ZIROX® Oxygen Measuring Device SGM5T

Properties

The compact high-precision measuring device SGM5T contains the approved calibration- and drift-free ZIROX® zirconia measuring cell as well the process electronic (for cell heating control, flow monitoring, cell signal processing, calculations and signal output, e.g. oxygen concentration, air factor λ, redox-quotient or H_2O/H_2-Ratio)

A microprocessor changes the cell signal to the oxygen concentration according the NERNST equation. The value will be shown at the display and output as analog current signal (Option: digital interface RS232, software for measuring value recording and storage is deliverable)

Additionally the electronic can process and output the signals of a further, optional integrable sensor (e.g. CO_2-, humidity- or pressure sensor with standard interface).

Applications

In many technological processes under protective or inert gases oxygen traces are nonconstructively for the product properties. Precondition for detection and prevention of problems is the fast and precious measurement of oxygen respectively the determination of the reducing force of inert gases.

By progressive introduction of quality assurance systems, e.g. according to ISO 9000, a constant monitoring and documentation of quality parameters becomes more important. For it with the SGM5T the user get several possibilities for process optimization (soldering and welding processes, heat treatment of metallic surfaces, microelectronic production, food packing technology).

For the monitoring of reducing gases further parameters (redox-quotient, air factor λ, H_2O/H_2-Ratio or CO_2/CO-Ratio) can be calculated by special mathematical methods.

SGM5T

Technical Data

Range .... $2,0 \cdot 10^5$…0,1 Vol.-ppm, (20,6…10^{-4} Vol-%),

Measurements up to 10^{-20} Vol.-ppm on request (reducing conditions),

Range up to 100 Vol.-% on request

Signal output .... 4-20 mA (0-5 V, 0-10 V on request)

Accuracy at normal pressure .... rel. error < 3% for $2 \cdot 10^5$... 10 ppm
rel. error < 5% for 10 ... 0.1 ppm

Gas flow.. 5...10 l/h

Max. measuring gas pressure............................ 100mbar overpressure, at higher pressures a pressure reducing is required (e.g. by hand-operated needle valve), (more than 1 kPa overpressure: an error correction is required)

Max. measuring gas temperature .... 80°C at gas input

Pressure drop over measuring cell .... approx. 1 kPa (100 mm WS) at 10 l/h

Dimensions (D x W x H).................................... 320 mm x 240 mm x 90 mm

Mass .... 4 kg

Protection degree.. IP 30

Working conditions.. 10…40 °C, rel. humidity < 80% at 20 °C

Storage conditions .... -20…60 °C, rel. humidity < 95% at 20 °C

Power supply

       Voltage.. 110…230 V/50...60 Hz

       Power consumption .... 30 VA

       Heating measuring cell .... 24 V DC, ca. 15 W (internally controlled)

Keyboard and display

       Keyboard .... foil keyboard with 4 soft keys and 2 fix keys

       Clear text display .... LCD-Graphic (lighted)

Digital interface RS232