SPECIFICATION

Laser Particle Sensor Module PM2006

— Fan Series

Wuhan Cubic Optoelectronics Co., Ltd

http://www.gassensor.com.cn/

1. Brief introduction

PM2006 is one type of laser particle sensor module, which can measure indoor particle concentration PM2.5 exactly and output μg/m^3 directly via mathematical algorithm and scientific calibration.

2. Main features

- Smaller size
- Lower power consumption
- The smallest particle size measured: 0.3μm
- Four types of measuring mode for option: single / continuous / timing / dynamic
- Quick response
- High sensitivity
- Compact structure, light weight, easy installation

3. Application

- Air purifier
- IAQ monitor
- Air conditioner with purifier function
- Ventilation system
- Ventilation controller
- Consumer electronics

4. Principle of particle measurement

Draw air into closed interior space and then take air sample in certain proportion. When sampling particles pass through light beam (laser), there will be light scattering phenomenon.

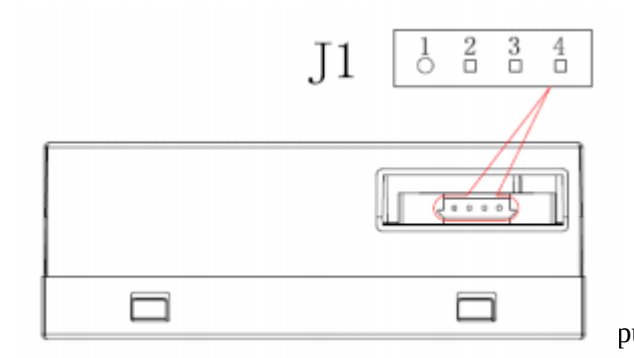
Scattered light will be converted into electrical signal (pulse) via photoelectric transformer. The bigger particles will obtain stronger pulse signal (peak value). Through peak value and pulse value quantity concentration of particles in each size can be calculate. Thus, real-time measured data is obtained through measuring quantity and strength of scattered light.

5. Specification

5.1. Specification table:

Measured particle	0.3 ~ 10 μm
Measurement range	PM2.5: 0-1,000μg/m3
Accuracy	PM2.5: ≤100μg/m3 ±15ug/m3 >100μg/m3~500μg/m3 ±15% reading >500μg/m3~1,000μg/m3 ±15% reading (Measurement condition: 25℃±2℃，TSI8530，cigarette. Temperature influence coefficient: 0.5%/℃)
Time to first reading	6 seconds
Respond time	1 second
Working temperature	-10 ~ +50℃
Stable storage temperature	-20 ~ +60℃
Working humidity	0-95% RH (non-condensing)
Power supply	5.0 ±0.1 VDC; ripple wave < 50mV
Working current	Working current: < 60mA Standby current: < 20mA
Signal outputs	UART-TTL (electrical level 3.3V) (default)
	I^2C (electrical level 3.3V) (customized)
	PWM (electrical level 5.0V) (customized)
Dimension(mm)	45.3 x 24.8 x 16.4
Life Span	Under ambient temperature and pressure, in the condition of continuous working, lifespan is 22,000 hours (28,000 hours are optional). Lifespan can reach 8-13 years by controlling working time interval of the optical source.

5.2. I/O definitions



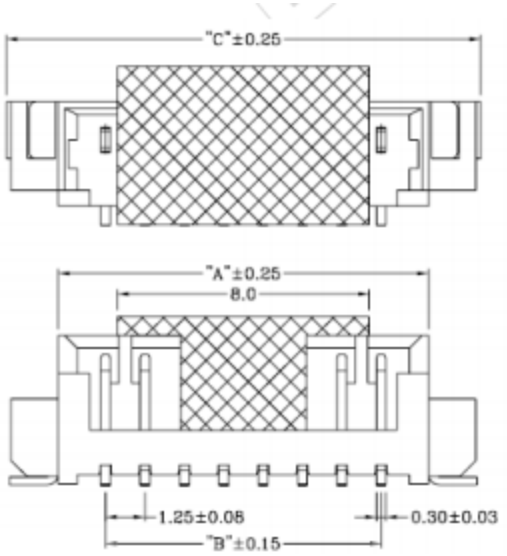
J1	
PIN 1	TXD (UART sending)
PIN 2	RXD (UART receiving)
PIN 3	GND
PIN 4	Power input (5V)

