

XZR500

Combustion Control Analyzer

The XZR500 oxygen analyzer from Michell Instruments is designed to determine the excess air required for optimum combustion. It uses advanced Zirconium Oxide technology to measure levels of oxygen in harsh conditions such as boilers, incinerators and furnaces. It provides fast, accurate readings taken in the harshest of conditions.



Highlights

- Reliable and repeatable measurements
- Simple to maintain, easy to calibrate
- Robust design
- Quick and easy to install
- Simple to use
- No chance of thermal shock to sample cell
- Long life zirconia cell

Applications

- Combustion and control efficiency in boilers
- Crematoria
- Waste and industrial incinerators
- Coal-fired power plants
- Petrochemical furnaces
- Annealing and galvanizing furnaces
- Soaking pits
- Glass and melting furnaces
- Cement kilns

Michell XZR500

Combustion Control Analyzer

The XZR500 is designed to measure levels of oxygen in combustion processes and flue gases to help maintain the optimum level of combustion.

Michell Instruments has over 30 years' experience in developing highly sensitive instrumentation designed to operate in extreme conditions. Our customers benefit from our knowledge of oxygen measurement in high temperatures and in aggressive, acidic gases.

Accurate control of combustion efficiency is critical for effective process and reduction of plant operating cost. Due to its unique design, the XZR500 flue gas analyzer can be located close to the gas stream in such a way that protects the sensor from damaging conditions.

Benefits

Easy to service and virtually maintenance free, the XZR500 offers the following benefits:

Reliable and repeatable measurements

The advanced metallic sealed reference sensor (MSRS) technology is resistant to pollution and virtually drift-free, resulting in reduced requirement for calibration. This is beneficial for measurement points with difficult access where frequent removal for calibration requires increased effort.

Easy to calibrate

The MSRS of the XZR500 allows operators to use dry air as a single calibration gas for most applications. Auto calibration is available as an option.

Quick and easy to install in almost any location

The compact size of the XZR500 means that it can be installed in almost any location. It has also been designed to fit with most types of flanges – this means that it can be used to replace other types of analyzer without needing an expensive re-fit. Insertion probes are available in special lengths on request and can be supplied in a range of materials.

Simple to use

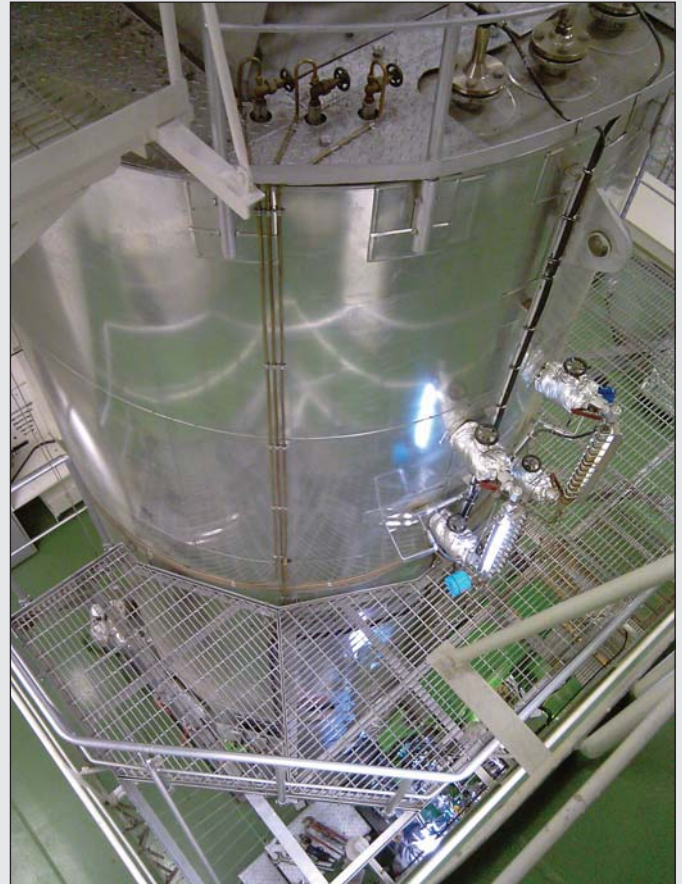
The analyzer is easy to operate with only three buttons to select and alter parameters.

Easy to maintain

For high-dust applications, such as coal-fired power stations, the XZR500 features a highly efficient blow-back to keep the insertion probe clear of debris and reducing the need for maintenance.

Close-Coupled Extractive

The sensor is located in an oven inside the sensor head which is bolted directly to the flue/stack. Unlike in-situ analysers the sensor is not in the probe this ensures a longer life, greater accuracy and no chance of thermal shock damaging the sensor.



Marine Auxiliary Boiler

No need for aspirator or reference air:

The sample is drawn into the sensor via a Pitot effect created in the sample probe and vented back into the stack. This means there is no need for an aspirator (eductor) air supply saving ongoing cost. There are no utilities required to operate the analyser (unless the back flush option is required for extremely dusty applications).

