

# Handheld Laser Particle Counter

Model: P611  
Operation Manual  
Ver.1.0



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## Warranty

**AIRY TECHNOLOGY INC** warrants to the original user that this instrument shall be free from defects in material and workmanship for **two years** from the date of shipment.

Airy's obligations under this warranty, and the sole remedy for its breach, are limited to repair or, in Airy's sole discretion, replacement of the instrument or any of its parts. Should it become necessary to return the instrument for repair during or beyond the warranty period, user shall contact Airy Technology, Inc. (USA). **E-mail:** [info@airytechnology.com](mailto:info@airytechnology.com). User is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit.

This warranty shall be void in the event of user actions including misuse, improper wiring, operation outside of specification, improper maintenance or repair, unauthorized modification, or any other defect caused by the user's neglect or accident.

This warranty is the sole and exclusive warranty for this instrument, and no other warranty, whether written or oral, is expressed or implied. Airy specifically disclaims any implied warranties of merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental, consequential, or punitive damages. Airy's total liability is limited to repair or replacement of the product.

# Safety Information

This section gives instructions for promoting safe and proper handling of the Particle Counter.

## Laser Safety

The Handheld Laser Particle Counter is a Class I laser- based instrument.

- During normal operation, you will not be exposed to laser radiation.
- Precautions should be taken to avoid exposure to hazardous radiation in the form of intense, focused, invisible light.
- Exposure to this light may cause blindness.

Take these precautions:

- **DO NOT** remove any parts from the particle counter unless you are specifically told to do so in this manual.
- **DO NOT** remove the housing or covers. There are no user serviceable components inside the housing.

 <b>DANGER</b>	
<p>◆ <b>The use of controls, adjustments, or procedures other than those specified in this manual may result in exposure to hazardous optical radiation.</b></p>	 <b>WARNING</b>

## Precautions for power use

- AC Adaptor  
The AC adaptor accommodates voltage of AC 100~240V and frequency of 50/60Hz.
- Batteries  
Use four AA batteries.

 <b>DANGER</b>	
<p>◆ <b>Driving voltage should be kept within specified range. Failure to follow this instruction may cause electric shock and instrument damage.</b></p>	 <b>PROHIBITION</b>
 <b>CAUTION</b>	
<p>◆ <b>Do not start sampling when the instrument is connected to a personal computer. Failure to follow this instruction may cause the instrument to work abnormally.</b></p>	 <b>WARNING</b>

# Product Overview

Carefully unpack the Handheld Laser Particle Counter from the shipping container and verify that all the items shown in the photos below and listed in the following tables are present.

Contact us immediately if any items are missing or broken.

## Handheld Laser Particle Counter parts list:

Qty.	Item Description	Reference Picture
1	Handheld Laser Particle Counter	
1	Probe Sensor (Optional)	
1	Isokinetic Inlet	
1	Probe for Tubing	
1	Cap	
1	AC Power Adapter	
1	Zero Filter	
1	USB cable USB type A to mini USB-B	
1	Battery Charger	
1	Application CD	
1	Quick Start Guide	
1	Calibration Report	
1	Carrying Case	

## Getting Started

The Handheld Laser Particle Counter Model P611 is a lightweight, handheld particle counter with a TFT LCD display. It operates on battery or AC power. This model has a 0.1 CFM (2.83 L/min) flow rate and displays 6 channels simultaneously. Up to 10,000 data sets can be stored and downloaded for analysis and reported using the utility included with the device.



### Inlet Nozzle

User can replace the inlet nozzle between the isokinetic inlet and the tubing probe. The isokinetic inlet is used for ambient air sampling. To use the isokinetic inlet, detach the red cap from the inlet nozzle and attach the isokinetic probe. After all the samples are taken, detach the isokinetic inlet and put the red cap back before placing the unit into the carrying case. If you are planning to use a tube for sampling, please contact Airy Technology or your local distributor.

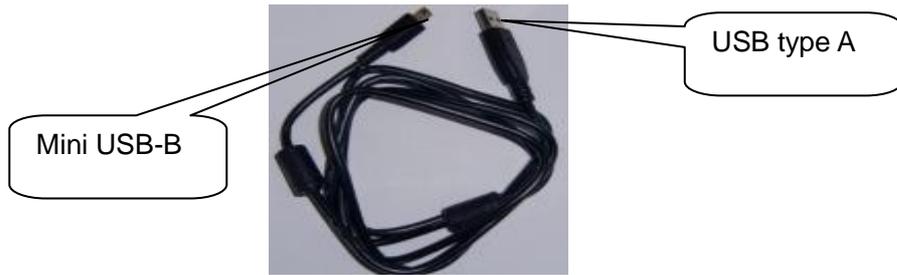
### Zero Filter

The zero filter cleans the sensor after your sampling at contaminated places. The zero filter also checks whether the particle counter is counting electrical noises. To use the zero filter:

1. Detach the isokinetic inlet from the main unit
2. Connect the zero filter to the main unit with the tube (Located in the plastic bag containing the zero filter)
3. Start sampling
4. Wait until the counter is not detecting any particles
5. Stop sampling and detach the zero filter

If the counter keeps on detecting particles after 1 minute of sampling, please contact Airy Technology or your local distributor.

**AC power, USB port, and USB cable**



**AC Power**

When applying AC power, the affiliated AC adapter must also be used, as shown below. Connect Mini USB-B plug to the instrument.



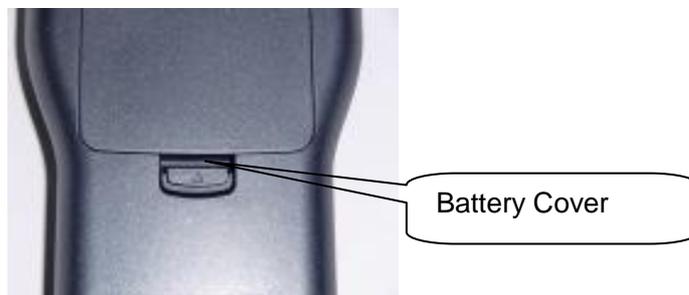
**Data Communication**

When using the USB cable to transfer data records to a PC, set it up as follows: Connect Mini USB-B plug to the instrument. Connect USB type A plug to a type A receptacle PC.



