gauge when extending the Power cables.

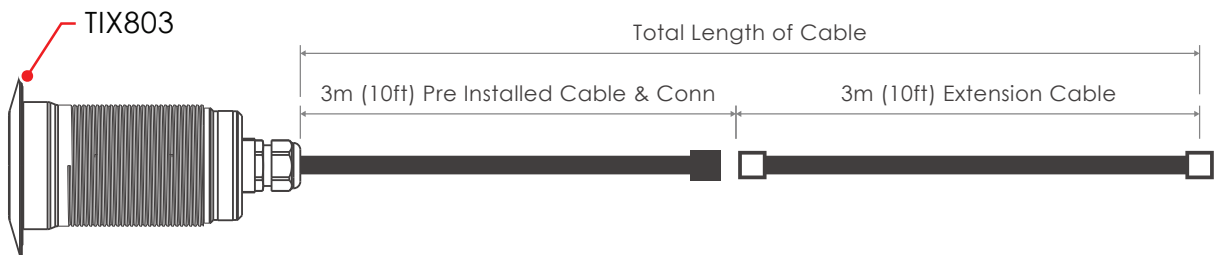
Note: To avoid Excessive Voltage drop keep the Power cable as short as possible

Total Length (to Hub & back)	Vessel Voltage	
	12V	24V
0-10ft (0-3m)	8AWG	12AWG
10-20ft (3-6m)	6AWG	8AWG
20-30ft (6-9m)	4AWG	6AWG
30-40ft (9-12m)	2AWG	4AWG
40-50ft (12-15m)	2AWG	4AWG
50-60ft (15-18)	1AWG	2AWG

Light Cable Pre Made Extension

The light cable can be extended using the Lumishore preterminated extension cables PN: 24-0247, For the maximum extension length follow the table below.

Extension example;



Model	Max Length of Cable	
	12V	24V
TIX403	20ft (6m)	30 ft (9m)
TIX803	Do Not Extend	30 ft (9m)
TIX1603	N/A	20 ft (6m)

Max Current Ratings and Fuse table

Model	Driver Type	Max Current (12V DC)	Max Current (24V DC)
TIX 403	DC	6A	3A
TIX 803	DC	8.8A	4.4A
TIX 1603	DC	N/A	6.5A

Fuse Table

Model	Fuse Rating	
	12V	24V
TIX403	10A	5.0A
TIX803	15A	7.5A
TIX1603	N/A	10A

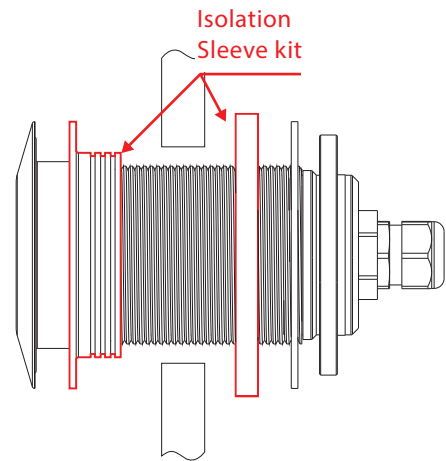
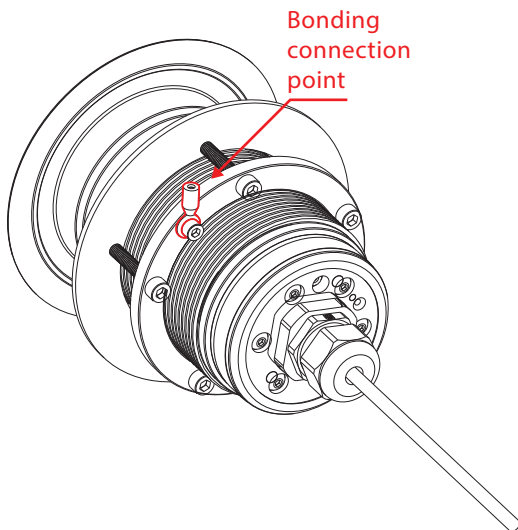


DO NOT attempt to unscrew or remove cartridge from light body. Doing so will invalidate warranty and potentially damage the LED module.

