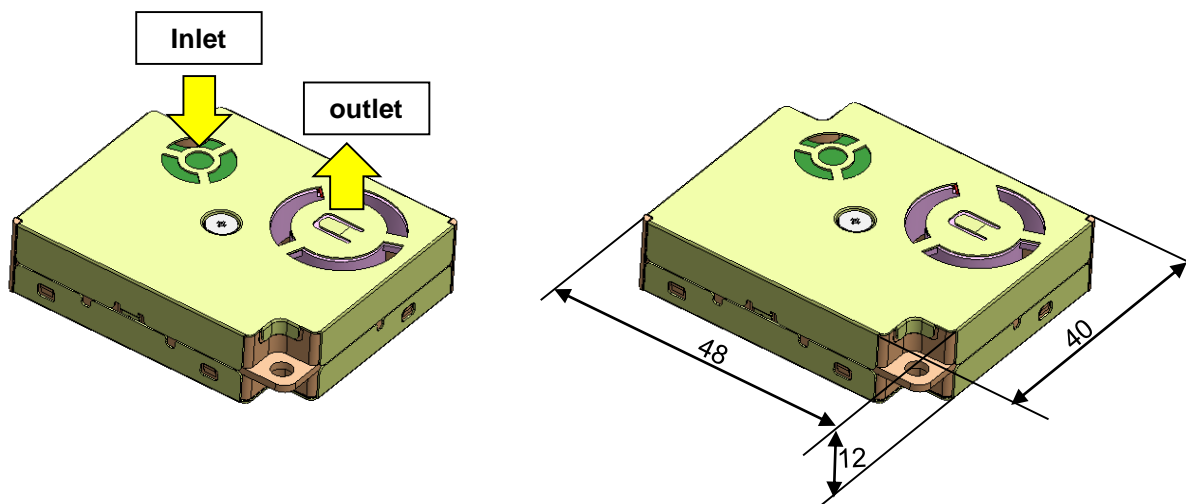
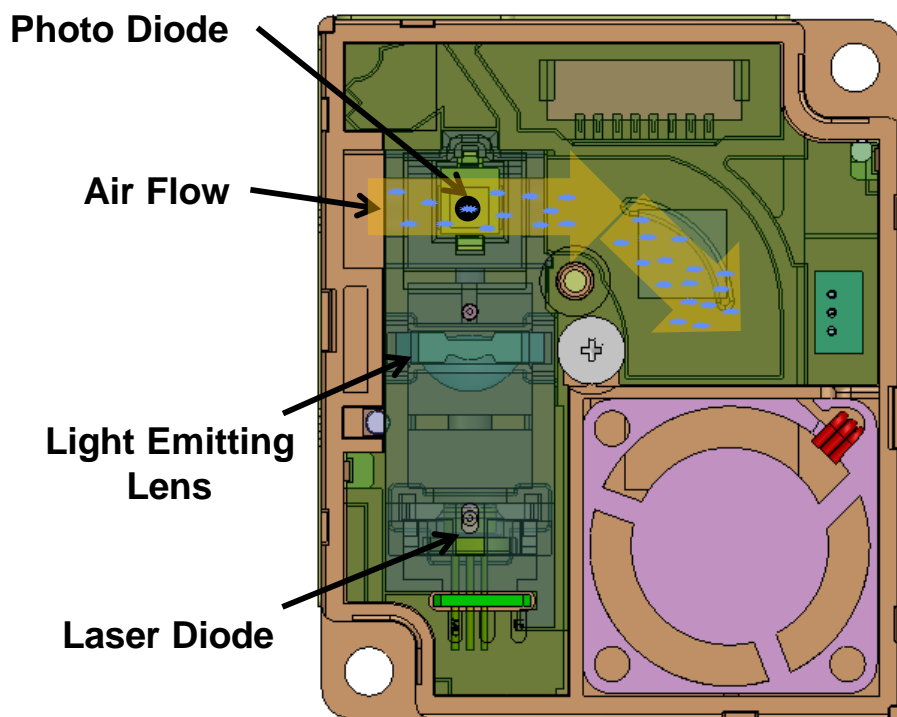