Probe Selection:

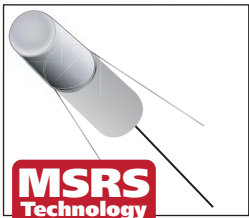
Due to the modular construction of the XZR500 it is possible to offer a range of probes to suit a variety of applications. There is a choice of 3 lengths 0.4m, 0.6m & 0.9m as well as 6 different materials including 304L stainless steel for low temperature easy applications, alloys for corrosive samples and ceramic for temperatures up to 1300°C.



Technology

The MSRS (Metallic Sealed Reference Sensor) technology was developed from a sensor originally designed for ultra harsh applications in volcanoes. This makes it the instrument of choice for oxygen measurement in a range of applications

such as power generation, waste management etc.



In processes where the analyzer operates under extreme conditions facing high temperatures or polluted gas, the MSRS technology of the XZR500 delivers reliable and fast combustion efficiency information.

The MSRS responds quickly, within seconds for a 90% step change. It is based on a metallic sealed reference which not only shows superior performance to other sensors on the market, but also makes the MSRS resistant to pollution and virtually drift-free, reducing the need for calibration. It also does not require a reference air supply.

XZR500 Range

Sensor head



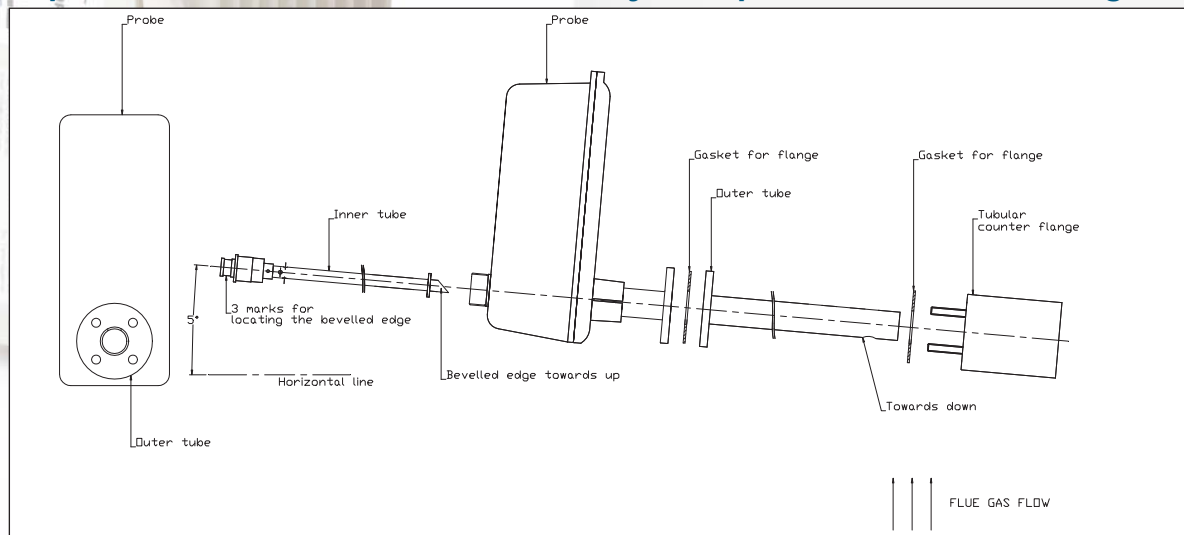
Stack combination Oxygen Unit with metallic sealed reference MSRS, requiring no ambient or pressurised air, with 6 metres special cable and 400mm long probe

Control unit



Combustion oxygen analyzer control unit in weather-proof wall mounting cabinet associated with the XZR500-ST.

