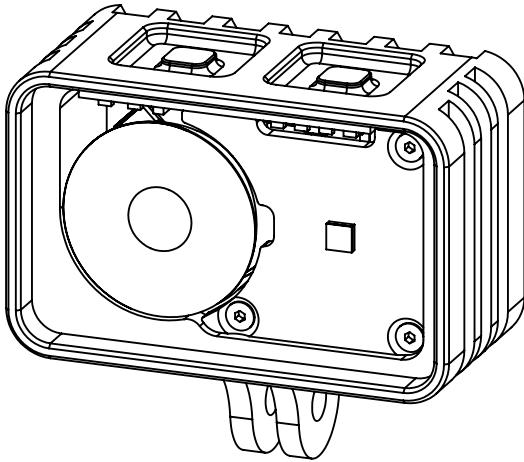


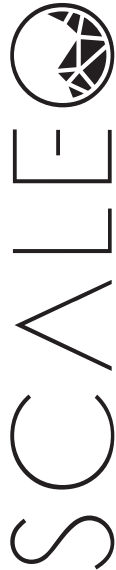
Operating Manual

SCALEO *cover*



MADE IN GERMANY

Please read the following manual carefully before using your product. Please do not discard.



CAUTION. IMPORTANT SAFETY INFORMATION - Read all information before operation.

This operating manual covers operating, maintenance and safety instructions. Please read the entire operating manual carefully before using the **SCALEO cover** and keep the operating manual in a safe place for future reference at all times.



CAUTION! The lamp can get very hot. Warning!
Risk of burning!



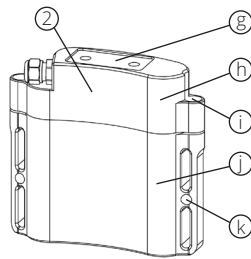
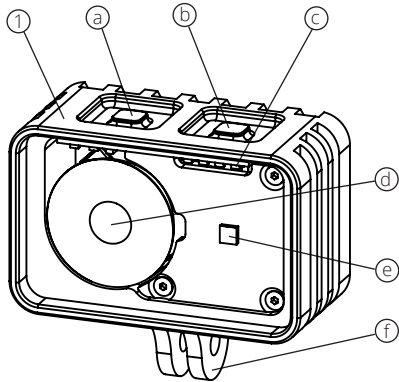
CAUTION! Do not direct the lamp while using it at your eyes or the eyes of other people or animals. There is a danger of damaging or destroying the retina.

- Keep the lamp out of the reach of children and animals.
- Operate the lamp only with the included battery tank. Make sure that the battery cells you are using corresponds with the specifications (see commissioning).
- In case of smoke or steam, immediately turn off the lamp and remove the battery cells from the battery.
- when transported or stored remove the battery cells from the battery.
- Keep away the lamp and the battery from direct sunlight, high heat and open flames. It can cause overheating, brands, explosions, destruction, electric shocks and injuries.
- In case of damage to the front glass, o-rings or cable, operation must be stopped immediately. Do not use the lamp again until it has been repaired by qualified experts.
- The instructions in the following operating manual must be strictly followed. Otherwise it can lead to damages, personal injuries or even death!
- During operation always maintain an adequate distance to flammable materials. Do not cover the lamp with any items during operation. Warning! Risk of fire!
- Dismantling or modifying the lamp can affect the safety of the product. Modifications of the lamp that are not approved by this operating manual must be carried out by qualified experts.

INTENDED USE

The lamp is designed for operation in caves and under water. The lamp is designed and tested for depths up to 70 meters in the Cave-Version and 150 meters in the Dive-Version.

PRODUCT DETAILS



1. Lamp Head
 - a. right Piezo
 - b. left Piezo
 - c. Battery-Indicator
 - d. Spot LED
 - e. Wide Angle LED
 - f. Action-Cam Mount
2. Battery
 - g. Mount for Lamp Head
 - h. Battery Lid
 - i. Locking Screws
 - j. Battery Main Part
 - k. Mounting Thread

COMMISSIONING

You will already find the lamp completely assembled. To put the lamp into operation it is necessary to insert fully charged 18650 battery cells into the battery tank and close the tank. Make sure that you immediately press the lid firmly when closing the battery tank and only release it when you have tightened the screws. This is necessary because the protective electronics of the battery tank recognize slow closing as an error and do not release the battery tank. If you bought the lamp with battery cells, they are already inserted in the battery tank at delivery and are electrically separated by a film. Remove this film to put the lamp into operation.

