

Table Overview for Cubic Particulate Matter Sensors

Product Image	Light Source	Measurement Range	Inlet and outlet	Features							Particle Count Output (in pcs/L)
				Auto Particle Identification (API)	Matrix Calibration	Anti-Dust	Constant Power Control of Laser Diode	Constant RPM Speed Fan	Three-channel Output (PM1.0, PM2.5&PM10 in $\mu\text{g}/\text{m}^3$ )		
 PM1003	LED	0~500 $\mu\text{g}/\text{m}^3$			✓						
 PM1006K	LED	0~1000 $\mu\text{g}/\text{m}^3$			✓				✓		
 PM2016	Laser Diode	0~1000 $\mu\text{g}/\text{m}^3$	Same Side	✓	✓	✓	✓	✓	✓	✓	
 PM2008M	Laser Diode	0~5000 $\mu\text{g}/\text{m}^3$	Same Side	✓	✓		✓	✓	✓		
 PM2012	Laser Diode	0~5000 $\mu\text{g}/\text{m}^3$	Same Side & Opposite Side	✓	✓		✓	✓	✓		
 AM1002	Laser Diode	0~5000 $\mu\text{g}/\text{m}^3$	Same Side & Opposite Side	✓	✓		✓	✓	✓		
 AM1009	Laser Diode	0~5000 $\mu\text{g}/\text{m}^3$	Same Side & Opposite Side	✓	✓	✓	✓	✓	✓		
 PM3006S	Laser Diode	0~30,000 $\mu\text{g}/\text{m}^3$	Adjacent Side	✓	✓		✓	✓	✓		
 PM3003Q	Laser Diode	0~1,000 $\text{mg}/\text{m}^3$	Adjacent Side		✓		✓		PM2.5, PM10 and TSP in $\mu\text{g}/\text{m}^3$		
 PM5100	Laser Diode	0~10,000,000 pcs/L	Opposite Side	✓			✓	✓		✓ ( $>0.3\mu\text{m}$ , $>0.5\mu\text{m}$ , $>1.0\mu\text{m}$ , $>5.0\mu\text{m}$ , $>10\mu\text{m}$ )	
 PM5000S	Laser Diode	0~10,000,000 pcs/L	Adjacent Side	✓			✓	✓		✓ ( $>0.3\mu\text{m}$ , $>0.5\mu\text{m}$ , $>1.0\mu\text{m}$ , $>5.0\mu\text{m}$ , $>10\mu\text{m}$ )	

\*Auto Particle Identification(API): The sensors are calibrated with different dust sources, to ensure identification ability under different particulate matter distributions. With the application of the correct density in professional algorithm, the sensors ensure three channels PM1.0,PM2.5&PM10 output with high accuracy regardless of particulate matter distribution change.

\* Matrix Calibration: The sensors are calibrated at multi-points of low, normal and high temperature under multiple dust concentration points, to ensure high accuracy under wider temperature and measurement range.

\*Anti-Dust: Special structure design to decrease dust accumulation over photodiode, ensures sensors longer lifespan under high dust concentration environments.

\*Constant Power Control of Laser Diode: It ensures constant signal output, which is conducive to identify the particulate matter, to ensure stable performance and high accuracy.

\*Constant RPM Speed Fan: It ensures constant sampling flow, enables sensors with low noise and stability.

\*Three-channel Output: Output PM1.0, PM2.5&PM10 in  $\mu\text{g}/\text{m}^3$  simultaneously.

\*Particle Count: Output in pieces/volume, suits for cleanroom.

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

Environmental Air Quality Sensors  
For Indoor and Outdoor Air Quality



Carbon Dioxide Sensor



Particulate Matter Sensor



Integrated Module



## LED Dust Sensor for Floor Scrubber PM1010



### Features

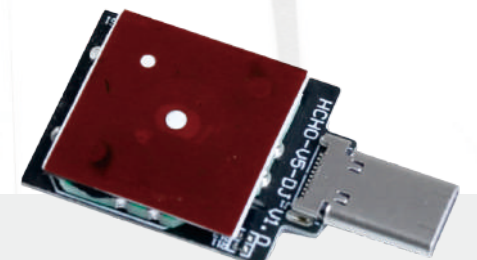
- Sewage pollution level output through UART protocol
- Easy integration to customer device
- Quick response

### Specifications

Operating Principle	LED infrared
Measurement Range	0-100 levels
Response Time	0.5s
Working Temperature	-10~60°C; 0~95%RH (non-condensing)
Storage Temperature	-20~80°C; 0~95%RH (non-condensing)
Power Supply	DC 3.3V±5%, ripple <50mV
Working Current Average	<60mA
Signal Output UART	3.3V level
Dimension	Main control PCBA ( L26.5*W16.0*H1.0 mm) Transmitter & receiver board (L20 *W10.56 mm)



