

The USA Service Center is open M - F, 8:30 am to 5:00 pm (EST). You may contact the service center at (856) 866-9192 or email us at [service@sealife-cameras.com](mailto:service@sealife-cameras.com)

Pioneer Research, 97 Foster Road, Moorestown, NJ 08057

[www.sealife-cameras.com](http://www.sealife-cameras.com)

Phone (856) 866-9191 Fax (856) 866-8615

**Limited Warranty.**

This product will be repaired or replaced free of charge within 1 year from the purchase date in the case of a manufacturing defect, if the complete defective product is sent freight prepaid at the sender's risk to: Pioneer Research, 97 Foster Road, Suite 5, Moorestown, NJ 08057 or to the importer, in a different country. Contact the service center to obtain a return authorization # before shipping product. Include a letter describing the damage or defect, your return address (no PO Box), daytime phone # and a copy of the original purchase receipt or proof of purchase with the purchase date. Excluded are any consequential damages, cosmetic damages, damages to products which show abuse, non-conformance with the instructions, particularly water damage due to a damaged O-ring or any particles wedged between the housing and the O-ring, or tampering and attempted repair of the product. Excluded are scratches on lenses or damaged lens coatings. Products used in rental operations are excluded from this warranty.

item# SL96082



revised 4/13/05

Sealife®

## EXTERNAL FLASH

*200 feet (60 meters)*

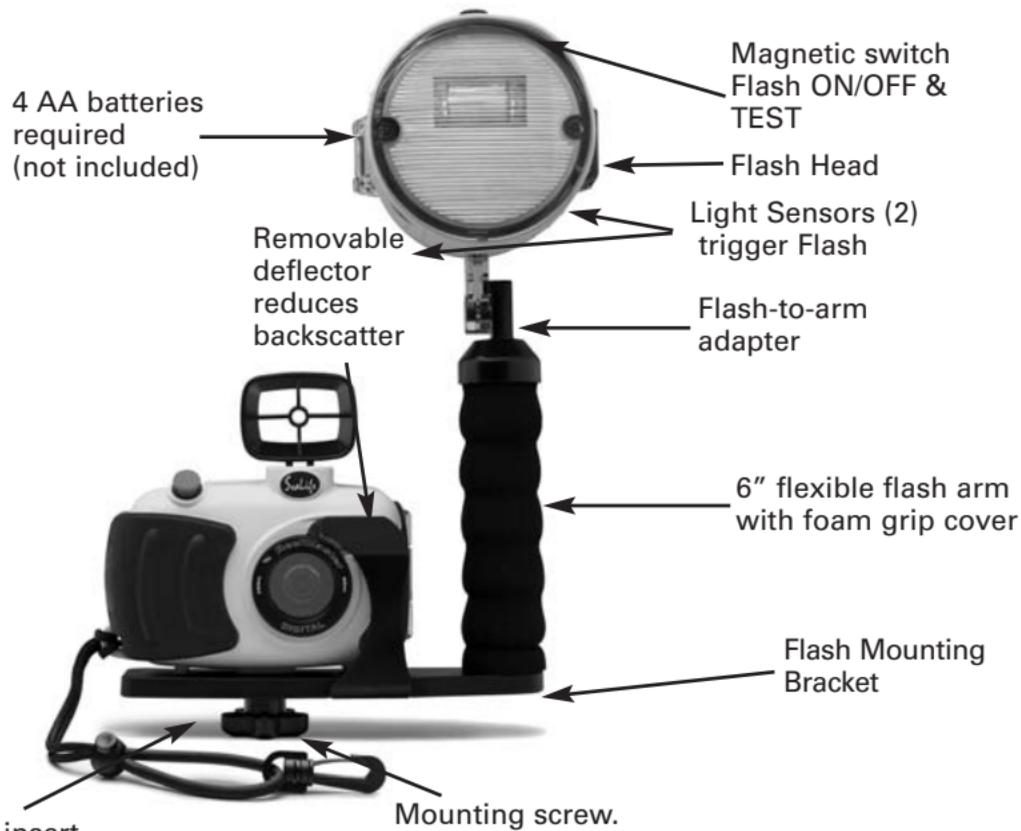
*Fits all SeaLife  
Film and Digital  
Camera Models*



