

## Online Trace Gas Analyzer

# ATQ3000

### Feature:

- Patent No.: ZL201410411351.1, ZL201420471113.5
- Gases measured: CH<sub>4</sub>, NO, NO<sub>2</sub>, CO, H<sub>2</sub>S, O<sub>2</sub>, H<sub>2</sub>O, CO<sub>2</sub>, NH<sub>3</sub>, <sup>13</sup>C/<sup>12</sup>C, <sup>15</sup>N/<sup>14</sup>N, SO<sub>2</sub>, NO<sub>x</sub>, CO, O<sub>3</sub>, PM10 etc.
- Principle: Spectral Absorbance
- High-Precision reach down to minimum ppb-class;
- Long Optical Path reach up to maximum 15 m;
- Core modular size: 0.36×0.13×0.18 m<sup>3</sup>;
- Self-Check Function of Light Source Intensity;
- High Responsivity, Repeatability, Accuracy, Convenience
- Standard 19" case

### Application:

- Air measurement;
- Monitor gases of H<sub>2</sub>S, H<sub>2</sub>O;
- Online monitor exhaust gases;
- Online monitor industrial combustion O<sub>2</sub>;
- Automobile exhaust gases;

### Description:

ATQ3000 is self-designed trace gas analyzer base on the gas molecule absorbance in the range of NIR/Mid-IR. The measured relationship base on Beer-Lambert Law, say infrared light attenuation in direct proportion to gas concentration and optical length. The infrared light in specific range decided by the detected gas, go through collimating, commissioning through high speed chopper, shoot through the gas cell with the customized multi-harmonic ring-down cavity, the incident laser reflected to and pro the measured cell, and final emitted through emission port, reach to optical-electric test device and circuit board, light intensity emitted divided by incident intensity can calculate the infrared light attenuation, considering optical length is given, gas concentration can be further calculated.

This product applied patent ZL201410411351.1, ZL201420471113.5. In the condition of small size gas cell can use multi-ring-down to make multiple reflectance, the effective optical range increased by about 1000 times, and results in high accurate measured results. The unique long optical length gas cell usually applied to spectral analysis. Considering compact size, easy-to-install and operate, it applied to laboratory trace gas analysis, industrial process measure, environmental industry for gas detection, biochemical and biomedical spectrum analysis.



Fig 1 ATQ3000 Gas Analyzer  
(Customized Case Outlook)



Fig 2 Gas Measurement Principle  
(Patent: ZL201410411351.1, ZL201420471113.5)

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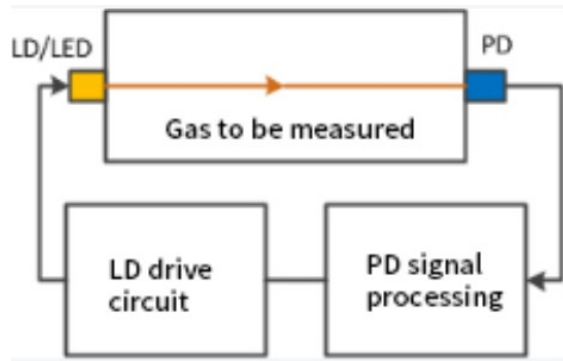


Fig 3 Gas Absorbance Beer-Lambert Law

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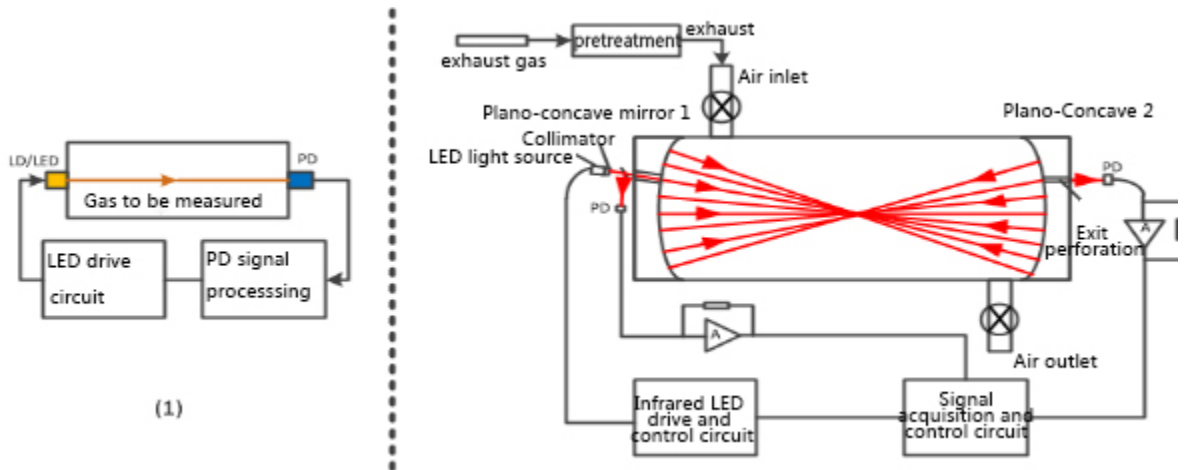


Fig 4 本 The left is one optical range gas cell, the right is multi-harmonic ring-down cavity technology (Patent technology: ZL201410411351.1,ZL201420471113.5)

## 2.

Gases	Sensitivity	Range
CH4	5 ppb	0 ~ 2000 ppm
NO	1 ppb	0 ~ 2000 ppm
CO	1 ppb	0 ~ 2000 ppm
H2S	10 ppb	0 ~ 2000 ppm
O2	100 ppb	0 ~ 20%
H2O	1 ppb	0 ~ 2000 ppm
CO2	2 ppb	0 ~ 80%
NH3	5 ppb	0 ~ 2000 ppm
13C/12C	<1‰	TBD
15N/14N	<1‰	TBD
SO2	10 ppb	0 ~ 2000 ppm
NOx	10 ppb	0 ~ 2000 ppm
O3	10 ppb	0 ~ 2000 ppm
PM10	TBD	TBD

## 3、Performance Configuration

System	
Interface	RS485, LAN
Storage Space	8 GB
Power supply	100 ~ 265V, 50/60Hz,
Power	<50W
Dimension	1.2×0.6×0.6 m3 ( Customized case size )
Weight	54.5 Kg
Reliability	
Operating Temp Range	0 ~ 40°C
Storage Temp Range	-20 ~ 65°C
Operating Humidity Range	< 85% RH
Modular	
Dimension	0.36×0.13×0.18 m3
Effective Optical Path	<15 m
Light Source	NIR/MID-Laser differ to gases measured
Detector	InGaAs/PbS/HgCdTe
Power Supply	+24V, 2A