UWS
unser wasser. sicher.

WaterBoy
Manual

aalberts
hydronic flow
control

Table of contents

IMPORTANT INFORMATION BEFORE USE

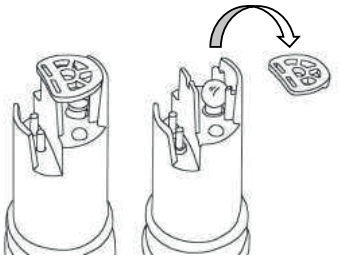
1. pH test strips are not suitable for use with fully demineralized water.
2. For softened water, use the hardness drops.
3. Regular calibration is the only way to ensure accurate measurement results.
4. The probes are sensitive and should be treated accordingly. Rinse briefly with distilled water after use.
5. The measuring instruments and the calibration fluid must be stored frost-proof and at < 50 °C.
6. When taking the water sample, please ensure that the oxygen input is kept as low as possible.

IMPORTANT

Important NOTE

The appearance of the smiley during the measurement process does not mean that the values comply with the VDI guideline and that the heating water is OK. The smiley face serves as an indicator of a stable, steady measurement value, which can be fixed by pressing Cal/Ent. In order to compare the water values with the selected standard (e.g. VDI 2035, ÖNORM H 5195-1 or SWKI BT 102-1), the use of the app is necessary.

ATTENTION



- During production, water droplets are added to maintain the moisture of the electrode. This is normal practice and should not be attributed to a product that has been used.
- **Never** use the product at temperatures below 0 °C. Allow it to warm to room temperature before use.
- There is a **sensor protector (protective cap)**on the top of the pH sensor to protect the glass bulb container from accidental damage. You can remove the sensor protector when rinsing and cleaning the sensor, as shown in the following image, and replace it after cleaning.

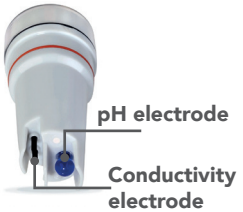
Calibration solutions

Calibration fluid conductivity		
Conductivity solution 84µS / cm	120 ml bottle	Item no.: 100030-8
Conductivity solution 1413 µS/cm	25 bags, 20 ml each	Item no.: 100030-2
Conductivity solution 1413 µS/cm	500 ml bottle	Item no.: 100030-25
Calibration fluid pH		
Buffer solution pH 4.01	25 bags, 20 ml each	Item no.: 100030-3
Buffer solution pH 4.01	500 ml bottle	Item no.: 100030-30
Buffer solution pH 7.01	25 bags, 20 ml each	Item no.: 100030-1
Buffer solution pH 7.01	500 ml bottle	Item no.: 100030-15
Buffer solution pH 10.01	25 bags, 20 ml each	Item no.: 100030-7
Buffer solution pH 10.01	500 ml bottle	Item no.: 100030-70
Cleaning and storage solution		
Storage solution for electrodes	25 ml bottle	Item no.: 100125
Storage solution for electrodes	500 ml bottle	Item no.: 100135
Storage solution for electrodes	230 ml bottle	Item no.: 100145
Replacementset Measuring Case (10 pcs.)	10 pieces	Item no.: 100153-1
Cleaning solution for electrodes	25 bags, 20 ml each	Item no.: 100030-6
Cleaning solution for electrodes	500 ml bottle	Item no.: 100136
Replacement kit for "WaterBoy" measuring case	10 pcs.	Item no.: 100153-1

1 Keyboard functions

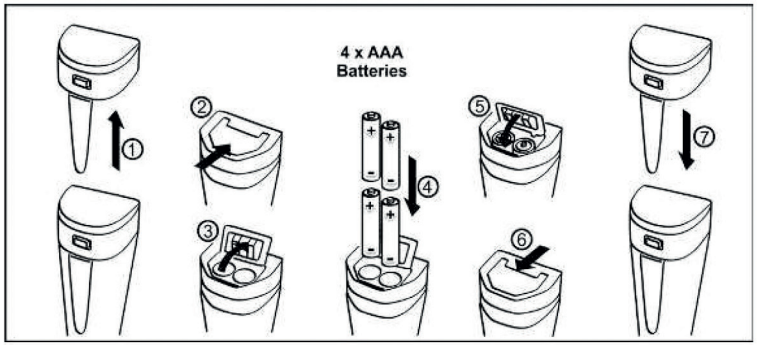
short press: < 2 seconds
press and hold: > 2 seconds