## Formaldehyde Gas Sensor CB-HCHO-V5



### Features

- High sensitivity up to 1ppb
- HCHO, VOC in-one design
- Full range temperature and humidity compensation
- Unique dual-channel design, good anti-interference
- Multiple communication methods: URAT, IIC, PWM
- Lifetime can reach 3 years (in air)

### Specifications

Working Principle	Electrochemical
Measurement Range	HCHO: 0~1ppm VOC: 0~10ppm (equivalent alcohol concentration) TVOC: 0~10ppm (equivalent alcohol concentration)
HCHO Measurement Accuracy	±0.030ppm or ±10% reading, whichever larger
Resolution	HCHO: 1ppb; VOC: 0.01ppm; TVOC: 0.01ppm
Response Time T90	50s (@25±2°C, 50±10%RH)
Working Condition	0~40°C; 15~95%RH (non-condensing)
Storage Condition	-20~50°C; 0~95%RH (non-condensing)
Working Voltage	DC(+3.5V ~ +5.5V)
Working Current	<15mA
Signal Output	UART_TTL (3.3V); I <sup>2</sup> C (Reserved); PWM (Reserved)
Dimensions	W23*H32*D7 (mm)
Lifetime	3 years (@0.1ppm Formaldehyde concentration)





## Super Low Power CO<sub>2</sub> Sensor

### CM1106SL-NS

#### Features

- Super low power consumption: 37μA@2minutes
- Accuracy can reach at ±(40ppm+3%of reading), meets the RESET Standard Grade A (Note 1)
- Matrix calibration to ensure accuracy under whole temperature and measurement range
- Auto-baseline correction function, maintenance-free
- Signal output: UART\_TTL, I<sup>2</sup>C

#### Applications

- Battery powered air quality monitor
- Battery powered HVAC system controller
- Portable battery powered CO<sub>2</sub> meter
- Fresh air system
- Green house

#### Specifications

Measurement Range	0~5,000ppm
Accuracy	±(40ppm+3%of reading) (Note 2)
Working Condition	-10°C~50°C; 0~95%RH (non-condensing)
Signal Output	UART_TTL, I <sup>2</sup> C
Working Current	37μA (2 minutes as measurement cycle, default in the sensor)
Power Supply	DC3.3V~5.5V
Dimension	W33.5*H19.7*D9.1 (mm)

Note1: The accuracy standard quotes "The RESET™ Air STANDARD for Accredited Monitors v2.0", copyright © 2018 RESET™.

Note2: In normal IAQ applications, accuracy is defined with 10°C~35°C, 0~85%RH. When the sensor is under single measurement mode (Power supply is controlled by host), the sensor reading output is without moving average. The defined accuracy ±(40ppm+3%of reading) is based on data moving average≥5 and range of 400~2000ppm.



## High Accuracy CO<sub>2</sub> Sensor

### CM1106H-NS

#### Features

- High accuracy: ±(30ppm+3%of reading)@-10°C~50°C, meets the RESET Standard Grade A (Note 1)
- Matrix calibration to ensure accuracy under whole temperature and measurement range
- Flexible pin direction design is available
- Auto-baseline correction function, maintenance-free
- Long lifespan ≥15 years

#### Applications

- Fresh air system
- HVAC system controller
- Air quality monitor
- Household & central air conditioner
- Air purifier

#### Specifications

Measurement Range	PWM: 0~2,000ppm UART_TTL, I <sup>2</sup> C: 0~10,000ppm (Note 2)
Accuracy	±(30ppm+3%of reading) @-10°C~50°C, 0~85%RH
Working Condition	-10°C~50°C; 0~95%RH (non-condensing)
Signal Output	UART_TTL, I <sup>2</sup> C, PWM
Working Current	< 50mA
Power Supply	DC4.5V~5.5V
Dimension	W33*H19.7*D8.9 (mm)

Note1: The accuracy standard quotes "The RESET™ Air STANDARD for Accredited Monitors v2.0", copyright © 2018 RESET™.

Note 2: Sensor is designed to measure in the range 0~2,000ppm (PWM), 0~10,000ppm (UART\_TTL, I<sup>2</sup>C) with specified in the table accuracy.





# Ultra-Low Power CO<sub>2</sub> Sensor CM1108UL

## Features

- NDIR technology
- Super low power consumption:  $\leq 27.9\mu A$
- Auto-baseline correction function, maintenance free
- High accuracy, RESET/WELL compliant (Note 1)

## Applications

- Battery powered air quality monitor
- Battery powered HVAC system controller
- Portable battery powered CO<sub>2</sub> meter
- Fresh air system

## Specifications

Measurement Range	400~5000ppm
Working Temperature and Humidity	0°C ~ 50°C; 0~95%RH (non-condensing)
Accuracy	$\pm(40\text{ppm}+3\% \text{ of reading})$ (Note 2)
Power Supply	DC 3.3V~5.5V
Average Working Current	$\leq 27.9\mu A$ (continuous measurement mode, 16s, 8 samples)
Dimensions	W34*H21*D12 (mm)
Signal Output	UART / I <sup>2</sup> C
Life Span	$\geq 15$ years

Note1: The accuracy standard quotes "The RESET™ Air STANDARD for Accredited Monitors v2.0", copyright © 2018 RESET™.  
 Note2: In normal IAQ applications, accuracy is defined with 10°C~35°C, 0~85%RH. When the sensor is under single measurement mode (Power supply is controlled by host), the sensor reading output is without moving average. The defined accuracy  $\pm(40\text{ppm}+3\% \text{ of reading})$  is based on data moving average $\geq 5$  and range of 400~2000ppm.