Bonding Attention: Failure to bond the lights properly and maintain the appropriate protection will invalidate the LUMISHORE warranty.

LUMISHORE lights should be connected to the vessel's DC Bonding system to ensure protection from electrolytic / galvanic corrosion. All bonding connections should be fully checked prior to returning the vessel to the water. LUMISHORE lights have integrated circuitry to protect lights from external issues, but these are dependent upon correct bonding.

Installation into a metal or carbon fibre hull requires an isolation sleeve kit. In this Case DO NOT Bond lights.



Model	Part Number
TIX403	60-0210
TIX803	60-0211
TIX1603	60-0212

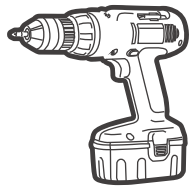
Installation Considerations

- Location - Positioning will be dependent on both external and internal obstacles; consideration should be given to installation wiring and internal access within the vessel. Ideally the light modules should be installed 6" to 10" (150-250mm) below the water line and spaced between 2.5ft to 6.5ft (0.8-2m) apart.
- Select a flat surface, make sure that both the internal and external surfaces of the hull are even and parallel. It may be necessary to sand or grind the surface.
- A hole will be drilled to allow the Thru-Hull light to be inserted. Care must be taken to ensure there is unrestricted access inside the hull
- The light is temperature sensitive and must not be located close to the exhaust or other heat sources.
- If multiple lights are installed, each light should be evenly spaced to ensure the best water illumination. The number of lights and the spacing on your vessel will depend on a few factors: vessel size, location of lights and water clarity.

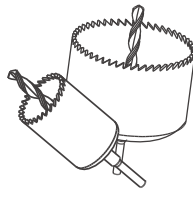
Tools Required



5mm Allen Wrench



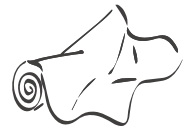
Drill/Driver



Hole-saw



Marine Sealant
(Use only 3M 4200)



Rags for clean-up

1. Measure the position of the lights on a flat part of the hull. Mark carefully, and double-check for internal obstacles.
2. Check the required hole size against the table below. Drill a perpendicular hole through the hull using an appropriate cutter for the hull material.

Model	Hole Size	Hole Size W/Delrin Sleeve
TIX 403	57mm (2.25")	64mm (2.5")
TIX 803	86mm (3.375")	93mm (3.656")
TIX 1603	92mm (3.625")	101mm (4")

3. The exposed inner hull surface must be properly sealed to prevent water intrusion into the hull before the Thru-Hull is secured in place.
4. Before inserting the Thru-Hull light ensure that the hull surface is free from dirt and grease and remove any existing anti-foul from the hull surface.



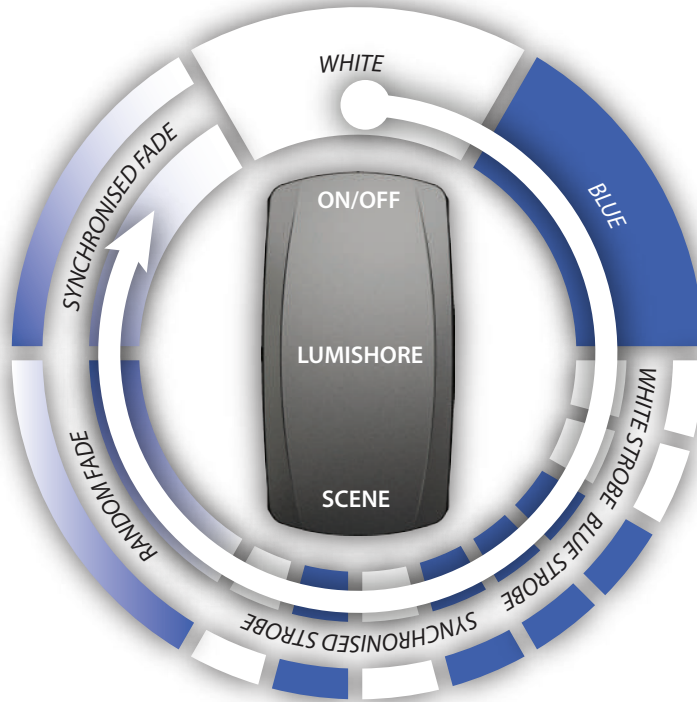
Note: Do not use an alcohol-based solvent as this may have an adverse effect on the sealant