## Instruction Manual

## Sealife External Flash (Camera Not Included)

Item # SL960



## Item SL911:

### Moisture Muncher Capsules:

Absorbs moisture to prevent fogging and corrosion of your SeaLife camera. Each capsule contains 1 gram of color indicating crystals. When crystals turn from blue to pink color, it's time to replace the capsule. Fits inside all SeaLife cameras. Contains Ten 1-gram capsules.



## Item M101:

**Moisture Muncher Bags:** Absorbs moisture to prevent fogging and corrosion of your valuable electronics and cameras. Use inside an airtight storage case or container to create a perfect dry environment for your valuable items. Each bag contains 1 ounce of powerful moisture absorbing granules and color indicating crystals. When crystals turn from blue to pink color, it's time to replace the bag. Contains Three 1-ounce bags



## Item SL190:



### **SeaLife® Re-chargeable batteries, charger and international adapter kit:**

Avoid paying “island prices” for AA batteries that don’t hold up. The kit comes with four rechargeable Ni-MH batteries, wall charger and three international adapters that cover you around the world! Perfect for the world traveler who needs affordable power instantly! Purchase two kits and power your external flash and SeaLife camera. Always have a fresh set of batteries ready to go.

## Item SL966:



**SeaLife® Buoyancy Weight:** Reduces the positive buoyancy of SeaLife cameras and External Flashes. Allows for easy, more balanced handling underwater. Attaches to accessory mount under all SeaLife cameras and flashes. Rubber armored. Weighs 13 ounces.

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### **I. SeaLife Flash Features**

- Enhances color and brightness.
- Reduces backscatter (white spots in picture caused by small particles in water).
- Flexible arm allows for easy aiming at any angle.
- Automatic light sensors activate flash.
- Two *external* flashes can be easily mounted to any SeaLife camera.
- Foam-covered arm allows for positive grip.
- All non-corrosive materials for long life.
- Approximately 100 flashes with 4 AA batteries (Alkaline or Ni-MH rechargeables).
- Works with all SeaLife film or digital cameras.

***For best results, also read the “Trouble Shooting Guide” on page 17.***



*Photo taken with External Flash*



*Photo taken without External Flash*

### Main Benefits of SeaLife Flash

The main benefit of an *external* flash is more light and brighter colors at shooting distances up to 8 ft (2.4m), depending on water visibility and reflectivity of the subject. This is particularly important at greater depths (below 60 ft / 18 m) or with little or no sunlight. Since the flash is further away from the camera lens, you will also reduce backscatter caused by small particles in the water, like algae or plankton.

Another way to increase picture color and brightness is to use two flash units mounted left and right of the camera. This will also eliminate shadows.

The ideal range is about 5 ft (1.5 m). Stretch out your fin to check your estimate of the distance. Remember, your eye sees objects 33% closer than the actual distance.

**NOTE:** The light reflection from different fish or objects varies greatly – from not reflecting any light like dark coral to a mirror-like reflection of certain fish.

### Item SL968:



**SeaLife® Diffuser:** Softens the light from SeaLife External Flash to prevent over-exposure of close-up subjects. Results in richer color balance of pictures and softer shadows. Fits on both SeaLife Digital and External Flashes (SL960 & SL960D.)

### Item SL972:



### New! SeaLife® Lens Dock

Protects and stores wide angle lens while diving. Lens quickly slides in and out for instant access. Quickly and easily attaches to the bottom of SeaLife cameras or flashes.

## IV. Accessories and Related Products

Accessories and spare parts are available at your local authorized Sealife dealer. Visit our website at [www.sealife-cameras.com](http://www.sealife-cameras.com) for a complete list of dealers in your area.

