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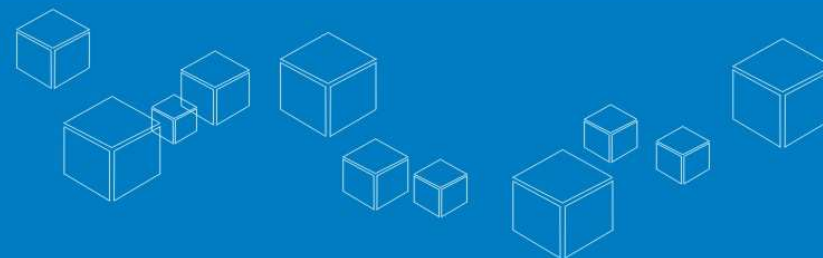
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Wuhan Cubic Optoelectronics Co.,Ltd.

**Gas Analysis Instruments and Continuous Monitoring Systems**





Infrared flue gas analyzer

Infrared coal gas analyzer

Infrared biogas analyzer

Automobile emission gas analyzer

Online continuous analysis monitoring system

Infrared gas sensor

Infrared gas detector

Infrared gas transmitter



# Catalogue



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## Company Introduction

Wuhan Cubic Optoelectronic Co., Ltd is a hi-tech enterprise specializing in the design, manufacture and sale of gas analyzers and systems, located at "Optical Valley, Wuhan" in China, established in 2003. Cubic with 160 staffs in the research for Non-dispersive infrared (NDIR), Thermo-conductivity (TCD), Chemiluminescent Detector (CLD), Flame Ionization Detector (FID), Ultrasonic and Laser Raman gas sensors, has been one of the most important innovative base of gas analysis equipments in China.



Cubic designs and manufactures infrared flue gas analyzer, infrared coal gas analyzer, infrared biogas analyzer and automobile exhaust gas analyzer used in the applications from Industry process emission monitoring, anaerobic digestion, landfill gas, biogas or CDM monitoring to blast furnace, converter, coking and biomass or coal gasification, automotive emission testing, etc. The latest developed products like ultrasonic oxygen meter, spirometer, CO<sub>2</sub> sensor and CH<sub>4</sub> sensor are launched on the market for medical and commercial use. At the same time, the customers from more than 40 countries such as USA, Russia, Brazil, India, South Korea, Italy, Belgium and Argentina etc are using gas sensors and gas analyzers from Cubic.

In Oct 2011, Cubic gas analyzer industrial zone has been put into use, with total area of 20,000.00 square meters. The company has four production lines of gas analyzers, two production lines of gas sensors and one complete set of analyzer system. With annual output of 24000 sets of gas analyzers and complete systems, Cubic is becoming the leading base for the R&D and production of gas analysis equipments in China.

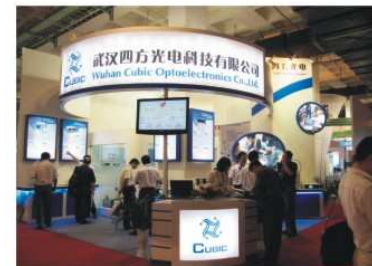


ISO 9001



CE Certificate

## Domestic Influence



International Energy Saving and Environmental Protection Exhibition



Coal Gasification Technology Seminar



Sensor Summit



Nitrogenous Fertilizer Plant Technology Annual Seminar



Biogas Seminar by State Agricultural Ministry



Biomass Technology Seminar



Environmental Monitoring Instruments Annual Seminar





In Brazil



In India



Customers from Russia



In Turkey



Customers from Malaysia

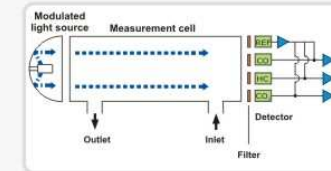


In Italy

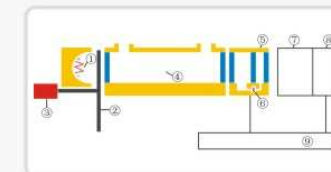


In Belgium

### Dual beam NDIR technology



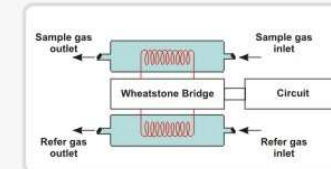
### Micro-flow NDIR technology



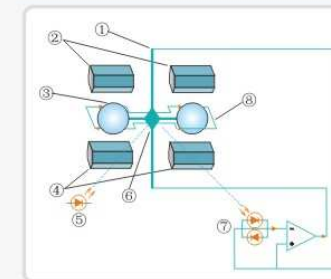
- ① Infrared light source
- ② Chopper
- ③ Chopper motor
- ④ Measurement cell
- ⑤ Detector
- ⑥ Micro-flow sensor
- ⑦ The 2nd measurement cell and detector
- ⑧ Signal processing and output system



### Thermo-conductivity technology



### Paramagnetic oxygen technology



- ① Hanging line
- ② Magnetic pole
- ③ Double ball (dumbbell type)
- ④ Magnetic pole
- ⑤ Infrared light source
- ⑥ Speculum
- ⑦ Light receiving element
- ⑧ Tickler coil

## Gas Analysis Instruments

Gas analysis instruments Gasboard series, including infrared flue gas analyzer, infrared coal gas analyzer, infrared biogas analyzer, auto emission gas analyzer, ultrasonic gas flow and oxygen sensor, infrared combustible gas detector etc. are based on advanced patented NDIR technology, TCD technology, as well as combining paramagnetic oxygen together. It can be widely used in electricity, steel, nonferrous metal, coal gasification, petrochemical industry, waste incineration, anaerobic digestion, automobile emission testing, oil & gas exploration, coal bed gas, air separation, biomedical application, environmental protection and college, institutes as well.



## Online Infrared Flue Gas Analyzer Gasboard-3000



### Applications

Boiler, furnace exhaust emission gas and combustion efficiency monitoring, cement production line process and security monitoring, Continuous Emission Monitoring System (CEMS).

