

LGA-4500 IC

Laser Trace Gas Analyzer

Laser trace gas analyzer LGA-4500IC is the latest achievement of FPI in the field of laser gas analysis, which combines diode laser absorption spectroscopy (DLAS) and integrated cavity output spectroscopy (ICOS) perfectly and in turn enhances the measuring sensitivity hundreds folds. It provides the best solution for trace gas analysis in natural gas, petrochemical, chemical and steel industry and so on.

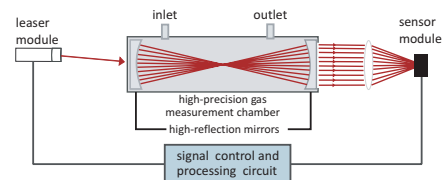


Product Features

- High detection sensitivity of the laser gas analysis
- Fast response
- Innovative design for flameproof, safe, reliable and convenient operation
- Low cost for long-term operation and maintenance

Operational Principle

The core components of LGA-4500IC Laser trace gas analyzer—high precision reflective optical cavity is comprised of the high reflectivity($R>99.99\%$) mirror of two sides. When the laser entered into high precision cavity full of measured gas, the laser will be reflected hundreds or even thousands times. By detecting the faint optical signal with the information of the spectroscopy absorption of the measured gas, online measurement of trace and even trace gas concentrations can be realized, fast, accurately and reliably.



LGA-4500IC Schematic Diagram

Technical Specifications

Technical indexes

Linearity error: $\leq \pm 1\%F.S.$
 Range drift: $\leq \pm 2\%F.S./3$ months
 Repeatability error: $\leq \pm 1\%F.S.$
 Explosion-proof levels: Ex pxmd IIB T4
 Protection grade: IP65

Response time

Warm-up time: ≤ 1 hour
 Instrument response time (T90): ≤ 1 second

Interface signals

Analog Output: 2 way 4-20mA, isolated, maximum load 750 Ω
 Relay Output: 2 way relay, Specification 24V, 1A
 Digital communications: Rs485 (RS232 or GPRS optional)

Electric features

Power supply: 220AC/48~63Hz
 Power consumption: $\leq 400W$
 EMC: IEC 61000-4-2
 IEC 61000-4-5
 IEC 61000-4-4
 IEC 61000-4-11
 Electric safety: IEC 61010-1

Operation environment

Sampling gas: no dust, no water, no oil (filter accuracy of 0.1 μm)
 Operation temperature: $-20^{\circ}C \sim 50^{\circ}C$
 Recommendation flow rate: 0.5~2L/min

Measurement Parameters

Gas	Standard measuring range	Minimum measuring range	Detection limit
H ₂ S	0-200ppm	0-20ppm	1ppm
CO	0-1000ppm	0-200ppm	5ppm
CO ₂	0-1000ppm	0-200ppm	5ppm
C ₂ H ₂	0-5ppm	0-0.5ppm	10ppb
O ₂	0-1000ppm	0-100ppm	1ppm

Notes: 1. Above is part gas indicator. Other gas is based on user needs.
 2. Specific range can be customized on demands, please consult FPI if you have special demands.

LGA-3500 (Bypass Model)

Semiconductor Laser Gas Analyzer

LGA-3500 Series Semiconductor Laser Gas Analyzer, based upon the laser absorption spectroscopy (DLAS) and DSP digital technique, is a new-generation product with high value for money. It carries forward the unique tradition of DLAS technique and adopts the integrated design with small size, stability and reliability.

LGA-3500 can perform under such conditions as high temperature, high pressure, high dust volume and strong corrosion, and conduct online monitoring of gas concentration in industrial processes. It is widely used in such areas as chemical engineering, concrete, environment protection and metallurgy and provides the best solutions of the industry in view of all kinds of working conditions.

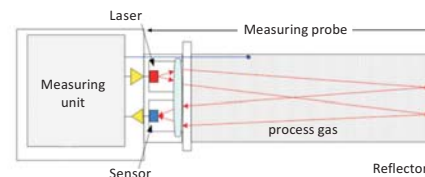


Product Features

- LGA-3500 takes semiconductor with stability and low noise as its light source and adopts
- Wide application for many different conditions
- High system stability and little need for maintenance
- Whole system anti-explosion

System Composition

LGA-3500 Series Semiconductor Laser Gas Analyzer consists of measuring unit and measuring probe etc. Laser light emitted by measuring unit passes through the gas compartment of measuring probe, and is received by the receiver in the measuring unit; after spectra data analysis, it is then displayed on the computer-human interface.



Technical Specifications

Technical indicators

linearity error: $\leq \pm 1\%F.S.$
 Span drift: $\leq \pm 1\%F.S./3$ months
 Repeatability error: $\leq \pm 1\%F.S.$
 Anti-explosion grade: Ex pxmd II CT5
 Protection grade: IP66

Response time

Warm-up time: ≤ 15 Min
 Response time: ≤ 1 S

Interface signal

Analog quantity output: two way 4~20mA, isolation and Max load 500 Ω
 Relay output: 3 way relay, specifications: 24V DC, 1A
 Digital communications: RS485/RS232

Electrical characteristics

Power: 100~240AC/48~63Hz
 Power consumption: ≤ 12 W
 EMC: IEC 61000-4-2
 IEC 61000-4-4
 IEC 61000-4-5
 IEC 61000-4-11
 Electrical safety: IEC 61010-1

Sample gas conditions

Sample gas pressure: 0.5~3bar (absolute pressure)
 Sample gas temperatures: $-30^{\circ}C \sim 100^{\circ}C$
 Recommended flow: 1~5L/Min

Working conditions

Temperature: $-20^{\circ}C \sim 50^{\circ}C$
 Barotropic purging gas: 0.3~0.8MPa industrial nitrogen or instrument air (99.99% purity for low range O₂)