The following commercially available battery cells may be used:

- four identical cells (manufacturer, type, state of charge and age)
- type 18650
- without protection circuit
- whose continuous discharge current allows at least 4 amps

OPERATION

USER INTERFACE

The lamp is operated by two breakthrough-free piezo buttons with haptic feedback. The lamp has two operating modes that can be configured using the smartphone app. Switching between the two modes is possible via the smartphone app or by pressing both buttons simultaneously in the „Off / Bivouac Mode“ for 3 seconds.

MODE 1:

Short click (light on):

Each of the two light sources (spot and wide angle) is set in 4 brightness levels using the piezo button above it. Each press of the button changes to the next higher brightness level. After the highest level, the next press switches the light source back to level 0 and the corresponding light source is off. Both light sources can be set independently of each other in this mode.

Press for 3 seconds:

The light is switched on by a long press. A long press again switches the lamp back to „Off / Bivouac Mode“.

Short click (lamp in off / bivouac mode):

When switched off, the lamp can be switched to bivouac mode with a short click. The bivouac mode provides very weak, glare-free light, which is sufficient to read a book or find the socks. But it is weak enough not to blind the people around. The bivouac mode switches off automatically after 30 minutes and can be completely deactivated in the app.

The following table shows this operating scheme again. The preset brightness values can be set individually in 5% steps using the smartphone app.

Lamp in off / bivouac mode			Press for 3 seconds	Lamp on		
Short click	Level	Function		Short click	Level	Function
<i>change between off and bivouac mode</i>	off	Lamp off	<i>change to off / bivouac mode</i> ↕	<i>change to the next higher level</i> ↑ ↓ ↓ ↓ ↓	0	Lamp off
	Bivouac Mode	very weak, glare-free light			1	5 %
			2		20 %	
			3		40 %	
			4		100 %	

MODE 2:

Short click (light on):

Up to 10 light settings, i.e. combinations of spot and wide angle, can be defined in this mode. The settings can be called up using the piezo buttons. The right piezo button increases the light setting by one. The left button reduces the light setting by one. The number and definition of the settings is done via the smart-phone app. The light sources can be set in 5% steps and the bivouac mode can be included.

If all three light sources in a light setting are off, the battery status is displayed in this setting. If a setting in which all light sources are switched off is not followed by a setting in which at least one light is turned on, the lamp ignores it. This means that fewer than 10 settings can be used.

3 seconds press and short click if lamp in off / bivouac mode:

Switching off the lamp and the bivouac mode are operated as in MODE 1.

Lamp in off / bivouac mode		Lamp on				
same as in MODE 1	Press for 3 seconds	Short click left Piezo	Licht setting	Function spot / wide angel	Short click right Piezo	
	change to off / bivouac mode ↔	change to the next higher level ↓ ↓ ↓ ↓	0	e.g. 0% / 0%	change to the next lower level ↑ ↑ ↑ ↑	
			1	e.g. 50% / 10%		
			2 ... 8	...		
			9	e.g. 10% / 50%		
		10	e.g. 100% / 100%			

TO SWITCH ON AND OFF

The „off / bivouac mode“ can be used to switch the lamp off. As described in the previous paragraphs, this is activated or deactivated by pressing one of the piezo buttons for 3 seconds.

The „off mode“ was deliberately combined with the „bivouac mode“, since an accidental switch on of the bivouac light virtually does not discharge the battery. The bivouac mode switches off automatically after 30 minutes in „off / bivouac mode“. The current consumption of the bivouac light is 4mA. So you could accidentally turn on the bivouac light around 1750 times until the battery is empty.

