CUBIC

Cleanroom Monitoring Gas Sensing Solution

Cubic Sensor and Instrument Co., Ltd.

Cleanroom Monitoring Solutions

Cubic, a leading manufacturer of high-quality gas sensors and gas analyzers, is committed to delivering comprehensive, safe, and efficient solutions to the lithium battery, semiconductor, pharmaceutical, and panel industries. Guided by this mission, Cubic has developed its mature diverse technological platforms, and has accumulated complete gas sensing solutions for cleanroom environmental monitoring, production process quality control, and production safety monitoring.

Cubic Solutions in Three Core Application Scenarios

01

Environmental Air Quality Monitoring

Precisely monitor temperature, humidity, and airborne particles level, coupled with software for remote online monitoring, to ensure a stable production environment and product quality.

02

Production Process and Quality Control

During production process, effective control is essential for ensuring the smooth operation of manufacturing and the stability of product quality.

03

Production Safety Monitoring

Real-time monitoring of potentially harmful and flammable suspended particles & gases offers robust safety assurances for workers, effectively mitigating potential risks and ensuring a safer working environment.

Through the cutting-edge solutions, Cubic helps enterprises to achieve high-precision control, to guarantee both efficiency and safety of production processes.

Cubic Introduction

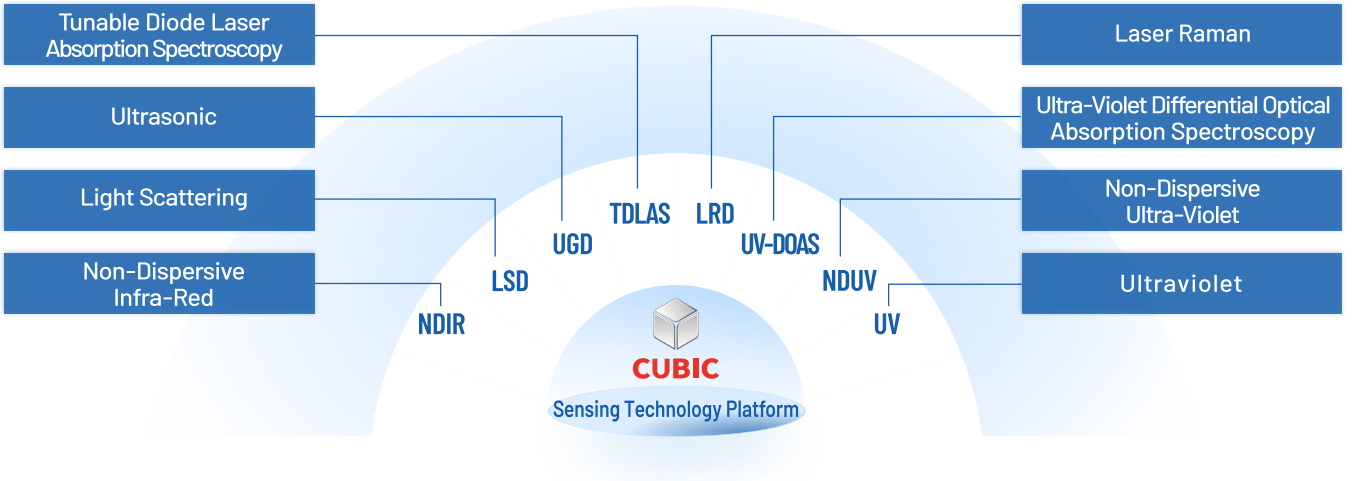
Cubic Sensor and Instrument Co., Ltd. (hereinafter referred to as "Cubic") is a publicly listed company in SSE STAR Market (stock code:688665), specializing in smart gas sensors and superior gas analyzers. Set up in 2003, situated at"Optics Valley" of Wuhan, China, Cubic has established gas sensing technology platforms including optical technologies (NDIR, Ultraviolet, Light Scattering, Laser Raman), ultrasonic technology, electrochemical technology, ceramic thick-film technology based high temperature solid electrolyte technology and so on. At present, Cubic has obtained more than 256 patents home and aboard, 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 Headquarter


