

R O O R K A™

by **MAVI** 

v.17.14

# User's manual

Firmware version: 1.17.5.10  
(2017-05-30)



User's manual is also available on:  
[roorka.com/en/downloads](http://roorka.com/en/downloads)

## Preamble

To much valuable human beings became a victims of the beautiful sport (Freediving). Although not all dangerous situations can be prevented, the main cause of accidents stays unchanged:

- Loss of consciousness and absence of a person ready to provide basic help.

Whether you dive in the sea, in the lake, in the pool, or you train away from the water...

Trusted **Partner** is what makes you – responsible person – different from enthusiast of „Russian Roulette”.

Without **Him**  
you can count  
only on  
stroke  
of luck,  
and it  
favors  
few of us...



## What is Rorka

Rorka is a specialized dive computer, invented, built and manufactured by freediver – for freedivers, spearfishers and anyone else who spends their time under the water in any way.

In many aspects this is a precursor and groundbreaking product, based on unused before solutions in diving computers.

For the first time and the only one so far among the dive computers you can find:

- specialized speaker to inform about diving process instead of the display;
- precise depth calculation model based on extremely accurate distance measurements (freediving) instead of pressure-oriented (scuba);
- mechanism of messages personalization for supporting the entire improvement process (from dry APNEA training to competition dives);

## Conformity with EU standards

Roorka has been certified by the manufacturer and satisfies the requirements of EN 13319:2000 standard „Diving accessories – Depth gauges and combined depth and time measuring devices – Functional and safety requirements, test methods”, which was confirmed by the certificate of conformity ROORKA by MAVI v.17.14.

The CE marking placed on the device indicates conformity with directive 2001/95/EC

The producer of ROORKA by MAVI v.17.14 is company:

### **MAVI Digital Electronics**

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This product contains the built-in rechargeable battery described in Directive 2006/66/EC (as amended) which cannot be disposed of with other household waste.

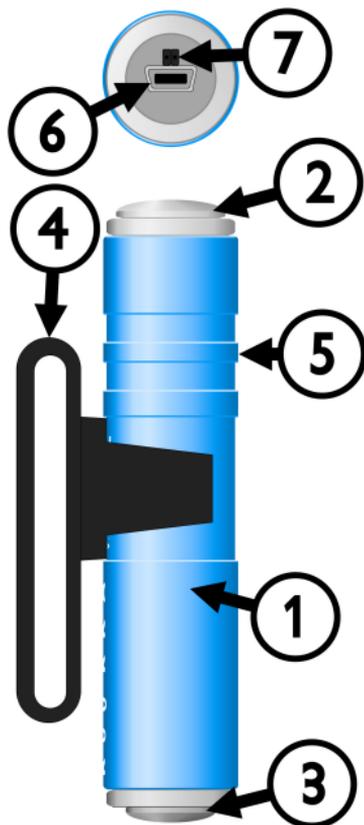
## **Disclaimer**

Like any device, Roorka as a computer is exposed to damage or degradation and there is no way to guarantee that it will work properly at all times and under all conditions. Roorka in its formal sense remains a measuring indicator, neither a life-saving device or a part of safety system.

On the one hand, the Manufacturer cannot take and will not take responsibility for any direct or indirect consequence of device's malfunction, including material, health or life losing.

On the other hand the Manufacturer suggests using Roorka as parallel/backup dive information system. It can be used in case of the primary dive computer's breakdown.

## Construction



Excluding the advanced electronics design, which is not the subject of this study, external construction of Rorka is extremely simple and it consist of:

1. aluminium housing;
2. USB slot cover (larger, **screwed and removable** cap with the „O-ring” type sealing);
3. temperature/pressure sensor cover (smaller not removable cap with drillholes);
4. holder (in one or more versions);
5. the best audibility point of the built-in speaker (on the opposite side of the inscription, placed about 2 cm from the top edge).

Under the cover(2):

6. mini USB slot;
7. service connector.

### **Attention!**

The included metal clip is dedicated for using in the pool only. It not safeguard Rorka for accidentally losing!

## Basics of using

The key to satisfaction in using Roorka is its position and fastening. It helps and ensures proper audibility of messages.

A special, membraneless speaker was selected for Roorka's unique construction. It allows device to generate sounds even with big differences of pressure between the outside and the inside of the computer case. The correct work of that sound system requires Roorka's strict contact with the diver's head – the best place is in the ear region (but not necessarily).