**Battery**

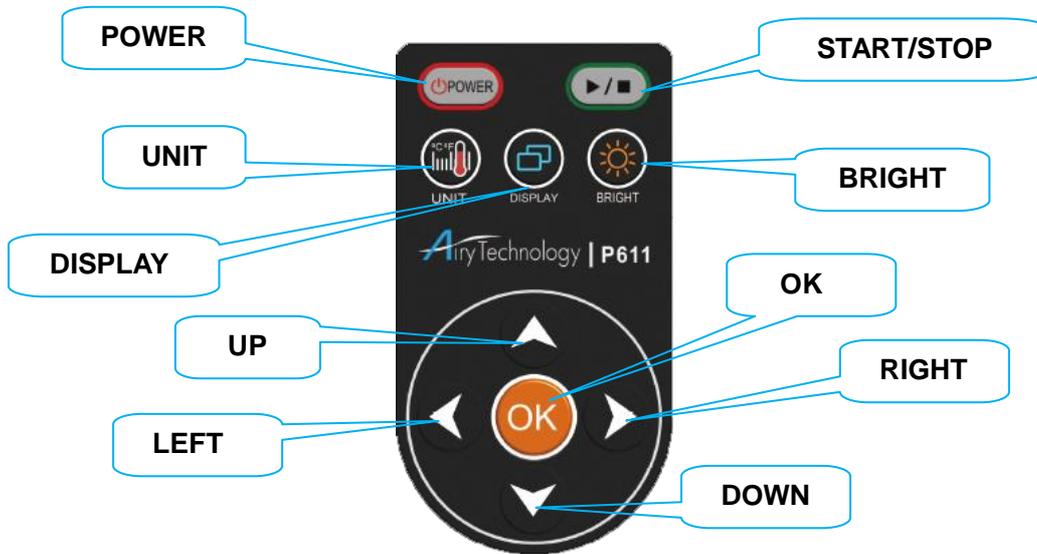
The batteries have to be loaded before use and four AA Ni-MH or alkaline batteries are required. If you are using Ni-MH batteries, please charge fully before using.



# Operation

## Key Pad

The instrument is controlled by the key pad and its functions are shown as follows:



KEY	FUNCTION
POWER	Power On/Off
START/STOP	Start or stop sampling
UNIT	°C/°F
DISPLAY	Switch displays
BRIGHTNESS	Regulate backlight
UP/DOWN/LEFT/RIGHT	Move the cursor or change the values
OK	Execute

Use the **UP** and **DOWN** keys to highlight a menu or a menu option. Use the **LEFT** and **RIGHT** keys to enter the sub item or leave the sub item.

Use the **UP** and **DOWN** keys to perform operations such as increasing a value.

Use the **LEFT** and **RIGHT** keys to move to left and right.

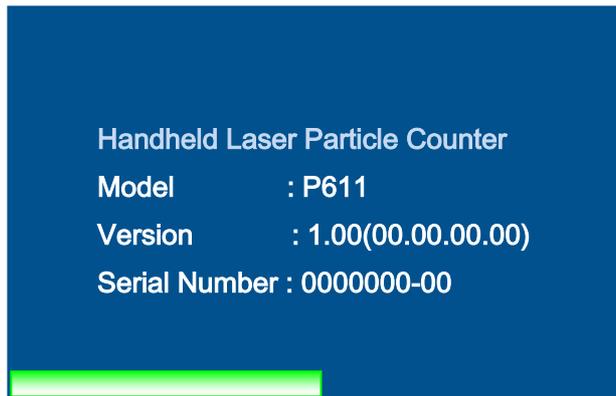
### Power on/off

Press the **POWER** key to turn on the instrument.

Press the **POWER** key for more than one second, the message “**Power off...**” will show on the bottom of the screen. Hold it for more than two seconds to turn off the instrument.

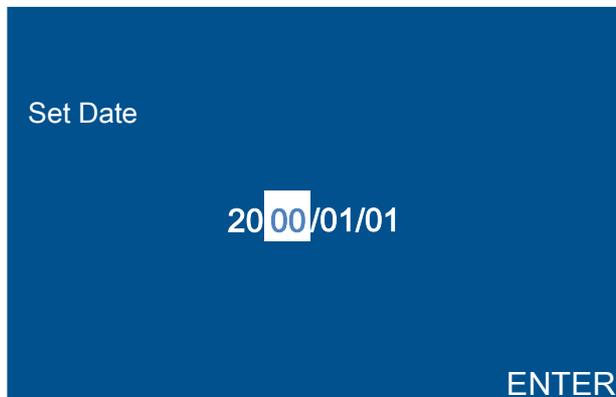
## Splash Screen

After the instrument is turned on, a splash screen will appear for three seconds, displaying the company logo, model number, serial number, and firmware version number (see below).

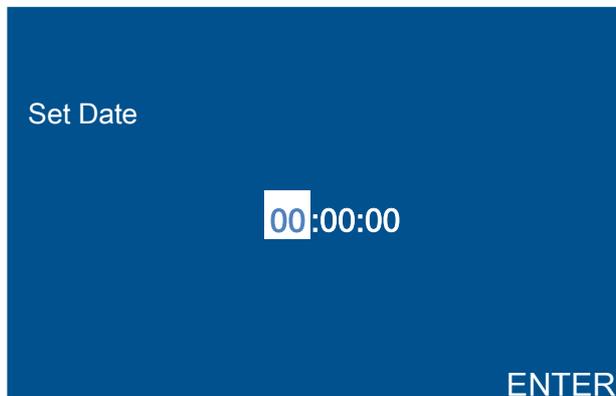


Splash Screen

When the instrument is turned on for the first time, a clock setting screen will show up.



Date setting screen



Clock setting screen

## Default Screen

A default screen will appear afterwards, which indicates the instrument is ready for operation.



Default screen

Portions of the default screen are explained as follows:

- 【 🌡️ 】 Temperature
- 【 💧 】 Humidity
- 【 🔋 】 Power mode: AC/battery
- 【 10:05 】 Current time (hour& minute)
- 【 Σ 】 Cumulative count - the number of all the particles equal or larger than the selected particle size
- 【 Δ 】 Differential count - the number of all the particles between the selected size and the next larger size
- 【 0.3um 】 Particle size for each of the six channels
- 【 00:00 】 Sampling time (1sec~99min 59sec)/Delay time(00:05~23:59:59)
- 【 MOD 】 Measure mode (ISO/Manual/Auto/Conc/Beep), switch under Main Menu
- 【 SAMP 】 Sampling time (1sec~99min 59sec)
- 【 INT 】 Sampling time interval (1sec~99min 59sec)
- 【 LOC. 】 Location number
- 【 UNIT 】 Unit, press **UP/Down** to switch between CNT (count),CF (cubit foot), M3 (cubic meter) and L (liter)
- 【 CYC 】 Cycle count (1~9999)
- 【 REC 】 Current number of data records (Max. 10000)
- 【 MENU 】 When highlighted, press **OK** to go to Main Menu
- 【 Stopped 】 Operating Status (Waiting/Sampling/Holding/Stopped)
- 【 START 】 When **START/STOP** is highlighted, press OK to start/stop sampling

## Main Menu

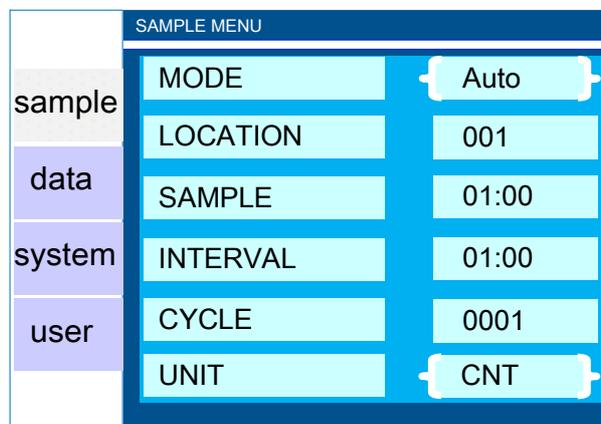
Use the **UP/DOWN** key to navigate between items, the **OK/RIGHT** key to enter a sub-item and the **LEFT** key to return to upper directory.

