

尘埃粒子计数器

使用说明书



V2.2

一、声明

使用前请仔细阅读本说明书，本公司保留说明书解释权，产品外观请以实物为准，如遇产品技术或软件升级恕不另行通知等。

二、概述

尘埃粒子计数器，用来检测环境中单位体积内所含尘埃颗粒数的计数仪器。本仪器利用激光散射原理精确测量单位体积空气内不同粒径的颗粒物个数和质量的激光粉尘传感器。

本仪器设计精巧，具有功能多、测试精度高、速度快、便于携带和使用方便等特点。一次采样可同时测得六种粒径档的尘埃颗粒数，可将检测结果实时记录下来，对研究、检测和评价各种洁净环境十分方便。可广泛应用于微电子、医疗制药、生化制品、食品卫生、化妆用品、精密机械、精细化工等部门。

三、重要提示

使用前，请仔细阅读以下详细介绍，并根据手册正确使用仪器。

- 1、应该在洁净环境下使用，以防止对激光传感器的损伤。
- 2、禁止拆卸仪器或将其投入火中。
- 3、防止仪器剧烈震动和跌落。
- 4、请勿让液体流入仪器内部。
- 5、当机器在进入不同环境温度时，特别是低温环境进入高温环境时，水汽可能在仪器上结露，必须待机器稳定半小时，再通电进行测量各项数值。水溶液或其它液体都不能从采样进气口进入。
- 6、禁止抽取含有油污、腐蚀性气体、也不要测有可能产生反应的混合气体(如氢气和氧气)。这些气体也可能在计数器内产生爆炸。

四、功能介绍



- ① 数字温湿度传感器。
- ② 采样进气口，注意使用时不要堵塞。
- ③ 液晶显示器。
- ④ 静音按键：打开或关闭警报声音，默认为关闭声音。
- ⑤ 测试开启按键：被动测量模式时，开启测量；单次测量时间为180s，中途不能暂停。菜单设置时，光标上移，增加数值。
- ⑥ 电源按键：长按打开或关闭电源。
- ⑦ 温度切换按键：摄氏度和华氏度转换。
- ⑧ 存储按键：短按“—”键开始记录数据，屏幕出现“”符号。菜单设置时，光标下移,减少数值。

JD-3000长按“—”键时，可切换测量模式
(图1计重模式界面，图2计数模式界面)