### Specifications

<b>Measurement</b>	SO <sub>2</sub> , NO, CO, CO <sub>2</sub> , O <sub>2</sub>
<b>Technology</b>	SO <sub>2</sub> , NO, CO, CO <sub>2</sub> (NDIR) O <sub>2</sub> (ECD or paramagnetic)
<b>Range</b>	SO <sub>2</sub> : 0~2000PPM (minimum 0~200ppm) NO: 0~2000PPM (minimum 0~200ppm) CO: 0~5000PPM (minimum 0~500ppm) CO <sub>2</sub> : 0~10%/0~25%, O <sub>2</sub> : 0~25%
<b>The measurement ranges can be customized</b>	
<b>Resolution</b>	SO <sub>2</sub> , NO, CO: 1PPM, CO <sub>2</sub> , O <sub>2</sub> : 0.01%
<b>Precision</b>	SO <sub>2</sub> , NO, CO, CO <sub>2</sub> : $\leq \pm 1\%$ FS O <sub>2</sub> : $\leq \pm 2\%$ FS
<b>Repeatability</b>	SO <sub>2</sub> , NO, CO, CO <sub>2</sub> , O <sub>2</sub> : $\leq 1\%$
<b>Zero /Span drift</b>	SO <sub>2</sub> /NO/CO/CO <sub>2</sub> : $\leq \pm 1\%$ FS O <sub>2</sub> : $\leq \pm 2\%$ FS
<b>Flow</b>	0.7~1.2L/min
<b>Inlet pressure</b>	2KPa~50kPa
<b>Sampling gas condition</b>	no dust, no water vapor, no tar
<b>Response time (T90)</b>	<10s (NDIR)
<b>Communication Interface</b>	RS232
<b>Output</b>	4~20mA
<b>Power Supply</b>	110V/220V $\pm$ 44V AC 50Hz $\pm$ 1Hz

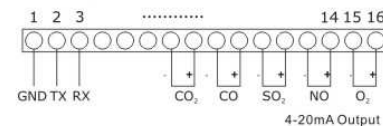
### Working environment

- Work temperature: 0~50°C
- Relative humidity:  $\leq 95\%$
- Ambient pressure: 86~108kPa

### Main features

- Adopting micro-flow NDIR gas sensor technology
- Able to measure SO<sub>2</sub>, NO, CO, CO<sub>2</sub>, O<sub>2</sub> five gases continuously
- Gaseous water had no effect on SO<sub>2</sub> and NO readings
- Sampling flow rate fluctuations had no effect on the measurement results
- Accurate measurement of low concentration gas
- Built-in zeroing pump
- Simple operation
- LCD (320×240) display
- Digital and analog signal output

### Output Interface (AIO/RS-232)



### Dimensions

- 3U": 485mm(L)\*457mm(W)\*132mm(H)
- 4U": 485mm(L)\*334mm(W)\*176mm(H)
- Weight: about 12kg



## Portable Infrared Flue Gas Analyzer Gasboard-3800P



### Applications

Combustion and emission control research or certification of Continuous Emission Monitoring System(CEMS), combustion efficiency monitoring for various industrial furnaces or refuse incinerator and boiler.

### Specifications

Measurement	SO <sub>2</sub> , NO , CO , CO <sub>2</sub> , O <sub>2</sub>
Technology	SO <sub>2</sub> , NO , CO , CO <sub>2</sub> (NDIR) O <sub>2</sub> (ECD or paramagnetic)
Range	SO <sub>2</sub> : 0~2000PPM (minimum 0~200ppm) NO: 0~2000PPM (minimum 0~200ppm) CO: 0~5000PPM (minimum 0~500ppm) CO <sub>2</sub> : 0~25% , O <sub>2</sub> : 0~25%
<b>The measurement ranges can be customized</b>	
Resolution	SO <sub>2</sub> , NO , CO : 1PPM , CO <sub>2</sub> , O <sub>2</sub> : 0.01%
Precision	SO <sub>2</sub> , NO , CO , CO <sub>2</sub> : ≤±1% FS O <sub>2</sub> : ≤±2% FS
Repeatability	SO <sub>2</sub> , NO , CO , CO <sub>2</sub> , O <sub>2</sub> : ≤1%
Flow	0.7~1.2L/min
Inlet pressure	2KPa~50kPa
Sampling gas condition	no dust ,no water vapor, no tar
Response time (T90)	<10s (NDIR)
Other parameters (optional)	gas temperature, gas pressure, gas velocity, ambient temperature and ambient pressure

### Sampling probe with heated tube

Features:

- Integrate heated sampling probe and sampling hose
- Built-in heated filter, prevent sampling loss
- Max working temperature 200℃
- Smart design, safe and reliable
- Filter element: 2μm
- Length: 3m (can be customized)
- Power supply: 220V AC
- Power consumption: 330W
- Environmental temperature: -40℃~140℃

### Main features

- Innovative Micro-Flow NDIR technology
- Measure SO<sub>2</sub>,NO,CO,CO<sub>2</sub> and optional T, P, Flow
- Less interference of H<sub>2</sub>O for SO<sub>2</sub> and NO measurement
- Auto ZERO calibration with fresh air
- Built-in zero pump and optional Printer
- Calculation of Lambda and combustion efficiency
- Touch screen and USB output

### Gas conditioning system

Features:

- Efficient Peltier dehumidifiers for humidity measurement of low concentrations
- PID temperature control
- Needle valve flow control
- Built-in sampling pump and peristaltic pump

## Portable Infrared Combustion Efficiency Analyzer Gasboard-3400P



### Applications

Boiler , furnace exhaust emission gas and combustion efficiency control.

### Specifications

Measurement	CO , CO <sub>2</sub> , O <sub>2</sub> , Gas temperature
Technology	CO , CO <sub>2</sub> (NDIR) , O <sub>2</sub> (ECD) , Gas Temperature: thermocouple
Range	CO: 0~1%/0~5% CO <sub>2</sub> : 0~25%/0~50% , O <sub>2</sub> : 0~25% Gas temperature: 0~1000℃
<b>The measurement ranges can be customized</b>	
Resolution	CO: 0.001% CO <sub>2</sub> , O <sub>2</sub> : 0.01% Gas temperature: 1℃
Precision	CO , CO <sub>2</sub> : ≤±1% FS O <sub>2</sub> : ≤±2% FS Gas temperature: ≤±3%℃
Repeatability	CO , CO <sub>2</sub> , O <sub>2</sub> : ≤1%
Flow	0.7~1.2L/min
Inlet pressure	2kPa~50kPa
Sampling gas condition	no dust, no water, no tar
Response time (T90)	<10s (NDIR)
Communication Interface	RS232
Power Supply	built-in rechargeable lithium battery

### Main features

- Adopting NDIR gas sensor technology
- Able to measure CO, CO<sub>2</sub>, O<sub>2</sub> gases and gas temperature simultaneously
- Real time calculate excess air coefficient
- Built-in sampling pump
- Auto air zeroing
- Simple operation
- LCD (320×240) display
- Digital signal output
- Optional sampling probe with thermocouple

### Working environment

- Work temperature: 0~50℃
- Relative humidity: ≤95%
- Ambient pressure: 86~108kPa

### Dimensions

- 520mm(L)\*430mm(W)\*320mm(H)
- Weight: about 5 kgs

## Portable Flue Gas Analyzer Gasboard-3800E



### Applications

Combustion and emission control research or certification of Continuous Emission Monitoring System(CEMS), combustion efficiency monitoring for various industrial furnaces or refuse incinerator and boiler.

