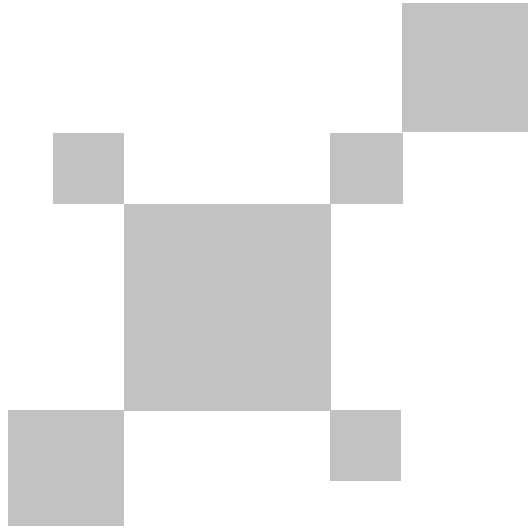


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UNI-T®



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UT337B Laser Particle Counter User Manual

PREFACE

Thank you for purchasing the new Laser Particle Counter. In order to use this product safely and correctly, please read this User Manual thoroughly, especially the Safety part. After reading this guideline, it is recommended to keep the manual and product at an easily accessible place, preferably close to the device, for future reference.

LIMITED WARRANTY AND LIABILITY

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1. Product Overview

UT337B Handheld Laser Particle Counter refer to ISO 21501-4-2018 and JJF1190-2008 standards. It simultaneously set 6 channels (0.3µm, 0.5µm, 1.0µm, 3.0µm, 5.0µm, 10.0µm) for measurement of particle amount or concentration. Its built-in temperature, humidity, and dew-point temperature sensors are used for monitoring environmental conditions. It equips recording space for 10000 data, records measurement environment through photo-capturing during the data recording, and supports to connect mobile APPs (iENV) via Wi-Fi or connect PC via USB to generate sampling reports, such as ISO and EUGMP, widely used in the fields of Electronics Manufacturing Industry, Scientific Research Department, Pharmaceuticals, Food Processing, etc.

2. Product Features

- 1) Simultaneously measure particles of 0.3, 0.5, 1.0, 3.0, 5.0, 10.0µm.
- 2) Refer to ISO 21501-4-2018 and JJF1190-2008 standards.
- 3) Built-in multiple sampling ways: Auto, Manual, Continuous, ISO 14644-1, EU GMP, Filter Efficiency, Purge.
- 4) 7 preset modes are user-defined.
- 5) Built-in temperature and humidity sensor for monitoring ambient temperature, humidity, and dew-point temperature.
- 6) 10000 data storage; each data is supported to be captured to record the ambient conditions.
- 7) Support to connect mobile APPs via Wi-Fi or connect PC via Type-C cable, and export sampling reports.
- 8) Comfortable grip feeling; easy to operate in various scenes.

3. Configurations

Particle Counter	1
User Manual	1
Download Guide of Common Files	1
Safety Guide	1
USB Cable	1
Purge Filter	1
Sampling Tube	1
Hand Strap	1
Tool Box	1

Please contact your dealer directly if any components are missing or damaged.

4. Safety

⚠ "Warning" identifies the dangerous situations and operations may cause to users. "Caution" identifies the potential damages may cause to products or test equipment.

• Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

- 1) Charge the device through the standard DC 5V adapter due to its built-in rechargeable lithium battery.
- 2) Do not dispose of the built-in lithium battery with solid waste. The disposal of waste battery should be undertaken by a qualified recycling agency or hazardous material handling agency, and in accordance with the relevant local regulations.
- 3) Do not open the housing of device due to its built-in laser, harming your eyes.
- 4) Check the device and accessories before you use the device. Do not use it any more if the housing of device is damaged or it fails to work normally.
- 5) Do not disassemble the device or change the internal wires randomly to avoid device damage.
- 6) Do not store or use the device in the high temperature, high humidity, flammable, combustible and strong electromagnetic environment.
- 7) Use soft cloth and neutral detergent to clean the housing of device. Do not use abrasives and solvents to avoid housing corrosion and device damage. Do not wash the device directly to avoid circuit board get wet to cause device damage.
- 8) Do not place the device close to the fire; do not get the device wet.
- 9) The maintenance and repair service must be done by the qualified professional staffs or specified maintenance department.
- 10) Laser radiation:
 - a. Laser: Class 1
 - c. Wavelength: 652nm-665nm
 - d. Output power: 130mW
 - e. Do not direct laser beam into eyes, as this can cause permanent eye damage.
 - f. Label:



5. Components & Buttons



1) Components

No.	Name	Functions
1	Silicone Cap	Dustproof
2	Isokinetic Sampling Head	Air Inlet
3	USB Interface	Charge/Connect PC
4	LED	Alarm Indication
5	Screen	Display
6	Buttons	Functional Buttons
7	Flashlight	Fill Light
8	Camera	Photo-Capturing; Record
9	Threaded Hole	Connecting Bracket

2) Buttons

	Functional Buttons/Fill Light
	POWER
	Record-Check Button
	RETURN
	START/ENTER

	RIGHT
	LEFT
	UP/Add
	DOWN/Subtract

6. LCD Icons

	Temperature		Differential Counting
	Relative Humidity		Mode Settings
	Dew-Point Temperature		Wi-Fi
	Area		Parameter Setting
	(Sampling Points) Location		Applied
	Sampling Times		Not Applied
	Sampling Volume		USB
	Cumulative Counting		Battery

7. Operations

1. Power On/Off & LED Fill Light

①. Power On

In OFF state, long press  button to power on, enable the screen and enter the measurement interface.

