ZR800 Process Oxygen Analysers

The ZR800 Oxygen Analysers offer unsurpassed accuracy, reliability and flexibility under the most demanding on-line operating conditions.

Features & Benefits

- Non depleting, maintenance free, oxygen sensor
- Ambient air or traceable gas calibration
- Microprocessor controlled functions
- Extremely fast response
- Sturdy, reliable construction with three mounting options
- Large, autoranging LED display
- Unaffected by vibration or position
- Specific to oxygen
- New hydrocarbon tolerant version for ultra high purity analysis
- 24VDC version

Conforms to European Directives:
Electromagnetic Compatibility Directive 2004/108/EC Low Voltage Directive 73/23/EEC

characteristics are found in Systech's process oxygen analysers. The ZR800 Series Oxygen Analysers are capable of measuring from 0.1ppm up to 100% oxygen in most industrial gas streams. With a response time and accuracy unparalleled in the industry, the ZR800 has found wide acceptance in the electronics, semiconductor, food processing, and gas manufacturing industries. These microprocessor controlled instruments have user-friendly menu driven software to customise the analyser to meet your requirements. The ZR800 series is specifically designed to provide ultra fast oxygen analysis and performance you can count on.

Cabinetry & Mounting

Three different configurations to match your needs.

- Panel or bench mount
- NEMA 4X / IP66 waterproof and weatherproof
- 19 in. rack mount

Operator Interface /Diagnostics

- User-friendly menu
- Read-only mode available
- Diagnostic capabilities
- Fault alarms

Sampling Systems

- Bypass flowmeter
- Pressure regulator
- Sample pump
- Flow alarm
- Auto Calibration
- Cartridge Filter Kit

Outputs & Alarm Options

precision Zirconia Oxide sensors for accurate detection of oxygen.

ZR810

ZR820

ZR830

density, stabilised zirconia ceramic. T
produces a voltage signal relative to t
concentration of the sample gas strea
logarithmic output is converted and li
high speed microprocessor to provide
readout on the instrument's LED disp

Zirconia Oxide Sensor The

The conventional zirconium oxide cel
zirconium oxide ceramic tube plated
platinum electrodes on its inner and o
As the sensor is heated above 600°C
permeable to oxygen ions (O_2^-) with v
crystal lattice structure permitting thei
Because of this, the sensor becomes
ion-conducting electrolyte.

The electrodes provide a catalytic su
change in oxygen molecules, O_2, to o
and oxygen ions to oxygen molecules
molecules on the high concentration
side of the cell gain electrons to beco
enter the electrolyte. Simultaneously,
electrode, oxygen ions lose electrons
released from the surface as oxygen

When the oxygen concentration differ
of the sensor, oxygen ions migrate fr
concentration side to the low concent
This ion flow creates an electronic im
resulting in a DC voltage across the e
voltage is a function of the sensor ter
the ratio of oxygen partial pressures
on each side of the sensor.

The relationship between the oxygen concentration of the unknown gas, the oxygen concentration of the reference gas (typically air which is 20.9% oxygen by volume), the temperature, the voltage output, and the cell constant is defined by the

Where: R = gas constant
F = Faraday's constant
O_2 Ref. gas = partial pressure of oxyg
O_2 Sample = partial pressure of oxyg
sample gas
T = absolute temperature o
Zirconia sensor

ZR800 Process Oxygen Analysers

ZR810
Bench/Panel Mount
190H x 237W x 410D (mm)
7.9 kg

ZR820
IP66/NEMA 4X
Wall Mount/Weatherproof
460H x 380W x 160D (mm)
15.5kg

ZR830
Rack Mount 4U - 19 inch
Houses 1 or 2 Analysers
178H x 484W x 410D (mm)
9.7kg (single unit)

Technical Specifications

Range	Autoranging from 0.1ppm to 100%
Accuracy	10% -100% 0.2% absolute (max 2% of reading) and ±1 on the last digit shown 1% -9.99% 0.02% absolute (max 2% of reading) and ±1 on the last digit shown. 100ppm - 0.999% max 1% of reading and ±1 on the last digit shown 0.1ppm - 100 ppm max 2% of reading and ±1 on the last digit shown
Response Time	90% of step change within 5 seconds
Repeatability	0.2% of measured value
Measuring Cell Type	Stabilised zirconia sensor

Operating Conditions

Sample Inlet Pressure	0.25 to 4 Barg
Sample Flow Rate	Approximately 150cc/min
Sample Temperature	-5 to 50°C
Ambient Temperature	-5 to 50°C
Sample Humidity	0-99% non-condensing
Sample Connections	1/8” OD compression fitting
Communications	USB/RS232/RS485
Unsuitable Gases	H_2S, Ammonia, Corrosive gases, Hydrocarbons, Combustibles, Hydrogen, Carbon Monoxide, NO_2, Halogens, Halogenated Hydrocarbons, Sulphur containing compounds, Lead containing compounds. **Note**: Optional version for use with gases containing low ppm levels of hydrocarbons, combustibles, hydrogen and carbon monoxide for high purity analysis.

Power Requirements

Power Supply	115 / 230 VAC, 50 / 60 Hz, 24VDC version option
Display Type	4 digit high visibility LED

Options

High/Low Alarms	2 Volt free changeover contacts. Rated 240VAC / 5A
Analogue Outputs	Scaleable 4-20mA, 0-20mA, 0-10V, 0-100mV, all isolated, optional for one channel or three
Autocalibrate	Provision for remote calibrate start and autocal in progress
Sample Stream Options	Bypass flowmeter, Sample pump, Flow alarm, Stainless steel sample system in place of brass/copper.
Nitrosave	O_2 measurement and control system ZR8500