



SeaLife®

SeaLife

Instruction Manual



Photo by FireDiveGear.com



Sea Dragon Fluoro-Dual Beam
Underwater Fluorescence Dive Light
Item SL673

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I. Introduction

Thank you for purchasing the Sea Dragon Fluoro-Dual Beam light. Get ready to experience something truly amazing and different from any diving you have ever done before.

This light represents a two-year development collaboration with FireDiveGear.com the leading authority in underwater fluorescence diving. It features a unique combination of blue LED's and integrated dichroic filter creating the optimal light wavelength for viewing and photographing bio-fluorescence.

Simply put, bio-fluorescence is light created by and emitted by underwater organisms when exposed to a certain wavelength of blue light. The purpose of the blue light is only to "excite" the organism, which results in the organism emitting its own light at a different wavelength from the Fluoro-Dual Beam light. The organism is not harmed in any way.

Bio-fluorescence is a natural phenomenon that occurs during daylight, but the light emitted by the organism is overpowered by the sun, so you don't see it.

I. Introduction

The Fluoro-Dual Beam includes two yellow barrier filters essential for viewing and photographing the fluorescence effect. You want to see the light being emitted by the organism and not the blue light. One filter fits over your dive mask to block blue light from reflecting back into your eyes. The other filter attaches to any UW camera with lens diameter <47mm. These are universal filters designed to fit most masks and cameras. If you prefer, FireDiveGear.com can make custom filters to fit your specific camera model or mask.

This manual includes information on operating and maintaining the light. There is so much to learn about fluoro diving that we could not cover it in this manual. To learn more about fluoro diving, we recommend taking a specialty fluoro diving or fluoro photography course written by Lynn Miner of FireDiveGear.Com, now offered by the major dive certification agencies.

Happy Diving!
SeaLife Team

II. Safety Warnings

Observe all SCUBA dive safety rules and control your buoyancy at all times. Because fluoro diving takes place at night, your ability to see your surroundings will be greatly diminished when using a blue light in combination with the mask filter. It is critically important that good buoyancy practices are used and situational awareness is observed at all times. Consult your dive instructor for dive safety questions.

Make sure you follow these important safety warnings to avoid the risk of fire or injury.

Avoid using the light above water for prolonged periods of time. The light is designed for underwater use and water is needed to displace heat. The metal light head at full power will reach temperature of about 140F (60C) degrees within a few minutes, which may cause burning if touched. A thermal sensor will automatically dim the light if internal temperatures reaches 150F (65C) degrees. Immediately turn off light if any parts of the light become hot to the touch.

If water has entered the light, immediately turn off power and follow these instructions: Remove and dry the battery. DO NOT use the battery once it has become wet. Wet batteries must be replaced. Allow battery to dry and dispose it in accordance with local battery recycling regulations. The battery chamber is waterproof. If no water has entered the LED light head, the chamber may be cleaned without causing permanent damage to the electronics. Rinse the waterproof battery compartment with fresh water and allow the inside to dry. Replace the o-rings and apply lube. Install new, fully-charged battery and test light. If light does not operate properly, please contact your local SeaLife dealer or the SeaLife service center in your country.

II. Safety Warnings

Do not use battery if the outer casing is cracked, separated, damaged or has become wet. Dispose battery in accordance with local battery recycling regulations.

Never expose battery to fire or intense heat. Do not expose light to direct sunlight for prolonged periods of time.

Remove batteries from light before transporting, traveling or long periods of storage. Remember to use the protective battery cover included when the battery is not inside the light or charging tray to prevent accidental short-circuiting the battery contacts.

Airlines impose strict safety regulations for handling and shipping lithium ion batteries. Spare lithium batteries may not be packed in your checked baggage but may be packed in your carry-on baggage. It is important to pack spare batteries in such a way as to prevent metal objects from touching the contacts and potentially short-circuiting the battery. Always use protective battery cover included when the battery is not inside the light or charging tray to prevent accidental short-circuiting the battery contacts.