## Products Dimension

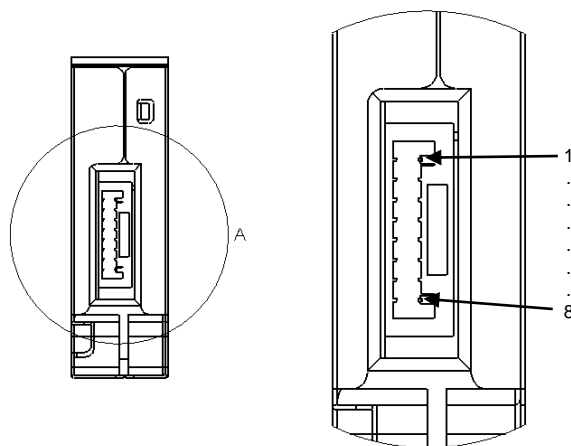
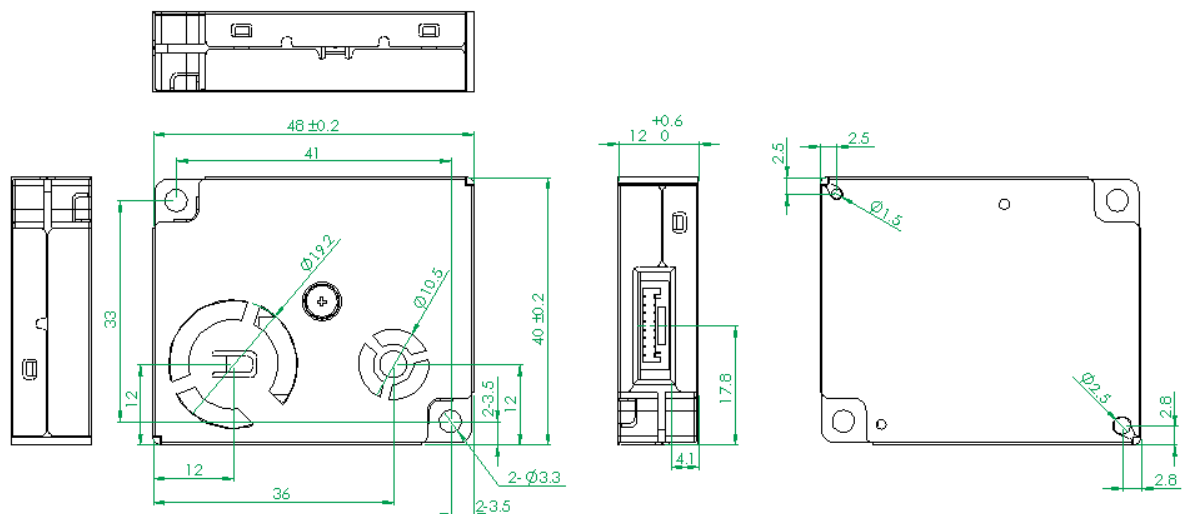


## Detection Principle



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Products Dimension

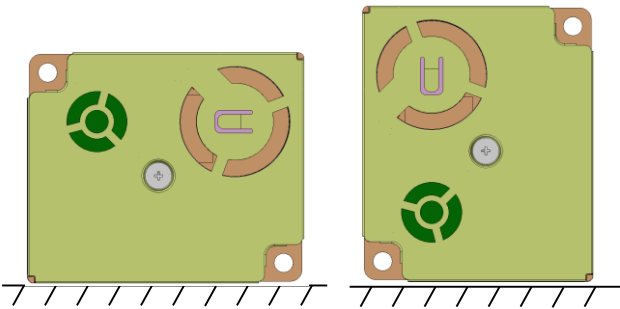
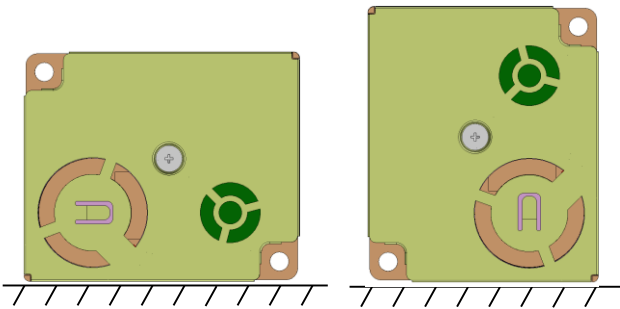


No	Pin	Description
1	NC	Optional
2	NC	Optional
3	RESET	Reset, Active low
4	TX	UART input (0~3.3V)
5	RX	UART output (0~3.3V)
6	SET	Set pin, high level or suspending is normal working status, Sleep mode correspondence with command control. (refer to page 14)
7	GND	Power input(Ground Terminal)
8	VDD	Power input(5V)