### Specifications

<b>Measurement</b>	SO <sub>2</sub> , NO, NO <sub>2</sub> , CO low, CO <sub>2</sub> , O <sub>2</sub> , HC (optional), CO high(optional), H <sub>2</sub> S(optional)
<b>Technology</b>	HC/CO high/CO <sub>2</sub> (NDIR) CO low/SO <sub>2</sub> /NO/NO <sub>2</sub> /O <sub>2</sub> (ECD)
<b>Range</b>	CO low: 0-4000ppm, SO <sub>2</sub> :0-2000ppm, NO:0-2000ppm, NO <sub>2</sub> :0-200ppm, CO <sub>2</sub> :0-25%, O <sub>2</sub> :0-25%, CO high(optional): 0-10%, HC(optional):0-9999ppm, H <sub>2</sub> S(optional): 0-200ppm
<b>The measured components and range can be customized</b>	
<b>Resolution</b>	O <sub>2</sub> /CO <sub>2</sub> /CO high: 0.01% SO <sub>2</sub> /NO/NO <sub>2</sub> /CO <sub>2</sub> low/H <sub>2</sub> S/HC:1PPM
<b>Accuracy</b>	HC/CO high/CO <sub>2</sub> (NDIR) < ±2%FS CO low/SO <sub>2</sub> /NO/NO <sub>2</sub> /O <sub>2</sub> /H <sub>2</sub> S <±3% FS
<b>Flow</b>	0.7~1.2L/min
<b>Inlet pressure</b>	2KPa~50kPa
<b>Sampling gas condition</b>	no dust ,no water vapor, no tar
<b>Response time (T90)</b>	<10s (NDIR)
<b>Power Supply</b>	built-in rechargeable lithium battery
<b>Other parameters (optional)</b>	gas temperature, gas pressure, gas velocity, ambient temperature and ambient pressure.

### Main features

- Simultaneous measurement of O<sub>2</sub>, SO<sub>2</sub>, CO<sub>2</sub>, CO low, CO high, HC, NO, H<sub>2</sub>S(optional), NO<sub>2</sub>(optional) optional T, P, Flow
- NDIR technology to measure CO high, CO<sub>2</sub> and HC
- Maximum measure 9 gases: six ECD sensors and three NDIR sensors
- Auto ZERO function
- Built-in pump
- Calculation of Lambda and combustion efficiency
- LCD 320 x 240 display and RS232 digital output
- Weight :6.5Kgs

## Online Infrared Coal Gas Analyzer Gasboard-3100



### Applications

Coal or biomass gasification, coal chemical process, steel making process such as blast furnace, converter, coking, direct iron ore smelting reduction process.

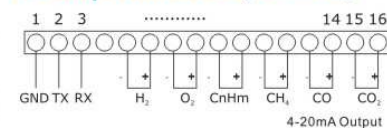
### Specifications

<b>Measurement</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> , O <sub>2</sub> , CnHm and BTU
<b>Technology</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , CnHm (NDIR) O <sub>2</sub> (ECD), H <sub>2</sub> (TCD)
<b>Range</b>	CO: 0~40%, CO <sub>2</sub> : 0~20%, CH <sub>4</sub> :0~10%, H <sub>2</sub> : 0~55%, O <sub>2</sub> : 0~25%, CnHm: 0~5% (Note: Measurement range can be customized by the requirement)
<b>Resolution</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> , O <sub>2</sub> , CnHm: 0.01%
<b>Precision</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , CnHm: ≤±1% FS H <sub>2</sub> , O <sub>2</sub> : ≤±2% FS
<b>Repeatability</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> , O <sub>2</sub> , CnHm: ≤1%
<b>Flow</b>	0.7~1.2L/min
<b>Inlet pressure</b>	2KPa~50kPa
<b>Sampling gas condition</b>	no dust ,no water vapor, no tar
<b>Response time (T90)</b>	<10s (NDIR)
<b>Communication Interface</b>	RS232
<b>Output</b>	4~20mA
<b>Power Supply</b>	110V/220V±44V AC 50Hz±1Hz

### Main features

- Adopting NDIR gas sensor and TCD technology
- Able to measure CO, CO<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>, O<sub>2</sub>, CnHm six gases and BTU simultaneously
- CH<sub>4</sub> has no effect on CnHm
- CH<sub>4</sub>, CO, CO<sub>2</sub> have no effect on H<sub>2</sub>
- Sampling flow rate fluctuations have no effect on H<sub>2</sub>
- Calculate calorific value automatically
- Built-in zeroing pump
- LCD (320×240) display
- Digital and analog signal output

### Output Interface (AIO/RS-232)



### Working environment

- Work temperature: 0~50℃
- Relative humidity: ≤95%
- Ambient pressure: 86~108kPa

### Dimensions

- 485mm(L)\*457mm(W)\*132mm(H)
- Weight: about 12kg



## Portable Infrared Coal Gas Analyzer Gasboard-3100P



### Applications

Coal or biomass gasification, coal chemical process, steel making process such as blast furnace, converter, coking, direct iron ore smelting reduction process.

### Specifications

<b>Measurement</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> , O <sub>2</sub> , CnHm and BTU
<b>Technology</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , CnHm (NDIR) O <sub>2</sub> (ECD), H <sub>2</sub> : (TCD)
<b>Range</b>	CO: 0~40%, CO <sub>2</sub> : 0~20%, CH <sub>4</sub> : 0~10% H <sub>2</sub> : 0~55%, O <sub>2</sub> : 0~25%, CnHm: 0~5% (Note: Measurement range can be customized by the requirement)
<b>Resolution</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> , O <sub>2</sub> , CnHm: 0.01%
<b>Precision</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , CnHm: $\leq \pm 1\%$ FS H <sub>2</sub> , O <sub>2</sub> : $\leq \pm 2\%$ FS
<b>Repeatability</b>	CO, CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> , O <sub>2</sub> , CnHm: $\leq 1\%$
<b>Flow</b>	0.7~1.2L/min
<b>Inlet pressure</b>	2KPa~50kPa
<b>Sampling gas condition</b>	no dust, no water vapor, no tar
<b>Response time (T90)</b>	<10s (NDIR)
<b>Communication Interface</b>	RS232
<b>Power Supply</b>	built-in rechargeable lithium battery

### Main features

- Adopting NDIR gas sensor and TCD technology
- Able to measure CO, CO<sub>2</sub>, CH<sub>4</sub>, H<sub>2</sub>, O<sub>2</sub>, CnHm six gases and BTU simultaneously
- CH<sub>4</sub> has no effect on CnHm
- CH<sub>4</sub>, CO, CO<sub>2</sub> have no effect on H<sub>2</sub>
- Sampling flow rate fluctuations have no effect on H<sub>2</sub>
- Calculate calorific value automatically
- Built-in sampling pump
- LCD (320×240) display
- Digital signal output
- Simple pretreatment unit (Optional)

### Working environment

- Work temperature: 0~50℃
- Relative humidity:  $\leq 95\%$
- Ambient pressure: 86~108kPa

### Dimensions

- 520mm(L)\*430mm(W)\*320mm(H)
- Weight: about 5kg

## Portable Infrared Natural Gas Analyzer Gasboard-3110P



### Applications

Coal bed gas and natural gas components monitoring and calorific value calculating.

