

Infrared Gas Analyzer

GF330

Features

- Continuous measurement of SO₂, NO, CO, CO₂, CH₄, N₂O, O₂, SF₆ and other gas concentrations
- Support 4-20mA analog output, RS232, RS485, network port and other data output methods
- The instrument is easy to operate, quick to set up and easy to operate, and the warm-up time depends on the sensor
- Color large-screen LCD operation interface, supports switching between Chinese and English, and can directly complete parameter setting, measurement and calibration through the menu
- The measuring range can be customized, and the gas concentration unit can be switched between ppm and mg/m³

Application

- Scientific research fields
- Agricultural field
- Industrial field
- Environmental protection field
- Security field

Description

The infrared gas analyzer adopts non-dispersive infrared technology (NDIR, Non-Dispersive InfraRed). NDIR is a method based on the Lambert-Beer law gas absorption theory. After the infrared radiation emitted by the infrared light source is absorbed by a certain concentration of gas, the spectral intensity proportional to the gas concentration will change, so the concentration of the gas to be measured can be reversed by calculating the change in spectral light intensity.

Another core technology of infrared gas analyzer is based on infrared correlation filtering technology and self-designed long optical path gas absorption cell to realize quantitative analysis of gas in infrared band, which has the characteristics of high precision, good stability and fast response time.



1. Performance

Measuring principle		Infrared absorption (NDIR)
Measuring gas		CO,CO ₂ ,o ₂ , etc. (expandableSO ₂ ,NO,N ₂ O,CH ₄ ,SF ₆ , replace the corresponding sensor module according to customer needs)
Measuring range	SO ₂	0-100ppmto0-2000ppm
	NO	0-1000ppmto0-3000ppm
	CO	0-100ppmto0-100% Vol
	CO ₂	0-100ppmto0-100% Vol
	CH ₄	0-50ppmto0-5%Vol
	SF ₆	0-50ppmto0-1000ppm
	N ₂ O	0-50ppmto0-500ppm
	o ₂	0-5%Volto0-25%Vol
Preheat time		5 minutes (depending on the sensor))
Response time		≤5s
Stability	Zero drift	≤1% FS/week
	Range drift	≤1% FS/week
Output Interface	Numerical output	RS323/RS485
	Switch output	IN/OUT(support8road)
	Analog output	4-20mA(support4road)
Gas inlet flow		0.5L-1L/min
Linearity error		≤1% FS
Repeatability		≤1%
Ambient temperature effect		Ambient temperature does not change10°C, zero point and span change ≤2%
Atmospheric pressure effect		Per change ≤1%, (allowable atmospheric pressure range) ≤2%

Use environment	Temperature:0-45 °C Humidity: 0-90%RH Atmospheric pressure:700-1200Mpa
Power supply	AC220V
Dimensions	19inch4USheet Metal Chassis
Weight	12KG

2. Purchase Guide

GF330 infrared gas analyzer adopts two different working principles

(1) Measuring principle of infrared gas analyzer

Infrared gas analyzer technology is non-dispersive infrared technology (NDIR, Non-Dispersive InfraRed). NDIR is a method based on the Lambert-Beer law gas absorption theory. After the infrared radiation emitted by the infrared light source is absorbed by a certain concentration of gas, the spectral intensity proportional to the gas concentration will change, so the concentration of the gas to be measured can be deduced by calculating the change in spectral light intensity. Another core technology of infrared gas analyzer is based on infrared correlation filtering technology and self-designed long optical path gas absorption cell to realize quantitative analysis of gas in infrared band, which has the characteristics of high precision, good stability and fast response time.

