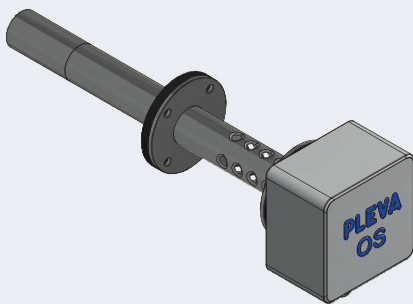


Oxygen Measurement

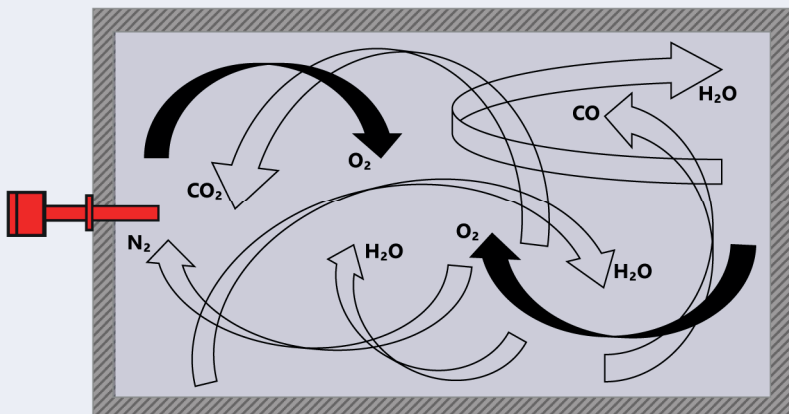
OS



Oxygen sensor OS



PLEVA OS Box



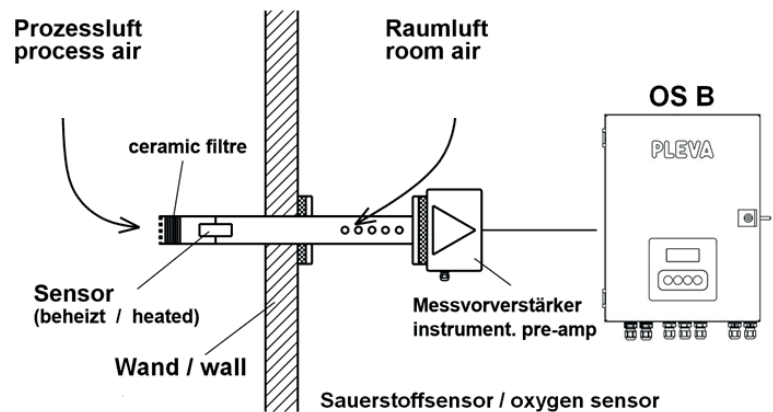
Oxygen as the crucial parameter in industrial processes

BENEFIT FOR CUSTOMER

- Can be used at extremely high temperatures
- Enhanced reproducibility, production safety
- Continuous measurement
- High responsiveness and great measuring accuracy
- Requires no maintenance and is extremely robust

- Steamer readiness is indicated after start-up and after breaks

The oxygen content in gases is an important treatment parameter in many industrial processes. The oxygen sensor OS was developed to measure continuously and reliably the oxygen content in permanent industrial use under extremely hard circumstances as a percentage by volume (Vol. %).



Oxygen content and steam saturation in a textile steamer

The presence of air in a steamer atmosphere disturbs all color fixation and pretreatment reaction processes and the warm up time of the textile increases significantly. The amount of oxygen in the air has a direct influence on dyes and thickening agents and on redox processes during the fixation process (e.g., at pad-steamers, loop agers for reactive printing). To achieve the goals of production and process reliability, an oxygen-free textile steamer atmosphere is a necessary presupposition to eliminate risks and to optimize the energy balance in the production process. Therefore, the amount of oxygen in the textile steamer atmosphere has to be measured and supervised.

