PUROTAP
by ELYSATOR™

Operating instructions PUROTAP® PH-18

Installation
Function
Operation
Maintenance



ELYSATOR
engineering water
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1. Safety instructions



Wear safety goggles



Maximum 50 °C



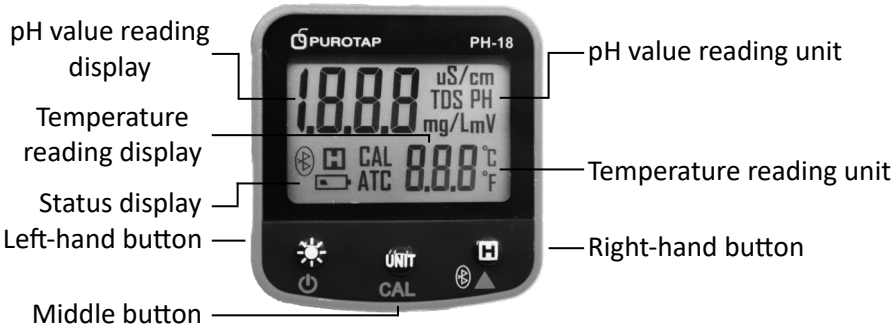
Wear protective gloves

2. Function

PUROTAP® PH-18 is a portable meter for pH testing. The device has 3-point calibration and automatic temperature compensation (ATC). The LCD screen simultaneously shows the temperature compensated pH reading and the temperature of the liquid. The meter can be carried around as easily as a pen and has its own clip. The display has a backlight for work in dark places. The AAA batteries have a life of up to 400 hours. The automatic switch-off function extends the battery life.



PANEL



3. Standard delivery

- Meter (incl. batteries)
- Case for meter
- Screwdriver
- Storage solution
- Calibrating solution pH 7.00
- Calibrating solution pH 10.00
- Operating instructions

4. Specification

4.1. Device description

	Symbol	Description
Display		Battery low
		Hold reading display
	ATC	Autom. temperature compensation
	CAL	Calibration mode
		Bluetooth function (not aktiv) /deactivate automatic switch-off
Left-hand button		Backlight ON or OFF/switch on device In calibration mode: reduce calibration temperature
		Switch off: press and hold down for 3 s
Middle button		Change temperature unit In calibration mode: store data
	CAL	Call up calibration mode: press and hold down for 3 s. End calibration mode: press and hold down for 3 s
Right-hand button		Hold reading display
		In calibration mode: change calibration point In calibration mode: increase calibration temperature
		Activate Bluetooth (not active) /deactivate automatic switch-off: press and hold down for 3 s

4.2. Performance data

pH range:	pH 0 - 14.00
Resolution/accuracy:	pH 0.01 / pH ± 0.1
Temperature range:	0 - 50 °C (32 - 122 °F) (ATC autom. temperature compensation)
Setting range, ATC correction factor:	0.0000 - 0.0999 / °C (default 0.0033)
Resolution:	0.1 °C (0.1 °F)
Calibration points:	3 points
Calibration point setting range:	First point pH 1.00 - 5.99, default value pH 4.00 Second point pH 6.00 - 7.99, default value pH 7.00 Third point pH 8.00 - 13.00, default value pH 10.00
Power supply:	2 × AAA batteries
Battery life:	400 hours (at 25 °C using alkali batteries)
Probe service life	Approx. 12 months
Degree of protection:	IP 65
Dimensions (L×W×D):	153×40×38 mm
Weight:	100 g

5. Operation

5.1. Commissioning

Twist the cap anti-clockwise to remove it from the test probe. Then press the left-hand (power) button to switch on the device. The device starts up in test mode. The reading display shows the temperature compensated pH reading (ATC) and the temperature display shows the temperature reading. If no button is pressed for 15 minutes, the device switches off automatically.
The device must be calibrated before each use.



After each test, the probe must be cleaned with demineralised water.



If only one water sample is available for pH and conductivity testing, the conductivity test must be carried out before the pH test. Conductivity is increased by pH testing!



Testing the pH value of demineralised water is difficult, as it is not very conductive. The test can therefore take several minutes. To simplify testing, 1-2 drops of the electrode storage solution can be added to the sample. This drastically increases conductivity and makes pH testing easier.

5.2. Testing

Dip the meter into the sample at least up to the "MIN" mark but no further than the "MAX" mark until the reading stabilises. This process may take several minutes.

5.3. Backlight

Pressing the left-hand button switches on the backlight. Press the left-hand button again to switch the backlight back off.

5.4. Selecting the test category

To toggle the temperature unit, press the middle button in test mode. The temperature display can be toggled between degrees Celsius (°C) and degrees Fahrenheit (°F).

5.5. Hold function

To activate or deactivate the hold function (display value is no longer updated), press the right-hand button in test mode.

5.6. After use

Clean the test probe carefully with demineralised water, fill the probe cap with KCI solution 3 mol/l and screw the cap clockwise on to the test probe. Ensure that the test probe is completely immersed in the solution. To switch off, press and hold down the left-hand (power) button for 3 seconds.



The test probe must be cleaned with demineralised water after each test!

6. Calibration

6.1. Using standard solution

Prepare standard solution (e.g. pH 7.00) for calibration. Ensure that the temperature is at the correct and accurate value of **25 °C**.

Temperature	Calibrating solution pH 7.00	Calibrating solution pH 10.00
10 °C	7.06	10.17
20 °C	7.02	10.05
25 °C	**7.00**	**10.00**
30 °C	6.99	9.96

6.2. Activating calibration mode

To activate calibration mode, press and hold down the middle button for 3 seconds in test mode. The reading display shows the current calibration value as pH 4.00, 7.00 or 10.00. The second display shows the current reading. The CAL symbol will flash.

6.3. Calibration process

Step 1: dip the test probe into the standard solution pH 4.00. Wait for the reading to stabilise (which may take several minutes). Then press the middle button briefly (for less than 1 second) to apply the calibration data. To save and complete the process, press (and hold) the left-hand button. The device switches off. Switch it back on. The tests can now be carried out.

Press the right-hand button to continue on to the next step.
(If you do not wish to calibrate the current point, press the right-hand button and continue on to the next step.)

Step 2: perform the calibration of pH 7.00 in the same way as step 1.
Step 3: perform the calibration of pH 10.00 in the same way as step 1.

To end calibration mode, press and hold down the middle button for 3 seconds, or switch off the device.



We recommend at least a 2-point calibration (pH 7.00 + 10.00)

6.3.1. Advanced settings
(Temperature calibration, setting a default calibration point, setting a default ATC correction value)

If you are using different calibrating solutions, you can set the pH values for your calibration points individually. You can also calibrate the temperature reading and set the correction factor for automatic temperature compensation. For this, follow the instructions below:

6.3.2. Calling up advanced settings

Press and hold down the middle button while the device is OFF, press the left-hand button to switch on the device and then release the middle button after 2 seconds.

Calibrating the temperature
The temperature reading and the ATC symbol (automatic temperature compensation) appear in the second display section and the CAL symbol flashes. To increase or reduce the current temperature reading, press the right-hand or left-hand button. To save your setting, press the middle button. Then continue on to the next step.

Setting the first calibration point
The reading display shows the first calibration value. The default value is pH 4.00. To increase or reduce the displayed value, press the right-hand or left-hand button. Possible values are pH 1.00 – 5.99. To save your setting, press the middle button. Then continue on to the next step.

Setting the second calibration point
The reading display shows the second calibration value. The default value is pH 7.00. To increase or reduce the displayed value, press the right-hand or left-hand button. Possible values are pH 6.00 – 7.99. To save your setting, press the middle button. Then continue on to the next step.

Setting the third calibration point
The reading display shows the third calibration value. The default value is pH 10.00. To increase or reduce the displayed value, press the right-hand or left-hand button. Possible values are pH 8.00 – 13.00. To save your setting, press the middle button. Then continue on to the next step.

Setting a default correction factor for automatic temperature compensation
The ATC symbol appears and the reading display shows the ATC correction factor, e.g. "033" corresponds to the default value of 0.0033/°CΔpH. The temperature display shows "0.0-". To increase or reduce the displayed value, press the right-hand or left-hand button. Possible values are 0.0000 – 0.0999. To deactivate the ATC function, set the value to 0.0000. To save your setting, press the middle button. Then switch off the device.



The service life of the test probe is 12 – 18 months.
After this, it must be replaced.
→ See maintenance kit item no. 102 413

7. Maintenance

7.1. Battery replacement

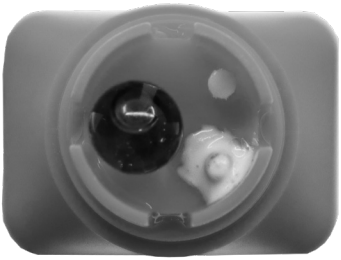
If the symbol for low battery appears on the display, replace the batteries with 2 AAA batteries.

1) Insert a tool (screwdriver) into the clip opening marked with an "OPEN" symbol.
2) Turn the tool upwards.
3) Separate the upper and lower halves of the casing.
4) Replace the batteries in the battery compartment with new ones.
5) Join the two casing halves together again.



7.2. Test probe maintenance

Clean the test probe carefully with demineralised water, fill the probe cap with KCI solution 3 mol/ l up to the start of the thread and screw the cap clockwise on to the test probe. Ensure that the test probe is completely immersed in the solution. If the test probe dries out too much, place it in KCI solution 3 mol/ l for 48 hours. Then perform another calibration.



For general use, combination probes can be cleaned with a mild cleaning agent or commercially available glass cleaner (do not use any strongly acidic cleaning agents). To do this, wipe the surface of the probe with a clean cloth soaked in cleaning agent and/ or leave the probe in the solution until it is clean. Rinse with demineralised water and repeat as required.

Deposits	Cleaning agent
General deposits	Mild cleaning agent
Inorganic films	Commercially available glass cleaning solution (not strongly acidic)
Metallic compounds	Acid solution, no stronger than 1 M
Oil/grease	Complexing agent (EDTA) or suitable solvent
Resins/lignins	Acetone, alcohol or solvent (not strongly alkaline)
Proteins (blood, etc.)	Enzyme solutions, e.g. pepsin in 0.1 M HCI
Stubborn deposits	Weak hydrogen peroxide solution, sodium hypochlorite solution or household bleach

Dried out probes (often identifiable by hard, dry KCI crystal deposits on the probe body) should be soaked overnight in warm demineralised water to enable them to be used again.

Cleaning the surface

Clean the casing (except the test probe and display) by wiping it with alcohol.

NOTE

- To protect the pH probe, always ensure the cap is on and securely fitted.
- Rinse the pH probe with KCl solution before each use.
- Avoid touching or rubbing the pH probe, as this affects the service life.
- If the probe no longer has full sensitivity or its response behaviour is slow or inaccurate, change the filling solution. If the response behaviour still does not improve, the cause is probably a deposit of tested substances on the pH probe and the adaptor.
  → Test probe must be replaced. See maintenance kit item no. 102 413.

8. Spare parts

Item no.	Designation
100 280	PUROTAP® device batteries AAA (2 required)
102 107	PUROTAP® calibrating solution pH 7.00
102 411	PUROTAP® calibrating solution pH 10.00
102 444	PUROTAP® storage solution for pH probe
102 413	PUROTAP®PH-18 maintenance kit (storage solution, calibrating solution pH 7.00 & pH 10.00, replacement probe)

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