# Miniature SMT NDIR CO<sub>2</sub> Sensor CM1120

## Features

- NDIR technology
- Ultra-compact design
- Flexible installation
- High accuracy, applied for WELL Building Standard™

## Applications

- Air quality monitor
- Air conditioner
- Ventilation system
- Consumer electronic products

## Specifications

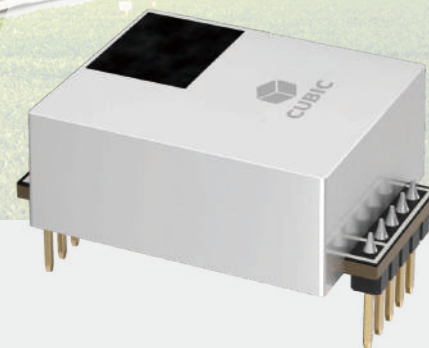
Dimension	W18*H7.5*D6 (mm)
Accuracy	$\pm(40\text{ppm}+3\% \text{ of reading})$
Measurement Range	400~5,000ppm
Average Working Current	$\leq 15\text{mA}$
Power Supply	DC3.3V-5.5V
Signal Output	UART / I <sup>2</sup> C
Lifespan	$\geq 15$ years
Working Temperature and Humidity	-10°C~50°C; 0~95%RH (non-condensing)

Note1: The accuracy standard quotes "The RESET™ Air STANDARD for Accredited Monitors v2.0", copyright © 2018 RESET™.  
 Note 2: Sensor is designed to measure in the range 0~2,000ppm (PWM), 0~10,000ppm (UART\_TTL, I<sup>2</sup>C) with specified in the table accuracy.





## Dual Beam CO<sub>2</sub> Sensor CM1107N



### Features

- Dual beam(Note 1) detection for high accuracy and long-term stability with little drift
- Matrix calibration to ensure accuracy under whole temperature and measurement range
- Measurement range can be extended to 10,000ppm
- Long lifespan ≥15 years

### Applications

- Green house
- Fresh air system
- Household & central air conditioner
- Boiler gas leakage alarm
- Farm

### Specifications

Measurement Range	0~5,000ppm default
Accuracy	±(30ppm+3%of reading)@0°C~50°C, 50±10%RH
Working Condition	-10°C~50°C; 0~95%RH (non-condensing)
Signal Output	UART_TTL, I <sup>2</sup> C, PWM
Working Current	<50mA
Power Supply	DC4.5V~5.5V
Dimension	W33*H21.7*D12.7 (mm) (without pin)

Note 1: Dual beam CO<sub>2</sub> sensor applies two beams: One for detecting and one for reference, reduces influence of the IR source aging, to ensure high accuracy with little drift. Dual Beam CO<sub>2</sub> Sensor suits for applications without fresh air environments.



## Wide Measurement Range CO<sub>2</sub> Sensor CM1107H



### Features

- Wide measurement range, 5%vol CM1107H
- Dual beam detection for high accuracy and long-term stability with little drift
- Matrix calibration to ensure accuracy under whole temperature and measurement range
- Low power consumption
- Long lifespan ≥15 years

### Applications

- Wine cellar
- Carbonated beverage factory
- Bar
- Silobag grain
- Intelligent agriculture

### Specifications

Specifications	CM1107H
Measurement Range	0~5%vol
Accuracy	±(0.02%vol +10%of reading) @0~50°C, 50±10%RH
Working Condition	-10°C~50°C; 0~95%RH (non-condensing)
Signal Output	UART_TTL, I <sup>2</sup> C
Power Supply	DC4.5V~5.5V
Working Current	<50mA
Dimension	W33*H22*D13.1 (mm) (without pin)





# Dual IR Source CO2 Sensor CM1109

## Features

- Dual IR source NDIR technology with independent intellectual property
- Dual measurement range
- Matrix calibration to ensure accuracy under whole measurement temperature and measurement range
- High accuracy, long term stability
- Long lifespan ≥15 years
- Signal output: UART\_TTL, PWM, I²C

## Applications

- HVAC, central air conditioning
- Agricultural planting, plant cultivation
- Storage, cold chain transportation
- Indoor air quality detector
- Air purifier

