



Water Quality Analysers



Autocalibrator - for free and total chlorine

The HaloSense Residual Chlorine Analyzer is the first of its kind in the world to offer automatic calibration as an option. Cleverly engineered and using state of the art electronics the HaloSense Autocalibrator for free and total residual chlorine is able to save customers considerable sums of money by autocalibrating at user-defined timed intervals, without the presence of an operator.

- **No maintenance for up to 6 months**
- **No calibration for up to 6 months**
- **Low cost of ownership**
- **Optional email/SMS text alarms**
- **Optional remote control via GSM/GPRS modem**

"The HaloSense Autocalibrator is reliable, dependable and saves a fortune on travelling to remote sites. I am very happy with the ones I've installed." **Wayne Burton, UK**



Principle of Operation

The HaloSense membraned potentiostatic chrono amperometric chlorine sensor, is housed within the Autocalibrator. Its unique design means that pH effects are small and pH correction or compensation is not usually required.

The Autocalibrator enables the HaloSense Chlorine Analyzer to be operated completely unattended for up to 6 months. At user defined intervals the Autocalibrator takes a sample, removes the chlorine from it by passing it through an activated carbon filter, and then adds the appropriate amount of a chlorine solution to a fixed volume of chlorine free water. This solution of a known chlorine concentration is then passed over the sensor which is allowed to equilibrate and then the sensor is calibrated by the electronics.

In addition to the state of the art sensors the HaloSense range of controllers offers an impressive range of communication protocols including Modbus, Profibus, TCP/IP (with webserver), RS485, Relays and 4-20mA outputs. Added to the cost savings of a truly automatic (no operator present), calibration system, some will achieve a replacement payback of only a few months.

Autocalibration

Whenever a chlorine analyser is calibrated by an operator or technician there is a cost involved and risk of human error. With the HaloSense Autocalibrator the costs of getting to and from a remote site, or the risk of an operator calibrating an analyser incorrectly are eliminated.

- **Calibration at unsocial hours**
- **When reproducibility is paramount**
- **Remote sites**
- **Skilled personnel not required**

Water Treatment

- **Remote sites**
- **Automatic calibration**
- **Chlorine dosing control**
- **Secondary chlorination**



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Specification

Chlorine Sensor

Type:	Membrane covered potentiostatic chrono amperometric three-electrode system
Measurand:	Total Chlorine or Free Chlorine
Range:	0.01-1, 0.01-2, 0.01-5, 0.01-10mg/l
Resolution:	0.01mg/l (ppm)
Reproducibility:	±5 %
Stability:	-2 % per month (without calibration)
Working electrode:	Gold
Counter electrode:	Stainless Steel
Reference electrode:	Silver / silver halide
Membrane material:	Micro-porous hydrophilic membrane
Flow rate:	Approximately 0.5l/min (min 0.2l/min)
Temperature range:	>0 up to 40°C
Temperature compensation:	Automatically by an integrated thermistor
pH-range:	pH 4 up to pH 9,5
First-polarisation time:	120 min
Re-polarisation time:	30 min
Zero-point adjustment:	Not necessary
Calibration:	Manual using DPD or Automatic
Housing material:	PVC, silicone, polycarbonate stainless steel
Dimensions:	Diameter approx. 25mm, length 175mm
Maintenance intervals:	
Membrane:	12-18 months
Electrolyte:	3-6 months
Calibration reagent:	6 months
Interferences:	High levels of other oxidants such as Ozone and Chlorine Dioxide



What Safeguards are Built-in?

In the event of a problem with the calibration, the system will attempt a second calibration. If that too fails then a system fail alarm is given out and the analyser will not accept the new calibration. A system fail alarm will result from any of the following;

- A change in calibration of more than 10% from the previous calibration.
- An unstable signal from the probe (the rate of change of the signal is monitored thus ensuring that any fault in the calibration process does not produce large errors in the Chlorine Residual reading).
- A sensor that doesn't get within 5% of zero indicates a failed filter or a failing sensor.
- A low sample flow or low sample pressure will trigger an alarm.

An optional, integral GSM/GPRS modem allows the operator to be advised of an alarm immediately, and the in-built PID control provides flexible chlorine dosing control options.



The CRIUS® HaloSense Controller offers:

- Remote access via GPRS
- Text alarms
- PID control
- Automatic cleaning
- Up to 6 sensors and outputs
- Integrated flow control
- Autocalibration
- Profibus
- Modbus

everything you need, and nothing you don't
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