Cubic R&D Center


Cubic Jiashan Factory


Cubic Hungary Factory



22 Years

Development and Application of NDIR Technology

17 Years

Development and Application of Ultrasonic Technology

15 Years

Development and Application of Light Scattering Technology


ISO 9001:2015


IATF 16949:2016


ISO 14001:2015


ISO 45001:2018


A-SPICE Level 2

Lithium-Ion Battery Fabrication Monitoring Solution

• Environmental Air Quality Monitoring

2.83LPM Particle Counter
OPC-6303 Series

28.3LPM Particle Counter
OPC-6510 Series

28.3LPM Particle Counter
OPC-6511 Series

Humidity and Temperature Transmitter
AM6108 Series

• Process & Safety Monitoring

Explosion-proof Particle Counter
OPC-6303FB

NMP Gas Leakage Detector
Gasboard-2063

Portable Electrolyte Leakage Detector
Gasboard-3902

Dew Point Sensor
Gasboard-2503

• Battery Thermal Runaway Monitoring

Automotive Thermal Runaway (TR) Sensor
ATRS Series

Thermal Runaway (TR) Gas Analyzer
LRGA-3100

Semiconductor Manufacturing Monitoring Solution

- Environmental Air Quality Monitoring

2.83LPM Particle Counter
OPC-6303 Series

28.3LPM Particle Counter
OPC-6510 Series

28.3LPM Particle Counter
OPC-6511 Series

Pharmaceutical Manufacturing Monitoring Solution

- Environmental Air Quality Monitoring

28.3LPM Particle Counter
OPC-6510 Series

28.3LPM Particle Counter
OPC-6511 Series

Humidity and Temperature Transmitter
AM6108 Series

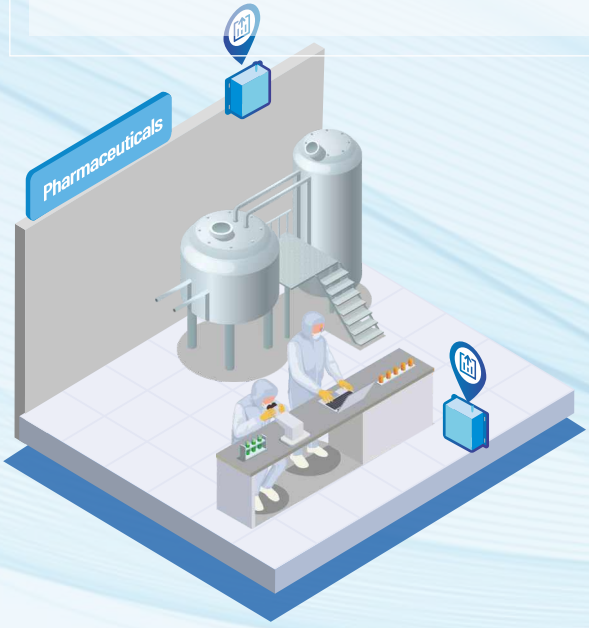
Flat Panel Display Manufacturing Monitoring Solution

- Environmental Air Quality Monitoring

2.83LPM Particle Counter
OPC-6510 Series

28.3LPM Particle Counter
OPC-6511 Series

Humidity and Temperature Transmitter
AM6108 Series



28.3LPM Particle Counter 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.

OPC-6510DS

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.
- ModBus RTU and MQTT communication protocols available.

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%
Average Operating Current	≤3A
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

28.3LPM Particle Counter OPC-6510

Description

The cleanroom remote online particle counter OPC-6510 adopts the principle of light scattering, which can accurately detect and calculate the number of suspended particles of different particle sizes in the air per unit volume. The gas sampling rate of large flow can simultaneously output the particle number of 5 channels of >0.3μm, >0.5μm, >1.0μm, >5.0μm, >10μm.

OPC-6510

Features

- Output particle numbers in pcs/28.3L for 5 channels including >0.3μm, >0.5μm, >1.0μm, >5.0μm, >10μm.
- Built-in high power industrial grade linear laser, accurate identification.
- Built-in fan and flow sensor for constant stable sampling.
- ModBus RTU and MQTT communication protocols available.

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%
Average Operating Current	≤3A
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)

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28.3LPM Particle Counter OPC-6511DS

Description

Cubic handheld 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.

OPC-6511DS

Features

- 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.
- Built-in rechargeable Li-battery.
- ModBus RTU and MQTT communication protocols available.

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%
Average Operating Current	≤3A
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

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

2.83LPM Particle Counter OPC-6303DS

Description

OPC-6303DS is a 2.83LPM wall-mount aerosol particle counter with display, and adopts the principle of light scattering to accurately detect and calculate the number of suspended particles of different sizes in the air per unit volume. It can simultaneously output particle quantity in 6 channels of 0.3μm, 0.5μm, 1.0μm, 2.5μm, 5.0μm and 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.

OPC-6303DS

Features

- Output 0.3μm, 0.5μm, 1.0μm, 2.5μm, 5.0μm, 10μm particle number in pcs/m^3, pcs/L or pcs/ft^3.
- Calibration coefficient correction available against standard equipment.
- Constant flow sampling system to ensure stable sampling.
- Industrial grade laser with high reliability.
- Real-time display ISO 14644-1 grade level.
- ModBus RTU and MQTT communication protocols available.