## Specifications

Measurement Range	400~5,000ppm/400~20,000ppm
Accuracy	±(50ppm+3%of reading)@0~50°C, 50±10%RH@400~5000ppm
Working Condition	-10°C~50°C; 0~95%RH (non-condensing)
Signal Output	UART_TTL, I²C, PWM
Working Current	< 45mA
Power Supply	DC4.5V~5.5V
Dimension	W33*H20.3*D11.4 (mm) (without pin)



# Table Overview for Cubic NDIR CO2 Sensors

Product Image	Working Principle	Measurement Range	Accuracy	Signal Output	Power Consumption	Features			
						Matrix Calibration	Temperature and Humidity Compensation	Auto-baseline Correction (default on)	Super Low Power
 CM1106-C	Single beam NDIR	0~5,000ppm	±(50ppm+5%of reading) @0~50°C, 50±10%RH	UART_TTL I²C PWM	<45mA @1second	✓	✓	✓	
 CM1106SL-NS	Single beam NDIR	0~5,000ppm	±(40ppm+3%of reading) @10°C~35°C, 0~85%RH	UART_TTL I²C	37uA @2minutes	✓	✓		✓
 CM1106H-NS	Single beam NDIR	0~10,000ppm	±(30ppm+3%of reading) @-10°C~50°C, 0~85%RH	UART_TTL I²C PWM	<50mA @1second	✓	✓	✓	
 CM1107N	Dual beam NDIR	0~5,000ppm	±(30ppm+3%of reading) @0~50°C, 50±10%RH	UART_TTL I²C PWM	<50mA @1second	✓	✓		
 CM1107H	Dual beam NDIR	0~50,000ppm	±(200ppm+10%of reading) @0~50°C, 50±10%RH	UART_TTL I²C	<50mA @1second	✓	✓		
 CM1109	Dual Engine NDIR	0~5,000ppm	±(50ppm+3%of reading) @0~50°C, 50±10%RH	UART_TTL I²C PWM	<50mA @1second	✓	✓		

\*Matrix calibration: The sensors are calibrated at low (-10°C), normal (25°C) and high (50°C) temperature points under muti-points of CO2 concentration, to ensure high accuracy under wider temperature and measurement range.

\*Temperature and Humidity Compensation: With the integrated RH&T chip and matrix calibration, ensures the high accuracy under wider temperature and humidity range.

\*Auto-baseline Correction(ABC): After turn on the ABC, sensors will record the lowest value during the ABC period and automatically correct as 400ppm (The applications should ensure that the environments have access to fresh air), maintenance-free.

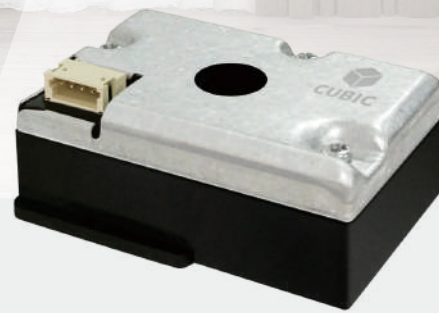
\*Super Low Power: μA current level, super low power consumption suits for battery supply applications.

\*Due to automatic production line, upstream and downstream vertical integration of supply chain, Cubic has realized stable and fast delivery for all the CO2 sensors.





## LED Particulate Matter Sensor PM1006K



### Features

- Output PM1.0, PM2.5 and PM10
- Built-in MCU, smart algorithm
- Dust deposition correction function
- Compact structure, light weight and easy to install

### Specifications

Measurement Range	0~1000 $\mu\text{g}/\text{m}^3$
Accuracy	PM2.5: $\pm 20\mu\text{g}/\text{m}^3$ or $\pm 20\%$ of reading (25°C $\pm 2^\circ\text{C}$ , 50 $\pm 10\%$ RH, TSI8530)
Working Condition	-20°C~75°C; 0~95% RH (non-condensing)
Power Supply	DC 5V $\pm 0.2\text{V}$
Working Current	$\leq 30\text{mA}$
Signal Output	UART_TTL, PWM
Dimension	W46.2*H34.1*D18 (mm)



## Laser Particulate Matter Sensor PM2012 series



### Features

- API (Auto Particle Identification) technology with PM1.0, PM2.5, PM10 output
- Matrix calibration to ensure accuracy under whole temperature and measurement range
- Constant power control of laser diode, ensures constant signal output
- Constant fan speed, ensures constant sampling flow and low noise
- Ultra-thin design with small dimension
- Air inlet and outlet on the same side and the opposite side for option