put

UART TX: 0-3.3V digital output

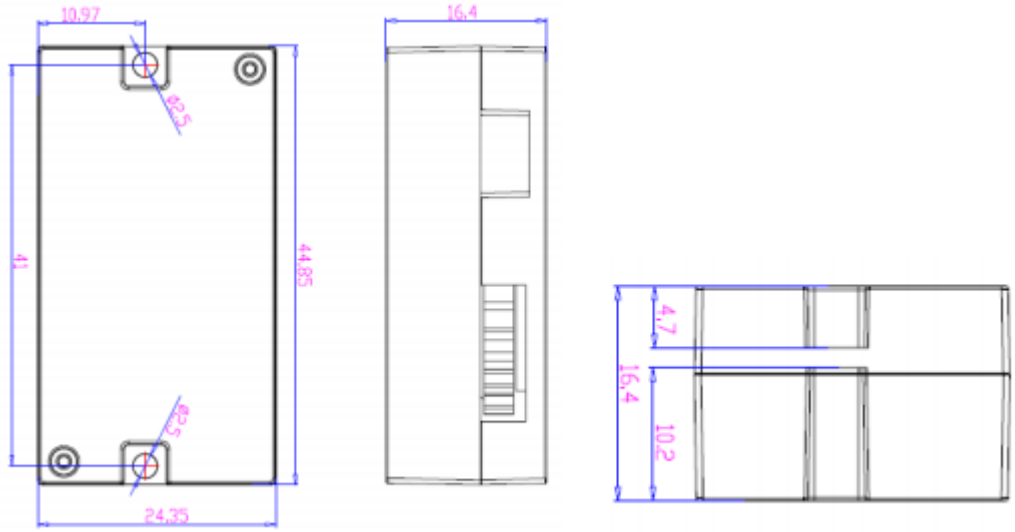
UART setting: Data bit: 8; Stop bit: 1; Check bit: no; Baud rate: 9,600bps

5.3. Specification of connector: JS-1147V-XX



DIM / Poles	DIM A	DIM B	DIM C
2	4.25	1.25	7.55
3	5.50	2.50	8.80
4	6.75	3.75	10.05
5	8.00	5.00	11.30
6	9.25	6.25	12.55
7	10.50	7.50	13.80

6. Schematic diagram (Unit: mm, tolerances: ±0.2mm)

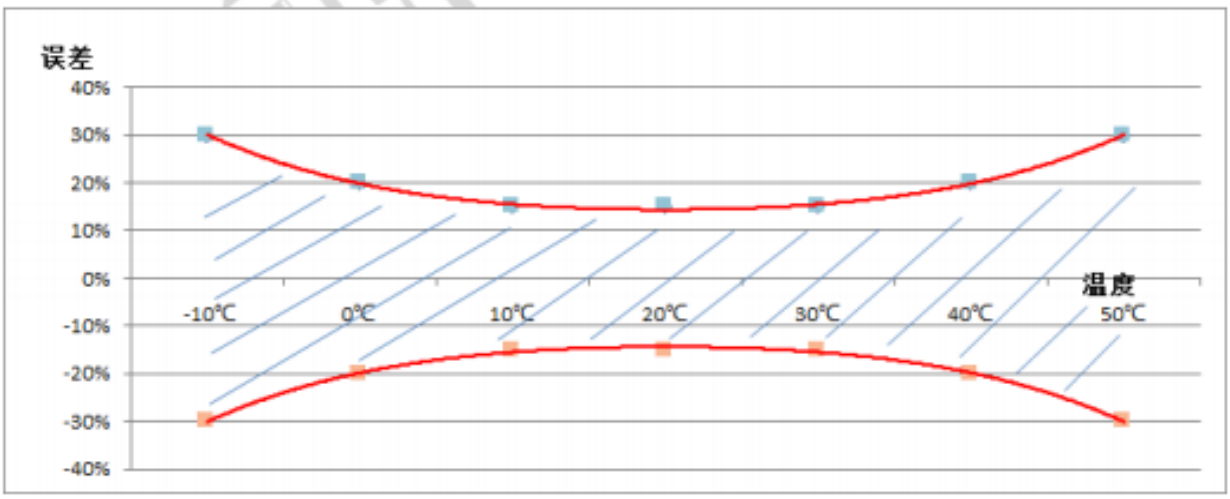


7. Temperature influence curve

Particle measured error: under 25℃±2℃，0~500μg/m³, consistency and accuracy of PM2.5 is either ±10% reading or ±10μg/m³, the bigger one is taken. (Test by TSI-8530, with cigarette)

Temperature influence coefficient: 0.5%/℃ ~ 1%/℃ or 0.5μg/m³/℃ ~ 1μg/m³/℃, the bigger one is taken.