②. Power Off

Under any interface, long press  button to popup 'Power-Off' and press "ENTER" button to power off, or long press  button until power off; In ON state, open 'Auto-Power-Off', the device will auto power off when it reaches to the preset time in the non-measurement state.

③. Fill Light

Long press  button to make LED fill light ON/OFF.

④. When low battery icon shows on the screen, charge the battery in time for accurate measurement and normal use.

2. Measure Operations

In the main interface, short press  to start or stop measuring.

①. Manual Measurement: Measure once as per the set sampling time.

②. Continuous Measurement: No time limit of measurement; manually stop measuring.

③. Auto Measurement: Set sampling points and sampling times to calculate AVG of each sampling point.

④. ISO14644-1: Based on the standard measurement, make conclusion as per the cumulative concentration.

⑤. EU GMP: Based on the standard measurement, make conclusion as per the cumulative concentration.

⑥. Purge Mode: The measured value of whole channel is 0 for 20s, repeatedly open and close the mode for 3 times, and the measured value is still 0 for 20s, and the purge time is the cumulative time of 2 purge times.

⑦. Filter Efficiency: The filter efficiency will be showed after completing the second sampling, and the measured result = (cumulative concentration in second measurement/ cumulative concentration in first measurement) * 100%.

⑧. Counting

a) Cumulative Counting ($\Sigma \#$): The cumulated particles greater than or equal to the measured particle size.

b) Cumulative Concentration ($\Sigma \# / L, \Sigma \# / m^3, \Sigma \# / ft^3$): The cumulated particles greater than or equal to the measured particle size divided by measured air volume; the unit of concentration is up to the unit of air volume.

c) Differential Counting ($\Delta \#$): The particles counting of greater than or equal to the selected particle size, smaller than or equal to the second big particle size.

d) Differential Concentration ($\Delta \# / L, \Delta \# / m^3, \Delta \# / ft^3$): The particles counting of greater than or equal to the selected particle size, smaller than or equal to the second big particle size divided by measured air volume; the unit of concentration is up to the unit of air volume.

3) Preset Menu

In the measurement interface, press  button, select  mode, press  button to enter the 'Preset' interface, press  and  to move up and down, and press  to popup the menu; If you select the "Applications", and measurement will be done in this mode; If you select the "Edit", you will enter to set the mode. See followings for modes setting:

①. Sampling: Manual, Continuous, Auto, ISO14644-1: 2015, EU GMP-ISO: 2015, Purge, Efficiency.

②. Cleanliness: ISO*~*(ISO14644-1: 2015), ~*static~*dynamic (EU GMP-ISO: 2015).

③. Area: Sampling area; Cross sectional area (the unidirectional flow vertical to air flow); Area of plane in clean area (turbulence);

- ④. Sampling Point: Based on ISO14644-1: 2015, auto calculate the sampling point after entering the area.
- ⑤. Sampling Times: 1~1000 can be set (The product of sampling points and sampling times is ≤ 1000).
- ⑥. Sampling Time: 5s~6h can be set (In the sampling of ISO14644-1:2015 and EU GMP-ISO: 2015, generate the minimum sampling time as per the standard, and it is user-defined for actual demands.)
- ⑦. Sampling Interval: 5s~1h.
- ⑧. Delay Time: 5s~1h.
- ⑨. Counting: Cumulative counting ($\Sigma \#$); Cumulative concentration ($\Sigma \#/\text{m}^3$); Differential counting ($\Delta \#$); Differential concentration ($\Delta \#/\text{m}^3$).
- ⑩. Channel: Set the sampling channel and alarm threshold.

Modes	Manual	Continuous	Auto	ISO	EU GMP
Counting	✓	✓	✓	✓	✓
Area			✓	✓	✓
Cleanliness Class I				✓	✓
Channel	✓	✓	✓	✓	✓
Sampling Point			✓	✓	✓
Sampling Times			✓	✓	✓
Sampling Time	✓		✓	✓	✓
Sampling Interval			✓	✓	✓
Delay Time	✓	✓	✓	✓	✓

4) Wi-Fi ON/OFF

- ①. Open Wi-Fi and use mobile APPs to scan the QR code on the device to connect.
- ②. After the connection, use mobile APPs to view the measured data and set the functions.

- 5) USB: USB Flash Disk Mode; Communication Mode;
The USB flash disk mode is only effective in the USB mode.

