



INDUSTRIAL GRADE NDIR GAS SENSOR

SRH, SJH, SBH, SEH Series
For CO₂, CH₄, C₃H₈, CH₃Br



CONTACT US

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

All products are in continuous development and therefore specifications
may be subject to change without prior notice.



Web: en.gassensor.com.cn / Email: sales@gassensor.com.cn

CUBIC INTRODUCTION

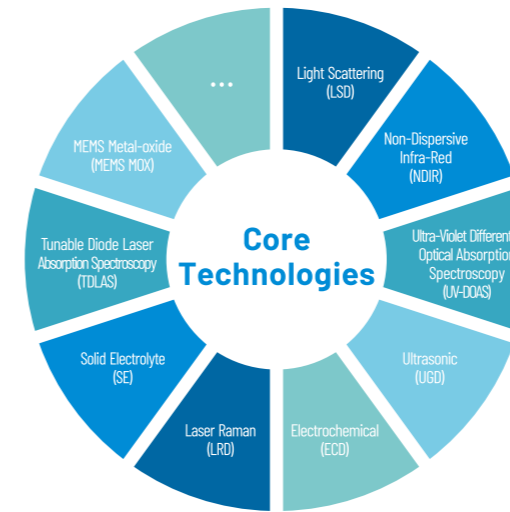
Cubic Sensor and Instrument Co., Ltd. (hereinafter referred to as "Cubic") is a publicly listed company in SSE STAR Market (stock code:688665), specializing in smart gas sensors and superior gas analyzers. Set up in 2003, situated at "Optics Valley" of Wuhan, China, Cubic has established gas sensing technology platforms including optical technologies (NDIR, Ultraviolet, Light Scattering, Laser Raman), ultrasonic technology, MEMS metal oxide semiconductor (MOX) technology, electrochemical technology, ceramic thick-film technology based high temperature solid electrolyte technology and so on. At present, Cubic has obtained more than 100 patents 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. At the same time, Cubic energetically participates in the national technological innovation system and has successively obtained many national and provincial projects which support Cubic incessant innovations. Those projects contain the National Major Scientific Instrument and Equipment Development Project, the Ministry of Industry and Information Technology Internet of Things Development Special Project, the Ministry of Industry and Information Technology Strong Foundation Engineering Sensor "One-stop" Project, the Ministry of Science and Technology Science and Technology Boost the Economy 2020 Key Special Project, and the Hubei Province Technical Innovation Major Project, etc. Cubic has been regarded as a major gas sensor manufacturer and representative enterprise by industry authorities at home and abroad and won the "Most Influential IoT Sensor Enterprise Award" by the China Internet of Things 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



ISO 14001:2015



ISO 45001:2018

CUBIC GLANCE



Cubic Core Technology

NDIR

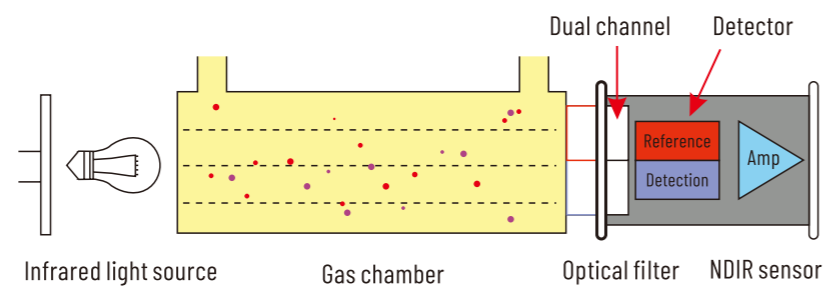
Non-dispersive Infrared(NDIR) Principle Dual beam design

Molecules like carbon dioxide (CO₂), methane (CH₄), propane (C₃H₈) and methyl bromide (CH₃Br) can all be directly measured in air by monitoring a specific spectral absorption wavelength in the infrared range.

An NDIR sensor design can be simplified into its core components:

- A gas chamber that allows air and gas molecules to naturally diffuse into and out of the chamber
- A light source that emits light into the gas chamber
- A photodetector and optical filter that measures the increase or decrease of light intensity at a specific light wavelength
- An amplifier circuit to measure the output light intensity measurement signal from the photodetector

CO₂ molecules inside the gas chamber will only absorb a specific wavelength of the light. The filter allows only the specific wavelength corresponded to pass through it. One detector measures the intensity of infrared light that is related to the intensity of CO₂ and can be described through the Lambert-Beer's Law. The other detector is as for reference. The change in sensor signal reflects the change in gas concentration.



