AtLAS-700

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Data sheet

2018

19” Laser analyser for industrial online analysis of a wide number of gases

TDLAS Analyser

for extractive applications

AtLAS-700 is a rack type tunable laser gas analyser for industrial inline and environmental monitoring.

The analyser combine the TDLAS technology and multiple reflection long optical path technology that can measure a variety of gas, including O_2, CO, CO_2, H_2O, H_2S, HCl, HF, NH_3, CH_4, C_2H_2, C_2H_4.

Reflected light can be customized according to the working condition demand, allowing to measure each gas from high percentage down to traces.

Features

Compact Structure, Easy Integration

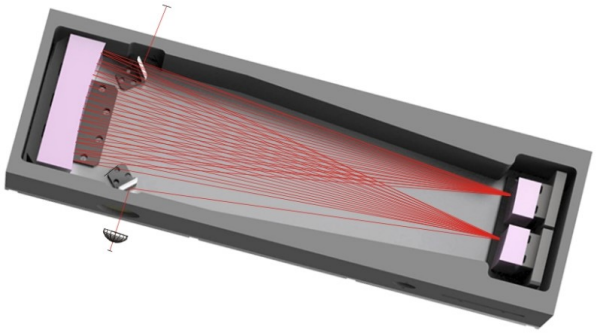
- 19" standard 3U panel chassis, modular design, easy integration with other instrument

Strong anti-interference capability

- High accuracy and small drift
- Adopting wavelength modulation spectroscopy allows better anti-interference capability of background gas and higher reliability

Low detection limit, high sensitivity

- Multi-reflection technology achieves optical path up to 25 m, highly improving detection limit.
- The sensitivity can reach ppm level or even ppb level for some components



Excellent adaptability

- For applications is corrosive environment, all parts of AtLAS-700 exposed to sample gas are made of corrosion-resistant material.
- No inner moving parts

Single gas Analysers

Gas	Detection Limit	Min. & Max. Range
O_2	5 ppm	0-1000 ppm....0-25% vol.
CO	0.2 ppm	0-100 ppm....0-100% vol.
CO_2	0.2 ppm	0-100 ppm....0-100% vol.
H_2O	0.1 ppm	0-100 ppm....0-100% vol.
H_2S	2 ppm	0-200 ppm....0-100% vol.
HCl	0.05 ppm	0-10 ppm....0-50% vol.
HF	0.01 ppm	0-2 ppm....0-50% vol.
NH_3	0.01 ppm	0-1 ppm....0-100% vol.
CH_4	0.2 ppm	0-20 ppm....0-100% vol.
C_2H_2	0.01 ppm	0-1 ppm....0-100% vol.
C_2H_4	0.1 ppm	0-10 ppm....0-100% vol.

Multi gas Analysers

Gas	Detection Limit	Min. Range
$CO + CO_2$	5 ppm	0-1000 ppm vol.
$NH_3 + H_2O$	0.01 ppm (NH_3) 50 ppm (H_2O)	0-10 ppm (NH_3) 0-1% (H_2O)
$HCl + H_2O$	0.1 ppm (HCl) 0.1% (H_2O)	0-100 ppm (HCl) 0-5% (H_2O)
$HF + H_2O$	0.05 ppm (HF) 0.01% (H_2O)	0-20 ppm (HF) 0-10% (H_2O)

Test conditions: 10 meters optical path, 1 bar gas pressure, 27°C

Available ranges in mg/m^3

NOTE: optical path can be extended up to 25 meters and for some components, the minimum range can be even lower than specified in the table above. Contact ADEV for details

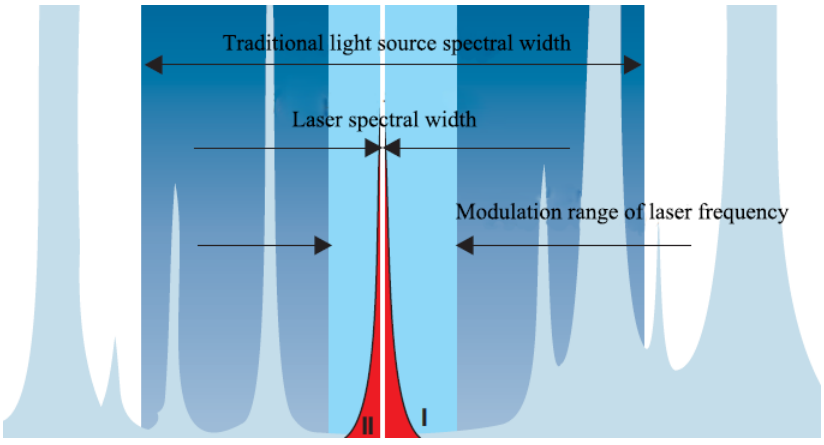
Measuring Principle

TDLAS (Tunable Diode Laser Absorption Spectroscopy) mainly uses the character that Tunable laser's narrow band and wavelength change with the current. So by precisely modulating the current of tunable laser, it can scan a certain absorption peak of detected gas (no absorption of background gas).

