Zirconia Oxygen Analyzer

Overview

SMART-OXZ Oxygen Analyzer uses a unique reference built-in zirconia technology, has higher accuracy and repeatability for oxygen measurement, with no need to provide standard air or calibration.

Principle

The zirconia sensor is tubular, separated by a zirconia material in the middle, and porous metal layer are sintered on the two parts of the zirconia as electrodes (usually use platinum Pt as the electrode material). At a certain temperature (600°C~1400°C), oxygen molecules with higher oxygen content are adsorbed on the electrode, making this side electrode positively charged, which is the positive electrode or anode of the oxygen concentration battery. Under the catalysis of platinum, a reduction reaction takes place, get electrons to form oxygen ions. Oxygen ions migrate through a large amount of zirconia crystals to the other side where the oxygen content is low, making the electrode negatively charged, which is the negative electrode or cathode of the oxygen concentration battery. Lose electrons on the platinum electrode, forming oxygen molecules. In this way, a certain potential is formed on the two electrodes due to the accumulation of positive and negative charges. This potential is related to the difference in oxygen concentration between the two measured gases of zirconia. It conforms to the Nernst equation and then the oxygen partial pressure (P1) in the gas can be calculated, and the oxygen concentration in the gas to be measured is obtained.

Application

- ASU(Air separation unit)
- Chemical, Pharmaceutical Industry
- Petroleum and Petrochemical Industry
- Metallurgical Industry
- Glass manufacturing
- Semiconductor Industry
- Food and beverage Industry
- Flare monitoring
- Nuclear,heat treatment, welding protection
- Environmental area monitoring
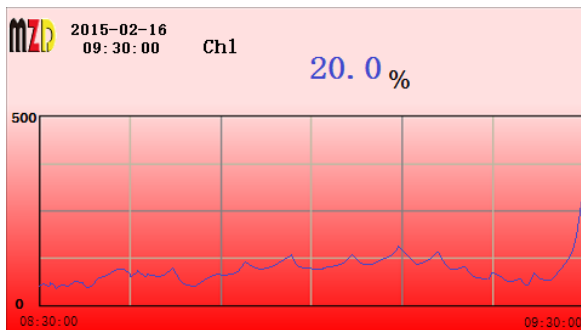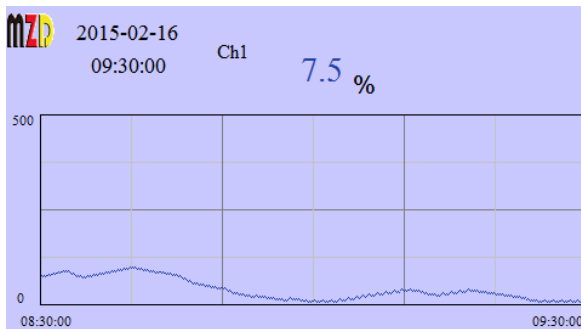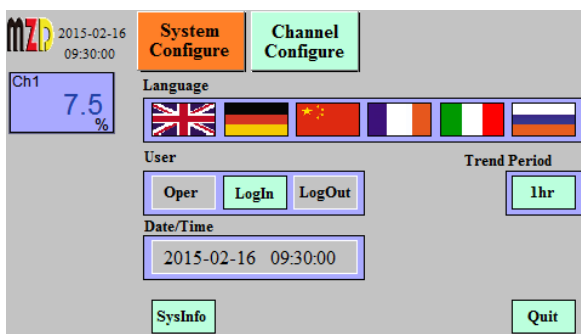- Anesthesia, breathing and prenatal care

Advantage

- Quick response
- High accuracy and repeatability
- No drift, maintenance-free, no calibration required*
- Rugged and durable design
- Easy installation
- Comfortable and friendly operation
- Long-life zirconia sensor

*For vacuum application, need calibration
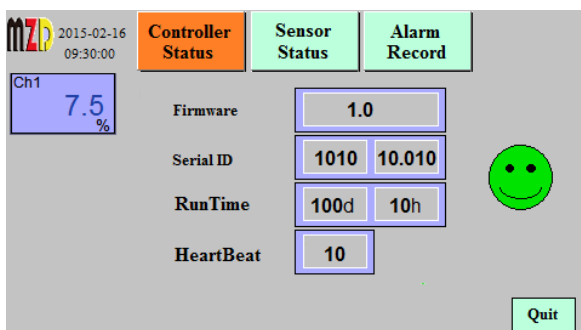
Features

❖ **Quick and convenient**

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

❖ **Process safety**

7" 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.

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Parameters

Measuring principle	Zirconia
Display	4.3" or 7" industrial color touch screen
Language	Multi-Language (English, German, Chinese, French,Italian, Russian or Customized)
Range	0 ~ 10/100/1000ppm or 0 ~ 1%/10%/30%
Linearity	<3% of measuring value
Sensitivity	0.1ppm or 0.01%
Sample gas temperature	<300°C
Working temperature	700°C
Gas pressure	<2bar(Available for vacuum)
Gas Flow	5~10Nl/h, Max.10m/s
Warm up time	5mintue
Analog Output(Galvanic)	4~20mA, maximum load 500Ω
Relay Output(Galvanic)	Relay(2A, 230V AC freely set alarm), System alarm
Diagnosis function	Flow monitoring, Sensor and analyzer self-diagnosis,Heartbeat monitoring
Event Logger	Internal Flash,up to 6,000 alarm records
Control function	Optional Timer control function,PID,PWM
Calibration	Expert calibration function,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	-20~50℃
Storage and transport temperature	-25~70℃
Ambient Humidity	0~80%RH
Diameter of connecting pipe	6mm

Wall-mounted(1~2Channels)	ABS,Gray RAL7045	213*185*84mm	IP65
	Aluminum,Gray	320*x430x208mm	IP65, Exd IICT4
Laboratory Desktop(1~2Channels)	Aluminum,Black	250x144x184mm	IP40
Portable(1~2Channels)	ABS,Yellow	420x325x180mm	IP67
19" Rack(1~6Channels)	Aluminu,natural-coloured	483x133x238mm	IP40

Note:

MZD reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders,

the agreed particulars shall prevail.

MZD does not accept responsibility for potential errors or possible lack of information in this document.

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