SJH-5B-UL -CH₄ sensors

The miniature methane sensor SJH-5B-UL is based on NDIR technology with dual beam design, which is superior to semiconductor and catalytic technology, and can detect 0~100%Vol methane (CH₄) concentration. It has the advantages of low power consumption, accurate measurement, convenient operation, long lifespan, etc. With a super low power LED source, SJH-5B-UL can achieve average current consumption 1mA that makes the sensor suitable for battery or solar powered IoT device and portable device. It's an energy-efficient, reliable and accurate solution for industrial application.

Features

- NDIR technology
- Matrix calibration ensures excellent accuracy
- Super low power consumption
- Temperature & humidity compensation
- High humidity alarm with self diagnostics design
- Digital and analog output (UART-TTL/DA output)
- Long lifespan (>10 years)
- Ex-proof grade Ex ia II C T4 Ga

Applications

- Mine, metallurgy, oil & gas
- LNG gas leakage alarming
- Liquefied gas station
- Fuel gas transport
- Chemical industry
- Sewage system
- Biogas digester monitoring
- Environmental monitoring
- Animal agriculture

Specifications

Specifications		SJH-UL		SBH-UL
Measured Gas		Methane		Propane
Sensor Dimension (mm)	Φ20*19	SJH-5A-UL	SJH-100A-UL	SBH-2A-UL
	Φ20*16.6	SJH-5B-UL	SJH-100B-UL	SBH-2B-UL
Concentration Range		0~5%vol	0~100%vol	0~2.2%vol
Accuracy		0~2.5%: ±0.15%vol 2.5~5%: ±0.25%vol	±3%vol	0~1.1%vol: ±0.06%vol 1.1%vol~2.2%vol: ±0.11%vol
Resolution		0.01%Vol		
Response Time		T ₉₀ <15s, diffusion type		
Working current		1mA		
Working Temperature		-40°C~70°C		



SJH Series -CH₄ sensors



SBH Series -C₃H₈ sensors



Features

- NDIR technology
- Long lifespan (>10 years)
- Matrix calibration ensures excellent accuracy
- Temperature & humidity compensation
- High humidity alarm with self diagnostics design
- Reference channel for self-compensation
- Ex-proof grade Ex ia II C T4 Ga
- Digital and analog output (UART-TTL/DA output)

Applications

- Mine, Metallurgy, Oil & Gas
- LNG gas leakage alarming
- Liquefied gas station
- Fuel gas transport
- Chemical industry
- Sewage system
- Biogas monitoring
- Environmental monitoring

SJH Selection

Specifications		SJH Type	
Sensor Dimension (mm)	Φ20*19	SJH-5A	SJH-100A
	Φ20*16.6	SJH-5B	SJH-100B
Concentration Range		0~5%Vol	0~100%Vol
Accuracy		0~1%: ≤±0.06%Vol 1%~100%: ≤±6% of reading	
Resolution		0.01%Vol	
Working Temperature		-40°C~70°C	

Features

- NDIR technology
- Long lifespan (>10 years)
- Matrix calibration ensures excellent accuracy
- Temperature & humidity compensation
- High humidity alarm with self diagnostics design
- Reference channel for self-compensation
- Ex-proof grade Ex ia II C T4 Ga
- Digital and analog output (UART-TTL/DA output)

Applications

- Metallurgy, oil & gas
- LPG gas leakage alarming
- Petrochemical industry
- Refrigerant leakage monitoring
- Biological and pharmaceutical chemistry

SBH Selection

Specifications		SBH Type	
Sensor Dimension (mm)	Φ20*19	SBH-2A	SBH-5A
	Φ20*16.6	SBH-2B	SBH-5B
Concentration Range		0~2%Vol	0~5%Vol
Accuracy		0~1%: ≤±0.06%Vol 1%~5%: ≤±6% of reading	
Resolution		0.01%Vol	
Working Temperature		-40°C~70°C	



SEH Series -CH₃Br sensors



SRH Series -CO₂ sensors



Features

- NDIR technology
- Long lifespan (>10 years)
- Matrix calibration ensures excellent accuracy
- Temperature & humidity compensation
- High humidity alarm with self diagnostics design
- Reference channel for self-compensation
- Digital and analog output (UART-TTL/DA output)

Applications

- Industrial safety
- Fumigation
- Agriculture pesticide
- Grain storage
- Wood preservation
- Entry-Exit inspection and quarantine

