- Simultaneous O_2/H_2 measurement
- Very large measuring range (20,9 Vol % to 10^{-30} Vol %)
- Precision through optimized temperature regulation
- Robust component routing with oil and condensate containing measuring gases through special filters
- Customized adjustments
- Avoidance of imprecise dew point assessments

OxyCommand · OxyCompact

H_2/O_2 sensor technology for protective gas processes

PRODUCT DESCRIPTION

OxyCommand and **OxyCompact** have been developed in order to measure harmful hydrogen and oxygen concentration in the course of industrial heating processes which take place in the presence of protective gas. Two high-grade sensors make it possible to measure H_2 and O_2 concentrations simultaneously and ensure an optimal protective gas atmosphere for the individual thermal process.

While the **OxyCommand** is permanently installed and thus a constantly checking measuring device, the mobile **OxyCompact** may be used both in the laboratory and to check the functional performance of permanently installed sensors at different measuring points.

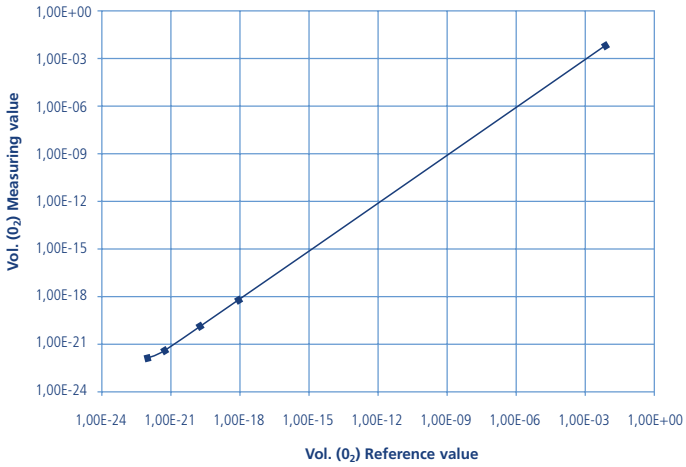
MEASUREMENT OF THE OXYGEN CONCENTRATION

Oxygen concentrations are measured in a specially doped zircon oxide sensor, which represents excellent oxygen-ion conductors at high temperatures. The ion activity in the probe alters the voltage (EMK) and thus gives information on the number of oxygen ions in the measuring gas. This enables the oxygen measurement from the percent range to trace measurements; our validation is illustrated opposite.

MEASUREMENT OF THE HYDROGEN CONCENTRATION

The hydrogen concentration is based on a temperature change at a circumflowed silicon chip. The decrease in temperature is again balanced by a compensation controller; the energy required for the balance is provided by the measurement signal.

The knowledge of thermal conductivity of the gases for which evidence must be provided suggests the gas concentration. The degree of decrease in temperature indicates the H_2 concentration in the gas mixture. The signal is linearized by the special chip.



With oxygen: Measuring range 20,9 Vol.-% – $1E^{-30}$ Vol.-%; validation of the measuring procedure performed by the Institute for physical Chemistry at the RWTH Aachen, Germany

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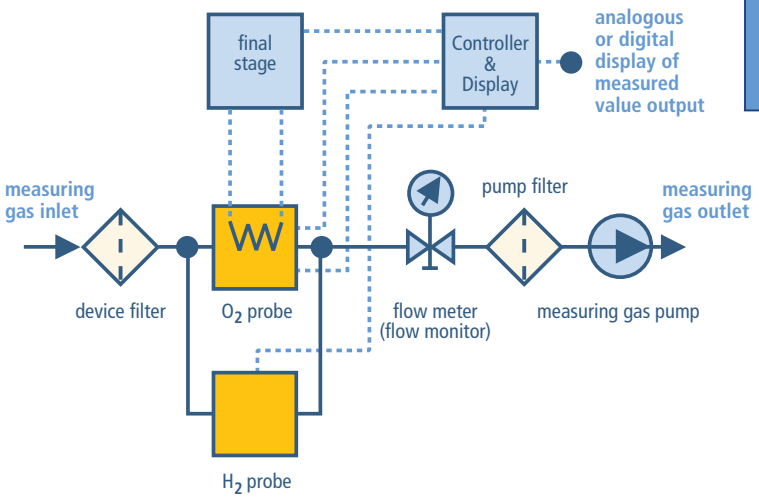
BASIC PHILOSOPHY

With the devices, we count on the extraction of gases via valves from the respective production room at the desired point; not only from the exhaust gas flow. For this purpose, the measuring gases are exhausted from the production room and flow through our sensors. This procedure enables the targeted modulation and calibration of the entire process line. A more targeted inlet of optimized protective gas mixtures into the production room generally results in a considerable reduction of the protective gas mixture.

CONTROL SOFTWARE / APPLICATION

OxyCommand and **OxyCompact** are the respective analysis tools to your respective control systems for your protective gas processes. These devices communicate with your furnace control by means of automated interfaces. Thus, future oriented systems are available for your measuring gas control and optimized tasks. The clearly structured user interface of our control system enables you to rapidly and easily produce the optimal production conditions. Staff with little experience can safely operate the system thanks to our simple user concept.

Schematic illustration of the plants:



Moreover, the evaluation reporting enables you to implement optimized procedures on the basis of the most important parameters according to the specification of your protective gas processes. Our control system assures you an economic handling with protective gases and thus potential cost savings.

As a competent partner, we will be glad to help you solve your tasks.

OxyCompact (laboratory area):
Compact version in the form of a portable device for mobile application, sensors and measuring instrument in one casing. Our OxyCommand plant for industrial purposes is illustrated on the top of this page.

	OxyCommand	OxyCompact
Weight	35 kg	18 kg
Dimension (h x w x d)	500 x 1000 x 300 mm	200 x 500 x 500 mm
Measuring gas connection	R 3/4“	Pipe 6 mm
Mains supply	230 V/50 Hz (also 110 V possible)	230 V/50 Hz
Power consumption	Ca. 300 watt	
Analog output	0/4-20mA output	
	Technical sensor data	
Optimal flow volume	Working range 30 l/h to 70 l/h with a pressure of 5-30 mbar	
Display resolution	≤ 6µA (12 Bit)	
Error	≤ 0,5%	
Load	≤ 600 Ω	
Allowed measuring gas temperature	40°-200° C	
	Maintenance	
Plant	At least annual check of the filter	
Oxygen sensor	At least annual check of the plant using a reference gas, plus calibration check	
Hydrogen sensor	Checking the plant using a reference gas	