Lambert-Beer law

Infrared gas analyzers are made according to the Lambert-Beer law. Assume that the measured gas is an infinitely thin plane. Infrared rays with an intensity of I_0 penetrate it vertically, and the amount of energy attenuation is:

$$I = I_0 \times e^{-kCL} \quad (\text{Lambert-Beer law})$$

In the formula: I --radiation intensity absorbed by the medium;

I_0 - the radiation intensity of infrared rays before passing through the medium;

k - the absorption coefficient of the component to be analyzed to the radiation band;

C - the gas concentration of the component to be analyzed;

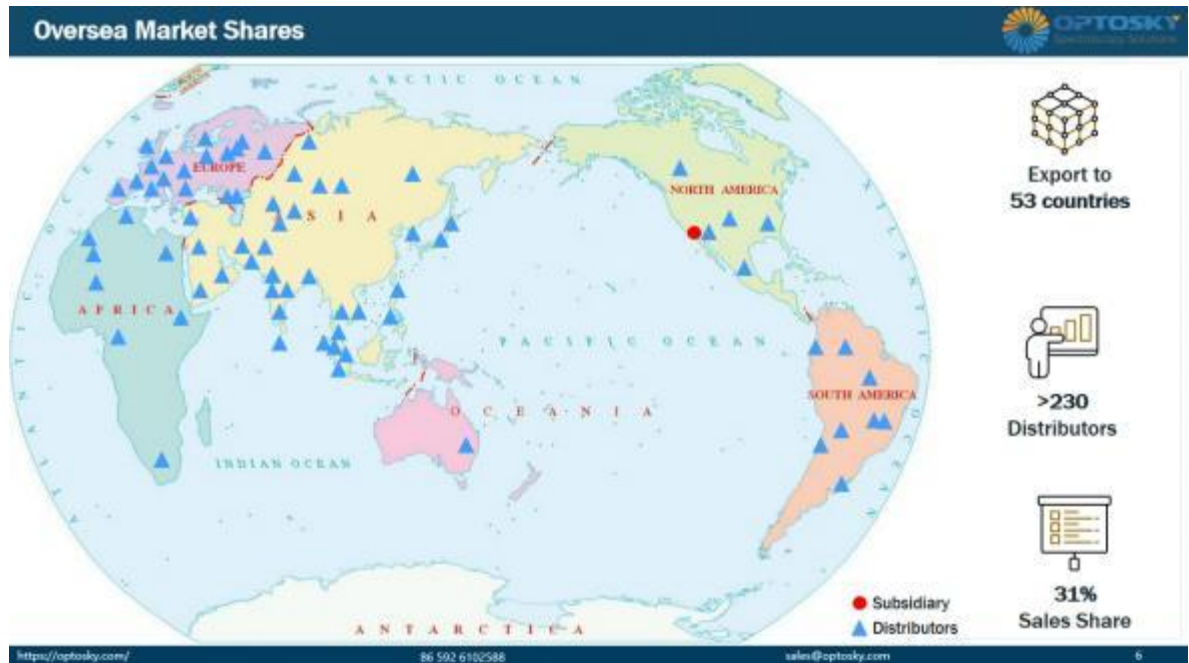
L --the length of the gas chamber (the thickness of the measured gas layer)

For the infrared gas analyzer, the measurement components are fixed, that is, the absorption coefficient k of the components to be analyzed for the radiation band is fixed; the infrared light source is fixed, that is, the radiation intensity I_0 before the infrared rays pass through the medium is fixed; the length L of the gas chamber is fixed. It can be seen from Beer's law that the concentration C of the component to be analyzed can be determined by measuring the attenuation I of the radiation energy.

(2) Oxygen concentration measurement principle

The oxygen sensor works according to the working principle of a fuel cell. Oxygen is converted into an electric current at the interface between the cathode and the electrolyte, and the generated electric current is proportional to the oxygen concentration.

