

**seac**  
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# LED TANK PROBE

U S E R M A N U A L



MADE IN CHINA



## LED TANK PROBE MANUAL

Congratulations on your purchase of a SEAC diving probe.

The SEAC LED TANK PROBE is a technologically advanced tool, designed and manufactured to transmit tank pressure to a compatible SEAC dive computer data using wireless communication.

- **WARNING!**

**The complete user manual can be downloaded free of charge from [www.seacsub.com](http://www.seacsub.com)**

## GENERAL WARNINGS

- **WARNING!**

For your safety and in order to use the product correctly, download the complete user manual from [www.seacsub.com](http://www.seacsub.com) and read it in full before using the SEAC probe.

Periodically check [www.seacsub.com](http://www.seacsub.com) for any updates to the complete Led Tank Probe user manual.

- **WARNING!**

Using the probe incorrectly will void the warranty and can permanently damage the computer.

- **WARNING!**

Use the dive probe only after having read the instruction manual in its entirety and having understood how the probe works.

- **WARNING!**

The dive probe and computer are not a substitute for diver training and should only be used by divers who have been properly trained and who have earned the appropriate license issued by a Certified Teaching Association.

- **WARNING!**

The probe and computer do not replace an understanding of decompression tables, which divers must always carry with them for safety, along with a depth gauge, a pressure gauge and a dive watch.

- **WARNING!**

To ensure proper operation, the LED TANK PROBE can only be paired with SEACSUB's TABLET wristwatch computer.

- **WARNING!**

The SEAC probe and computer are auxiliary devices during a dive. Therefore, it is crucial that each diver always carries with them a suitable table that will enable them to conduct the decompression phase if the unit should malfunction.

- **WARNING!**

Freediving entails the risk of syncope, taravana, pulmonary edema, and hemoptysis, while diving with scuba equipment entails the risk of decompression sickness, oxygen toxicity, nitrogen narcosis, and other risks generally related to diving: even careful reading of this manual and correct use of the instrument does not exclude potential dangers.

- **WARNING!**

The probe and computer cannot take into account individual physiological changes that can change from one day to the next. For this reason it's good practice to use the device conservatively and cautiously, remaining within the limits shown by the computer in order to minimize the risks.

- **WARNING!**

It is strictly forbidden to freedive in the 12 hours after diving with scuba equipment!  
Violating this rule could considerably increase the risk of decompression sickness.

- **WARNING!**

Before diving you must check the battery status. When you turn on the probe, after the LED check cycle (green, yellow, red, at intervals of one second), if the LED glows red for three seconds, **DO NOT** dive.

The battery power level is indicated by the LED color as follows:

- LED red on for 3 seconds: battery below minimum charge (do not dive).
- LED yellow on for 3 seconds: level low. Power could fail during dives in especially cold water.
- LED green on for 3 seconds: battery charged.

- **WARNING!**

Keep in mind that your body undergoes changes, even from day to day. If your physical condition is not excellent, or if you feel any physical problems, do not dive!

- **WARNING!**

The normal functions of the product could be disturbed by strong electromagnetic interference.

- **WARNING!**

The LED TANK PROBE is intended for use with Nitrox or oxygen, and must be kept consistently clean based on use with oxygen.

The use of standard air compliant with standard EN12021 constitutes a risk of contamination. If you wish to use the probe with Nitrox or oxygen following use with standard air, a cleaning must be performed by a person skilled in the handling, maintenance, and overhaul of equipment for oxygen, or someone such as a qualified technician at a SEACSUB service center.

To reduce the risk of explosion, open the valve of the tank containing Nitrox or oxygen very slowly.

- **WARNING!**

Only use this equipment if you have received the appropriate Nitrox and/or advanced decompression dive training from an internationally recognized dive training agency.

The use of Nitrox and/or oxygen at ambient pressure can cause oxygen toxicity. Abide by the maximum operating depth for the gas you intend to use, and ensure that you follow a dive profile that does not expose you to unsafe oxygen levels.

