

## MANUAL

### UNDERWATER LIGHTING GRALmarine K2 mini, KX mini

#### This set comprises of:

- LED torch
- Li-ION battery type 18650 capacity 2,8 Ah
- battery charger

#### K2 mini, KX mini TORCH:

- created for use as a backup torch
- can be used as a main source of light in recreational diving
- construction:
  - torch body is built of a surface anodized aluminum
  - diode and optics are covered with high-quality resin, providing adequate cooling and durability of the head
  - torch is switched on / off by tightening / loosening the head with one turn (avoid excessive loosening of the head under water)
  - battery is placed inside of the torch with the positive terminal (+) on top, any other battery insertion will not activate the torch
- the source of light is one Cree XRE diode (K2 mini) or one XML-2 (KX mini), with a color temperature of 5500 – 6000 K
- requires battery type 18650 power supply, with nominal voltage of 3,7 V, the use of other batteries can damage the head (LED burnout)
- tested to a depth of 150 meters, 300 meters on request

#### ➤ Preparation of the torch for diving:

- check the proper working of the torch before diving
- check if the battery is in a good condition
- check the o-rings for dirt and damage

#### ➤ Maintenance of the torch after diving:

- rinse the torch with fresh water
- dry
- remove dirt regularly
- wipe the front surface of the head with a soft, moist cloth; do not use alcohol-based detergents (these cause dulling and cracking of the resin)
- periodically check the condition of the o-rings, replace when worn or damaged (size of the o-rings on the torch body: 16 x 2)
- periodically check the condition of the thread, lubricate with silicone grease or silicone with Teflon - this eases the torch's operation and reduces stress on the o-rings
- periodically open the torch with the aim of releasing the accumulated gas –batteries release a gas, which may lead to possible damage by increasing pressure inside of the torch and pushing window out, remove the battery while the torch is longer stored
- care for mechanical damage, distortions to the torch head may cause leaks

#### ➤ Charging the battery:

- unscrew the torch head
- remove the battery
- place the battery into the charger, according to the marked polarity, use only chargers for charging single-cell Li-ION batteries, 18650 type
- connect the charger to the 110 – 230 V power source
- the level of battery charge is indicated by the LED color (red indicates “charging”, green indicates “charged”)

#### ➤ Warnings:

- do not use a different power source other than battery type 18650, with nominal voltage of 3,7 V
- do not disassemble the torch
- do not throw the torch
- do not immerse in water or dive with a loose torch head or with an open torch

#### DEALING WITH USED AND DAMAGED EQUIPMENT:

Lighting gear used by divers can be recycled and freely returned to the dealer or manufacturer. Batteries are the main environmentally hazardous components. The other components such as aluminum and copper are a source of raw materials after recycling. For these reasons, diving equipment should not be disposed with general waste. In accordance with the law pertaining to the disposal of used electrical and electronic equipment:

Art. 73 - Any person disregarding the prohibitions of Art. 35, by not disposing [recyclable] equipment to the proper collecting entity, is subject to a fine.

Art. 74 - Any person disregarding the prohibitions of Art. 36, by disposing [recyclable] equipment with other waste, is subject to a fine.