6) Settings Menu

In power-on state, press  button in the measurement interface, select  mode, press  button to enter the Preset interface, press  and  to move up and down, and press  button to popup the menu; If you select the "Applications", and measurement will be done in this mode; If you select the "Edit", you will enter to set the mode. See followings for modes setting:

①. Units

- a) Particle ($\#/\text{ft}^3$, $\#/\text{m}^3$, $\#/\text{L}$);
- b) Volume (ft^3 , m^3 , L);
- c) Area (m^2 , ft^2);
- d) Temperature ($^{\circ}\text{C}$, $^{\circ}\text{F}$);

②. Display: Set the parameter options for measurement.

- a) Temperature, Humidity, Dew-Point Temperature: Displayed in the measurement interface.
- b) Brightness: The brightness of screen backlight can be set within 1~100.
- c) Auto-Screen-Off: 5s~1h can be set.

③. Buzzer

- a) Measurement Prompts: The buzzer alarms once to prompt the single measurement is finished.
- b) Alarm: The buzzer alarms and the reading of particle size showed in red when it exceeds the threshold.

④. LED Indicators: Measuring in green; Alarming in red;

- ⑤. Auto-Power-Off: In the non-measurement state and no button operations, start to timing, auto power off when time reaches to the preset one; in the measurement state and no button operations, start to timing, auto power off in 1 minute after measuring when time reaches to the preset one.

⑥. Date & Time

- a) Time Format: 12-hour or 24-hour time system.
- b) Date and Time: See the current settings.
- c) Calibration Date: The calibration date and time will be showed on the report.

⑦. Languages: Chinese, English, French, German, Italian, Spanish, Swedish, Polish, Czech

- ⑧. Device: About device, including model, SN, software version, SD card storage, calibration date.

⑨. Storage

- a) Data Zeroing: Zeroing the measured data, images and notes.
 b) Storage Ways: Manual; Auto;
 In manual storage, press 'START/ENTER' button to save the data; in auto storage, data will be automatically saved after completing the measurement.

⑩. Factory Reset: Restore the settings to the factory state. (Zeroing the data and settings, please think twice)

Notes: Same as deleting files in the USB flash disk; do not delete the files in the System folder, the configuration files.)

7) Record History Check

- ①. In the main interface, press  button to enter the history list, press UP and DOWN button to check what you want, press  button to enter the record details, and press  button to back to the previous interface.
 ②. In the interface of record details, press  and LEFT/RIGHT buttons to capture or view image, and press  button to back to the previous interface.

8. Purge Filter Replacement

This part briefly introduces the replacement of purge filter.

Fix the 'Purge Filter' (Figure1) to the sampling tube, and its one side with square pattern is facing up (Figure 2). Fixed like Figure 3, take down the 'Isokinetic Sampling Head' and fix the purge configuration to the device.



Figure 1



Figure 2



Figure 3

9. Specification

Model	UT337B
Channels	6-Channel
Particle Size	0.3μm, 0.5μm, 1.0μm, 3.0μm, 5.0μm, 10.0μm
Counting Efficiency	Meet ISO 21501-4:2018 standard
Sampling Flow	2.83L/min (±5%), 0.1CFM
Particle Distribution Error	0.5μm and 5.0μm particle distribution error is ≤ ±30%
Particle Concentration Error	0.5μm particle concentration error is ≤ ±30%FS when the device runs normally.
Relative Error of Repeatability	The repeatability of particle concentration in continuous measurement is ≤10%FS.
Purge Time	≤10min (Continuous 0 for 2 times in 10 minutes; 95% of reliability)
Maximum Sampling Concentration	2,000,000pcs/ft³
Sampling Time	5s~6h
Sampling Points (Location)	1000 (The product of sampling points and times is maximum 1000.)
Sampling Times	1000 (The product of sampling points and times is maximum 1000.)
Sampling Delay	5s~1h
Time Interval	5s~1h
Counting Modes	Cumulative; Differential concentration/counting
Temperature (Range)	±0.5°C (-10°C~50°C)
Relative Humidity (Range)	±5.0% (0.1%~99.9%)
Dew-Point Temperature (Range)	±0.5°C (0°C~50°C)

Data Storage	10000
Power Supply	DC 5V 2A
Charging Time	About 4h
Built-in Battery	7.4V polymer li-ion battery
Communication	WiFi/USB-C
Working Time	About 6h
Working Environment (Temperature/Humidity)	0~50°C, 0~95% (Non-condensation)
Storage Environment (Temperature/Humidity)	-30~50°C, 0~95% (Non-condensation)
Size	290*103*62mm
Weight	About 710g
Reference Standard	ISO 21501-4-2018; JJF1190-2008
Compliance Standard	EN61326-1 (Class A) EN60825-1
Altitude	Up to 2000m
Recommended use environment	Indoor
Pollution degree	2

10. Mobile APP Installation

Download the phone APP via following ways:

- 1) For IOS, search and download iENV in the App Store.
- 2) For Android, search and download iENV in the Google Play.

The User Manual is subject to change without prior notice!

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