



NEON_VB5

Hand-held field device to measure and record temperature and sludge blanket.

Operation Manual

Version 1.1

The most recent version of this manual is available on our website:

<https://www.aqualabo.fr/>

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1. WARRANTY

New devices and equipment sold by AQUALABO are guaranteed against any manufacturing defects for a period of 1 year excluding consumables (unless expressly stipulated by AQUALABO) from:

- The technical receipt of the equipment in the factory by the buyer or reseller,
- Or, failing that,
 - For metropolitan France: From the date of the delivery note,
 - For other destinations: From the date of shipment confirmed by LTA, consignment note, bill of lading.

The AQUALABO company warranty applies exclusively in the event of a malfunction resulting from a design flaw or latent defect. It is strictly limited to the free shipment of replacement parts (excluding consumables) or the repair of the device in our workshops within 10 working days, excluding transport.

The following are specifically excluded from our warranty by express agreement:

- Any economic harm, including staff costs, loss of profits, business disruption, etc.
- Any failure due to improper use of the device (inappropriate mains supply, dropping, attempted conversion, etc.), lack of maintenance by the user or poor storage conditions.
- Any equipment failure due to using parts not supplied by AQUALABO.
- Any failure due to the transport of the device in packaging other than the original one.
- Batteries, aerials and in general any item listed in the price list under "accessories".

Our customers are advised to always ask for our approval before sending us a device to be repaired. No return will be accepted without prior written consent from our after-sales department which will specify the return procedure. In this case, the items will be returned prepaid, in their original packaging, to the following address:

AQUALABO – 115 rue Michel Marion - 56850 Caudan - France

We reserve the right to re-ship 'freight collect' any device received without this agreement. Regardless of the means and conditions of transport used to ship the equipment to be repaired under warranty, as stipulated in the original packaging, the related expenses as well as insurance costs, will be borne by the customer.

Any damage related to the return transport of the equipment falls within the scope of the warranty, subject to the specific condition that the customer sends his/her claims within forty-eight hours by registered letter with acknowledgement of receipt, to the carrier, with a duplicate of the letter being sent to AQUALABO.

The warranty card, where appropriate, only applies if the card delivered with the device is returned to AQUALABO duly filled out.

SOFTWARE WARRANTY

The software is guaranteed by the author or distributor thereof, under the conditions specified in the documentation on said software packages.

AQUALABO does not, under any circumstances, provide any warranty whatsoever regarding software packages.

The following are formally excluded, by express agreement, from our warranty: any economic harm, including staff costs, loss of profits, business disruption, etc.

The customer is informed that AQUALABO may not, under any circumstances, be held liable for any errors or "bugs" that the software may contain.

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2.INFORMATION

AQUALABO equipment has been designed, manufactured, tested and inspected in accordance with ISO 9001 procedures.

If the device is not used immediately, it should be stored in a clean, dry place. Observe storage temperatures ((10 - 35°C).

AQUALABO equipment is carefully inspected before packaging. Upon receipt of your device, check the condition of the packaging and if you notice an anomaly, make your reservations known to the carrier **within 48 hours**. Review the packing list next to check that everything is in order. Finally, if you find that something is missing or if the equipment is damaged, contact AQUALABO immediately.

The NEON_VB5 hand-held sludge Banket detection is fully designed and manufactured by AQUALABO in France.

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3.SAFETY

3.1 SAFETY INSTRUCTIONS

This manual provides important information about operating the product in total safety. Read it carefully to familiarize yourself with the product before starting it up and using it. This manual should be kept near the product so that you can always find the information you need.

3.2 OPERATING SAFETY

3.2.1 INTENDED USE

Comply with the following to ensure safe operation:

- Store and use the device under the environmental conditions specified in this manual ([see Specifications](#))
- Do not disassemble the device
- Power the unit using the original batteries or those specified in [Section 6.1.1](#)
- Comply with the permitted use below



CAUTION:

If the device is used in a way not specified by Aqualabo (environment, handling, etc.), the device may no longer protect you from harm.

3.2.2 UNAUTHORIZED USE

The product should not be start up if:

- It is visibly damaged (e.g. as a result of shipping),
- It has been stored for a long period in unsatisfactory conditions.

3.2.3 USER QUALIFICATION

We assume that operating personnel knows how to handle this equipment due to their professional training and experience. In particular, operating personnel must be able to understand and correctly implement the safety labels and instructions pertaining to the product use. Trained staff should be familiar with and follow the instructions in this manual.

3.3 HANDLING HINTS

NEON hand-held instrument and VB5 sensor assemblies are electronic devices. As such, they must be treated with care. Always keep the device protected from conditions that could harm its components. In particular, comply with the following points:

- During use and storage, the ambient temperature and humidity must be within the range given in the section entitled [SPECIFICATION](#).
- The device must be protected, at all times, from the following influences:
 - Intensive exposure to light and heat
 - Vapours that are caustic or have high solvent content.
- All operations on the inside the device must be carried out by AQUALABO or by technicians authorized by AQUALABO.