### Specifications

Measurement Particulate Matter	0.3 $\mu\text{m}$ ~10 $\mu\text{m}$
Measurement Range	0~5000 $\mu\text{g}/\text{m}^3$
Accuracy	PM1.0&PM2.5: 0~100 $\mu\text{g}/\text{m}^3$ , $\pm 10\mu\text{g}/\text{m}^3$ ; 101~500 $\mu\text{g}/\text{m}^3$ , $\pm 10\%$ of reading; PM10: 0~100 $\mu\text{g}/\text{m}^3$ , $\pm 25\mu\text{g}/\text{m}^3$ ; 101~500 $\mu\text{g}/\text{m}^3$ , $\pm 25\%$ of reading (25°C $\pm 2^\circ\text{C}$ , 50 $\pm 10\%$ RH, GRIMM)
Working Condition	-10°C~60°C; 0~95% RH (non-condensing)
Power Supply	DC 5V $\pm 0.1\text{V}$
Working Current	$\leq 100\text{mA}$ (Working), $\leq 200\mu\text{A}$ (Standby)
Signal Output	UART_TTL, I <sup>2</sup> C
Dimension	W38*H35*D12 (mm)





## Laser Particulate Matter Sensor PM2008 series

### Features

- API (Auto Particle Identification) technology with PM1.0, PM2.5, PM10 output
- High accuracy, up to  $\pm 5\mu\text{g}/\text{m}^3$
- Matrix calibration within the whole temperature and measurement range
- Hanging ear design for easy installation

### Specifications

Measurement Particulate Matter	0.3 $\mu\text{m}$ ~10 $\mu\text{m}$
Measurement Range	0~5000 $\mu\text{g}/\text{m}^3$
Accuracy	PM1.0&PM2.5: 0~35 $\mu\text{g}/\text{m}^3$ , $\pm 5\mu\text{g}/\text{m}^3$ ; 35 $\mu\text{g}/\text{m}^3$ ~500 $\mu\text{g}/\text{m}^3$ , $\pm 15\%$ of reading PM10: 0~100 $\mu\text{g}/\text{m}^3$ , $\pm 25\mu\text{g}/\text{m}^3$ ; 101~500 $\mu\text{g}/\text{m}^3$ , $\pm 25\%$ of reading (25°C $\pm 2^\circ\text{C}$ , 50 $\pm 10\%$ RH, GRIMM)
Working Temperature	-10°C~60°C; 0~95% RH (non-condensing)
Power Supply	DC 5V $\pm 0.1\text{V}$
Working Current	$\leq 100\text{mA}$ (Working), $\leq 200\mu\text{A}$ (Standby)
Signal Output	UART_TTL, I <sup>2</sup> C, PWM



## Anti-dust Laser Particle Sensor with Three Channel Output PM2016

### Features

- The smallest size of available measurement: 0.3 $\mu\text{m}$
- Real-time output particle mass concentration in  $\mu\text{g}/\text{m}^3$  is available
- VOC, temperature and humidity measuring function is reserved
- High accuracy, high sensitive and quick response
- Small size, compact structure, easy to install
- Same side air inlet and outlet
- Anti-dust structure

### Specifications

Measured Particle Range	0.3 $\mu\text{m}$ ~10 $\mu\text{m}$
Measurement Range	0~1,000 $\mu\text{g}/\text{m}^3$
Accuracy	PM1.0/PM2.5: 0~100 $\mu\text{g}/\text{m}^3$ : $\pm 10\mu\text{g}/\text{m}^3$ , 101~500 $\mu\text{g}/\text{m}^3$ : $\pm 10\%$ of reading PM10: 0~100 $\mu\text{g}/\text{m}^3$ : $\pm 25\mu\text{g}/\text{m}^3$ , 101~500 $\mu\text{g}/\text{m}^3$ : $\pm 25\%$ of reading (GRIMM, 25 $\pm 2^\circ\text{C}$ , 50 $\pm 10\%$ RH)
Time to First Reading	$\leq 8$ seconds
Response Time	1s
Working Condition	-10°C~60°C, 0~95%RH
Storage Condition	-40°C~70°C, 0~95%RH (non-condensing)
Power Supply	DC 5V $\pm 0.1\text{V}$ , ripple wave < 100mV
Working Current	$\leq 80\text{mA}$
Signal Output	UART_TTL/I <sup>2</sup> C, 3.3V (5V compatible)
Dimensions	W40.7*H40.7*D12.2 (mm)





## 28.3LPM Laser Particle Count Sensor Module PM5100

### Features

- 5 channels including 0.3μm, 0.5μm, 1.0μm, 5.0μm, 10μm
- Standard sampling flow rate 1CFM (28.3L/min)
- Accurate identification by high power industrial grade linear laser
- Stable performance with build-in stable constant sampling design

### Applications

- Pharmaceutical industry
- Electronics industry
- Food hygiene industry
- Precision machinery industry

### Specifications

Operating Principle	Laser scattering
Measurement Range	0~10,000,000 pcs/L (1pcs/L=28.3pcs/cf)
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
Sampling Flow Rate	Recommend 28.3 L/min
Working Condition	0~45°C, 0~95%RH (non-condensing)
Storage Condition	-20°C~60°C, 0~95%RH (non-condensing)
Operating Voltage	DC 12~24V, ripple<100mV
Working Current	<250mA
Dimensions	99.2*66.3*42.2 (mm)
Digital Output	UART_TTL (3.3V)
Life Span	>5 years (continuous working)