## HARDWARE

<b>Type:</b>	probe for detecting and transmitting tank pressure
<b>Battery:</b>	CR2, non-rechargeable, 3V 850 mAh, user-replaceable (we strongly recommend that you have this done at an authorized SEAC center, also replacing the O-ring in the battery compartment).
<b>Alarm Type:</b>	Visual, using LED
<b>Connection to tablet computer:</b>	radio transmission
<b>Maximum operating depth</b>	100 Meters/328 ft

## SWITCHING ON THE LED TANK PROBE

The Led Tank Probe switches on automatically as soon as it measures pressure of 15 bar or higher, and switches off automatically when the pressure is at or below 5 bar.

## PAIRING THE PROBE(S) WITH A TABLET COMPUTER

Connect the probe to one of the HP ports on the first stage with the valves closed. Then, activate the probe by supplying pressure, and wait to visually check the LEDs and the battery status. Warning! It's important to open the tank valves very slowly and release pressure from the second stage until it stabilizes, ensuring that there are no leaks.

Make sure that there are no other active probes within two meters.

Make sure you have put the probe on the first stage on the right if you intend to use the tablet computer on your right wrist, or on the left if you'll use it on your left wrist.

Enter the TANK menu on the tablet computer. Set receiving by selecting ON. Long-press the right button to enter the next menu. Check that the probe you want to pair refers to the first mix (MIX 1), or, also by long-pressing the right button, select the mix you want (MIX 1 - MIX 2 - MIX 3). Next, press the left button (PRG) and wait for the ID number of the probe you're connecting to appear and read the bar in the tank. Confirm pairing by pressing the left button (YES). It's possible that the probe reading might not happen at first after you press the left button (PRG). If this happens, press the right button (NO), and then again press the left button (PRG) and repeat until the probe is recognized.

You only need to pair the probe and the computer the first time. After that, the units remain paired every time you turn them on.

## PROBE ID

Each probe has its own ID.

The ID ranges from 1 to 2047.

The ID is reassigned each time the battery is changed, so in order to use the probe correctly it must be repaired with the receiving device after every battery change.

If a user uses multiple probes simultaneously, it's possible for two or more probes to have the same ID. Therefore the IDs need to be changed so the receiving device can uniquely identify each individual probe.

The probe ID is dynamic, meaning that users can reprogram it as follows:

- Switch off the probe if it's on, and wait at least 30 seconds.
- Supply pressure above 15 bar and wait for the flashing sequence in the 3 LEDs (green, yellow, red). Then, completely remove pressure to turn off the probe.
- Restore pressure above 15 bar within 15 seconds.
- Once the LED and battery check is complete, the probe will use a new ID.

## OPERATION

- a) The probe switches on within a few seconds of detecting pressure of 15 bar or greater.
- b) Each time it switches on (and when the battery is replaced), a visual LED check runs. The LEDs light up in sequence (green, yellow, red) at intervals of one second.
- c) When the LED check is complete, a check on the battery level runs, and remaining battery time is indicated by turning on an LED for 3 seconds, coded as follows:
  - I. Green: charge greater than 50%
  - II. Yellow: charge greater than 33%
  - III. Red: charge below 33%
- d) When the battery status check is complete, the current tank pressure is transmitted in a dynamic interval of 5-7 seconds to reduce interference with other probes in the reception range.
- e) When the tank pressure falls below 100 bar, the yellow LED flashes at intervals of approximately 10 seconds.

- f) When the tank pressure falls below 50 bar, the red LED flashes at intervals of approximately 5 seconds.
- g) The probe turns off when the pressure is at or below 5 bar.

## **BATTERY \ RUN-TIME**

- a) The probe is powered by a CR2 3V battery with a nominal capacity of 850 mAh.
- b) The battery capacity varies based on environmental conditions.
- c) Battery time is 350 hours of dive time or 4 years in off mode.

The data indicated above:

- are strictly tied to the quality of the battery installed.
- refer to a new battery of recent manufacture (and therefore not subject to excessive auto-draining).
- refer to use/storage at 25°C/77°F.
- refer to use that does not entail direct exposure to sunlight.
- refer to a typical dive with 40% of time above 100 bar and 35% of time above 50 bar.

## **TECHNICAL CHARACTERISTICS**

### **Hardware**

- a) Field of measure 0-300 bar.
- b) Measure resolution 1 bar.
- c) Pre-calibrated digital pressure sensor.
- d) Transmission range approximately 1 m.
- e) Battery: CR2, non-rechargeable, 3V 850 mAh, user-replaceable.
- f) RGY LEDs for visually signaling battery status and remaining pressure.
- g) Electronics equipped with protection against polarization.