3.4 PACKAGING

The sludge blanket detector is shipped in packaging designed to protect it during transport. Always keep the original packaging as well as the inner packaging to ensure optimum protection against impacts for any further shipping. The original packaging is also required to ensure appropriate return transport in the event of repair. Please remember that we shall not accept any warranty claims for damage caused by improper transportation.

4. INTRODUCTION TO THE NEON_VB SLUDGE BLANKET DETECTOR

4.1 CONTENTS OF THE PACKAGE

You have just received your NEON_VB sludge blanket detector.

The package consists of a carry case containing:

- NEON assembly (containing 3 LR6 alkaline batteries, 1.5 volts) and VB5 sensor (cable length varies depending on the model ordered),
- A laminated field note.

Upon receipt of your device, check the condition of the packaging and if you notice an anomaly, make your reservations known to the carrier **within 48 hours**. If you find that something is missing or if the equipment is damaged, contact AQUALABO immediately.

4.2 GENERAL DESCRIPTION OF THE PRODUCT

The NEON hand-held sludge blanket detector is combined with the Optical Sludge Blanket sensor (VB5) to enable the following variables to be measured) and recorded:

- Temperature,
- Sludge blanket expressed as a %.

4.3 MAIN FUNCTIONS OF THE NEON SLUDGE BLANKET DETECTOR.

The NEON VB5 sensor unit dedicated to sludge blanket measurements offers the following features:

- Automatic recognition of the sludge blanket sensor (VB5);
- Simultaneous display of 2 parameters (Temperature & % Sludge Blanket);
- ZOOM function on a parameter selected by the operator.
- Measurement stability indicator.
- Battery charge status indicator.
- Adjustable backlight intensity, backlight (configurable timing) and automatic screen off (battery life optimization);
- Calibration menu at 1 point (100% in clean water);
- Data logging (30,000 points) in 2 modes: Occasional or automatic with recording frequency configuration.
- Transfer of recordings via WiFi in "csv" format.
- Multi-Language device: French, English, Spanish, and German.

5. SPECIFICATIONS

5.1 NEON VB5 ASSEMBLY DATA

NEON_VB5 data	
Measurement ranges	Sludge blanket: 0-100 % Temperature: 0.00-50.00 °C
Resolution	Sludge blanket: 0.01 to 0.1 % Temperature: 0.01°C
Accuracy	Sludge Blanket: +/- 2% Temperature: 0.5°C
VB5 sensor	IR optics (870 nm) based on absorptiometry

5.2 DESCRIPTION OF NEON HOUSING

NEON housing specifications	
Weight	880 g
Dimensions (H x W x Th)	146 x 88 x 33
Protection rating	IP 67
Operating temperature	-5 à 50°C
Storage temperature	-10°C to 60°C
Screen	Colour LCD Backlight
Materials	ABS, UL 94V-0
Power supply	3 AA alkaline batteries
Sensor connection	Direct through spiral cable gland Sensors on 3, 7 and 15 m of cable

➤ Description of the front panel:



➤ Description of the rear panel:

Waterproof battery compartment
Locked by a screw
(stainless steel 304,
M2.5x6)



Product information
label including the serial
number

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5.3 DESCRIPTION OF VB5 SLUDGE BLANKET SENSOR.

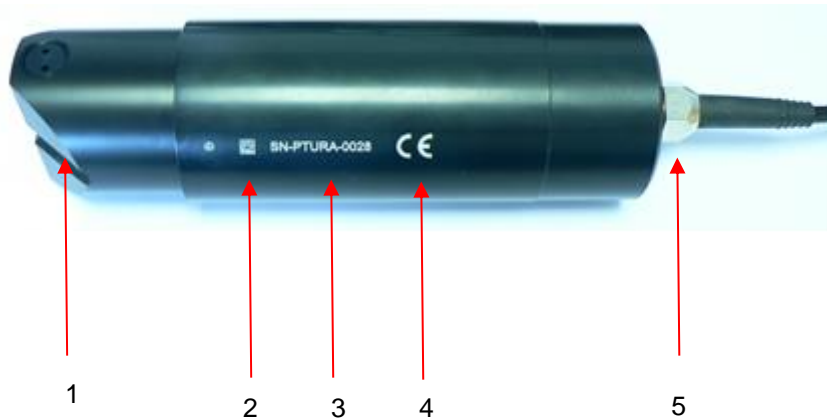
The VB5 sensor uses a measuring principle based on the attenuation of the IR signal at 870 nm through a 5mm optical slit. The sensor provides sludge blanket measurements as a % of IR transmission. For better accuracy, the sensor optics are temperature regulated.