JD-3003长按“—”时，无切换模式。



图1：计重模式

图2：计数模式

- ⑨ 设置按键：短按进入菜单，长按返回。

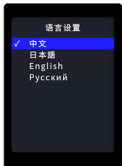
五、产品介绍



1、短按“SET”键进入菜单页面：

按“+”键或“-”键,光标移动到需要功能选项。

长按“SET”键退出菜单页面。



2、语言设置：提供中文、英文、日文、俄文 4 种操作页面。按

“+”键或“-”键将光标移动到需要的选项上，短按“SET”键确认。

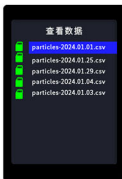
长按“SET”键返回上一操作页面。



3、时间设置：按“+”键或“-”键将光标移动到需要的选项上,再次短按“SET”键，红色光标移动至对应的选项，按

“+”键或“-”键增加或减少数值。

长按“SET”键返回上一操作页面。



4、查看数据：按“+”键或“-”键将光标移动到需要的选项上,短按“SET”键，查看记录的数据,此时再次按“+”键或“-”键进行翻页。

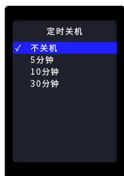
JD3000需长按“-”键，切换测量模式后在查看对应的数据。

长按“SET”键返回上一操作页面。



5、删除数据：将光标移动到需要的选项上，短按“°C/°F”键，标记需要删除的文件，按“-”键，进行删除，按“+”键，退出删除功能。

长按“SET”键返回上一操作页面。



6、定时关机：将光标移动到需要的选项上，按“SET”键确认。
当设置为定时关机状态下，主界面上显示“🕒”图标。
默认不关机。

长按“SET”键返回上一操作页面。



7、报警值设置：将光标移动到需要的选项上，短按“SET”键，背景变为红色，按“+”键或“-”键进行增加或减少数值。

左图:JD-3000和JD-3003计数模式的默认报警值。

JD-3000需长按“-”键，选择测量模式后再设置对应的报警值。

长按“SET”键返回上一操作页面。



8、记录间隔：将光标移动到需要的选项上，短按“SET”键，选中光标变成红色，按“+”键或“-”键增加或减少数值。
默认记录间隔为 2 秒。

长按“SET”键返回上一操作页面。



9、测量模式：默认为被动测量，按“+”键启动测量，单次采样时间180s，中途不可暂停。选择主动测量模式，开机即开始不间断测量。

长按“SET”键返回上一操作页面。



10、数据导出：USB数据线连接电脑，设备上显示

“🔌”图标，连接成功，进入我的电脑U盘后进行数据拷贝。

六、参数介绍

项目	JD-3000	JD-3003
颗粒物检测范围	0.3μm、0.5μm、1.0μm、3.0μm 5.0 μm、10μm：PM2.5、PM10	0.3μm、0.5μm、1.0μm、 3.0μm、5.0 μm、10μm
粒径尺寸	0.3μm、0.5μm、1.0μm、3.0μm 5.0 μm、10μm：PM2.5、PM10	0.3μm、0.5μm、1.0μm、 3.0μm、5.0 μm、10μm
计数效率	0.3μm 50% ;大于 0.5 μm 时 ,100% (符合 ISO 21501-4 和 JIS)	
粒径分辨率	在 0.5μm <15% (符合 ISO 21501-4)	
采样流量	2.83L/min(0. 1ft ³)	
误差	5% (2,000,000Particles/ft ³)	
电池	内置锂离子电池 3.7V ， 2000mAh	
工作温度	0°C~50°C	
工作湿度	10%RH~90%RH 无凝霜结露	
存储温度	-20°C~60°C	
存储湿度	0~95%RH 无凝霜结露	

七、标准参考

根据粒子浓度划分空气洁净度的ISO等级

ISO等级 序数 (N)	大于等于表中粒径的粒子最大允许浓度(个/m ³)					
	0.1μm	0.2μm	0.3μm	0.5μm	1.0μm	5μm
1	10					
2	100	24	10			
3	1,000	237	102	35	83	
4	10,000	2,370	1,020	352	832	
5	100,000	23,700	10,200	3,520	832	
6	1,000,000	237,000	102,000	35,200	8,320	293
7				352,000	83,200	2,930
8				3,520,000	832,000	29,300
9				35,200,000	8,320,000	293,000

GMP规定的洁净度

洁净级别	尘例最大允许数 (颗粒数/m ³)		微生物最大允许数	
洁净级别	≥0.5μm	≥5μm	浮游菌 (cfu/m ³)	沉降菌 (cfu/皿)
100级	3,500	0	5	1
10,000级	350,000	2,000	100	3
100,000级	3,500,000	20,000	500	10
300,000级	10,000,000	60,000		15

合格证

产品名称：粒子计数器

产品型号：JD-3000

执行标准：GB/T 6167-2007

检验结果：

合格

QC01

检验人员：

合格证

产品名称：粒子计数器

产品型号：JD-3003

执行标准：GB/T 6167-2007

检验结果：

合格

QC01

检验人员：

Dust particle counter Instruction Manual



V2.2

I Statement

Please read this manual carefully before use. Our company reserves the right to interpret the manual. The appearance of the product should be based on the actual product. In case of product technology or software upgrades, no further notice will be given.

II Overview

Dust particle counter, a counting instrument used to detect the number of dust particles per unit volume in the environment. This instrument is a laser dust sensor that uses the principle of laser scattering to accurately measure the number and mass of particles of different sizes in a unit volume of air.

