Chlorine/Dioxide Chlorine Analyzer

Overview

SMART series intelligent multi-parameter universal controller has high accuracy, its unique professional design can be applied in water, chemical, pharmaceutical, food and hygiene in the production process of the most extreme physical and chemical environments. SMART series intelligent multi-parameter universal controller has modular bus structure, highly scalable functionality, high reliability and comfortable operation.

Principle

The amperometric sensor has a metal cathode, which is isolated from the medium by a thin membrane. The free chlorine and compound chlorine in the medium diffuse through the membrane and are reduced on the gold cathode. The silver anode and the electrolyte together form a complete circuit loop. The reduction of electrons at the cathode is proportional to the concentration of chlorine in the medium.
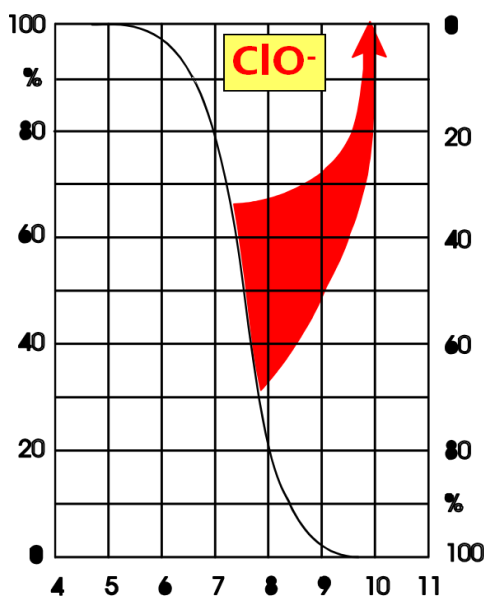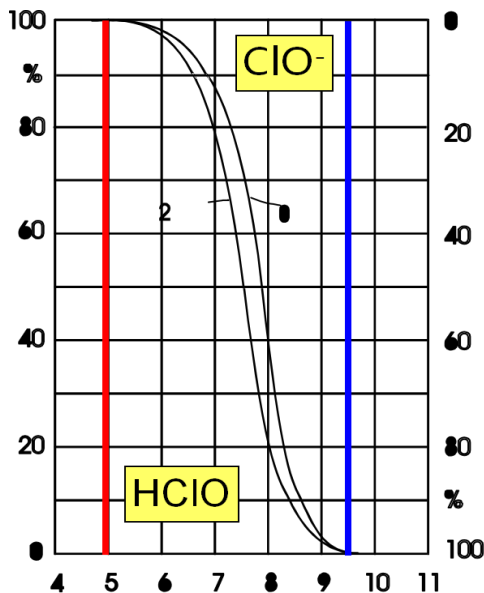
How does chlorine exist:

1. Active free chlorine (free active chlorine) hypochlorous acid molecule, HClO, is the most important part of the disinfection process.

2. Total free chlorine (free chlorine, free residual chlorine) is commonly referred to as chlorine disinfectants, which are composed of chlorine in these ways: elemental chlorine molecules Cl_2, hypochlorous acid molecules HClO, hypochlorite ion ClO^- (hypochlorine Acid salt)

3. Compound chlorine (chloramine) is a compound composed of chlorine and nitrides (NH_2, NH_3, NH_4^+), and the compounded chloride has no disinfecting activity.

4. Total combined chlorine refers to the general term of free chlorine and compound chlorine.

Typical application

▲ Sewage treatment

▲ Environmental Engineering

▲ Municipal water supply

▲ Water source monitoring

▲ Chemical Engineering

▲ Electricity

▲ Biopharmaceuticals

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Feature

★Quick response sensor

★IP68 Sensor

★Automatic temperature compensation

★Electrochemical sensor

★Good robustness

★Short polarization time (60 minutes)

★Drift <1.5%/month

★Long calibration period

★Low maintenance

Under the condition of pH value <5, chlorine only exists in the form of HClO, and under the condition of pH value> 9.5, chlorine exists in the form of ClO- which has no disinfecting activity. When the pH value is between 5 and 9.5, the measured pH value can be used to realize automatic compensation.

Installation

▲polarization time, 60 minutes

▲Flow rate from 45 to 135 l/h

▲The maximum pressure is 1 bar

▲Temperature 0~45℃

Application Case

★Drinking water: chlorination control and activity monitoring of residual chlorine in the pipe network.

★Swimming pool: chlorination and disinfection measurement.

★Industrial circulating water: In order to prevent the growth of biological algae, it is controlled by adding chlorine.

Disinfectants are generally used to kill germs in the water. The stronger the disinfectant's bactericidal power against germs, it may have a similar effect on other organic substances. Therefore, the amount of disinfectant added must be strictly controlled. Excessive input of disinfectant will endanger the safety of humans and animals.

![MZD logo](The people for Process Analytics)

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Features

❖ **Quick and convenient**

The navigation menu contains 6 languages, which can be operated easily.

