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For every Industrial Process and Application, We provide Total Analytical Solutions

Insitu Zirconia O2 Analyzer Model 2000

Product Description

BI 2000 In-situ Zirconia O2 Analyzer provides real time accurate measurement of excess oxygen & combustion control with its sensor at the tip. It's a reliable partner that can be used to optimize processes, detect O2 deficiency early, reduced energy costs, increase fuel savings, ensure safety, and maintain quality control in combustion monitoring.

BENEFITS

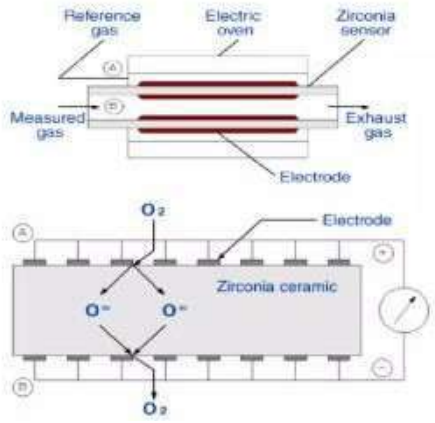
- Rugged and robust design makes it ideal choice for harsh environments
- Advanced electronics for precise measurements
- With negligible drift get accurate readings each time
- With +/-0.05% accuracy, operators can rely completely for combustion control
- Flue gas variation of +/-2% O2 everyday if controlled even by 1% Efficiency over the year can save huge fuel cost.
- O2 Analyzers packaged with trim control can avoid soot development, reduces blocked intake/exhaust ports, fouled burners and explosion.
- Response time of <3 sec provides operator confidence for decision making in combustion control
- No maintenance since no moving parts involved

KEY FEATURES

- Industry standard flange configurations
- Designed to withstand flue gas temperature up to 1600degC
- Field repairable parts
- Std. and customized probe length available over 5.4m
- Variety of probe material options available to ensure application suitability
- HART communication along with RS485 Digital and Analog signal
- Helps to optimize combustion efficiency
- Helps to comply with environmental standards
- Helps to lower CO_2, SOx, and NOx emissions
- Helps to save energy
- Helps to ensure process safety

Principle

Determines oxygen concentration using the conductivity of a zirconia ceramic cell. Zirconia ceramic cells only allow oxygen ions to pass through at high temperatures.



- Reference gas on one side and sample gas on the other side
- Oxygen ions move from the side with the highest concentration of oxygen to that with the lowest concentration.
- The movement of ions generates an EMF (Electro Motive Force) which can be measured to determine the oxygen content.

Application

In-situ oxygen analyzers optimizes any industrial or large commercial Boiler, Incinerators, Boilers, Reheating Ovens, Melting Furnaces., Fired heater, or Kiln in combustion processes, which can help improve safety and efficiency resulting in reduced energy costs, increased safety, and lower emissions.

Industries that use in-situ oxygen analyzers

- **Power:** Used in gas- and oil-fired boilers, and in inert gas generators
- **Oil:** Used in oil incinerators
- **Gas:** Used in gas plants, transmission lines, and gathering systems
- **Petrochemical:** Used in petrochemical industries
- **Cement, Chemistry, Thermal Energy, Ceramics, Paper, Incineration, Metal etc….**

Sensing Probe

BI 2000 sensing probe is the most advanced sensor with simple design & offers no maintenance. It gives real time true wet measurement of O2 Parts are fully replaceable. Sensor is very rugged & can withstand high temperature & pressure with life cycle more than 5 years. Sensing probe length are customized as per site conditions for any length.

Technical Specifications

Measurement Performance	
Range	0–25% O2 Programmable
Accuracy	<±0.75% of Reading or ±0.05% of O2
Resolution	0.01
Repeatability	±0.5% of FS
Response Time	T90< 3 sec
Drift	Negligible
Enclosures	
Ambient Temp	-20 to +150°C
Probe Junction box Ratings	IP66
Probe Junction Box	Die Cast Aluminium
Mounting	Flange mounting
Junction Box Dimension	170mm*170mm*120mm
Physical Specifications	
Probe MOC	SS316 / SS310 / Alumina
Probe Length in mm	500, 750, 1000, 1500, 2000, 3000, 3600, 4200, 5400 (Abrasive shield/ protection tube available)
Flange MOC	SS316
Flange Size	3" ANSI B16.5 150#. Other flange on request.
Diffusion element	Sintered steel, unbreakable ceramic, filter on request

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Separate type Zirconia Oxygen Converter

BI2000 convertor has advanced electronics and faster computing with accurate results in real time. It enhances the Operators for quick decision making to optimize their process. It has multipoint calibration feature, Digital /Analog outputs & self-diagnostic features empowering for closed loop control.