Besides hearing the messages under the water – which is possible because of this technology – this solution has some more important features:

- the diver's ear is free and open so it allows to continue safely diving without exposing it to squeeze;
- Roorka can be mounted both under and on the hood - also in points other than the ear (eg. on the occiput);

The only important condition is that it has to be pressed to the skull bones;

- The sounds emitted in this way are basically audible only for the Roorka's user unlike eg. piezoelectric buzzer used in the watches.

The drawings below are illustrating the wrong and the correct way of fastening the Roorka:



**WRONG**



**CORRECT**

## Factory presets

To meet the requirements established in standard EN 13319:2000, in Roorka's defaults setup are used:

- 1bar = 10metres of depth equation;
- depth messages every 3m (above 60m every 5m);
- dive time messages spoken after 1:00, 1:30, 2:00, 2:30, 3:00, 3:15, 3:30, 3:45...
- after the dive: dive time, max. depth, min. temperature and information about battery (when below 50%).

Realising that these settings are not optimal for every dives, it has to be mentioned that they allow to:

- take the first few dives with Roorka's assist in the sea as well as in the lake or in the swimming pool;
- get used to the sound under the water and the presence of “virtual partner”;
- specify expectations about when and what we want to hear during the similar dive.

## **Supply power system**

Inside the Roorka, it is placed not only Li-Po accumulator but also a special designed supervisory system. It is in charge of the charging process and protecting battery against any damage. There is no risk about overloading the accu due to too long charging time.

The used battery has no “memory effect” so user does not have to precisely plan the charging proces but only take into account some of the tips described in the following part.

Both the transmission/charging cable and the chargers (230V~ and 12V=) are included in the kit. We do not recommend using others cables/chargers for Roorka as long as using included ones for other purposes. Nonconformity to the tips above can cause charger's destruction or the Roorka itself.

## Preparing the computer for usage

Before the first immersion or after a long break of using the Roorka it is necessary to check the seal condition and make sure that the battery is fully charged.

For this purpose user should:

- unscrew the cover of the USB slot: (2) – bigger cap;
- connect Roorka to the charger or to the computer for at least 2 hours or until hearing: „Charging completed” message; \*

\* while keeping the default setup of the messages

- visually check condition of the seal if it is alright; \*\*

\*\* unacceptable are any deformations, surface or consistency distortion. In case of founding any damage it is necessary to replace the complete cap with one included in the kit. After this action user should purchase suitable seal (from the manufacturer) and rebuild the stock.

- After charging, disconnect USB cable and (eg. using the coin) **strongly** screw the cap.

## **Before the diving**

Before the first dive of the session user should:

- once more check if USB cover is tighten with the right strength and the seal is not moved away in uneven way from under the cap;
- set up the Roorka on the inner side of the mask's strip, goggles, band or under the wetsuit's hood, paying attention to the condition of attachment that prevents computer from accidentally loss;
- perform control immersion for verification of the messages' audibility.

## **During the diving**

Problem-free dive using the Roorka do not require any actions from the user and let him entirely focus on achieving goals. Information about low battery level (<<50%), random actions (unexpected messages or lack of them) mean that Roorka can be turned off or can tell unreal information. The probable causes of that: battery discharge, wrong setup but also leak or fault of the

computer. In case of founding abnormalities it is absolutely not allowed to trust the passed information, and also wait for a getting it. If possible, user should finish the dive/session so the causes of incorrect Roorka's action can be diagnosed.

## **After the diving**

After the last dive user should:

- wash out the computer in the fresh water (if diving took place in the sea, in the thermae or in the swimming pool);
- dry the computer; \*
- \* absolutely necessary before unscrewing the USB cover;
- protect from mechanical damage by putting the computer dry down to the factory metal package and removing it from the possibly sunlight.

## **Break during the exploitation (off season)**

Roorka's construction protects the built-in battery from the excessive discharging, leaving the diving computer completely turned off after reaching the minimal save battery level. (Automatic restart after USB connection with PC computer or charger).

