

SBX 1000 In Situ Oxygen Transmitter

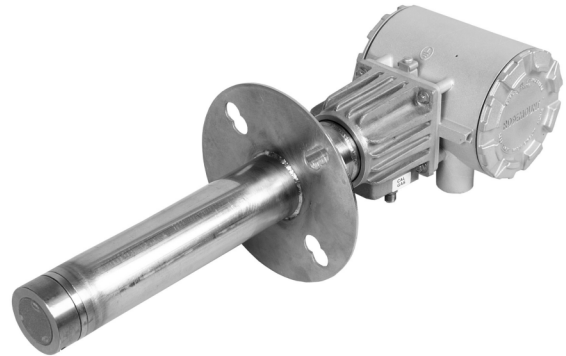
SBX FEATURES

- 12-month warranty
- Electronics mounted to probe saves on installation and material
- Advanced sensor diagnostics
 - alarm indicates when calibration is recommended; savings in extra calibrations
- No calibration required for set-up
- Fully field-repairable – saves on shipping charges for factory repair
- Universal flange design
- Configurable via membrane key pad
- Proven zirconium oxide technology
- Smaller light-weight probe enables one person installation

Latest Development In Combustion Flue Gas Analyzers For Either Industrial Or Commercial Small Boiler Packages

This cost-effective in situ oxygen analyzer comes factory-set and ready to install for quick, efficient start-up coupled with ease-of-use and maintenance for small industrial and commercial boilers. The easy to install four-wire termination strip reduces installation time and allows quick and easy start-up of this oxygen transmitter for contractors or plant personnel that have minimal analyzer experience. This instrument can be used to monitor oxygen levels in smaller combustion processes for safe and efficient burning of valuable fuel leading to immediate reductions in operating costs.

The compact design of the device coupled with the direct mounted transmitter-style electronics make start-up and commissioning of this highly accurate device a one man operation. Because the electronics are mounted on the



probe ***there is no need for calibration during the start-up phase of the instrument.*** The SBX 1000 integrates an oxygen sensing probe and transmitter electronics into a single compact package. The probe inserts directly into the flue gas duct to measure oxygen in a variety of combustion processes; no sample handling system is required.

Emerson Process Management is the world leader in oxygen flue gas technology. Our in situ, zirconium oxide oxygen analyzers have long been recognized as the industry standard for efficient combustion control. This expertise combined with the superior electronics creates a truly new concept – The **SBX 1000!**

Rosemount Analytical was the first to develop a transmitter-style housing that mounts directly to the oxygen sensing probe. The housing contains the transmitter's electronics and diagnostic membrane key pad and provides the 4-20 mA output signal for process control. A universal diagnostic alarm contact is available to tie the status alarms of the oxygen probe to the control system, if desired. The alarms are also visible on the membrane keypad for visual indication of the transmitter's diagnostics. The integrated design minimizes the costs of installing the unit; there is no need to run interconnecting cable through expensive cable trays or conduit. The electronic card stack design reduces power consumption by 95% leading to longer life of internal electronic components.

ROSEMOUNT[®]
Analytical

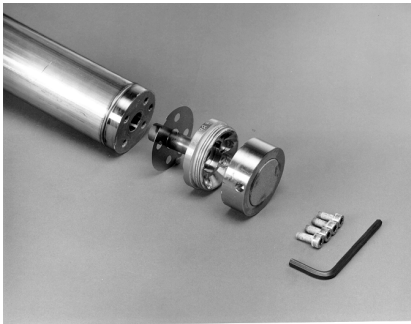
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EMERSON[™]
Process Management

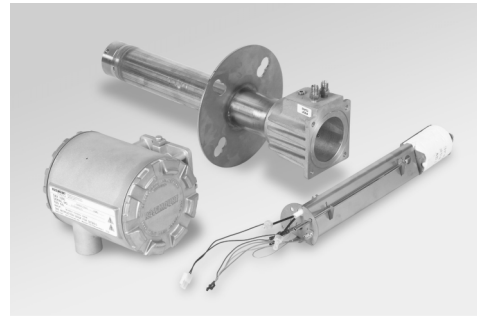
The SBX 1000 is fully field-repairable. The electronics can be completely removed from the probe by almost any technician for direct access to the probe components. The instrument technicians can service this probe in-house and most repairs will take 30 minutes or less. The measurement cell, heater assembly and internal thermocouple all can be replaced on-site by qualified instrument technicians. The SBX 1000 contains no potentiometer adjustment or jumpers, which leads to maximum up-time for safe and efficient control of the boiler or combustion process.