(Below temperature influence curve is designed objective, it is to be verified by test.)



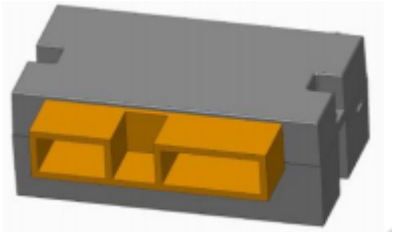
8. User attention

- PM2006 laser particle sensor module is for household electronics products. For application of medical, mining, disaster preparedness, which need high security and high dependence, this sensor is not suitable.

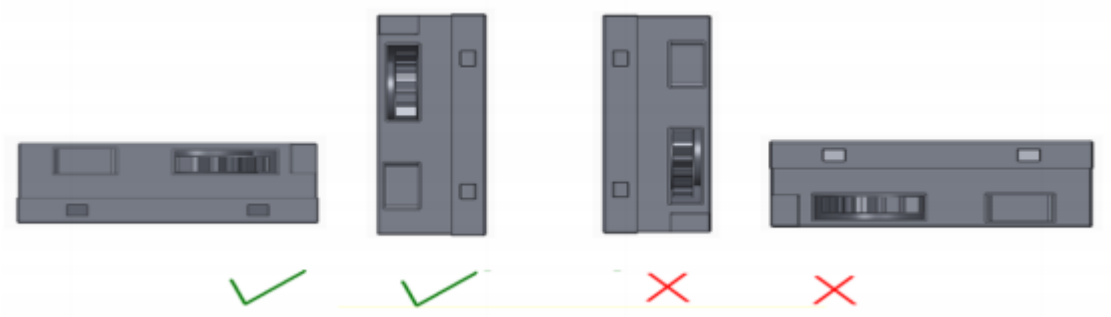
- This sensor is not suitable to work at outdoor, or work under environment with extremely high content of dust.

- Avoid using this sensor in strong magnetic environment, such as environment close to stereo speaker, microwave oven, induction cooking.

- When install this sensor in to structure of complete box, to avoid the influence of backflow of air inlet and air outlet to measurement accuracy, we suggest customer to add a yellow part show in below picture into the shell of the sensor.



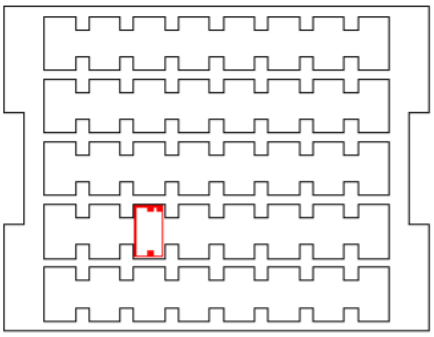
- When install PM2006 sensor module into your system or device, please make sure of unobstructed air-inlet and air-outlet. And make sure that there is no large airflow faced to air-inlet and air-outlet. **Pay attention to the installation orientation as below:**

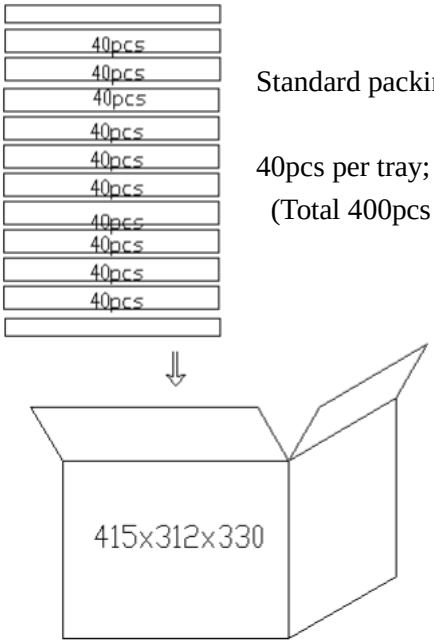


Correct installation **Wrong installation**

9. Packing

Standard packing carton: 415 x 312 x 330mm
40pcs per tray; 10 trays per carton (Total 400pcs per carton)





Standard packing carton: 415 x 312 x 330mm

40pcs per tray; 10 trays per carton
(Total 400pcs per carton)

10. After-sales services and consultancy

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