### Specifications

<b>Measurement</b>	CH <sub>4</sub> , CnHm, calorific value (BTU)
<b>Technology</b>	CH <sub>4</sub> , CnHm (NDIR)
<b>Range</b>	CH <sub>4</sub> : 0-100%; CnHm: 0-10%
<b>Resolution</b>	CH <sub>4</sub> , CnHm: 0.01%
<b>Precision</b>	CH <sub>4</sub> , CnHm: $\leq \pm 1\%$ FS
<b>Repeatability</b>	CH <sub>4</sub> , CnHm: $\leq \pm 1\%$
<b>Flow</b>	0.7~1.2L/min
<b>Inlet pressure</b>	2kPa-50kPa
<b>Sampling gas condition</b>	no dust, no water vapor, no tar
<b>Response time (T90)</b>	<10s (NDIR)
<b>Power Supply</b>	built-in rechargeable lithium battery

### Working environment

- Work temperature: 0~50℃
- Relative humidity:  $\leq 95\%$
- Ambient pressure: 86~108kPa

### Main features

- Based on NDIR sensors
- Measurement of up to 2 gases CH<sub>4</sub>, CnHm simultaneously;
- No effect between CH<sub>4</sub> and CnHm
- Calculate the calorific value automatically
- Automatic zero calibration
- Built-in sampling pump
- LCD 320 x 240, RS232 Digital (standard)

### Dimensions

- 520mm(L)\*430mm(w)\*320mm(H)
- Weight: about 5kg



## Online Infrared Biogas Analyzer Gasboard-3200



### Applications

Landfill, water treatment, and CDM projects anaerobic digestion and other fermentation processes.

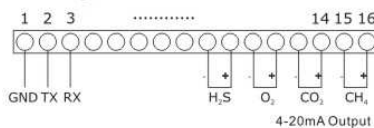
### Specifications

Measurement	CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> S, O <sub>2</sub>
Technology	CO <sub>2</sub> , CH <sub>4</sub> (NDIR) H <sub>2</sub> S, O <sub>2</sub> (ECD)
Range	CO <sub>2</sub> : 0~50%, CH <sub>4</sub> : 0~100%, H <sub>2</sub> S: 0~9999PPM, O <sub>2</sub> : 0~25%
Resolution	CO <sub>2</sub> , CH <sub>4</sub> , O <sub>2</sub> : 0.01%, H <sub>2</sub> S: 1PPM
Precision	CH <sub>4</sub> , CO <sub>2</sub> : ≤±2% FS O <sub>2</sub> , H <sub>2</sub> S: ≤±3% FS
Repeatability	CH <sub>4</sub> , H <sub>2</sub> S, CO <sub>2</sub> , O <sub>2</sub> : ≤2%
Flow	0.7~1.2L/min
Inlet pressure	2KPa~50kPa
Sampling gas condition	no dust, no water vapor, no tar
Response time (T90)	<10s (NDIR)
Communication Interface	RS232
Output	4~20mA
Power Supply	110V/220V±44V AC 50Hz±1Hz

### Main features

- Adopting NDIR gas sensor technology
- Able to measure CH<sub>4</sub>, CO<sub>2</sub>, H<sub>2</sub>S, O<sub>2</sub> four gases simultaneously
- Built-in zeroing pump
- Simple operation
- LCD (320×240) display
- Digital and analog signal output

### Output Interface (AIO/RS-232)



### Dimensions

- 485mm(L)\*457mm(W)\*132mm(H)
- Weight: about 12kg

### Working environment

- Work temperature: 0~50℃
- Relative humidity: ≤95%
- Ambient pressure: 86~108kPa

## Portable Infrared Biogas Analyzer Gasboard-3200L



### Applications

Landfill, water treatment, CDM projects anaerobic digestion and other fermentation processes.

### Specifications

Measurement	CO <sub>2</sub> , CH <sub>4</sub> , H <sub>2</sub> S, O <sub>2</sub>
Technology	CO <sub>2</sub> , CH <sub>4</sub> (NDIR) H <sub>2</sub> S, O <sub>2</sub> (ECD)
Range	CO <sub>2</sub> : 0~50%, CH <sub>4</sub> : 0~100%, H <sub>2</sub> S: 0~9999PPM, O <sub>2</sub> : 0~25%
Resolution	CO <sub>2</sub> , CH <sub>4</sub> , O <sub>2</sub> : 0.01%, H <sub>2</sub> S: 1PPM
Precision	CH <sub>4</sub> , CO <sub>2</sub> : ≤±2% FS O <sub>2</sub> , H <sub>2</sub> S: ≤±3% FS
Repeatability	CH <sub>4</sub> , H <sub>2</sub> S, CO <sub>2</sub> , O <sub>2</sub> : ≤2%
Flow	0.7~1.2L/min
Inlet pressure	2KPa~50kPa
Sampling gas condition	no dust, no water vapor, no tar
Response time (T90)	<10s (NDIR)
Communication Interface	RS232
Power Supply	built-in rechargeable lithium battery

### Main features

- Adopting NDIR gas sensor technology
- Able to measure CH<sub>4</sub>, CO<sub>2</sub>, H<sub>2</sub>S, O<sub>2</sub> four gases simultaneously
- Built-in sampling pump
- Simple operation
- LCD (320×240) display
- Digital signal output

### Working environment

- Work temperature: 0~50℃
- Relative humidity: ≤95%
- Ambient pressure: 86~108kPa

### Dimensions

- 520mm(L)\*430mm(W)\*320mm(H)
- Weight: about 5kg

## Heated Hydrogen Flame Ionization (FID) Hydrocarbon Gas Analyzer Gasboard-3030



### Applications

Stationary sources of continuous emissions monitoring, the monitoring of vehicle emissions, chemical process gas analysis, carbon monitoring in the air separation process, personal safety monitoring, diesel combustion analysis, fermentation monitoring.

### Specifications

<b>Component</b>	CH <sub>4</sub> (total hydrocarbon)
<b>Measurement method</b>	Flame Ionization Detector(FID)
<b>Range</b>	0-100ppm,0-1000ppm,0-10000ppm
<b>Resolution</b>	0.1ppm
<b>Precision</b>	≤ ± 1%FS
<b>Response time</b>	T90 ≤ 1.5S-60S
<b>Zero drift</b>	≤ ± 1%FS
<b>Span drift</b>	≤ ± 1%FS
<b>Combustion gas</b>	40%H <sub>2</sub> / 60%He or 100%H <sub>2</sub>
<b>Assist gas</b>	Less than 1ppm carbon purified or synthetic air
<b>Warm up</b>	one hour
<b>Sample gas temperature</b>	≤ 191°C
<b>Gas flow</b>	1.5L-3L/min
<b>Output</b>	RS232
<b>Power supply</b>	110V/220V±44V AC 50Hz±1Hz

### Main features

- Wide measurement range, multi-range can be automatically switched
- Resolution up to 10ppb
- Automatically calculate the total hydrocarbon concentration of non-methane
- Manual / automatic ignition
- Fuel gas and assist gas are automatically shut down in a dangerous state
- PID intelligent temperature control
- Electronic pressure and flow control
- Instrument AUTO calibration
- Simple operation

## Heated Chemiluminescent Detector (CLD) NO/NO<sub>x</sub> Gas Analyzer Gasboard-3040



### Applications

Stationary sources of continuous emissions monitoring, the monitoring of vehicle emissions, chemical process gas analysis, power plant desulfurization and denitrification monitoring, personal safety monitoring, diesel combustion analysis, turbine / generator feedback control.