MEAS	1. When off, short press to turn on, long press to open settings/parameters. 2. In calibration mode or in the settings, press briefly to switch to measurement mode 3. In measurement mode, press briefly to activate the backlight, press and hold to switch off the device.
MODE	1. In measurement mode, press briefly to switch between measurement parameters. pH → Cond → TDS → Sal → Res 2. Press briefly in the settings to change parameters
CAL ENT	1. Press and hold to start calibration mode 2. In calibration mode, press briefly to confirm calibration 3. In measurement mode, when automatic measurement lock is deactivated, manually lock and unlock measured values



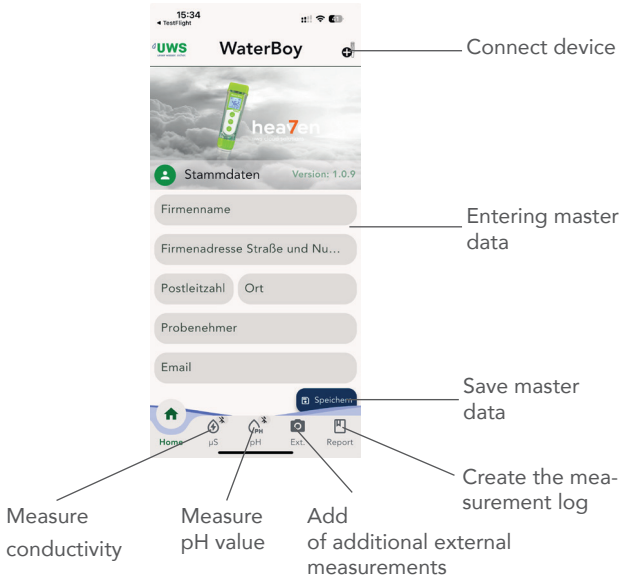
2 Replacing the batteries

Insert the batteries according to the following steps. * Please note the direction of the batteries: **The positive terminal ("+") of ALL batteries must point UP! (Incorrect insertion of the batteries will damage the measuring device)**



3 WaterBoy app

The WaterBoy app is used to record, store, and evaluate the measurements taken by your device. The app allows you to conveniently create and manage a complete measurement log.



3.1. Download app

Scan the QR code

Android iOS

Download on the App Store

GET IT ON Google Play

Apple App Store and the Apple App Store logo are trademarks of Apple Inc. Google Play and the Google Play logo are trademarks of Google LLC.

3.2. Turn on the device and connect to the app

a. Click on MEAS to turn on the device.
b. Activate Bluetooth on the device by pressing and holding MODE
c. Press the button in the app and select the appropriate measuring device.

3.3. Enter master data on the start screen

a. Company name, company address, postal code, city, and sampler will appear later in the measurement log.

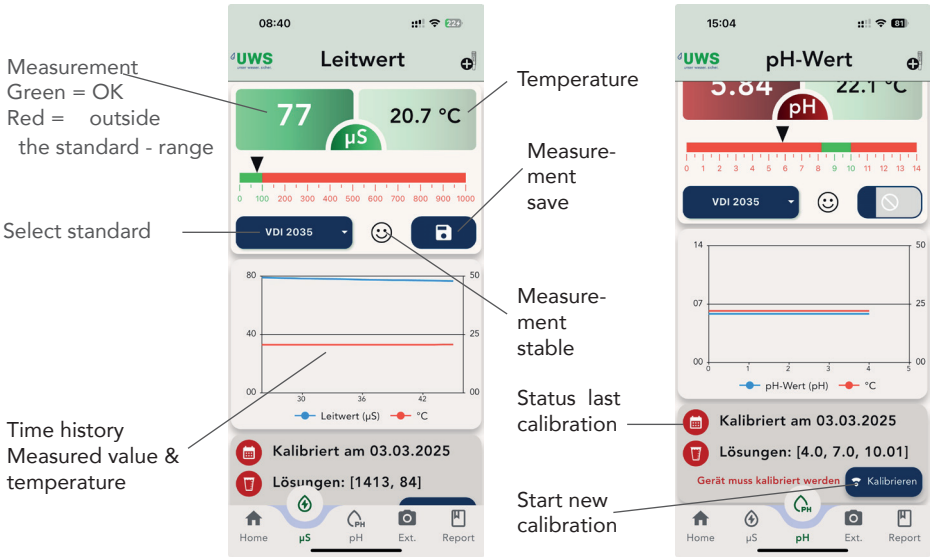
b. The data is saved by clicking on "Save". 

Important: No measurement report can be created with the app without entering master data!

