

LUMISHORE



Single Colour Light

TIX202 Interchangeable Flush Fit Thru-Hull Light

Installation and Operation Guide



Congratulations! You have purchased a LUMISHORE advanced technology LED 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 Hi-Intensity LED Interchangeable Lights are designed for those owners who prefer the integrity of a thru-hull installation where the light may be removed from the inside of the hull, and employs the most powerful, efficient, and cost effective underwater LED lighting on the market today. The LUMISHORE Interchangeable Thru-Hull is suitable for many sizes and types of watercraft, including Sports Boats, Cruisers, Yachts, and Super Yachts. LUMISHORE TIX202 Interchangeable Thru-Hull LED lights have an integrated internal driver module to make installation simple and ensure trouble free operation for years to come.

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

FEATURES

- Interchangeable (removable LED module) Flush Fit Thru-Hull light for transom, bottom, and hull-side mounting
- Requires 1.1" (28mm) entry hole (When using isolation sleeves refer to manual for correct hole size)
- Choice of three colours: Blue, White, or Green
- HICOB Array with an intensity of 4100 Fixture Lumens (White)
- Toughened BK7 Borosilicate lens with a 60° beam angle
- Marine-grade bronze housing
- Load dump and reverse polarity protection
- Thermal roll back

PACKING LIST

If any of the following items are missing, email or call LUMISHORE using the information provided in Product Support Section. TIX202 Thru-Hull housing, LED Light Module, Locknut and Washer, Installation and Operation Guide.

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1.0 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 electrical and mechanical installation. If in doubt please contact LUMISHORE. Refer to Product Support Section.
- Always use a suitable fuse or circuit breaker to protect the complete system. Each light should be individually fused using the fuse holder supplied with the light. Make sure to choose the correct fuse size for 12 or 24Volt supply.
- The Thru-Hull may be installed into GRP (Glass Reinforced Plastic or Fibreglas) and wooden hulls.
- The light should be installed 6"-10" (150-250mm) below the surface of the water although this is not critical.
- For best results install the lights between 2.5 Feet (0.8m) and 6.5 Feet (2m) apart.
- Never try to install or remove the thru-hull fitting with the vessel in the water.
- Confirm there is clearance (more than 7") inside the hull to be able to remove the LED Insert Module.
- 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 underway.
- Do not over tighten the retaining nut – 3Nm per bolt.
- All LUMISHORE products should have bonding to the DC system via bonding strap for galvanic protection.
- Caution: NEVER leave the vessel unattended in water if the LED Insert Module is not in place.

Note: Before mounting the lights, record the serial number for future reference. The number is located on the back of the light.

2.0 TIX202 INTERCHANGEABLE FLUSH FIT THRU-HULL LIGHTS

Bonding Attention:

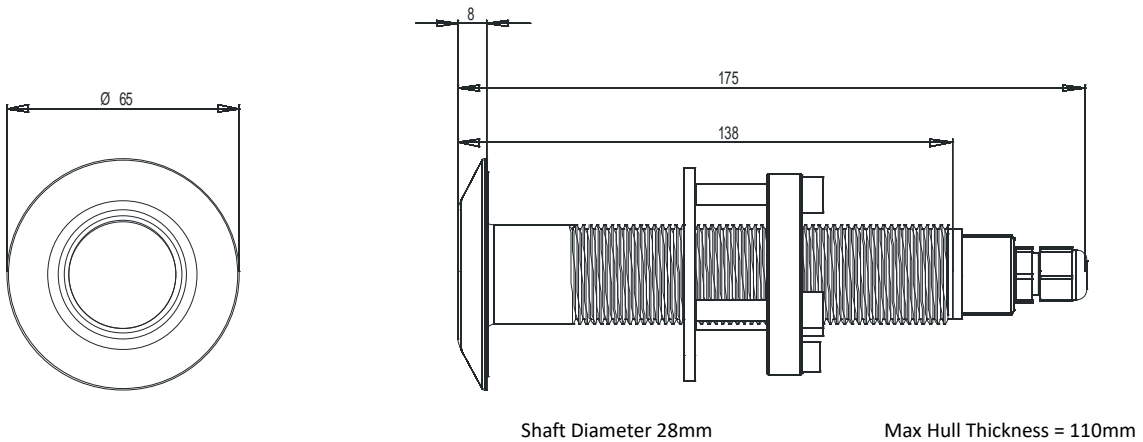
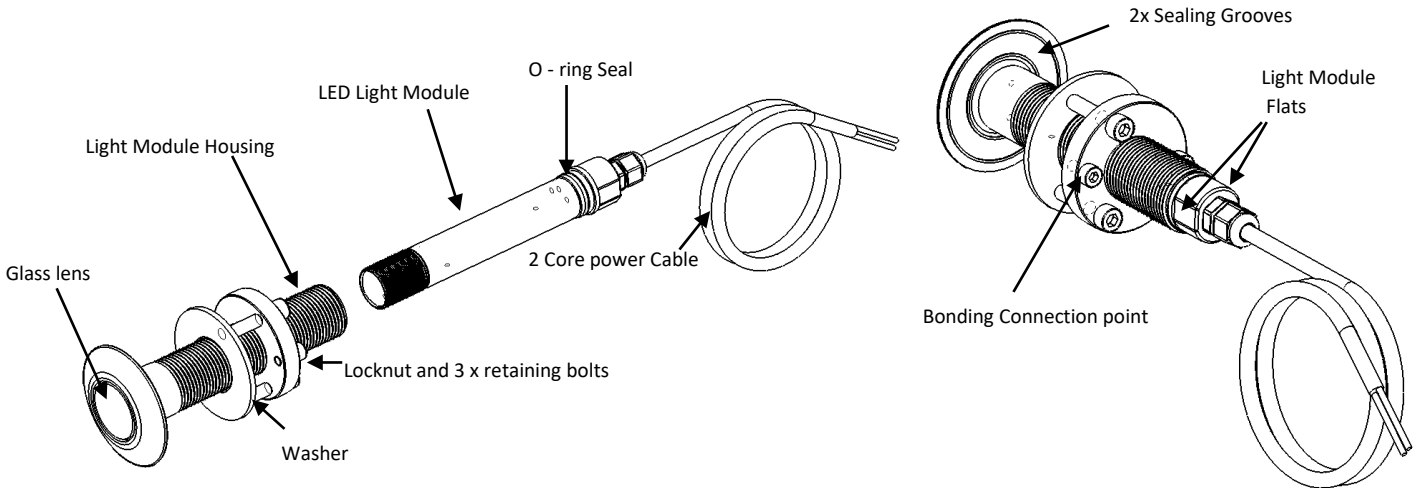
Failure to bond the lights properly and maintain the appropriate protection will invalidate the LUMISHORE warranty.

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 Considerations

- Location – positioning will be dependent on both external and internal obstacles; consideration should also 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 surface water line and spaced between 2.5 Feet to 6.5 Feet (0.8-2meters) 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 Assembly to be inserted; care must be taken to ensure there is unrestricted access inside the hull.
- Confirm there is clearance (more than 7") inside the hull to be able to remove the LED Insert Module.
- The light is temperature sensitive and must not be located close to the exhaust
- 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.

2.1 Materials and Dimensions:
Cable: 6' (2 meters)



3.0 THRU-HULL LIGHT ASSEMBLY INSTALLATION

1. Measure the position of the lights, mark carefully, and double-check for internal obstacles.
2. Confirm there is clearance (more than 7") inside the hull to be able to remove the LED Insert Module.
3. Drill a 1.1 inch (28mm), perpendicular hole through the hull.
 Note: The required hole size will change when using an isolation sleeve, refer to the isolation sleeve instructions, supplied with the sleeves, for further information.
4. The exposed inner hull surface must be properly sealed to prevent water intrusion into the hull before the Thru-Hull is secured in place.
5. Before inserting the Thru-Hull Light Assembly 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.

MAKE sure the Light module flats are vertical after installation.

5. Using an approved adhesive (3M 4200 Marine 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. Gently insert the stem of the Thru-Hull Light Assembly through the hole in the hull.
7. Apply gentle 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 hand tight. **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, tighten the locking nut to 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 rear of the locking nut.**

!! IMPORTANT:

- **Ensure that each light module has correct vertical alignment with the hull.**
- **Before launching the vessel the sealant should be checked to ensure it is fully cured in accordance with the manufacturer's instructions.**

4.0 REMOVING THE LED INSERT MODULE

!! IMPORTANT:

Care must be taken to ensure the lens is not damaged before removing the light module. If the lens on the Thru-Hull has been damaged and the light LED Insert Module is removed, water will enter the vessel.

The interchangeable module should only be removed after consultation with Lumishore and only in the event of light failure or module upgrade.

- Replacement is easily performed. However, full instructions are available from Lumishore to ensure that this is done in a way that optimises the life of the unit.
- Unauthorised removal of the insert will result in the warranty being void.