Specifications

Working Principle	Light scattering
Measurement Range	0~10,000,000pcs/L
Output Channels	>0.3μm, >0.5μm, >1.0μm, >2.5μm, >5.0μm, >10μm
Measurement Error	<100pcs/L: ±30pcs/L >100pcs/L: ±30% of reading Condition: 0°C~40°C, 50+10%RH
Data Refresh Time	1 second
Working Condition	-30°C~70°C, 0~95%RH (Non-condensing)
Operating Voltage	DC 12-24V
Average Operating Current	≤1A
Communication	RS485 Modbus RTU, RJ45 MQTT, 4-20mA analog signal output
Sampling Flow Rate	2.83L/min (0.1 CFM)
Work Mode	Adjustable (Default: work 1 minute and sleep 4 minutes)
Display	3.5-inch color touch screen

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

Humidity and Temperature Transmitter AM6108B

Description

Wall mount humidity and temperature transmitter AM6108B offers real-time monitoring of cleanroom air quality, ensuring a stable production environment. It boasts dual communication capabilities, facilitating wired connections via RS-485 Modbus or BACnet protocols, as well as wireless connectivity options such as Wi-Fi and EnOcean, supporting flexible communication methods.

AM6108B can also detect CO_2, PM, and TVOC levels in the air. Furthermore, it can send out control signals along with measurement readings to the ventilation system, so fan and valve can be adjusted accordingly, to maintain optimal air quality for the cleanroom.

AM6108B

Features

- Modbus /BACnet protocol optional.
- IoT wireless monitoring available.
- HVAC system control function: 3 levels of wind speed and 4 working modes can be adjusted.
- Standard configuration: CO_2, PM, RH&T, VOC (Optional).
- Compatible with touch-screen operation, device ID and baud rate to be set via surface.
- OEM/ODM available (Sensor configuration, appearance design, PCBA design, software development etc.).

Specifications

Working Principle	CO_2: Non-dispersive infrared (NDIR) PM: Light scattering
Measurement Range	CO_2: 0~5000ppm; PM2.5: 0~999μg/m^3 Temperature: -10°C~50°C Relative humidity: 0%~95%RH
CO_2 Accuracy	±(50ppm+5% of reading) /±(30ppm+3% of reading) is optional
PM Accuracy	PM2.5: 0~100μg/m^3, ±10μg/m^3; >100μg/m^3, ±10% of reading (25°C±2°C, 50±10%RH)
Temperature Accuracy	±1°C (0°C~50°C)
Humidity Accuracy	±8%RH
UI Screen	Touch screen
Output	Modbus-RTU or BACnet-MSTP or Wi-Fi
Power Supply	12VDC~24VDC
Working Condition	-10°C~50°C, 0~95%RH (Non-condensing)
Storage Condition	-20°C~60°C, 0~95%RH (Non-condensing)
Dimension	W86*H86*D25 (mm)

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

Explosion-proof Particle Counter OPC-6303FB

Description

Cubic explosion-proof particle counter OPC-6303FB adopts the principle of light scattering, which can accurately detect and calculate the number of suspended particles of different particle sizes in pcs/L for the 6 channels, including 0.3μm, 0.5μm, 1.0μm, 2.5μm, 5.0μm and 10μm.

By integrating explosion-proof enclosure with particle counting capabilities, OPC-6303FB ensures precise measurement of airborne particle concentration in potentially explosive areas, thereby ensuring manufacturing safety.

OPC-6303FB

Features

- Output particle number (pcs/L) in 6 channels including 0.3μm, 0.5μm, 1.0μm, 2.5μm, 5.0μm, 10μm.
- High power industrial grade linear laser for accurate identification.
- Vehicle-grade constant current sampling structure fan for constant stable sampling flow.
- Wide working temperature -30°C~70°C.
- Suitable for areas with potentially explosive working environments.

Specifications

Working Principle	Light scattering
Measurement Range	0~10,000,000pcs/L
Output Channels	>0.3μm, >0.5μm, >1.0μm, >2.5μm, >5.0μm, >10μm
Measurement Error	<100pcs/L: ±30pcs/L >100pcs/L: ±30% of reading Condition: 0°C~40°C, 50+10%RH
Data Refresh Time	1 second
Working Condition	-30°C~70°C, 0~95%RH (Non-condensing)
Operating Voltage	DC 5V
Average Operating Current	<250mA
Communication	USB Uart_TTL
Sampling Flow Rate	1L/min
IP Protection	IP66
Explosive-proof Grade	Ex db eb IB T6 Gb, Ex db eb IIC T6 Gb, Ex tb IIIC T80°C Db
Dimension	W200*H200*D90 (mm)

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

NMP Gas Leakage Detector Gasboard-2063

Description

Cubic NMP gas leakage detector Gasboard-2063 is non-dispersive infrared (NDIR) technology-based detector which is specially designed to detect NMP in the manufacturing of Li-battery cells. The aluminum body structure, combined with a heat insulation block, undergoes dual thermal insulation pretreatment, ensuring long-term stability and low sensitivity degradation in high-temperature environments. The detector also boasts rapid response time, long lifespan, zero-point self-calibration, and maintenance-free operation. Compliant with Exd II CT3 explosion-proof certification, it is ideally suited for monitoring NMP gas leakage in coating and drying process of battery production.