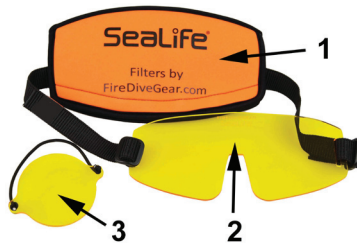
Only use the specified battery and battery charger approved by SeaLife. Using any other battery or charger may cause fire, injury and permanently damage the light.

Visit www.sealife-cameras.com for updates to this manual and underwater photography tips.

III. Check What You Got



Sea Dragon Fluoro-Dual Beam Light (SL673)
with Flex-Connect Grip (SL9905) and Single Tray (SL9903P)



1) Protective Cover for barrier filters (SL67304)
Used to store filters and to secure mask filter
to your dive mask strap.

2) Universal yellow barrier mask filter (SL67303)
with elastic strap and adjustment buckles

3) Universal yellow barrier camera filter 47mm (SL67302)
with elastic attachment cord

III. Check What You Got



Charging Tray (SL98311)



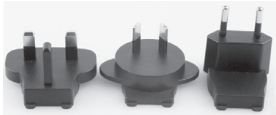
**Li-ion Battery (SL9831)
w/ protective cover**



AC Power Adapter (SL98312)



Sea Dragon Case (SL942)



Int'l Plug Inserts (SL98306)



O-ring Lube (SL9807)



Spare O-rings (SL98303)



O-ring Remover (SL9808)



Flex-Connect Ball Joint Adapter (SL995) For connecting light to standard 1" ball joint arm mounting system. Not needed if using Flex-Connect mounting system.

IV. Product Views with Call-Outs

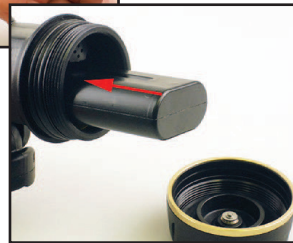


Major parts

- 1 - Light head
- 2 - Dichroic Filter
- 3 - Release buttons
- 4 - Flex-Connect grip
- 5 - Single Tray
- 6 - 1/4-20 Mounting screw
- 7 - Rubber friction pad
- 8 - Power button / Brightness adjust
- 9 - Battery status indicator
- 10 - Battery cap
- 11 - Pressure safety valve
- 12 - Flex-Connect swivel connector

V. Charging and Loading the Battery

- 1) Charge battery (green light = fully charged)
- 2) Unscrew the battery cap
- 3) Insert fully charged battery.
Important: Make sure O-ring and sealing surfaces are perfectly clean and undamaged.
- 4) Screw on battery cap. (*Do not overtighten or use tools.*)



VI. Operating the Light

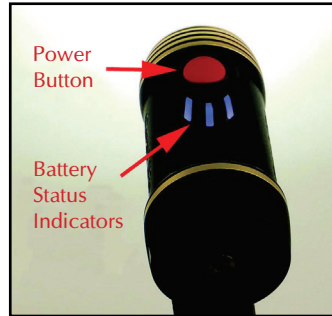
1) Push and hold the power button for 1 second to power ON the light.

2) Push the power button to change between the following light modes:

100% Fluoro Flood →

50% Fluoro Flood →

100% white spot → 50% white spot → [repeat cycle]



3) Push and hold the mode button for 2 seconds to power OFF the light.

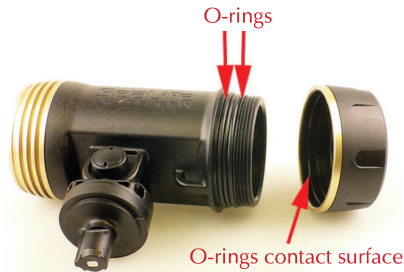
VII. Battery status indicator

3 status lights indicate remaining battery power:

Status lights	Battery power
3 solid	100%
2 solid	75%
1 solid	50%
1 blinking	25%

VIII. Maintaining a Waterproof Seal (Before Dive)

- 1) The light uses two O-rings to maintain a waterproof seal.
- 2) Every time you open the battery cap make sure the O-rings and sealing surfaces are clean, undamaged and lubricated.
- 3) Dampen a clean cotton cloth and wipe it around the O-ring and O-ring contact surfaces to remove any hair, sand or debris.
- 4) Carefully inspect the o-ring for cuts, tears or other damage. Replace o-rings if damaged.
- 5) Lube O-rings regularly. Apply a small amount of silicone lube on your finger tip and wipe it around the O-rings. Wipe off excess lubricant. The o-ring surface should have shiny, wet appearance.



