AQUALABO
Smart water solutions

NEON_pH-RedOx

Hand-held field pH meter for measuring and recording pH values and redox potential (ORP)

Operation Manual

Version 0.1

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

https://www.aqualabo.fr/

NOTE:

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This manual is regularly updated. Updates are included in new issues.

All information provided in this issue of the manual may be modified before said products become available.

NEON_pH_Redox

CONTENTS

NEON_pH_Redox

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.

OWNERSHIP RIGHTS AND TRADE SECRETS

This document is protected by AQUALABO Copyright (C) 2023 and all copying rights are explicitly reserved. The software referred to or supplied with the device contains trade secrets and confidential information which belong to AQUALABO. It is legally protected by international Copyright (C) law.

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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_PH_Redox hand-held pH meter is entirely designed and manufactured by AQUALABO in France.

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 of time 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 Oximeter and OPTOD 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 SPECIFICATIONS.
- 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 NEON_PH_Redox pH meter 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.NEON_PHEHT PHMETER OVERVIEW

4.1 CONTENTS OF THE PACKAGE

You have just received your NEON_PHEHT pH meter.

The package consists of a carry case containing:
- Neon assembly (containing 3 LR6 alkaline batteries, 1.5 volts) and PHEHT sensor (cable length varies depending on the model ordered),
- A laminated field note;
- One bottle of pH4.01 (1TP061) standard solution, one pH 7.01 (1TP060) standard solution and one pH9 (1TP012) standard solution.

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 pH meter is combined with the PHEHT sensor to enable the following parameters to be measured and recorded:
- Temperature,
- pH,
- ORP (mV).

4.3 MAIN FUNCTIONS OF THE NEON PHMETER.

The NEON PHEHT sensor unit dedicated to pH and ORP measurements offers the following features:

- Automatic recognition of the PHEHT sensor;
- Simultaneous display of 3 parameters (Temperature, pH, Redox in mV);
- 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);
- Simple 3-point calibration menu (4, 7 and 9);
- 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 PHEHT DATA

NEON_PHEHT data	
Measurement ranges	pH: 0.00-14.00 pH Temperature: 0.00-50.00°C ORP: -1,000.0 to + 1,000.0 mV
Resolution	pH: 0.01 Temperature: 0.01 Redox: 0.1
Accuracy	pH: +/- 0.1 Temperature: 0.5°C Redox: +/- 2 mV
Measurement principle	Combined electrode (pH/reference): Special glass, Ag/AgCl reference. Gel electrolyte (KCl)

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:

LCD display

ABS housing

Navigation keypad

Sensor cable gland

➢ 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 PHEHT SENSOR DESCRIPTION

A reference electrode, used for pH and Redox measurements, is built into the PONSEL sensor. It is an Ag/AgCl with plasticized electrolyte saturated in KCl "PLASTOGEL"®
The "PLASTOGEL"® electrolyte communicates directly with the external medium without capillary or porous intervention. Consequently, there is no risk of clogging or de-priming of the reference.
The measuring electrodes are in the form of a special pH-sensitive glass bulb welded to the end of a crystal tube for pH and in the form of a platinum tip for redox.

Temperature: measurements via NTC inserted in a stainless-steel sheath.

The compact, robust sensor is particularly well suited to the following application areas:

• Industrial and municipal wastewater treatment plants,
• Wastewater management (nitrification and de-nitrification),
• Monitoring natural waterways,
• Fish farming, aquaculture,
• Testing drinking water.

pH measurement	
pH measuring principle	Combined electrode (pH/reference): Special glass, Ag/AgCl reference. Gel electrolyte (KCl)
Measurement range	0 – 14 pH
Resolution / Accuracy	0.01 pH; ± 0.1 pH
Redox measurement	
Redox measuring principle	Combined electrode (Redox/Reference): Platinum tip, reference AG/AgCl. Gel electrolyte (KCl)
Measurement range	- 1,000.0 to + 1,000.0 mV
Resolution / Accuracy	0.1 mV; ± 2 mV
Response time	< 5 s
Temperature measurement	
Temperature measuring principle	NTC
Operating temperature	0.00°C to + 50.00°C
Resolution	0.01°C
Accuracy	± 0.5 °C
Response time	< 5 s
Storage temperature	0°C to + 60°C
Protection rating	IP 68
Signal interface	Modbus RS-485 as standard and optional SDI-12
Measurement refresh rate	Maximum < 1 second
Sensor power supply	5 to 12 Volts
Consumption	Standby: 25 µA RS485 average (1 measurement/second): 3.9 mA SDI12 average (1 measurement/second): 6.8 mA Current pulse: 500 mA
Sensor	
Mounted sensor dimensions	Lower part: diameter 21 mm; length 92 mm, Upper part: diameter 27 mm; length 103 mm, Mounted sensor length: excluding cable gland 210 mm; length with cable gland: 260mm.
Weight	350 g (sensor + cable)
Materials in contact with the medium	PVC, POM-C, pH special glass, platinum, polyurethane
Maximum pressure	5 bar
Cable / connections	9 shielded conductors, polyurethane sheath. Cable gland connection

(1) Protective strainer
(2) Cartridge (consumable part)
(3) Clamping ring
(4) Sensor body with measuring electronics
(5) Cable gland
(6) Securely connected connection cable

Protective strainer

Special glass for pH measurement

Platinum disc for measuring the ORP

NTC for temperature measurement

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 PHEHT sensor (holding the sensor head down and unscrewing the cap to the right (the direction is indicated on the protective case).

The sensor is delivered dry and must be rehydrated to optimize measurements.
Rehydrate the membrane, after dry storage, for 12 hours in a soaking solution (1SC009), a 3 mol/l KCl solution or a pH 7 buffer solution.

