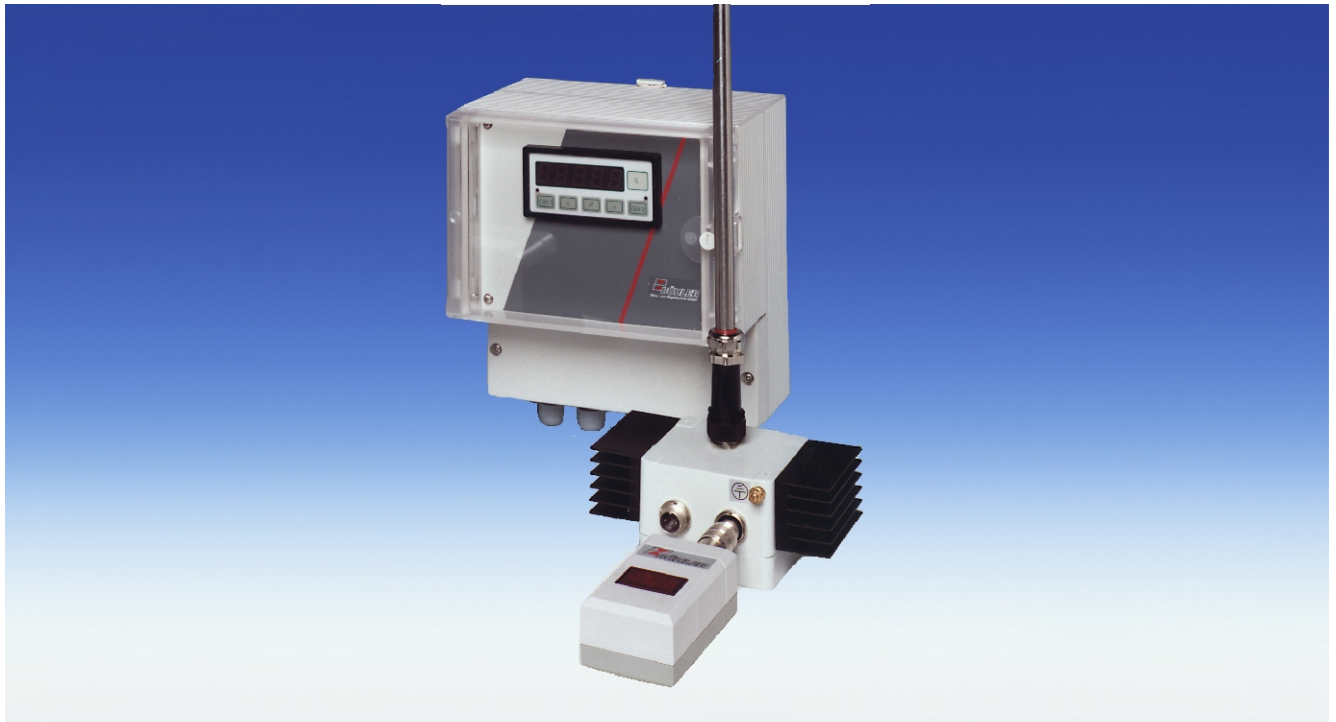
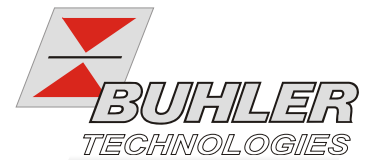


# Zirconia Oxygen Analyzer BA 1000



## Description

The Buhler Model BA 1000 solid-state oxygen analyzer has been developed for in-situ applications. The cell is self-controlling and therefore well-suited for applications in flue gas or similar matrices.

## Principle of operation

The dynamic sensor measures oxygen without using a reference gas. The sensor consists of two zirconium discs covering both sides of a platinum ring. An additional  $Al_2O_3$  coating protects the sensor from environmental influence and increases its life expectancy. The measurement chamber (P2) is filled with a sample gas. One disc is connected with a reversible source of current. It is then used as a solid-state electronic oxygen pump. On the opposite disc the partial pressure of oxygen is determined by measuring the induced Nernst potential.

reversed. Oxygen ions are then pumped back into the chamber and oxygen concentration increases. After reaching a certain threshold, the polarity changes again. This process is repeated over and over. The time for one period is linearly proportional to the oxygen concentration in the sample gas.

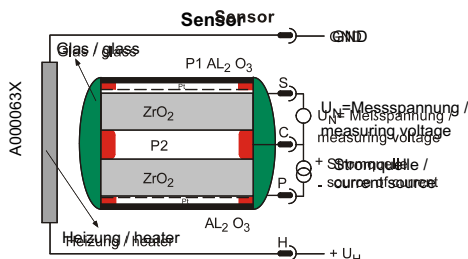
An optional pre-filter enables operation in gas streams with high dust concentrations.

