

*Environment Meter  
Series*

# Particle

PM2.5/PM10  
Mass Concentration  
Detector

User Manual



Please read this manual before switching the unit on  
Important safety information inside

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## 1 - Description

This device is an air quality detector included several measures, intelligent induction, and cloud data storage. It can detect PM2.5, PM10, CO2, HCHO, TVOC, temperature and humidity. This device uses laser scattering weight test method, with professional structure design, professional fan, and original particle. It can sensitively and precisely detect and monitor PM2.5 and PM10, helping you know your indoor air quality. It uses professional CO2 Sensor, can remind you to open windows when indoor concentration of CO2 is too high. HCHO can detect formaldehyde and TVOC can detect indoor harmful gas, help you know environmental pollution. In order to detect PM2.5, PM10, CO2, HCHO, TVOC at the same time, it adopts reliable power supply circuit to ensure all measures are precise and stable and work time is as long as possible. This device adds rich experience of intelligence. Wi-Fi module is optional. With cloud data storage, mobile phone you can have a remote view of real-time data and access device controls. Noise detection module is equipped. You can awaken device to start measure by generate a slight noise when device is sleeping.

## 2 - Features

	Model 1	Model 2	Model 3
Measure Mass Concentration of PM2.5/PM10/HCHO	✓	✓	✓
Measure CO2		✓	✓
Measure HCHO	✓	✓	✓
Measure TVOC	✓		✓
Measure Temperature & Humidity	✓	✓	✓
Wifi	Optional	Optional	Optional
3"TFT LCD Display, 240*400 Pixels	✓	✓	✓
5000 groups of sampling data			

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Measure TVOC	✓		✓
Measure Temperature & Humidity	✓	✓	✓
Wifi	Optional	Optional	Optional
3"TFT LCD Display, 240*400 Pixels	✓	✓	✓
5000 groups of sampling data			

### 3 - Specifications

Particle Measure	
Particle Channels	PM2.5 / PM10
Mass Concentration Range	0-2000 $\mu\text{g}/\text{m}^3$
Resolution	1 $\mu\text{g}/\text{m}^3$
CO, Measure	
Range	0-9999ppm
Accuracy	$\pm 5\%$ or $\pm 75\text{ppm}$
Resolution	1ppm
HCHO	
Range	0.00-5.00 $\text{mg}/\text{m}^3$
Accuracy	$\pm 5\%$ F.S
Resolution	0.01 $\text{mg}/\text{m}^3$
TVOC Measure	
Range	0.00-9.99 $\text{mg}/\text{m}^3$
Accuracy	$\pm 5\%$ F.S
Resolution	0.01 $\text{mg}/\text{m}^3$
Temperature & Humidity Measure	
Temperature Range	-20-70 $^{\circ}\text{C}$ (-4-158 $^{\circ}\text{F}$ )
Temperature Accuracy	$\pm 2^{\circ}\text{C}$
Temperature Resolution	0.1 $^{\circ}\text{C}$
Humidity Range	0-100%RH
Humidity Accuracy	$\pm 3.5\%$ RH(20-80%RH) $\pm 5\%$ RH(0-20%RH or 80-100%RH)
Humidity Resolution	0.1%RH
Intelligent Sensor	
Noise Detect Sensor	A slight noise can awaken device
Wi-Fi	
Connection Properties	802.11b, 802.11g, 802.11n on 2.4GHz
Maximum Bit Rate	11Mbps@11b, 54Mbps@11g, 72Mbps@11n
Encryption	WPA2

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Power	
Battery	2400mAh Recharge Li-ion Battery
Work Time	Continuous operation about 5 hours
Charging	USB 5V/1A
Charging Time	About 2 hours when powered off
Sleep	Adjustable Sleep Timer
Others	
Display	3 TFT LCD Display, 240*400Pixels
Data Storage	5000 groups of sampling data
Work Temperature	0-50°C
Storage Temperature	-10-60°C
Size	85*75*155mm
Weight	360g

#### 4 - Function

##### 1 - Machine Function

##### 2 - Key Function



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#### 4-Function

##### 1 - Machine Function

##### 2 - Key Function



**Set/UpKey:** Long press to enter/exit the settings screen; Short press to switch measurement displaying on screen, or to scroll up in settings/memory screen.

**ON/OFF/ENTER Key:** Long press to startup/shutdown; Short press to enter/exit settings/memory screen.

**Memory/Down Key:** Long press to enter/exit memory screen; Short press to switch measurement displaying on screen, or to scroll down in setting/memory screen.

## 5 - Power ON/OFF

While off, Long press ON/OFF/ENTER key until the screen powers on. While on, Long press ON/OFF/ENTER key until the screen powers off.