5.0 ELECTRICAL CONNECTIONS

5.1 Fuse Installation

Each light should be individually fused, the TIX202 light module is supplied with an external fuse holder and two fuses. Choose the correct fuse for your vessels voltage 12Volt – 6A fuse, 24Volt – 4A fuse

5.2 Cable size (Gauge)

LUMISHORE lights have advanced electronic systems that maintain the illumination output of the LEDs to protect them from under current or voltage.

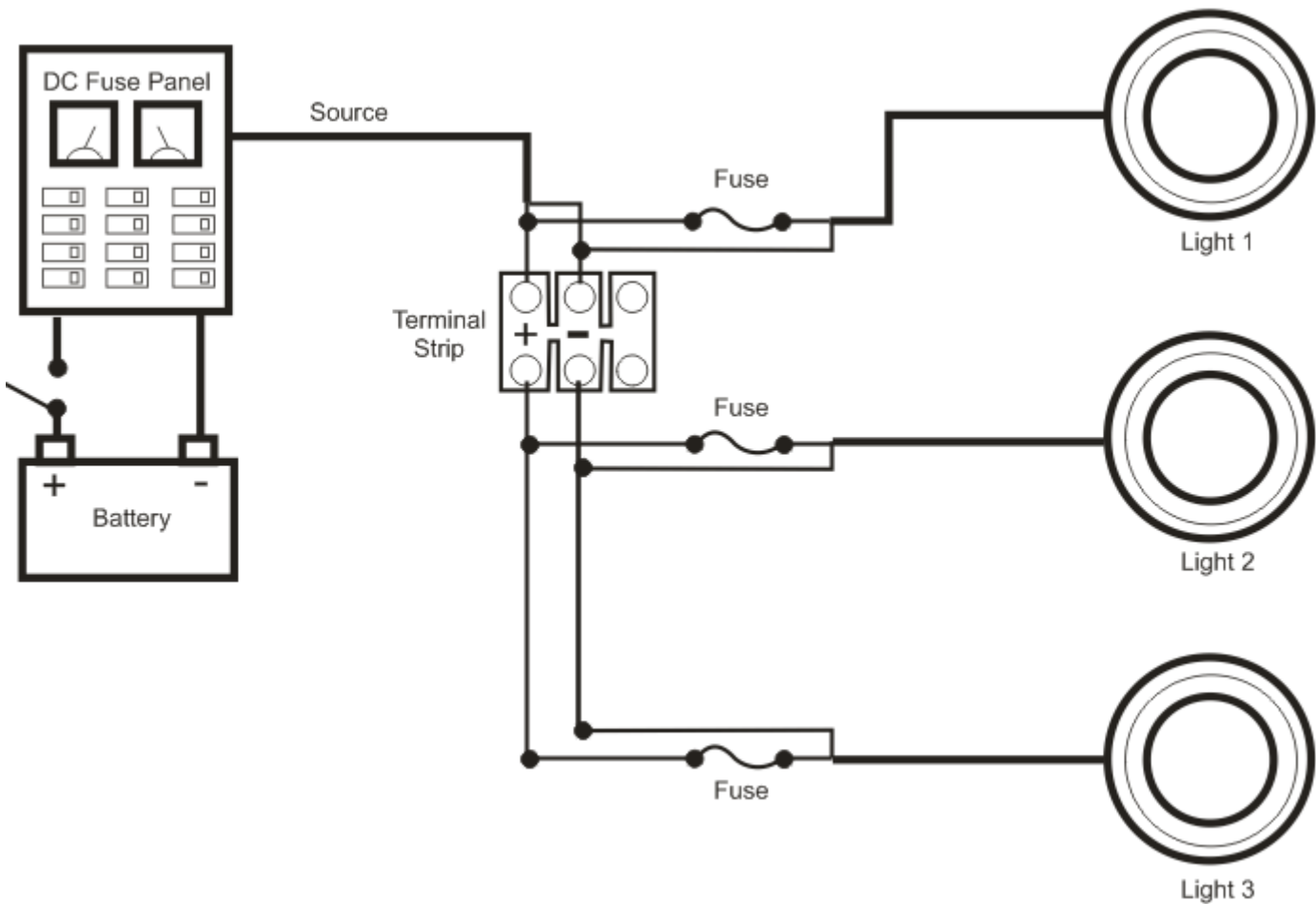
Note: Current draw per module with a light connected: 12VDC – 4.0A / 24VDC – 1.9A

- Proper wire cable size must be considered when installing the lights.
- Compute the gauge of the cable needed light at 12VDC or 24VDC.
- Cable lengths referenced in the Conductor Size tables are from the source to the lights and back to the source.