Technical Specifications

Environment	
Operating Temp	0 to +70°C
Storage Temp	0 to +70°C
Ambient Humidity	0 to 95% RH (non-condensing)
Warm-up time	Default 30min(1 min to 99min user configurable
Power & Display	
Power Supply	110VAC/230VAC
Display	2.4inch or 3.5inch TFT LCD display with 4 keys
Calibration mode	Auto / Semi Auto / Manual Single Point, Two Point, Multiple 5 Point
Calibration Gas	Zero gas: 0.25 to 2%O2, Span gas: 10 to 21.0% O2
Self-Diagnosis	Sensor fail, heater fail, electronics fail, temp sensor fail
Outputs	
Analog Output	One isolated 4-20mA analog output (maximum load resistance 550 Ω)
Digital Output	4 no. relay out (Alarm realy:1)
Digital Communication	RS485, MODBUS RTU/ HART 5
Enclosures	
Mounting	Wall mount
Enclosure	Mild Steel / Die Cast Aluminium
Enclosure Rating	IP65, IP66
Dimension	300mm x 210mm x 300mm(LxWxH), other options available
Cable	6 core screened cable

Drawings - Probe

A general arrangement diagram is depicted below for installation at site. The product shall be customized as per the site conditions. An expert of service team will guide you throughout the process of a successful installation & commissioning, operation and maintenance.

