CONTINUOUS PROCESS AND EMISSIONS MONITORING SYSTEM

NEW

State of the art DOAS and TDLAS combined Insitu Flue Gas Analyzer

Instrument Introduction

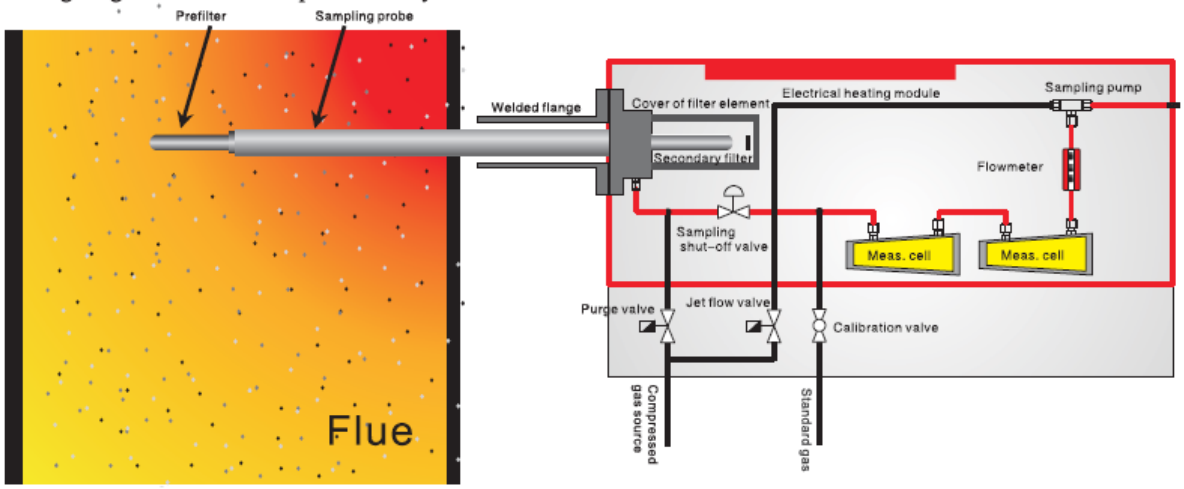
!LGT–450 Flue Gas Analyzer is a highly integrated single-flange gas monitoring equipment, of which, core detection module adopts Tunable Diode Laser Absorption Spectroscopy (TDLAS) and Differential Optical Absorption Spectroscopy (DOAS) gas absorption technology with independent intellectual property rights. The specially designed measuring cell effectively improves optical path length for gas absorption, which can measure trace gas accurately inside pipeline

!LGT-450 can be widely applied in online gas monitoring occasions including denitrification device, boiler flue and exhaust detection, etc. One equipment can realize online monitoring for multiple gas components, such as CO, CO_2、SO_2, NO, NO_2, etc.

System Flow Path

Under effect of high–temperature sampling pump, high–temperature process gas passes through prefilter, sampling probe and secondary filter before entering gas analysis module for gas concentration monitoring and at last it will be discharged. For better application, it is equipped with high-temperature electrical heat tracing inside equipment and the parts directly contacting with chimney pipe adopt anti-corrosion treatment, which can effectively solve the problems of process gas absorption (caused by gas condensation), dissolution (caused by gas condensation) or corrosion.

To avoid dust blocking, the device will close sampling valve automatically and control purge valve to clean filter element at fixed time, ensuring long-term and stable operation of system.



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Features

① Filter element can be easily disassembled and replaced

② Adopt single–flange design with high integration and easy installation

③ With high-temperature flowmeter, user can observe flow during equipment operation

④ Sampling mesurement is free from interference of pipeline deformation, high dust and other working condition change, with strong adaptability

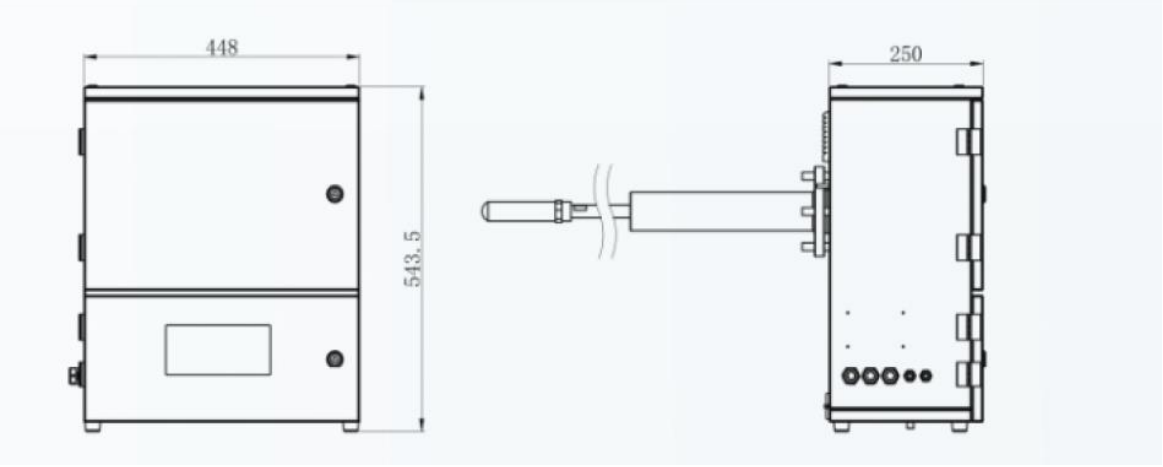
⑤ The whole gas path is equipped with high-temperaure heat tracing and regular auto purge to prevent dust and crystal like salt from blocking the equipment, less maintenance