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

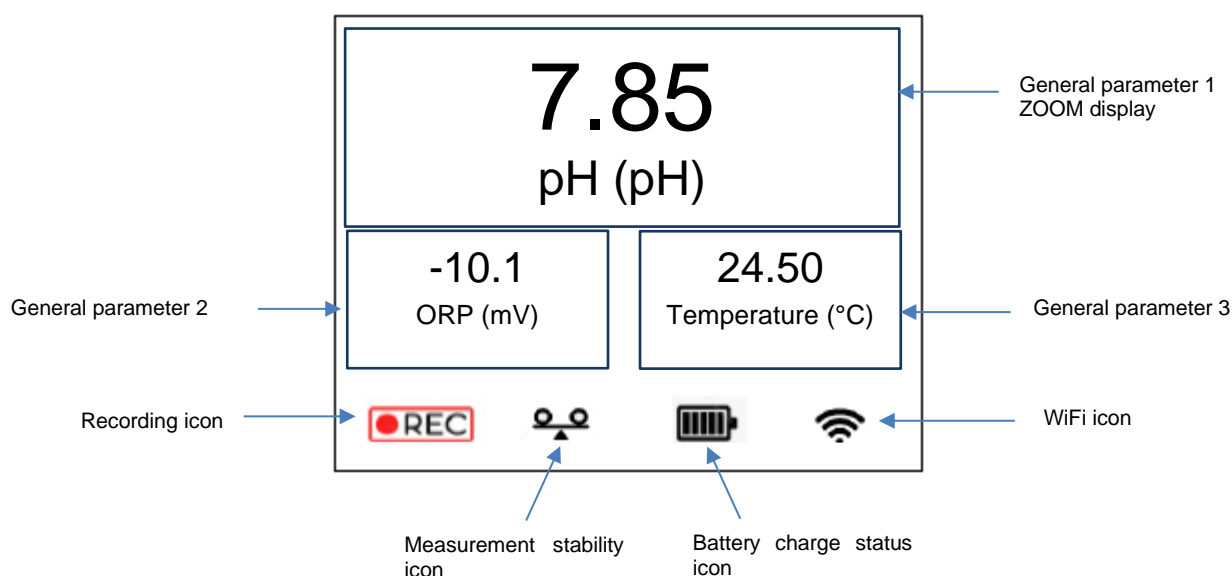| 1	ON/OFF
2	DEL
3	Screen on
4	Up arrow/WIFI 1 enabled
5	MENU & ESCAPE
6	Right arrow
7	OK/Confirm
8	Down Arrow/WIFI 2 enabled

6.3 SETTING

6.3.1 MAIN SCREEN

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

- The parameters measured by the PHEHT sensor and the related units: Temperature (°C), pH in pH units, ORP in mV. 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.

7.85 pH (pH)		General parameter 1 ZOOM display
General parameter 2 →	-10.1 ORP (mV)	24.50 Temperature (°C)	← General parameter 3
Recording icon →	●REC	🔋	📶	← WiFi icon
	Measurement stability icon	Battery charge status icon	

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 backlight.

○ Select the "OK" key to activate/deactivate recording. Refer to section for more information.

○ Press the "ESC" key to access the GENERAL MENU.

○ To access to 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).

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6.3.2 GENERAL MENU

The "GENERAL 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).
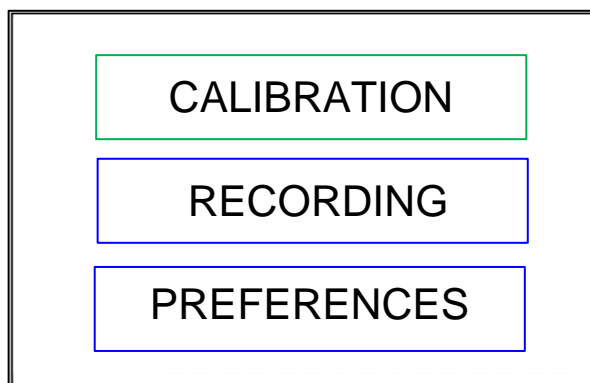
```
┌─────────────────────────────────┐
│   ┌─────────────────────────┐   │
│   │      CALIBRATION        │   │
│   └─────────────────────────┘   │
│   ┌─────────────────────────┐   │
│   │       RECORDING         │   │
│   └─────────────────────────┘   │
│   ┌─────────────────────────┐   │
│   │      PREFERENCES        │   │
│   └─────────────────────────┘   │
└─────────────────────────────────┘
```

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 PARAMETER menu), for the parameter pH and ORP as well as to restore the factory calibration coefficients (FACTORY COEFF menu).

```
┌─────────────────────────────────┐
│   ┌─────────────────────────┐   │
│   │     MAIN PARAMETER      │   │
│   └─────────────────────────┘   │
│                                 │
│   ┌─────────────────────────┐   │
│   │     SECONDARY PARAM.    │   │
│   └─────────────────────────┘   │
│                                 │
│   ┌─────────────────────────┐   │
│   │     FACTORY COEFFS      │   │
│   └─────────────────────────┘   │
└─────────────────────────────────┘
```
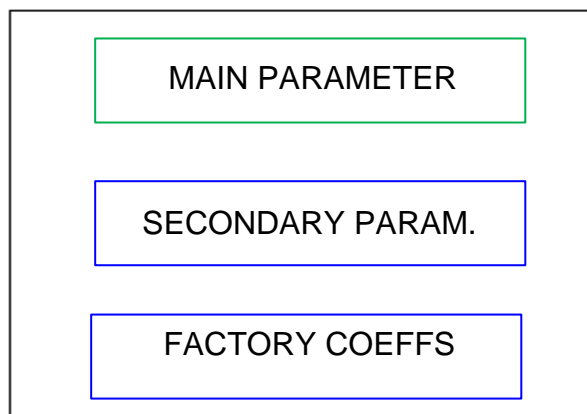
Move the cursor with the up and down arrows to access the desired menu and confirm the selection with the "OK" key. Press the "ESC" key to return to the previous screen.