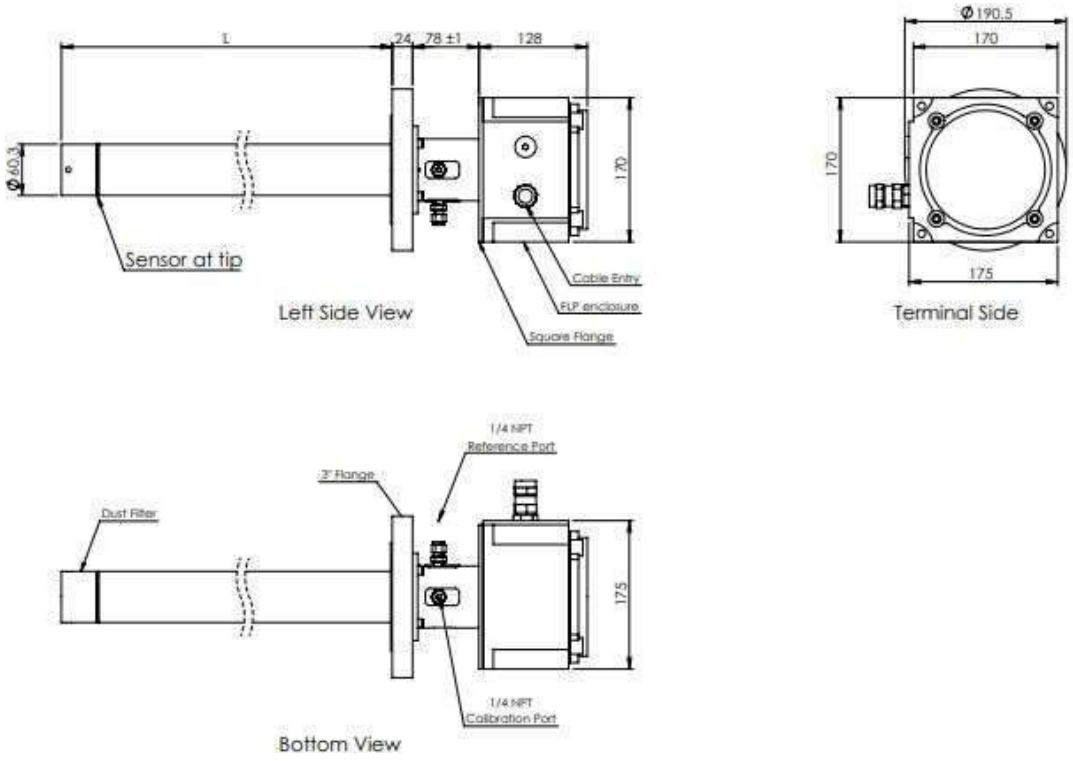
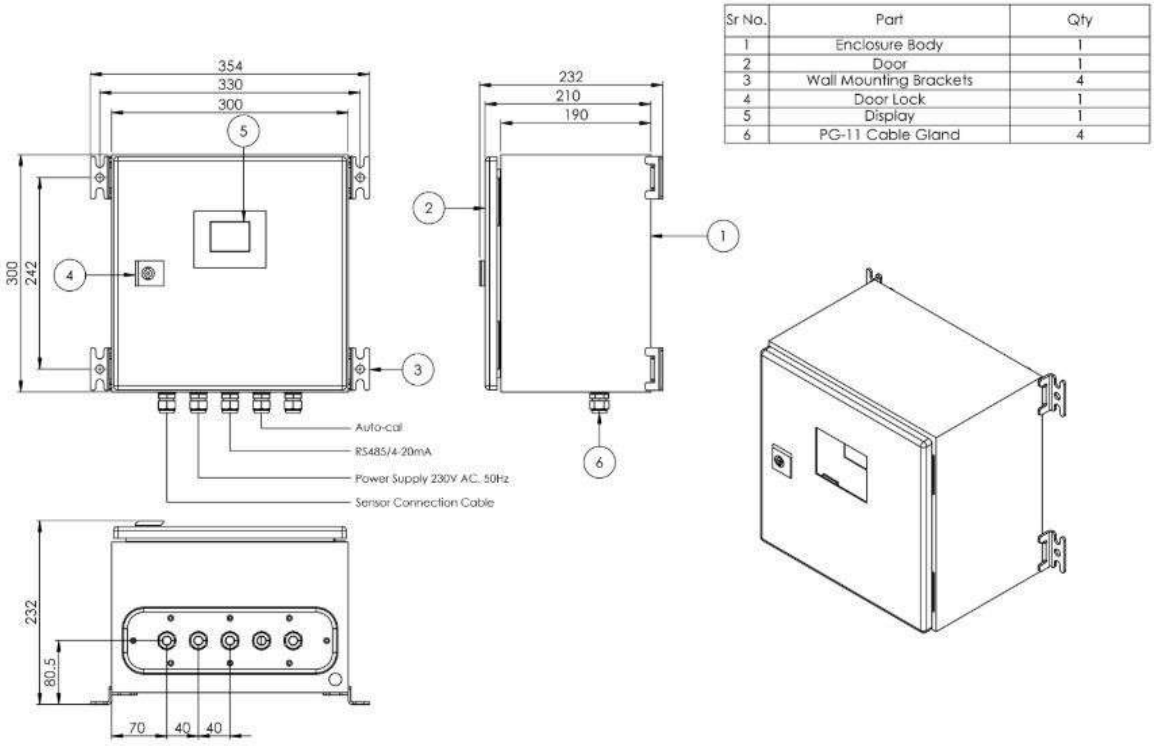


Fig 1. GAD: Insitu Zirconia O2 Analyzers Model BI 2000

Note: FLP enclosures CIMFR & PESO certified Available

Drawings – Convertor

A general arrangement diagram is depicted below for connections at site. The output can be taken to PLC/ DCS / SCADA / Closed loop control system for trim control.