The DELRIN sensor is particularly well suited to the following application areas:

- Urban wastewater treatment: Primary and final decanter.
- Treatment of industrial effluents: Primary and final settling tank.
- Private sanitation

Measurements	
Measurement principle	IR absorption optical measurement
Sludge Blanket measuring ranges	0-100 % 100% clean water
Sludge blanket resolution	0.01 to 0.1 %
Sludge blanket accuracy	Sludge Blanket: +/- 2%
Measurement range (Temperature)	0.00 to 50.00 °C
Resolution (Temperature)	0.01°C
Accuracy (Temperature)	0.5°C
Storage temperature	- 10°C to + 60°C

Sensors	
Max. Pressure	5 bar
Materials in contact with the medium	POMC, Nickel Plated Brass (PE)



1	Measuring slit (5 mm optical path)
2	Data matrix (contains serial number)
3	Serial number: SN-PTURAX-YYYY X: Version YYYY: Number
4	CE marking
5	Cable gland

6. GETTING STARTED

6.1 POWER SUPPLY

6.1.1 TYPE OF BATTERIES PERMITTED

The measuring unit comes with 3 AA alkaline batteries. The user must never mix different types of batteries. Three AA NiMH batteries, 1.2 V (VARTA type) may be used.

6.1.2 CHANGING THE BATTERIES

The 3 used alkaline AA batteries must be replaced in a thoroughly clean, dry room so as not to contaminate the inside of the compartment.

The operator will ensure that the batteries are installed according to the battery compartment's polarity signs.

When closing the compartment, the user must:

- replace the battery compartment cover properly,
- firmly tighten the screw to crush the seal between the cover and the battery compartment.

Otherwise, the NEON device may not operate properly or the compartment seal may no longer be watertight. The user shall also regularly inspect the batteries in order to avoid damage to the device from worn batteries.

6.1.3 GETTING STARTED

Remove the black protective cap on the Sludge Blanket sensor (holding the sensor head down and unscrewing the cap).

6.2 NEON GENERAL FEATURES

6.2.1 ON/OFF

To turn the NEON oximeter on and off, press the On/Off key for a few seconds.

NOTE: If, however, the device does not start, the user must check its power supply (ensure the batteries correctly fitted in the battery holder).

6.2.2 NAVIGATION KEYPAD

1	ON/OFF
2	DEL
3	Screen on
4	Up arrow/WIFI 1 enabled
5	MENU & ESCAPE
6	Right arrow
7	OK/Confirm
8	Down Arrow/WIFI 2 enabled

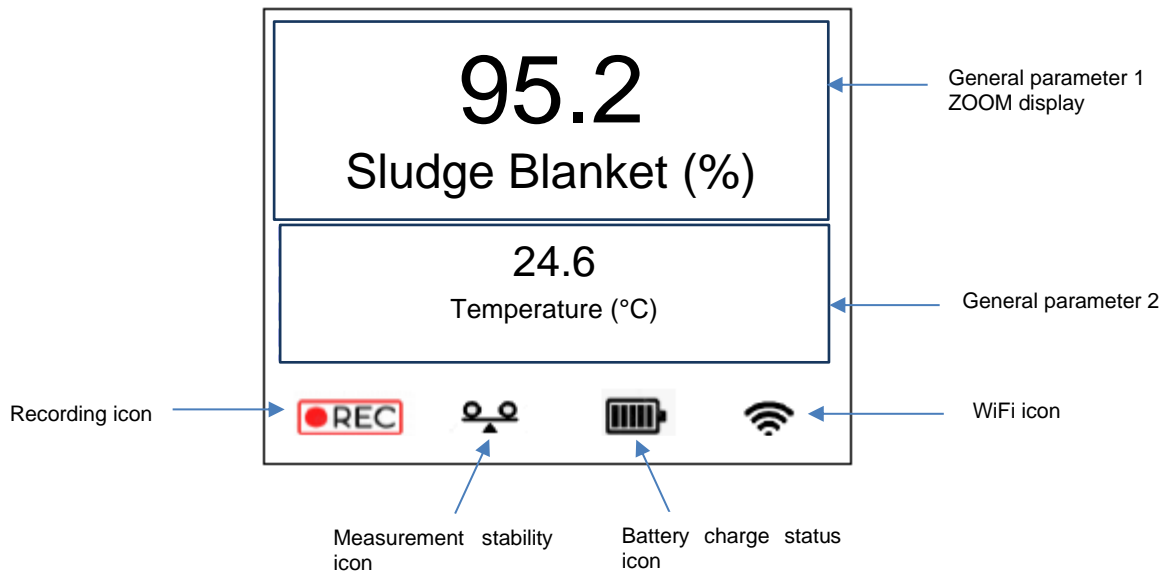


6.3 SETTING

6.3.1 MAIN SCREEN

You can view the following in real time on the main screen:

- variables measured by the Sludge Blanket sensor and related units: Temperature (°C), Sludge Blanket (%),. A ZOOM function shows a parameter in larger format.
- A series of icons (at the bottom of the screen) monitor the battery charge status, measurement stability, data recording and activation of WiFi for data transfer to a PC.

