

Operating instructions for chlorine probe ECL8/2 and ECL8/20



For types: **ECL8/2***
 ECL8/20

The chlorine probe ECL8/2 (and ECL8/20) is a special sensor to measure the total chlorine concentration in water.

The probe has a low dependence of pH-value, so that variations of the pH-value only have a small influence on the measuring signal. When the pH-value increases the measuring signal decreases at about 10 % per pH unit. The probe should use only in potable / swimming pool water, otherwise you must test it! The sensitivity to combined chlorine is highly reduced.

Warning: Do not touch the electrode finger and keep it clean! Do not remove the layer on the electrode finger

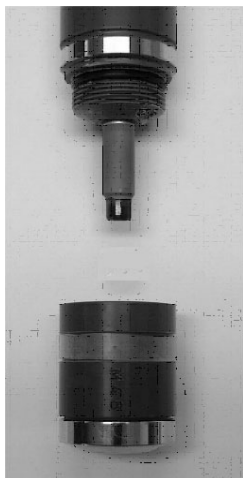
*ECL8/2 probe is provided with an external membrane (black circle) located on the shaft. Please do not touch it.

1. Intended use

The sensor has to be inserted in the probe housing according to this operating instructions (see item 2). The maximum pressure is 1 bar / 10 mwc. The allowed temperature range is >0 up to <45 °C (>32 up to <113 °F). Each application beyond this is a not intended use so the warranty becomes void and the liability is disclaimed.

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2. Set up



Unscrew the membrane cap from the electrode shaft.



Fill up the membrane cap up to the edge with the enclosed electrolyte ELECL8. Avoid bubbles.



Hold the electrode shaft and put it on the filled membrane cap. Then screw the membrane cap onto the electrode shaft. Turn it anticlockwise until the thread engages, then screw slowly the electrode shaft clockwise (by hand) onto the membrane cap. Excess electrolyte will escape through a valve (located above the type marking) in the membrane cap. Do not close this vent with your finger.

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Make sure that the membrane cap is tightly fastened to the electrode shaft! Wash up the excess electrolyte with water.

Warning: Electrolyte may spurt from the vent. Excess electrolyte or electrolyte which gets on your skin or in your eye wash up with water. The electrolyte contains potassium halide and is adjusted acidically.

Important: Check whether the membrane cap is completely screwed in up to the stop. The first screw-in resistance comes from the O-ring seal; however the screwing procedure of the cap must be continued until it hits the electrode shaft!

As a rule the probe is run in after about one hour so that a first adjustment can be made. The adjustment should be repeated after approx. one day.

Important: When you unscrew the membrane cap do not forget to lift up the hose ring that covers the vent. So air is allowed to stream into the membrane cap. Otherwise the membrane will be destroyed because of the vacuum building up in the membrane cap.

3. Control of the probe / Analytics

A balance or checking of the probe using DPD-4 method (or DPD-1 + DPD-3) "total chlorine" should be performed regularly depending on utilization. A weekly check is recommended, if necessary more frequently. The analytically determined value is adjusted by means of slope calibration function of the controller (see Operation Manual of the Controller). We recommend to replace the electrolyte every three month.

4. Disassembling of the probe

Lock the measuring water supply. Disconnect the probe from the device (mA-type: see item 7). Untighten the 1 inch screw-connection and pull out the probe carefully.

5. Insertion of the probe in the probe housing.

The black O-ring is first inserted in the 1" opening followed by the slide ring made of PVC. Then the 1" PVC screw fitting is screwed in loosely. The probe is inserted in the prepared probe housing. Then the probe is fixed in place with the 1" PVC screw fitting. Turn the PVC screw fitting by using pliers, so the probe can not move away from its position, otherwise the water pressure can push it out of the probe housing.

6. Maintenance of the sensor

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Caution: *The brown coating of the electrode finger must not be emiered!! Do not unscrew the metallic membrane holder from the cap as this will damage the membrane.*

If an adjustment is impossible due to unstable or too low values displayed, the hose ring on the membrane cap above the type marking sealing the vent is to be lifted sideways so that the opening is free. The membrane cap is unscrewed and then air streams into the uncovered vent. The electrode finger is cleaned with a clean, dry paper towel. With the special abrasive paper supplied just the tip of the dry electrode finger (= working electrode) is cleaned. Place the special abrasive paper on paper towel, hold it at one corner and rub the electrode tip of the perpendicularly held probe two or three times across the abrasive paper. Then replace the hose ring onto the vent and fill with electrolyte (see Section 1). If necessary, use a new membrane cap. Recommendation: change the electrolyte every 3 months.



7. Electrical Specifications

Power supply: ± 5 to ± 15 V DC, 5 mA
Ground power supply and ground signal are the same!
Typical slope: about -100 mV/ppm chlorine

8. Technical data, general description and information.

- Measuring system: membrane covered potentiostatic 3-electrodes system,
- Working electrode: Gold cathode
- Counter electrode: stainless steel
- The exterior housing of the probe consists of stainless steel, PVC and silicon rubber. The probe has a diameter of 25 mm.
- Zero-point calibration is normally not necessary.
- Provided pressure remains constant, the probe can be used up to 1 bar. Air bubbles in front of the membrane prevent the disinfectant from passing through resulting in a false reading of the probe.
- Measuring range of the probe: ECL8/2: from 0 to 2,00 mg/L chlorine; ECL8/20: from 0 to 20,00 mg/L chlorine.
- Response time T_{90} is about 1 min.

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- Influence of pH-value: the influence of pH is significant lower than by other chlorine probes. But avoid deposition of chalk
- The recommended flow through the probe housing is 30 L/h. A minimum flow rate is necessary. The flow rate must be constant.
- The recommended temperature range is between 5 and 45° C. The measuring signal is independent of temperature.
- The membrane life is typically one year, but can vary considerably depending on the water quality. Heavy contamination of the membrane should be avoided.
- Each probe has been tested and the results are documented.
- During usage, the probe must not be allowed to stand dry with the electrolyte.
- To store the probe the membrane cap is unscrewed. Membrane cap and electrode finger *are rinsed in clean water and dried in a place free of dust*. The dry membrane cap is then loosely screwed onto the electrode shaft. The membrane must not rest against the measuring electrode.
- When putting the probe back into use after storage, the electrode tip must be cleaned with the special abrasive paper and a new membrane cap must be used. When there is lime on the membrane it can be inserted in thinned acid for a few hours. Then cleanse the membrane cap carefully with clean water and put it into operation.
- When putting the probe back into use after storage, the electrode tip must be cleaned with the special abrasive paper and a new membrane cap must be used.

Subject to technical changes!

