Bluefin LED Underwater lights.

Mako

M12IFM12V,M12IFM24V/M24CCIFM Installation manual.

Thank you for choosing Bluefin LED underwater lights, our products have been designed and tested rigorously to ensure the optimum performance and longevity.

All Bluefin Led lights are water tested so please be aware there may be moisture present on the light.

This light is designed for use on fibre glass hulls only and **not to be mounted to any Metal hull or your warranty will be void. If you are mounting to a Metal hull boat a Delrin isolation sleeve can be purchased.**

Please ensure that your product is installed as per our instructions below, failure to do so may invalidate your warranty.

If you are installing a M24CC please refer to the Driver instructions for electrical installation.

Specs: electrical/fuse ratings

	Voltage	Current	Fuse rating
Mako M12IFM12V	12V only **(Absolute min of V 10V under load @ light).**	12v-5Amp	8amp
Mako M12IFM 24V	24V only **(Absolute min of V 20V under load @ light).**	24V-2.6Amp	8amp

Warnings:

- Do not attempt to install the lights whilst the boat is in the water.
- Ensure that the correct voltage is used for the light.
- Ensure that an in line fuse is installed with the correct fuse rating per the light installed.
- **Do not remove the inline HYDRO LOCK or your warranty will be void.**
- Ensure the Gel Connector supplied is used or your **warranty will be void**
- Do not hold the light by the cable.
- Do not use abrasives on the lenses.
- Lights must be mounted a minimum of 300mm from any Anodes.
- Do not mount lights directly underneath Anodes.
- Do not bond directly to Anodes.
- Only bond to the vessels DC bonding system & ensure all connections are in perfect condition & are regularly checked.
- When mounting on any type of conductive surface or hull material full electrical isolation between the light & mounting surface must be provided & maintained at all times throughout the lights life.
- Failure to adhere to any of these requirements will invalidate warranty.
- As Galvanic currents & corrosion are external factors any type of damage caused by galvanic affects are not covered by BluefinLEDs warranty policy.

Tools required for installation:

- 65mm(2.5”) hole saw
- Drill
- Marine sealant 3M 5200/4000UV, Sika flex 291i or equivalent (**do not use 3M 4200**)

Installation:

For optimum affect effect the light should be positioned between 8-12” (200-300mm) below the water line and at a 90 deg angle.

Recommended spacing from 3-3”(1mtr) to 5-11” (1.8mtrs) between the lights.

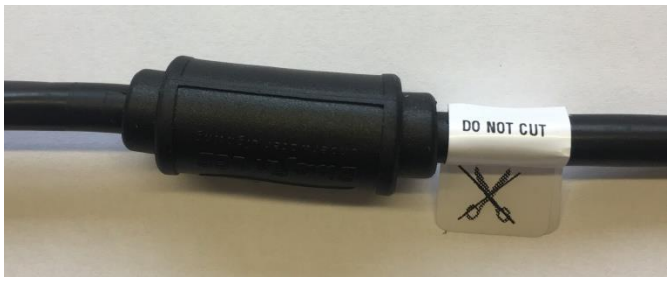
Drill a 65mm (2.5”) hole for the light access through the hull, ensuring that there are no obstructions internally in the hull.
Key the area to where the light is to be mounted with abrasive sand paper to ensure there is a clean area for the marine sealant to bond too.
Apply marine sealant to the rear of the light on the circumference of the light and around the base of the tube to ensure a complete continuous bead of sealant is applied in both areas. (See fig 2)
Feed the light through the hole and clamp internally in the hull using the clamping ring and washer supplied ensuring a tight fit using the nuts and bolts supplied. (See fig 3 and 4)
Wipe off any excess sealant and ensure the light is seated correctly without any gaps in the sealant. (It is good practice to have excess marine sealant to clean off as this can ensure that there is a water tight seal to the hull)

Electrical connection:

