Cubic Sensor and Instrument Co., Ltd.

Add: Fenghuang No.3 Road, Fenghuang Industrial Park, Eastlake Hi-tech Development Zone,Wuhan, 430205, China
Tel: +86-27-81628827 Fax: +86-27-87401159
Web:en.gassensor.com.cn E-mail:sales@gassensor.com.cn

Semiconductor Manufacturing Process Sensing Solutions

Cubic Sensor and Instrument Co.,Ltd.

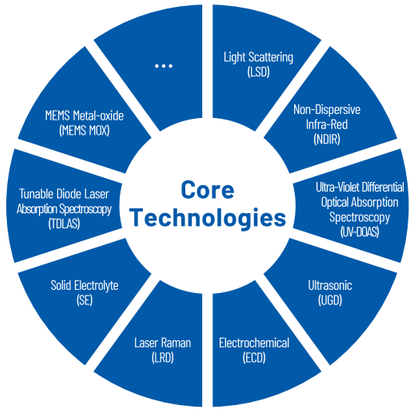
Cubic Introduction

Cubic Sensor and Instrument Co., Ltd. (hereinafter referred to as "Cubic") is a publicly listed company in SSE STAR Market (stock code:688665), specializing in smart gas sensors and superior gas analyzers. Established in 2003 in Wuhan Optics Valley, Cubic has established gas sensing technology platforms including optical technologies (NDIR, Ultraviolet, Light Scattering, Laser Raman), ultrasonic technology, MEMS metal oxide semiconductor (MOX) technology, electrochemical technology, ceramic thick-film technology based high temperature solid electrolyte technology. Cubic has obtained more than 100 patents at home and abroad, with abundant products widely used in various fields of air quality, environmental monitoring, industrial processes, industrial safety monitoring, healthcare, smart metering and so on.

Cubic has a provincial-level enterprise technology center and a gas analysis instrumentation engineering technology research center in Hubei Province of China. Actively participating in the national technological innovation system,Cubic has successively obtained many national and provincial projects. Those projects contain the National Major Scientific Instrument and Equipment Development Project, the MIIT IOT Development Special Project, the MIIT Strong Foundation Engineering Sensor "One-stop" Project, the Ministry of Science and Technology's Key Special Project for Technology Assisting Economy in 2020, and major innovation projects in Hubei Province, etc. Recognized by authoritative domestic and international industry organizations as a major player and representive enterprise in China's gas sensor industry, Cubic has been honored with titles 'Most Influential IoT Sensor Enterprise Award' by the China IoT Industry Alliance.

With decade-long dedications in technical innovations, strict quality control and global business strategies, Cubic, as a leading manufacturer of high-quality gas sensors and sensor solutions, has obtained the recognition of many well-known Fortune 500 companies as well as other domestic and overseas leading companies in different fields. Cubic products have been exported to more than 80 countries and regions, besides, Cubic is moving towards a higher target to be the international brand in the field of gas sensors.

Core Technologies



20+ Years Focus

Emission Monitoring Solutions

Core Technologies

Professional Technical Engineers

Quick Service Response

Technical Support

Intellectual Property

Numerous National Invention Patents

International PCT Patents

Cubic Certificates

ISO 9001:2015

IATF 16949:2016

ISO 14001:2015

ISO 45001:2018

A-SPICE Level 2

Cubic Glance


Headquarter in Wuhan


R&D Center in Wuhan


New Factory in Jia Shan


Cubic Hungary Factory

1CFM Online Particle Counter OPC-6510DS

OPC-6510DS

Description

OPC-6510DS is a cleanroom airborne particle counter, which can accurately detect and calculate the number of different size particles in the air per unit volume. The device can simultaneously output the particle number of 5 channels of >0.3μm, >0.5μm, >1.0μm, >5.0μm, >10μm in pcs/28.3L or pcs/m^3. The screen can realtime display the monitoring data, cleanroom ISO14644-1 2015 grade and alarm once the particle quantity exceeds the set threshold. The touch screen also supports setting the output unit, display channel, concentration alarm threshold, coefficient, language, work time, etc.