Technical Parameter

TDLAS Technical Index		DOAS Technical Index	
Principle	TDLAS	Principle	DOAS
Component	Co: 0-3000ppm, CO2: 0-25%	Component	SO2: 0-3000ppm, NOx: 0-3000ppm
Linearity error	≤ ± 2% F.S.	Linearity error	≤ ± 2%F.S.
Repeatability	≤ ± 2%F.S.	Repeatability	≤ ± 2%F.S.
Zero drift	≤ ± 2%F.S./7d	Zero drift	≤ ± 2%F.S./7d
Span drift	≤ ± 2%F.S./7d	Span drift	≤ ± 2%F.S./7d

Dimensions

Mainframe Box



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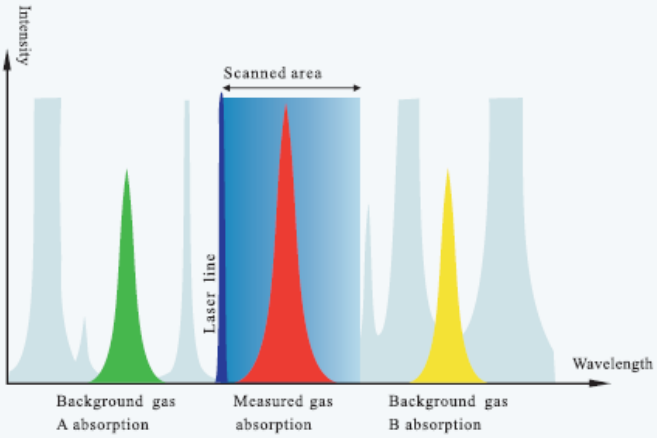
Technical Principle

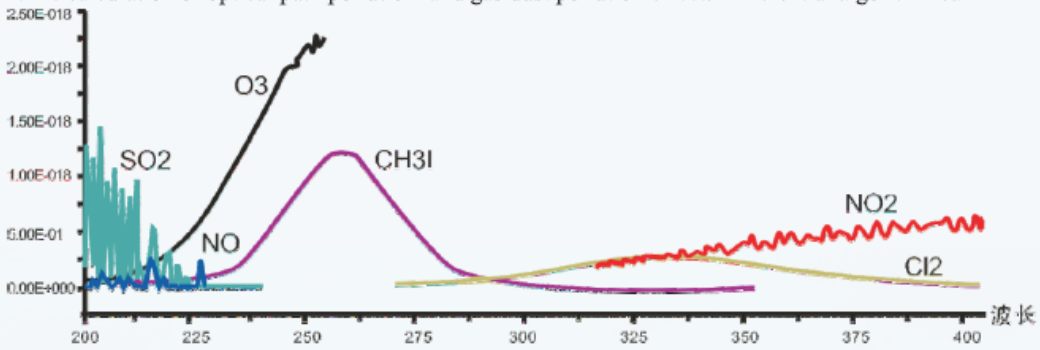
TDLAS Principle

Laser module is based on Tunable Diode Laser Absorption Spectroscopy (TDLAS) Technology. It internally integrates high-performance diode laser, of which owns two features: tenability of laser wavelength and fingerprint characteristics of gas absorption. It takes advantage of the tenability of laser wavelength that the emission wavelength changes with the working temperature and current. It can make the laser wavelength changes periodically in small range through the periodic regulation of the current. In each period, "single absorption spectrum" data can be obtained, and then concentration of measured gas can be calculated. Periodic wavelength regulation can amend the interference of background dust and window pollution towards the measurement. Because of fingerprint characteristics of laser, it can selectively detect measured gas without affecting by complex background gas components.



DOAS Principle

UV module is a gas measurement module based on Ultraviolet Absorption Spectroscopy Technology and Ultraviolet Differential Algorithm (DOAS). Due to gases like So2, NO and No2 have absorption at ultraviolet band. When light beam emitted by UV light source converges to enter optical fiber, through which, it transmits to high-temperature measuring cell. When passing gas cell, measured gas will be absorbed and then transmitted to spectrograph. The grating inside spectrograph is used for light splitting of light absorbed by measured gas while sensor array is used to convert optical signals into electrical signals to obtain continuous absorption spectrum information of So2, NO and No2. The instrument will calculate concentration of measured gas based on differential absorption spectrum algorithm (DOAS). DOAS technology is able to realize real-time calculation of optical path pollution and gas dust pollution effect. Differential algorithm can minimize the influence.



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Instrument Parameter

Working power	220 (1±15%) VAC, 50HZ, 1000W
Instrument gas source	0.4MPa~0.8MPa, oil-free, water-free and dust-free
Response time	T90
Analog output	5×4–20mA output (depend on gas combination)
Switch output	4×relay output
Digital output	1 × RS485 output
Ambient temperature	–20℃~60℃
Ambient humidity	⩽90%RH, non condensing
Dimension	
Weight	About 45kg