



## DioSense Chlorine Dioxide Analyser



The DioSense range of Chlorine Dioxide Analysers, and Chlorine Dioxide Monitors use the very latest and best chlorine dioxide sensors available in the world today. A choice of sensors including a membraned device which is insensitive to chlorine, uses no reagents, is extremely stable, and has reduced maintenance and reduced whole life costs, and an open three electrode potentiostatic sensor for use in high temperature, high pressure applications.

- **Amperometric sensors - continuous online  $\text{ClO}_2$  analyser**
- **No chemical reagents - lower cost of ownership**
- **Stable and reliable - excellent process control**
- **Suitable for all potable and process waters**
- **Up to 6 months between maintenance**
- **No interference from residual chlorine (membrane sensor)**
- **Tolerant of water containing detergents**
- **High temperature sensor (open sensor)**
- **Chlorite sensors also available**



*"These are the best chlorine dioxide sensors we've ever used and we've tested most"* **Alistair Cameron, UK**

The DioSense sensors and flow cells are available with different controllers giving you the same great performance with different communication, display, and control options.

### CRONOS® DioSense



- High Quality - Lowest Cost
- Multilingual
- High resolution grayscale display
- 9 buttons for easy navigation
- Graphing and datalogging
- Enclosure; wall, panel, pipe or pole mounting. IP65/Nema 4x.
- Options:
  - Modbus LAN
  - Modbus RS485
  - Profibus
  - Up to 2 sensors
  - PID controls
  - Flow proportional controls
  - Remote sensors

### CRIUS® DioSense



- Highest Quality - Low Cost
- Multilingual
- High resolution colour display
- Intuitive user interface
- Customisable home pages
- All CRONOS® options plus:
  - Downloadable data logs
  - Up to 4 sensors
  - Remote access via LAN
  - Remote access via GPRS
  - Expandable to 16 sensors

For more information please see the individual brochures - CRONOS® and CRIUS®

### Sensor Selection

#### Membrane Sensor



- Operates up to 40°C
- Sensitive to pressure
- No cross interference from  $\text{Cl}_2$  and  $\text{O}_3$
- $T_{90}$  in 90 seconds

#### Open Sensor



- Operates up to 80°C
- Insensitive to pressure
- Sensitive to flow
- Reacts to both  $\text{Cl}_2$  and  $\text{O}_3$
- $T_{90}$  in 10 seconds

#### DioSense Hot



- Operates up to 70°C
- Reacts to  $\text{Cl}_2$ ,  $\text{O}_3$ , Chlorine and Peroxide
- $T_{90}$  in 30 seconds

Principle of Operation

The membraned amperometric chlorine dioxide sensor is a 2 electrode sensor which operates at an elevated applied potential which in turn eliminates zero drift. Its unique design means that no reagents or buffers are required at all and calibration is a simple one point (no zero required) operation.

The closed flow cell mounted 3 electrode potentiostatic sensor is designed to measure ClO<sub>2</sub> in the absence of Cl<sub>2</sub> and O<sub>3</sub> (both interferents) and can work at an elevated temperature (up to 80°C) and pressure (up to 8 Bar).

In addition to the state of the art amperometric chlorine dioxide sensors the DioSense range of controllers has all the functionality that you need. Choose from the CRONOS® or CRIUS® controller to give you the highest quality chlorine dioxide monitor, with all the functionality you need, at the lowest price possible. This means that you pay for everything that you need, and nothing you don't, without sacrificing the quality of measurement.

Autoflush

As described in a separate brochure, the DioSense can come equipped to automatically clean itself at user defined intervals. The Autoflush is particularly useful in food preparation, pulp and paper, and many applications where there is likely to be a build up of solids in the sample. The membrane sensors are particularly resistant to surfactants and are therefore applicable in food washing applications.

