SensoLyt® WQL

pH electrode with polymer electrolyte

Operating manual

Note
The latest version of the present operating manual can be found on the Internet under www.WTW.com.

Technical data

General data

Reference electrolyte	Polymer electrolyte, AgCl-free
Junction	Single hole junction
Shunt element	Ag/AgCl
NTC	Yes

Measurement and application characteristics

pH measuring range	2.000 ... 12.000
Allowed temperature range	0 ... 60 °C (32 ... 140 ° F)
Membrane resistance at 25 °C	< 500 MOhm
Pressure resistance*	IP 68 (10^6 Pa or 10 bar)
Typical application	Use in WQL-pH logger

* The electrodes meet the requirements according to article 3(3) of the directive, 97/23/EC ("pressure equipment directive").

Dimensions, weight

Shaft length	120 mm
Shaft diameter	12 mm
Weight	approx. 45 g

Materials

Shaft	Glass
Connecting head	12 mm
SMEK plug	PEEK with gold-plated contacts
O-rings	FPM (Viton)

Electrical connection

SMEK head, 6-pole

Commissioning, measuring, calibration

Commissioning

Prepare the combination electrode for measuring as follows:

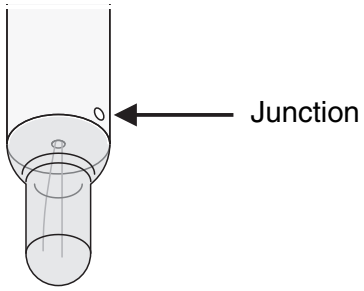
- Remove the watering cap from the electrode tip. Possible salt deposits in the area of the watering cap do not affect the measuring characteristics and can easily be removed with deionized water.

Note
Please keep the watering cap. It is required for the electrode to be stored. Always keep the watering cap clean.

- Install the electrode in the logger (see operating manual of the logger).
- Calibrate the electrode according to the operating manual of the logger and observe the following rules while doing so:

Calibration and measurement: General rules

- Avoid the carryover of any solution (sample or buffer solution) from one measurement to the next by taking the following measures:
  - Shortly rinse the calibration and sample beakers with the solution the beakers are to be filled with next.
  - Between measurements, rinse the electrode with the solution that follows. Alternatively, you can also rinse the electrode with deionized water and then carefully dab it dry.
- To measure in aqueous solutions, it is recommended to immerse the electrode in a vertical or slightly tilted position.
- Observe the correct depth of immersion and make sure the contact between the junction and test sample is thorough. The junction (hole junction) is in the area of the bottom end of the shaft.



- For measurements in aqueous solutions, provide approximately the same stirring conditions for measuring as for calibrating.

Note
Keep the protective head mounted to the logger during calibration and measurement in order avoid damage to the pH membrane.

Subsequent calibrations

The frequency of subsequent calibrations depends on the application.

Storage

During short measuring breaks

Immerse the electrode in reference electrolyte (KCl 3 mol/L, Ag^+ free). Prior to the next measurement, shortly rinse the electrode with the test sample or deionized water.

Overnight or longer

For prolonged storage we recommend to keep the electrode installed in the logger. Put the clean electrode in the watering cap that is filled with reference electrolyte (KCl 3 mol/L, Ag^+ free). Refer to the operating manual of the logger for more information.

Note
pH electrodes must not be stored dry or in deionized water. The electrode could be permanently damaged by this. If the liquid in the watering cap has dried up, condition the electrode in reference electrolyte (KCl 3 mol/L, Ag+ $^+$ free) for at least 24 hours.

Note
During longer storing periods, salt sediments may develop on the watering cap. They do not affect the measuring characteristics and can easily be removed with deionized water when the electrode is put into operation again.

Aging

Every pH electrode undergoes a natural aging process. With aging, the responding behavior becomes slower and the electrode slope and asymmetry change. Moreover, extreme operating conditions can considerably shorten the lifetime of the electrode. These are:

- Strong acids or lyes, hydrofluoric acid, organic solvents, oils, fats, bromides, sulfides, iodides, proteins
- High temperatures
- High changes in pH and temperature.
- Media with very low electrical conductivity

The warranty does not cover failure caused by measuring conditions and mechanical damage.

Maintenance and cleaning

Cleaning

Remove water-soluble contamination by rinsing with deionized water. Other types of contamination have to be removed as follows while the contact time with the detergents should be kept as short as possible:

Contamination	Cleaning procedure
Fat and oil	Rinse with water containing household washing-up liquid
Lime and hydroxide deposits	Rinse with citric acid (10 % by weight)

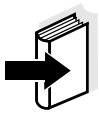
Note
Hydrofluoric acid, hot phosphoric acid and strong alkaline solutions destroy the glass membrane.

After cleaning

Rinse the electrode with deionized water and condition it in reference electrolyte solution for at least 1 hour. Then recalibrate the electrode.

Wear parts and accessories

Description	Model	Order no.
Reference electrolyte solution 250 ml to fill the watering cap (KCl 3 mol/l, Ag^+-free)	KCl-250	109 705



Note
Detailed information on our wide range of buffer solutions and more accessories is given in the price list of the WTW catalog "Laboratory and field instrumentation".

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