Important:

Replace O-rings every year if damaged or not. Visit your local SeaLife dealer or www.sealife-cameras.com for information on ordering spare o-rings.

IX. Care and Maintenance (After Dive)

- 1) After each dive, soak the sealed light in fresh water for about 20 minutes to remove any residual salt, sand and dirt. Never allow the saltwater to dry on the light.
- 2) Push the power button several times to clean any saltwater or sand trapped under the button.
- 3) Let the water drain out of the small holes located at the bottom of Flex Arm. (If using Flex Arms - see page 18 for optional accessories).
- 4) Dry off the light with a towel. Make sure you and the light are dry before opening the waterproof battery cap.
- 5) Remove battery before storing the light.
- 6) Allow light to thoroughly dry before storage.
- 7) Never use any detergents, cleaners, solvents or chemicals to clean the light.
- 8) Insert a fresh Moisture Muncher Capsule (SL911) inside the battery compartment during storage to help keep the inside dry and free of corrosion or mildew during storage.

X. Replacing O-rings

Replace the two O-rings if damaged or at least once per year.

- 1) Use the O-ring Remover tool provided to lift and remove the O-rings.
- 2) Carefully clean O-ring grooves and O-rings before installation.



- 3) Install O-rings by stretching and lifting O-ring into the groove. Do not roll the O-ring or allow it to twist.



- 4) Apply a small amount of silicone lube on your finger tip and wipe it around the O-rings. Wipe off excess lubricant. The o-ring surface should have shiny, wet appearance.

XI. Attaching Light to Underwater Camera

Important:

Only attach the light to cameras/housings with minimum thread depth of 0.28" and using standard 1/4-20 tripod type thread. Don't over-tighten screw or you may damage the housing and threads.



Align the underwater camera to the light's mounting screw and hand-tighten.

XII. Attaching Filter Straps

Two elastic straps are used to secure the yellow barrier filters. The larger elastic strap attaches to the mask filter and the smaller elastic cord attaches to the camera filter.

1) Attaching mask filter strap

- a) Remove protective film from mask filter b) Insert strap end through slot



- c) Feed strap through adjustment buckle d) Repeat for other strap end and tighten/loosen adjustment buckle for desired fit



XII. Attaching Filter Straps

2) Attaching camera filter cord

a) Tie a knot in one end of the cord



b) Feed the un-knotted end of the strap through both filter holes



c) Tie a knot in other end of the cord making sure to adjust the location of the knot so it securely fits your camera. You may use scissors to cut off excess cord ends.



XII. Attaching Filter Straps

Use the protective cover as a mask strap wrapper

Open the protective cover and insert dive mask strap and mask filter strap as shown. This prevents losing the mask filter while diving. The orange neoprene material is highly visible to other divers using a fluoro light.



Note: After diving, use the protective cover to safely store the filters. Only clean the filters using soap and water and never with alcohol or cleaning agents.

Attaching camera filter to UW housing

Stretch the elastic cord around the UW camera housing. The cord ends should be facing inward to they do not show up in the picture.



XIII. Expanding your Flex-Connect™ Lighting System

The modular Flex-Connect system of arms, grips, trays and adapters makes it possible to create many different configurations. Add a Sea Dragon Flash and/or photo-video light to your camera for bright, colorful results.



Flex Arm - “Click” on the Flex Arm for more creative lighting and easy aiming. Reduces backscatter by positioning the flash or light farther away from the camera. Add up to two arms per side. Each arm features 100 bending motion and adds 7” length in addition to the 5” grip. Flex arm also attaches to any tray and can be used as a grip (SL9901).

Grip – Rubberized grip for a comfortable hold. Built-in channel to hide and secure optical cable (SL9905).