Accessible Submenus from the Main Menu:

Submenu	Description
sample	Set measuring mode, select location, sample time, interval time, cycle count and particle unit
data	Select between showing and transmitting data records
system	Turn on/off sensors, set display brightness, clock and security options
user	Set alarm, key sound, battery and delay time

Each of the submenus is described in the following parts of this chapter.

## Sample Settings



Sample menu screen

Use the **UP/DOWN** key to navigate between items, the **OK/RIGHT** key to enter a sub-item. Use **UP/DOWN/LEFT/RIGHT** key to set or select and press **OK** to complete setting and exit. Press **LEFT** key to return to upper directory.

The table below describes the submenu's options and available parameters.

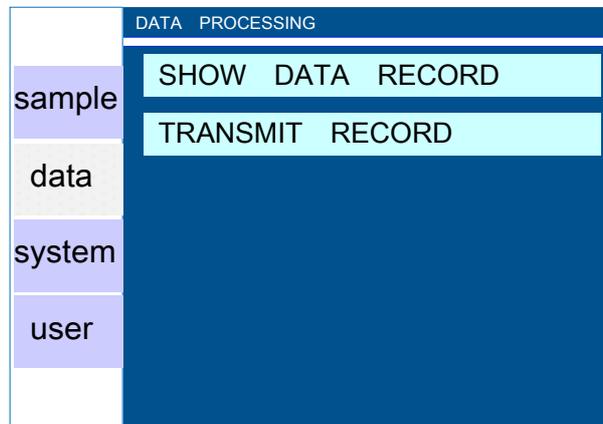
Item	Description
MODE	Auto, Manual, ISO, GMP, Beep, Conc (Concentration) * Auto mode: Sample/Interval/Cycle settings will be applied * Manual mode: Press FINISH to stop sampling. Sample/Interval/Cycle settings will not be applied * ISO mode: Sample/Interval/Cycle settings will be applied * GMP mode: Sample/Interval/Cycle settings will be applied * Beep mode: Beep when the number of particles reaches the limit. * Conc (concentration) mode: Update result every 6 seconds
LOCATION	Range 0~999
SAMPLE	Range 1sec ~ 99 min 59 sec (No larger than interval time)
INTERVAL	Range 1sec ~ 99 min 59 sec (No smaller than sample time)
CYCLE	Range 1~9999 times
UNIT	CNT (count), /cf (cubit foot), /m3 (cubic meter), /L (liter)

## Data Settings

On the data process screen, sample data are stored in the instrument. They can also be transmitted to computer with a USB cable.

## Show Data Record

Press the **OK** key to enter the secondary screen where records can be referred to by the index number.



Data processing

When “Show Data Record” is selected and the data mode is ISO, the sampling result will be displayed.



Data processing

For example:

When data # 00001 is selected, the display will show as follows (In this example, the total number of samples is 4):

ISO	00001/00004	Unit:/M3	
Size	Cumul	Diff	Envi
0.3	1.278E+08	1.045E+08	26.5 °C
0.5	23293592	21323030	50.6 %
1.0	1970562	1790457	
2.5	180105	88287	
3.0	91818	91818	
10.0	0	0	
LOCATION:	1 / 4	CYCLE:	1 / 1
SAMPLE:	01:00	INTERVAL:	01:00
START:	2011 / 07 / 18	01:46:28	

Press ·UNIT· to return

Use the **UP/LEFT** and **DOWN/RIGHT** keys to scroll through the records, **UNIT** to go back to the select record screen. In this example, data # 0004 is the last sample of consecutive samplings for ISO mode. At the bottom right of the screen, "**CAL**" (calculation) appears. "**CAL**" appears only in the last sampling result of consecutive ISO samplings.

ISO	00001/00004	Unit:/M3	
Size	Cumul	Diff	Envi
0.3	1.278E+08	1.045E+08	26.5 °C
0.5	23293592	21323030	50.6 %
1.0	1970562	1790457	
2.5	180105	88287	
3.0	91818	91818	
10.0	0	0	
LOCATION:	4 / 4	CYCLE:	1 / 1
SAMPLE:	01:00	INTERVAL:	01:00
START:	2011 / 07 / 18 01:46:28		
OK to CAL		Press ·UNIT· to return	

Select "**CAL**" to go to the ISO calculation result screen.

ISO	00001/00004	Unit:/M3	
Size	AVG	SD	UCL
0.3	1.299E+08	1850869	1.330E+08
0.5	23702066	449483	24454642
1.0	1970562	60035	2071079
2.5	193054	38739	257915
3.0	77692	21481	113659
10.0	0	0	0
CLASS:	9	ROOM STATUS:	Operating
ROOM AREA:	1 M2	AIR FLOW:	Unidirect
LOCATION:	4 / 4		
		Press ·UNIT· to return	

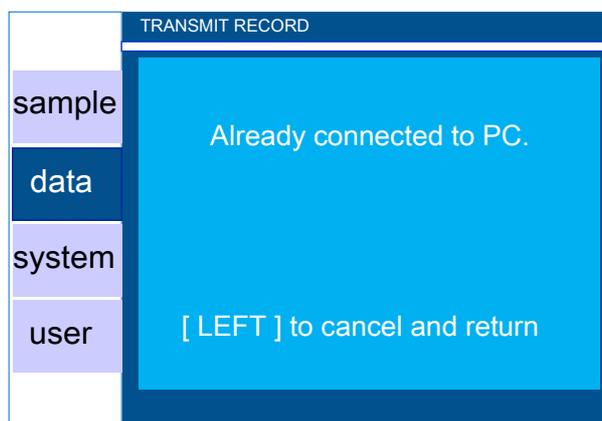
This screen shows the average, standard deviation, and UCL. At this calculation results display, press "**UP**" or "**DOWN**" to select different channel size calculation results. Press "**UNIT**" to return to the "Show Data Record" screen.

