Paramagnetic Oxygen Analyzer

Overview

SMART-OXM Paramagnetic Oxygen Analyzer uses high-stability paramagnetic oxygen technology to achieve high-precision and high-repeatability oxygen measurement. Optional in 98%~100% high purity oxygen mesure range.

Principle

Oxygen is a paramagnetic substance and the volume magnetic susceptibility of other gases is much smaller than that of oxygen (except NO). The oxygen sensor is a pair of quartz glass dumbbell balls filled with nitrogen. The dumbbell balls are wrapped with platinum wires to form an electric feedback loop. The dumbbell balls are suspended in a magnetic field. When oxygen molecules are around the dumbbell balls, the oxygen molecules migrate under the action of the magnetic field, pushing the dumbbell sphere to deflect. The higher the oxygen concentration, the greater the deflection angle. This deflection will generate an electrical signal, which will be amplified by the amplifier and then form a loop through the feedback circuit. Under the action of the magnetic field, the dumbbell will be pushed back to the main equilibrium position. The current in this loop is proportional to the oxygen content. The oxygen content in the sample can be obtained by measuring the current value.

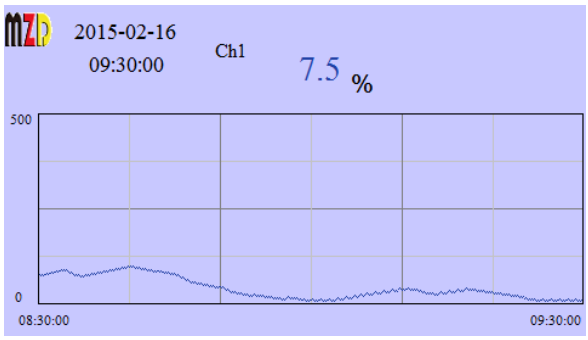
Application

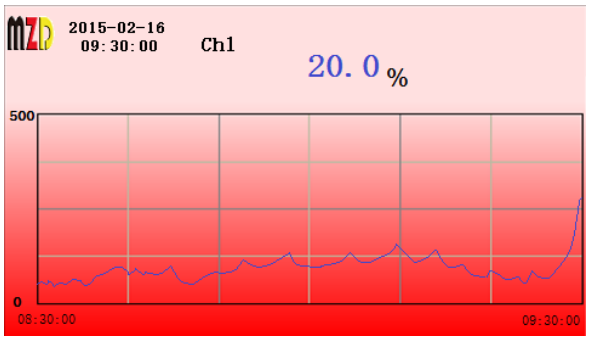
- ASU(Air separation unit)
- Chemical, Pharmaceutical Industry
- Petroleum and Petrochemical Industry
- Metallurgical Industry
- Glass manufacturing
- Semiconductor Industry
- Food and beverage Industry
- Flare monitoring
- Nuclear,heat treatment, welding protection
- Environmental area monitoring
-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

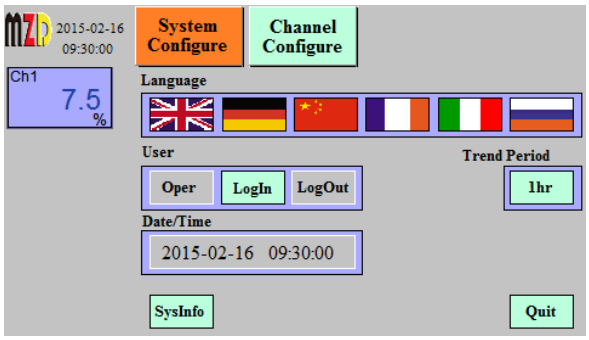
Advantage

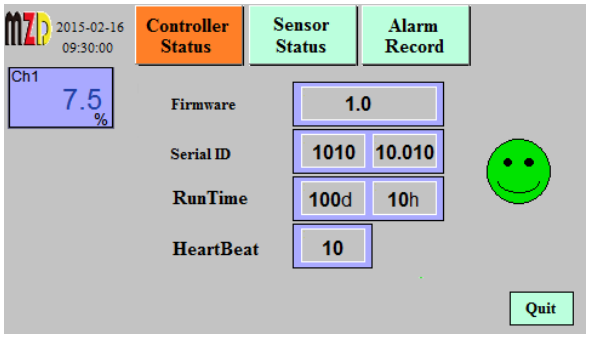
- Quick response
- High accuracy and repeatability
- Almost no cross-sensitivity to other gases
- Rugged and durable design
- Easy installation
- Comfortable and friendly operation
- Long-life paramagnetic sensor

Paramagnetic Oxygen Analyzer









Features

❖ **Quick and convenient**

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

❖ **Process safety**

4.3” or 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	Paramagnetic Oxygen Analyzer		
Display	4.3” or 7" industrial color touch screen		
Language	Multi-Language (English, German, Chinese, French,Italian, Russian or Customized)		
Range	0~100%		
Linearity	<1%FS		
Sensitivity	<±0.03%		
Zero point drift	<±0.1%/week		
Sample gas temperature	5 ~ 45℃		
Working temperature	55℃		
Temperature influence at zero	<±0.05%/℃		
Temperature influence span	<±0.2%*measure value/℃		
Pressure influence on zero	None		
Pressure influence span	<1%* measure value/1%pressure change		
Flow	10-90 l/h		
Flow error	< 0.1 % with in-build fix bypass (option)		
Tilt	Zero change <= 0,02 Vol.-% O2 / 1° deviation from the horizontal position		
T90 Response time	< 3 s with 150 ml/min flow and gas change from nitrogen to air		
Warm up time	45mintue		
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	-15~50℃		
Storage and transport	-25~70℃		
Ambient Humidity	0~90%RH		
Diameter of connecting pipe	6mm		
Wall-mounted(1~2Channels)	ABS,Gray RAL7045	213x185x84mm	IP65
	Aluminum,Gray	230x200x157mm	IP65, Exd IICT4
Laboratory	Aluminum,Black	250x144x184mm	IP40
Portable(1~2Channels)	ABS,Yellow	420x325x180mm	IP67
19" Rack(1~6Channels)	Aluminu,natural-coloured	483x133x238mm	IP40

Note:

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

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