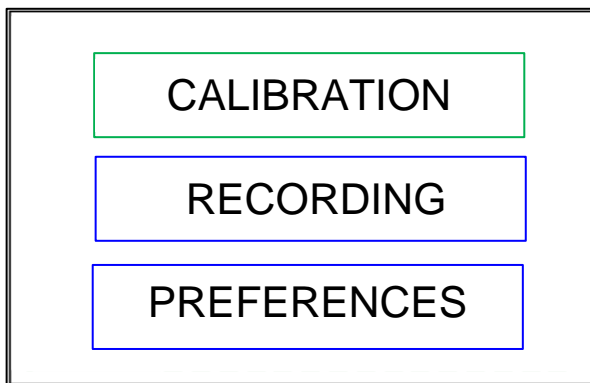


When General parameter 1 changes, there is no measurement stability icon and the measurement fluctuates. When this parameter is stable, the stability icon appears and the measurement flashes.

- You can scroll through the general parameters in position 1 (ZOOM), 2 or 3 by pressing the Up and Down keys.
- Hold down the "LIGHT" key and use the UP/DOWN keys to adjust the intensity of the brightness.
- Select the "OK" key to activate/deactivate recording. Refer to section [6.3.4 Recording menu](#) for more information.
- Press the "ESC" button to access the MAIN MENU.
- To access the software update simultaneously press the up/down keys (WIFI activation 1 and WIFI activation 2). This feature is reserved for maintenance operations, access is restricted).

6.3.2 MAIN MENU

The "MAIN MENU" screen provides access to calibration, recording as well as preference settings (date/time configuration, NEON hand-held device and sensor information, standby delay configuration, language selection, and settings RESET feature).

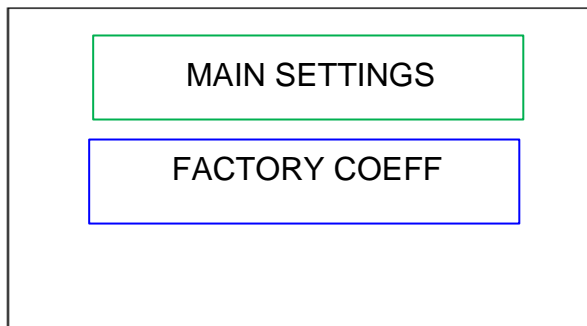


Move the cursor with the up and down arrows to access the desired menu and confirm the selection with the "OK" key. Press the "ESC" key to return to the previous screen.

The menu frame changes to green when the cursor is placed on a menu.

6.3.3 CALIBRATION MENU

The calibration menu is used to calibrate the sensor connected to the NEON hand-held device (MAIN SETTINGS menu), i.e. the Sludge Blanket parameter and to restore the factory calibration coefficients (FACTORY COEFF menu).



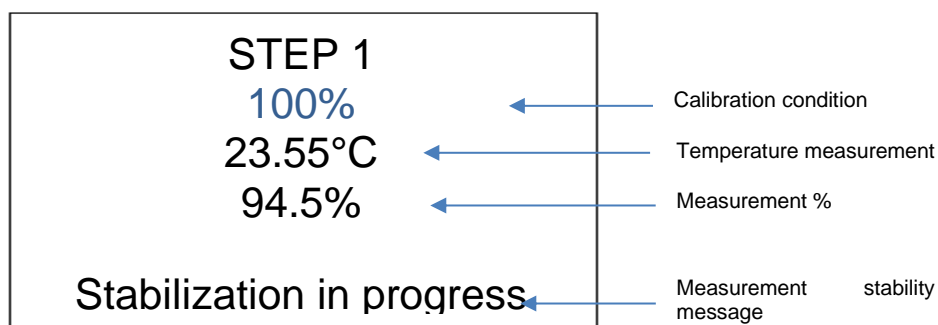
Move the cursor with the up and down arrows to access the desired menu and confirm the selection with the "OK" key. Press the "ESC" key to return to the previous screen.

6.3.3.1 MAIN PARAMETER

This menu allows you to calibrate the Sludge Blanket parameter at a single point (100% in clean water).

Insert the sensor into a container of tap water, taking care not to trap bubbles in the slot containing the optics (measurement errors).

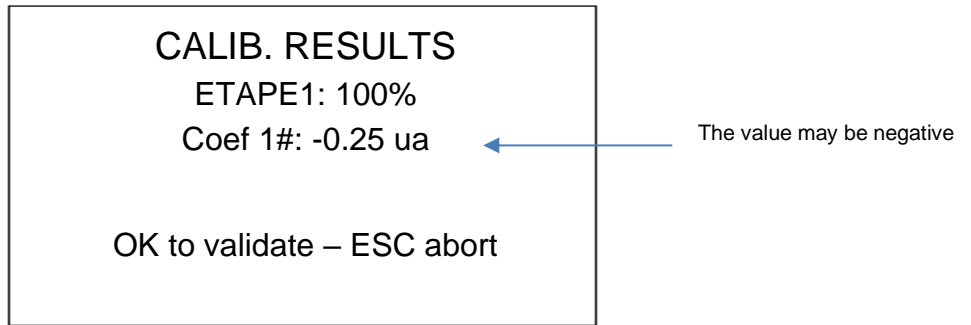
Wait for the sensor temperature to stabilize at the water temperature.