6.3.3.1 PH MAIN PARAMETER

This menu enables you to access the 3-point calibration steps using standard pH 7, pH 4 and pH 9 solutions.

✤ First point calibration: STEP 1 using pH 7

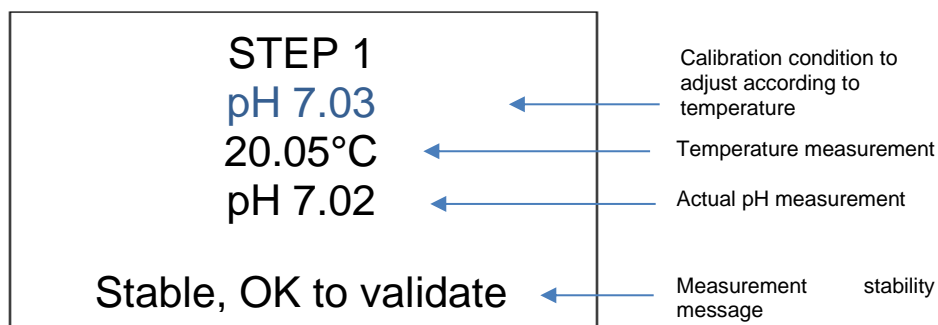Immerse the sensor head in a standard pH 7 solution, wait for both the measurement and temperature to stabilize. As soon as the temperature stabilizes, record its value and refer to the table of variation in pH values according to temperature (see label on the back of the bottle or table below).

The actual value of the pH buffer solution should then be adjusted according to the measured temperature.

Standard pH 7.01 at 25°C	°C	°F	pH
	0	32	7.13
	5	41	7.10
	10	50	7.07
	15	59	7.04
	20	68	7.03
	25	77	7.01
	30	86	7.00
	35	95	6.99
	40	104	6.98
	45	113	6.98

If the temperature of the buffer solution is 20°C, the value of the standard solution should be adjusted to pH 7.03.
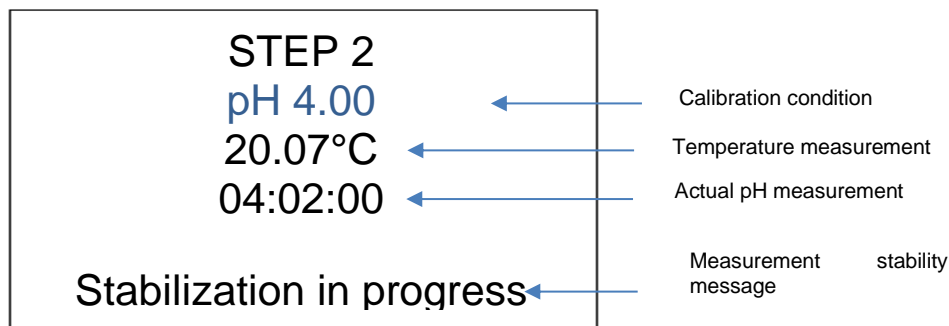
To adjust this value, use the Up and Down arrows.

STEP 1	
pH 7.03	← Calibration condition to adjust according to temperature
20.05°C	← Temperature measurement
pH 7.02	← Actual pH measurement
Stable, OK to validate	← Measurement stability message

You can then validate the calibration step with the OK key.

↳ Second point calibration: STEP 2 using pH 4

After rinsing and wiping the sensor, immerse the sensor head in pH 4 solution.
As soon as the temperature stabilizes, record its value and refer to the table of variation in pH values according to temperature (see label on the back of the bottle or table below).

STEP 2	
pH 4.00	← Calibration condition
20.07°C	← Temperature measurement
04:02:00	← Actual pH measurement
Stabilization in progress	← Measurement stability message

The actual value of the pH buffer solution should then be adjusted according to the measured temperature.

Standard pH 4.01 at 25°C	°C	°F	pH
	0	32	4.01
	5	41	4.00
	10	50	4.00
	15	59	4.00
	20	68	4.00
	25	77	4.01
	30	86	4.02
	35	95	4.03
	40	104	4.04
	45	113	4.05

If the temperature of the buffer solution is 20 °C, the value of the standard solution should be adjusted to pH 4.00.

To adjust this value, use the Up and Down arrows.

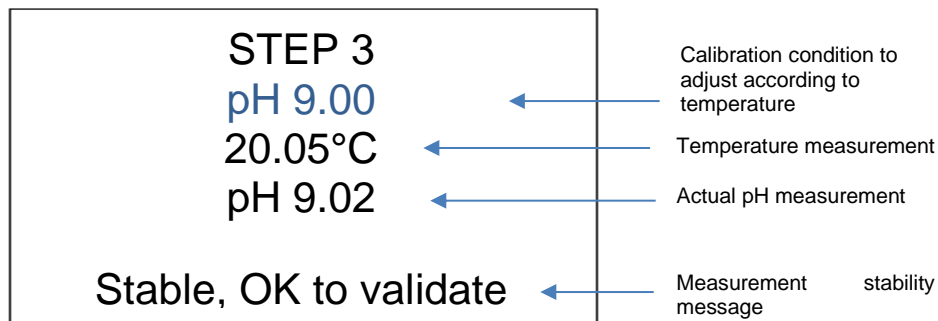You can then validate the calibration step with the OK key.