It is advised that if installing M12IFM12V Models no more than 8 lights should be installed on your low voltage system and Mains Power Units should be installed (contact BluefinLED for advice).
Ensure you use the IP68 GEL CONNECTOR supplied to connect to the boats wiring or you Warranty will be void (fig 6/7).
You will notice an inline HYDRO LOCK attached to your cable (Fig 1). If this guard is removed you warranty will be void

Care should be taken when planning your electrical feeds/cables to the lights so as to ensure voltage drop between the batteries or power supply is minimised, on 12V systems this is especially important as the lower system voltage means a high current requirement which in turn means the potential for more voltage drop in the cable runs & connections.
If the cable gauge & connections are not sufficient for the lighting load attached you may experience incorrect operation of the lights & intermittent illumination as the supply dips below specification.
Please see the wire gauge guide which is attached to this manual.
For help with calculations always consult with a qualified professional or contact BluefinLED directly.

Fig 1



Attach the light cable to the VDC power on the boat ensuring that you use the in line fuse supplied connected to the positive(red) wire, ensure that you use the heatshrink provided to create a water tight fit into the fuse holder. (See fig 5)
Ensure that an earth bond cable is attached to the earth bolt on the locking ring and is attached to the earth bonding system on the boat. (See fig 3)

Fig 2

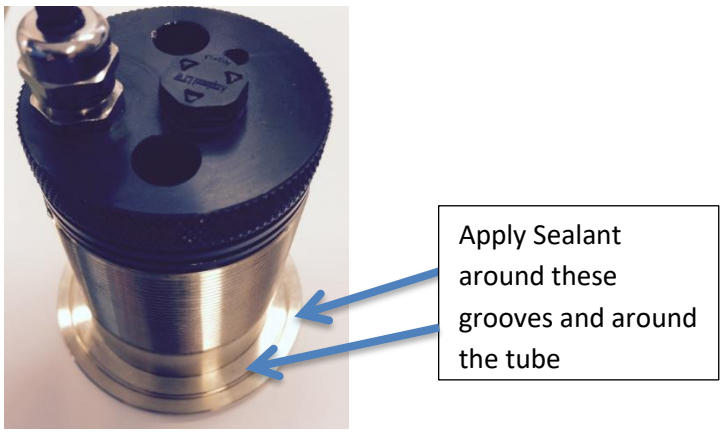


Fig 3

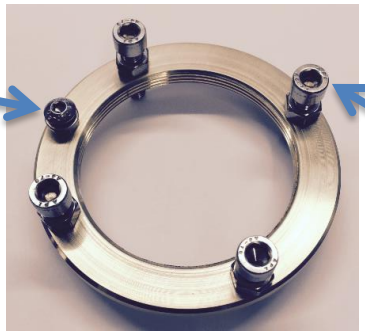


Fig 4



Fig 5

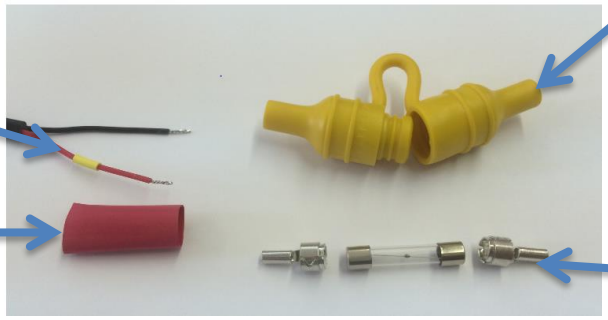


Fig 6 showing how the Gel connector is wired up.
Fig 7 showing how the finished Gel connector should look when finished.
Ensure that the black outer sheath is inside the gel connector.
The IP68 GEL CONNECTOR MUST BE INSTALLED CORRECTLY OR YOU WARRANTY WILL BE VOID.

