

# DULCOTEST® Sensors for Free Chlorine

Reliable online measurement of free (effective) chlorine – with the versatile DULCOTEST® sensors.



## Graduated measuring ranges 0.01 – 200 mg/l, special measuring range up to 1,000 mg/l

The proven diaphragm-covered standard sensor for free chlorine CLE3 is used to monitor or control all types of clear water, for example in the disinfection of potable water. The variant CLE3.1 is especially suitable for an excess of combined chlorine, providing the most accurate results in the calculation of combined chlorine from the measurement of total chlorine and free chlorine.

Sensors CLB2 and CLB3 are easy-to-operate, low-cost chlorine sensors without a diaphragm for clear water without pollution.

Sensor CLO1 is particularly suitable for in-line electrolysis processes where unwanted compounds may be formed; sensor CLO2 is also ideal for hot water disinfection.

Sensor CBR1 can be used in contaminated water, even for high pH values of up to 9.5, for example in the disinfection of cooling water.

Sensor CLR1 has been optimised for the disinfection or washing of foodstuffs and tolerates contaminated water and chlorine concentrations of up to 1,000 mg/l.

## Your benefits

- Five different sensor ranges and numerous different versions deliver the following benefits: Use with a wide range of water qualities (pH, salt content, temperature, chemical and contamination load), use in combination with many disinfection processes: chlorine gas, sodium hypochlorite, calcium hypochlorite, electrolysis, use in a wide measuring range of 0.01 to 1,000 mg/l.
- Precise, real-time amperometric measurement for efficient process control (short response time)
- Amperometric measuring means no clouding or discolouration
- Stable zero point
- Integrated temperature compensation eliminates faults caused by influence of temperature
- For sensors with diaphragm-covered measuring electrodes: Reduced dependence on flow, substances in water and film-forming media. Diaphragm-covered measuring electrodes embedded in an electrolyte ensure long service life. This maintains optimum measuring conditions regardless of process conditions. Low-cost maintenance thanks to easy diaphragm cap changes.

## Field of application

Chlorine measurement in potable, swimming pool, cooling, industrial, process, rinsing and waste water as well as seawater and salt water

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## Technical Data

### Sensor for Free Chlorine CLE 3-mA

Standard sensor for measuring free chlorine in clear water. For operation on controllers with 4-20 mA input

#### Your benefits

- Measured variable: free chlorine, no significant cross sensitivity to combined chlorine (chloramines)
- Diaphragm-covered sensor (encapsulated) minimises faults caused by changing flow or ingredients in the water

<b>Measured variable</b>	free chlorine
<b>Reference method</b>	DPD1
<b>pH range</b>	5.5 ... 8.0
<b>Temperature</b>	5 ... 45 °C
<b>Max. pressure</b>	1.0 bar
<b>Intake flow</b>	30...60 l/h (in DGM or DLG III)
<b>Supply voltage</b>	16...24 V DC (two-wire technology)
<b>Output signal</b>	4...20 mA ≈ measuring range, temperature-compensated, uncalibrated, not electrically isolated
<b>Selectivity</b>	Free chlorine as against combined chlorine, even if there is not an excess of it
<b>Disinfection process</b>	Chlorine gas, hypochlorite, electrolysis with diaphragm, disinfectants with organic chlorine, e. g. based on cyanuric acid, are unsuitable
<b>Installation</b>	Bypass: open sample water outlet
<b>Sensor fitting</b>	DGM, DLG III
<b>Measuring and control equipment</b>	D1C, DAC, AEGIS II
<b>Typical applications</b>	CLE 3-mA-0,5 ppm: potable water; CLE 3-mA-2.0/10 ppm: swimming pools (surfactant-free).
<b>Resistance to</b>	Salts, acids, alkalis. Not surfactants
<b>Measuring principle, technology</b>	Amperometric, 2 electrodes, membrane-covered

	Measuring range	Order no.
CLE 3-mA-0.5 ppm	0.01...0.5 mg/l	792927
CLE 3-mA-2 ppm	0.02...2.0 mg/l	792920
CLE 3-mA-5 ppm	0.05...5.0 mg/l	1033392
CLE 3-mA-10 ppm	0.10...10.0 mg/l	792919
CLE 3-mA-20 ppm	0.20...20.0 mg/l	1002964
CLE 3-mA-50 ppm	0.50...50.0 mg/l	1020531
CLE 3-mA-100 ppm	1.00...100.0 mg/l	1022786

Chlorine sensors complete with 100 ml of electrolyte

A mounting kit, order no. 815079, is required for initial fitting of the chlorine sensors in the in-line probe housing DLG III.