The instrument is exquisitely designed, easy to carry and operate, with high testing accuracy and fast speed. One sampling can simultaneously measure the number of dust particles in six different particle size ranges, and the data can be exported in real-time for easy analysis and research.

Widely used in microelectronics, pharmaceuticals, biochemical products, food hygiene, cosmetics, precision machinery, fine chemicals and other departments.

III Important Notice

Before use, please carefully read the following detailed instructions and use the instrument correctly according to the manual.

1. It should be used in a clean environment to prevent damage to the laser sensor.
2. Do not disassemble the instrument or put it into fire.
3. Prevent severe vibration and falling of the instrument.
4. Do not allow liquid to flow into the interior of the instrument.
5. When the machine enters different environmental temperatures, especially when it enters a high-temperature environment from a low-temperature environment, water vapor may condense on the instrument. It is necessary to wait for the machine to stabilize for half an hour before powering on to measure various values. Water solution or other liquids cannot enter through the sampling inlet.
6. It is prohibited to extract mixed gases containing oil stains, corrosive gases, and gases that may cause reactions (such as hydrogen and oxygen). These gases may also cause explosions inside the counter.

IV Function Introduction



- ① Digital temperature and humidity sensor.
- ② Sampling air inlet, be careful not to block during use.
- ③ Liquid crystal display.
- ④ Mute button: Turn on or off the alarm sound, default is to turn off the sound.
- ⑤ Test enable button: When in passive measurement mode, enable measurement; The single measurement time is 180 seconds and cannot be paused midway. When setting the menu, move the cursor up and increase the value.
- ⑥ Power button: Long press to turn on or off the power.
- ⑦ Temperature switch button: Celsius and Fahrenheit conversion.
- ⑧ Storage button: Short press "-" button Start recording data, The symbol " " appears on the screen. When setting the menu, move the cursor down to decrease the value.

When JD-3000 long presses the "-" key, it can switch measurement modes (Figure 1 Weight Counting Mode Interface, Figure 2 Counting Mode Interface)

When JD-3003 is long pressed with "-", there is no switching mode.

- ⑨ Settings button: Short press to enter the menu, long press to return.



Figure 1:

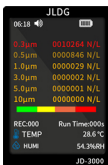
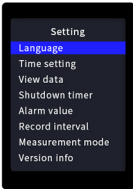
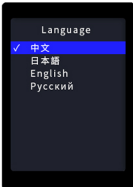


Figure 2:

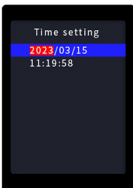
V Product Introduction



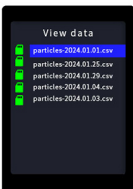
1. Short press the "SET" key to enter the menu page:
Press the "+" or "-" keys to move the cursor to the desired
Press and hold the "SET" key for a long time to exit the menu page.



2. Language settings: Provides four operation pages: Chinese, English, Japanese, and Russian.
Press the "+" or "-" keys to move the cursor to the desired option.
Short press the "SET" button to confirm.
Long press the "SET" key to return to the previous operation page.



3. Time setting: Press the "+" or "-" keys to move the cursor to the desired option, then press the "SET" key briefly again to move the red cursor to the corresponding option. Press the "+" or "-" keys to increase or decrease the value.
Long press the "SET" key to return to the previous operation page.



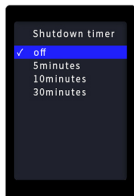
4. View data: Press the "+" or "-" keys to move the cursor to the desired option, briefly press the "SET" key to view the recorded data, and then press the "+" or "-" keys again to flip through the page.
JD3000 requires long pressing the "-" key, switching measurement modes, and then viewing the corresponding data.

Long press the "SET" key to return to the previous operation page.



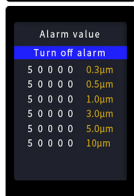
5. Delete data: Move the cursor to the desired option, short press the "°C/°F" key to mark the file to be deleted, press the "-" key to delete, and press the "+" key to exit the delete function.

Long press the "SET" key to return to the previous operation page.