Features

- Real-time output measurements of 0.3μm, 0.5μm, 1.0μm, 5.0μm, 10μm in pcs/28.3L or pcs/m^3.
- Sound and light alarm once particle quantity exceeds the set threshold.
- Calibration coefficient correction available against standard equipment.
- Real-time display ISO 14644-1 grade level.

Specifications

Working Principle	Light Scattering
Measurement Range	0~1,000,000 pcs/ 28.3L
Output Channels	>0.3μm, >0.5μm, >1.0μm, >5.0μm, >10μm
Count Efficiency	50%@≥0.3μm, 100%@≥0.5μm Condition: 25±2°C, 50±10%RH
Data Refresh Time	1 second
Working Condition	0°C ~ 45°C, 0 ~ 95%RH (Non-condensing)
Operating Voltage	DC 24V±15%
Communication	RS485 Modbus RTU, RJ45 MQTT
Sampling Flow Rate	28.3L/min (1.0 CFM)
External Sampling Hose	Inner diameter: ϕ10mm Length: ≤3m
Work Mode	Adjustable (Default: work 2 minutes and sleep 28 minutes)
Display	3.5-inch color touch screen

* For more information, please contact: sales@gassensor.com.cn

Application

- Photolithography
- Etching
- Deposition/CVD
- Chemical Mechanical Polishing/CMP
- Ion Implantation

1CFM Portable Particle Counter OPC-6511DS

OPC-6511DS

Description

Cubic portable particle counter OPC-6511DS adopts the principle of light scattering with built-in unique laser diode, consistant RPM fan, and well-designed ultrasonic flow sensor, it is compliant to ISO 21501-4 requirement. Equipped with a high-capacity lithium battery and a user-friendly touch screen, the device displays monitoring data in real time, enabling efficient spot checking across multiple sites.

Features

- Built-in rechargeable Li-battery.
- 5-channel outputs 0.3μm, 0.5μm, 1.0μm, 5.0μm, 10μm in pcs/28.3LPM or pcs/m^3.
- Sound and light alarm once particle quantity exceeds the set threshold.
- Calibration coefficient correction available against standard equipment.
- Real-time display ISO 14644-1 grade level.

Specifications

Working Principle	Light Scattering
Measurement Range	0~1,000,000 pcs/ 28.3L
Output Channels	>0.3μm, >0.5μm, >1.0μm, >5.0μm, >10μm
Count Efficiency	50%@≥0.3μm, 100%@≥0.5μm Condition: 25±2°C, 50±10%RH
Data Refresh Time	1 second
Working Condition	0°C ~ 45°C, 0 ~ 95%RH (Non-condensing)
Operating Voltage	DC 24V±15%
Battery Standby Time	>5h (Work 2 minutes and sleep 28 minutes)
Communication	RS485 Modbus RTU, RJ45 MQTT
Sampling Flow Rate	28.3L/min (1.0 CFM)
External Sampling Hose	Inner diameter: ϕ10mm Length: ≤3m
Work Mode	Adjustable (Default: work 2 minutes and sleep 28 minutes)
Display	3.5-inch color touch screen

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Application

- Photolithography
- Etching
- Deposition/CVD
- Chemical Mechanical Polishing/CMP
- Ion Implantation

Trace Moisture Sensor Gasboard-2520-H2O

Description

Gasboard-2520-H2O is TDLAS trace moisture sensor, designed for the measurement of trace moisture content in ultra-high purity gases for semiconductor industry manufacturing processes monitoring. With a long optical path for multiple light reflections, it can achieve ultra-low detection limit of 1 ppm and high resolution of 0.1 ppm in the low concentration range.

Gasboard-2520-H2O

Features

- Tunable diode laser absorption spectroscopy (TDLAS) technology ensures high-precision and high-resolution trace moisture (H_2O) measurement.
- Narrowband laser spectroscopic absorption technology realizes unique selectivity of trace moisture.
- Without interference by background gas.
- Long lifespan over 10 years.
- Modular design for easy integration.
- Multiple selectable ranges with digital full-range linearity output.