Expanding your Flex-Connect™ Lighting System

Select from three universal mounting trays:

Dual Tray – Add another flash or light with the dual tray to double brightness, reduce shadowing and stabilized aiming control. Sold separately (SL9904).



Micro Tray – This tiny tray is the perfect fit for SeaLife Micro, GoPro and other compact cameras (SL9902).

Single Tray – The standard single tray is ideal for SeaLife DC-series, Olympus and other medium size underwater cameras (SL9903).



Cold Shoe – Mount a light or flash on cameras with a cold shoe mount for the most compact lighting solution available. Or use it to add a third light when using a dual tray (SL991).

Expanding your Flex-Connect™ Lighting System



Y-S Adapter – Attach any underwater light or flash using the Y-S mount to the Flex-Connect system. This includes the Sea Dragon Mini 600/650 light, Light & Motion, Sea&Sea, Olympus, Inon, Fantasea and more (SL994).



Ball Joint Adapter – Connect Sea Dragon Lighting to any underwater camera using the 1" ball joint mounting system. Heavy duty machined anodized aluminum construction for maximum durability (SL995).



Adapter for Ball Joint Lights – Connect any UW light using 1" ball joint to Flex Connect system. Heavy duty machined anodized aluminum construction for maximum durability (SL999).

Expanding your Flex-Connect™ Lighting System



Adapter for GoPro Camera w/ acorn nut – Attach GoPro cameras to the Flex-Connect cold-shoe adapter, grip, tray or flex arm (SL996).



Flex-Connect Handle – Use your Sea Dragon as a dive light with this compact, comfortable handle. Includes standard -20 tripod mount for attaching to the AquaPod SL913 or other tripod screw accessories. Use as a GoPro handle when combined with GoPro Flex-Connect Adapter (SL998).



Sea Dragon Red-Fire Filter – Many fish and other ocean animals shy away from white light but not from red light, especially on night dives. The filter uses special formulated wavelength tested not to scare off sea creatures. Easily snaps on/off the front of the Sea Dragon 1200F, 1500F, 2000F, 2500F and 2100SF lights. Can be attached underwater (SL9832).

XIV. Recommended Camera Settings

For SeaLife cameras:

- 1) Set the camera to “Ext Light” Underwater Scene mode.
- 2) Change White Balance setting to Daylight.

For other underwater camera brands:

- 1) Set the Scene mode to “Auto” or “Underwater” scene mode, as recommended by the camera manufacturer.
- 2) Change White Balance setting to Daylight.
- 3) Turn OFF the camera’s internal flash.

Note:

As your underwater photography skills improve, consider using the camera’s Manual mode, which allows you to manually adjust the aperture and shutter speed for desired exposure and effect.

XV. Fluoro Diving Tips

Here are some tips on getting the best results with your Fluoro light:

Control your buoyancy

Get your buoyancy under control and set yourself up in the ideal shooting position before turning off white light sources and taking a picture or recording video. This is critical not only for taking great pictures but also for your own safety. Good buoyancy control allows you to hold the camera steady and control your shooting distance, as well as avoiding dangerous uncontrolled ascent/descent. Good buoyancy control will also help you avoid stirring up the sandy bottom or damaging the reef.

Find sea creatures that fluoresce

There are many underwater organisms that fluoresce, such as coral, sponges, fishes, anemones, jellyfish, shellfish, worms and nudibranchs, but not all sea creatures will fluoresce. The best way to identify what living creatures fluoresce is to shine the fluoro light on it and see. Don't forget to use the yellow barrier filters over your dive mask and camera lens.

Get close to your subject

The effective range of the light is about 3ft (1m) for photography and about 10ft (3m) for viewing or video recording fluorescence in good visibility. Temporarily turn off any other white light sources in the area, as other lights will hide the fluorescence effect.

XV. Fluoro Diving Tips

Practice makes perfect

There is no better way to learn than from your mistakes. Become familiar with your camera controls so you can make quick adjustments depending on the conditions. Take the time to practice and experiment with different settings. Review your pictures and learn from your mistakes.