## 6 - Measure



After startup, the device will keep measuring not stop. Contents of measure are PM2.5, PM10, CO2, TVOC, HCHO, temperature and humidity. Device will refresh screen every second and display of PM10, CO2, TVOC, and HCHO will switch every 15 seconds. You can Short press ON/OFF/ENTER key to switch display manually. PM2.5, PM10 and CO2 need 3 – 5 seconds warm-up time, TVOC needs 40 seconds warm-up time. As analog bar shows, air quality has six alarm level. If air is polluted, device will alarm based and number of measure data will change color. All alarms are based on real measure data. If Wi-Fi is enabled, alarm information can be pushed to your mobile phone.

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## 7 - Shutdown, Sleep and Awaken

### 7-1. Shutdown/Sleep

Device can be set to auto power off or auto sleep. If there is a long time without operation, device can auto power off or auto sleep to save on battery consumption. Devices with Wi-Fi can be set to auto sleep, when sleeping the device will keep uploading measure data.

### 7-2. Awaken by key

Unit can awake from shutdown status by long press of ON/OFF/ ENTER key. Device with Wi-Fi can awake from sleep status by short press of any key.



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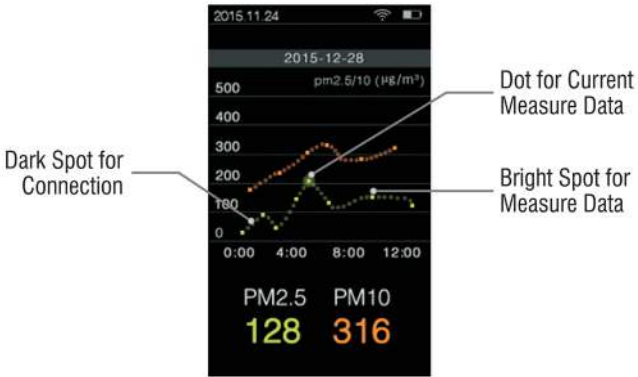
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### 7-3. Awaken by noise

Noise also can be used to awaken the device. For example, striking a table can awaken device from sleep mode. Units can awake by noise within 30 minutes after shutdown.

## 8 - Memory



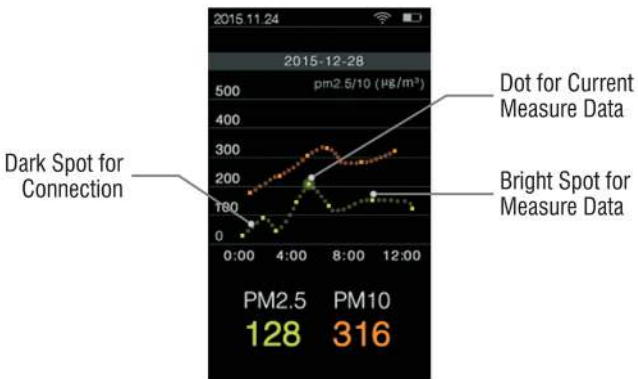
On measure screen, Long press MEM/DOWN key to enter/exit memory screen. Memory screen will dynamically display the latest curve of measurement data. To view the static measurement data, you can short press ON/OFF/ENTER key. On static memory screen, the device will display static curve of measurement data, and you can short press Up/Down key to view the detail of historical data one by one.

The device can record up to 5000 measurement points to memory, which contents are PM2.5, PM10 and record time. On the memory screen, one curve include can contain eight measurement points, the bright spot for the data point, dark spot for connection, dot for the current data. You can short press the Up/Down key to see before and after historical data.

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## 9 - Settings

On measure page, long press SET/Up key to enter/exit settings page.

On the settings screen, short press Up/Down key to scroll through items list and short press ON/OFF/ENTER key to enter the submenu of item. To exit from submenu, short press ON/OFF/ENTER key to confirm all setting items then exit and back to the main menu of settings screen.

### 9-1. Time Settings



Unit can be set for the following: Time format (12 hours or 24 hours), AM/PM, date and time. Short press Up/Down key to change time settings, and short press ON/OFF/ENTER key to confirm, after confirming all settings, the unit returns to the main menu of settings screen.

### 9-2. Measure Mode Settings (Models with WiFi)



Device's measurement can be set to regular measure mode or monitor measure mode, default is regular measure mode. In regular measure mode, device will auto power off. In monitor measure mode, device will auto sleep but measuring and uploading data will continue.

### 9-3. Auto Power Off / Auto Sleep Settings



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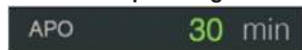
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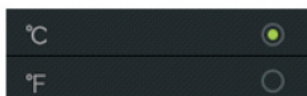
### 9-3. Auto Power Off / Auto Sleep Settings





Auto power off/auto sleep time can be set to 10-120 minute or no auto power off/auto sleep. Devices with WiFi can be set to auto power off time in regular measure mode or auto sleep time in monitor measure mode.

#### 9-4. Unit Settings



Unit of temperature can be set to Celsius(°C) or Fahrenheit(°F), default is Celsius.