Specifications

Target Gas	H2O
Measurement Principle	Tunable Diode Laser Absorption Spectroscopy
Measurement Range	0~10ppm(-60°C) Configuration 1 1000ppm(-20°C) Configuration 2 10000ppm(8°C) Configuration 3
Accuracy	±1%FS
Resolution	0.1ppm
Warm-up Time	<10s
Response Time	T90<30s@1L/min (Ventilated Type)
Operating Temperature	-10~50°C
Operating Humidity	0~98%RH (Non-condensing)
Operating Pressure	80kPa~120kPa
Operating Voltage	5V±5%
Operating Current	<200mA (typically 100mA@25°C, 5V)
Output	TTL(3.3V)
Weight	480g
Dimensions	Φ50*120.5mmm

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Application

- Photolithography Process
- Wafer Storage
- Deposition/CVD
- Soldering Process (Packaging)

Trace Oxygen Sensor Gasboard-2520-O2

Description

Cubic Gasboard-2520-O2 is a high-performance oxygen gas sensor developed for trace amounts of oxygen monitoring during semiconductor manufacturing process. Based on tunable diode laser absorption spectroscopy (TDLAS) technology, it achieves highly accurate oxygen measurement with a minimum detection limit of 1ppm and resolution of 0.1ppm.

Gasboard-2520-O2

Features

- Tunable diode laser absorption spectroscopy (TDLAS) technology ensures high-precision and high-resolution O_2 measurement.
- Narrowband laser spectroscopic absorption technology realizes unique selectivity of oxygen gas.
- Fast response time < 10s.
- Long lifespan over 10 years.
- Modular design for easy integration.
- Multiple selectable ranges with digital full-range linearity output.

Specifications

Working Principle	Tunable Diode Laser Absorption Spectroscopy
Target Gas	Oxygen (O_2)
Measurement Range	0~10ppm Configuration 1 10000ppm Configuration 2
Accuracy	±2% F.S.
Resolution	0.1ppm
Detection Limit	1ppm
Response Time	T_{90}<10s
Working Temperature	-10°C ~ 50°C
Working Humidity	0~98%RH (Non-condensing)
Power Supply	12V DC±10%
Output	RS485 /RS232
Design Lifetime	10 years
Storage Conditions	-40°C ~ 85°C; 0~98%RH (Non-condensing)
Dimension	90*70*278 (mm)

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Application

- Photolithography Process
- Wafer Storage
- Deposition/CVD
- Soldering Process (Packaging)

Mass Flow Controller

Description

Cubic offers a wide range of mass flow controllers and mass flow meters, featuring high accuracy and fast response.

Features

- High precision and fast response
- Equipped with reliable thermal sensors and solenoid valves
- Wide turndown ratio and broad measurement range, from 10 SCCM to 500 SLM
- Chemically resistant to corrosive gases and vapors
- Low pressure drop and easy installation
- Supports multiple communication protocols and power supply options

Specifications

Measurement Principle	Thermal
Measurement Range	10 SCCM~50 SLM, 10 SCCM~200 SLM, 10SCCM~500 SLM
Accuracy	±1%F.S.
Response Time	$T_{98} \leqslant 1S$
Analog Current Output	4~20 mADC
Analog Voltage Output	0~1,0~5,0~10VDC
Communication Interface	RS-232,RS-485
Power Supply	24VDC/100~240 VAC
Operating Environment	5-45°C; 0-90% RH (non-condensing)

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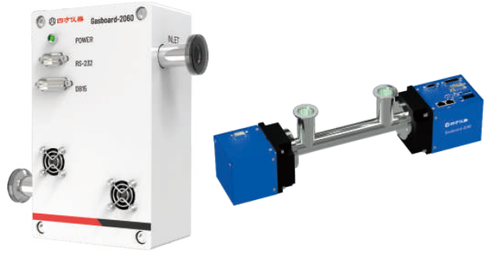
Application

- High-purity Gas Monitoring
- Semiconductor RTP Equipment
- Semiconductor CVD Equipment
- Glove Boxes and Clean Benches
- Reflow Soldering Furnaces

NDIR Gas Sensor



Description

The NDIR gas sensor is based on dual-beam NDIR technology, providing precise measurement of trace specialty gases in semiconductor applications through infrared spectral absorption. With an in-situ design and compact structure, it is particularly suitable for continuous on-site gas monitoring within CVD equipment chambers.