## Firmware

- a) Dynamic ID (range from 1-2047), can be changed by user with special procedure.
- b) Transmission interval randomized in a range of 5-7 seconds to reduce collision.
- c) LED check sequence at each switch on.
- d) Battery status check and signaling at each switch on.
- e) Signaling with flashing yellow LED (frequency of approx. 10 seconds) for tank pressure below 100 bar.
- f) Signaling with flashing red LED (frequency of approx. 5 seconds) for tank pressure below 50 bar.

## REPLACING THE BATTERY

### • WARNING!

Batteries should always be replaced by an authorized SEAC Center, because this is a delicate operation with a high probability of subsequent flooding of the Led Tank Probe if performed by inexperienced personnel. SEAC declines all responsibility for problems resulting from changing the battery.

### • WARNING

When replacing the CR2 battery, it's a good idea to also replace the O-ring in the cover with an original SEAC O-ring.

- a) Completely unscrew and remove the three cover screws.
- b) Pull the cover off the body of the probe.
- c) If needed, use a small flathead screwdriver to prize up the battery from its housing and remove it.
- d) Insert the new battery, snapping it into its seat and paying attention to the "+" polarity sign.
- e) Remove the old O-ring from the housing in the cover and replace it with the new one. Make sure that the O-Ring is not damaged, and once inserted make sure it isn't twisted at any point.
- f) Position the cover on the body of the probe and press it evenly downward.
- g) When tightening the three screws, hold the cover down on the body of the probe. To reduce the risk of stripping, we recommend you avoid using excessive force to tighten. The recommended torque is 12 Ncm. The O-ring seal on the battery compartment is radial, so excessive closing force on the compartment screws is not necessary.

**NOTE**

Do not dispose of used batteries in the environment or discard them as ordinary waste; we recommend using special battery disposal services.

**LED TANK PROBE SERIAL NUMBER**

The Led Tank Probe serial number is engraved on top of the cover.

**EC CERTIFICATION**

The Led Tank Probe is compliant with EC and FCC Directives.

The EU Declaration of Conformity is available at: [www.seacsub.com](http://www.seacsub.com).

**CARE AND MAINTENANCE**

- Keep the probe clean and dry. Do not expose the probe to chemical agents, including alcohol. Use only fresh water to clean your probe, removing all saline deposits. Leave the probe to dry naturally; do not use jets of hot or cold air. A jet of pressurized air hitting the pressure sensor could damage it irreparably.
- Do not expose the probe directly to the sun or to sources of heat above 50°C. Store the probe in a cool (5°C/41°F - 25°C/77°F) and dry place.
- Do not place the probe in a hyperbaric chamber.
- The accuracy of the pressure measurement is:
  - at 50 bar  $\pm$  5 bar
  - at 100 bar  $\pm$  10 bar
  - at 200 bar  $\pm$  10 bar
  - at 300 bar  $\pm$  15 bar
- Connecting port airflow: <100 liters/min. at a pressure of 100 bar
- European standards require that the unit be checked periodically to monitor the precision of its readings.
- The warranty will be forfeited if the probe is opened by an unauthorized service center.
- The probe is manufactured to withstand use in seawater, but after the dive you must rinse it thoroughly in fresh water and not expose it to direct sunlight or sources of heat to dry it.
- Do not attempt to open, modify, or repair the probe yourself. Always contact an Authorized Center or SEAC directly.

- **WARNING!**

Do not use jets of compressed air to dry or clean the probe. This could damage the pressure sensor.

- **WARNING!**

Do NOT use solvents to clean the product. Use only running water.

## **MARKING**

The markings on the device are as follows:

- Name of the product and its manufacturer
- EN250: tested and certified according to European standard EN250;
- CE 0474: EC compliance and number identifying the notified body that monitors manufacture pursuant to Form C2 of European Regulation 2016/425.
- Maximum operating pressure 300 bar/4350 psi
- FCC ID
- Serial Number
- O<sub>2</sub>: 100% Oxygen compatibility

## **EC CERTIFICATION**

The pressure gauge is a Category III device as defined under European Regulation 2016/425, and complies with the specifications set out in the harmonized European Standard EN 250/2014 for use with air. It is also compliant with the specifications established by the harmonized European standard EN 13949:2003 for use with oxygen-rich mixtures (Nitrox). The pressure gauge described in these instructions has undergone the EC certification procedure for a maximum depth of 50 m by Notified Body n.0474 - RINA, via Corsica 12, 16128, Genoa.

