



Your experts in measurement technology

Fraunhofer IPM develops customized measurement techniques and systems for the industrial sector. Our high-tech solutions for production control, object and shape detection, gas and process technology as well as photonic systems stem from many years of experience in the field of optical technologies.

Mission: efficiency

Developing and implementing measurement technology and systems to make industrial processes more efficient – that's our key mission. This means enabling our clients to minimize their use of energy and resources while maximizing quality and reliability. Fraunhofer IPM makes processes more ecological and at the same time more economical.

Contact

Do you have any questions about the gas measurement technology and gas laboratories at Fraunhofer IPM? Get in touch with us!

Prof. Dr. Jürgen Wöllenstein
Head of Department
Gas and Process Technology
Phone +49 761 8857-134
juergen.woellenstein@ipm.fraunhofer.de

Dr. Johannes Herbst
Technical Manager
Phone +49 761 8857-371
johannes.herbst@ipm.fraunhofer.de

Fraunhofer Institute for Physical Measurement Techniques IPM
Georges-Köhler-Allee 301 | 79110 Freiburg, Germany
www.ipm.fraunhofer.de/en



Fraunhofer
IPM

Gas measurement
technology and
laboratory analysis



Gas measurement is part of our daily business."

Prof. Dr. Jürgen Wöllenstein,
Head of Department Gas and Process Technology



Our measurements for you

Gas detection plays a crucial role in safety technology, emissions and air quality monitoring, the quality assurance of industrial processes, medical technology and even in agriculture.

With our longstanding experience in the development of specific gas measurement systems for use in these diverse areas, measuring gases is part of our daily business.

At our gas measuring stations, we evaluate the accuracy and reliability of gas sensors and systems under different conditions. We also characterize sensors and systems based on your specific criteria, or precisely assess their sensitivity to a particular gas or gas mixture.

Laboratories and measuring stations

At six measuring stations across two state-of-the-art laboratories, we use our measurement technology to simulate almost any application scenario:

- We apply up to eight different reference gases simultaneously.
- You specify the reference gases and their concentration within a range between several percent and ppb.
- You determine the environmental parameters, such as temperature and humidity.
- We use calibrated reference gas cylinders or produce specified reference gases from your liquid solutions or pure substances.
- We test your systems for gases such as carbon monoxide (CO), nitrogen oxides (NO_x), ammonia (NH₃), sulphurous gases (H₂S, SO₂), hydrocarbons (C_xH_y) and volatile organic compounds (VOCs).
- We test your systems for toxic or flammable gases, even at high concentrations such as 30 percent CO by volume and 100 percent natural gas by volume.

Your benefits

We characterize and test your gas measurement systems – from microstructured gas sensors to laser-based systems. Measurements are always made in real time, providing you with the signal paths and data from our measuring devices.

The following devices are available at our labs:

- High-resolution digital multimeter
- Curve tracer
- Impedance analyzer
- Lock-in technology
- Fourier transform infrared (FTIR) spectrometer
- Gas chromatograph
- Mass spectrometer

All you need to know about our laboratory equipment and our gas testing and characterization expertise:
www.ipm.fraunhofer.de/en