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After rinsing and wiping the sensor, immerse the sensor head in pH 9 solution.
As soon as the temperature stabilizes, record its value and refer to the table of variation in pH values according to temperature (see label on the back of the bottle or table below).
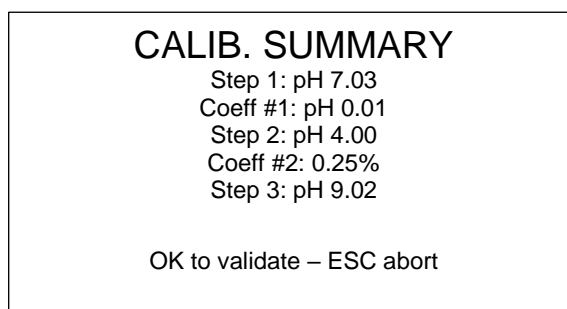
The actual value of the pH buffer solution should then be adjusted according to the measured temperature.

STEP 3	
pH 9.00	← Calibration condition to adjust according to temperature
20.05°C	← Temperature measurement
pH 9.02	← Actual pH measurement
Stable, OK to validate	← Measurement stability message

The calibration sequence can be interrupted at any time by pressing the Escape (ESC) key.

Calibration results:

After validating the calibration step, a screen appears with the calibration results.

```
CALIB. SUMMARY
Step 1: pH 7.03
Coeff #1: pH 0.01
Step 2: pH 4.00
Coeff #2: 0.25%
Step 3: pH 9.02


OK to validate – ESC abort
```

The acceptance tolerances for the calibration steps are:

+/- 0.5% for the offset stage,

If tolerances are exceeded, it is advisable to check the cleanliness of the glass ball (measuring component for pH) or even to change the sensor cartridge. Please refer to Section 8. PHEHT SENSOR MAINTENANCE for more information.

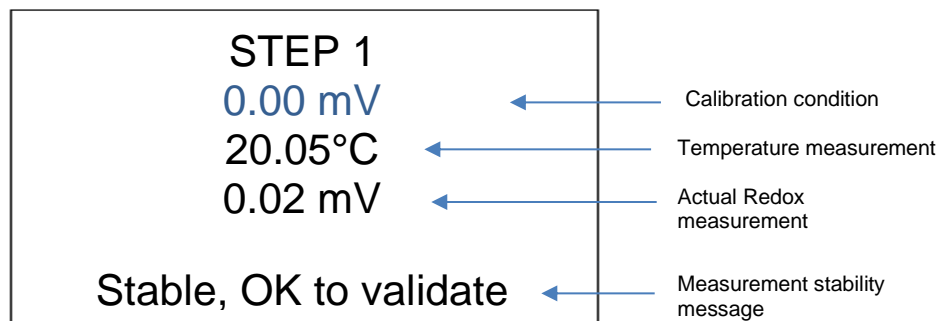To validate the calibration and complete this procedure, press the OK key.

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

6.3.3.2 REDOX SECONDARY PARAMETER.

To access the ORP calibration menu, select in the calibration menu, SECONDARY PARAMETER

Ⴤ OFFSET calibration: Electronics

This step involves setting the electronic zero of the ORP parameter. Put the dry sensor in the open air and wait for the measurement to stabilize.
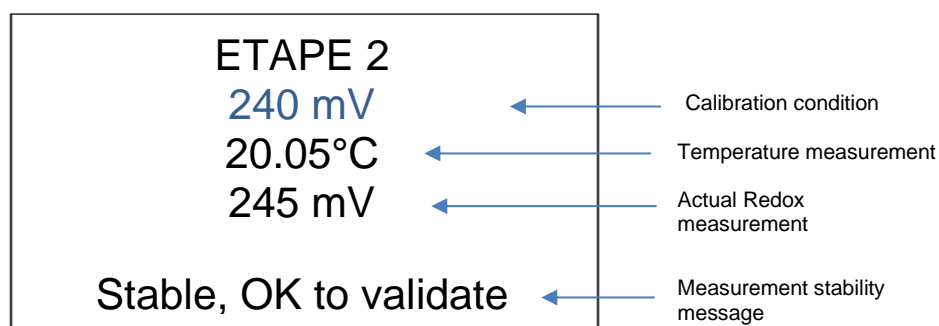
STEP 1	
0.00 mV	← Calibration condition
20.05°C	← Temperature measurement
0.02 mV	← Actual Redox measurement
Stable, OK to validate	← Measurement stability message

When the measurement has stabilised, confirm the calibration step using the OK key.

Ⴤ Slope calibration: 240 mV buffer solution

To calibrate the second point, immerse the sensor head in the 240 mV buffer solution and wait for the measurement to stabilize.
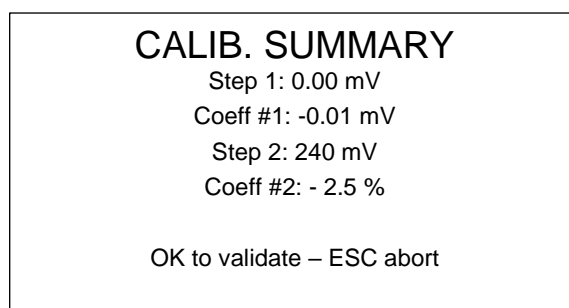Important: The platinum pad on the sensor cartridge must be immersed in the buffer solution.

ETAPE 2	
240 mV	← Calibration condition
20.05°C	← Temperature measurement
245 mV	← Actual Redox measurement
Stable, OK to validate	← Measurement stability message

When the measurement has stabilised, confirm the calibration step using the OK key.

Ⴤ Calibration results:

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

CALIB. SUMMARY
Step 1: 0.00 mV
Coeff #1: -0.01 mV
Step 2: 240 mV
Coeff #2: - 2.5 %

OK to validate – ESC abort

The acceptance tolerances for the calibration steps are:

+/- 10 mV for the offset step,
+/- 30% for the slope step.

