



## Application Overview

Laser absorption spectrometry (LAS) refers to techniques that utilize lasers to assess the concentration or amount of a species in gas phase by absorption spectrometry (AS). Optical spectroscopic techniques in particular in laser-based techniques have a great potential for detection and monitoring of constituents in gas phase. They combine a number of important properties, e.g. a high sensitivity and a high selectivity with non-intrusive and remote sensing capabilities. Laser absorption spectrometry has become the foremost used technique for quantitative assessments of atoms and molecules in gas phase. It is also a widely used technique for a variety of other applications, e.g. within the field of optical frequency metrology or in studies of light matter interactions.

**Applications include:** Gas detection and environmental monitoring in Military, Industrial and Commercial applications.



## Laser Absorption Spectrometry

### Sensitive Detection and Measuring Concentration of Gas Using High-Speed Digitizers

#### Solution Description

- U1082A, 8-bit, 2 channel, 1 GHz, 1-2 GS/s, PCI digitizer with on-board processing (averaging with 6 MB to 24 MB processing).

#### Key Features and Added Value

- Digitizing integrity.
- Speed of averaging.
- Reliability.
- Support (particularly by local representative).
- Low noise.
- High speed.
- Ultrafast averaging capabilities improve the system SNR resulting in a high resolution with better accuracy.
- 2 GS/s sampling rate.
- Easy integration with support for Windows, Linux, VxWorks and LabView programming environment.

#### Key Requirements

- Proven products that are easy to integrate into complete systems.
- Small size and low power.
- Fast data throughput/processing is crucial for field based systems.
- Get involved with manufacturers early in the design phase of new systems.

#### Resources

- U1082A PCI digitizer with on-board processing brochure: <http://cp.literature.agilent.com/litweb/pdf/5989-7124EN.pdf>
- Data Converter product selection guide: <http://cp.literature.agilent.com/litweb/pdf/5989-8038EN.pdf>
- Digitizers website: [www.agilent.com/find/embedded-digitizers](http://www.agilent.com/find/embedded-digitizers)

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