**Note**

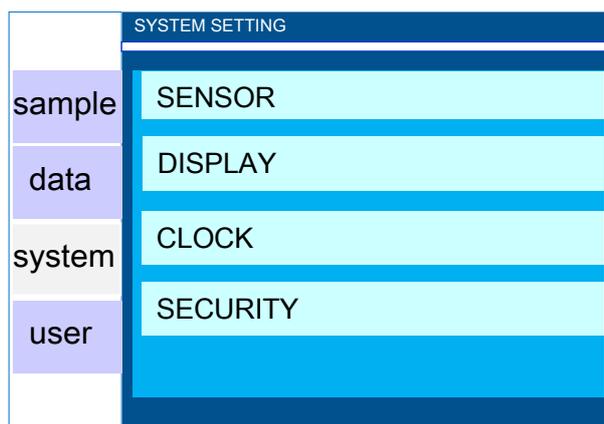
If the buffer is filled with more than 9900 data record sets, the instrument will continue to count and save data, but the number of data records shown on the default screen will be red and the buzzer will beep as an alarm. When the buffer is filled with the maximum capacity of 10000 records, the instrument will continue to count, but the data will not be saved. The user must write down the data and clear the buffer (if necessary, please download the data to PC to save before deleting data from the instrument).

**Transmit Data Record**

Downloading the data to PC can be performed in the screen below. Connect the instrument and PC with the USB cable. Detailed operating please refer to **Data Handling**.



## System Settings

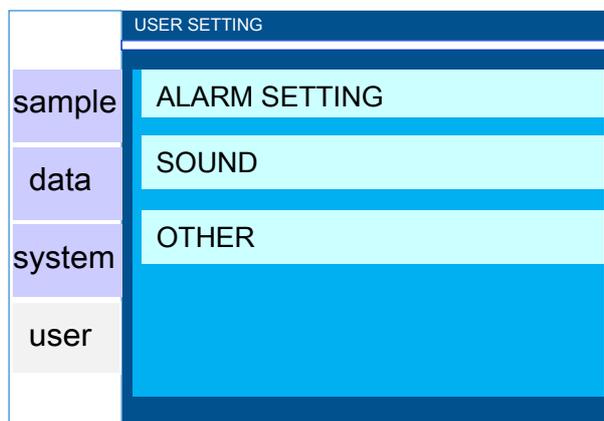


Use the **UP/DOWN** key to navigate between items, the **OK/RIGHT** key to enter a sub-item. Use **UP/DOWN/LEFT/RIGHT** key to set or select, and press **OK** to complete setting and exit. Press **LEFT** key to return to upper directory.

Item	Description
SENSOR (Optional)	Temperature, Humidity, Temperature Unit (°F/°C)
DISPLAY	Display (bright, normal, dark), Screen Off(Off/10Sec/30Sec/1Min)
CLOCK	Date (year, month, day), Time (hour, minute, second in 24hrs)
SECURITY	Power on & Menu Settings (4 to 10 numerical digits)

## User Settings

Alarm, key sound, battery mode and delay time can be set in this screen.



Item	Description
ALARM SETTING	Set alarm limit level for channel 1~6
SOUND	Key sound (On/Off), Beep (Short/Long)
OTHER	Select battery mode(Ni-MH/Alkaline), Delay time (Period from starting pump to beginning sample: 5s~23hr59min59s)

## Sample Procedure

**Note:** when sampling, press the **UP/DOWN** key to convert the unit (CNT/CF/M3/L)

• Auto Mode

27.2°C 51.3% 12:00

Size	Σ	Δ
0.3	0	0
0.5	0	0
1.0	0	0
3.0	0	0
5.0	0	0
10.0	0	0

00:00

UNIT CNT  
MODE AUTO  
LOC. 01/01  
SAMP 01:00  
INT 01:10  
CYC 00/02  
REC 00000

MENU Stopped START

DELAY TIME

27.2°C 51.3% 12:00

Size	Σ	Δ
0.3	0	0
0.5	0	0
1.0	0	0
3.0	0	0
5.0	0	0
10.0	0	0

00:05

UNIT CNT  
MODE AUTO  
LOC. 01/01  
SAMP 01:00  
INT 01:10  
CYC 00/02  
REC 00000

Waiting STOP

SAMPLING TIME

27.2°C 51.3% 12:00

Size	Σ	Δ
0.3	82622	75520
0.5	7102	6455
1.0	647	618
3.0	29	29
5.0	0	0
10.0	0	0

00:16

UNIT CNT  
MODE AUTO  
LOC. 01/01  
SAMP 01:00  
INT 01:10  
CYC 01/02  
REC 00000

Sampling STOP

**Caution:** When the difference between interval time and sampling time is longer than 15 sec, the pump will stop after each sampling and restart before the next sampling.

HOLDING TIME

27.2°C 51.3% 12:11

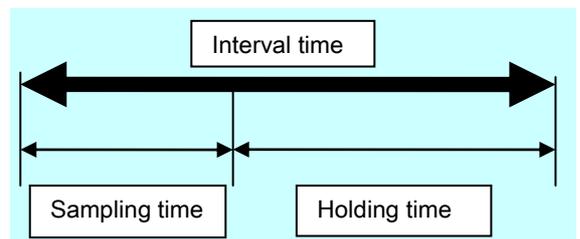
Size	Σ	Δ
0.3	47333	43469
0.5	3864	3479
1.0	385	359
3.0	26	26
5.0	0	0
10.0	0	0

00:03

UNIT CNT  
MODE AUTO  
LOC. 01/01  
SAMP 01:00  
INT 01:10  
CYC 01/02  
REC 00001

Holding STOP

The data is saved automatically after every sampling. Pressing "STOP" will finish sampling at anytime except during the "Waiting" period.



Size	$\Sigma$	$\Delta$
0.3	57333	53369
0.5	3964	3569
1.0	395	368
3.0	27	27
5.0	0	0
10.0	0	0

UNIT CNT  
MODE AUTO  
LOC. 01/01  
SAMP 01:00  
INT 01:10  
CYC 00/02  
REC 00002

MENU Stopped START

The sampling stops automatically when all cycles have finished.

• Manual Mode

Press START/OK to start sampling.

