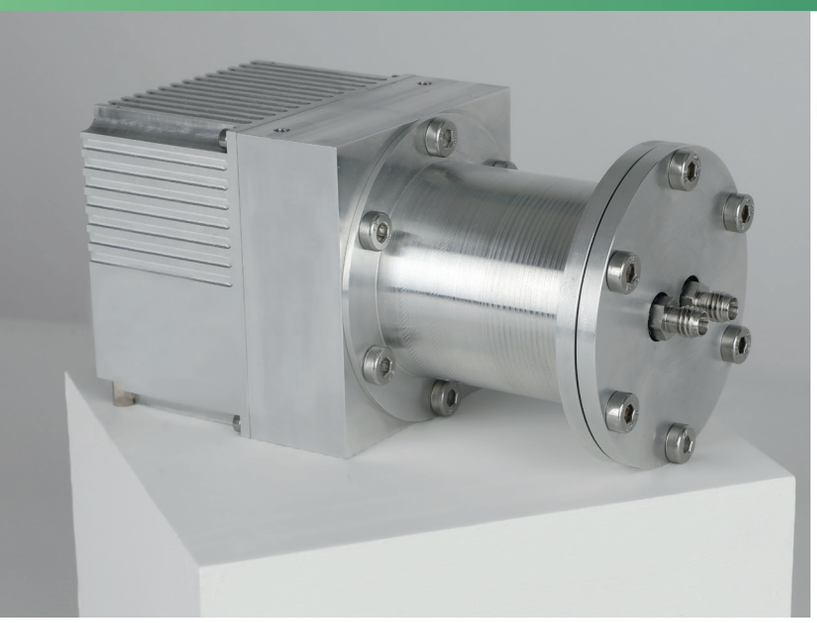
MULTISENSE
by mirSense

H2 quality OEM gas analyzer



Laser Photoacoustic Spectroscopy technology (LPAS)

Multisense gas sensor technology is based on laser spectroscopy in the mid-IR using a photoacoustic sensor. It uses the mirSense proprietary Quantum Cascade Laser technology.

This combination provides a real time measurement of up to 4 gases at trace concentrations (down to sub-ppm) in an unprecedented compact format (less than 1 liter), within a robust and easy to maintain module.

Multisense was developed and designed for integrators, gas system manufacturers, gas analyser manufacturers...

Applications:

The multiSense monitors the H2 quality all along the supply chain of hydrogen:

- Production
- Transportation& storage
- Distribution (HRS)

Technical Features	User Benefits
Trace analysis (down to sub-ppm) High precision (< 1 %)	Process optimization
Response time in seconds	Real time monitoring
Multiple lasers	Multigas sensor
Low cell volume (1 ml)	Low extraction flow (<80 ml / min) Reduced pumping, reduced environmental impact
No moving parts, no optics	Compact and robust sensor for industrial use
Bloc conception	Easy integration, operation, maintenance
Proprietary software (self-diagnostic, alarms)	Plug and play, user friendly interface, high reliability
Miniaturized components, no consumables	Cost effective analyser (low CAPEX and OPEX), fast return on investment

TECHNICAL DATA

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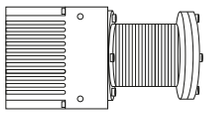


Gases	Range*	Detection limit**	Precision***
H_2O	0.25 to 500 ppm	< 0.25 ppm	<1%
CO	0.1 to 100 ppm	< 0.1 ppm	<1%
CO_2	0.5 to 1 000 ppm	< 0.5 ppm	<1%
NH_3	0.15 to 100 ppm	< 0.15 ppm	<1%
CH_4	10 to 10 000 ppm	< 10 ppm	<1%

*Indicative values, other ranges on request
** 3 σ, 60 s integration time
*** % of the measured value or LOD
Other gases on request

ANALYTICAL

Measurement range: typ. > 4 decades, calibres from LOD to max. range

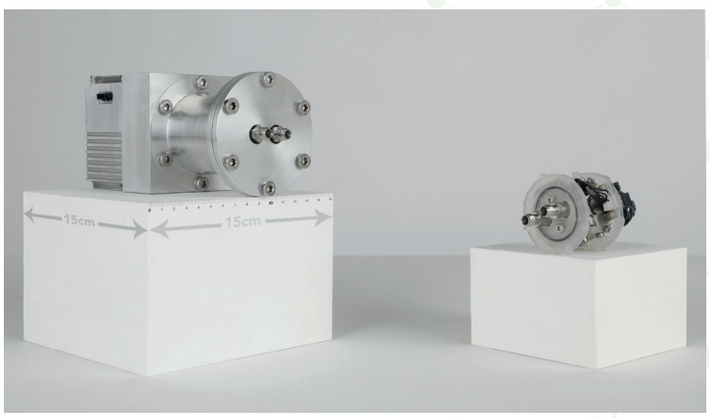
Limit of detection: sub-ppm (depends on gas, matrix, application)

Repeatability: <1% of the read value or LOD

Accuracy: < 1 % of the read value or LOD

Response time T90: typ. few seconds (depend on LOD specification)

Max. measurement rate: 10 Hz



SAMPLING

Gas consumption: < 80 ml/min

Gas cell volume: 1 ml

Sample temperature: Moisture below ambient temperature saturation

Operating pressure: [0.5 - 2] bar.a*
* Pressure sensor required

ELECTRIC & COMMUNICATION

Interface: RS485

Protocol: modbus RTU

Power: ~10W, 24V DC

MECHANICAL

Size: 115x170x108 mm

Weight: <2 kg

Gas connectors: 1/8" O.D. Swagelok

ENVIRONMENT

Operating temperature*: typ. 10 to 30°C

Humidity: 0 – 95 %, non condensing

* See documentation for guidelines

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