Calculate the total current draw of all lights that are connected to the terminal strip and use the chart below to find cable size from power source to terminal strip. Use the same size wire from the terminal strip to each light.

Total Current on Circuit	Conductor Sizes (Gauge) for 3% Voltage Drop - 12 VOLTS																	Total Current on Circuit	Conductor Sizes (Gauge) for 3% Voltage Drop - 24 VOLTS																					
	Length of conductor from source of current to the product and back to the source - in feet.																		Length of conductor from source of current to the product and back to the source - in feet.																					
	10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170		10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	
5 Amps	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6	6	5 Amps	18	18	18	16	16	14	12	12	12	10	10	10	10	10	8	8	8	8	8
10 Amps	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2	2	10 Amps	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
15 Amps	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1	1	1	1	1	15 Amps	16	14	12	12	10	10	8	8	6	6	6	6	6	6	4	4	4	4	4
20 Amps	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0	2/0	20 Amps	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
25 Amps	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0	3/0	25 Amps	12	12	10	10	8	6	6	6	4	4	4	4	2	2	2	2	2	2	2
30 Amps	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0	3/0	30 Amps	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1
40 Amps	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0	4/0	40 Amps	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
50 Amps	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0						50 Amps	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
60 Amps	6	4	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0	4/0								60 Amps	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
70 Amps	6	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0										70 Amps	8	6	6	4	4	2	2	1	1	0	0	2/0	2/0	3/0	3/0	3/0	3/0	3/0	4/0
80 Amps	6	4	2	2	1	0	3/0	3/0	4/0	4/0											80 Amps	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
90 Amps	4	2	2	1	0	2/0	3/0	4/0	4/0												90 Amps	8	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0	4/0	4/0	4/0
100 Amps	4	2	2	1	0	2/0	3/0	4/0													100 Amps	8	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				

5.3 Connections



6.0 MAINTENANCE

- The locking nut should be inspected on a regular basis to ensure they are kept tight. LUMISHORE recommends general inspection of the light module and cable attachments every month.
- The glass lens 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.
- To prolong device lifetime and prevent marine growth build up, a good quality antifouling system must be used to coat the external body of the device. This should be renewed regularly.

8.0 SPECIFICATIONS

Part Description	TIX 202 Interchangeable Thru Hull LED Underwater Light
Available Colours	White, Blue and Green
Fixture Lumens (White)	4100
Number and Type of LED	White - 11 x 10W High Power LEDs Blue & Green – 22 x 3W High Power LEDs
Interchangeable LED Light Module	The LED light module is removable from the installed housing
Driver	Internal
Beam Angle	60 Degrees
Water Ingress Protection Rating	IP68
Light Face Diameter	65mm / 2.56"
Profile (height) of Housing	9mm / 0.36"
Housing Type	High Conductivity Marine Grade Bronze
Hole Cut-Out for Cable	28mm / 1.1" (When using isolation sleeves refer to manual for correct hole size)
LED Power – HICOB Array	Yes
Typical LED Life	50,000 Hours
Supply Voltage Range	10.5 to 30 V
Max Current Draw 12 / 24 V	4.0 A / 1.9 A
Surge Protection	Yes
ATRB (Automatic Thermal Roll-Back)	Yes
Low Voltage Protection	Yes
"Soft Start" Electronics Protection	Yes
Reverse Polarity Protection	Yes
Cable Length	2m / 6'6"
Weight	730g
Bonding	Required
Warranty	2 years
Part Numbers	60-0151 – White 60-0152 – Blue 60-0153 - Green
Accessories	39-0051 - AC Power Supply (90-260V input)

9.0 WARRANTY

LUMISHORE Ltd warrants the Thru-Hull Lighting system to be free from defects in workmanship and materials for a period of two years, starting from the date of original purchase. Should your lighting system have a problem during this period, please contact your dealer as soon as you become aware of the defect.

Misuse, abuse, improper installation, neglect, improper shipping, damage caused by disasters such as fire, flood, and lightning, installation by unqualified personnel, unauthorized repair or modification will void this warranty. For the avoidance of confusion and doubt, non-compliance with all installation, maintenance, and operating instructions in this document constitute non-conformance with warranty terms.