Video tips

Hold the camera as steady as possible and move (pan) very slowly. A jumpy, fast-moving video is hard for anyone to watch and can actually cause motion sickness. Avoid shooting video clips more than 1 minute. It is difficult to edit a lengthy video clips because the large file size. You can always patch together short video scene into a longer movie using video editing software, like Microsoft Movie Maker or Mac iMovie.

Always observe dive safety rules and never touch marine life

Do not let photography distract you from diving safely. Observe marine life - Never touch marine life. Be aware of your surroundings to avoid contacting anything. Keep your dive gear close to your body.

XVI. Advanced Settings

Blinking and SOS Mode

The Sea Dragon Fluoro-Dual Beam light includes a blinking and SOS mode for emergency signal purposes.

- 1) With the light in the OFF state, push and hold the power button for 4 seconds.
- 2) Release the power button when the light starts blinking.
- 3) Push and release the power button to switch between 1-second interval blinking and SOS Morse code signal.
- 4) Push and hold power button for 2 seconds to turn off light.

XVII. Troubleshooting Guide

Light does not power ON

Make sure battery is fully charged and contacts are clean. Thoroughly clean all the contacts using pencil eraser. Replace battery if it has become wet or is damaged.

Dark pictures/videos

Keep your shooting distance inside of 3ft (1m). The closer the better.

Adjust your camera exposure settings. Select higher ISO and/or exposure value (EV) to brighten the image.

Pictures of videos too blue

Make sure to use the yellow barrier filter over your dive mask and camera. If resulting picture is still too blue, try using different white balance settings. Each camera is different, so Daylight white balance may not get the best results compared to other WB settings.

For updated information and advice, please refer to the SeaLife website at www.sealife-cameras.com or contact your local SeaLife dealer or service center for help.

XVIII. Specifications

Sea Dragon Fluoro-Dual Beam (Item SL673)

Light source/ Bulb type:	6 x 5W Royal Blue LED Flood Light and 1 x 3W Spot (CREE XP-L LED)
Brightness:	26 watt/m fluoro flood and 800 lumen spot
Beam angle:	65 degrees fluoro flood and 15 degrees white spot
Color temperature:	5000 - 7000K white spot
Run [Burn] time:	120 minutes at full power flood or spot
Body material:	Anodized aluminum light head with fiber-reinforced polycarbonate body
Battery:	Lithium Ion 7.4V, 3400 mAh, 25 Wh (included)
Depth:	Tested to 330 ft (100m)
Light modes:	100% Fluoro Flood, 50% Fluoro Flood, 100% white spot and 50% white spot
Dimensions:	5.1" x 2.2" x 3.8 (13.0cm x 5.6cm x 9.7cm) Head only
Weight:	15.9 ounces (450 grams) Head only with battery
Bulb life:	35,000 hours
O-ring:	Dual silicone o-rings (lube included)
Buoyancy:	Negative

XIX. Parts and Service

SeaLife guarantees the original purchaser of this product, for a period of one (1) year from the date of purchase, that the product is free from defects in workmanship and materials. For a detailed warranty statement, refer to the warranty information included with the product. In the event the original purchaser believes there is a defect in a product, it is recommended that the purchaser first visit www.sealife-cameras.com for product updates and technical advice. The SeaLife website also includes detailed information on how to get repair service.

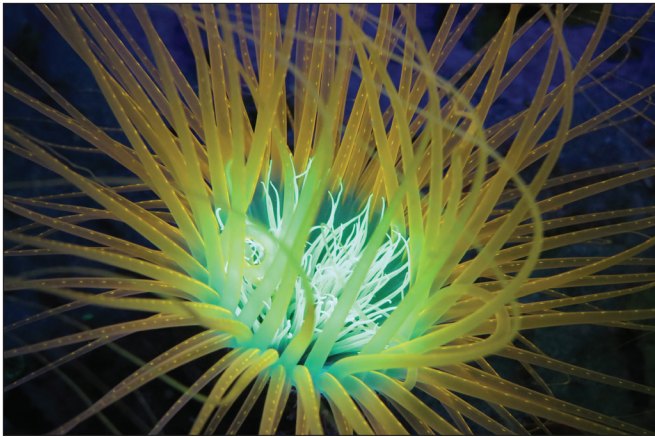


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