CUBIC

Cubic Residential Natural Gas Alarm Solutions

Cubic Sensor and Instrument Co.,Ltd.

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

About Cubic

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 160 patents at home and abroad, with abundant products widely used in various fields of HVAC, industrial safety, automotive electronics, medical & healthcare, smart metering, scientific instruments, low-carbon thermal engineering.

Cubic has established four major R&D and industrialization bases, including Cubic Headquarter, Cubic R&D Center, Cubic Jiashan Facotry, and Cubic Hungary Factory, with a total area of nearly 100,000 square meters. 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.

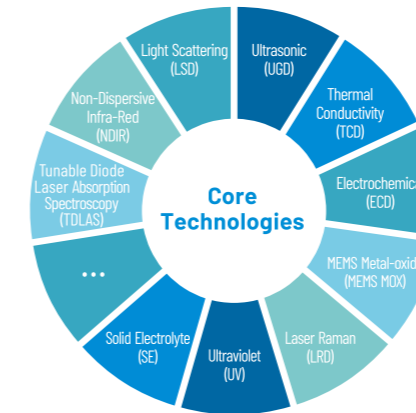## Cubic At Glance

Cubic Headquarter

Cubic R&D Center

Cubic Jiashan Factory

Cubic Hungary Factory

Core Technologies

Light Scattering (LSD) · Ultrasonic (UGD) · Non-Dispersive Infra-Red (NDIR) · Thermal Conductivity (TCD) · Tunable Diode Laser Absorption Spectroscopy (TDLAS) · **Core Technologies** · Electrochemical (ECD) · MEMS Metal-oxide (MEMS MOX) · Solid Electrolyte (SE) · Ultraviolet (UV) · Laser Raman (LRD)

22 Years
NDIR and NDUV Technologies

15 Years
Ultrasonic Technology

15 Years
Laser Raman Technology

10 Years
MEMS MOX Technology

Research & Development Capabilities

300+ R&D engineers

5000+ m² gas sensor reliability testing center

Over 30 technology projects

CNAS certification

CMA certification

UL60335-2-40 certification

Intertek laboratory certification

Patents

Total **233** patents obtained

61 domestic and international invention patents

13 international patents

Residential NDIR Flammable Gas Detector
JT-AM5301

Description

Cubic residential NDIR flammable gas detector is developed based on NDIR (Non-Dispersive Infrared) technology to detect natural gas (CH_4) leaks in areas like kitchens. When the concentration of gas in the air exceeds the set threshold, the detector triggers an alarm, emitting both audible and visual signals. If the detector is connected to an alarm control panel and monitoring center, it can also trigger a networked alarm and shut off the gas pipeline valve. Additionally, it features real-time monitoring via a mobile app, and if the gas concentration exceeds the alarm level, the app will promptly send a pop-up alert, to help ensure the safety of life and property.

Features

- High accuracy with NDIR technology, no false alarms or missed detections
- Long lifespan (>10 years), high reliability with long-term dust prevention
- Strong anti-interference from complex environments, acetic acid, ethanol, and silicon poisoning
- Data upload, historical data recording and retrieval, automatic logging, storage, and updates
- Customizable communication options, including NB-IoT, Wi-Fi, and 4G
- Compact size and design, easy to install

Specifications

Principle	NDIR (Non-Dispersive Infrared) technology
Measurement Range	0~100%LEL
Measurement Accuracy	±3%LEL
Alarm Threshold	10%LEL (5~25%LEL adjustable)
Response Time	<30s (Diffusion)
Alarm Method	Audio and light alarm/mobile phone APP notification
Electromagnetic Valve Linkage	Optional
Communication	Wire/Wireless
Dimensions	91.2*91.2*34.1 (mm)
Compliance	GB 15322.2-2019
Certification	Fire protection (Voluntary) certification, RoHS2.0
Working Condition	-10°C~55°C; 0~93%RH (Non-condensing)
Indicator Light Status	Green light always on: Normal operation Red light always on: Gas alarm Yellow light always on: Fault information Yellow light flashing: Sensor expired Green light flashing: Network distribution

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

Residential TDLAS Flammable Gas Detector
JT-AM5301-JG

Description

Cubic residential TDLAS flammable gas detector is developed based on TDLAS (Tunable Diode Laser Absorption Spectroscopy) technology to detect natural gas (CH_4) leaks in areas like kitchens. When the concentration of gas in the air exceeds the set threshold, the detector triggers an alarm, emitting both audible and visual signals. If the detector is connected to an alarm control panel and monitoring center, it can trigger a networked alarm and shut off the gas valve. It features real-time monitoring via a mobile app, and if the gas concentration exceeds the alarm level, the app will promptly send a pop-up alert, to help ensure the safety of life and property.