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🔗 Calibration results:

At the end of a calibration step, a screen showing the calibration results appears.



To validate the calibration and complete this procedure, press the OK key.

If the calibration is rejected, press the Escape (ESC) key.

6.3.3.2 FACTORY COEFFICIENTS

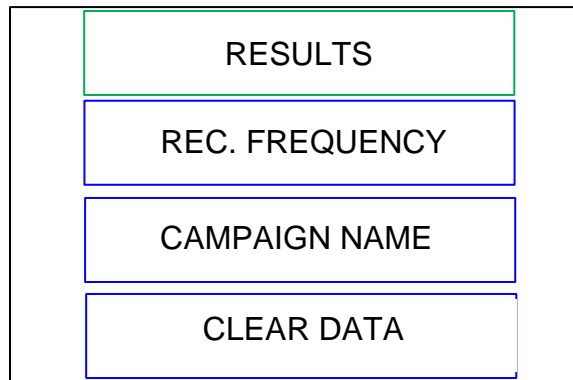
In the event of mishandling during calibration or to check sensor operation, factory calibration coefficients can be used to restore the sensor to its original coefficients.



To validate the setting the factory coefficients in the sensor, confirm with the OK key then press Escape (ESC) to return to the previous screen.

6.3.4 RECORDING MENU

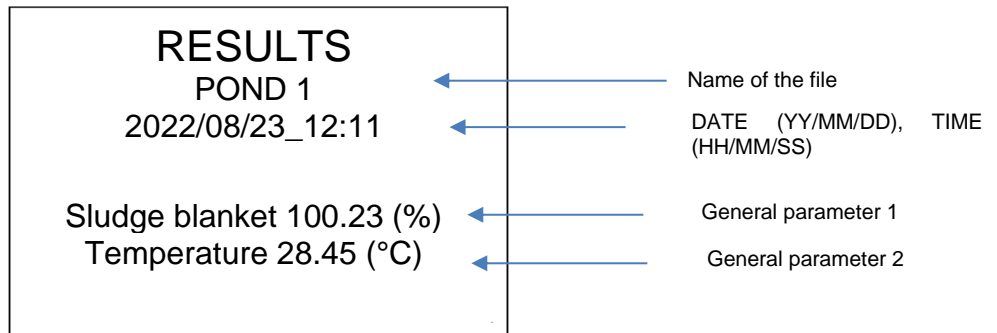
This menu allows you to view the data stored in the NEON hand-held device, set the recording frequency, set the file names, and delete recorded data.



To select an option, use the up/down arrows and confirm with the OK key.

6.3.4.1 RESULTS

This menu enables you to view the data stored in the NEON hand-held device.



To scroll through the recordings, use the down (previous recording) and up (next recording) keys.

To return to the previous menu select the Escape (ESC) key.

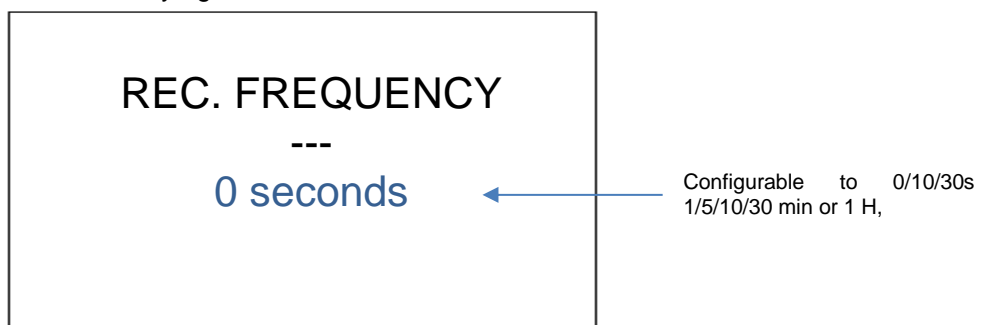
The data transfer via WiFi is enabled from the RECORDINGS menu.


6.3.4.2 RECORDING FREQUENCY

This menu helps you to set a recording frequency for the Auto Recording mode.

The NEON hand-held device can record 30,000 pieces of data in 2 modes:

- Mode 1: **Instant recording**. In this case, the user can trigger a single recording by pressing the OK key. The measurement frequency is then set to 0 seconds,
- Mode 2: **Automatic recording** (with manual start). In this case, the start of the measurement campaign is activated using the OK key and the NEON device will follow the frequency set in this menu. To stop recording Press the OK key again.



