



# Advanced O<sub>2</sub> measurement

Each application has different requirements. Compare the key specifications of our LuminOx, Zirconium and RapidOx sensors here, and choose the solution that perfectly matches your measurement challenge.

## Precision oxygen sensor (oxy-sensor)

Our highly accurate oxygen sensors with a unique compensation mechanism are largely designed and manufactured in-house. Thanks to this full control over the production process, we can perfectly tailor our products to the specific needs and requirements of our customers.

## How does an oxygen sensor work?

An oxygen sensor measures the partial pressure of oxygen in a gas mixture or in the air. The sensor converts the measured amount of oxygen into an oxygen value, which can then be read or used in a control system. We offer three different oxygen sensors: the LuminOx, the Zirconium and the RapidOx. The LuminOx operates based on infrared technology, while the Zirconium and RapidOx sensors use a zirconium element. This zirconium acts as a chemical “diamond,” following a very different measurement principle from the LuminOx. See the differences below.

### LuminOx oxygen sensor

Thanks to optical luminescence technology based on a controlled infrared module, LuminOx measures oxygen completely contact-free, without consuming oxygen and without a reference electrode. This optical measurement principle differs fundamentally from zirconium sensors and results in lower maintenance, high reliability and an exceptional lifespan of approximately eight years.

The sensor provides pure, stable measurements from 100% down to 0.1% residual oxygen (1000 ppm) and remains accurate under varying conditions between 2°C and 50°C. It is ideal for bioprocesses, gas and liquid measurements or environmental applications where traditional electrodes fall short. With its high purity and robust infrared technology, LuminOx offers a durable solution for those who demand absolute precision.

### Zirconium oxygen sensor

The Zirconium sensor delivers reliable oxygen measurement in demanding environments. With a measurement range of 0.5 to 25 vol.% O<sub>2</sub> and a resolution of 0.01%, this sensor provides stable, accurate results even at extreme temperatures from –25°C to +50°C.

Thanks to its unique measurement principle based on heated zirconium oxide, where the zirconium acts as a chemical “diamond” that reacts to the oxygen present, the sensor guarantees a purity of up to 99.5% and a lifespan of around eight years.

The reaction time of 70 seconds and a startup time of under 20 seconds make it ideal for standard process environments such as cold-storage facilities and industrial installations. With analog 4–20 mA outputs, relay options and possible CAN-bus integration, the Zirconium sensor offers both flexibility and customization.

### RapidOx oxygen analyzer

For industrial processes where every second counts, RapidOx offers unmatched performance. This zirconium oxide–based sensor uses a zirconium element that reacts to oxygen like a chemical “diamond,” enabling it to measure concentrations from extremely low to very high levels: from 1 ppm to 100% O<sub>2</sub>. With a response time of just a few seconds, RapidOx provides immediate and reliable insights where rapid detection is essential. Its robust construction and long lifespan of more than 17,000 hours make the sensor ideal for demanding environments such as vacuum, gas and helium measurements. Thanks to its versatile communication options, including RS232/RS485 with Modbus and analog outputs, RapidOx integrates seamlessly into any process.

## Customization

- We build all generators in our own factory, which allows us to make them fully customized for each customer.

## 24/7 service

- We have a 24/7 emergency service.

# Comparison table: Presscon oxygen sensors

	LuminOx	Zirconium (LOX)	RapidOx
Measurement range	approx. 0–100% O <sub>2</sub> (from trace to saturation)	0,5 – 25 vol.% O <sub>2</sub>	1 ppm – 100% O <sub>2</sub>
Accuracy	±0,05 vol.% O <sub>2</sub> (typical)	±0,1 vol.% O <sub>2</sub>	±1% of reading or ±0,5 ppm
Response time (T90)	< 5 s	approx. 20 s	1 – 4 s
Startup time	< 30 s	< 20 s	approx. 60 s
Operating temperature	–10 °C – +60 °C	–30 °C – +85 °C	+5 °C – +50 °C
Humidity range	0 – 100% RH	0 – 95% RH	tot 95% RH
Power supply	5 VDC	20 – 30 VDC (12 W max.)	24 VDC (20 W min.)
Applications	Where precision is required	Fire prevention, for example in cold-storage facilities	For vacuum, gas and helium measurements

## Presscon Zirconium Oxygen Sensors Officially Certified

The oxygen sensors from FX Prevent, developed and supplied by Presscon, are officially certified according to EN 50104:2019 / A1:2023. This certification confirms the exceptional reliability and accuracy of our oxygen sensors, which contribute to fire and explosion prevention in data centers, cold storage facilities, and other high-risk environments.

Presscon specializes in designing and maintaining nitrogen generators, fire prevention systems, and innovative solutions for various sectors. We develop and manufacture all our products in our own factory in Honselersdijk, where innovation and quality are top priorities.

### Service & Maintenance

Thanks to the simple design of our generators, parts are easy to replace.

### Experience

We have over 30 years of experience and provide quality products to customers around the world.

### Presscon

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