5. Using an approved adhesive (3M 4200 Marine (recommended) or similar), apply liberally a continuous bead of sealant around the entire circumference of the sealant groove, on the base of the stem and on the shaft of the Thru-Hull.
6. Feed the connector and cable through the hole in the hull avoiding any strain on the cable. Gently insert the stem of the Thru-Hull light assembly through the hole in the hull.
7. Apply even pressure with a slight circular motion until the Thru-Hull is flush with the hull surface.
8. From inside the vessel, feed the supplied washer down the shaft of the Thru-Hull fitting. Screw the locking nut in place and tighten the retaining bolts so that they are hand tight (less than 1Nm) - **Do not tighten fully at this stage, excess pressure will push all of the sealant out.**
9. Remove excess sealant that is squeezed from behind the light with a rag.
10. Allow the sealant to cure according to the sealant manufacturer's instructions. Once fully cured, using a 5mm Allen wrench, re-tighten each retaining bolt (force less than 3Nm). **Care should be taken not to exceed this force as damage to the light module or hull of the vessel may occur.**
11. Attach the vessel's bonding protection to the bonding bolt on the locking ring.

i-Connect Switch Operation

The i-Connect switch has two operations – “on/off” and “Scene”. Pressing “Scene” advances the light to the next function:

- White
- Blue
- White strobe
- Blue strobe
- White / Blue Strobe
- Random Fade
- Synchronised Fade



Note: Switching the system off for 5 seconds and on again will restart the sequence in white mode.

MFD Light Control using Lumi-Link Bridge

Using the optional SUPRA Lumi-Link bridge module, all light controls can be displayed onto certified MFD units. For full instructions consult SUPRA Lumi-Link bridge module Instruction leaflet.

Certified MFD



With **LUMI-LINK™**

Testing the Lights



The underwater lighting system should always be tested before the boat goes back in the water. Check that each light comes on, and all lights change in sequence as per the system operation section above. See the problem solving guide for advice on resolving any issues.

Once the boat is back in the water, check for any water ingress on the installed lights. Any ingress should be dealt with immediately. The lights should be checked several times over the first 24-hours and periodically after that to ensure installation is satisfactory.

Maintenance and Cleaning

The locking nut and retaining bolts should be inspected on a regular basis to ensure they are kept tight. LUMISHORE recommends general inspection of the light module, driver and cable attachments every month.

LUMISHORE lights require simple cleaning. Lights should be checked often to ensure the light body and lens area are free from sea growth. In the event that your light requires cleaning, we recommend the use of a soft cloth or soft bristled brush. The glass should be kept clean with a plastic scraper or soft brush. Regular cleaning of the lens will ensure that the light module delivers maximum optical output. DO NOT use an abrasive cloth or cleaning agent as permanent damage to the lens may occur.

DO NOT use any abrasive cleaning materials as these may damage the body of the light.
DO NOT use any cleaning fluids that contain solvents, acids or alkalis.
DO NOT clean using pressure washing or sandblasting equipment.

Slight discolouration of body may occur over life. This does not affect performance, and is not subject to warranty.

Due to nature and high build quality it may on rare occasions be possible to see small levels of condensation, this is normal for high power LEDs and will disappear after cooling and does not harm operation in any way.

No chemicals, cleaners, chemical sprays or sandblasting should ever be applied / used on lights — this will negate warranty

To prolong device lifetime and prevent marine growth build up, a good quality anti-fouling system must be used to coat the external body of the device. This should be renewed regularly.