Installation Orientation

Recommend

Not recommend



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## Specifications

Items	Characteristic		Remark
Measurement Method	light-scattering method		
Detection Particle	PM1.0 / PM2.5 / PM10		
Minimum detection size	0.3 $\mu\text{m}$		
Max Concentration range	0 $\mu\text{g}/\text{m}^3 \sim 1000 \mu\text{g}/\text{m}^3$		
Effective range	0 $\mu\text{g}/\text{m}^3 \sim 500 \mu\text{g}/\text{m}^3$		
Resolution	1 $\mu\text{g}/\text{m}^3$		
Maximum Consistency Error	PM1 / PM2.5	$\pm 10 \mu\text{g}/\text{m}^3$ with 0 ~ 100 $\mu\text{g}/\text{m}^3$	@ 25°C $\pm$ 5°C In effective range
		$\pm 10\%$ with 100 ~ 1000 $\mu\text{g}/\text{m}^3$	
	PM10	$\pm 20 \mu\text{g}/\text{m}^3$ with 0 ~ 100 $\mu\text{g}/\text{m}^3$	
		$\pm 20\%$ with 100 ~ 1000 $\mu\text{g}/\text{m}^3$	
Operating Voltage	5V $\pm 5\%$		
Operating Current	< 100mA		
Standby Current	< 200uA		
Output Protocol	UART / SPI / PWM		
Response Time	Stabilization : < 6sec		1 <sup>st</sup> response time from Power-on
	Single response time : 1sec $\pm 10\%$		Response cycle during running

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Quality and Reliability

- 1) **MTBF** : 30,000 Power On hours (POH)  
Assumption : Used in a normal office environment at room temperature.
- 2) **MTTR** (Mean Time to Repair) 0.5 h
- 3) **Component Life** : 10 years or 30,000h of Fan operating time  
Assumption : Used in a normal office environment

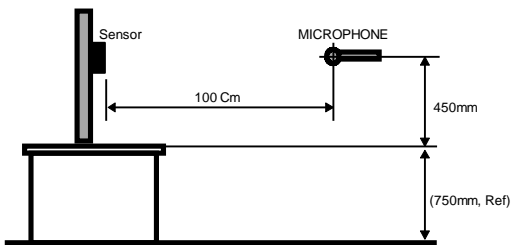
Electro Static Discharge Susceptibility (ESD)

- 4 kV(contact) No catastrophic failure or damage
- 8 kV (Air) No catastrophic failure or damage
- \* *Test Conditions : C = 150pF, R = 330 ohms, 20 times discharge*

Power Requirements

- 1) **Source Voltage** : +5V±5% / Ripple Less than 100 mVp-p
- 2) **Current** : 100 mA typ.

Acoustic Noise



Less than 25dBA at 100 Cm away from Sensor and 0.45m height away.

- Note :
- 1. Installation : Vertical
  - 2. Ambient Temperature : Normal Temperature
  - 3. Background noise: 20dBA under.

Dimensions

W x H x D : 48 x 40 x12

**Mass** Max 30 g

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**Environmental Condition**

**1) Ambient Temperature**

Operating    -10 to 60 °C  
Storage/Transportation   -40 to 65 °C

**2) Relative Humidity**

Operating    Read 0% to 80% (Non-Condensing)  
Storage/Transportation   0% to 95% (Non-Condensing)

**3) Altitude**

Operating                                0 to    3,000 m  
Non-operating                            0 to 12,000 m

**4) Vibration**

Non-Operating  
2.0G : No physical and electrical damage.  
10 to 500Hz for 40min at 3 direction.  
\* 1) 3direction : X(left / right), Y(back / front), Z(top / bottom) axis

**5) Drop Impact**

(1)Unit : Less than 61 cm.

(2) Bulk package  
9kg↓: 76cm / 11kg↓: 60cm  
Note: Drop direction- 1 Corner, 3 Edges, 6 Faces.

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**Regulations and Standards**

**1) Laser safety**

*The product will satisfy all the requirements for the laser specified below.*  
Class 1 laser product to IEC 60825-1

**Caution**

To use the product safely and properly,  
the following precaution should be reserved.

**1) Disassembling and Modification**

The product includes Laser Diodes.  
Do not disassemble or modify the product when the power is supplied.  
Also the modified module should be under the responsibility  
of the company or the persons who modified it.

**2) POWER**

Do not use the power supply other than the specific voltage(+5V DC).

**3) Reserve the following instructions to avoid  
the electrical short or the damages.**

- a) Do not dispose the product to the water or the high humidity
- b) Do not open or remove the cover.
- c) Do not let any liquid or foreign substances in the sensor.