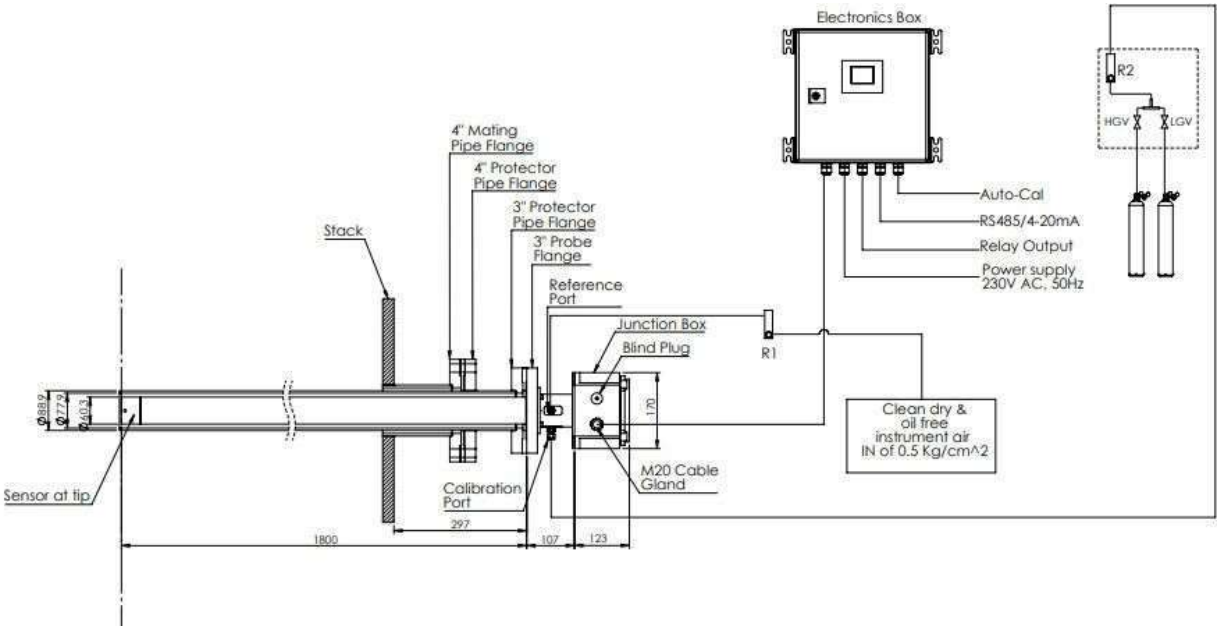


Sr No.	Part	Qty
1	Enclosure Body	1
2	Door	1
3	Wall Mounting Brackets	4
4	Door Lock	1
5	Display	1
6	PG-11 Cable Gland	4

Explosion Proof Instrument Enclosure Available	Type Of Ex-Protection: EEx-d Type, Zone Classification: Zone1 & Zone 2, Gas Group: IIA, IIB & IIC T6, Paint: Epoxy Polyester Powder Coating, Stainless Steel, Glass Window Size: 60mm x 90mm. Earthling: Internal-01 NO. External-02 Nos., Cable Entry: 03 No's of M20.

Drawings – General Arrangement Diagram

The diagram below depicts the installations and connection details.



Ordering Information - Sensing Probe

Model	Ordering Code	Description
BI2000-		**O2 Probe**
Probe Type	S	Standard - 700degC
	HL	High Low - up to 1100degC
	HH	High High - up to 1600degC
Sample Gas Temperature	700	degC
	1100	degC
	1600	degC
Probe MOC	SS1	SS316 for S
	SS2	SS310 for HL
	Al	Alumina
Probe Length	5	500 mm
	10	1000 mm
	15	1500 mm
	20	2000 mm
	30	3000 mm
	36	3600 mm
	42	4200 mm
	54	5400 mm
Flange	F2	ANSI B16.5 Cl.150 2"
	F3	ANSI B16.5 Cl.150 3"
	F4	ANSI B16.5 Cl.150 4"
Probe Protector	N	None
	A	With Probe Protector
Probe Protector Length	5	500 mm
	10	1000 mm
	15	1500 mm
	20	2000 mm
	30	3000 mm
	36	3600 mm
	42	4200 mm
	54	5400 mm
Area Classification	S	Safe Area
	H1	Hazardous Area Zone 2, IIC, T4
	H2	Hazardous Area Zone 1, IIC, T4

Ordering Information - Convertor

C-		O2 Convertor
Calibration	M	Manual Calibration
	A	Auto Calibration
Purging System	N	None
	A	With Purging System
Power Supply	AC	110VAC/230VAC
Digital Communication	M	MODBUS RS485
	H	HART
	HM	HART + MODBUS RS485
Area Classification	S	Safe Area
	H1	Hazardous Area Zone 2, IIC, T4
	H2	Hazardous Area Zone 1, IIC, T4

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