And after obtaining the second harmonics absorbed by detected gas, it finally works out the concentration of detected gas by using this second harmonics and line-width.

The TDLAS technology has been developed into a kind of high sensitivity, high resolution, fast response time and high selectivity of gas detection technology, widely used in industrial process monitoring control.

By using a tunable semiconductor laser, AtLAS-700 scans the specific absorption line of the measured gas (no background gas) to get the second harmonic of the gas. Through processing and analyzing the second harmonic and the broadening information of the gas, the concentration of the gas is obtained.



Performance Specification

Measuring Principle	TDLAS (Tunable Diode Laser Absorption Spectroscopy)
Linearity Error	≤ ±1% FS
Repeatability	≤ ±1% FS
Span Drift	≤ ±1% FS / 6 months
Zero Drift	≤ ±1% FS / 6 months
Maintenance Cycle	≤ 2 times / year (related to the working conditions)
Calibration Cycle	≤ 2 times / year (or automatic calibration)
Enclosure Rating	IP54
Response Time	≤ 30 sec. at T90 (related to the working conditions)

Signals

Analog Output	2 x 4-20 mA isolated (max. load 750 Ω)
Analog Input	2 x 4-20 mA isolated (for temperature and pressure compensation, if necessary)
Digital Output	RS485 / RS232
Relay Output	3 x (24V, 1A)

Operative Specification

Sample Gas Flow	0.5...2 l/min.
Sample Gas Interface	Ø6 Bi-lok
Power Supply	100...240 Vac
Ambient Temperature	-20°C....+60°C
Ambient Humidity	≤ 90% non-condensing

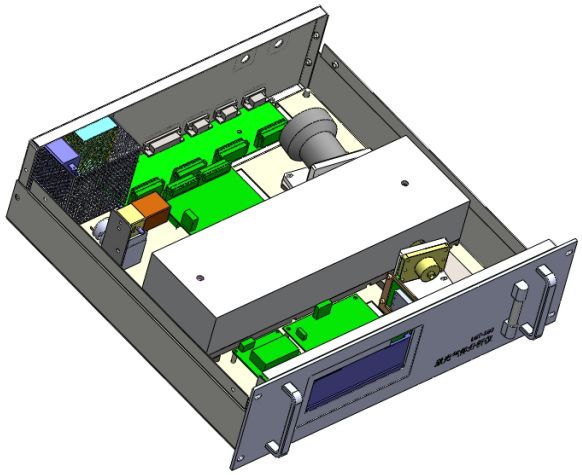
Physical Specification

Outline Dimensions	132(H) x 483(W) x 434(D) mm
Weight	~ 21 Kg.

System Composition

Transmitter, received and gas cell are integrated into a 19" 3U chassis. Analyser can be panel mounted into a 19" cabinet.

The analyser require an external sample and condition system able to deliver a clean (filtered) and dry gas, non-condensing.



Installation and Dimensions

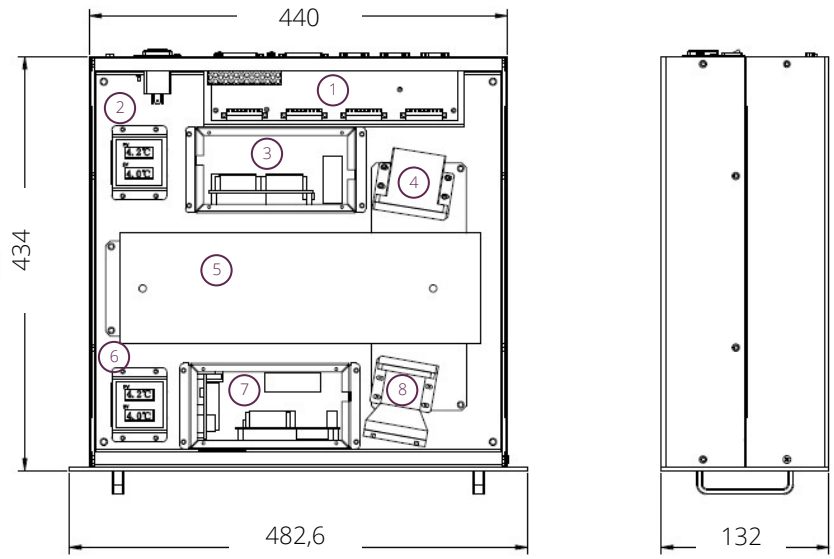
- Analyser supports autocalibration
- 5.5" OLED display, mechanical buttons operation
- Analog and serial output from back panel
- Analyser contains power conversion module; the power is directly supplied through the rear panel power interface

European Compliance

- Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU

CE

Dimensional Layout



Analyser Main Blocks

1. Interface board and power module
2. Temperature controller
3. Receiver mainboard
4. Receiver unit
5. Gas compartment
6. Temperature controller
7. Transmitter board and temperature controller mainboard
8. Transmitter unit

Contacts

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