Size	$\Sigma$	$\Delta$
0.3	0	0
0.5	0	0
1.0	0	0
3.0	0	0
5.0	0	0
10.0	0	0

UNIT CNT  
MODE MANU  
LOC. 01/01  
CYC 01/01  
REC 00002

MENU Stope START



Size	$\Sigma$	$\Delta$
0.3	0	0
0.5	0	0
1.0	0	0
3.0	0	0
5.0	0	0
10.0	0	0

UNIT CNT  
MODE MANU  
LOC. 01/01  
CYC 01/01  
REC 00002

MENU Waiting STOP

DELAY TIME 00:05



Size	$\Sigma$	$\Delta$
0.3	82622	75520
0.5	7102	6455
1.0	647	618
3.0	29	29
5.0	0	0
10.0	0	0

UNIT CNT  
MODE MANU  
LOC. 01/01  
CYC 01/01  
REC 00003

MENU Stopped START



Size	$\Sigma$	$\Delta$
0.3	82622	75520
0.5	7102	6455
1.0	647	618
3.0	29	29
5.0	0	0
10.0	0	0

UNIT CNT  
MODE MANU  
LOC. 01/01  
CYC 01/01  
REC 00002

MENU Sampling STOP

SAMPLING TIME 00:36

Stop and data are saved automatically

• **ISO Mode**  
ISO mode settings:

SAMPLE MENU		
sample	MODE ▶	ISO
data	LOCATION	001
	SAMPLE	01:00
system	INTERVAL	01:00
user	CYCLE	0001
	UNIT	CNT

SAMPLE MENU		
sample	MODE	ISO
data	LOCATION	001
	SAMPLE	01:00
system	INTERVAL	01:00
user	CYCLE	0001
	UNIT	CNT

RIGHT FOR DETAIL

Press RIGHT to go to parameter setting screen:

ISO 14644-1		
sample	CLASS ▶	5
data	ROOM STATUS	At-Rest
	AIR FLOW	Non-Uni
system	SIZE	0.3
user	ROOM AREA	0100 M2
	MIN SAMPLE TIME:	01 : 00
	MIN LOC: 010	MIN CYC: 001

Parameters	Options
(ISO) CLASS	5, 6, 7, 8, 9
ROOM STATUS	As-Built, At-Rest, In operation
AIR FLOW	Unidirectional, Non-Uni (The selection will not affect sampling results.)
SIZE	Choose Particle Size
ROOM AREA	1-10000 m <sup>2</sup> (ft <sup>2</sup> )

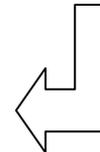
Based on the input above, the particle counter automatically calculates and displays MIN SAMPLE TIME, MIN LOC (minimum sampling locations), MIN CYC (minimum cycle). The MIN SAMPLE TIME cannot be less than 1 minute.

Caution: only **m3** or **cf** unit is available in this mode




**SAMPLING TIME**

The measurement process of ISO executes as **AUTO** mode. Please refer to the above instruction.



Press the **"FINISH"** key to finish this measurement. It will calculate and run into the ISO result interface.

After the current sampling is finished, press **"NEXT"** to start the next sampling.



Note: UCL results are only calculated when LOC. (location) is between 2 and 9.

• **GMP Mode**  
GMP mode settings:

SAMPLE MENU	
sample	MODE ▶ GMP
data	LOCATION 001
	SAMPLE 01:00
system	INTERVAL 01:00
user	CYCLE 0001
	UNIT CNT

SAMPLE MENU	
sample	MODE GMP
data	LOCATION 001
	SAMPLE 01:00
system	INTERVAL 01:00
user	CYCLE 0001
	UNIT CNT

RIGHT FOR DETAIL

Press RIGHT to go to parameter setting screen:

EC GMP	
sample	CLASS ▶ A
data	ROOM STATUS At-Rest
	AIR FLOW Non-Uni
system	SIZE 5.0
user	ROOM AREA 0001 M2
	MIN SAMPLE TIME: 01 : 00 MIN LOC: 010 MIN CYC: 001

Parameters	Options
(GMP) CLASS	A, B, C, D
ROOM STATUS	At-Rest, In operation
AIR FLOW	Unidirectional, Non-Uni (The selection will not affect sampling results.)
ROOM AREA	1-10000 m <sup>2</sup> (ft <sup>2</sup> )

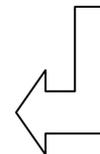
Based on the input above, the particle counter automatically calculates and displays MIN SAMPLE TIME, MIN LOC (minimum sampling locations), MIN CYC (minimum cycle). The MIN SAMPLE TIME cannot be less than 1 minute.

Caution: only **m3** or **cf** unit is available in this mode




**SAMPLING TIME**

The measurement process of GMP executes as **AUTO** mode. Please refer to the above instruction.



Press the **"FINISH"** key to finish this measurement. It will calculate and run into the GMP result interface.



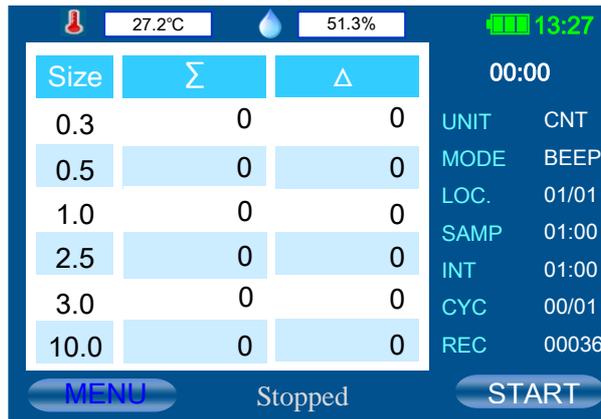
GMP Location 2 / 31 Unit:/m3			
Size	AVG	SD	UCL
0.3	1.299E+08	1850869	1.330E+08
0.5	23702066	449483	24454642
1.0	1970562	60035	2071079
3.0	193054	38739	257915
5.0	0	0	0
10.0	0	0	0

Sample: 01:00 OK to return

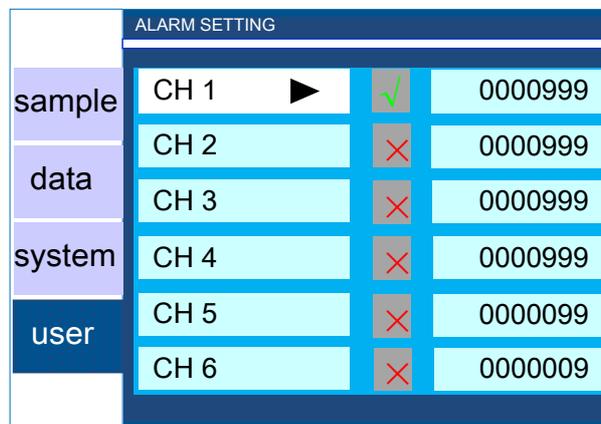
After the current sampling is finished, press **"NEXT"** to start the next sampling.

Note: UCL results are only calculated when LOC. (location) is between 2 and 9.

