

## MANUAL

### UNDERWATER LIGHTING GRALmarine

#### LED 18 W Compact, 3XML-2 Compact, LED 6 VIDEO Compact

#### COMPACT LIGHT:

- is an universal lamp used as the main lighting source during recreational diving, technical diving and underwater works
- construction:
  - head body is made of surface anodized aluminum
  - magnetic switch (without a pass through the housing) allows switching LEDs and adjusting power levels to 100%, 30% and 10%, by rotating the ring at the middle part of the torch body
- has an internal power source (14.4 V battery)
- tested to a depth of 150 meters, 300 meters on request
- has a pressure valve in the lower lid to protect against excessive pressure inside the container

#### BATTERY PACK:

- consists of Li-ION battery cells which feature small size and high capacity
- has a low self-discharge level (approx. 4% / month)
- has an electronic protection against: short circuit, overcharge and over-discharge (excessive discharge causes switching off of the battery)
- does not require full discharge before recharging
- can be charged at any time and at any level of discharge

#### TERMS OF USE:

- store in a dry and ventilated location within a temperature range of -20°C to +50°C, keep away from excessive heat and humidity
- temperatures above +60°C may cause internal damage to the battery pack
- after storage below 0°C it is necessary to acclimatize the battery pack at the minimum +10°C for 4 - 5 hours before use
- charging a frozen battery may cause internal damage to the battery pack
- discharging (usage) of the torch may take place within a temperature range of 0°C to +60°C
- the torch can be stored after charging to a level of 50 - 70% (longer storage of the discharged battery leads to its degradation)
- when storing the torch, charge it at least once every six months
- charge the torch with the supplied charger and adapter only
- avoid discharging the battery beyond the automatic power cut-off level
- store and transport with the switch in the off position and the charging adapter connected (without connecting the charger), which will prevent accidental switching on
- the orientation of the charging adapter must match the pressure valve symbol on the adapter and the pressure valve on the lid; inserting the charging adapter the other way will prevent the flashlight from switching on accidentally
  
- **it is strictly prohibited to:**
  - open the torch
  - interfere with the torch construction
  - throw the torch
  - put it into fire or store it near heat sources
  - connect other charger plugs than the original GRALmarine connectors
  - charge the battery with a charger other than the one included in the set
  - transport and store it without securing it with a charging adapter

#### CHARGING THE TORCH:

- connect the charger plug to a 110 – 230 V power outlet
- connect the adapter to the lower lid of the torch so that the pressure valve matches the marked circle on the adapter; if connected the wrong way charging will not start
- a red diode will appear in the charger
- when the battery is fully charged, all green diodes will light up
- in case of a strong battery discharge, the charger may flash (red / green) after connecting, then remove the adapter plug and reconnect it after a while, it may be necessary to repeat the procedure two / three times

## TERMS OF CHARGER AND ADAPTER USE:

- the charger is designed for indoor use, in sheltered conditions
- it should not be placed or used in conditions of excessive heat or humidity; charging must always be within a temperature range of 0°C to +40°C
- it is normal for the charger to become warm during use
- its fall or impact can damage sensitive electronic components
- it should not under any circumstances be opened or unscrewed – hazardous
- it should not be used with a damaged power cable
- charger is protected against short circuits and excessive charging time
- diving with the adapter is prohibited, it will result in corrosion of the charging terminals and damage to the torch

## OPERATING PRINCIPLES:

### ➤ Preparation:

- check the battery charge level before diving
- check if it works by disconnecting the charging adapter and turning the magnetic switch
- always have an alternative source of light (backup)

### ➤ Maintenance after diving:

- rinse the torch with fresh water
- dry it
- attach the adapter (without charger) to avoid accidental switching on
- clean regularly
- wipe the front glass of the torch with a soft, moist cloth; do not use alcohol-based detergents (these cause dulling and cracking of the glass)

### ➤ IMPORTANT:

- never leave the torch switched “on” or use above water: this can cause overheating, unsealing and damage
- be careful of mechanical damage that causes deformation - this may cause leakage
- do not place the torch with the optics facing down - leaving it on or accidentally turning it on in such a position may damage the torch and cause a fire; placing the optics up or on its side will allow you to quickly notice the activation and avoid the consequences
- do not transport and store with flammable materials
- store and transport with an empty space in front of the optics - at least 5 cm (this can prevent melting objects and damaging the flashlight itself in the event of its accidental activation)
- remember that a flashlight not protected by an adapter can be activated by external magnetic fields located at a short distance (a few cm) from magnets, toys with magnets, magnetic holders, some tools, such as screwdrivers with replaceable tips, magnetic connectors for charging smartwatches, magnetic mats, etc.
- if you have more than one torch, store and transport them separately at a distance of at least 5 cm, separated by, for example, a charger or another object that is not a source of a magnetic field

## 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.