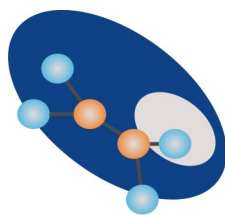


# LaserSmart



# IMAC

## Multi -Gas Analyzer

up to 8 gases  
Simultaneously  
**400+ target gases**  
**ppb—100%**

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## the most robust multi gas analyzer available



Our innovative photoacoustic spectrometer is based on patented Helmholtz resonance cell combined with Laser Diode, Tunable Diode Laser or Quantum Cascade Laser suitable for trace gas and bulk gas detection.

The cuvette incorporate up-to 4 different laser sources this allows us to monitor up-to 8 different target gases simultaneously

### Applications for more than 400 gases for:

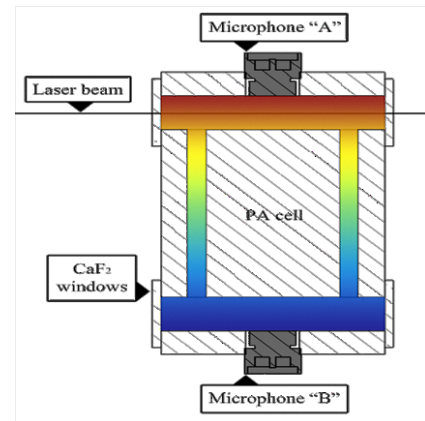
- Natural Gas
- Petrochemicals
- Refineries
- Clean Gas Supplier
- Air Monitoring
- Emission Monitoring
- Beverage Industry
- Agricultural and livestock emissions



## the technology

Our innovative photoacoustic spectrometer is based on patented Helmholtz resonance cell combined with Tuneable Diode Laser or Quantum Cascade Laser suitable for trace gas and bulk gas detection.

The Laser sources are specifically chosen to provide selective and interference-free measurements.



## many advantages

- **Versatility:** The design of the patented PAS cell is independent of the gas detected. To change the molecules detected, one requires just to swap or to tune the QCL to the wavelength of the specific absorption band of the new molecule.
- **Zero-Background Technology.** as there is no signal as long as there is no gas.
- **Robustness:** The photoacoustic cell platform does not have any moving parts and is not sensitive to environmental vibrations because of the high-frequency acquisition rate. There are no wavelength-specific optics or mirrors.
- **High sensitivity:** The PAS can detect ppb levels with a 10-cm path length.
- **No Interference:** selective laser sources
- **Fast sensitivity response:** due to small internal volume
- **Larger than 5 orders of magnitude measurements:** 6 orders of from ppb to a few %.
- **Linearity of the PAS Signal:** over the 5 orders of magnitude (i.e. ppm -%) without any deconvolution or interpolation. A calibration function is used outside this linear range.
- **Specific measurements:** for accurate and specific measurements in complex gas matrices.
- **Use of Mid IR lasers (QCL):** Aerovia's PAS technology use QCL laser in the Mid IR spectral range. It gives access to fundamentals rays (larger peaks) of most molecules and to the detection of large molecules.



## STANDARD SPECIFICATIONS

|   |  |
|---|--|
| <b>Measurement Technique</b>            | IR—Photoacoustic spectroscopy  |
| <b>Additional Environmental sensors</b> | <ul style="list-style-type: none"><li>• Humidity sensor</li><li>• Pressure sensor</li><li>• Temperature sensor</li><li>• Mass Flow</li></ul> |
| <b>Response time*</b>                   | T90 < 10 s (flow = 400 cm <sup>3</sup> /mn)  |
| <b>Linearity</b>                        | ± 1 % of calibration full scale.   |
| <b>Measurements Reproducibility*</b>    | ± 1 % of the signal  |
| <b>Accuracy*</b>                        | ± 2 % of the signal  |
| <b>Zero/span drift</b>                  | Negligible due to zero background technique  |
| <b>Instrument failure alarm*</b>        | up to 4 Potential free configurable. Dedicated alarms available  |
| <b>Process alarm *</b>                  | up to 8 Potential free configurable  |
| <b>Area classification</b>              | ATEX IEXEx Zone 1 Exd IIC T5   |
| <b>Sample Gas Temperature*</b>          | -10°C to 80°C  |
| <b>Sample Pressure*</b>                 | 0.7 to 2 bar   |
| <b>Humidity Range</b>                   | < 99 % non condensing  |
| <b>Sampling Gas Flow Rates*</b>         | typical : 20 l/h,  |
| <b>Fluidic circuit:</b>                 | Immune to Most Contaminants  |
| <b>Measurement Rate*</b>                | 2Hz continuous   |
| <b>Inputs and outputs*</b>              | Modbus<br>4—20mA<br>Digital Signal out RJ-45 for TCP/IP communications   |
| <b>USB port</b>                         | Standard USB port for data back-up   |
| <b>Power Supply</b>                     | 100—240V 50-60 Hz (on demand 24DC)   |
| <b>RFI protection</b>                   | Conform to EN 50270 : 2006 (Product type 2)  |

\* Typical values. Contact IMAC for other specifications, recipes, or values

|   |                                     |
|---|-------------------------------------|
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|---|-------------------------------------|