3.4. Perform measurement/calibration

a. To do this, switch to the desired tab (µS or pH)

b. If calibration is invalid or expired, the following message appears in red at the bottom of the screen the Note: “Device needs to be calibrated.”.



If the calibration has expired, please recalibrate the respective measuring probe.

Click on calibrate for a step-by-step explanation of the calibration process.

Important: As soon as the device has been calibrated using a calibration solution, the app will exit the calibration mode. To calibrate another point, click on calibrate again and follow the instructions.

The date of calibration and the calibrated points are displayed after successful calibration.

The measured value can only be saved once the progress bar on the diskette has completely disappeared. This ensures a stable measurement value over a longer period of time.

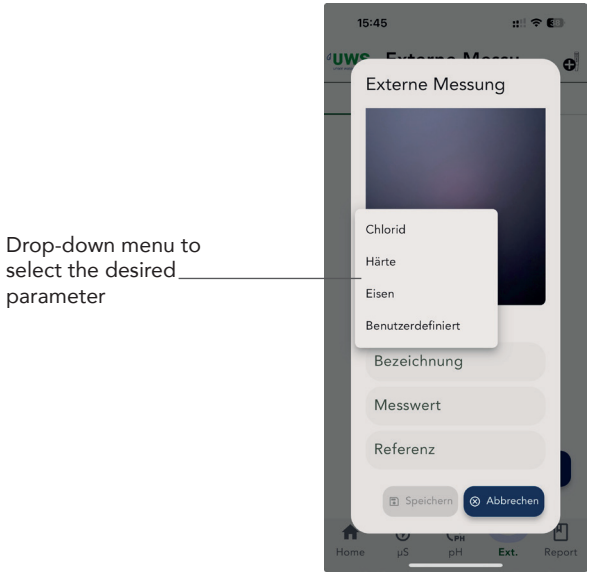
Note: The smiley face indicates a stable temperature-compensated measured value. It does not interpret the measurement result according to a valid guideline.

Please assign a unique reference so that the measured value can be clearly identified later when creating the report.

3.5. Add external/additional measurements

This option allows you to record additional measurements besides pH value and conductivity. These can also be added to the measurement log/report.

- Click on  to add a new measurement
- Select/take a suitable photo from/on



Note: If you select "user-defined," you can assign any name you like.

- Use reference to uniquely assign the measured value, e.g., address, construction project, object, etc…
- Once you have saved the measured value, you can choose between „New“ and „Used“ to view all your external measurements. Measurement values that have not yet been used under „New“ can be changed at any time by clicking on them. Under „Used“ you can see the measurements that have already been added to a measurement log >see point 7. These can only be changed again once the corresponding report has been deleted. The measured value is then recategorized from „Used“ to „New.“
- Click on the image to enlarge it.

3.6. Create report/measurement log

In the Report tab under "Measurement results," select the appropriate measured values that you previously recorded with the measuring device (µS & pH) and via the external measurement. To create the report, select the µS value and pH value from the drop-down menu. The external measurement is optional.

Note: Only one µS value and one pH value can be added per measurement log. If you would like to add another µS and pH value to the log (e.g., to compare the existing water with the raw water), you can do this via "External measurement > User-defined." .

The following information can be found in the measurement log:

- Comparison with the previously selected standard (VDI 2035, Ö-NORM H 5195-5, SWKI BT 102-1)
- Interpretation of the result
- If the water values are not complied with, suitable measures are linked in the measure ment log

You can view all saved reports via "Reports.".

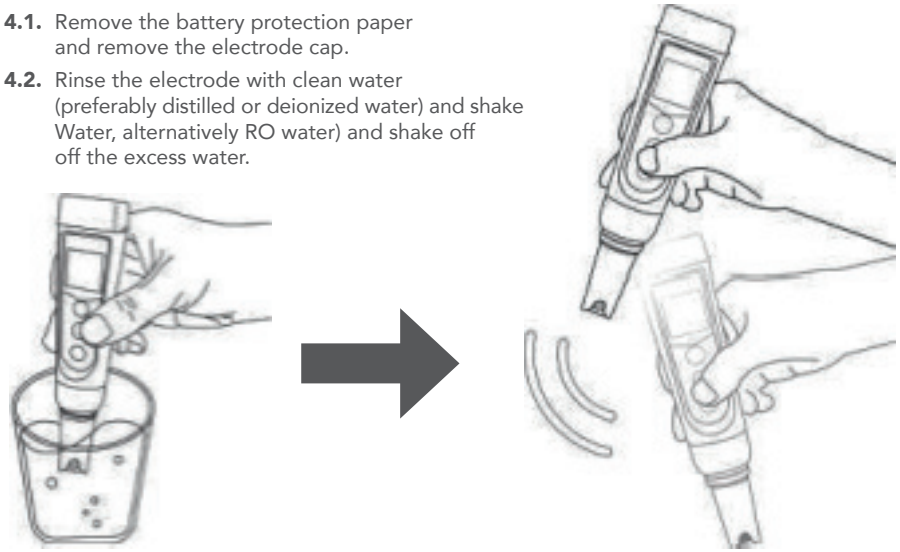
Important: When saving a measured value, assign a unique reference so that you can find the appropriate report later using the search function.

The created report can be shared using the device-specific subfunction, e.g., sending by email.

4 Before use

4.1. Remove the battery protection paper and remove the electrode cap.

4.2. Rinse the electrode with clean water (preferably distilled or deionized water) and shake Water, alternatively RO water) and shake off off the excess water.



4.3. Perform a calibration. Instructions for pH calibration can be found in **Chapter 5** and for conductivity calibration in Chapter **7.**

4.4. If the measuring device has not been used for a long time (more than 1 month), soak the Electrode in the cleaning solution for at least 15 minutes and calibrate the device before using it again.

5 pH calibration

5.1 Press MEAS to switch on the measuring device.

5.2 Prepare the 7.00, 4.00, and/or 10.00 pH - Calibration solutions. Fill the measuring device with the calibration solutions to approximately fill the corresponding calibration cup halfway.

According to VDI 2035, a 2-point calibration is required. To achieve **even more accurate measurement results** , we recommend calibrating the WaterBoy 3-point.

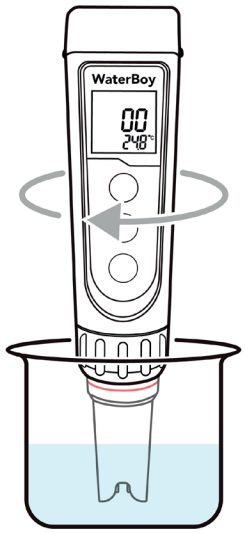
5.3 Press CAL ENT for about 2 seconds to enter the calibration mode (the screen lights up green). Rinse the electrode in clean water and shake off excess water.

5.4 Dip the electrode into the 7.00 pH calibration solution, stir the solution, and then hold the device still. Wait until the measured value has stabilized (☺ lights up continuously) and then press CAL ENT, to start calibrating the 1st point.

After calibration is complete, the device switches to measurement mode and M appears in the left lower corner of the screen. The M means that the first point has been successfully calibrated.

5.5 To calibrate the second point, repeat steps 5.3 and 5.4 with the 4.00 pH calibration solution (do NOT switch off the device after completing the 7.00 pH calibration. If L appears next to M on the display, a successful 2-point calibration has been completed.

5.6 If necessary (target pH value > 8.00), calibrate the 3rd point with the 10.01 pH calibration solution and repeat steps 6.3 and 6.5. If H is then displayed next to L and M, the 3-point calibration has been carried out successfully.



Calibrate your WaterBoy now with the help of the **WaterBoy app**. Here you will be guided step by step through the calibration process

5.7 Notes on calibration:

a) The calibration of the 1st point must be carried out at 7.00 pH. Run the calibration of the 2nd and 3rd point (4.00/10.01) immediately after the 1st. Do **NOT** switch off the device before you have performed the 2nd or 3rd point, otherwise you will have to start the calibration from the beginning (at 7.00 pH).

b) Fresh and clean calibration solutions are the basis for precise pH measurement.

c) The measuring device can be calibrated at one, two or three points and detects automatically 5 different standard calibration solutions.

For more information, see the following table:

Calibration	USA calibration series		Symbols	When recommended
1 point	7,00 pH		Ⓜ	Accuracy ≥ 0.1 pH
2 points	Option A	1. Point: 7.00 pH 2. Point: 4.00 pH	Ⓛ Ⓜ	Measuring range < 7.00 pH
	Option B	1. Point: 7.00 pH 2. Point: 10.01 pH	Ⓜ Ⓗ	Measuring range > 7.00 pH
3-point	1. Point: 7.00 pH 2. Point: 4.00 pH 3. Point: 10.01 pH		Ⓛ Ⓜ Ⓗ	Measuring range from 0 to 14.00 pH

5.8 Information on self-diagnosis and possible solutions is listed in the following table:

Symbol	Cause of error	Possible problems & solutions
Er 1	The pH calibration solution cannot be recognized by the measuring device.	1. Make sure that the probe is completely immersed in the calibration solution. 2. Check whether the calibration solution has expired or is contaminated. 3. The 1st point of the pH calibration must be at 7.00. (see 5.7) 4. Check whether the pH electrode is damaged. If so, replace it with a new one. 5. The glass bulb or diaphragm may be contaminated. Clean the electrode with a soft brush and soapy water. Then soak it in 3M KCL soaking solution for 3 to 5 hours and recalibrate the device.
Er2	Hold down CAL ENT until the measured value has stabilized completely.	Wait until ☺ lights up continuously before pressing CAL ENT.
Er3	During calibration, the readings will be unstable for 3 minutes.	1. Check whether the pH electrode is damaged. If so, replace it with a new one. 2. The glass bulb or diaphragm may be contaminated. Clean the electrode with a soft brush and soapy water. Then soak it in 3M KCL soaking solution for 3 to 5 hours and recalibrate the device. 3. The electrode is too old and reacts too slowly. A replacement electrode is required.
Er4	Electrical zero potential of the pH electrode outside the range (< -60mV or > 60mV)	1. Check whether the pH calibration solutions comply with the US standard. 2. Check whether the calibration solutions have expired or are contaminated. 3. Check whether the pH electrode is damaged. If so, replace it with a new one. 4. The electrode is too old and reacts too slowly. A replacement electrode is required. 5. The electrode is not compatible (Er4/Er5 appears repeatedly and errors 1, 2, and 3 can be ruled out). The electrode must be replaced.
Er5	Slope of the pH electrode outside the range (< 85% or > 110%)	
Er6	The calibration reminder is triggered. A new pH calibration should be performed.	Perform a pH calibration or deactivate the calibration reminder in the ZenTest settings.

6 pH measurement

6.1 Rinse the probe with distilled water before use to remove any contaminants adhering to the electrode Impurities adhering to the electrode. If the meter has not been used for a long time, soak the probe in distilled water for 30 minutes beforehand.

6.2 When taking the sample, make sure that the oxygen input is kept as low as possible. This can be done by connecting a short hose to the sample tap and inserting it into the measuring vessel in an S-shape. Please note that, depending on the size of the system, the flow (approx. 1-2 liters) is not suitable as a sample. Calibrated measuring devices should be filled with heating water to remove any calibration fluids/storage solutions .

6.3 Fill the measuring cup with heating water and place the measuring device in the sample. Click on "Mode" until "pH" appears in the upper right corner of the measurement parameters.

6.4 Stir with the measuring device. Then wait until the value is stable. Click on "Calc/Ent" to fix the value on the display.

7 Conductivity calibration

7.1 Switch the device on with MEAS. Press MODE to switch to conductivity measurement mode (Cond).

7.2 Fill the supplied calibration beaker with the appropriate calibration solution or use the calibration liquids directly from the bag of the respective calibration solution - 1413 µS/cm and 84 µS/cm

7.3 Press CAL ENT and hold to switch to calibration mode (the display turns green). Rinse the electrode in distilled water and dry it.

7.4 Immerse the electrode in the 1413 µS calibration solution, stir briefly in the solution, and hold the device still. When the measurement has stabilized (☺ remains steady), press CAL ENT to complete calibration of the 1st point. M now appears at the bottom left of the screen and the device will return to measurement mode.

7.5 If the calibration of the 2nd point was successful, Ⓗ is displayed next to Ⓜ.

7.6 Notes on conductivity calibration

The measuring device can be calibrated with 84 µS/cm and 1413 µS/cm solutions, which can be used to perform a 1-point or 2-point calibration as required.
The following table shows when which calibration is recommended in order to achieve the best possible measurement accuracy.

Symbol	Calibration solution	measurement range
Ⓛ	84 µS/cm	0 - 200 µS/cm
Ⓜ	1413 µS/cm	200 - 2000 µS/cm

7.7 Information on self-diagnosis and possible solutions is listed in the following table:
:

Symbol	Cause of error	Possible problems & solutions
Er 1	The conductivity calibration solution cannot be recognized by the measuring device.	1. Make sure that the electrode is completely immersed in the calibration solution. 2. Check whether the calibration solution has expired or is contaminated. 3. Check whether the conductivity electrode (two black rods) is damaged. 4. Check whether the conductivity electrode is dirty. If so, clean it with a soft brush and warm water.
Er2	Hold down CAL ENT until the measured value has stabilized completely.	Wait until ☺ lights up continuously before pressing. CAL ENT
Er3	During calibration, the readings will be unstable for 3 minutes.	1. Shake the electrode briefly to remove any air bubbles from the black rods. 2. Check whether the conductivity electrode is dirty. If so, clean it with a soft brush and warm water. 3. Soak the electrode in the cleaning solution for 10 minutes and then rinse it with distilled water.
Er6	The calibration reminder is triggered. A new calibration should be performed.	Perform a calibration.

8 Conductivity measurement

Switch on the device with MEAS, click on "Mode" until "Cond" appears in the upper left corner of the measurement parameters. Rinse the electrode in distilled water and dry it. Immerse the electrode in the sample solution, stir briefly, and then hold the
device still. Wait until the measurement has stabilized (☺ remains steady). Use MODE to switch between conductivity, TDS, and salt content.

Conversion of units:

a) **1000 µS/cm = 1 mS/cm = 1 EC** (In conductivity measurement mode, the unit is automatically from µS to mS if the measured value is greater than 1999 µS. This means that you will see 2.XX mS instead of 2XXX µS.

b) **1000 ppm = 1 ppt** (In TSD mode, the unit is automatically converted from ppm to ppt , if the measured value is greater than 999 ppm. You will therefore see 1.XX ppt instead of 1XXX ppm.

c) TDS and salinity are converted from the measured conductivity. TDS and conductivity are linear to each other and their conversion factor is between 0.40 and 1.00. The factory setting for this factor is 0.71, but you can adjust it using the "P5.".

d) Salinity and conductivity are linear to each other and are converted using a factor of 0.5.

e) The measuring device only needs to be calibrated in conductivity mode.

f) **Conversion example:** If a conductivity of 1000 µS/cm is measured, the TDS value is 710 ppm (with a conversion factor of 0.71) and the salt content is 0.5 ppt. If the TDS conversion factor is set to 0.5, the device measures 500 ppm.

8.1 Temperature compensation factor

The temperature compensation factor is set to 2%/°C by default. You can adjust the factor based on test solutions and experimental data using parameter P10.

The following table shows examples of the temperature compensation factor for some solutions.

Solution	Temperature compensation factor	Solution	Temperature compensation factor
NaCl	2,12 %/°C	10% hydrochloric acid	1,32 %/°C

9 Cleaning the electrode

9.1 The measuring device is only as accurate as the electrode is clean. Always rinse the electrode thoroughly with clean water before and after each measurement. Do the same between limersing it in the different calibration solutions during the calibration process.

9.2 If the electrode is heavily contaminated, soak it in the cleaning solution for 30 minutes Then use a soft brush to remove the contamination. Then soak the electrode in the storage solution for at least one hour. Rinse it off and recalibrate the measuring device.

10 Storing the electrode

10.1 If you use the meter regularly (daily or weekly), make sure, that the electrode cap is moist and tightly closed.

10.2 For long-term storage (if you are not going to use the product for a while), store the electrode in the storage solution. To do this, fill the storage solution into the electrode cap up to the fill line and close it tightly.

10.3 If you find white crystals inside or outside the electrode cap, this is completely normal. It is the storage solution that crystallizes over time. simply rinse them off and add new storage solution.

10.4 Never store the electrode **in pure water** such as tap water, RO water, distilled water, or deionized water, as this could damage the pH electrode. If this happens, soak the electrode immediately in the storage solution overnight. **Pure water** is used **only for rinsing** the electrode.

11 Parameter settings

11.1 Overview

Symbol	Parameter setting	Code	factory setting
P1	Temperature unit	°C - °F	°C
P2	Automatic HOLD function	5 - 20 seconds - Off	15 sec.
P3	Backlight	1 - 8 minutes - Off	2 min.
P	Automatic switch-off	10 - 20 minutes - Off	10
P	pH calibration series	USA - NIST	USA
P6	pH resolution	0,1 - 0,01	0,01
P7	pH calibration reminder	H hours D days	5 days
P8	reset pH calibration	No - Yes	No
P9	Conductivity reference temperature	15 °C - 30 °C	25 °C
P10	Temperature compensation factor	0,00 - 9,99	2,00
P11	Conductivity calibration reminder	H hours D days	14 days
P12	Reset conductivity calibration	No - Yes	No
P13	TDS conversion factor	0,40 - 1,00	0,71
P14	Salt content unit	ppt - g/L	g/L

11.2 Change parameter

When the device is switched off, press and hold MEAS for about 2 seconds to enter the settings. Use MODE to sw itch between parameters P1-P2-P3...P14.

Press CAL ENT to select the parameter you want to change.

Use MODE to make changes to the selected parameter, which you confirm with CAL ENT.

Now press and hold MEAS for about 2 seconds to return to the measurement mode.

11.3 Information about the settings

- **Automatic HOLD function (P2)**
  The automatic HOLD function can be set from 5 to 20 seconds. For example, if 10 seconds are set and the measured value is stable for longer than 10 seconds (☺ is displayed), the measured value is locked for reading and, the HOLD symbol is displayed. To unlock, briefly press CAL ENT. If the setting is set to "off," the automatic HOLD function is deactivated. This means:
  The measured value can only be locked manually. To do this, briefly press CAL ENT to lock or unlock the measurement value.

- **Backlight (P3)**
  The automatic backlight can be set from 1 to 8 minutes. For example, if 3 minutes are set, the backlight turns off automatically after 3 minutes. If "Off" is set, the automatic backlight will be switched off,and can be switched on or off manually by briefly pressing MEAS.
- **Automatic switch-off (P4)**
  The automatic switch-off time can be set to between 10 and 20 minutes.
  For example, if 15 minutes are set, the meter will automatically turn off if "Off" is set, the automatic switch-off is disabled. If "Off" is set, the automatic switch-off function is deactivated. Press and hold MEAS to switch off the measuring device manually.
- **reset pH calibration (P8) and reset conductivity calibration (P12)**
  Select "Yes" to reset the respective calibration of the device to the theoretical value. This function can be used if the device does not function optimally during calibration - or during measurement. The device must be recalibrated before the next measurement.

12 Technical data

pH	Measurement range	-2,00 - 16,00 pH
	Resolution	0,01 pH
	Accuracy	± 0.01 pH ± 1 digit
	Calibration points	1 to 3 points
	Automatic temperature compensation	0 - 50 °C (32 - 122 °F)
Conductivity	Measurement range	0 - 199.9 µS/cm, 200 - 1999 µS/cm 2 - 20.00 mS/cm
	Resolution	0.1/1 µS/cm, 0.01 mS/cm
	Accuracy	± 1% F.S
	Calibration points	1 to 3 points
TDS	Measurement range	0.1 ppm - 10.00 ppt
	Conversion factor	0,40 - 1,00
Salt content	Measurement range	0 - 10.00 ppt
Resistance	Measurement range	50 Ω - 20 MΩ
Temperature	Measurement range	0 - 50 °C
	Accuracy	± 0.5 °C

13 Symbols and functions

Calibration points	Ⓛ Ⓜ Ⓗ	Self-diagnostic symbol	Er1, Er2, Er3, Er4, Er5, Er6
Indicator for stable measured value	☺	0,01 pH	IP67, floats on water
Measurement lock	HOLD	± 0.01 pH ± 1 digit	DC3V, 4x AAA batteries
Bluetooth signal	ᛒ	1 to 3 points	> 200 hours
Low battery warning	▭	0 - 50 °C (32 - 122 °F)	White: measurement; Green: calibration; Red: alarm
Auto . Shutdown	Automatic switch-off after 10 minutes of non-use		
Dimensions/weight	Measuring device: 40 x 40 x 178 mm / 133 g		

LCD screen

pH calibration reminder

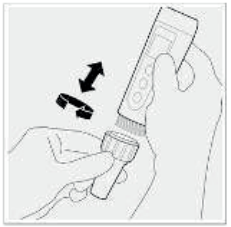
14 Replacing the electrode

Every pH electrode loses accuracy over time. The typical service life of a pH electrode is approximately 1-2 years, depending on the frequency of use, type of test samples, how well it is maintained and stored, etc. To ensure optimum performance, the electrode should therefore be replaced every 1 to 2 years.

How to replace the electrode:

1) Remove the electrode cap;
2) Unscrew the electrode ring;
3) Remove the electrode;
4) Connect the new electrode (pay attention to the alignment of the electrode);
5) Screw the electrode ring tightly into place. Soak the new electrode in the storage solution for 5 to 15 minutes.

Perform a calibration before the next measurement.



15 Troubleshooting

Problem	Cause	How to fix
The measuring device cannot be calibrated	Incorrect calibration sequence (Er1)	Restart the measuring device and calibrate first at 7.0 and then at 4.0 pH.
	Poor-quality calibration solution (Er1)	Replace the calibration solutions with new and clean calibration solutions from reputable manufacturers.
	Contaminated sensor (Er1)	Use a soft brush and clean the electrode with the cleaning solution or distilled water.
	Aged electrode (Er1)	Replace the electrode.
	Dried-out electrode (Er1)	Soak the electrode in the storage solution for at least 30 minutes.
	Electrode is not completely submerged (Er1)	Make sure that the electrode is completely immersed in the solution, i.e., at least 2 to 3 cm deep.
	Air bubbles around the sensor (Er1)	Shake the electrode in the liquid to remove air bubbles.

Problem	Cause	How to fix
The measured value changes constantly, does not stabilize	Contaminated sensor	Use a soft brush and clean the electrode with the cleaning solution or distilled water.
	Clogged diaphragm	Use a soft brush and clean the electrode with cleaning solution/distilled water, then soak it overnight in the storage solution.
	Aged electrode	Replace the electrode.
	Testing the pH of solutions with low ionic strength such as tap water/drinking water/distilled water	Wait 1-5 minutes to achieve a fully stabilized reading. If the value still has not stabilized, add the storage solution in a ratio of 1:1000.
If similar measurements in all solutions or always displays 7.0 pH	Defective electrode	If you do not see any visible damage to the electrode, contact UWS to fulfill the warranty. If there is visible damage, replace the electrode.
Measurement values jump	Electrode is not completely submerged	Make sure that the electrode is completely immersed in the solution, i.e., at least 2 to 3 cm deep.
	Air bubbles around the sensor	Shake the electrode in the liquid to remove air bubbles.
	The electrode is not connected properly or the connection is defective	Check the connection and make sure it is not defective and that the electrode is connected correctly. Align the electrode correctly when connecting it. Make sure that the connection is not exposed to air for too long.
The calibration is successful, but the measured values are inaccurate	Aged electrode	Replace the electrode.
	Air bubbles around the sensor	Shake the electrode in the liquid to remove air bubbles.
	Clogged diaphragm	Clean the electrode with cleaning solution and soak it overnight in the storage solution.
	Comparison with other measuring devices or test strips	To compare measuring devices with each other, calibrate the devices with the same solution and then test a different standard solution. The accuracy of test strips is not comparable to pH measuring devices.

16 Conversion table µs/cm to °dH, °fH and lime content

Measurement conductivity µs / cm	This corresponds to the hardness °dH	This corresponds to the hardness °fH	Lime content in the water g / 1000 l
35 µs/cm	1 °dH	1.8 °fH	18 g /1000 l
105 µs / cm	2 °dH	5 °fH	53 g /1000 l
140 µs / cm	4 °dH	7 °fH	70 g /1000 l
175 µs / cm	5 °dH	9 °fH	88 g /1000 l
210 µs / cm	6 °dH	11 °fH	105 g /1000 l
245 µs / cm	7 °dH	12 °fH	123 g /1000 l
280 µs / cm	8 °dH	14 °fH	140 g /1000 l
315 µs / cm	9 °dH	16 °fH	158 g /1000 l
350 µs / cm	10 °dH	18 °fH	175 g /1000 l
385 µs / cm	11 °dH	20 °fH	193 g /1000 l
420 µs / cm	12 °dH	21 °fH	210 g /1000 l
455 µs / cm	13 °dH	23 °fH	228 g /1000 l
490 µs / cm	14 °dH	25 °fH	245 g /1000 l
525 µs / cm	15 °dH	27 °fH	263 g /1000 l
560 µs / cm	16 °dH	28 °fH	280 g /1000 l
595 µs / cm	17 °dH	30 °fH	298 g /1000 l
630 µs / cm	18 °dH	32 °fH	315 g /1000 l
665 µs / cm	19 °dH	34 °fH	333 g /1000 l
700 µs / cm	20 °dH	36 °fH	350 g /1000 l
735 µs / cm	21 °dH	37 °fH	368 g /1000 l
770 µs / cm	22 °dH	39 °fH	385 g /1000 l
805 µs / cm	23 °dH	41 °fH	403 g /1000 l
840 µs / cm	24 °dH	43 °fH	420 g /1000 l
875 µs / cm	25 °dH	45 °fH	438 g /1000 l
910 µs / cm	26 °dH	46 °fH	455 g /1000 l
945 µs / cm	27 °dH	48 °fH	473 g /1000 l
980 µs / cm	28 °dH	50 °fH	490 g /1000 l
1015 µs / cm	29 °dH	52 °fH	508 g /1000 l
1050 µs / cm	30 °dH	53 °fH	525 g /1000 l

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