If tolerances are exceeded, it is advisable to check the platinum cleanliness, or even replace the sensor cartridge. Please refer to Section 8. PHEHT SENSOR MAINTENANCE for more information.

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

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

### 6.3.3.3 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.

```
FACTORY
COEFFS
---
OK key to confirm
```

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.
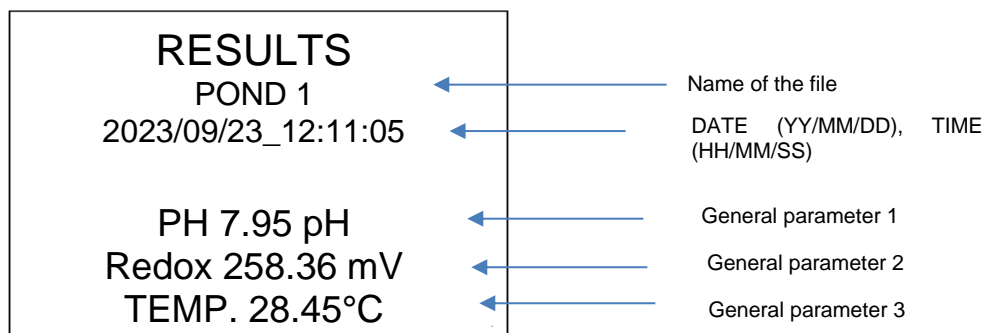
6.3.4 RECORDING MENU

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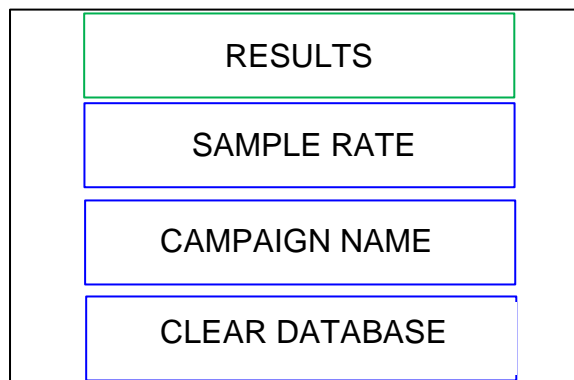
To select an option, use the up/down arrows and confirm with the OK key.

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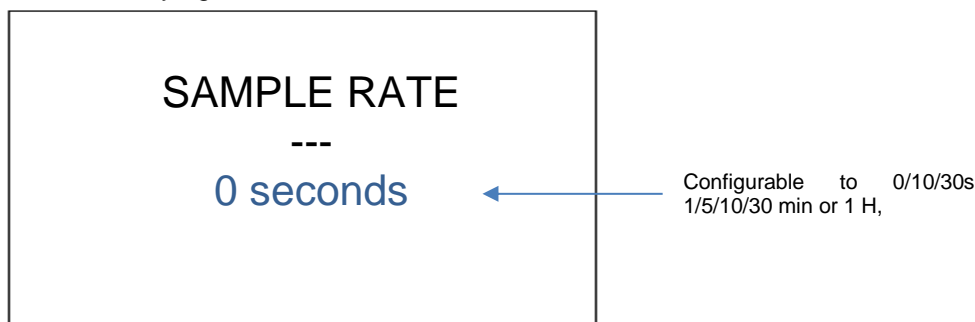
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By default, the value is 0 seconds (blue writing), a ONE-OFF recording mode that is triggered by pressing the OK key on the main screen. When recording is enabled on the main screen, the recording icon appears.

The frequency can be cha ⏺REC o 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).

```
CAMPAIGN NAME
---
POND_1
```
← LOCAL by default or preceding File Name (10 characters max.)
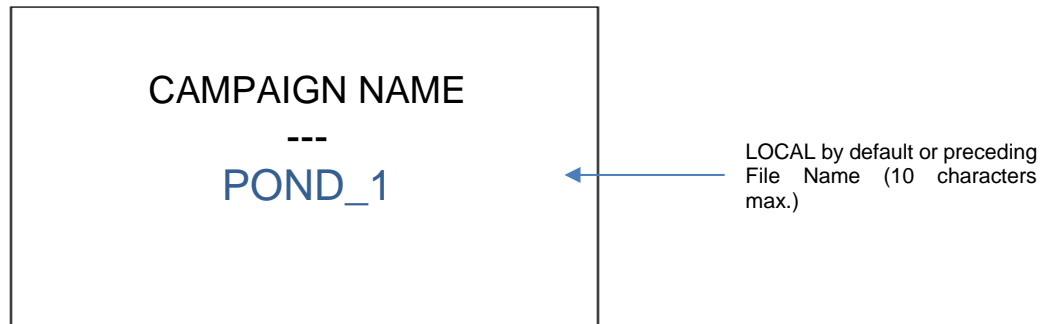
Use the up/down arrows to scroll through the characters (white writing) and the OK key to confirm your choice (green writing).
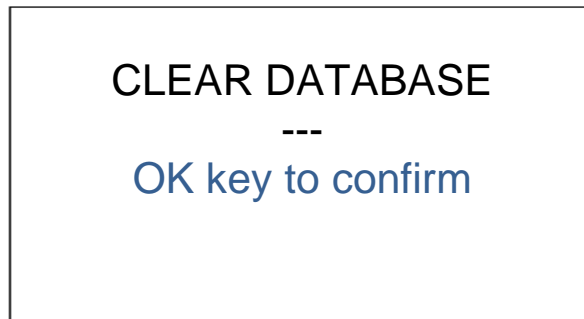
Available characters: 0 to 9, alphabet (A to Z), space and _.
Then press escape (ESC) to confirm the name and exit the menu.