It is recommended to maintain Roorka in full-charged condition (charging about once a month) or turning it off with the dedicated software (ROORKAsoft - which can be downloaded from the website:

<http://roorka.com/en/downloads>

## Extended computer's capabilities

Factory settings described here are only a sample of the capabilities that Roorka offers during professional using it for diving or training. On the website: <http://roorka.com/en/downloads> you can find free software matched to the hardware capabilities and designed by the manufacturer. This ROORKAsoft can help the user with:

- editing all the setups and parametres;
- creating diving's scenarios matched to personal preferences;
- diagnostics, updating libraries, other language versions or even Roorka's firmware upgrade.

The software is constantly evolving and stays free for all of the Roorka's owners (independently from the purchasing time or original language version). Capabilities description, requirements and usage of the program are described in other document that is part of the software.

## **Possible problems and limitations during the transport**

In view of the possible low immersion threshold ( $\ll 50\text{cm}$ ), because of the sudden pressure changes there may be false immersion detected (especially during the air transport or wheel transport in mountains). User may hear messages that are characteristic for being underwater.

To solve this problem user should connect the Roorka to the USB slot; for example with the charger.

When immersed at the moment of USB disconnection, Roorka will be forced to surface through recalculate new atmospheric pressure.

Of course the threshold should be limited both for immersion and surface. However, user should know that this action can limit Roorka's functionality while doing statics or safety diver countdown.

## **International Limited Warranty**

MAVI Digital Electronics warrants that during the Warranty Period will, at its sole discretion, remedy defects in materials or workmanship free of charge either by repairing/replacing/refunding, subject to the terms and conditions of this International Limited Warranty. This International Limited Warranty is valid and enforceable regardless of the country of purchase. The International Limited Warranty does not affect your legal rights, granted under mandatory national law applicable to the sale of consumer goods.

Manufacturer does not warrant that the operation of the Product or accessory will be uninterrupted or error free, or that the Product or accessory will work with any hardware or software provided by a third party.

The International Limited Warranty Period starts at the date of original retail purchase and is two years.

## **Exclusions and Limitations**

This International Limited Warranty does not cover:

- normal wear and tear such as scratches, abrasions, or alteration of the color or material of case element;
- defects caused by rough handling;
- defects or damage resulting from use contrary to intended or recommended use, improper care including the seal and proper tightening of the USB cap, negligence, and accidents such as dropping or losing;
- exposed to chemicals;
- printed materials and packaging;
- defects or alleged defects caused by use with any product, accessory, software and/or service not manufactured or supplied by MAVI Digital Electronics;
- rechargeable batteries.

This International Limited Warranty is not enforceable if Roorka has been opened beyond intended use; modified or repaired by unauthorized Service Center.

## **Limitation of Liability**

To the maximum extent permitted by applicable mandatory laws, this International Limited Warranty is your sole and exclusive remedy and is in lieu of all other warranties, expressed or implied. Manufacturer shall not be liable for special, incidental, punitive or consequential damages, including but not limited to loss of anticipated benefits, loss of data, loss of use, cost of capital, cost of any substitute equipment or facilities, claims of third parties, damage to property resulting from the purchase or use of the item or arising from breach of the warranty, breach of contract, negligence, strict tort, or any legal or equitable theory, even if Manufacturer knew of the likelihood of such damages. Manufacturer shall not be liable for delay in rendering warranty service.

## Technical data:

Depth samples per second	1..10
Resolution of depth measuring	0,01m
Maximum depth (factory certified)	130m
Maximum depth (measured)	> 180m
Depth measurement accuracy * (< 70m)	< 0,2m
Depth measurement accuracy * (< 130m)	< 1,0m
Immersion depth threshold	0,2.....1..2,5m
Surfacing depth threshold	0,1..0,5..2,5m
Operating temperature range	0..45°C
Storage temperature range	-20..60°C
Temperature resolution	0,1°C
Audio codec	ADPCM 32kHz/16bit
Speaker power	1W
Battery capacity (Li-Po built-in)	430mAh
Charging current	250mA
Full charging time	< 3h
Operating time (diving/suspend)	12h/1month
FLASH memory capacity	8MB
Connector type	USB mini

\*based on the pressure sensor manufacturer's data and on the fulfillment of the proper environmental characteristics (by ROORKAsoft).

The manufacturer reserves the right to change factory setup and technical data without prior notice.

This document content is subject to change at any time without notice.

The latest version can be downloaded from the website:

<http://roorka.com/en/downloads>.