In the event of one or more of the lights not lighting up then check the LED status on the driver (at the back of the light). The LED will either be continually ON (healthy), OFF (no power to driver) or flashing. Please refer to the table below for what the number of flashes means and what action to take.

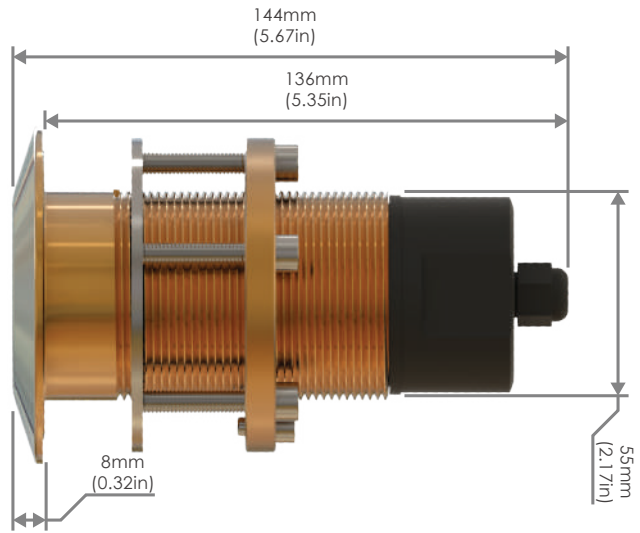
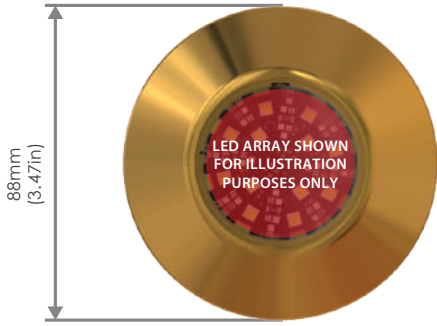
LED Status	Meaning	Action to take / Things to check
No LED light on driver	No power to driver	Check fuse / breaker Check connections Check voltage at input to driver connections
Solid LED	Power On	Driver is receiving voltage and operating properly Check the switch is operating correctly
Flashing 2 times	Low input voltage to driver	Check power connections or battery voltage
Flashing 3 times	Light temp too high	Could happen when light is out of water or next to exhaust
Flashing 4 times	Driver temp too high	Driver is mounted too close to an engine or exhaust
Flashing 7 times	LED array voltage out of range	Check the connections between light and driver Check light in each colour to determine if all colours are working
Flashing 8 times	Light not detected	Light is not connected or cable is cut or pinched Light has been connected incorrectly to the driver
Continuous rapid flashing	Driver program corrupt	Reset driver by switching off power for 1 minute, and then switching on again Contact LUMISHORE if problem persists

In the event of an issue, record the serial number(s) of the light(s) and contact your local dealer.

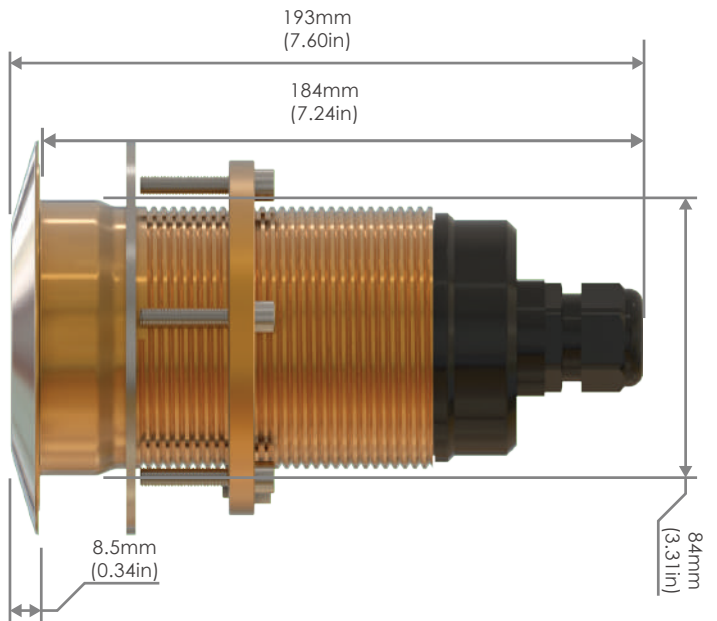


If a light does not switch on, or function normally, it should be disconnected from the power source