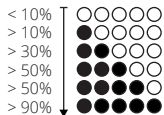
If the lamp is in „off mode“, a small current (approx. 1.7mA) is consumed even without the bivouac light. This corresponds to approximately 2 months of standby time until the battery is empty.

To secure the lamp for transport and storage, it is recommended to open the battery and remove the cells. This is the only way to completely switch off the power consumption and prevent from accidental switch-on. After connecting to a power source, the lamp always starts in bivouac mode.

BATTERY INDICATOR

In most situations when the other light sources are switched off, the battery charge level is displayed for a few seconds.

Remaining capacity according to the number of illuminated LEDs



CAUTION: The LED indicator is only a rough orientation and shows what percentage of the battery capacity is approximately left. The actual duration until the lamp switches off depends on the capacity of the battery cells used (Wh), the ambient temperature and the intensity with which the **SCALEO caver** is operated.

CALCULATION OF THE RUNTIME

At full power of spot and wide angle at the same time, the **SCALEO caver** consumes 40 watts. The battery has about 50 Wh of energy with the recommended battery cells (Samsung INR18650-35E). The runtime at maximum brightness of both light sources is around 1 hour and 15 minutes. For example, if only one light source is operated at 25%, the runtime is 10 hours.

$$\frac{E \text{ [Wh] Battery}}{P \text{ [W] SCALEO caver}} = t \text{ [h] (max. Runtime)}$$

HAPTIC FEEDBACK

The light has a vibration motor to generate haptic feedback for the piezo buttons. This function can be deactivated in the smartphone app.

TEMPERATURE MONITORING

The luminaire has temperature monitoring. If the limit temperature is exceeded, both light sources are limited to 20% to protect the luminaire itself.

CARE INSTRUCTIONS

To ensure that you will continue to take pleasure in your **SCALEO caver**, we recommend to follow the care instructions below.

- Rinse off the lamp thoroughly after every use with clean freshwater and dry it off afterwards. Do not use any further cleaning agents.
- Make sure to protect the front glass from shocks, sand and sharp items in order to avoid scratches.
- Remove the O-ring of the battery lid if it is dirty. Clean it and grease it again. We recommend Molykote 111. Before each use, make sure that the O-ring in the lid of the battery is not damaged and that the lid is screwed tightly to the main part of the battery.
- Check regularly that the front glass and the cable are not damaged and that the cable glands are tightened firmly.

PERFORMANCE CHARACTERISTICS & TECHNICAL SPECIFICATIONS

Permissible ambient temperature: -4°C bis 30° C

Power supply: included, external battery tank

Dimming: analog Dimming (flicker free)

Standby power consumption: 1,7mA

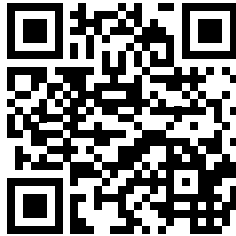
Power consumption Biwak Light: 4mA

	Lamp head	Battery cave	Battery dive
Dimensions	60x30x39mm	91 x 30 x 100 mm	
Weight above water	130 g incl. helmet mount	without cells: 140 g with cells: 330 g	... 230 g ... 420 g
... under water	75 g	with cells: 150 g	... 240 g
Perm. depth	same as battery	70 m	150 m
Voltage range	12 - 16,8 V	12 - 16,8 V	

	Spot	Wide angle
LED Type	Cree XHP35	Cree XHP35
Beam angle	11°	100°
Max. power	20 Watt	20 Watt
Color temp.	5000 K	5000 K
Luminous flux	1 370 Lumens	1 440 Lumens
Lux @1m	20 000 cd	800 cd

EN: Under the following link you will find the operating manual in different languages and the app for configuration of the lamp:
<http://www.scaleo-light.de/manual>

DE: Unter folgendem Link finden Sie die Bedienungsanleitung auf Deutsch und die App zum konfigurieren der Leuchte:
<http://www.scaleo-light.de/bedienungsanleitung>



www.scaleo.com



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This device conforms to the European Directive of Electromagnetic Compatibility (EMC) 2014/30/EU.



This device conforms to the European Directive 2012/19/EU of old electrical and electronic equipment (WEEE).