Exploded view of sensor head assembly with probe and counter flange

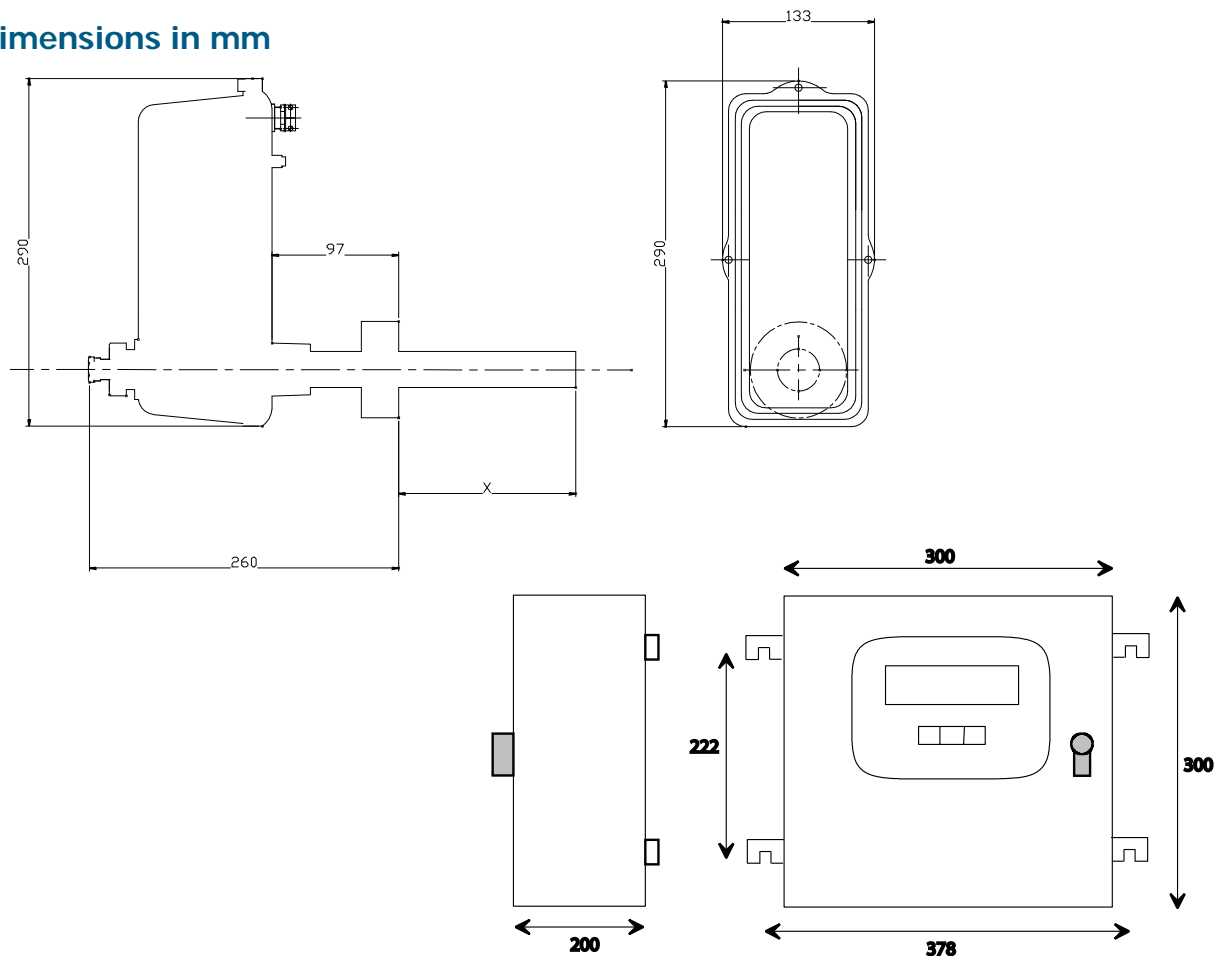


Technical Specifications

Sensor Type	
Measurement Principle	Zirconium oxide sensor with metallic sealed reference and K Type T/C
Performance	
Gas Requirements	Typical exhaust gas
Measurement Range	0.01% to 25% Oxygen
Accuracy	Better than $\pm 2\%$ of reading
Response Time (T90)	20 seconds
Repeatability	$\pm 0.1\%$
Fidelity	1% per month
Linearity	Better than $\pm 1\%$
Sample Flow Rate	Flue gas at 0.5m/sec minimum rate
Maximum Sample Pressure	Depending on application
Maximum Sample Temperature	1300°C (see probe selection in Wetted Materials)
Outputs	
Output Signal	One 0/4 to 20 mA linear with galvanic insulation output; 2nd optional output
Output Load	Over 1000 Ω
Self-diagnostics	Included in readout
Output Ranges	Freely configured between 0.01 to 25%

Alarms	2 alarms; user adjustable (10W) 1 fault alarm
Display Resolution	0.1% in standard (0.01% on request)
Power Supply	110 V (100 to 120) 50-60 Hz or 220 V (190 to 240) 50 Hz
Power Consumption	110 VA
Ambient Temperature Range	0°C to 55°C
Sensor Temperature	700°C
Operating Humidity	5 to 90% RH without condensation
Physical	
Dimensions	300 x 300 x 200mm (control) 290 x 135 x 650mm (sensor)
Weight	10 to 15 kg depending on application
Wetted Materials (Maximum temperature)	304 L Stainless steel (700°C) Inconel 600 (1000°C) HR160 (600°C to 1000°C) C2000 (600°C) Halar coating (120°C) Ceramic (1300°C)
Probe Lengths	0.4, 0.6 and 0.9m
Installation	Stack and wall mounting
Housing Ingress Protection	Weather proof enclosure to sensor: IP53 Control unit: IP52

Dimensions in mm



Michell Instruments 48 Lancaster Way Business Park, Ely, Cambridgeshire, CB6 3NW
 Tel: +44 (0) 1353 658000, Fax: +44 (0) 1353 658199, Email: info@michell.com, Web: www.michell.com/uk

Michell Instruments adopts a continuous development programme which sometimes necessitates specification changes without notice.
 Issue no: XZR500_97205_V5_UK_0412