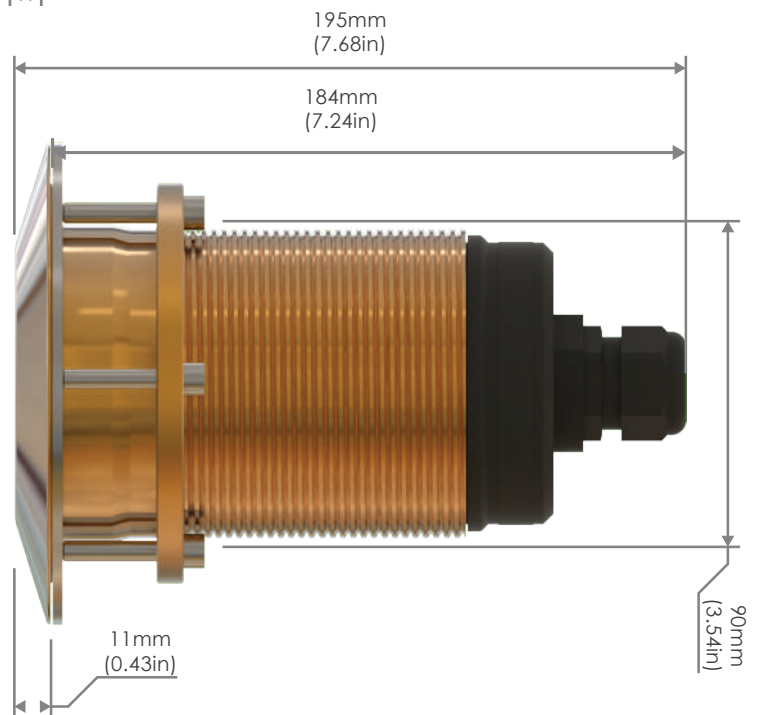
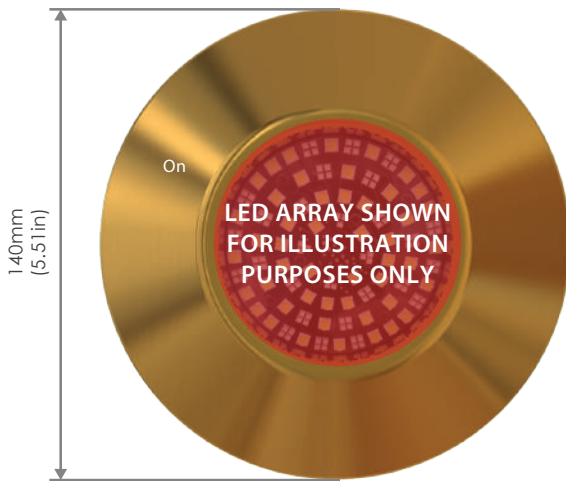
TIX403 Light Unit