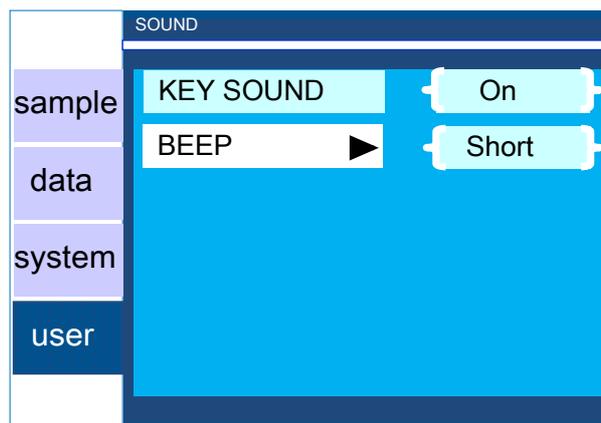
• BEEP Mode



In this mode, P611 will beep according to the alarm setting of each channel. The number for alarm setting can only be set in  $\Sigma$  cumulative count (CNT). When none of the channels is selected, the setting for CH 1 will be activated. (It beeps when it reaches CH 1 alarm setting). If multiple channels are selected, it beeps when any of the selected channels reaches the alarm setting. Minimum sampling time is 6 seconds. Other functions are the same as Auto mode.



Alarm beep can be set as Short (beeps every second) or Long (beeps every 4 seconds).



Alarm setting can be set for every channel. When the number of particles reaches the alarm level, the cumulative counts ( $\Sigma$ ) will be in red in addition to the beep sound.

Size	$\Sigma$	$\Delta$
0.3	22829	18587
0.5	4242	3647
1.0	595	531
2.5	64	42
3.0	22	22
10.0	0	0

00:38

UNIT CNT  
MODE BEEP  
LOC. 01/01  
SAMP 01:00  
INT 01:00  
CYC 00/01  
REC 00026

Sampling STOP

• **CONC (concentration) Mode**

Size	$\Sigma$	$\Delta$
0.3	0	0
0.5	0	0
1.0	0	0
2.5	0	0
3.0	0	0
10.0	0	0

00:00

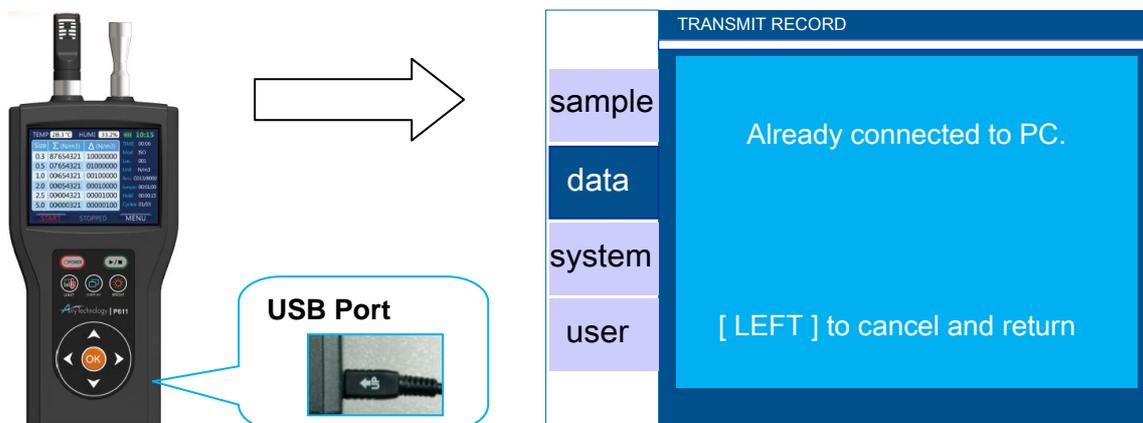
UNIT /M3  
MODE CONC  
LOC. 01/01  
SAMP 00:06  
INT 00:06  
CYC 0000  
REC 00006

MENU Stopped START

In this mode, P611 accumulates and updates the concentration data every 6 seconds. The result is only shown in /CF, /M3, or /L. Once it starts sampling, it will not stop automatically. Please press **STOP** to finish sampling. The data are recorded every 6 seconds.

**Data Handling**

The Model P611 is equipped with a USB-compatible cable for communication with a PC. Plug the cable into the port on the right side of the instrument as shown below. (When it is not connected to the PC, it displays “**Waiting for the computer to connect now!**”)



**Software Installation**

The Airy P611 Software (Data Transfer Utility) comes as a CD including software and USB drivers for the particle counter.

Note: the software is compatible with Windows XP(SP2), Windows Vista and Windows7 (32bits) OS.



Click Read Records



Airy HLPC Software

File Select View Help

Record	Date & Time	Mode	Location	Cycle	Interval Time	Sampling Time	Ch1	Ch2	Ch3	Ch4	Ch5
# 0001	2011/06/26 13:...	BEEP	1/1	1/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0002	2011/06/26 13:...	BEEP	1/1	2/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0003	2011/06/26 13:...	ISO	1/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0004	2011/06/26 13:...	ISO	1/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0005	2011/06/26 13:...	ISO	2/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0006	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0007	2011/06/26 13:...	ISO	3/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0008	2011/06/26 13:...	ISO	3/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266

【View data info.】

Click **View data info.** then the data settings window will display as follows:

Click View data info.



Data Detail Information window

Airy HLPC Software

File Select View Help

Record	Date & Time	Mode	Location	Cycle	Interval Time	Sampling Time	Ch1	Ch2	Ch3	Ch4	Ch5
# 0001	2011/06/26 13:...	BEEP	1/1	1/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0002	2011/06/26 13:...	BEEP	1/1	2/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0003	2011/06/26 13:...	ISO	1/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0004	2011/06/26 13:...	ISO	1/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0005	2011/06/26 13:...	ISO	2/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0006	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0007	2011/06/26 13:...	ISO	3/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0008	2011/06/26 13:...	ISO	3/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266

Data Info. Record : 1/2224

Instrument Info.		Particle Sizes					
Model :	P611	CH1 :	CH2 :	CH3 :	CH4 :	CH5 :	CH6 :
		0.3um	0.5um	0.7um	2.0um	3.0um	5.0um
Serial Number :		Alarm limit					
	0310301	CH1 :	CH2 :	CH3 :	CH4 :	CH5 :	CH6 :
		6666	666	66	19	9	5
ISO 14644-1				Units			
Clean Level :		Room Area :		Sampling Unit :	CNT		
Min. Locations :		Room Status :		Temperature :	C		
Min. Cycles :		Air Flow :		Relative Humidity :	RH%		

CLOSE

## Save Data

【Save all records】

After downloading data to PC, the other functions will be enabled. If you want to save all records, click **Save All**. You can select the file location and decide the file name.