The SBX 1000 In Situ Oxygen Transmitter operates in process temperature ranges up to 1,300°F (700°C) providing a fast response with high accuracy and reliability. This cost-effective solution provides the ability for every industrial plant or commercial building operating a fossil fuel fired boiler the same opportunity to take advantage of sensing technology used world wide by almost every large utility boiler for peak efficiency and combustion optimization.

THE SBX 1000 OXYGEN TRANSMITTER IS COMPLETELY FIELD-REPAIRABLE



Diffusion Filter and Sensor Cell Assembly



Heater/Thermocouple Assembly

- Rugged steel cell holder – cells will not crack

Electronics

- -40°F to 185°F (-40°C to 85°C) temperature limit
- “Calibration Recommended” diagnostic

Integral to Probe



- Lowest cost of installation
- No cable or conduit between probe and electronics
- No separate electronics to mount

SPECIFICATIONS ¹

SBX 1000 OXYGEN TRANSMITTER

Net O₂ Range 0-10%, 0-40% variable O₂

Accuracy: Typically ±1.5% of reading or 0.1% O₂, whichever is greater
Lowest detectable limit – 0.1% O₂

System Response to Test Gas:
Initial response in less than 3 seconds
T₉₀ in less than 8 seconds

Temperature Limits:

- Process:** 32° to 1300°F (0° to 704°C)
- Electronics:** -40° to 185°F (-40° to 85°C)

Probe Length, Nominal and Approximate Shipping Weight:
12 in. (305 mm) package: 20 pounds (7.3 kg)

Mounting and Mounting Position:
Vertical or horizontal

Materials:

- Probe:** Wetted or welded parts – 316L stainless steel
Non-wetted parts – 304 stainless steel, low-copper aluminum

Electronics Enclosure: Low-copper aluminum

Calibration: Manual

Calibration Gas Mixtures

Recommended: 0.4% O₂, balance N₂, 8% O₂, balance N₂ (test gas kit #6296A27G01)

Calibration Gas

Flow: 5 scfh (2.5 l/m)

Reference Air (optional): 2 scfh (1 l/m), clean, dry, instrument-quality air (20.95% O₂), regulated to 5 psi (34 kPa)

Electronics: NEMA 4X, IP 66 with fitting and pipe on reference exhaust port to clean dry atmosphere

Electrical Noise: Meets EN 55082 Generic Emissions Standard

EN 61000-4-2 Electrostatic Discharge

EN 61000-4-3 Radio Frequency Interference

EN 61000-4-6 Radio Frequency Interference

EN 61000-4-4 Fast Transient Immunity

Line Voltage: Universal 90 to 250 VAC, 48 to 62 Hz. no switches or jumpers required 3/4" – 14 NPT conduit port

Analog Output: One 4-20mA, 950 ohm maximum load

2 Terminal Logic

(I/O) Contact: Self-powered (+5V)
340 ohm series resistance
3/4" – 14 NPT conduit port for both analog output and logic I/O.

Power Consumption Limits:

Power Consumption of

Probe Heater: 175 W nominal maximum

Power Consumption of

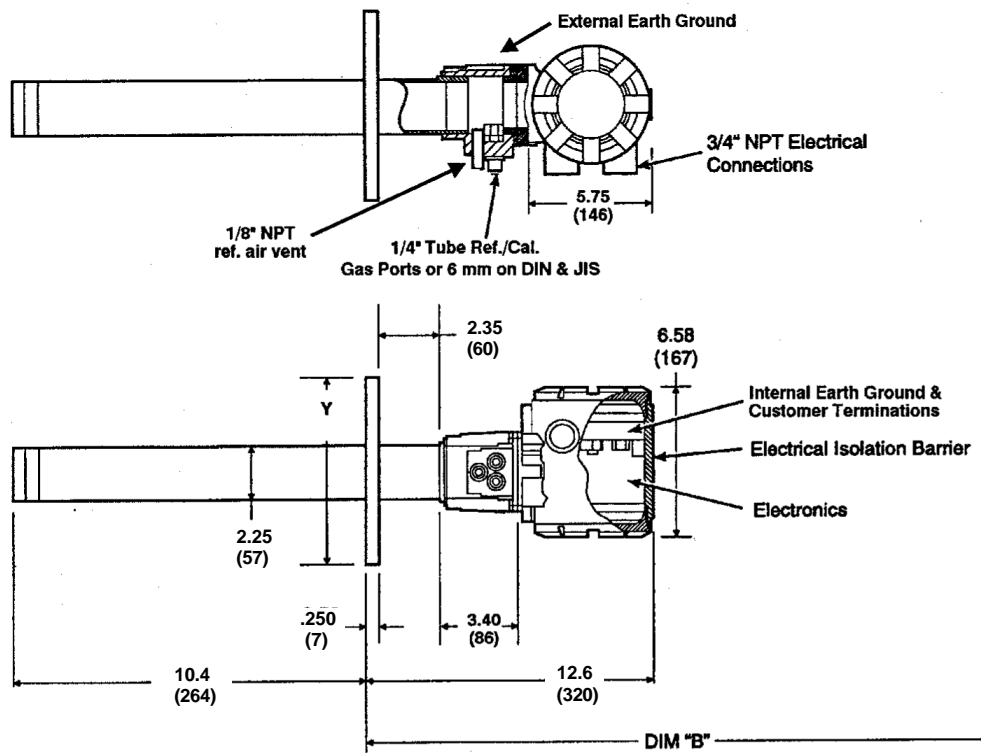
Electronics: 10 W nominal maximum



Emerson Process Management has satisfied all obligations coming from the European legislation to harmonize the product requirements in Europe.

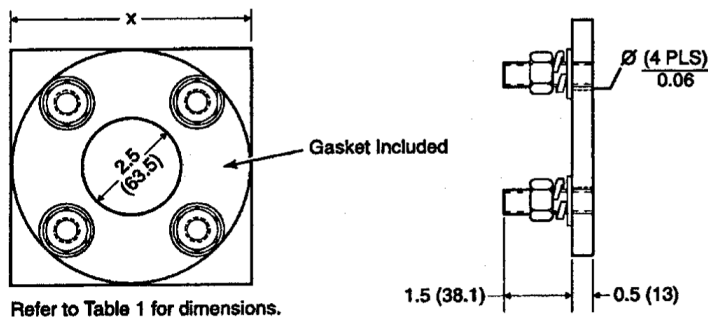
¹ All static performance characteristics are with operating variables constant. Specifications subject to change without notice.

OUTLINE DIMENSIONS FOR SBX 1000 OXYGEN TRANSMITTER FOR GENERAL PURPOSE APPLICATIONS



Note: All dimensions are in inches with millimeters in parentheses.

Adapter Plate Outline



Refer to Table 1 for dimensions.

Table I. Mounting Plate	Dimensions Dia. in. (mm)	
	ANSI	DIN
Mtg. Plate (x)	6.0 (153)	7.5 (190)
Stud Size	5/8 – 11	M16 x 2
4 Studs Eq. Sp. on BC	4.75 BC (121) BC	5.71 BC (145) BC
Flange (Y)	6.0 (153)	7.3 (185)

Table II. Removal/Installation	Dim "A" Insertion Depth	Dim. "B" Removal Envelope
Probe Length		
12 in. (305 mm) Probes	10.4 (264)	18.6 (472)

ORDERING INFORMATION

Model	Description	
SBX 1000	O ₂ Transmitter	
Level 1	Sensing Probe Type	
	0	Snubber Diffusion Element
Level 2	Probe Assembly	
	1	12" Probe Length
Level 3	Mounting Hardware (stack side)	
	0	No Adapter Plate
Level 4	Mounting Hardware (probe side)	
	0	Universal Flange (ANSI/DIN)
Level 5	Electronic Housing	
	0	Housing and Filtered Customer Termination
Level 6	Electronic Mounting	
	0	Integral
Level 7	Signal Output	
	0	4-20 mA Analog Output
Level 8	Alarm Output	
	0	Self-Powered (+5V)

Accessories	
Part #	Description
4512C34G01	Adapter plate accessory Kit

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