## Fields of applications include:

Furnaces, industrial heating facilities, industrial combustion facilities, farming (in silos), medical, biotechnology

## Advantages and benefits

- Low energy consumption
- Temperature independent
- Linear output signals 4 - 20 mA
- Error protected
- High measurement precision
- Independent of gas matrix
- Long life
- Variety of applications
- No reference gas
- No calibration gas

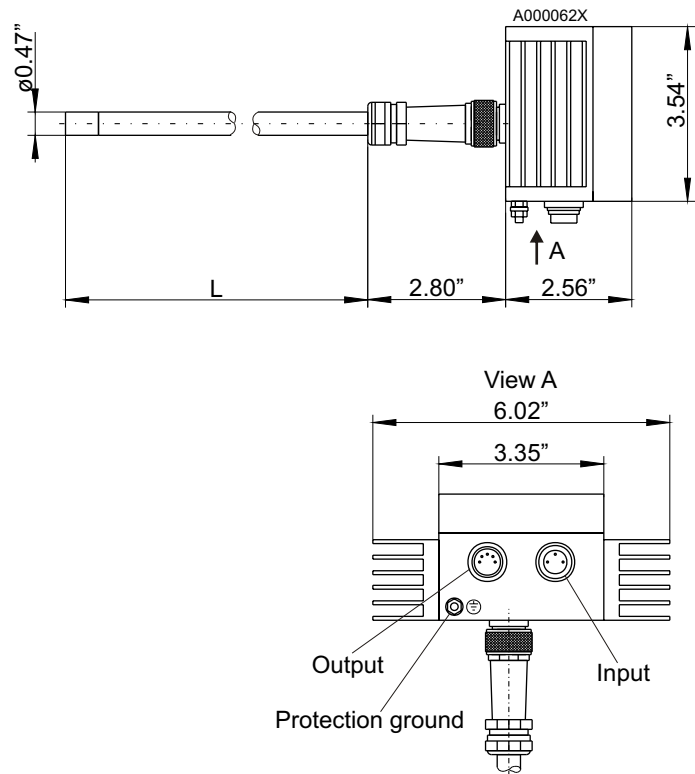


First, the oxygen ions are pumped out of the chamber. The change in electrical charge on the first disc changes in direct linear proportion to the oxygen concentration. This increases the electric potential at the opposite disc. When the electric potential has reached a certain threshold, the polarity is



## Technical Data - Sensor BA 1000 S

Warm-up time	approx. 5 minutes
Measurement range	0.1 - 25 Vol.% O <sub>2</sub>
Output	4-20 mA
Accuracy	+/- 2 % of full scale value
Sample temperature	32 °F up to + 840 °F
Exhaust gas velocity	up to 32 ft/s
Probe diameter	12 mm (0.47")
Response time	approx. 3 seconds
Operating ambient temperature	15 to 120 °F
Storage temperature	- 5 to + 160 °F
Power supply	24 V DC
Current	650 mA
Switch on current	4.4 A
Distance analyzer/control unit	max. 325 ft.
Protection class	IP 54
Dimensions ( B x H x T )	85 x 90 x 65 mm 3.3 x 3.5 x 2.6 in.
Weight	ca. 2.43 lb
Material	Probe tube stainless steel Head aluminum painted



## Please indicate with order:

### Description:

Sensor BA 1000 S with probe length L = 220 mm (8.7 in.)  
 Sensor BA 1000 S with probe length L = 380 mm (15.0 in.)  
 Sensor BA 1000 S with probe length L = 780 mm (30.7 in.)

### Part-no.

55 01 398  
 55 01 399  
 55 01 499

### Options

#### Power supply BA 1000 N wall mounted

Power supply 115 / 230V AC 48 - 62 Hz alternatively  
 Protection class IP 65  
 Weight 4.6 lb

55 01 599

#### 4 ½ digit LED display BA 1000 D 230 G wall mounted

With 2 alarms for min. and max. function  
 Free programmable  
 Relays 250 V / 3 A  
 Power supply 115 / 230V AC 48 - 62 Hz alternatively  
 Protection class IP 65  
 Weight 6.0 lb

55 01 899

#### Calibration display BA 1000 KA

Quick-check calibration unit  
 Dimensions 54 x 100 x 40 mm (W x H x D)  
 Weight 0.26 lb

55 01 2992

### Tools :

Pipe fitting for probe mounting 1/2" NPT with PTFE locking ring  
 Pipe fitting for probe mounting 1/2" NPT with stainless steel locking ring  
 Interconnecting cable 5 m ( other length on request )  
 Complete pre filter with mounting flange  
 Pre filter without mounting flange

55 01 2993  
 55 01 2994  
 55 01 2995  
 55 01 2997  
 55 01 29971