## **CERTIFICATE OF GUARANTEE**

The warranty has a duration of two (2) years for the non-professional end user in accordance with current European regulations.

To exercise the warranty, you must display a copy of your proof of purchase upon request.

SEAC guarantees the correct operation of this product as described in this document.

The warranty herein can be exercised according to the conditions and limits expressly indicated below:

1. The warranty has a duration of two (2) years starting from the time the product is purchased at a SEAC authorized dealer and requires no prior or subsequent formal validation.
2. The warranty is acknowledged only to the original buyer of the product at a SEAC authorized dealer. The warranty is strictly individual; it is not transferable to third parties unless previously and explicitly authorized by SEAC.
3. The warranty covers all damage to the device caused by malfunctions arising from factory defects. Each device is tested in a hyperbaric chamber before it is made available for purchase.

The warranty covers operating defects deriving from:

- Intrinsic defects caused by the use of materials considered unsuitable.
  - Clear errors in the design, manufacturing, or assembling of the product or its components.
  - Incorrect or inadequate instructions and recommendations for use.
4. Any repairs, modifications, transformations, adjustments or tampering in general carried out on the finished product or parts of it that are not authorized in advance by SEAC or that are carried out by non-authorized personnel automatically and immediately void the warranty.
  5. The warranty entitles you to assistance and free repair in the shortest possible time, or to a full free replacement of the product (at the sole discretion of SEAC) or parts of it whenever a malfunctioning defect specifically described in item 3 above is acknowledged by SEAC.
  6. This warranty may also be exercised by shipping the product believed to be defective to SEAC. The authorized intermediary for this operation must be the SEAC dealer where the product was purchased. If this is not practically possible, solely upon authorization from SEAC, customers may be authorized to send the defective product to any other SEAC dealer or directly to SEAC itself.

In order to exercise the warranty, the product must be accompanied by proof of purchase in the form of a copy of the receipt or invoice (or other equivalent fiscal record showing the name of the authorized SEAC dealer from which the product was purchased as well as the date of purchase).

Whenever SEAC receives a product which:

- is not accompanied by proof of purchase having the above mentioned characteristics;
- is in such condition as to determine the termination of the warranty in accordance with the provisions of item 4 above;
- has defects resulting from external and additional causes as compared to the ones specifically mentioned at item 3 above;
- has been used improperly and/or for uses other than those for which the product was designed;
- has clearly been damaged or deteriorated through intensive use or normal wear.

SEAC will not carry out any investigations on the product, and will advise the sender/authorized dealer.

If the sender still wishes an inspection to be performed, a request to that effect must expressly state that he/she is willing to bear all the costs relevant to said inspection (labor, spare parts if any, and shipping charges).

Failing this, SEAC will return the product at the expense and care of the recipient.

The warranty always excludes defects or imperfections deriving from:

- Damage caused by water seepage resulting from improper use; for example, dirty, damaged, or badly mounted seals resulting from changing the battery, incorrect closure of the battery compartment, etc.
- Rupture or scratching of the case, glass, or strap as a result of strong impacts.
- Damage resulting from excessive exposure to elevated or low temperatures.
- Damage caused by the use of compressed air to dry and/or clean the dive computer.
- Improper use or excessive stress.
- Failure to follow the usage instructions.
- External agents, such as damage due to transport, blows or falls, atmospheric agents, natural phenomena, or chemical agents.
- Unauthorized personnel performing maintenance or repairs or opening the device.
- Pressure testing out of the water.
- Accidents while diving.
- Use other than that intended for the product, or other than that indicated in the instruction manual. The warranty does not cover depletion of batteries.

Repairs or replacements made during the warranty period do not imply any right to an extension of the warranty itself.

## **CE statement:**

Model number: Led Tank Probe

Frequency range: 12kHz

Maximum H-Field Strength: 35.54dBuA/m @ 3m

Manufacturer

Latitude Limited

7/F, Southeast Industrial Building, 611-619 Castle Peak Road, Tsuen Wan, N.T., Hong Kong

## **FCC Caution:**

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## **IMPORTANT NOTE:**

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

**FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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