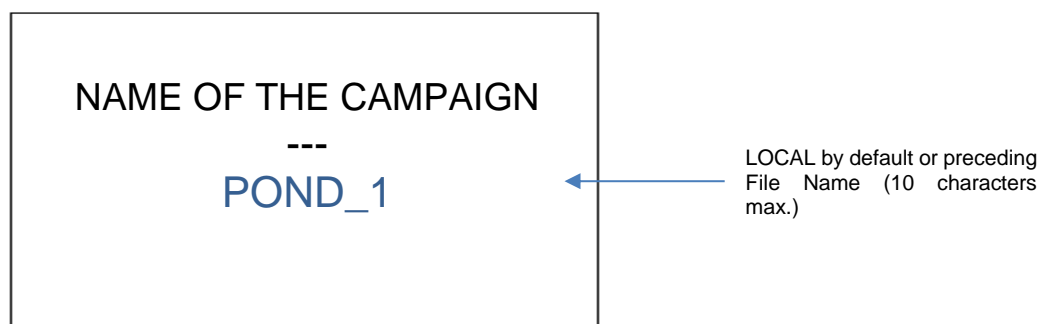
By default, the value is 0 seconds (blue writing), a ONE-OFF recording mode that is triggered by pressing the OK key on the main screen. When recording is enabled on the main screen, the recording icon appears. 

The frequency can be changed (to 10s/30s, 1/5/10/30 min or 1 H) using the up and down arrow keys (the writing changes to white). Press the OK key to confirm the chosen frequency (writing turns green).

To return to the previous menu select the Escape (ESC) key.

6.3.4.3 CAMPAIGN NAME

The data logging file name can contain up to 10 characters (letters, numbers, a space and the _ character can be selected).



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Use the up/down arrows to scroll through the characters (white writing) and the OK key to confirm your choice (green writing).

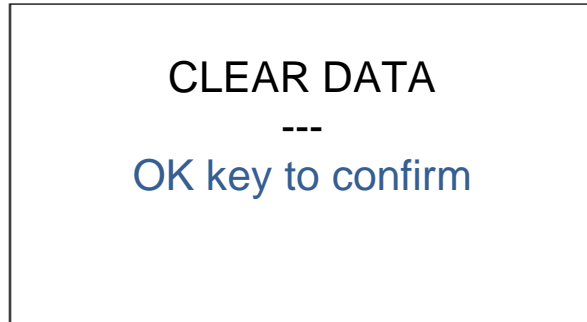
Available characters: 0 to 9, alphabet (A to Z), space and _.

Then press escape (ESC) to confirm the name and exit the menu.

6.3.4.4 ERASING DATA

To clear all data stored in the NEON hand-held device press the OK key.

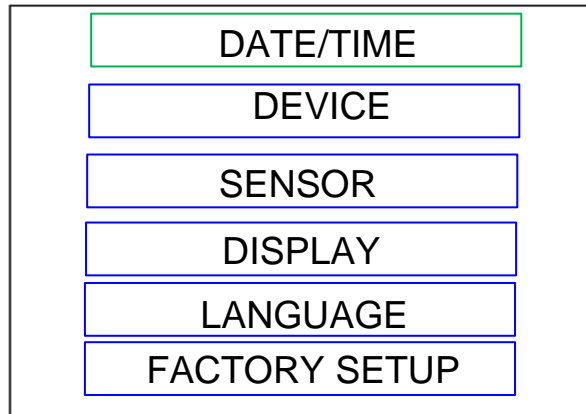
The writing changes to green and the message "Data erased" appears.



To return to the previous screen press Escape (ESC).

6.3.5 PREFERENCES MENU

The PREFERENCES menu allows you to configure the date and time of the NEON hardware (useful for the timestamp of the stored data), to view information on the software/electronic versions of the NEON hand-held device and associated sensor, to set the standby mode timeout and then to completely turn off the screen, choose the language and return to the initial hardware configuration.



6.3.5.1 DATE AND TIME

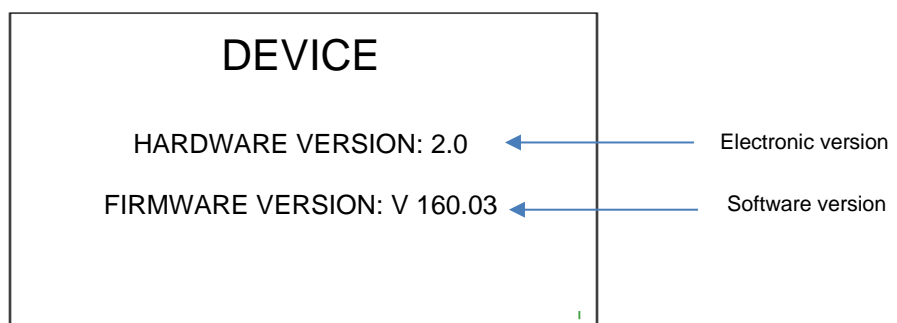
The date format is unique and cannot be changed: YYYY/MM/DD.