TIX803 Light Unit



TIX1603 Light Unit



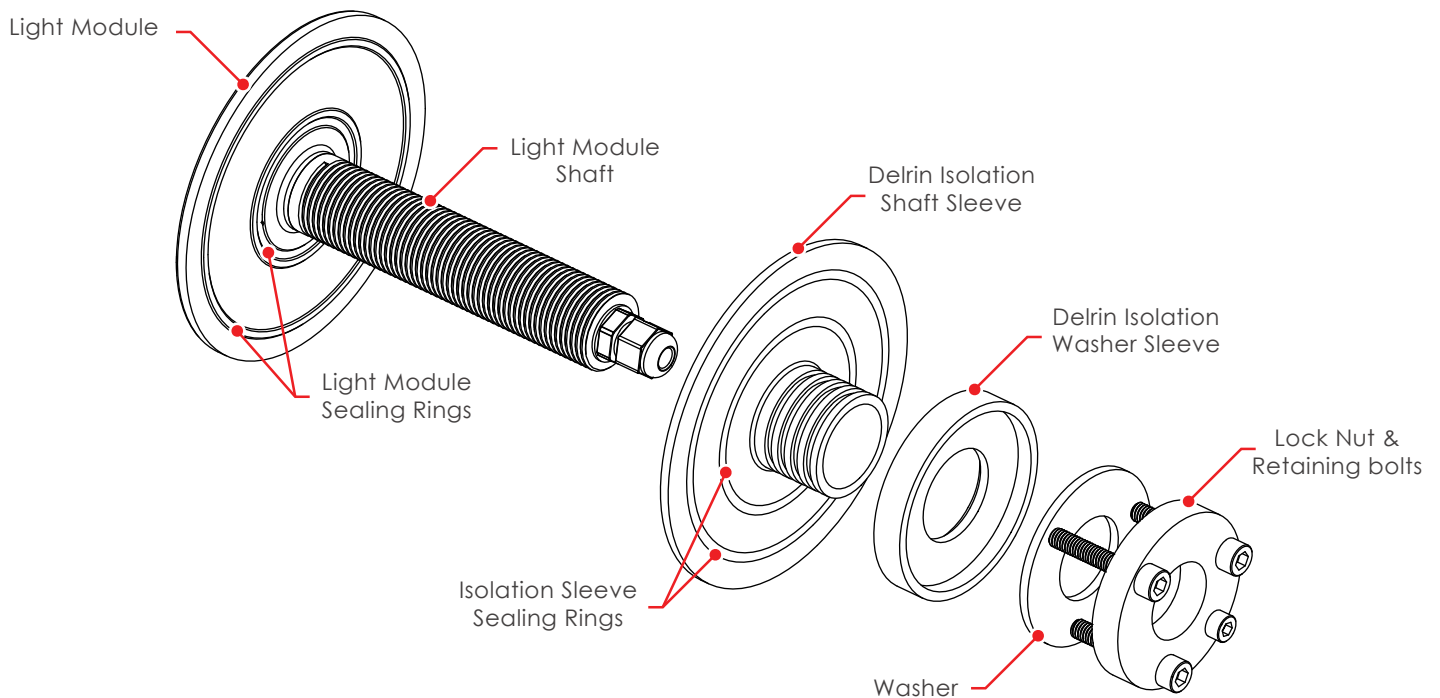
Thru Hull Isolation Sleeve Assembly Guide



Before you start!

Always ensure that the vessel's power source and battery are disconnected or isolated prior to installation. A qualified professional should carry out both the electrical and mechanical installation. If in doubt please contact LUMISHORE. Refer to product support section.

NOTE : DO NOT bond the light to the vessels bonding system.



How to assemble the isolation shaft and washer sleeve

Note: This diagram shows the order of assembly. It may look different from product to product, but the assembly order is the same.

Assembly of the isolation sleeve should be carried out just prior to the installation of the light to the vessel. For full installation instructions for the light module please refer to the Thru Hull installation document.