## 2.83LPM Laser Particle Count Sensor Module PM3003SN

### Features

- 6 channels including 0.3μm, 0.5μm, 1.0μm, 2.5μm, 5.0μm, 10μm
- Standard sampling flow rate 0.1CFM (2.83L/min)
- Accurate identification by high power industrial grade linear laser
- Flexible to have a pump for sampling

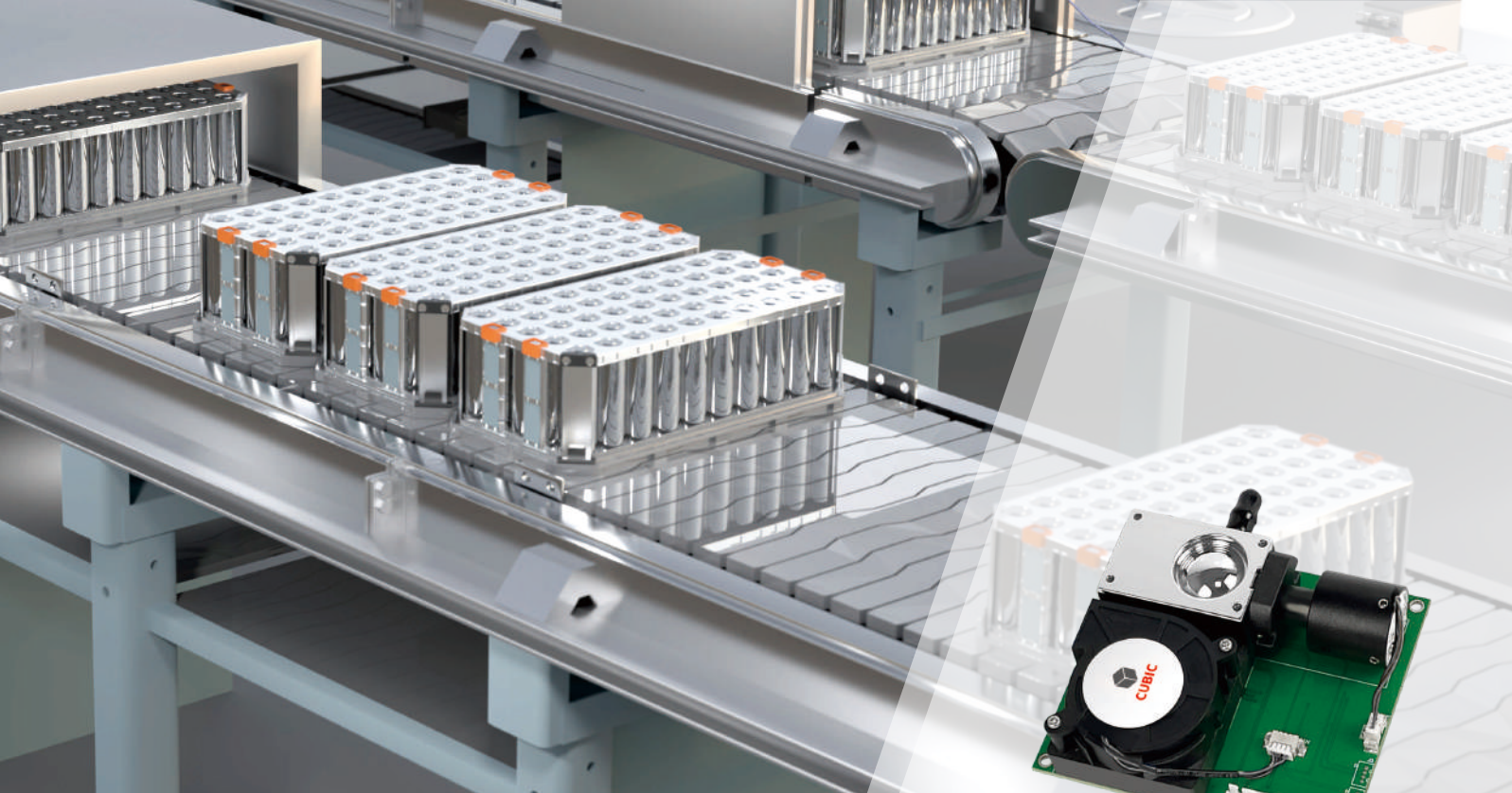
### Applications

- Electronics industry
- Battery manufacturing industry
- Precision Machinery industry
- Microbiological industry