Click Save All 

Airy HPLC Software

File Select View Help

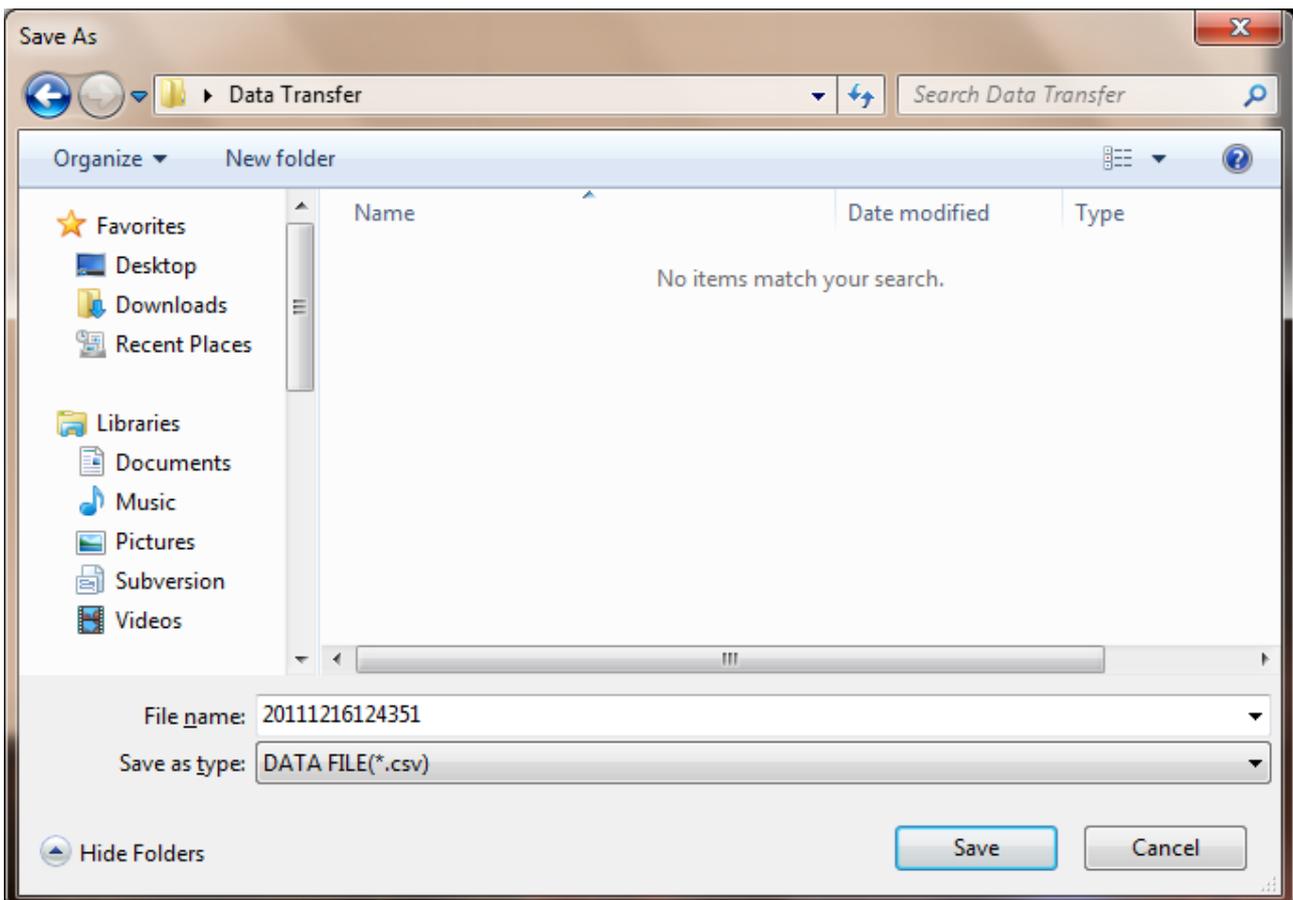
Record	Date & Time	Mode	Location	Cycle	Interval Time	Sampling Time	Ch1	Ch2	Ch3	Ch4	Ch5
# 0001	2011/06/26 13:...	BEEP	1/1	1/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0002	2011/06/26 13:...	BEEP	1/1	2/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0003	2011/06/26 13:...	ISO	1/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0004	2011/06/26 13:...	ISO	1/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0005	2011/06/26 13:...	ISO	2/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0006	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0007	2011/06/26 13:...	ISO	3/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0008	2011/06/26 13:...	ISO	3/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0009	2011/06/26 13:...	ISO	1/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0010	2011/06/26 13:...	ISO	1/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0011	2011/06/26 13:...	ISO	2/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0012	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0013	2011/06/26 13:...	ISO	3/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0014	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266

Record # 0001/2224

BEEP

\*\*\*\*\*Handheld Particle Counter P611\*\*\*\*\*

Serial #: 0310301 Targeted Class :



To save the file, click **Save**, and the data will be saved in the selected location.

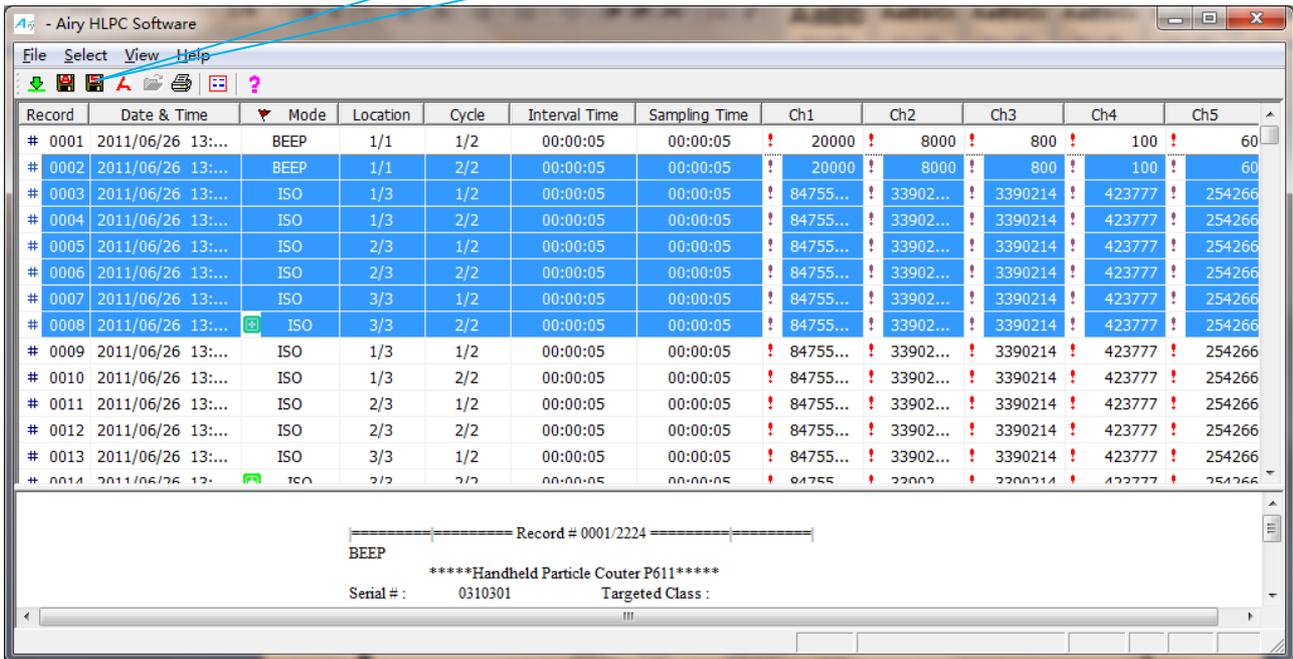
To cancel the transfer, select **Cancel**.