Features

- Dual-beam NDIR technology for high sensitivity, capable for multiple gas detections
- In-situ design enables fast response
- No consumables required, long maintenance intervals and low cost
- Supporting both analog and digital communication
- Modular design for easy integration

Specifications

Measurement Principle	Non-Dispersive Infrared
Target Gas	SiF4, WF6, CF4, NF3, CO2
Measurement Range	1~264ppm(0~200mTorr)
Accuracy	±1%F.S.
Repeatability	± 0.5%
Detection Limit	1ppm
Analog Current Output	4~20 mADC
Analog Voltage Output	1-10 VDC or 0-5 VDC(4ch)
Communication Interface	RS-232,RS-485
Power Supply	24 VDC
Operating Environment	Operating Temperature: 20-35°C; Working Temperature: 5-65°C

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Application

- Semiconductor CVD Equipment

Trace Oxygen Analyzer

Description

Cubic trace oxygen analyzer is developed based on zirconia technology. It offers high accuracy, fast response, and a wide measurement range, making it especially suitable for real-time trace oxygen monitoring in ultra-clean environments.

Features

- High measurement accuracy at ppm levels
- Fast response time with readings in seconds
- Excellent stability with no need for regular calibration
- Compact, modular design for easy integration and installation
- Enhanced user interface with intuitive display and easy operation
- Strong anti-interference with low cross-sensitivity to other gases
- Triggers an alert when oxygen concentration deviates from the preset value; alarm thresholds are adjustable

Specifications

Measurement Principle	Zirconia
Measurement Range	0-100 ppm; 0-1000 ppm; automatic switching
Accuracy	2%F.S.
Resolution	0.1ppm
Response Time	T90≤10S
Operating Temperature	0~50°C
Relative Humidity	0~95%RH
Analog Current Output	4~20mA
Analog Voltage Output	0~1,0~5,0~10VDC
Alarm Output	2 alarm channels, 1 fault alarm
Communication Interface	RS-232/485
Power Supply	12V DC/220VAC,50HZ

Application

- High-purity Gas Monitoring
- Semiconductor RTP Equipment
- Semiconductor CVD Equipment
- Glove Boxes and Clean Benches
- Reflow Soldering Furnaces

Trace Moisture Analyzer

Description

Cubic trace moisture analyzer is developed based on TDLAS technology. It delivers exceptional baseline stability, sensitivity, and fast response. It is specifically designed for real-time monitoring of trace moisture in ultra-clean environments.

Features

- Highly stable TDLAS sensing technology with no drift and no need for on-site calibration
- High sensitivity with a detection limit as low as 20 ppb
- High reliability, unaffected by gas cell contamination or mirror reflection losses
- Easy to integrate and install, equipped with one RS-232 and two RS-485 ports
- No consumables required, long maintenance intervals, and low operating costs

Specifications

Measurement Principle	Tunable Diode Laser Absorption Spectroscopy
Target Gas	H2O
Measurement Range	0.02ppm~100ppm,1000ppm
Accuracy	±5% of reading or 20 ppb
Response Time	T90<180S
Sampling Flow Rate	1 L/min
Warm-up Time	3~5 min
Analog Current Output	4~20 mADC
Analog Voltage Output	0~1,0~5,0~10VDC
Communication Interface	RS-232,RS-485
Power Supply	24VDC/100~240 VAC
Operating Environment	5-40°C; 0-90% RH (non-condensing)

Application

- High-purity Gas Monitoring