### Specifications

Operating principle	Laser scattering
Measurement range	0~10,000,000 pcs/L (1pcs/L=28.3pcs/cf)
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
Working condition	-30°C ~ 70°C, 0~95%RH (non-condensing)
Storage condition	-40°C ~ 85°C, 0~95%RH (non-condensing)
Power supply	DC 5V±0.1V, ripple wave < 50mV
Working current	<150mA
Standby current	<25mA
Dimensions	W82*H40.2*D26.3 mm
Digital output	UART_TTL/IIC (3.3V/5V)
Life span	5 years(continuous working)





## 1LPM Laser Particle Count Sensor Module PM5000S

### Features

- 6 channels including 0.3um, 0.5um, 1.0um, 2.5um, 5.0um, 10um
- Compact design with sampling fan
- Stable performance with constant speed sampling
- Strong antistatic ability with voltage regulator design

### Applications

- Data center
- Battery production line
- Semiconductor fabrication
- Microbiological industry

### Specifications

Operating Principle	Laser scattering
Measurement Range	0~10,000,000 pcs/L (1pcs/L=28.3pcs/cf)
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	0~40°C, 50±10%RH
Working Condition	-30°C~70°C, 0~95%RH (non-condensing)
Storage Condition	-40°C~85°C, 0~95%RH (non-condensing)
Power Supply	DC 5V±0.1V, ripple wave < 50mV
Working Current	<250mA
Standby Current	<25mA
Dimensions	W85*H74*D24.9 (mm)
Digital Output	UART_TTL/IIC (3.3V/5V)
Life Span	>5 years (continuous working)



## Integrated Module AM1002

### Features

- 6 in 1 integrated sensor: PM1.0, PM2.5, PM10, VOC, Relative Humidity & Temperature
- Matrix calibration to ensure accuracy under whole temperature and measurement range
- Ultra-thin design with small dimension
- Air inlet and outlet on the same side and the opposite side for option

### Specifications

Measurement Range	Particulate Matter: 0~5000μg/m <sup>3</sup> VOC: 0~10ppm Temperature: -20°C~70°C Humidity: 0~99%RH
PM Accuracy	PM1.0&PM2.5: 0~100μg/m <sup>3</sup> , ±10μg/m <sup>3</sup> ; 101~500μg/m <sup>3</sup> , ±10% of reading; PM10: 0~100μg/m <sup>3</sup> , ±25μg/m <sup>3</sup> ; 101~500μg/m <sup>3</sup> , ±25% of reading (25°C±2°C, 50±10%RH, GRIMM)
Temperature Accuracy	±1°C (0~40°C)
VOC Consistency	Typical/Max: 200ppb/250ppb or 20%/25%
Humidity Accuracy	Typical/Max: ±5%/±8%(5%~95%RH)
Working Condition	-10°C~60°C; 0~95%RH(non-condensing)
Working Current	<100mA
Power Supply	DC 5V±0.1V
Signal Output	UART_TTL
Dimension	W38*H35*D12 (mm)





## 7-in-1 Integrated Gas Sensor Module AM1009

### Features

- 7 in 1 integrated sensor module: PM1.0, PM2.5, PM10, VOC, NO<sub>2</sub>, Relative humidity & Temperature
- Matrix calibration to ensure accuracy under whole temperature and measurement range
- Cubic MOX sensor, supports various gas types detection
- Intelligent VOC auto-calibration strategy on site, maintenance-free
- Temperature compensation algorithm
- OEM/ODM available

### Specifications

Operating Principle	PM: Laser light scattering VOC & NO <sub>2</sub> : MOX
Measurement Range	PM: 0~5,000ug/m <sup>3</sup> ; VOC: 0~10ppm; NO <sub>2</sub> : 0~1,000ppb Temperature: -20°C~70°C; Humidity: 0~99%RH
PM Accuracy	PM1.0 & PM2.5: 0~100μg/m <sup>3</sup> , ±10μg/m <sup>3</sup> ; >100μg/m <sup>3</sup> , ±10% of reading; PM10: 0~100μg/m <sup>3</sup> , ±20μg/m <sup>3</sup> ; >100μg/m <sup>3</sup> , ±20% of reading; (GRIMM 11-A, 0~50°C, 50±10%RH, dust source: Cigarette+A1)
VOC Accuracy	160ppb or ±40% of reading
NO <sub>2</sub> Accuracy	40ppb or ±40% of reading
Temperature Accuracy	0~50°C: ±1°C
Humidity Accuracy	Typical/Max: ±5%/±8% (5%~95%RH)
Working Condition	-20°C~60°C, 0~95%RH (non-condensing)
Power Supply	DC 5V±0.1V
Average Working Current	≤180mA (continuous operation)
Signal Output	I <sup>2</sup> C (UART is available)
Dimension	W50*H38*D21 (mm)
Life Time	>10 years



## Outdoor Laser Particulate Matter Sensor Module PM3003S

### Features

- Concentration output PM1.0, PM2.5, PM4.25(optional), PM10 and TSP in μg/m<sup>3</sup>
- High power industrial grade linear laser, accurate identification
- Cubic API technology for intelligent dust source identification
- With voltage regulator design and EMC compatibility, strong antistatic ability

