

## ZIROX® Oxygen Probe KS20

### Properties

The main part of the oxygen probe KS20 is a potentiometric solid electrolyte cell ( $ZrO_2$  sensor). Because of several oxygen concentrations at the electrodes (surrounding air at reference electrode) a voltage is reached, which is proportional to the logarithm of the oxygen concentrations. From cell voltage the oxygen concentration at measuring electrode can be calculated based on NERNST Law.

The KS20 is calibration, drift- and maintenance-free. At measurements in reducing atmospheres no falsification of gas composition occurs by measuring gas cooling in a suction line. The using of high quality components and materials guarantees a high long term stability.

If the fuel gas composition is known it is possible to calculate the air factor  $\lambda$ , the  $CO$ -,  $CO_2$ -,  $H_2$ - and the  $H_2O$ - concentration. This values can be given out by external electronic units (e.g. ZIROX® electronic unit E2000).

### Applications

The KS20 serves for process control and combustion optimisation (TÜV-Approval according to „TA Luft, 13. und 17. BImSchV“) in power and heat plants as well as in incineration plants. It is also part of control for oxidising and reducing furnace gases in ceramic industries. The KS20 is constructed especially for the high temperature range (Measurements up to 1400 °C).



Sauerstoffsonde KS20

Sensoren und Elektronik GmbH



## Technical Data

|   |  |
|---|--|
| Length.....                               | 300...1500 mm  |
| Diameter .....                            | 25 mm ceramic tube, 28mm steel shank   |
| Mass .....                                | 1...3.5 kg   |
| Material.....                             | Al <sub>2</sub> O <sub>3</sub>   |
| Clamp head .....                          | Thermo couple head   |
| Clamps .....                              | Special clamps on ceramic socket   |
| Protection degree .....                   | IP52, IP 56 on request   |
| Range .....                               | oxidising and reducing conditions<br>(100 Vol.-%...10 <sup>-29</sup> Vol.-% O <sub>2</sub> ) |
| Accuracy.....                             | < 5 % rel. error   |
| Working temperature.....                  | 700...1400 °C  |
| Offset .....                              | 0 mV   |
| Sensor voltage (5.0 Vol.-%, 800 °C) ..... | -33.1 mV   |
| Thermo couple.....                        | Type B (800 °C corresponds to 3.2 mV)  |
| Reference gas .....                       | Surrounding air  |
| Reference gas flow.....                   | 5...10 l/h   |

Clamp assignment:

|   |                |                  |
|---|----------------|------------------|
| 1 | Ground         | AGND             |
| 2 | Sensor voltage | - V <sub>z</sub> |
| 3 | Thermo voltage | + V <sub>t</sub> |

*Mounting recommendation:* stuffing box

*Option:* Immersion sleeve (Probe protection at flow > 10 m/s)