Fig 6

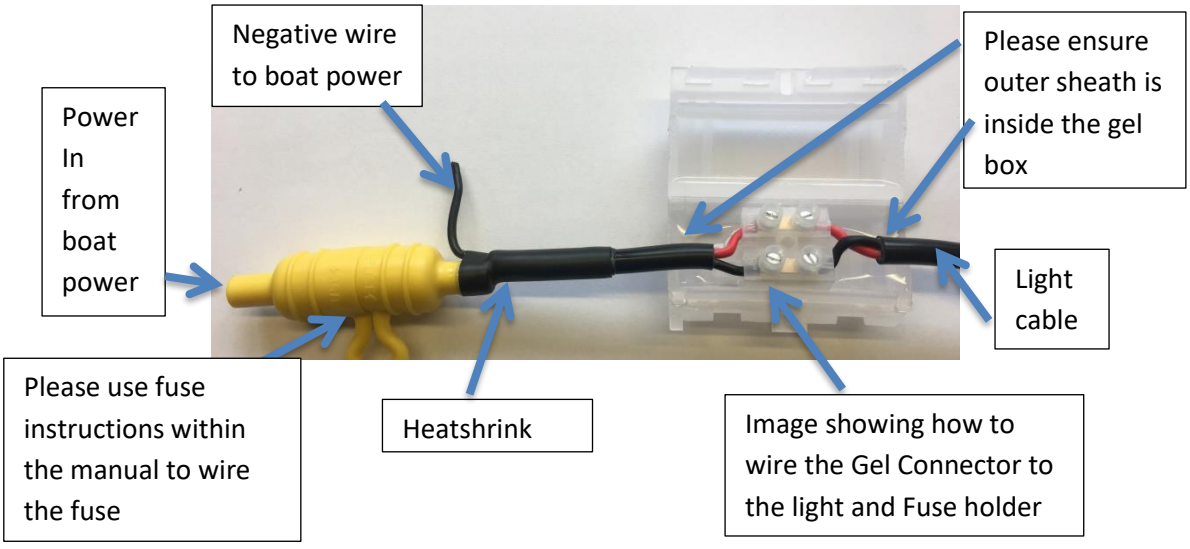
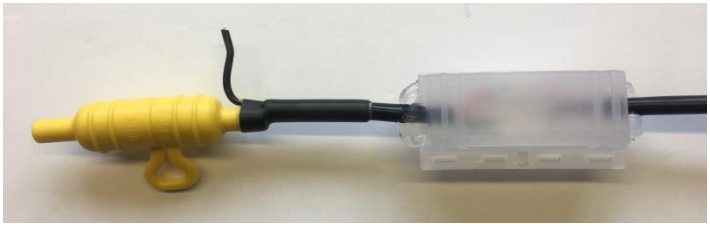


Fig 7



Testing:

Test the light before installation ensuring that you use the correct voltage and the light is illuminated correctly.

After installation ensure again that the light is illuminated correctly before the boat goes back into the water and you remove the lens label.

After you boat goes back into the water check internally for water tightness around where the light is installed.

The light has internal indicator Led's for fault finding, these are as follows:

- Over temperature will show RED.(allow the light to cool down and check if submerged)

Maintenance:

Regularly check the installation for water tightness

Only clean the light with a soft bristle brush

Warranty:

For any warranty issues please contact your point of sale retailer or go to www.bluefinled.com for further advice.

Bluefin LED LTD warrants the lights/hardware it manufactures and produces to be free from defects in workmanship and materials for a period of two years, starting from the date of original purchase, as recorded on the sales receipt.

The warranty is non-transferable and limited to the original purchaser of the product. During the two year warranty period Bluefin LED will repair or replace the defective item (at its option) at no additional charge on a "like for like" basis. Products either repaired or replaced under this warranty shall only be warranted for the unexpired portion of the warranty applying to the original product(s).

Bluefin LED is not responsible for labour charges to remove or replace lights or for haul-out fees. No refunds will be given.

This limited warranty does not extend to any products which have been damaged as a result of misuse, abuse, improper installation/modification, galvanic corrosion, failure to follow and adhere to installation instructions provided by Bluefin LED, improper shipping, neglect, damage caused by disasters such as fire, flood, lightning "acts of god", installation by unqualified personnel.

Do not attempt to disassemble the light without BluefinLED advice.