Features

- Patented TDLAS technology, high accuracy under the full temperature and measurement range
- Resistant to high concentrations of acetic acid and ethanol, preventing false alarms
- Customizable communication options, including NB-IoT, Wi-Fi, and 4G
- Data upload, recording, and querying functions, as well as automatic logging, storage, and updates
- Long lifespan (>10 years), maintenance-free
- Fast response time
- Compact size and structure, easy to install
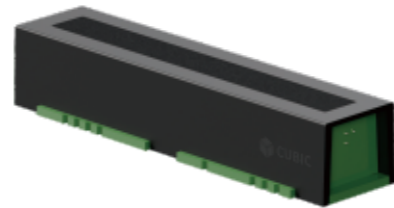
Specifications

Principle	TDLAS (Tunable Diode Laser Absorption Spectroscopy) technology
Measurement Range	0~100%LEL
Measurement Accuracy	±3%LEL
Alarm Threshold	10%LEL (5~25%LEL adjustable)
Response Time	<10s (Diffusion)
Alarm Method	Audio and light alarm/mobile phone APP notification
Electromagnetic Valve Linkage	Optional
Communication	Wire/Wireless
Dimensions	112*112*34 (mm)
Compliance	GB 15322.2-2019
Certification	Fire protection (Voluntary) certification, RoHS2.0
Working Condition	-10°C~55°C; 0~93%RH (Non-condensing)
Indicator Light Status	Green light always on: Normal operation Red light always on: Gas alarm Yellow light always on: Fault information Yellow light flashing: Sensor expired Green light flashing: Network distribution

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TDLAS Methane Sensor Series
Gasboard 2501 Series

Description

Cubic Gasboard 2501 Series TDLAS methane sensor is a high-performance gas sensor independently developed by Cubic. Based on TDLAS (Tunable Diode Laser Absorption Spectroscopy) technology, it adopts a high-performance probe and specially designed gas chamber, to achieve high accuracy, high sensitivity, long lifespan, and stable performance. With a temperature compensation algorithm, it is unaffected by environmental conditions and can operate stably in harsh working conditions and complex gas environments. It also adopts a modular design for easy installation. It can be calibrated and configured through a TTL communication interface and is designed for low power consumption, making it convenient for integration and maintenance by customers.

Features

- Narrowband laser spectral absorption technology for unique selectivity for methane
- Unaffected by other gases, water vapor, or dust interference
- Long lifespan (>10 years)
- Modular design, easy for integration
- Fast response, high accuracy

Specifications

Principle	TDLAS (Tunable Diode Laser Absorption Spectroscopy) technology
Target Gas	Methane (CH4)
Measurement Range	0~100%LEL
Measurement Accuracy	±3%LEL (0~50%LEL)±6% reading (50%~100%LEL)
Response Time	T_{90}<10s
Working Temperature	-10°C~55°C
Working Humidity	0~95%RH (Non-condensing)
Voltage	3.3V~5.5V
Average Working Current	<200mA
Peak Current	<500mA
Communication Interface	TTL (3V)
Storage Conditions	-40°C~85°C; 0~98%RH (Non-condensing)
Dimensions	79*20*15 (mm)
Weight	<20g
Lifespan	10 Years

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NDIR Methane Sensor
JW05-4CH

Description

Cubic JW05-4CH methane sensor is a four-channel methane sensor developed based on NDIR (Non-dispersive Infrared) technology, designed for real-time monitoring of methane gas leaks in the environment. It has the advantages of high accuracy and excellent long-term stability, making it widely applied in various fields including residential gas detectors, portable gas detectors, natural gas leak detection devices, and gas pressure regulating cabinets.

Features

- Patented NDIR (Non-dispersive Infrared) technology
- Long lifespan (>10 years)
- High selectivity for methane (CH4), non-toxic, and quick recovery from high concentrations
- High accuracy under full temperature and measurement range
- Dual-beam design for lower drift and better long-term stability
- Compact size and structure, easy to install

Specifications

Principle	NDIR (Non-Dispersive Infrared) technology
Target Gas	Methane (CH4)
Measurement Range	0~100%LEL
Measurement Accuracy	±3% LEL (0~30%LEL)±10%reading (30%~100%LEL)
Response Time	T_{90}<30s
Working Temperature	-10°C~60°C
Working Humidity	0~95%RH (Non-condensing)
Voltage	5V±5%
Average Working Current	<100mA
Peak Current	<500mA
Communication Interface	UART
Storage Conditions	-40°C~85°C; 0~98%RH (Non-condensing)
Dimensions	47*33*10.8 (mm) (Without pins)
Weight	<16g
Lifespan	10 Years

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