To change the date and time place the cursor on the desired line and use the Up/Down arrows to change the numbers from 0 to 9. The writing then changes to white. Confirm your setting with the OK key (the writing changes to green). To return to the previous screen, press the Escape (ESC) key.

6.3.5.2 DEVICE

In this section you can find information about the software version and the circuit board version. This may be requested in the event of a call to our Hotline.

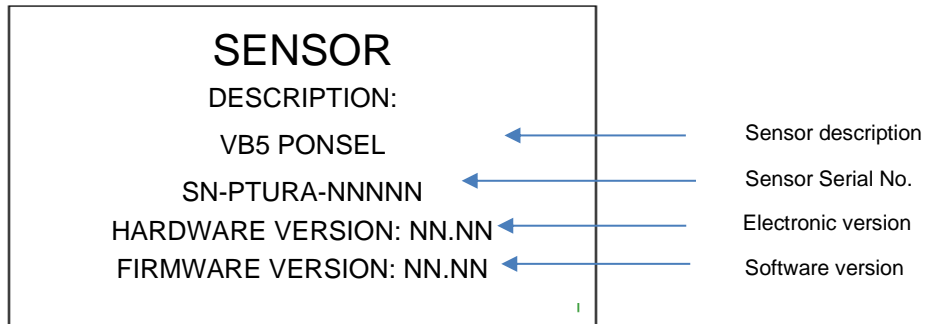


To return to the previous screen, press the Escape (ESC) key.

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6.3.5.3 SENSOR

This window shows information about the sensor connected to the NEON housing: its description, serial number, PCB version and software version.



To return to the previous screen press Escape (ESC).

6.3.5.4 DISPLAY

The screen configuration menu can be used to set the timeout period to send the screen into standby mode if the keyboard is not used.



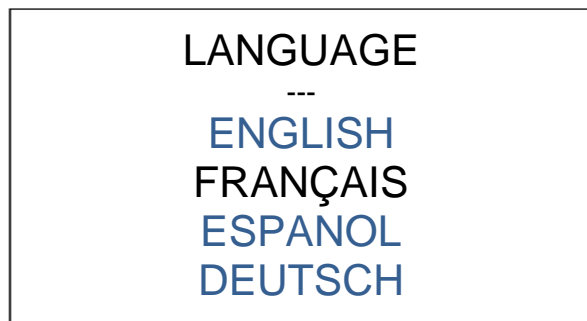
By default, the standby time-out is 2 minutes but can be set to the following: 2, 5, 15 or 30 minutes.

To scroll through the time-outs select the Up/Down keys (writing turns white) and confirm using the OK key (writing turns green).

To exit this menu then press the Escape (ESC) key.

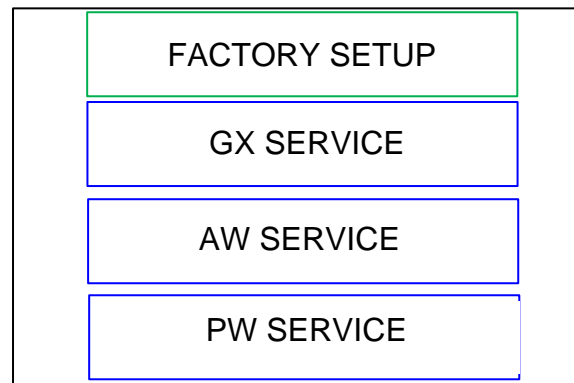
6.3.5.5 LANGUAGE

The NEON hand-held device offers 4 languages: English, French, Spanish and German.



To select the language, use the Up/Down arrows (writing changes to white) and confirm using the OK key. To return to the previous screen press the Escape (ESC) key.

6.3.5.6 FACTORY CONFIGURATION



➤ FACTORY SETUP

You can erase the device settings with this menu to restore the factory configuration.



Press the OK key to confirm the reset action.

This action will reset the factory configuration for: Backlight intensity level, standby time-out (2 min), default salinity value (0.00 ppt), default atmospheric pressure value (1013 hPa), measurement campaign name (LOCAL) and English language.

To exit this screen press Escape (ESC).


- **GX SERVICE: For AQUALABO service**
- **AW SERVICE: For AQUALABO service**
- **PW SERVICE: For AQUALABO service**

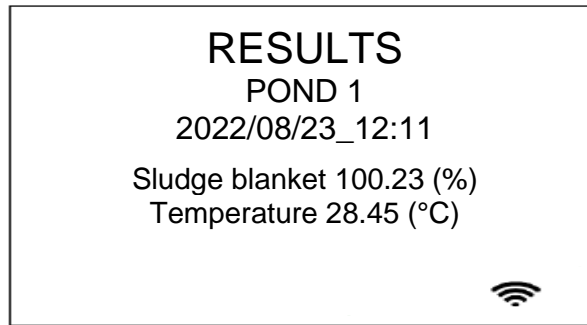
7. UNLOADING DATA

7.1 ACTIVATION AND CONNECTION

To activate the connection to NEON's on-board web page and retrieve the stored data, enter the overview menu for data stored on the NEON hand-held device: GENERAL MENU>> RECORDING>> RESULTS.