Gasboard-2063

Features

- Fast response and high accuracy.
- High long-term stability.
- Self-calibration, maintenance-free.
- Long lifetime (>10 years).
- Strong resistance to poisoning.
- IExd II CT3 explosion-proof certification.

Specifications

Working Principle	Non-dispersive infrared (NDIR)
Measurement Range	±5%LEL@15%LEL~50%LEL
Resolution	0.5% LEL
Warm-up Time	<30 minutes
Response Time (T_{90})	T_{90}<30s @15%LEL~50%LEL
Working Conditions	Measured gas temperature: 0~160°C
Ambient Temperature and Humidity	0°C~60°C, less than 95%RH (Non-condensing)
Storage Conditions	-40°C~+85°C; 0~98%RH (Non-condensing)
Working Voltage	24V±10%
Working Current	Average working current <0.6A (@25°C, 24V DC)
Communication	DC4~20mA (Resistive load below 300Ω), RS485 (Default baud rate 9600)
IP Protection	IP66
Dimension and Weight	L586*W186*H104(mm)/ Around 6Kg

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

Portable Electrolyte Leakage Detector Gasboard-3902

Description

Gasboard-3902 analyzer is a high-performance electrolyte leak detector independently developed by Sifang Optoelectronics. Based on non-dispersive infrared technology, it employs high-performance detection components, a special coating process, built-in temperature control, and integrated precision signal extraction and processing. Overall, it features high precision, low drift, corrosion resistance, and fast response. Specifically designed for lithium-ion battery electrolyte leak detection, it can accurately measure the concentration of gases released during electrolyte leakage in real time. It provides accurate and rapid assessment for battery testing services, offering measurement data for production safety and reliability.

Gasboard-3902

Features

- High precision, linearity error less than 2% F.S.
- High sensitivity, accurately identifying signal changes of ±1ppm
- Good gas selectivity and strong anti-interference ability, preventing false judgments
- Fast response, able to quickly detect changes in gas concentration
- Real-time curve display, automatically recording test information, measurement data can be queried and exported

Specifications

Target Gas	DMC
Measurement Range	100ppm
Resolution	0.1ppm
linear error	≤±2%F.S
Repeatability	≤±1%
Warm up Time	< 30min
Operating temperature	(5～40)℃
Relative humidity	0 ~ 95%RH (Non-condensing)
Atmospheric pressure	(86～115)kPa
Sampling flow rate	2L/min～5L/min
Power Supply	Built in Lithium-ion battery
Power consumption	＜ 80W

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

Dew Point Sensor Gasboard-2503

Description

The Gasboard-2503 series laser sensors are high-performance gas analysis sensors independently developed by Sifang Optoelectronics. Based on tunable laser absorption spectroscopy technology, they employ high-performance probes and specially processed gas chambers, featuring high accuracy, high sensitivity, anti-interference, long lifespan, and stable performance.

This series is available in both ventilated and diffused types, employing a modular design for easy installation. Calibration and calibration can be performed via serial communication. A built-in high-precision temperature sensor, combined with a temperature compensation algorithm, effectively suppresses temperature drift, enabling stable operation in harsh conditions and complex gas environments.

Gasboard-2503

Features

- Narrowband laser spectral absorption technology, unique selectivity which is unaffected by other gases, water vapor, or dust.
- Fast response speed, high measurement accuracy, and long service life.
- Multiple range selectable, full-range linearization, digital output.
- Low power consumption, modular design, easy to integrate.

Specifications

Working Principle	TDLAS
Target Gas	H2O
Measurement Range	-60°~-20°(Dew point temperature)
Accuracy	±0.5°
Resolution	0.1°
Power consumption	＜1W
Response Time(T90)	<2s (ventilated type) / <120s (diffusion type)
Operating temperature	(-20 ~ 50)°C
Relative humidity	0 ~ 958%RH (Non-condensing)
Operating voltage	5V±5% / 8~28V
Communication	RS485 / TTL / 4-20mA
Storage Condition	-40 ~ 85°C; 0~98%RH
IP Protection	IP66

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

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

E-mail: sales@gassensor.com.cn

Web: en.gassensor.com.cn