❖ **Process safety**

4.3" large size color LCD touch screen, convenient and safe touch operation and debugging

Large size screen with red flashing alarm, clearly visible from long distances and in dark areas

Alarm immediately, safe the process

❖ **Alarm event record**

Real-time data curve display

Record function for up to 6,000 alarms

❖ **Expert calibration function**

Multi-point calibration function up to 9 point

❖ **Powerful self-diagnosis function**

Built-in heartbeat monitoring function and watchdog

Monitor the status of analyzer and sensors, and promptly remind customers to take necessary maintenance

High-standard hardware and software security and password protection

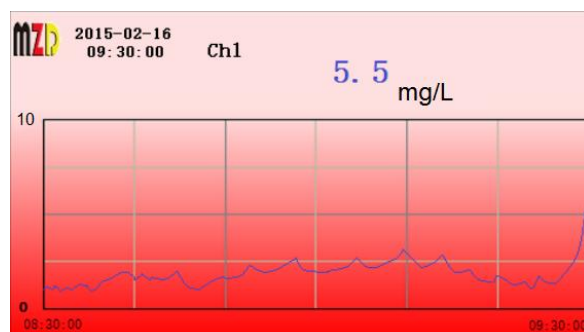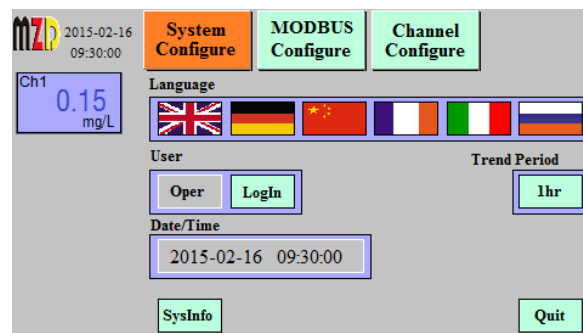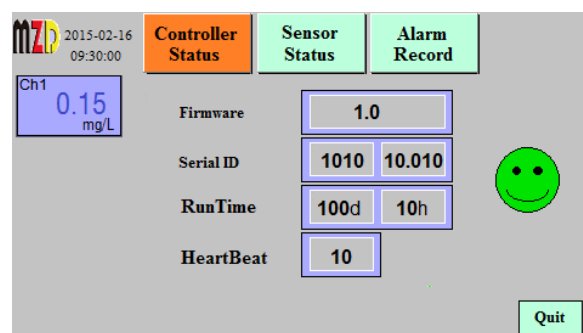❖ **Powerful control function**

High(low) limit control function

Optional: Timer control(automatic cleaning) function

Optional: analog PID control function

Optional: PWM control function

❖ **Flexible fieldbus communication functions for IOT4.0**

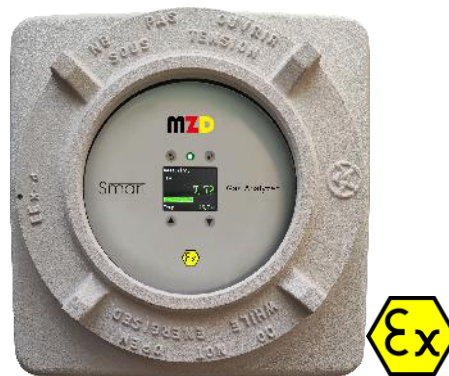Optional fieldbus MODBUS, HART, Foundation Fieldbus FF, PROFIBUS PA, PROFIBUS DP, etc.

Chlorine/Dioxide Chlorine Analyzer

Parameters

Sensor Type	Chlorine/Dioxide Chlorine Analyzer(Electrochemical)
Range	0~2/5/10ppm
Accuracy	1%FS
Resolution	0.01ppm
Response Time T90	<5 s
Temperature compensation	Automatic
Working temperature	0~55℃
Temperature Sensor	CTN Thermistor
Pressure	Max. 5Bar
Ambient Temperature	-10~50℃
Ambient humidity	0~90%
Sensor Size	Φ30mm*150mm
Sensor Weight	300g
Sensor Material	PVC
Sensor Ingress Protection	IP68
Sensor cable length	7m
Spare parts	Membrane and electrolyte
Display	4.3" industrial color touch screen
Language	Multi-Language (English, German, Chinese, French,Italian, Russian or Customized)
Diagnosis function	Sensor and controller self-diagnosis,Heartbeat monitoring
Event Logger	Internal Flash,up to 6,000 alarm records
Analog Output(Galvanic)	4~20mA, maximum load 500Ω
Relay Output(Galvanic)	Relay(2A, 230V AC freely set alarm), System alarm
Control function	Optional Timer controller,PID analog controller,PWM controller
Calibration	Can store 6 calibration curves of different materials, Multi-point calibration function up to 9 point
Communication	RS485 MODBUS RTU, HART, Foundation Fieldbus FF, PROFIBUS PA, PROFIBUS DP, MODBUS TCP/IP, etc
Power	80~264V AC,1A or 19~28V DC,3A
Electrical protection	EMI / RFI CEI-EN55011 – 05/99
Ambient Temperature	-15 ~ 60℃
Storage and transport temperature	-25 ~ 70℃
Ambient humidity	0~90%RH
Wall-mounted(1~2Channels)	4.3" color touchscreen	ABS,Gray RAL7045	213x185x84mm	IP65
	1.8" color LCD	Aluminum,Gray	180x160x135mm	IP65, Exd IICT4

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Sensor Type	Chlorine/Dioxide Chlorine Analyzer(Electrochemical)
Display	1.8" color LCD, 160*128Pixel
Language	English Menu
LED Light	Status LED Light(NAMUR NE107)
Keypad	Magnetic button
Range	0~2/5/10ppm
Accuracy	1%FS
Resolution	0.01ppm
Response Time T90	<5 s
Temperature compensation	Automatic
Working temperature	0~55℃
Temperature Sensor	CTN Thermistor
Pressure	Max. 5Bar
Diagnosis function	Sensor and controller self-diagnosis,Heartbeat monitoring
Analog Output	4~20mA，Maximum load 500 ohms
Relay Output	2 Relays (2A, 230V AC/DC freely set alarm), 1 Relay (System alarm)
Communication	RS485 MODBUS RTU Slave
Power	19 ~ 28V DC,0.5A
Electrical protection	EMI / RFI CEI-EN55011 – 05/99
Ambient Temperature	-10~50℃
Ambient humidity	0~90%
Protection	IP67
Housing Material	Aluminum alloy
Size	Φ126*110 mm
Weight	1.5Kg
Explosion-proof	Ex d IICT4 optional

Note:

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