Then simultaneously press the keyboard with the WiFi icons (keys 4 and 8) in the picture in section [6.2.2 Navigation keypad](#)). Activation may take longer than 5 seconds.

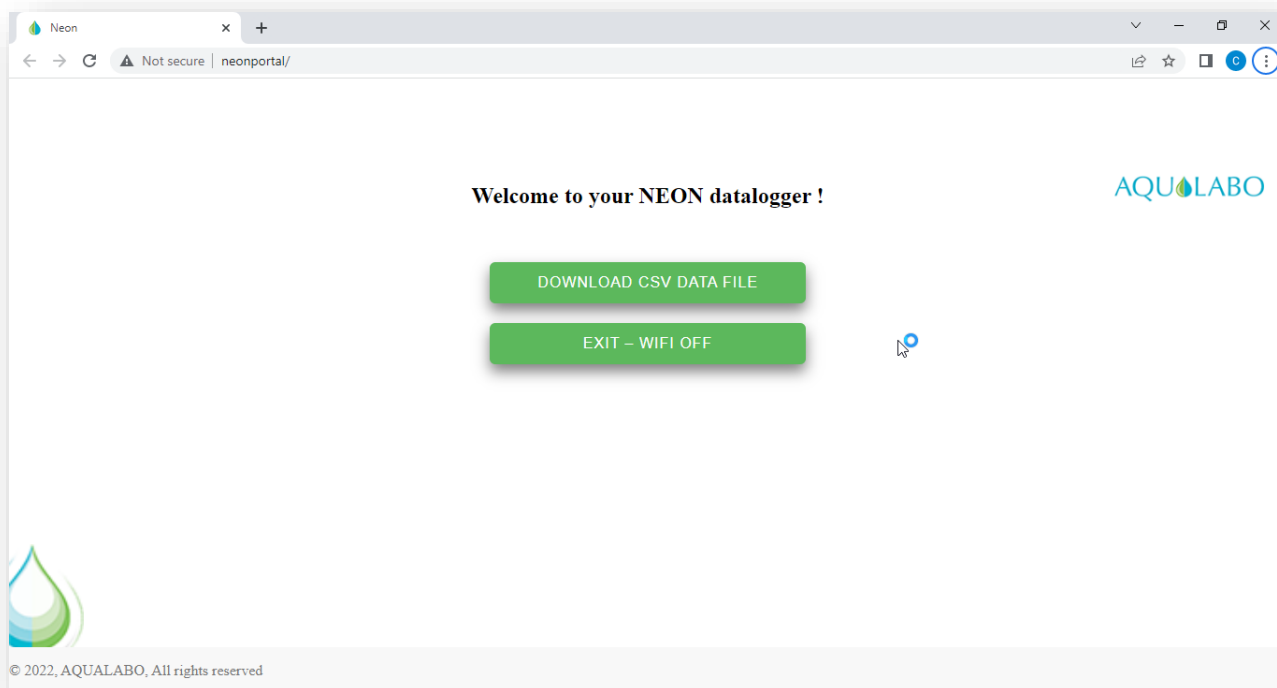
The WiFi activation icon () appears at the bottom of the results overview window.



Select "NeonPortal" on the device that will receive the data files, in the menu listing the available WiFi equipment. The home web page to retrieve the data in CSV format will then open automatically.

7.2 HOME SCREEN

The home web page to retrieve the data in CSV format will then open automatically.



The process may not be automatic, depending on the internet browser installed on your connection equipment. In this case, type the address <http://192.168.4.1/> in your browser.

To activate the data download, click on the "DOWNLOAD CSV" tab.

The record file contains:

- the data measured by the sensor (Sludge Blanket % & Temperature °C),
- the temperature and humidity inside the NEON hand-held device.

7.3 LOGOUT

To disconnect the NEON device from the computer, click “EXIT” tab.
The WiFi icon at the bottom of the “results” menu disappears.

8. SLUDGE BLANKET SENSOR MAINTENANCE

The following points must be considered during continuous operation of the sensor:

- The sensor must always be kept clean, especially in the area around the optical windows. Deposits on the optical windows may cause measurement errors.
- Deposits such as biofilm or silt should be carefully removed using warm soapy water and a soft cloth. Never use abrasive agents (e.g. scouring sponge).
- If the sensor is withdrawn from service, it must be rinsed ready for storage, and the protective cap provided must be installed.

8.1 CLEANING

Rinse the sensor and optics thoroughly with clean water.

If deposits such as biofilm or sludge persist, gently clean the optics with soapy water and wipe with a soft cloth or paper towel.

9. ACCESSORIES AND CONSUMABLES

Spare parts/consumables	
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ME-BOU-S-00018	VB5 sensor protective cap
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