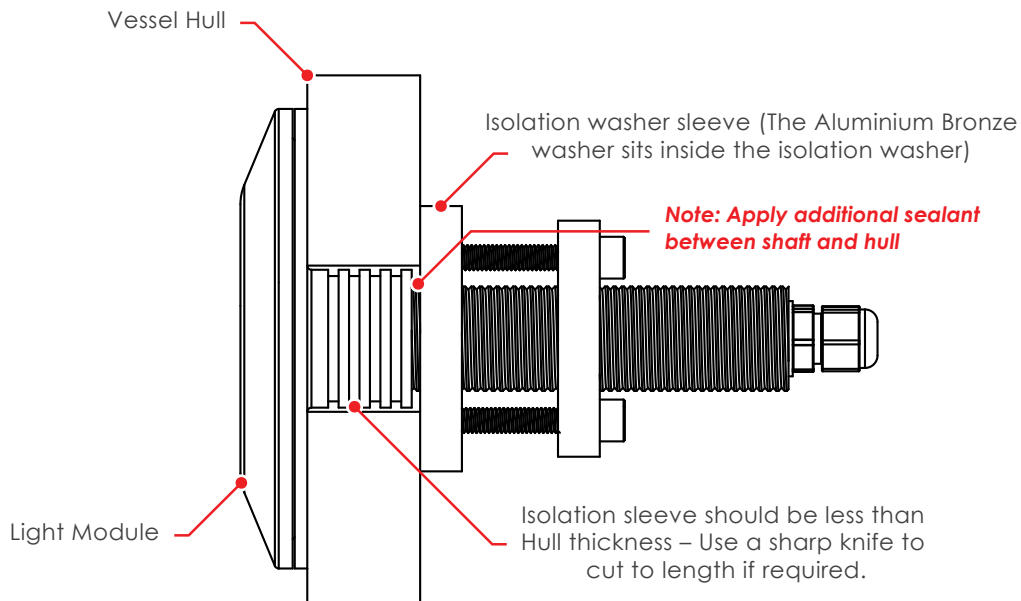
Thru-Hull hole size table

Model	Hole size required in hull	Sleeve Part Number
TIX202	37mm (1" 15/32)	60-0205
TIX402	64mm (2" 1/2)	60-0210
TIX802	93mm (3" 21/32)	60-0211
TIX1602	101mm (4")	60-0212
THX402	34mm (1" 11/32)	60-0207
THX802	34mm (1" 11/32)	60-0208
THX1602	34mm (1" 11/32)	60-0209

Note : If an isolation sleeve is NOT being used then the hole size will be smaller – refer to the installation manual for the relevant product for the correct hole size.

- 1 After drilling the hole measure the thickness of the hull, ensure that the isolation shaft sleeve is less than the hull thickness. If necessary, using a sharp knife or suitable cutting implement, the isolation sleeve can be cut to length using the radial grooves as a guide. (see assembly diagram below).
- 2 Before assembling the isolation sleeve ensure that the light and sleeve surfaces are free from dirt and grease. **Note: Do not use an alcohol-based solvent as this may have an adverse effect on the sealant.**
- 3 Using an approved adhesive (3M 4200 Marine or similar), run two continuous beads of sealant around the entire circumference of the sealant grooves of the light. Add an additional continuous bead around the base of the stem.
- 4 Slide the Isolation sleeve down the shaft so that it sits firmly against the back of the light, push the sleeve onto the back of the light until the two surfaces are flush. At this point any excess sealant can be removed using a soft cloth and suitable cleaner.
- 5 Place the Delrin isolation washer sleeve over the Aluminium Bronze Washer.
- 6 Using the isolation sleeve sealing rings for the marine adhesive, the light module is now ready to install onto the vessel as per the thru hull installation document. Please refer to the lights installation instructions.
- 7 During installation and from inside the vessel ensure that sealant is applied from the rear around the shaft to ensure that there is no potential contact between the shaft and the hull.
- 8 **DO NOT** bond the light to the vessels bonding system.

Final Assembly



Note: A suitable marine adhesive (e.g. 3M - 4200) should be used between the light module and the isolation sleeve and the isolation sleeve and the hull of the vessel. This diagram shows the order of assembly. It may look slightly different from product to product, but the assembly order is the same.

Lumishore Ltd warrants the Isolation sleeve to be free from defects in workmanship and materials for 3 Years. Misuse, abuse, improper installation, neglect, improper shipping, damage caused by disasters such as fire, flood and lightning, installation by unqualified personnel, unauthorised repair or modification is not Lumishore's responsibility. Should your isolation sleeve be defective upon receipt please contact your dealer immediately.