3. Company Profile



Oversea Market Shares



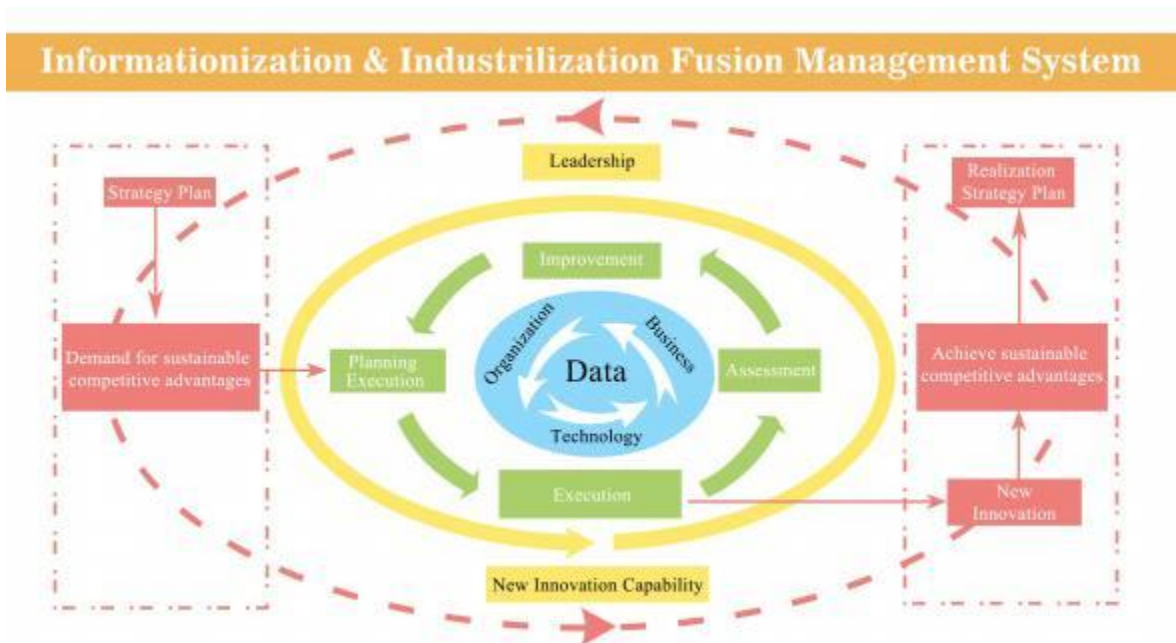
Optosky Chair and Draft National Standards Lists

Qualification

ISO9001:2005	GB/T 23001 Informationization & Innovation	CE, RoHS, LVD 17 models	Police Approval 11 models
GB/T 29490 IP implementation	5 Innovative patents	35 patents new utility design	32 Software copyright

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Qualification



GB/T 23001 _ Informationization & Industrialization Fusion Management System

Co-Founder—Dr. Hongfei Liu





Postdoctoral Hongfei Liu

- Selected "Innovative Talent" by Science and Technology ministry
- Top Class A Talent by Xiamen City
- CCTV Science & Technology Interview
- Fortune 500 experience in Agilent, II-VI

Honors

- Selected by science & technology ministry as "Innovation Talent"
- CCTV Science & Technology Interview
- Top Class A Talent credited by Xiamen City
- Innovation Hero

Education

- PhD • Chinese Science of Academic • Prof. Gu-Lin Chen, Originator in spectroscopy
- Postdoctoral • Xiamen University • Prof. Zhong-Qun Tian guided by the SERS founder M.Fleischmann

Career

- Engineer → R&D Manager → GM
- Agilent, Leader of Instrument, Fortune 500 company, Job: engineer
- II-VI Incorporated (Nasdaq: IVI) leader in optical & electrical industries, Job: GM of Instrumentation and Automation

Academic

- University graduate tutor
- obtain more than 60 IPs, more than 10 innovation patents;
- Publish more than 20 papers, 2 recorded SCI, 8 recorded EI



Selected "Innovative Talent" by Science and Technology ministry



Top Class A Talent by Xiamen City




Founder & Tutors

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Optosky's Co-founder_Dr. Hongfei Liu

Category & Application



Category

Modular Spectrometer
ATP

Field Spectrometer
ATP

Hyperspectral Imager
ATH


Raman Spectrometer
ATR

Fluorescence Spectrometer
ATF

UV-Vis Ultra-volume Spectrophotometer
NanoBio

Other Spectral Measurement

Application



Spectroscopy Analysis

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Category & Application