

# Wallace & Tiernan® Analyzers/Controllers FC1 membrane sensor for free chlorine measurement

## General

The Wallace & Tiernan® free chlorine measurement module can be used with either the SFC electronic package for single point analysis and control or the versatile MFC electronic package for multiple measurements and control. It consists of a plug-in sensor card and a membrane-type sensor probe that can be mounted in a variety of flow cells. Utilizing amperometric measurement technology, it is suitable for disinfection applications, ranging from simple measuring/monitoring tasks to complex control processes for treating potable water, process water, and pool water. It features reagentless operation with a standard measuring range from 0.05 to 20 mg/l.

## Typical applications

- Measurement and control in industrial and municipal water treatment
- Process measurement, final inspection and testing, neutralization plants
- Monitoring of potable water, well water, pool water as well as other clean water applications where a free chlorine residual measurement is required

## Features

The free chlorine measurement sensor consists of a membrane-covered potentiostatic 3-electrode system with an integral temperature sensor for temperature compensation between +5 and 45 °C (41 and 113 °F). Zero point calibration is not necessary. An internal, buffered electrolyte reduces the effect of pH eliminating external pH buffering or pH compensation. The sensor is supplied with a 0.9 m (3.0 ft.) screened coaxial cable. Extension cables up to 50 m (164 ft.) in length are available as optional accessories. Utilizing "plug and play" technology allows the SFC or MFC controller to automatically recognize the sensor card and provide the correct display information. An analog output (0/4 to 20 mA) is available along with user configurable alarm contacts.

## Benefits:

- Continuous, on-line measurement of free chlorine even at high pH (up to pH 10) and at low conductivity (from 10 µS/cm)
- No reagents required, the sample can be returned to the process or drained without concern for discharge restrictions
- Integral temperature compensation
- Internal buffering, ideal for samples with varying pH
- Low operating and maintenance costs
- Intuitive programming for user-friendly operation







VariaSens™ flow module with membrane sensor and MFC electronic module

## Product Sheet

Sensor FC1	
Measuring principle	Membrane-covered 3-electrode potentiostatic system
Measuring parameter	Free chlorine Cl <sub>2</sub>
Electrolyte	Diluted potassium halide solution
Reference electrode	Silver/silver halide/potassium halide solution
Water quality	Clear water, potable water quality
External dimensions	ø 25 mm (1 "), length 175 mm (6.9 ")
Models	Non-pressurized or pressurized up to max. 0.5 bar
Measuring range	0.05 to 20 ppm
Response time (T <sub>90</sub> )	60 s < T <sub>90</sub> < 300 s
Temperature range Measuring water	+5 to 45 °C (41 to 113 °F), temp. compensation
Influence of the pH value	pH 6 to pH 8: -2.5 % per pH; pH 8 to pH 9: -10 % per pH; pH 9 to pH 10: -20 % per pH
Conductivity	> 10 µS/cm to max. 2500 mS/cm

Electronics	
Measurement input	Sensor Card for MFC and SFC
Input data	For membrane sensor FC1, pre-calibrated
Input data	-7 to 1000 µA
Measuring accuracy/drift	Linearity < 0.1 % FS/max. 0.2 %/10 K
Measuring cable	Customized cable-plug combo

Flow Module	View	Slots Non-pressurized	Technical Data
DEPOLOX® 5 flow-through adapter with integrated, open sensor for oxidation and disinfection chemicals and com- patible with additional measurements of the MFC/SFC series		 1 x membrane sensor	Sample water flow: Controlled to 33 l/h (0.15 US gpm) with max. 4 bar (58 psi) inlet pressure* Integrated multi-sensor with flow monitor and compatible with temperature sensor max. sample water temperature: +50 °C (122 °F)
VariaSens™ Flow-through adapter in combination with membrane sensors and additional measurements of the MFC/SFC series		 2 x membrane sensor	Sample water flow: Controlled to 33 l/h (0.15 US gpm) with max. 4 bar (58 psi) inlet pressure* Integrated multi-sensor with flow monitor and compatible with temperature sensor max. sample water temperature: +50 °C (122 °F)

● Membrane sensor      ● pH/redox sensor      ● Sensor for fluoride or conductivity

\*: Sample water pressures of up to 40 bar (580 psi) can be adapted with special equipment.

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WT.050.585.005.IE.PS.0908  
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