6.3.4.4 ERASING DATA

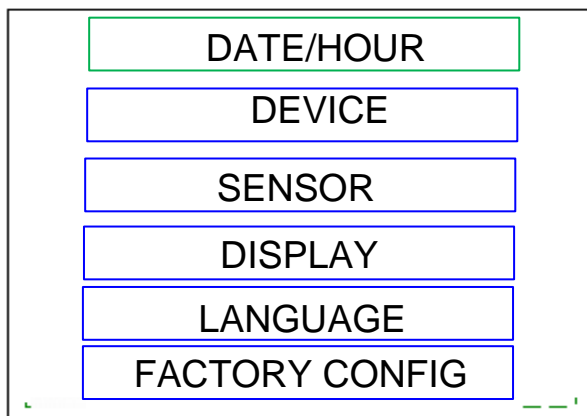To clear all data stored in the NEON hand-held device press the OK key.
The writing changes to green and the message "Data erased" appears.

```
CLEAR DATABASE
---
OK key to confirm
```

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.
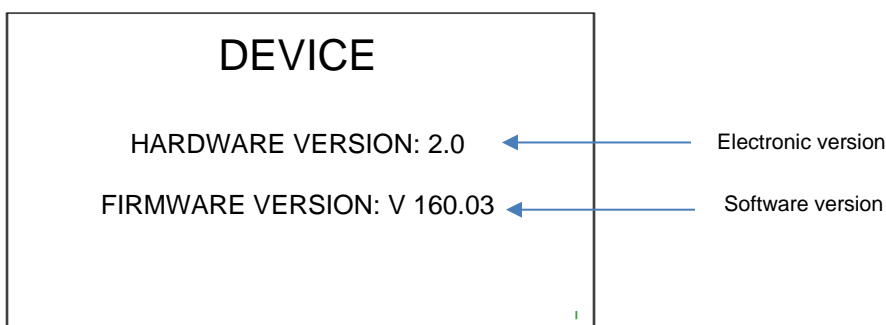
```
┌─────────────────────────────────┐
│   ┌─────────────────────────┐    │
│   │       DATE/HOUR         │    │
│   ├─────────────────────────┤    │
│   │        DEVICE           │    │
│   ├─────────────────────────┤    │
│   │        SENSOR           │    │
│   ├─────────────────────────┤    │
│   │        DISPLAY          │    │
│   ├─────────────────────────┤    │
│   │       LANGUAGE          │    │
│   ├─────────────────────────┤    │
│   │    FACTORY CONFIG       │    │
│   └─────────────────────────┘    │
└─────────────────────────────────┘
```

6.3.5.1 DATE AND TIME

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

```
┌─────────────────────────────────┐
│                                 │
│           DATE/HOUR             │
│             ---                 │
│          YYYY/MM/DD             │
│             ---                 │
│          HH:MM:SS               │
│                                 │
└─────────────────────────────────┘
```

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.
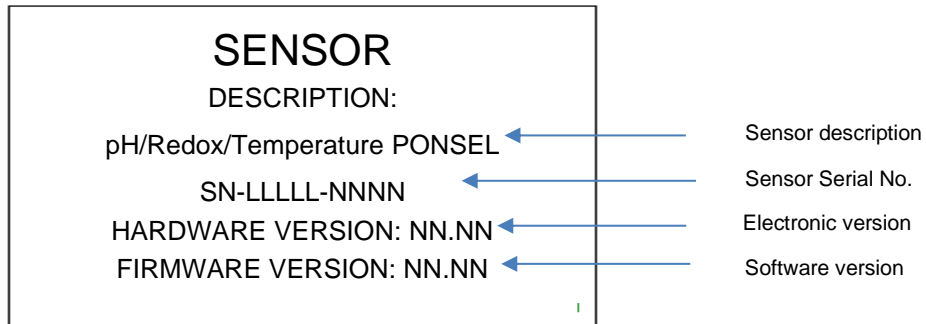
```
┌─────────────────────────────────┐
│                                 │
│           DEVICE                │
│                                 │
│   HARDWARE VERSION: 2.0  ◄────── Electronic version
│                                 │
│   FIRMWARE VERSION: V 160.03 ◄── Software version
│                                 │
│                                 │
└─────────────────────────────────┘
```

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

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.

```
SENSOR
DESCRIPTION:
pH/Redox/Temperature PONSEL         ← Sensor description
SN-LLLLL-NNNN                        ← Sensor Serial No.
HARDWARE VERSION: NN.NN             ← Electronic version
FIRMWARE VERSION: NN.NN            ← 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.

```
DISPLAY
Stand-by Delay
---

2 mn
```

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).

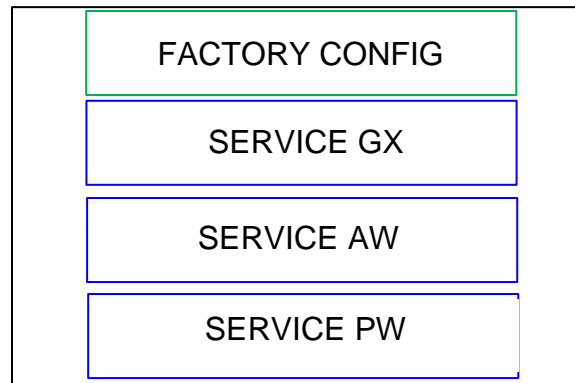To exit this menu then press the Escape (ESC) key.

6.3.5.5 LANGUAGE

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

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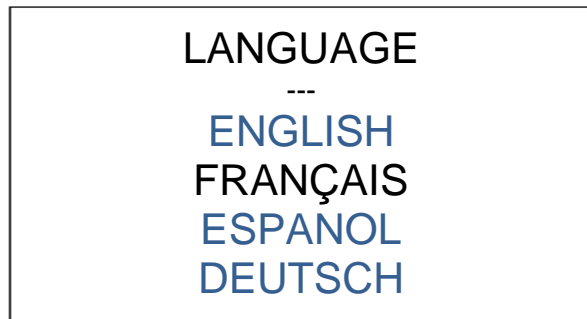
To select the language, use the Up/Down arrows (writing changes to white) and confirm using the OK key.
To return to the previous screen press the Escape (ESC) key.

6.3.5.6 FACTORY CONFIGURATION