### Specifications

Operating principle	Laser scattering
Measurement range	0~30,000μg/m <sup>3</sup>
Output channels	PM1.0, PM2.5, PM4.25(optional), PM10, TSP
Measurement error	PM1.0/PM2.5: ≤100μg/m <sup>3</sup> : ±10μg/m <sup>3</sup> , 100~1000μg/m <sup>3</sup> : ±10% of reading PM10: ≤100μg/m <sup>3</sup> : ±15μg/m <sup>3</sup> , 100~1000μg/m <sup>3</sup> : ±15% of Reading TSP <sup>①</sup> : ≤100μg/m <sup>3</sup> : ±20μg/m <sup>3</sup> , 100~1000μg/m <sup>3</sup> : ±20% of Reading Condition: 0°C~40°C, 50±10%RH, calibration instrument: Met One
Working condition	-30°C ~ 70°C, 0~95%RH (non-condensing)
Storage condition	-40°C ~ 85°C, 0~95%RH (non-condensing)
Power supply	DC 5V±0.1V, ripple wave < 50mV
Working current	<150mA
Standby current	<25mA
Working Current	<15mA
Dimensions	W82*H40.2*D26.3 mm
Digital output	UART_TTL/IIC (3.3V/5V)
Life span	>5 years

Note:

① Wuhan Station traceability system as benchmark. If there is measurement discrepancy in other regions, coefficient correction is needed based on the local dust particle distribution.





## Outdoor Particulate Matter Sensor PM3006S



### Features

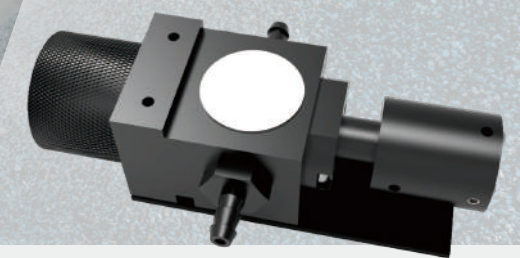
- High power industrial grade linear laser, with stable and strong signal output
- Automotive-grade fan with constant current to ensure constant sampling flow
- API (Auto Particle Identification) technology ensures accuracy of particulate matter concentration within the whole temperature and measurement range
- Wide working temperature range -30°C~70°C, meets outdoor application environment requirements
- With voltage regulator design and EMC compatibility, strong anti-static ability

### Specifications

Measurement Particulate Matter	PM1.0, PM2.5, PM10, TSP
Measurement Range	0~30,000 $\mu\text{g}/\text{m}^3$
Accuracy	PM1.0&PM2.5: 0~50 $\mu\text{g}/\text{m}^3$ , $\pm 5\mu\text{g}/\text{m}^3$ ; 50~1000 $\mu\text{g}/\text{m}^3$ , $\pm 10\%$ of reading; PM10: 0~100 $\mu\text{g}/\text{m}^3$ , $\pm 15\mu\text{g}/\text{m}^3$ ; 100~1000 $\mu\text{g}/\text{m}^3$ : $\pm 15\%$ of reading (-20°C~70°C, 50 $\pm 10\%$ RH, GRIMM)
Working Condition	-30°C~70°C; 0~95%RH (non-condensing); -40°C~85°C working temperature is also available
Storage Condition	-40°C~85°C; 0~95%RH (non-condensing)
Power Supply	DC 5V $\pm 0.1\text{V}$
Working Current	<250mA
Signal Output	UART_TTL, I <sup>2</sup> C
Dimension	W85*H74*D24.9 (mm)



## Industrial High Concentration Dust Sensor PM3003Q



### Features

- 3 channels concentration output PM2.5, PM10 and TSP in  $\mu\text{g}/\text{m}^3$
- Industrial grade laser diode with high reliability particle identification
- Anti dust design, suitable for high dust concentration environment
- Compact size and easy for installation

### Specifications

Measurement Particulate Matter	PM2.5, PM10, TSP
Measurement Range	0~1000mg/ $\text{m}^3$
Accuracy	0~1 mg/ $\text{m}^3$ : $\pm 200\mu\text{g}/\text{m}^3$ 1~50 mg/ $\text{m}^3$ : $\pm 20\%$ of reading (Test under typical working conditions, 25 $\pm 2^\circ\text{C}$ , 50 $\pm 10\%$ RH, with TSI8533 as the reference)
Sampling Flow Rate	Recommend 2 L/min
Working Condition	-30°C~70°C; 0~95%RH (non-condensing)
Storage Condition	-40°C~85°C; 0~95%RH (non-condensing)
Power Supply	DC 5V $\pm 0.2\text{V}$ , ripple wave < 100mV
Working Current	<150mA
Signal Output	UART(TTL 3.3V)
Dimension	W90.8*H60.2*D37.6 (mm)