#### 9-5. Alarm Settings



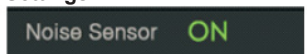
Set points for PM2.5 alarm are 10ppm, 35ppm, 75ppm, 150ppm, 200ppm or no alarm, default is 35ppm. If PM2.5 alarm is enable, device will beep when concentration of PM2.5 is above the set point alarm. Devices with WiFi will push alarm information to mobile phone.

#### 9-6. Brightness Settings



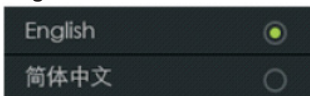
Screen brightness can be adjusted. There are five brightness settings available.

#### 9-7. Noise Sensor Settings



Noise sensor can be set to enable/disable. If enabled, the device can be awakened from shutdown/sleep status by noise.

#### 9-8. Language Settings



Language can be set to English or Chinese, default is English.

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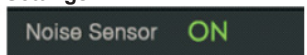
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## 9-10. About Software

View device's IMEI number, software version and MAC address.

## 10 - WiFi (Wi-Fi enable devices only)

### 10-1. First Connect

If not connected to Wi-Fi, a Wi-Fi symbol will flash at the top right corner on measure screen. Using a mobile phone, use mobile app to connect device to Wi-Fi network. If device is connected to Wi-Fi network, Wi-Fi symbol will be solid and measure data will upload to mobile phone. Mobile app can check real-time measure data, historical data and control the device.

### 10-2. Has Connected Wi-Fi

If unit has been connected to Wi-Fi, device will automatically reconnect Wi-Fi after startup. Mobile phone can be used to remotely check the status of device, for example whether device is measuring or sleeping or power off.

### 10-3. Reconnect Wi-Fi

If Wi-Fi password has changed or you have to change the connection to another Wi-Fi network, you can reset Wi-Fi connection in the settings screen and use mobile phone's APP to reconnect Wi-Fi. The process of reconnecting is the same as first connect steps.

### 10-4. Wi-Fi Function

Device can be remotely monitored by mobile's APP. Device can be set up as monitor measuring mode, in this mode the device will not auto power off but will auto sleep. When device is sleeping, data will continue to upload to the server and device can be awake by mobile APP, key press or noise sense.

### 10-5. Product Service

Maintenance or service is not included in this manual, the product must be repaired by professionals.

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**Attention:**

Please do not use in environments like heavy dust or heavy fog.  
Please do not used in explosive environment.  
Please be in accordance with the operating manual,  
Please do not disassemble the instrument.

**11 - Attached**

**11-1. Air Quality Standard**

Chart 1.1 - PM2.5 Concentration and Corresponding Index Color Table

Color	Green	Yellow	Orange	Red	Purple	Deep Purple
Concentration	0 - 35 µg/m³	35 - 75 µg/m³	75 - 150 µg/m³	150 - 200 µg/m³	200 - 250 µg/m³	> 250 µg/m³
Air Quality	Good	Normal	Mild Polluted	Middle Poluttet	Heavy Polluted	Seruous Polluted

Chart 1.2 – PM10 Concentration and Corresponding Index Color Table

Color	Green	Yellow	Orange	Red	Purple	Deep Purple
Concentration	0 - 75 µg/m³	75 - 150 µg/m³	150 - 300 µg/m³	300 - 400 µg/m³	400 - 500 µg/m³	>500 µg/m³
Air Quality	Good	Normal	Mild Polluted	Middle Poluttet	Heavy Polluted	Seruous Polluted

Chart 1.3 – CO2, HCHO, TVOS Concentration and Corresponding Index Color Table

Color	Green	Orange	Red
CO2 Concentration	0 - 800 ppm	800 - 1500 ppm	1500 - 9999 ppm
HCHO Concentration	0 - 0.05 mg/m³	0.05 - 0.1 mg/m³	0.1 - 5.00 mg/m³
TVOC Concentration	0 - 0.6 mg/m³	0.6 - 1.8 mg/m³	1.8 - 9.99 mg/m³
Air Quality	Good	Normal	Bad

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Air Quality	Good	Normal	Mild Polluted	Middle Poluttet	Heavy Polluted	Seruous Polluted

Chart 1.2 – PM10 Concentration and Corresponding Index Color Table

Color	Green	Yellow	Orange	Red	Purple	Deep Purple
Concentration	0 - 75 µg/m³	75 - 150 µg/m³	150 - 300 µg/m³	300 - 400 µg/m³	400 - 500 µg/m³	>500 µg/m³
Air Quality	Good	Normal	Mild Polluted	Middle Poluttet	Heavy Polluted	Seruous Polluted

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TVOC Concentration	0 - 0.6 mg/m³	0.6 - 1.8 mg/m³	1.8 - 9.99 mg/m³
Air Quality	Good	Normal	Bad

