Free Chlorine Sensor Digital
Amperometric measurement with separation membrane

Applications

· Control of drinking water at the end of production and in the network
· Monitoring of washing water in the food industry and industry
· Measurement in swimming pool
· Control of the absence of free chlorine

Advantages

· Stable measurements even with fluctuating pH values
· Works even in abrasive environments
· Complete system with flow cell available for constant pressure and flow

Accessories

· Cable : Extension cables of 0.3 m, 2 m, 10 m, 25 m
· Controller: TriBox3, TriBox mini, HS100
· FlowCell for Bypass installation

Digital conductivity sensor

The free chlorine probe is based on electrochemical measurement method, with a measuring cell that captures free chlorine generated by inorganic chlorine products (hypochlorite, gaseous chlorine, etc.).

Thanks to this measurement method, variations in pH have a very low impact on the measurement. Temperature compensation is performed automatically by the sensor. The measurement method has a reduced pH dependence, so pH fluctuations have only a limited impact on the measurement signal. Increasing pH value only results in a reduction of the measuring signal per unit of pH by approx. 10%.

Measuring principle

The free chlorine probe is a potentiostatic system with 3 electrodes covered by a permeable membrane.

The measuring electrode is placed in an area containing a suitable electrolyte and is separated from the water to be measured. Chlorine passes through the membrane and reacts with the electrolyte creating an electrical signal proportional to the concentration of chlorine diffused. The signal recovered by the measuring electrode is then amplified by the electronics of the sensor. An integrated Pt100 automatically compensates the measurements according to temperature variations.

The digital free chlorine probe works with TriBox Mini and TriBox 3 transmitters.

Once the probe is connected, the transmitter powers the sensor, receives and uses the data. The measurements are displayed on the screen, they are recorded and can be converted to the 4-20 mA analog signal.

Wifi or Ethernet communication via web browser.

-TriBox Mini-

Photometer

Fluorometer

Amperometry

Sensors

Controller

Accessories

Systems

Standards

aquams

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Technical specifications

Measurement technology	Membrane-covered, amperometric potentiostatic 3-electrode system
Measuring principle	Amperometry
Parameter	Free chlorine with reduced pH dependence
Measuring ranges	0...2 mg/L, 0...20 mg/L
Accuracy	Measuring range 2 mg/L: at 0.4 mg/L à 1.6 mg/L < 1 % Measuring range 20 mg/L: at 4 mg/L < 1% at 16 mg/L< 3 %
Response time	T90: approx. 2 min
Running-in period	Approx. 2 h prior to initial operation
Drift	approx. -1 % per month
Temperature compensation	Automatic through integrated temperature sensor Pt100
Housing material	Micro-porous hydrophilic membrane, UPVC, stainless steel 1.4571
Dimensions (L x Ø)	Approx. 205 mm x approx. 25 mm ~ 8.1" x 1"
Interface	RS-485, Modbus RTU
Power supply	9...30 VDC
Connection	8-pin M12 plug
Maintenance interval	typically once per week
System compatibility	Modbus RTU
Warranty	1 year (EU & US: 2 years) on electronics; wear parts are excluded from the warranty
Process pressure	1 bar, no pressure shocks or vibrations, with retaining ring ~ 14.5 psig
Calibration method	Determination of chlorine with DPD-1 method
Process temperature	0...+45 °C (no ice crystals in the test water) ~ +32 °F... +113 °F
Flow rate	Approx. 15..30L/h in FLC-3, minimum flow dependence exists
pH range	pH 4 ... pH 9, reduced pH dependence
Conductivity	10 µS/cm...50 mS/cm (sea water)
Cross influences	Combined chlorine increases measured value

The free chlorine probe must be used with its cell specific passage