```
┌─────────────────────────────────┐
│  ┌───────────────────────────┐  │
│  │     FACTORY CONFIG        │  │
│  ├───────────────────────────┤  │
│  │      SERVICE GX           │  │
│  ├───────────────────────────┤  │
│  │      SERVICE AW           │  │
│  ├───────────────────────────┤  │
│  │      SERVICE PW           │  │
│  └───────────────────────────┘  │
└─────────────────────────────────┘
```

➢ **FACTORY SETUP**

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

```
┌───────────────────────────────┐
│                               │
│     FACTORY CONFIG            │
│          ---                  │
│     OK key to confirm         │
│                               │
│                               │
│                               │
└───────────────────────────────┘
```

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), 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 keyboard. Activation may take longer than 5 seconds.

The WiFi activation icon (📶) appears at the bottom of the results overview window.
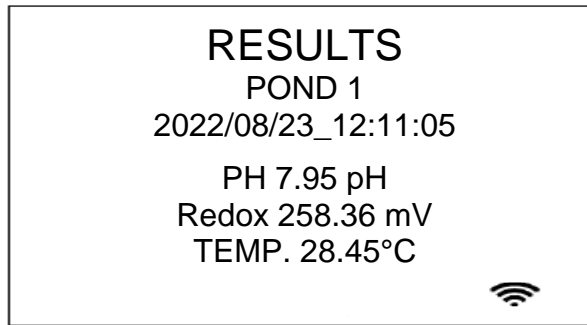
Select "**NeonPortal**" on the device that will receive the data files, in the menu listing the available WiFi equipment. The home web page to retrieve the data in CSV format will then open automatically.

7.2 HOME SCREEN

The home web page to retrieve the data in CSV format will then open automatically.
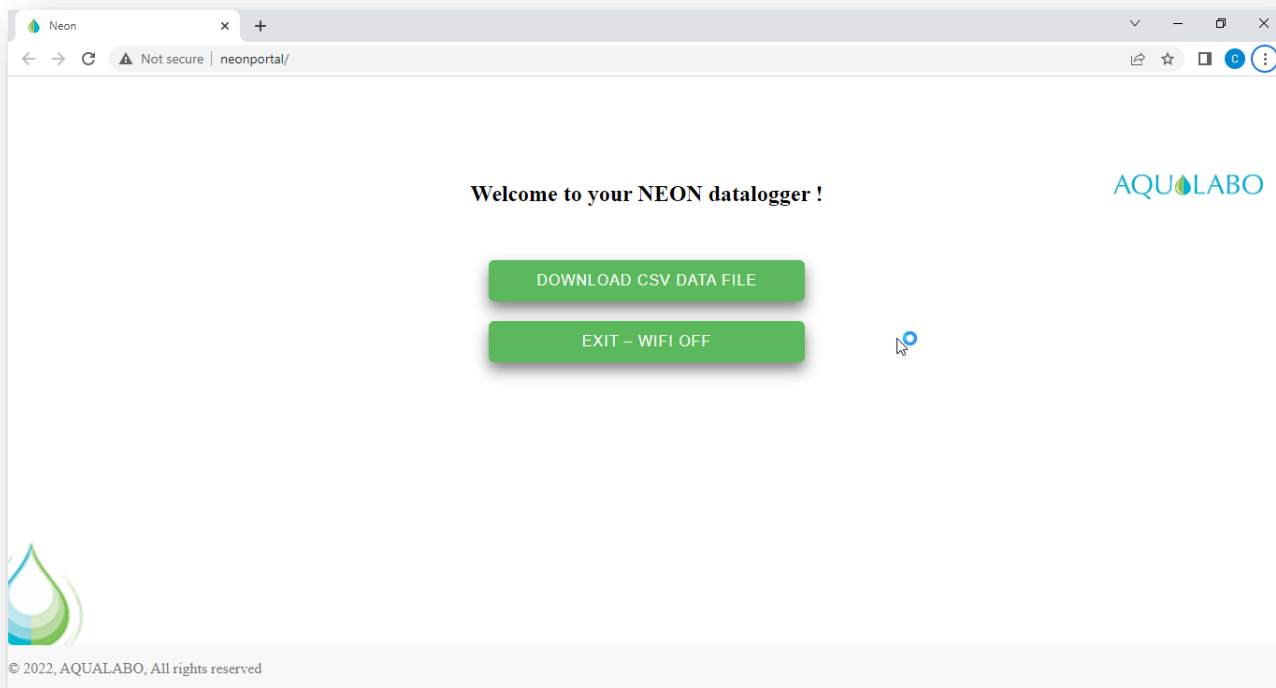
The process may not be automatic, depending on the internet browser installed on your connection equipment. In this case, type the address http://192.168.4.1/ in your browser.

To activate the data download, click on the "DOWNLOAD CSV" tab.
The record file contains:

- the data measured by the sensor (pH, Redox, temperature),
- 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. PHEHT SENSOR MAINTENANCE

The maintenance schedule specifies minimum intervals for regular maintenance tasks. Perform more frequent maintenance tasks for applications that cause electrode fouling. **Note:** *It is not necessary to disassemble the probe for maintenance or cleaning.*

• The sensor must always be clean, especially in the area around the pH glass bulb and platinum disc (Redox measurement).
Biofilm on the pH bulb may cause measurement errors.
• A dirty bulb should be cleaned with warm soapy water.
• For Redox measurement, clean the platinum disc using fine-grained abrasive paper to optimize ORP measurements.
• If the sensor is decommissioned, it must be rinsed before storage, and the protective cap must be covered with a damp absorbent material (such as cotton) and soaking solution (1SC009).

