



Total Chlorine

90S230000



The electrochemical sensor from the eCHEM sensor product range is used to measure the chlorine concentration in water. Both free chlorine and combined chlorine are detected during the measurement. It measures the concentration in a sample resulting from the addition of inorganic chlorine products (e.g. chlorine gas, sodium hypochlorite or calcium hypochlorite solution).

The measuring method has a reduced pH dependency, so that pH value fluctuations only have a minor influence on the measuring signal. By regularly replacing the electrolyte and membrane cap, the sensor performance can be guaranteed over a longer period of time.

The chlorine sensor must be operated with the flow cell.

Advantages

- Stable signals even with changing pH values
- Abrasive particles are tolerated
- Surfactants are partially tolerated
- Higher temperatures possible

Applications

- Swimming pools
- Drinking water monitoring
- Brine (15 % NaCl) and seawater monitoring
- Sewage treatment plants

Technical specifications

Measurement technology	Membrane-covered, amperometric potentiostatic 3-electrode system with integrated electronics
Measuring principle	Amperometry
Parameters	Total chlorine (= free chlorine + combined chlorine) Reduced pH dependency
Suitable chlorinating agents	Anorganic chlorine compounds: NaOCl (=chlorine bleach), Ca(OCl) ₂ , chlorine gas, electrolytically generated chlorine
Measuring range	0...2 mg/L, 0...20 mg/L

Total Chlorine

Accuracy*	Measuring range 2 mg/L:	at 0.4 mg/L < 2 %	at 1.6 mg/L < 2 %
	Measuring range 20 mg/L:	at 4 mg/L < 1 %	at 16 mg/L < 3 %
Resolution	Measuring range 2 mg/L:	0.001 mg/L	
	Measuring range 20 mg/L:	0.01 mg/L	
Response time T90		approx. 3 min (brine water approx. 5 min)	
Run-in time		For initial commissioning approx. 2 h	
Slope drift		approx. -1 % per month Under repeat conditions (25 °C, pH 7.2 in drinking water)	
Temperature compensation		Automatic, via integrated temperature sensor; temperature jumps must be avoided	
pH range		pH4 ... pH12, greatly reduced pH value dependency	
Conductivity		10 to approx. 200 µS/cm (brine water)	
Zero point determination		Not required	
Slope calibration		On the measuring device, by means of analytical chlorine determination, DPD-4 method (DPD-1 + DPD-3)	
Cross-sensitivities/ interfering substances		ClO ₂ : factor 1 O ₃ : factor 1.3	
		Corrosion inhibitors can lead to measurement errors. Water hardness stabilizers can lead to measurement errors.	
Absence of the disinfectant		Max. 24 h	
Maintenance interval		Regular check of the measurement signal at least once a week The following information depends on the water quality:	
		Membrane cap change	Once a year
		Electrolyte change	Once a year

*After calibration at repeat conditions (25 °C, pH 7.2 in drinking water) from the measuring range end value.

Interface	RS-485, Modbus RTU
Power supply*	9 - 30 VDC; ~ 56 - 20 mA
Connection	8-pin M12 plug

Total Chlorine

*The electronics are completely electrically isolated; digital internal measured value processing

Housing material		Microporous hydrophilic membrane, PVC-U, PEEK, stainless steel 1.4571	
Dimensions (Lx Ø)		~ 205 mm x 25 mm	~ 8.1" x 1"
Bearing	Sensor	Can be stored dry and without electrolyte indefinitely.	
		+5 °C to +40 °C	+41 °F to +104 °F
	Electrolyte	In original bottle and protected from sunlight; at least 1 year or until the stated best before date.	
		+5 °C to +35 °C	+41 °F to +95 °F
Transportation	Membrane cap	Can be stored indefinitely in original packaging*.	
		+5 °C to +40 °C	+41 °F to +104 °F
	(Sensor, electrolyte, membrane cap)	+5 °C to +50 °C	+41 °F to +122 °F
Temperature	Sample**	0 °C to +45 °C	+32 °F to +113 °F
	Ambient temperature	0 °C to +55 °C	+32 °F to +131 °F

* Used membrane caps cannot be stored.

**There must be no ice crystals in the sample water.

Max. permissible operating pressure	Operation with retaining ring: 3 bar, no pressure surges and/or vibrations
Flow rate	Approx. 15-30 L/h in FlowCell, slight flow dependency is present
Warranty period	1 year (EU&US: 2 years) on electronics; wearing parts are excluded from the warranty