Installer please ensure that the SERIAL NUMBERS of the lights are written below and the manual is handed over to the end user.

Please make a note of the serial numbers of the lights here.

SERIAL NUMBERS

Bluefin LED
Cottage Farm, Cottage Lane,
Norton Juxta Twycross, Atherstone. CV9 3QH
Sales - Tel: 07950 909048
Service - Tel: 01827 880450
Administration - Tel: 01827 880450 **Email:** info@blufinled.com
Registered Address: Square Rig Limited, t/a Bluefin LED, Cottage Farm, Cottage Lane, Norton Juxta Twycross, Atherstone, CV9 3QH
Company Registration Number: 08871451 **VAT Number: 179 2690 64**

Bluefin LED
Underwater Lighting

Wire Gauge selection guide using information from ABYC E-11 & US Coast Guard guidelines for marine electrical installations

Circuit Type				Current flow in Amps																	
10% V Drop Low-Power Non Critical (P series Single colour)		3% V Drop High-Power/Critical (H, S & GW Plus colour change Series)		5A		10A		15A		20A		25A		30A		40A		50A		60A	
20ft	6m	6ft	2m	16 AWG	1.5mm CSA	16AWG	2.5mm CSA	14AWG	4mm CSA	14AWG	4mm CSA	12AWG	4mm	10AWG	6mm CSA	8AWG	10mm CSA	6AWG	16mm CSA	6AWG	25mm CSA
30ft	9m	10ft	3m			14AWG		12AWG		12AWG		10AWG	6mm								
50ft	15m	15ft	5m			12AWG	4mm CSA	10AWG	6mm CSA	10AWG	6mm	8AWG	10mm CSA	8AWG	10mm	6AWG	16mm CSA	4AWG	25mm CSA	4AWG	40mm CSA
65ft	20m	20ft	6m	14AWG	2.5mm CSA	10AWG	6mm CSA	8AWG	10mm CSA	8AWG	10mm CSA	6AWG	16mm CSA	6AWG	16mm CSA	4AWG	25mm CSA	2AWG	40mm CSA	2AWG	70mm CSA
80ft	24m	25ft	8m	12AWG		8AWG	10mm CSA	6AWG	16mm CSA	6AWG	16mm CSA	4AWG	25mm CSA	4AWG	25mm CSA	2AWG	40mm CSA	1AWG	70mm CSA	1AWG	
100ft	30m	30ft	9m	10AWG		6AWG	16mm CSA	4AWG	25mm CSA	4AWG	25mm CSA	2AWG	40mm CSA	2AWG	40mm CSA	1AWG	70mm CSA	0AWG		0AWG	
130ft	40m	40ft	12m		4mm CSA		25mm CSA		40mm CSA	2AWG	40mm CSA	1AWG	70mm CSA	1AWG	70mm CSA	0AWG		2|0 AWG		2|0 AWG	
165ft	50m	50ft	15m	8AWG		6AWG		4AWG												3|0 AWG	
200ft	61m	60ft	18m				40mm CSA		40mm CSA	1AWG	70mm CSA	0AWG		0AWG		2|0 AWG		3|0 AWG		4|0 AWG	
		70ft	21m			4AWG		2AWG						2|0 AWG		3|0 AWG		4|0 AWG			
		80ft	24m	6AWG	6mm CSA					2AWG		1AWG		0AWG							
		90ft	27m			2AWG		2AWG													
		100ft	30m							1AWG		0AWG		2|0 AWG		3|0 AWG		4|0 AWG			
		110ft	34m																		
		120ft	37m																		
		130ft	40m			2AWG															

To use for BluefinLED underwater lights select the appropriate current Colum for you lights, power & quantity from the top row.

then the cable distance run in one direction i.e. from panel or batteries to the light placement or group.

Then at the point the Colum & row crosses read the cable suggestion in US or EU gauges for your installation.

Failure to install the correct power feeds may invalidate your warranty, if in doubt please consult with BluefinLED or a qualified professional.