### Specifications

<b>Component</b>	NO/NO <sub>x</sub>
<b>Measurement method</b>	Chemiluminescent Detector (CLD)
<b>Range</b>	0-200ppm, 0-2000ppm, 0-20000ppm
<b>Resolution</b>	0.1ppm
<b>Precision</b>	≤ ± 1%FS
<b>Response time</b>	T90 ≤ 1.5S-60S
<b>Zero drift</b>	≤ ± 1%FS
<b>Span drift</b>	≤ ± 1%FS
<b>NO<sub>x</sub> converter</b>	working temperature 400°C, converting efficiency > 98%
<b>Ozone Source</b>	high-pressure discharge
<b>Ozone Control</b>	Automatically cut off the air or oxygen pressure drop
<b>Warm up</b>	one hour
<b>Sample gas temperature</b>	≤ 65°C
<b>Gas flow</b>	1.5L-3L/min
<b>Output</b>	RS232
<b>Power supply</b>	110V/220V±44V AC 50Hz±1Hz

### Main features

- Multi-range can be automatically switched
- Resolution up to 10ppb
- Built-in NO<sub>x</sub> converter, with NO/NO<sub>x</sub> automatically switched
- Manual / automatic ignition
- Fuel gas and assist gas are automatically shut down in a dangerous state
- PID intelligent temperature control
- Electronic pressure and flow control
- Instrument AUTO calibration
- Simple operation

### Working environment

- Temperature: 0-40°C
- Humidity: ≤ 90%RH



## TCD Hydrogen Gas Analyzer Gasboard-7000



### Applications

TCD H<sub>2</sub> gas analyzer is used for H<sub>2</sub> gas concentration monitoring in additional gas or cycle gas of nitrogen fertilizer plant ammonia production process; or in hydrogen-cooled unit cycle of gas power plant; or in H<sub>2</sub> generator or other coal gas application.

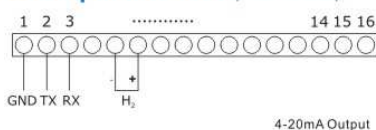
### Specifications

Measurement	H <sub>2</sub>
Technology	TCD
Range	0~100% (min 0~5%)
Resolution	0.01%
Precision	≤ ±2% FS
Repeatability	≤1%
Flow	0.7~1.2L/min
Inlet pressure	2KPa~50kPa
Sampling gas condition	no dust ,no water vapor, no tar
Response time (T90)	<20s
Communication Interface	RS232
Output	4~20mA
Power Supply	110V/220V±44V AC 50Hz±1Hz

### Main features

- With advanced TCD technology based on MEMS
- Patented thermal conductivity cell to reduce effects from variable gas flow
- Simple operation, easy maintenance
- LCD (320×240) display
- Digital and analog signal output

### Output Interface (AIO/RS-232)



### Dimensions

- 485mm(L)\*457mm(W)\*132mm(H)
- Weight: about 12kg

### Working environment

- Work temperature: 0~50℃
- Relative humidity: ≤95%
- Ambient pressure: 86~108kPa

## Automobile Emission Gas Analyzer Gasboard-5020



### Introduction

Gasboard 5020 emission gas analyzer can be used for measurement of the concentration of automobile emission gas CO, CO<sub>2</sub>, HC, O<sub>2</sub> and NO (optional). It is based on the pulsable infrared source and single source two beams non-dispersive infrared (NDIR) method, this analyzer is designed with portable and smaller physical dimensions. The general application is for automobile emission check station or car repair garage.

### Specifications

Measurement Range	CO: 0~10% , CO <sub>2</sub> : 0~20% HC: 0~9999ppm , O <sub>2</sub> : 0~25% NO: 0~5000ppm (optional)
Error	HC: ±12ppm or ±5% (relative) CO: ±0.06% or ±5% (relative) CO <sub>2</sub> : ±0.5% or ±5% (relative) O <sub>2</sub> : ±0.5% or ±5% (relative) NO: ±25ppm or ±4% (relative)
Resolution	CO, CO <sub>2</sub> , O <sub>2</sub> : 0.01 % HC , NO: 1 ppm
Response time (TD+T90)	<15s (NDIR)
Warm-up time	10min
Power Supply	110V/220V AC ±10%, 50HZ ±1HZ

### Main features

- Proprietary Infrared (NDIR) gas sensor
- Can measure gas concentration of CO, HC, CO<sub>2</sub>, O<sub>2</sub>, NO (optional) simultaneously
- With 320\*240 LCD
- Air / fuel ratio calculation and display automatically
- Auto-zero calibration with air
- Oil temperature and RPM interface
- Plug in printer optional
- RS232 interface and optional software

### Dimensions

- 266mm(W) \* 360mm(L) \* 183mm(H)
- Weight: about 6.5Kg

## Opacity Meter Gasboard-6010



### Specifications

Measurement	Opacity degree N: 0 ~ 100%
Range	Light absorption coefficient k: 0 ~ 30m-1
Error	±2.0%
Resolution	N: 0.1% , K: 0.01%
Power Supply	AC220V ±10%,50HZ±1HZ

### Main features

- Free accelerative and transient state measurement of opacity for diesel engine
- Display of Smoke opacity degree and light absorption coefficient
- Partial flow technology to keep optic system from pollution
- Constant temperature control for detection cell
- Auto-zero calibration with fresh air
- Meet the requirement of ISO11614 and GB3847-2005
- RS232 interface
- Oil temperature and RPM interface(optional)

### Dimensions

- Display:
  - 260mm(W) \*450mm(L)\*180mm(H)
  - Weight: about 6.5kg
- Opacity Meter:
  - 460mm(W)\*230mm(L)\*465mm(H)
  - Weight: about 7kg

## Engine RPM Sensor Based on Vibration and Noise Gasboard-8110



### Introduction

Engine RPM Sensor Based on Vibration and Noise Gasboard-8110 adopts advanced design of hardware together with integrated software analysis technology. Petrol engine or diesel engine's RPM is obtained through analysis of vibration and audio spectrum signal. It is easy to operate, accurate and reliable.