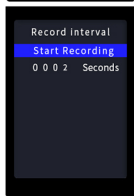
6. Scheduled shutdown: Move the cursor to the desired option and press the "SET" key to confirm. When set to timed shutdown mode, the "🕒" icon is displayed on the main screen interface. Default does not shut down.

Long press the "SET" key to return to the previous operation page.



7. Alarm value setting: Move the cursor to the desired option, press the "SET" key briefly, the background will turn red, and press the "+" or "-" keys to increase or decrease the value.

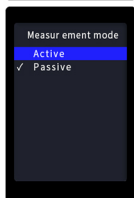
Left image: Default alarm values for JD-3000 and JD-3003 counting modes. JD-3000 requires long pressing the "-" key, selecting the measurement mode, and then setting the corresponding alarm value. Long press the "SET" key to return to the previous operation page.



8. Record interval: Move the cursor to the desired option, press the "SET" key briefly, the selected cursor turns red, and press the "+" or "-" keys to increase or decrease the value.

The default recording interval is 2 seconds.

Long press the "SET" key to return to the previous operation page.



9. Measurement mode: The default is passive measurement.

Press the "ten" key to start the measurement. The single sampling time is 180 seconds, and it cannot be paused halfway. Select the active measurement mode and start uninterrupted measurement immediately upon startup.

Long press the "SET" key to return to the previous operation page.



10. Data export: Connect the USB data cable to the computer, and the device will display Icon "🔌", successfully connected, enter my computer USB drive and copy data.

VII Standard reference

ISO classification of air cleanliness based on particle concentration						
ISO grade Ordinal number (N)	Maximum allowable concentration of particles with a particle size greater than or equal to that in the table (pcs/m ³)					
	0.1μm	0.2μm	0.3μm	0.5μm	1.0μm	5μm
1	10					
2	100	24	10			
3	1,000	237	102	35	83	
4	10,000	2,370	1,020	352	832	
5	100,000	23,700	10,200	3,520	832	
6	1,000,000	237,000	102,000	35,200	8,320	293
7				352,000	83,200	2,930
8				3,520,000	832,000	29,300
9				35,200,000	8,320,000	293,000

Cleanliness according to GMP regulations				
Cleanliness level	Maximum allowable number of dust cases (Number of particles/m ³)		Maximum allowable number of microorganisms	
Cleanliness level	≥0.5μm	≥5μm	Planktonic bacteria (cfu/m ³)	Settling bacteria (cfu/皿)
100 level	3,500	0	5	1
10,000 level	350,000	2,000	100	3
100,000 level	3,500,000	20,000	500	10
300,000 level	10,000,000	60,000		15

VI Product parameters

Project	JD-3000	JD-3003
Particle detection range	0.3μm、0.5μm、1.0μm、3.0μm 5.0 μm、10μm: PM2.5、PM10	0.3μm、0.5μm、1.0μm、 3.0μm、5.0 μm、10μm
Particle size	0.3μm、0.5μm、1.0μm、3.0μm 5.0 μm、10μm: PM2.5、PM10	0.3μm、0.5μm、1.0μm、 3.0μm、5.0 μm、10μm
Counting efficiency	0.3μm 50% ; When larger than 0.5 μ m, 100% (compliant with ISO 21501-4 and JIS)	
Particle size resolution	At 0.5 μ m<15% (according to ISO 21501-4)	
Sample flow	2.83L/min(0. 1ft ³)	
Error	5% (2,000,000Particles/ft ³)	
Battery	Built in lithium-ion battery 3.7V, 2000mAh	
Working temperature	0°C~50°C	
Working humidity	10%RH~90%RH No frost or condensation	
Storage temperature	-20°C~60°C	
Storage humidity	0~95%RH No frost or condensation	

合格证

Product Name: Particle Counter

Product model: JD-3000

Execution standard: GB/T 6167-2007

Inspection results:



Inspection personnel:

合格证

Product Name: Particle Counter

Product model: JD-3003

Execution standard: GB/T 6167-2007

Inspection results:



Inspection personnel: