

Interesting facts about the CAPBs® WQ10 Set



1 | Initial calibration

The measuring device is not calibrated when it leaves the factory. Initial calibration must be performed by the user before use.

2 | Calibration and measurement

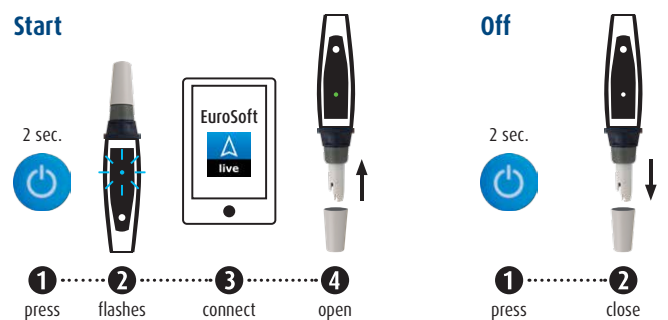
The pH probe must first be calibrated at pH 7.00, and then at pH 4.00 or pH 10.07.

The conductivity probe must be calibrated in two measurement ranges: 1.413 mS/cm for low-range measurements (e.g., drinking water, heating water), 12.88 mS/cm for high-range measurements (e.g., industrial wastewater, seawater).

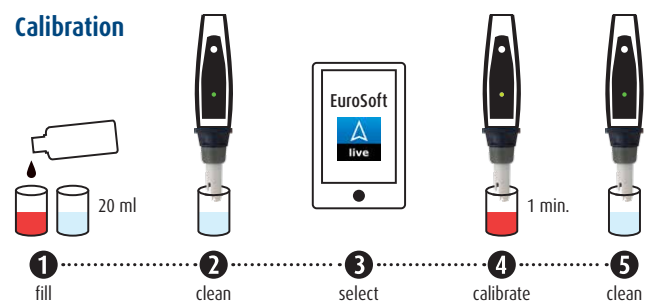
The storage liquid (KCl) has a very high conductivity and must be thoroughly rinsed off the probe before calibration or measurement. To do this, swirl the probe in distilled water for several minutes.

- Shake the bottles containing buffer or calibration solutions before each use.
- After filling the plastic beaker, close the bottles immediately, as the solutions age quickly and become unusable if left open.
- Remove any air bubbles from the sensor before calibration or measurement by gently shaking the probe.
- It is advisable to perform a quick visual inspection of the immersed probe through the transparent beaker before calibration or measurement.
- After each calibration step with a buffer or calibration solution, it is important to clean the sensor with the supplied cleaning water and dry it with a soft cloth.

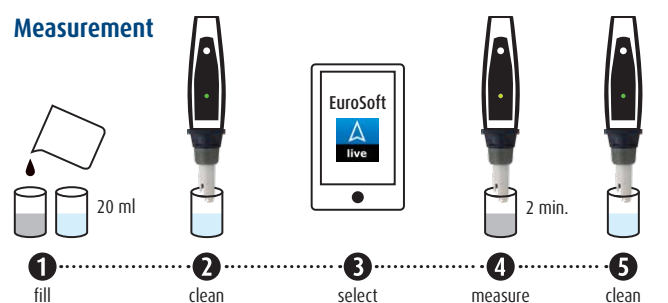
Start



Calibration



Measurement

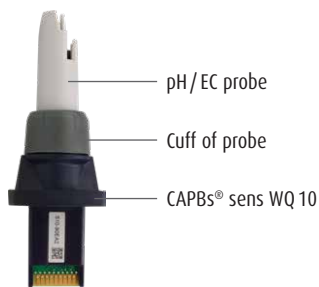


3 | Temperature coefficient

The conductivity of a solution is highly temperature-dependent – the higher the temperature, the higher the conductivity. The measurement results of the CAPBs® sens WQ10 are automatically temperature-compensated, and the reference temperature can also be adjusted.

By default, the measurement results are referenced to 25 °C. The conductivity change is expressed in %/°C and is known as the temperature coefficient α . For most applications, such as drinking water analysis, α is approximately 1.88 %/°C. This value is adjustable, and the default factory setting is 1.88 %/°C.

4 | Sensor head



The pH/EC probe is a wearing part and therefore excluded from warranty.

The aging status of the probe can be checked via the sensor information:

Parameter	Setpoint
PTS (pH calibration)	90% - 110%
K Factor low (1.413 mS/cm)	0.96 - 1.36
K Factor high (12.88 mS/cm)	0.96 - 1.36

Replacing the pH/EC probe

1. The device must be switched off when replacing the probe.
2. To remove the probe, the cuff must be completely unscrewed and taken off. Please take care not to touch the exposed plug-in contacts of the device.
3. Gently move the probe from side to side and pull until it detaches from the CAPBs.
4. To install the new probe, carefully insert it into the socket of the measuring device. Please note that the electrode connector is coded to ensure a correct connection.
5. Screw the cuff back on (finger-tight) to ensure a proper seal.

The device must be recalibrated after each probe replacement.

5 | VDI 2035

The German directive VDI 2035, Sheet 2 describes in detail the various corrosion effects and the factors influencing the occurrence and prevention of corrosion damage in hot water heating systems. The directive applies to hot water heating systems according to DIN EN 12828, with operating temperatures not exceeding 100 °C.

The likelihood of corrosion damage in the hot water heating system is minimized when the recommended values for heating water are maintained as specified in the tables.

Mode of operation	Electrical conductivity	Appearance
low-salt	< 100 $\mu\text{S/cm}$	free from sedimenting substances
saline	100 - 1,500 $\mu\text{S/cm}$	

Materials of construction	pH Value
without aluminum components	8.2 - 10.0
with aluminum components	8.2 - 8.5

6 | Titrant

For fully demineralized water, the correct water hardness can be determined using the CAPBs® sens WQ10. For chemically treated or ion-exchange softened water, water hardness cannot be measured with the CAPBs® sens WQ10, since the electrical conductivity remains unchanged. In such cases, use the enclosed titration solution (test kit) to determine water hardness.

Procedure

1. Rinse the test beaker with the water sample to be tested.
2. Fill the beaker with 5 ml of the test water.
3. Add the titration solution drop by drop, mixing after each drop. Count the number of drops until the color changes from red to green.
4. Total hardness (°d) = number of drops \times value indicated on the titration solution bottle.

6 | Storage of the probe

- The probe must never be stored with a dried-out protection cap!
- The probe must never be stored without the protection cap!
- The protection cap must always be moist, otherwise the electrode may be damaged or give false readings.
- Moisten the protection cap regularly with pH electrolyte solution.
- Only use 3 mol/l potassium chloride (KCl) solution for moistening.