### Spare Parts:

**Item #SL96010: Digital Flash (head only)**

**Item #SL9605: O-Ring Replacement Kit (authorized service only)**

Contains 1 O-Ring and 1 gasket

**Item #SL9601: Flash arm and base assembly (no head)**

**Item #SL962: New! SeaLife® Flash Link**

Optical Cable connection for all SeaLife flashes. Ensure firing of SeaLife flashes in all light conditions and flash aiming positions allowing you more freedom to control your lighting.



## II. Instructions For Use

### *How easy it is... your new SeaLife Flash*



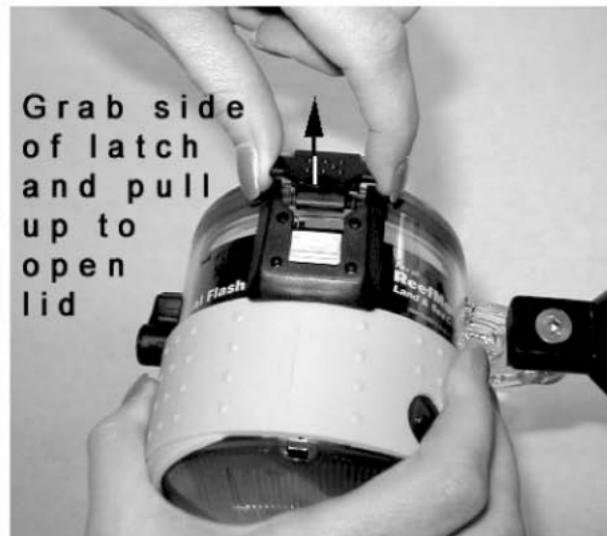
*Attaching camera to flash mounting bracket*

**1** **Prepare camera** before attaching camera to flash. For film cameras, insert two new AA batteries and a roll of 35mm film. Any speed film, slide or print, will work from 50 ISO to 800 ISO, although 200 ISO film speed is recommended. Turn camera power on and seal housing. Refer to camera instruction manual "Great Pictures Made Easy" for complete details.

For SeaLife digital cameras, set camera to "External Flash" mode. Make sure to use freshly charged Ni-MH batteries and insert a blank memory card into the camera. Refer to digital camera instruction manual for more details.

**2** **Attach camera to flash mounting bracket.** (finger tight only).

**Open latch as shown below  
to access battery compartment.**



**d** The further the flash head is away from the camera lens, the bigger will be the shadows. The closer it is, the more backscatter you may have from small particles in the water. If you have absolutely clean water without plankton or sand, you should move the flash head closer to the camera lens. If you want to eliminate shadows, you may remove the flash deflector or even use a second *external* flash.

**5** **Flash arm is loose and does not maintain correct aiming position.**

- a** Soak the arm in warm fresh water and flex arm until all links are clean and free of detergents or lubricants. Never use detergents when cleaning the flash arm.
- b** Test flash arm flexibility underwater, not above water. Flash arm becomes stiffer underwater.

#### **IV. Film Selection Guide**

- \* Use any 24 to 36 exposure slide or print film.
- \* We recommend ISO 200 speed film for most applications, but you may find any film speed will work from 50 to 800.
- \* Use ISO 50 to 100 speed film for very bright conditions or macro pictures.
- \* For excellent, professional UW pictures, use 1 or 2 external flashes with the **Macro 3X, 8X or 16X Lenses** and 50-100 ISO speed film.
- \* Always keep film in a cool place. Avoid exposing film to x-rays in airport security equipment.

- f** Repeat this in a dark place. Direct sunlight can prevent the flash from firing.
- g** If flash still does not work, send complete unit, camera and flash to SeaLife Service Center.

### **3 Flash fires sometimes, but not all the time**

This is normally caused in bright sunlight. The light sensors located under the flash head don't "see" the camera's flash because the natural sunlight is too bright. Here are some tips to make the flash fire all the time:

(1) Cover the light sensor farthest from the camera with rubber sensor cover (item#SL96011) or black electrical tape. This will block natural light from "blinding" the sensor. Only the sensor closest to the camera is needed to fire the flash.