### Specifications

Engine type	4-stroke-diesel/gasoline
Measuring range	gasoline 450~8000 rpm
Diesel	450~6000 rpm
Signal output	serial output, analog voltage signal output TTL signal pulse output Induced pulse-analog ignition signal
Power supply	9~28 V DC; <350mA
Working temperature	5~45°C
Operating humidity	30%~90% RH

### Dimensions

- 200\*40\*140 mm(L\*H\*W)
- Weight: about 2Kg



## Engine RPM Sensor Based on Cigar Lighter Gasboard-8010



### Introduction

This sensor can work independently or apply in combination with opacity meter, exhaust gas analyzer or others. It adopts advanced DSP technology together with signal spectrum analysis approach to detect rpm. This instrument is high-precision, reliable, easy to install. It doesn't need vibration sensor or pincers for engine cylinder line. Only by connecting to power source system can it measure engine rpm. It is the only one proprietary RPM sensor based on auto cigar lighter in present China. Cigar lighter RPM sensor is not only applicable to gasoline vehicle but also applicable to diesel vehicle.

### Specifications

<b>Power source</b>	Cigar lighter or battery 9~15 V DC
<b>Measure Target</b>	2,4 stroke, 1~12 cylinder
<b>Measurement range</b>	400~9,999 RPM
<b>Maximal error</b>	< 20 RPM or relative 1 %
<b>Response time</b>	< 1 second

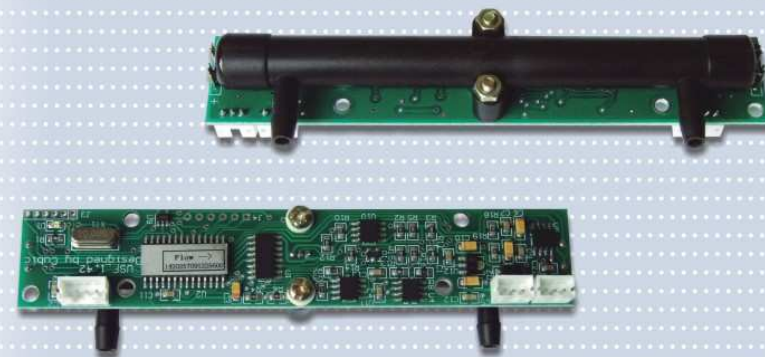
### Dimensions

- 144mm\*98mm\* 40 mm(L\*W\*H)
- Weight: about 350g

### Main features

- Used for engine's RPM measurement of gasoline, diesel, and natural gas
- Directly connected to Cigar lighter or battery to measure its RPM without any sensor
- RS-232 interface and LCD display
- Universal, connective to any exhaust gas analyzer and Opacity meter
- Standard signal interface Such as TTL or RS23
- Products including: Gasboard-8010, Cigar lighter connection cable 5m, clamp (battery), RS232 cable, user manual

## Ultrasonic Gas Flow and Oxygen Sensor Gasboard-7500



### Introduction

Gasboard 7500 ultrasonic gas flow and oxygen sensor use the ultrasonic velocity difference between upstream and downstream to detect the gas flow and also the oxygen purity for oxygen concentrator. It is reliable and low cost for integration into the person or medical oxygen concentrator.

### Specifications

<b>Output</b>	RS 232 , LCD , voltage
<b>Analog output of gas flow</b>	0~5V DC is linear with 0~10.0L/m
<b>Analog output of gas concentration</b>	0~5V DC is linear with 0~100% O <sub>2</sub>
<b>Power supply</b>	12V DC/10ma
<b>Precision of concentration</b>	± 1.8%FS
<b>Precision of flow</b>	± 0.2L/min
<b>Measurement range</b>	0~100%
<b>Flow range</b>	gas concentrator/generator (small) 0~10.0L/min gas concentration/generator (large) 0~500L/min
<b>Max pressure</b>	150kPa
<b>Working temperature</b>	10~45℃
<b>Calibration</b>	Factory calibration. No need to re-calibrate it
<b>Flow direction</b>	No limitation
<b>Concentration response time</b>	0.5s
<b>Flow response time</b>	0.5s

### Dimensions

- 120mmx20.3mmx13mm Weight: about 25g (LCD excluded)

## Online Continuous Analysis Monitoring System

Online continuous analysis monitoring system Gasboard 9000 series are based on infrared flue gas analyzer, infrared coal gas analyzer, infrared biogas analyzer, integrated with advanced sampling equipment, gas conditioning system or PLC system, aiming at applications in general or hazardous areas.

As a leading company in gas analysis, different gas components from flue gas, coal gas, biogas simultaneously in one gas analyzer, without cross-talking among gases. For gas conditioning system, it has advantages of water-vapor removing, dust-removing, anti-block, anti-leakage and free-maintenance, which is proved to be high-reliable, high-performance and cost-efficient. The system is used in the applications of metallurgy, cement, oil, electricity, environment protection, chemical engineering, research, food, pharmacy etc.

- Ø Wall-mounted biogas online continuous analysis monitoring system

**Applications:** CDM projects, landfill gas online monitoring, anaerobic digestion projects and so on.

- Ø Coal gas online continuous analysis monitoring system

**Applications:** Coal gasification, coal biomass, blast furnace and so on

- Ø Combustion efficiency online monitoring system

**Applications:** Boiler combustion efficiency monitoring



## Gas Conditioning System



Water washing device



Analysis metal case



## Typical Applications



Limekiln application



Producer / off gas analysis system



Landfill gas monitoring



Coal bed methane monitoring



Biomass polyis



Flue gas monitoring system



Auto emission gas testing



Biogas project

## Typical Applications



Biomass gasification in Philippines



Electrical tar gas monitoring



Methylene oxide coal gas



Synthetic ammonia water gas monitoring



Chlor-alkali coal gas & BTU



Calcium carbide purify application



Coal gasification monitoring

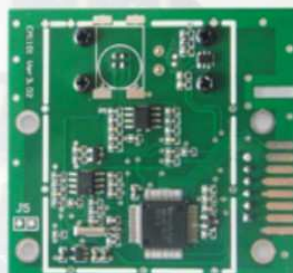


Electricity power plant

## Infrared Gas Sensors and Gas Detectors

CUBIC's OEM infrared gas sensors, including infrared methane sensor SJH series, infrared carbon dioxide sensor SRH series, infrared carbon dioxide module CM1101 series, are based on advanced NDIR (Non-dispersive infrared) technology, aiming at gas detection in industrial applications and household and commercial applications, such as coal mining, gas station, HVAC, greenhouse, ventilation, indoor air quality control etc.

Meanwhile, the complete gas detection units for handheld and fixed use are also available. Such as infrared methane gas detector/transmitter, infrared carbon dioxide gas detector/transmitter, electrochemical toxic gas detectors and transmitters. They can be used in chemical industry, oil & gas storage, mine, iron and steel etc.



