

Paramagnetic Oxygen Analyzer Agasthya 2013 Series Model BI-8000

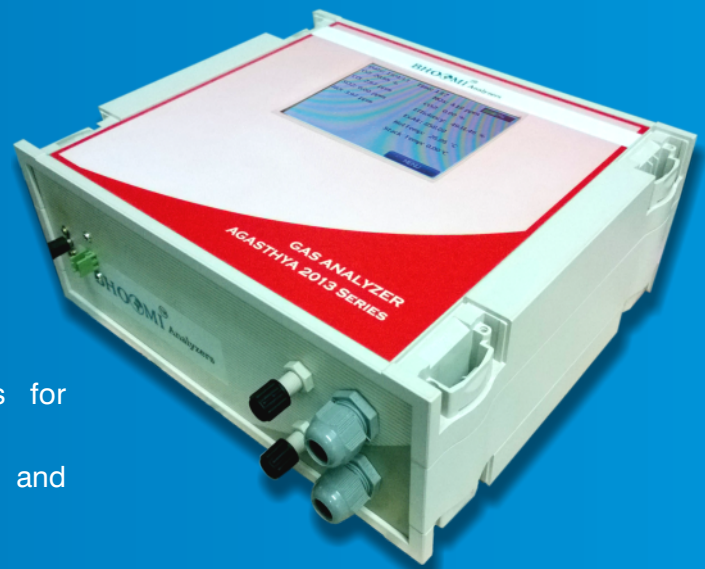
The Agasthya 2013 series BI 8000 Paramagnetic Oxygen Analyzer is designed for Oxygen measurement in various application with low drift, precision, accuracy and stable oxygen readings and long life Paramagnetic sensor makes the analyzer worth the investments for long term use.

Features

- 32-Bit Contex-M3 ARM Processor
- 5.7" QVGA TFT Touch Screen Display
- Relays for high & low alarms
- Long life Paramagnetic sensor
- RS485, MODBUS & Ethernet as option
- Isolated 4 - 20 mA outputs for each gas
- PTFE tubing and corrosion-resistant components for internal sample health
- Industrial inclosure for Panel mount, Rack mount and wall mounting
- Flow meter for flow regulator

Bhoomi Advantages

- Ensured after sales & service support
- Spares and accessories availability guaranteed
- Low cost of ownership, maintenance and installation
- Combination of technologies and integration under one roof



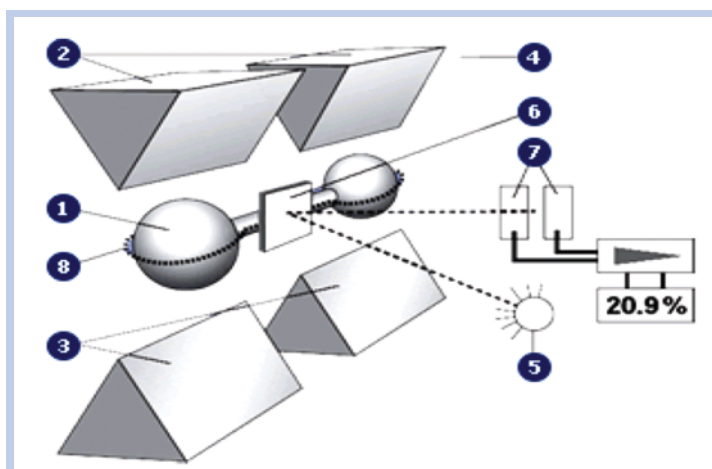
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Measuring Principle

Paramagnetic (Partial pressure measurement with rotatable glass dumbbell) Oxygen is one of the few gases with very strong paramagnetic properties. The oxygen molecules are drawn into an inhomogeneous magnetic field inside the measuring cell.

Corresponding to the varying strength of the magnet field, oxygen partial pressures occur which exerts a torque on the displacement body of glass dumbbell.

When oxygen is present in the gas mixture, the position of the glass body shifts slightly. A visible light beam, located at the optical bench, shines on a mirror which is mounted on the dumbbell. The light is reflected uniformly and symmetrically onto two opposing photo diodes which are arranged side by side so that their position produces a voltage difference assumes a value of zero. When the dumbbell even slightly moves, the reflected light beam shines asymmetrically onto the two photo diodes so that it results a voltage difference.



- 1 Glass dumbbell
- 2 Pole shoe (N)
- 3 Pole shoe (S)
- 4 Measuring cell
- 5 Light source
- 6 Mirror
- 7 Photo diodes
- 8 Wire loop

This voltage difference causes a very small current to flow through the wire loop mounted on the outer surface of the glass body. On the other hand this current flow, inside the inhomogeneous magnetic field, causes a torque to the dumbbell compensating the opposing torque caused by the partial pressure of the oxygen, thereby returning the dumbbell to its original position. The current flow required to maintain this zero position is directly proportional to the oxygen concentration.

Brief Description

The Agasthya 2013 Series BI 8000 is a precise oxygen analyzer for continuous monitoring purposes. The instrument is ARM processor based with self-diagnosis capability. The measuring unit is thermostat temperature controlled to 50° C for accurate and stable reading.

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Specification

Measurement range	: 0 to 100% Scalable
Response time 90% (T90)	: 10 Sec
Repeatability	: $\pm 0.03\%$ of reading
Accuracy	: $\pm 0.03\%$ of reading
Zero point drift	: $\pm 0.05\%$ week (offset)
Sensitivity drift	: $<0.5\%$ of measured value per week
Temperature influence	
• Zero point	: $<\pm 0.01\% \text{ O}_2 / ^\circ\text{C}$
• Sensitivity	: $<\pm 0.025\%$ of measured value / $^\circ\text{C}$
Resolution	: $0.01\% \text{ O}_2$
Air pressure effect	: 1 % air pressure change causes 1 % change in reading
Measurement signal	: Selectable signal range 0-20 mA or 4 - 20 mA 500 Ω max.
Status outputs	: 2 alarm relays, 1 malfunction relay
Output connection	: 1 pump
Gas temperature	: $+5^\circ\text{C}$ to $+45^\circ\text{C}$
Gas over pressure	: max. 1000 hPa
Gas through flow	: 10-90 l/h (cell through flow ca. 100 ml/min.)
Sample gas preparation	: necessary for damp and/or corrosive gases pre-filter required
Ambient temperature	: $+5^\circ\text{C}$ to $+45^\circ\text{C}$
Transport and storage temp.	: -25°C to $+65^\circ\text{C}$
Relative humidity	: 15% to 95% rh
Power	: 110 / 220 V AC, 50Hz
Enclosure	: Wall mounting, Rack Mounting & Panel Mounting as option