8.1 CLEANING

Rinse the sensor and glass bulb thoroughly with clean water.
For the pH glass: If deposits such as biofilm or sludge persist, place the sensor in a cleaning solution (1SN004) for a few hours and rinse thoroughly before use.
Avoid using a soft cloth or paper towel as the glass ball is extremely vulnerable to rubbing.
For the Redox part, clean the platinum disc with a damp abrasive paper (type P1200 or P220) and rinse the electrode with clean water

8.2 CHANGING THE CARTRIDGE

The measuring principle incorporates an AG/AgCl type reference electrode, used for pH and ORP measurements, immersed in a laminated electrolyte saturated with KCl "PLASTOGEL" ®

The "PLASTOGEL" ® electrolyte communicates directly with the external environment without capillary or porous intervention. Consequently, there is no risk of closure or dismantling of the reference. Plastogel tends to become depleted in KCl depending on the use of the PHEHT sensor. When the Plastogel is exhausted, the probe no longer responds to pH variations and/or is very slow to stabilize. In this case, the cartridge will have to be replaced.

Step 1: Disassembling the PHEHT probe.

Figure 1: To remove the protective cap (d) from the PHEHT probe, you can hold the electronic part (a) in one hand and undo the clamp (b) with the other hand **(Figure 2)**. Remove the clip (**Figure 3**) you can hold the electronic part (a) in one hand and remove the cartridge with the other hand (**Figure 4**).

Unscrewing the ring

Diagram 1   Diagram 2   Diagram 3   Diagram 4
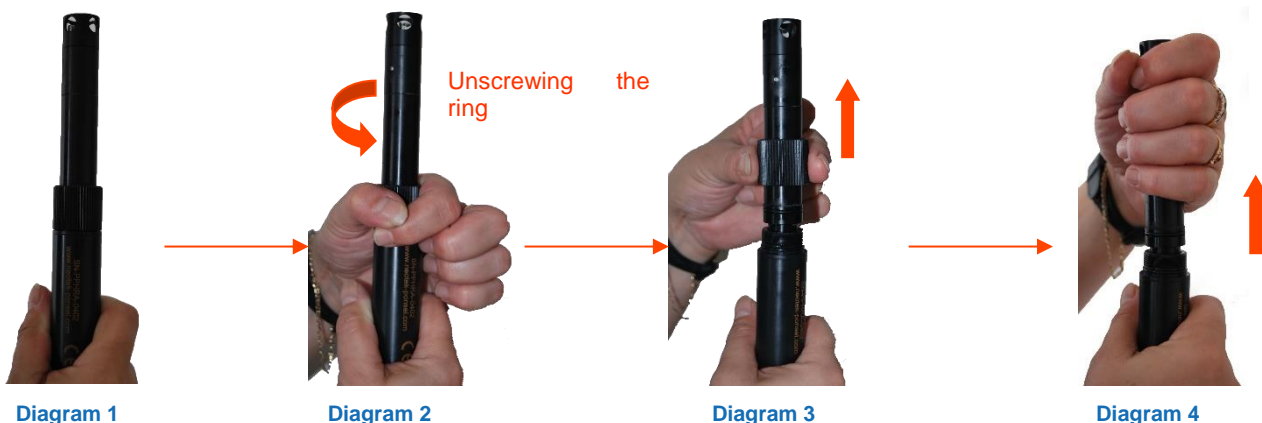
Step 2: PHEHT sensor reassembly.

Hold the electronic part in one hand, place the half-moon-shaped connector of the new PHEHT cartridge (d) in front of the connector of the electronic part and adjust both (**Figure 5**).
Remove the protective housing then replace the clip on the sensor holding the sensor by the electronic part. Finish by tightening the clamp.

Perform a full calibration to set up the sensor with its new cartridge.

Cartridge half-moon connector
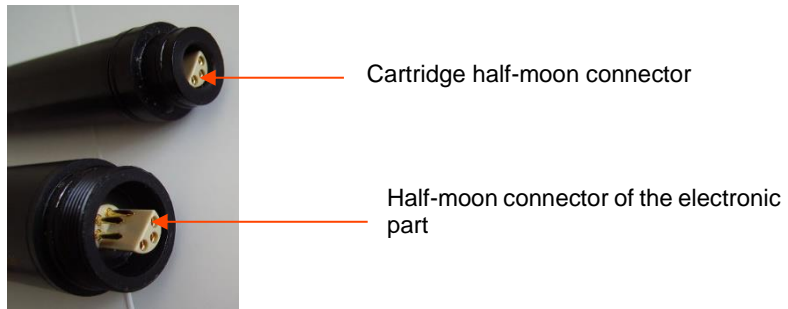
Half-moon connector of the electronic part

Diagram 5

8.3 STORAGE

If the sensor is decommissioned, it must be rinsed before storage, and the protective cap must be covered with a damp absorbent material (such as cotton) and soaking solution (1SC009).

9. ACCESSORIES AND CONSUMABLES

Spare parts/consumables	
PF-CAP-C-00155	PHEHT SENSOR CARTRIDGE
ME-BOU-S-00020	PHEHT sensor protective cap
1TP060	Buffer solution pH 7.01– 125 ml
1TP061	Buffer solution pH 4.01 – 125 ml
1TP012	Buffer solution pH 9 – 125 ml