Specification\*

	Membrane Sensor	Open Sensor	DioSense Hot
<b>Application:</b>	All kinds of water treatment (e.g. bottle washing machine, CIP-plants, hot water systems)		
<b>Type:</b>	Membrane covered, amperometric 2 electrode system	Open 3 electrode potentiostatic system	Amperometric, potentiostatic 3 electrode system
<b>Measurand:</b>	Chlorine Dioxide	Chlorine Dioxide	Chlorine Dioxide
<b>Sensor ranges:</b>	0-0.5mg/l; 0-2mg/l; 0-5mg/l; 0-10mg/l; 0-20mg/l	0-20mg/l	0-1mg/l; 0-2mg/l; 0-5mg/l; 0-10mg/l; 0-20mg/l
<b>Resolution:</b>	0.01mg/l	0.01mg/l	0.01mg/l
<b>Repeatability:</b>	<1%	<1%	<1%
<b>Working Temperature:</b>	>3 up to 40°C	>3 up to 80°C	>5 up to 70°C
<b>Temperature Compensation:</b>	Automatically, by an integral temperature sensor (temp changes <5°C/h)		(temp changes <30°C/h)
<b>Max. allowed Working Pressure:</b>	1 Bar, no pressure impulses and/or vibrations	8 Bar, no variations in flow	8 Bar
<b>Flow Rate:</b>	Approx. 0.5l/min (min 0.2l/min)	Approx. 0.5l/min (min 0.2l/min)	Approx. 1.5l/min (min 1.3l/min)
<b>pH Range:</b>	pH1 to pH11	pH1 to pH11	pH5 to pH9
<b>Run-in Time:</b>	First start-up approx. 1h	First start-up approx. 1min	First start-up approx. 1h-2 days
<b>Response Time:</b>	T <sub>90</sub> : approx. 90 seconds	T <sub>90</sub> : approx. 10 seconds	T <sub>90</sub> : approx. 30 seconds
<b>Zero Point Adjustment:</b>	Not necessary	At the analyser	Not necessary
<b>Calibration:</b>	Manual using a suitable ClO <sub>2</sub> test kit Every 1 week to 3 mths, application dependent	Manual using a suitable ClO <sub>2</sub> test kit Every 1 week to 3 mths, application dependent	Manual using a suitable ClO <sub>2</sub> test kit Every 1 week to 3 mths, application dependent
<b>Interferences:</b>	Cl <sub>2</sub> : does not interfere O <sub>3</sub> : is measured with a sensitivity 25 times higher than ClO <sub>2</sub>	Cl <sub>2</sub> , O <sub>3</sub> : both interfere	Cl <sub>2</sub> , O <sub>3</sub> , Chlorine, Peroxide: all interfere
<b>Storage:</b>	1% sulfuric acid or 1% nitric acid in the water have no influence to the measuring behaviour Frost-protected, dry and without electrolyte no limit Used membrane caps can not be stored	Dry, cap the reference electrode Used membrane caps can not be stored	Frost-protected, dry and without electrolyte no limit Used membrane caps can not be stored
<b>Maintenance:</b>	Change of membrane cap: Yearly Electrolyte: Every 3-6 mths	Change reference: Yearly (depending on the water quality)	Change of membrane cap: Yearly Electrolyte: Every 3-6 mths

\*All subject to change without notice

Multi-Sensor Systems

The whole range of DioSense Residual Chlorine Dioxide Monitors and Controllers can be fitted with additional sensors such as chlorite or pH. Please ask your local distributor for more details.

Water Treatment

- ClO<sub>2</sub> Dosing Control
  - Cooling Towers
  - Hospitals
- Remote Sites
  - Food Preparation
  - Secondary Disinfection

Anywhere you have a requirement to measure residual ClO<sub>2</sub> is a suitable application for the DioSense. The DioSense chlorine dioxide controller range is particularly suited to working in sites where reliability and ease of use are most important.

Cost of Ownership

With its reduced maintenance, reduced calibration and reduced spares requirements the DioSense ClO<sub>2</sub> analysers are undeniably the most cost effective ClO<sub>2</sub> analysers available.

Installation

The DioSense can be installed in a variety of auxiliary flow cells and self-cleaning devices. Please visit our website or refer to our ISB36 Autoflush brochure.