## Infrared Methane Gas Sensor SJH Series



### Applications

Infrared CH<sub>4</sub> sensor can be integrated in safety and alarming devices such as CH<sub>4</sub> gas detector and transmitter which are widely used in various occasions with flammable and explosion hazard gas

- Mine, metallurgy, liquefied gas station, petroleum, fuel gas transport etc
- Used in gas leakage detecting equipment in family and industry, are suitable for CH<sub>4</sub>, LNG
- Gasoline, ketone, benzene etc organic solvent
- Combustible gas leaking alarm or detectors

### Specifications

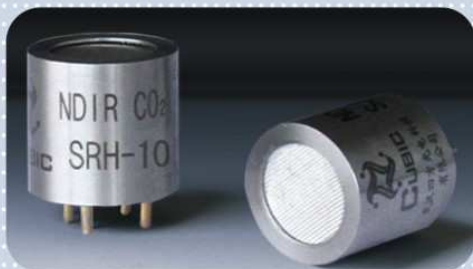
Measurement method: NDIR  
 Range: CH<sub>4</sub>: 0~5%vol up to 0~100%vol  
 Working voltage: 3.5~6 VDC  
 Working current: 75~80mA  
 Output voltage: 0.4~2 VDC  
 Resolution: Measurement range: 0~5%vol, resolution is 0.01%  
 Measurement range: 0~100%vol, for 0~10% resolution is 0.01%; above 10% resolution is 0.1%  
 Warm-up: 30s  
 Response time T90 :< 25s at 20℃  
 Zero repeatability: ±1%FS (20℃)  
 Zero drift: 1%/month  
 Digital signal format: RS232 Data bit:8; Stop bit:1; Check bit:null; baud: 9600bps  
 Working temperature:-20℃~55℃  
 Dimensions: ø20X19mm(except pin)  
 Output pin: 5 pins  
 Lifespan: >5 years

### Features

- NDIR gas sensor
- High sensitive and fast response
- long life span, little calibration
- Self-compensation of temperature and reliable linearity output
- Choice of output format — voltage and RS232



## Infrared Carbon Dioxide Gas Sensor SRH Series



### Applications

CO<sub>2</sub> sensor can be integrated in safety and alarming devices such as CO<sub>2</sub> gas detector and transmitter which are used for medical, environmental monitoring, HVAC, greenhouse, underground garage, automotive, mining, refrigeration plant, tunnels, confined spaces, shipping containers, car parks, industrial plant rooms etc.

### Specifications

Measurement method: NDIR

Range: CO<sub>2</sub>: 0~5000ppm up to 0~10%vol

Working voltage: 3.5~6 VDC

Working current: 75~80mA

Output voltage: 0.4~2 VDC

Resolution: Measurement range: 0~5000ppm, resolution is 10ppm

Measurement range: 0~10%vol, resolution is 0.01%

Warm-up: 30s

Response time T<sub>90</sub> : < 25s at 20°C

Zero repeatability: ± 1%FS (20°C)

Zero drift: 1%/month

Digital signal format: RS232 Data bit: 8; Stop bit: 1; Check bit: null;  
baud: 9600bps

Working temperature: -20°C~55°C

Dimensions: ø20X19mm(except pin)

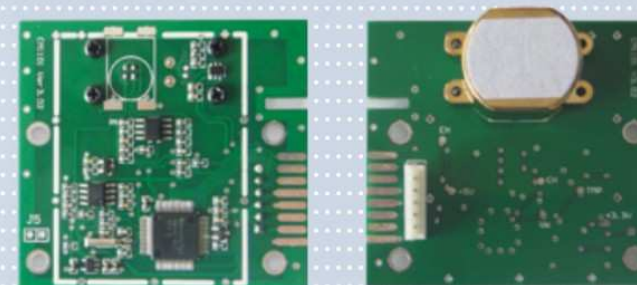
Output pin: 5 pins

Lifespan: >5 years

### Features

- Diffusion sample, high sensitive, fast response
- Low power consumption, precise measurement and stable performance
- Temperature sensor inside could be for temperature compensate
- Good immunity to other gases and humidity
- Choice of output format: voltage and RS232
- Self-monitoring and diagnostic features enhanced

## Infrared Carbon Dioxide Gas Module CM1101 Series



### Applications

- Indoor air quality control: shopping centers, garages, tunnels, schools, bars, hospitals and restaurants.
- HVAC System: building HVAC system, automotive HVAC system, ventilation system.
- Bio-related processes: greenhouse, mushroom, grain storage, food storage.
- Outdoor air quality control atmospheric CO<sub>2</sub> monitoring.

### Specifications

#### • Method

Non Dispersive Infrared (NDIR)

#### • Performance

CO<sub>2</sub> measurement Range: 0-2000ppm up to 0-5000ppm

Optional temperature and Relative humidity sensors all in one

Resolution: 10ppm

Accuracy: 40ppm+2% reading (dual beam)

40ppm+3% reading (single beam)

Response time (T<sub>90</sub>) : <120s

Repeatability : < 2 %

Lifespan: >10 years

#### • Operating environment

Working temperature : -10~50°C

Storage temperature : -40°C ~ 85°C

Temperature influent : <0.5%FS per°C

Working humidity : 0~95%RH no-condensing

#### • Inputs and outputs

Power supply: DC5V±5%

Working current : 70mA,max 120mA

Measuring output: linearity output

Output voltage: 0.8~4VDC (can be customized)

Digital output: UART Data bit: 8; Stop bit: 1; Check Bit: null

Standard baud rate: 9600bps

## Infrared Methane Gas Transmitter CJH Series



### Applications

- Petrochemical processing
- Mining, metallurgy
- Fuel gas transport, as well as the leakage of nature gas
- Power generation
- Gas storage and distribution
- Marine and cargo handling
- Telecommunications, oil wells

### Specifications

Measurement method: NDIR

Power supply: 8~25VDC

Range: CH<sub>4</sub>: 0~5%vol up to 0~100%vol

Resolution: Measurement range: 0~5%vol, resolution is 0.01%  
Measurement range: 0~100%vol, for 0~10%  
resolution is 0.01%; above 10% resolution is 0.1%

Max Error : For range 0~1%,  $\leq \pm 0.1\%$

For range 0~100%,  $\leq \pm 10\%$  of readings

Warm-up: 30s

Response time T90 : < 25s at 20°C

Zero repeatability:  $\pm 1\%$ FS (20°C)

Zero drift: 1%/month

Working temperature: -20°C~55°C

Storage temperature: -40°C~85°C

Output signals: RS485; 4~20mA

Lifespan: >5 years

### Features

- Proprietary infrared gas analysis technology, with high accuracy, high resolution, long life and easy maintenance
- High and low alarm settings, two levels of audio and light alarms
- Automatic zero calibration with air
- Diffusion sampling methods
- Fast response and Immune from "poisoning"
- Real-time displaying gas concentration with LED
- Audible alarm device to prevent accidents and ensure the safety of life
- Metal case for industrial online monitor

## Infrared Carbon Dioxide Gas Transmitter CRH Series



### Applications

Fixed CO<sub>2</sub> gas transmitter is an ideal instrument with alarm function to monitor the concentration of CO<sub>2</sub>, such as chemical industry, mine, fermentation areas in wineries, metallurgy, dairying, workshop, storage as well as the leakage of CO<sub>2</sub>.