Increasing energy efficiency and product quality with oxygen measurement OS

The following problems and parameters can be detected and solved with the use of the OS unit:

- Leaks at flanges and at shaft packagings (e.g. at ventilators)
- Optimizing the speed of ventilators since the speed can have a great influence on the oxygen value (depending on the construction of the steamer)
- Steamer readiness after start up can be reliably detected
- Ability to reduce steam consumption

According to practical experience, it is possible to reduce the steam consumption up to 50% without any risk.

In addition, other sustainable advantages can be realized:

- Quality control
- Prevention of color deviations
 - ➔ Reduction of second choice or rejected goods
 - ➔ Reduction of steam consumption and thus, enhance energy efficiency dramatically

This makes the OS a hero for sustainability.

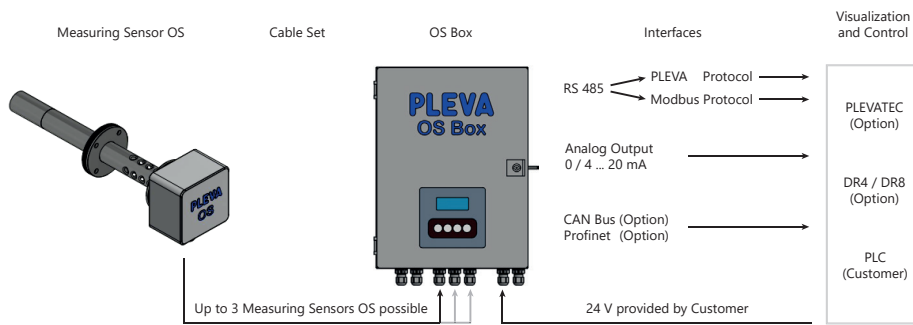


Measurement technology to enhance process reliability

Construction and measuring principle

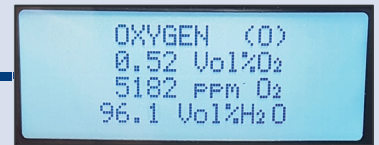
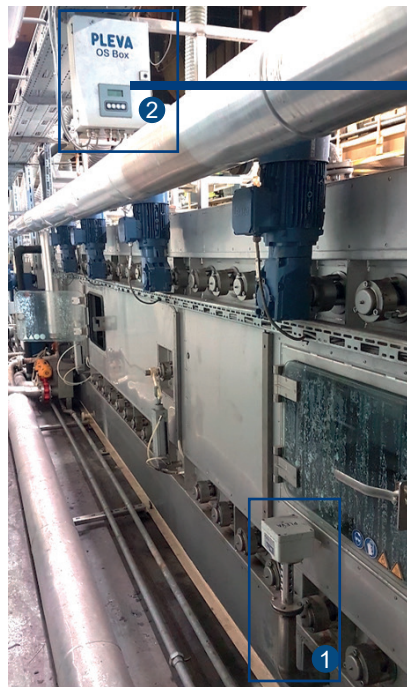
The unit consists of an oxygen sensor which is directly connected to the pre-amplifier and the evaluation electronics in an electronic box. The sensor has two electrodes. One is exposed to the process air and the other is exposed to the room air. The sensor issues a specific voltage signal as a function of the oxygen content of the process air. The signal is conditioned in the pre-amplifier for further processing by the evaluation electronics. The evaluation electronics computes the oxygen content with the aid of a microprocessor. In the case of pure mixtures of water steam and air the saturation of the steam is measured additionally. The unit of measurement is Vol. %. Up to 3 sensors OS can be connected to 1 OS B electronic box.

The unit of measurement is percent by volume (Vol. %) or parts per million (ppm) in O₂ and Vol. % in H₂O.