(2) Purchase the SeaLife Flash Link (item# SL962) optical cable, which transmits the camera's flash directly to the light sensor so external flash always fires.

### **4 Dark areas in your picture**

- a** Direct the flash head to the center of your object to have an even light coverage.
- b** Areas which are further away from the camera appear darker than closer objects. Measure a distance by stretching out your fin ("Chin to fin" = approximately 5 ft), or stretch out your hand (approximately 3 ft) to check if your estimate of distance is correct.
- c** The reflection (color) of objects also determines their brightness in the picture. A bright fish or a white rock may cause a very bright reflection, while a black coral or dark fish may reflect very little light.

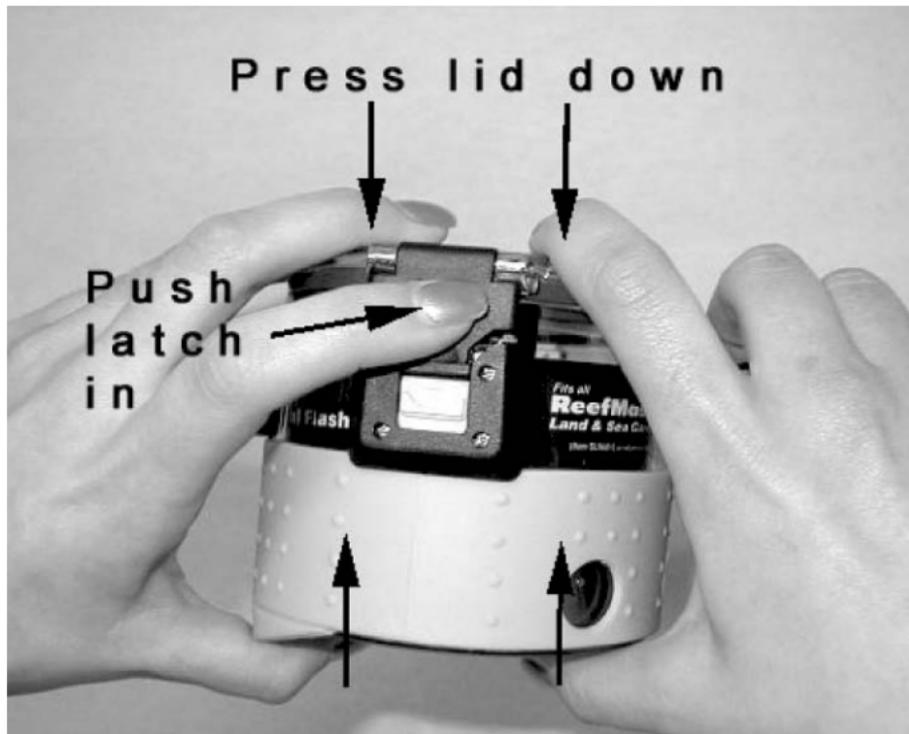
## **Important**

**Magnetic switch:** The switch has a small magnet inside to turn flash power ON/OFF and TEST. Keep away from compasses and electronics to avoid magnetic interference. Do not force switch beyond its stop point to avoid damaging the switch.

**Sealing latch:** Grab the sides of the latch for battery compartment access. Make sure latch is properly closed before each use. **Do not** apply external force to latch or hinge area to avoid damage.

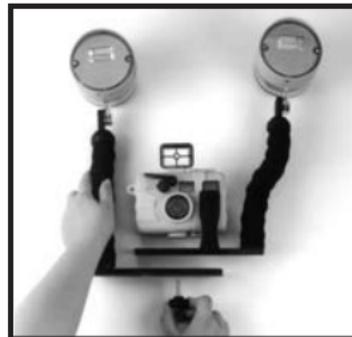
**Discharge flash:** Before opening flash housing door, make sure to discharge the flash by moving the power switch to the "TEST" position, and then to the "OFF" position.

- 4** Close and seal battery compartment as shown.  
Make sure O-ring is perfectly clean.

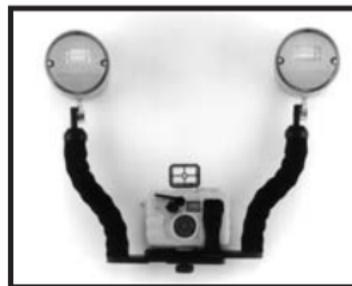


### III. Trouble Shooting Guide

- 1** Flash does not fire when switch is turned from "ON" to "TEST".
- a Wait until the orange flash-ready light is on. If it does not turn on, check that batteries are inserted correctly.
  - b Test or replace batteries.
  - c If a and b above do not correct the problem, send to SeaLife Service Center: (856) 866-9192 or [service@sealife-cameras.com](mailto:service@sealife-cameras.com)
- 2** Flash fires as tested above, but does not fire when triggered by camera.
- a Turn camera power on and wait until green flash-ready light in camera comes on, and orange flash-ready light of flash is on.
  - b If camera-ready light does not come on, check camera batteries and instructions.
  - c If *built-in* camera flash does not fire, despite correctly inserted, fresh batteries (also test the camera without housing in a dark place), send complete camera, housing and flash to SeaLife Service Center.
  - d If *built-in* camera flash does fire, but *external* flash does not work, check if switch on flash is set to 'ON' and if orange light is on.
  - e Check if there is a direct unobstructed path between the *built-in* camera flash and the sensor at the bottom of the flash head. Adjust flash head position to make sure the deflected light from the camera's flash hits the sensor at the bottom of the flash head. There should be no obstruction in this path (like your hand or glove).



*Attaching two external flash units is easy and pictures will be even more colorful!*



*This double-flash system can also be used with the Macro 3X Close-up Lens*

## **15 Use of a second *External SeaLife Flash*.**

In order to avoid shadows and to further intensify brightness and color, you may mount a second identical flash. Remove the attachment knobs from both flashes. Place the attachment knob through both base mounting brackets and into camera. Make sure all set pins and holes are lined up. Rotate both flash heads to point in the direction of the subject. This double-flash system can also be used with the SeaLife Macro lenses at a distance of 8" to 48" (20 cm - 120 cm). At closer distances or with ambient sunlight, you may overflash. Avoid reflective, bright objects. A good way to avoid this is by illuminating the background with the second flash (aim behind the subject), while the first flash is aimed directly at the subject. SeaLife Diffusers should be used for both flashes to prevent overflashing close-up subjects.

**NOTE: A longer mounting screw is required when mounting 2 flashes:**

**item # SL96022 - for 2 flashes**

**item # SL06026 - for 2 flashes and macro wand**



Latch not closed if  
you see a gap here



*A removable flash deflector covers the built-in flash*



*Inserting a Moisture Muncher desiccant packet helps extend the life of batteries and electronics.*

The **built-in flash of the camera** is covered by a removable flash deflector. Keep the deflector in place to prevent unwanted backscatter of light from small particles floating in front of the camera lens. As SeaLife develops new cameras a new deflector may be necessary. New deflectors are normally included with new models.

After use, flash and camera (the closed camera housing), must be **soaked in fresh water immediately. Never use detergents or cleaners to clean the flash.** Let the water drain out of the flash arm (which has small drainage holes) and let it dry thoroughly before storage. Flash arm links can be separated to remove excess water (see page 14). It is best to hang it up in a well-ventilated place, similar to drying your wet suit. Remove the batteries before storing the flash. Extend the life of batteries and electronics by inserting a small 1.5-gram Moisture Muncher desiccant capsule (item # SL911) in the battery compartment of the flash head (same as used in camera).

**Tip: Also use Moisture Muncher (1-oz/28g bag) when storing your spare batteries in a closed container. (see page 23)**

**10** The **flexible arm** consists of seven 1-inch (2.5 cm) links covered by a foam rubber sleeve. You can bend the flexible arm in any direction, but do not force it beyond the point of resistance (or the links will separate). If you want to take the arm off or apart, you can bend it beyond the point of resistance, until the links separate. The links can easily be re-connected by pushing them together until they snap in.

**11** Before diving, take a **test picture** in a darker area (the flash may not fire in direct sunlight). Check that both the flash-ready light of the camera and the orange-ready light of the flash comes on in less than 12 seconds.

**12** The **maximum reach** of the flash depends on the reflection, angle, color of the object, visibility, and the amount of ambient sunlight. The brightness of the flash has been set for the shooting distance of the camera. The best pictures are taken with a close-up lens from 2 - 4 ft (60cm - 1.2m). Good pictures without a close-up lens are taken from 4 - 6 ft (1.2 - 1.8m). The most common error is over-flashing on bright, close-by objects. The optimal reach of the flash has been set to 6 ft (1.8m) in very clear water and depths below 40 ft (12m). It is not intended to illuminate the background, or seascapes, beyond 8 ft (2.4m).

*Tip: To prevent overflashing close up objects, use the optional Diffuser (item# SL968). The Diffuser pushes on to the front of the flash head and reduces light output by 60%.*

**6**  
Turn flash ON.



**Important: Do not force switch beyond stop point**

**7**  
TEST flash when flash-ready light is on.



## 8 Test and prepare flash

Turn ON/OFF switch on top of flash to "ON" (When orange flash-ready light is on, turn switch to TEST. This will test fire the flash. Count the seconds from firing to when the flash-ready light comes on again. If more than 12 seconds passes, replace the batteries. Keep the O-rings absolutely clean and dry. (Regular Alkaline 4 AA batteries will yield about 100 flashes.)

To replace batteries, remove battery compartment cover as described on page 6. Replace all 4 batteries with Alkaline or NiMH type batteries. NiMH recycle time and life depends on mAh rating of the battery. A 2100 mAh battery will last longer and recycle faster than a regular Alkaline battery. There are also newer high-energy Alkalines available that will have longer battery life than regular Alkalines.

Always keep the battery compartment door O-ring clean, dry and free of obstructions. Make sure to re-attach the black spacer piece inside the compartment. Close compartment and latch. Make sure o-ring is completely and evenly seated in the housing.

**NOTE:** Inspect O-ring for cuts, tears, dirt or other damage. Clean or replace as necessary. Do not grease O-ring. Clean O-ring with fresh water and allow to dry.

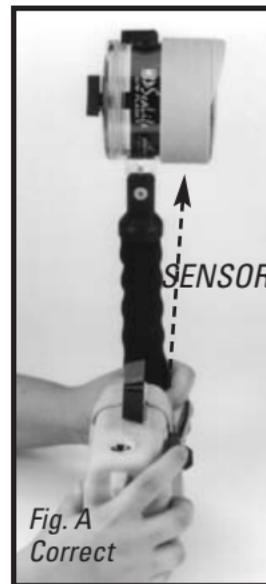


Fig. A  
Correct  
Position sensor to the side or above camera flash.



Fig. B  
Wrong  
Do not position flash sensor behind the camera.

**Tip:** Use the SeaLife Flash Link (item# SL962). This optical cable connection assures the flash fires in all light conditions or flash head positions.

## 9 Aim flash head towards the subject.

If using SeaLife 3X close-up lens, make sure to aim flash down towards the subject. For 8X and 16X lenses, aim flash towards end of macro wand. Position the flash so one of the light sensors is to the side or above the camera (fig. A) and that the shine of the camera's built-in flash can trigger the sensor. The Flash Sensors on the bottom of the External Flash should **not be positioned behind the camera** (fig. B). The reflection of the camera's built-in flash must hit one the sensors at the bottom of the flash head. This will trigger the flash. There should be no obstruction on this path, such as your hand.