### Specifications

- Measurement method: NDIR
- Power supply: 8~25VDC
- Range: CO<sub>2</sub>: 0~5000ppm up to 0~10%vol
- Resolution: Measurement range: 0~5000ppm, resolution is 10ppm  
Measurement range: 0~10%vol, resolution is 0.01%
- Max Error: For range 0~5000ppm,  $\leq \pm 2\%$ FS  
For range 0~10%,  $\leq \pm 2\%$  FS
- Warm-up: 30s
- Response time T90 : < 25s at 20°C
- Zero repeatability:  $\pm 1\%$ FS (20°C)
- Zero drift: 1%/month
- Working temperature: -20°C~55°C
- Storage temperature: -40°C~85°C
- Output signals: RS485; 4~20mA
- Lifespan: >5 years

### Features

- Proprietary infrared gas analysis technology, with high accuracy, high resolution, long life and easy maintenance
- High and low alarm settings, two levels of audio and light alarms
- Automatic zero calibration with air
- Diffusion-type sampling methods
- Real-time Digital displaying gas concentration with LED
- Audible alarm device to prevent accidents and ensure the safety of life
- Metal case for industrial online monitor



## Toxic Gas Transmitter CTD Series/ CLD Series



### Applications

Toxic gas leakage detection in iron and steel, chemical engineering areas.

### Specifications

- Measurement method: Electrochemical
- Components: CO or H<sub>2</sub>S
- Power supply: 8~25VDC
- Range: CO: 0~500ppm; H<sub>2</sub>S: 0~100ppm (can be customized)
- Resolution: 1 ppm
- Max Error:  $\leq \pm 3\%FS$
- Warm-up: 30s
- Response time T<sub>90</sub> : < 20s at 20°C
- Zero repeatability:  $\pm 1\%FS$  (20°C)
- Zero drift: 1%/month
- Working temperature: -20°C~55°C
- Storage temperature: -40°C~85°C
- Output signals: RS485; 4~20mA
- Lifespan: 2 years in the air

### Features

- Proprietary electrochemical gas analysis technology, with high accuracy, high resolution, long life and easy maintenance
- Automatic zero calibration with air
- Diffusion type sampling methods
- Realtime displaying gas concentration with LED
- Metal case for industrial online monitor

## Handheld Infrared Methane Gas Detector JHB Series



### Applications

Portable CH<sub>4</sub> detector is an ideal instrument with alarm function to detect the concentration of CH<sub>4</sub>, such as chemical industry, oil & gas storage, mine, metallurgy, liquefied gas station, spray paint, petroleum, fuel gas transport, as well as the leakage of nature gas.

### Specifications

- Measurement method: NDIR
- Range: CH<sub>4</sub>: 0~5%vol up to 0~100%vol
- Resolution: Measurement range: 0~5%vol, resolution is 0.01%  
Measurement range: 0~100%vol,  
for 0~10% resolution is 0.01%; above 10% resolution is 0.1%
- Max Error: For range 0~1%,  $\leq \pm 0.1\%$   
For range 1~100%,  $\leq \pm 10\%$  of readings
- Response time T<sub>90</sub> : < 25s at 20°C
- Working temperature: -20°C~55°C
- Storage temperature: -40°C~85°C
- Humidity:  $\leq 95\%RH$
- Warm-up: 30s
- Stand-by time:  $\geq 10$  hours
- Sampling method: Diffusion sampling
- Power supply: DC3.7V 1300mAh lithium battery 220V to 5V power adapter

### Features

- Independent intellectual property rights of infrared gas analysis technology
- Dual-range setting with high concentrations of methane gas leak detection and alarm function
- High and low alarm points can be customized settings
- Air auto-zero calibration feature
- Diffusion Sampling
- Fast response
- LED digital tube display real-time gas concentrations
- Rechargeable lithium battery Small size, simple operation

## Handheld Infrared Carbon Dioxide Gas Detector RHB Series



### Applications

Portable CO<sub>2</sub> detector is an ideal instrument with alarm function to detect the concentration of CO<sub>2</sub>, such as:

- Greenhouses
- Fruit/Vegetable Storage
- Incubators
- Mushroom Farms
- Brewing
- Ventilation Verification
- Carbonated Drink Dispensing
- Indoor air quality
- Parking areas for safety
- Leak detection for bulk and high-pressure CO<sub>2</sub> systems

### Specifications

- Measurement method: NDIR
- Range: CO<sub>2</sub>: 0~5000ppm up to 0~10%vol
- Resolution: Measurement range: 0~5000ppm, resolution is 10ppm  
Measurement range: 0~10%vol, resolution is 0.01%
- Max Error: For range 0~5000ppm,  $\leq \pm 2\%$ FS  
For range 0~10%,  $\leq \pm 2\%$  FS
- Response time T90 :< 25s at 20℃
- Working temperature: -20℃~55℃
- Storage temperature: -40℃~85℃
- Humidity:  $\leq 95\%$ RH
- Warm-up: 30s
- Stand-by time:  $\geq 10$  hours
- Sampling method: Diffusion sampling
- Power supply: DC3.7V 1300mAh lithium battery  
220V to 5V power adapter

### Features

- Proprietary infrared gas analysis technology with high accuracy, high resolution, long life and easy maintenance
- High and low alarm settings, two levels of audio and light alarms
- Automatic zero calibration with air
- Diffusion sampling methods
- Real-time displaying gas concentration with LED.
- High-capacity rechargeable lithium battery
- Dual-range setting with high concentrations of CO<sub>2</sub> gas leak detection and alarm function.
- Small size, simple operation

## Handheld Toxic Gas Detector TDB Series/LDB series



### Applications

Toxic gas leakage detection in iron and steel, chemical engineering areas.

### Specifications

Measurement method: Electrochemical  
Components: CO or H<sub>2</sub>S  
Range: CO: 0~500ppm; H<sub>2</sub>S: 0~100ppm (can be customized)  
Resolution: 1 ppm  
Max Error:  $\leq + 3\%$ FS  
Response time T90: 20s at 20℃  
Atmospheric Pressure: 86~106kpa  
Working temperature: -20℃~55℃  
Storage temperature: -40℃~85℃  
Humidity:  $\leq 95\%$ RH  
Warm-up: 30s  
Stand-by time:  $\geq 10$  hours  
Sampling method: Diffusion sampling  
Power supply: DC3.7V 1300mAh lithium battery  
220V to 5V power adapter  
Dimensions (L\*W\*H): 93mm X 62mm X 25mm

### Features

- Proprietary electrochemical gas analysis technology, with high accuracy, high resolution, long life and easy maintenance
- Automatic zero calibration with air
- Diffusion sampling methods
- Realtime displaying gas concentration with LED