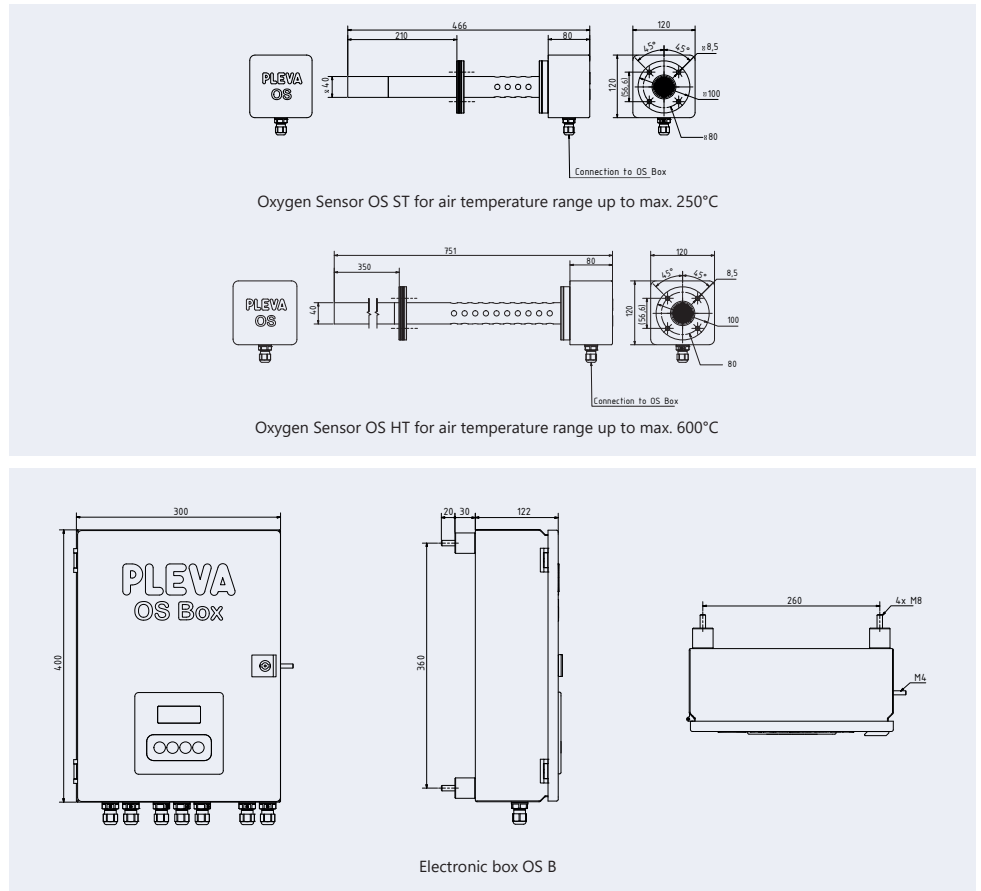
FEATURES OF OS

- Quick and easy installation
- Easy, intuitive operation and calibration
- Different versions for different measuring ranges
- Robust construction for longterm usage
- Maintenance-free



- Sensors are installed on both sides of steamer
- Consisting of **1 oxygen sensor OS** and **2 evaluation electronic box OS B**

Technical drawings



Technical data

Sensor OS

Process air temperature:	Standard version: max. 250 °C (type OS ST) High temperature version: max. 600 °C (type OS HT)
Temperature of sensor:	> 700 °C
Heating-up time for sensor:	approx. 20 min (standard) approx. 45 min (high temperature)
Measuring range sensor:	OS O: O ₂ : 0...10 Vol% H ₂ O: 50...100 Vol% OS P: O ₂ : 0...10 000 ppm OS H: O ₂ : 1...21 Vol% H ₂ O: 5...97 Vol%
selectable on OS Box:	free scaling
Accuracy:	better 0.5 % of measured value, but not better than 10 ppm
Ambient temperature for instrument preamplifier:	max. 70 °C
Supply voltage:	24 V DC (± 10 %)
Power consumption:	max. 24 W, max. 1.0 Amps.
Weight sensor OS ST:	approx. 2.6 kg
Weight sensor OS HT:	approx. 3.8 kg

Electronic Box OS B

Sensors maximal:	3x OS
Ambient temperature:	max. 50 °C
Supply voltage:	24 V DC (± 10 %)
Power consumption:	max. 80 W (3x sensor OS)
Interfaces:	0/4 ...20 mA, RS485 CAN (optional), Profinet (optional)
Weight approx.:	approx. 10 kg

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