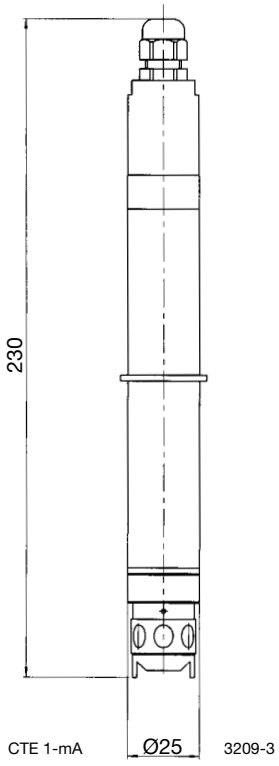
Brief Operating Instructions
Chlorine Sensor for Total Chlorine
Type CTE 1-mA-0,5 ppm, CTE 1-mA-2 ppm, CTE 1-mA-5 ppm, CTE 1-mA-10 ppm

DIN EN ISO 9001
70 100 M 502

ProMinent®



1 Function

Type CTE 1 sensors serve the purpose of measuring total chlorine (free + bound chlorine) in potable water, swimming pool water or water of similar quality.

2 Technical Data

Measured variable:	Total chlorine (free + bound chlorine)
Application:	Potable water, swimming pool water and water of similar quality (tenside-free)
Measuring ranges:	0.01.....0.5 ppm CTE 1-mA-0.5 ppm Part-No. 740686.1 0.02.....2 ppm CTE 1-mA- 2 ppm Part-No. 740685.3 0.05.....5 ppm CTE 1-mA- 5 ppm Part-No. 1003203 0.1.....10 ppm CTE 1-mA- 10 ppm Part-No. 740684.6
pH range:	5.5 - 9.5 pH
Temperature range:	5 - 45 °C (temperature-compensated) no temperature surges
Max. pressure:	3 bar
Flow rate:	min. 20 l/h max. 100 l/h Recomended: 30 l/h in in-line porbe housing Type DGM or DLG III A/B
Running-in time:	First calibration after 2 hours, final calibration after 24 hours
Service life, membrane cap:	Typical 1 year (depending on water quality)
Material, membrane cap:	PVC black
Material, stem:	PVC black
Type of enclosure:	IP 65
Supply voltage:	CTE 1-mA: 16 - 24 V DC
Output signal:	CTE 1-mA: 4 - 20 mA ≈ 0...133% measuring range

3 Electrical Connection

Turn the upper part of the sensor in counterclockwise direction by one quarter turn and remove. Release PG 7 screwed union and pass through the 2-core cable (4 mm Ø, 2 x 0,25 mm²). (Important: Ensure approx. 5 cm of stripped measuring line in lept in the sensor.) The 2-core cable is then connected to the terminal (1 positive pole, 2 negative pole). Press upper part fully into the housing and lock by turning in clockwise direction as far as it woll go. Firmly tighten the nut of the PG screwed union. The CTE 1 sensor can now be installed.

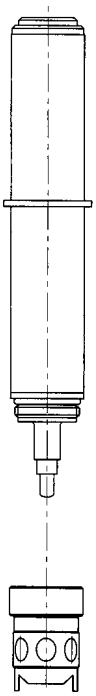
Important: The probe output signal is not galvanically isolated.
The probe must be powered permanently!

4 Mounting / Installation

Important: Neither the membrane nor electrode must be touched or damaged!

Close the shut-off valves upstream and downstream of the in-line probe housing before installing the sensor in the in-line probe housing. The system must be depressurized.

Appropriate safety measures must be taken when handling water or solutions containing chlorine.



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4.1 Filling the Membrane cap with Electrolyte

Open electrolyte cartridge and press out surplus air (Caution: Electrolyte is highly sensitive.) Then fit electrolyte cartridge fully on the diaphragm cap and slowly press electrolyte out of the cartridge in one operation. The supply cartridge must be pulled back at a constant rate. The cap is completely filled when the electrolyte level reaches the bottom thread.

Caution: Filling must take place free of bubbles.
Filled membrane caps must not be re-used!

The filled membrane cap is now placed on the electrode stem which is held vertically and then locked in position by turning by hand as far as it will go. When screwing together, initially air and then surplus electrolyte escapes through a hole beneath the seal which is fitted in a groove in the electrolyte cap. Wipe off the surplus electrolyte with a paper cloth or similar.

4.2 Installation in DGM or DLG

Installation in DGM: Before installing in the DGM, the O-ring must be fitted over the sensor from below and pushed up to the lock washer. A washer must remain in the DGM. Then install the sensor in the DGM and firmly tighten with lock screw until the O-ring provides a tight seal. The correct installation depth of the sensor is defined by the lock washer.

Installation in DLG: Before installing in the DLG, the O-ring must be fitted over the sensor from below and pushed up to the lock washer. Then install the sensor in the DLG and firmly tigthen with screw plug.

5 Calibration

Zero point calibration of the membrane-covered sensor is not necessary. The slope is calibrated with suitable chlorine measuring equipment (DPD 4) and is set at the controller/measuring instrument in compliance with the operating instruction.

Prior to successful calibration, the sensor must be fitted in the in-line probe housing with the flow rates set as specified (refer to technical data).

Calibration should be repeated at regular intervals. The calibration intervals depend on the sensor application and, in potable water or in swimming pool water treatment applications, they are normally every 3 - 4 weeks.

Caution: Slope calibration must be carried out every time a membrane is changed!

6 Accessories

Spare parts kit (2 membrane caps + electrolyte 50 ml) for CTE 1-mA-2/5/10 ppm	Part No. 740048.2
Spare parts kit (2 membrane caps + electrolyte 50 ml) for CTE 1-mA-0.5 ppm	Part No. 741277.8
Membrane cap complete	Part No. 792862.5
Membrane cap complete for CTE 1-mA-0.5 ppm	Part No. 741274.5
Signal cable (2-core, 4 mm Ø, 2 x 0.25 mm^2)	Part No. 725122.6

7 Storage/Transport

Before storage, the electrodes should be rinsed with clean water and left to dry under dust-free conditions. The diaphragm cap can no longer be used! Loosely screw on new diaphragm cap. Fit protective cap in order to protect the diaphragm cap. The probes must be kept moist in order to retain the operability of used probes during transport (e.g. with water in the DGM/DLG or in the protective cap.) A period of 48 h should not be exceeded.