SEH Selection

Specifications		SEH Type
Sensor Dimension (mm)	Φ20*19	SEH-5A
	Φ20*16.6	-
Concentration Range		0~5%Vol
Accuracy		0~1%: ≤±0.06%Vol 1%~5%: ≤±6% of reading
Resolution		0.01%Vol
Working Temperature		-40°C~70°C

Features

- NDIR technology
- Long lifespan (>10 years)
- Matrix calibration ensures excellent accuracy
- Temperature & humidity compensation
- High humidity alarm with self diagnostics design
- Reference channel for self-compensation
- Digital and analog output (UART-TTL/DA output)

Applications

- CO₂ gas leakage alarming
- Incubator monitoring
- Agriculture industry
- Rebreather diving safety
- Underground garage
- Hydroponic culture
- Cellar and gas stores
- Marine vessels
- Landfill gas
- Controlled-atmosphere storage, cold-chain

SRH Selection

Specifications		SRH Type					
Sensor Dimension (mm)	Φ20*19	SRH-05A	SRH-1A	SRH-2A	SRH-5A	SRH-10A	SRH-20A
	Φ20*16.6	SRH-05B	SRH-1B	SRH-2B	SRH-5B	SRH-10B	SRH-20B
Concentration Range		0~5000ppm	0~10000ppm	0~2%Vol	0~5%Vol	0~10%Vol	0~20%Vol
Accuracy		±200ppm	±400ppm	0~1%: ≤±0.1%Vol 1%~5%: ≤±(0.05%+5% of reading) 5%~full range: ≤±6% of reading			
Resolution		1ppm		0.01%Vol			
Working Temperature		-40°C~70°C					



Low Power Consumption
High Cost-Effective

SRH-40 sensor -CO₂ sensors

SRH-40 sensor is based on dual beam Non-dispersive Infrared (NDIR) technology to detect CO₂ levels from 0~40% volume in air and is a cost-effective and high performing solution for the most difficult applications and ideally suited to be applied for grain storage and silobag monitoring.

Features

- Low power consumption
- Matrix calibration ensures excellent accuracy
- Temperature & humidity compensation
- High humidity alarm with self diagnostics design
- Reference channel for self-compensation
- Digital and analog output (UART-TTL/DA output)

Applications

- Intelligent agriculture
- Silobag monitoring
- Rebreather diving safety
- Gas drainage pipes monitoring
- CO₂ production monitoring
- Grain storage
- Landfill gas
- Abandoned oil wells monitoring

Specifications

Specifications		Type
Sensor Dimension (mm)	Φ20*19	-
	Φ20*16.6	SRH-40
Concentration Range		0~40%Vol
Accuracy		0~5% Vol: ±0.5% Vol 5%~40% Vol: ≤ ±10% of reading
Resolution		0.01%Vol
Working Temperature		-25°C~55°C
Working current		<20mA



SJH-100A-L -CH₄ sensors

The miniature methane sensor SJH-100A-L is based on NDIR technology with dual beam design, which is superior to semiconductor and catalytic technology, and can detect 0~100%Vol methane (CH₄) concentration. It has the advantages of low power consumption, accurate measurement, convenient operation, long lifespan, etc. With a low power IR source, SJH-100A-L can achieve average current consumption 16mA which makes the sensor suitable for battery or solar powered IoT device. It's an energy-efficient, reliable and accurate solution for industrial application.

Features

- NDIR technology
- Matrix calibration ensures excellent accuracy
- Low power consumption
- Temperature & humidity compensation
- High humidity alarm with self diagnostics design
- Digital and analog output (UART-TTL/DA output)
- Long lifespan (>10 years)
- Ex-proof grade Ex ia II C T4 Ga

Applications

- Mine, metallurgy, oil & gas
- LNG gas leakage alarming
- Liquefied gas station
- Fuel gas transport
- Chemical industry
- Sewage system
- Biogas digester monitoring
- Environmental monitoring
- Animal agriculture

Specifications

Specifications		SJH-L	
Sensor Dimension (mm)	Φ20*19	SJH-5A-L	SJH-100A-L
	Φ20*16.6	SJH-5B-L	SJH-100B-L
Concentration Range		0~5%Vol	0~100%Vol
Accuracy		0~1%: ≤±0.06%Vol 1%~100%: ≤±6% of reading	
Resolution		0.01%Vol	
Response Time		T ₉₀ <25s, diffusion type	
Working current		16mA, and inrush current up to 58mA	
Working Temperature		-40°C~70°C	