Data is stored in a .CSV file format that can be opened by most spreadsheet programs such as Microsoft® Excel®.

**【Save selected records】**

When you need to save part of the records, you can select the data to save.

Click Save Selected 



Record	Date & Time	Mode	Location	Cycle	Interval Time	Sampling Time	Ch1	Ch2	Ch3	Ch4	Ch5
# 0001	2011/06/26 13:...	BEEP	1/1	1/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0002	2011/06/26 13:...	BEEP	1/1	2/2	00:00:05	00:00:05	20000	8000	800	100	60
# 0003	2011/06/26 13:...	ISO	1/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0004	2011/06/26 13:...	ISO	1/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0005	2011/06/26 13:...	ISO	2/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0006	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0007	2011/06/26 13:...	ISO	3/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0008	2011/06/26 13:...	ISO	3/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0009	2011/06/26 13:...	ISO	1/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0010	2011/06/26 13:...	ISO	1/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0011	2011/06/26 13:...	ISO	2/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0012	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0013	2011/06/26 13:...	ISO	3/3	1/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266
# 0014	2011/06/26 13:...	ISO	2/3	2/2	00:00:05	00:00:05	84755...	33902...	3390214	423777	254266

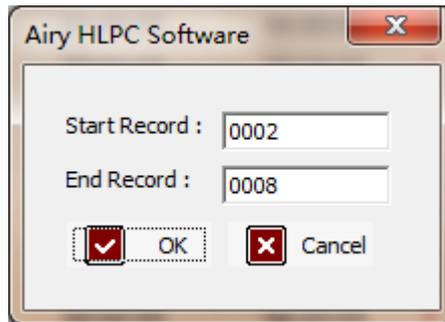
Record # 0001/2224

BEEP

\*\*\*\*\*Handheld Particle Counter P611\*\*\*\*\*

Serial #: 0310301 Targeted Class :

Click Save Selected



Airy HLPC Software

Start Record : 0002

End Record : 0008

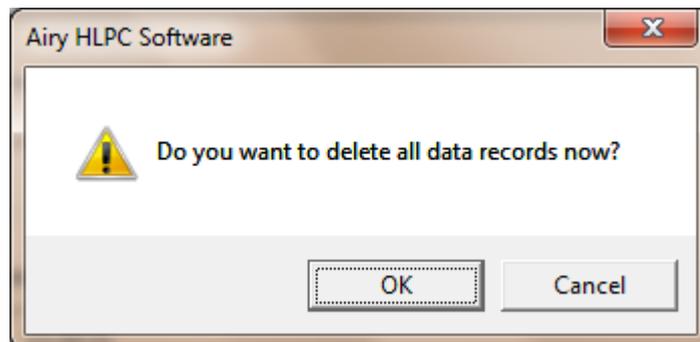
OK  Cancel

You can specify the record number by typing in the window.  
**Note:** the start number cannot exceed the finish number.  
 Click **OK** to continue and the specified data range will be saved.

### Delete Data

【Delete records】

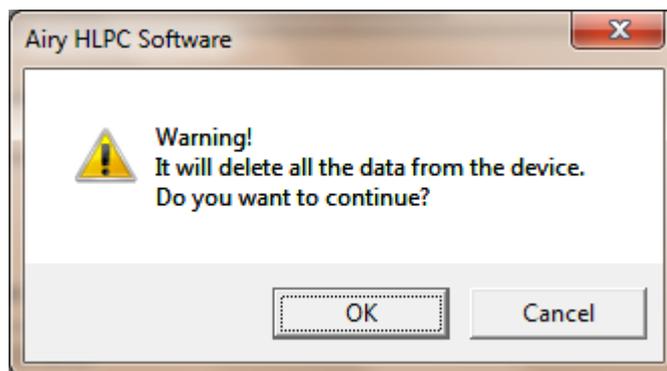
This operation will delete all the records saved in device. Please double-check before deleting data. When you click **Delete Records**, the dialog below will appear.



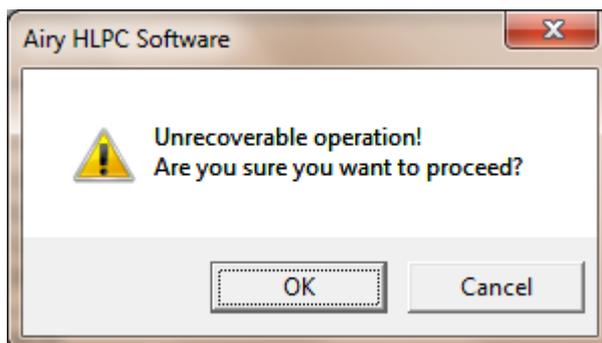
Airy HLPC Software

 Do you want to delete all data records now?

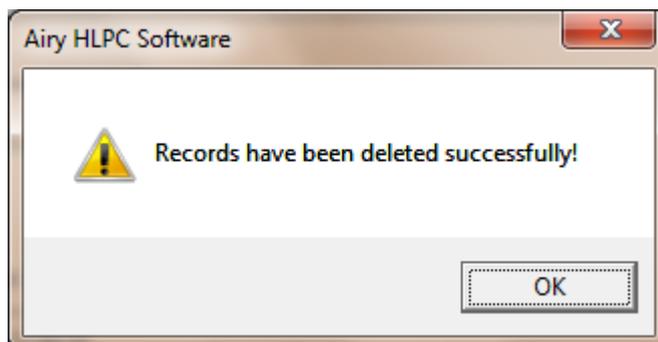
Click **OK** to continue. Click **Cancel** to stop.



Click **OK** to continue. Click **Cancel** to stop.



Click **Cancel** to stop. Click **OK** to delete data.



**WARNING!**

**Deleting data is an irreversible operation. Please download and save data before deleting.**

**Print data**

**【Print data】**

Select the data you need, and then click "File"->"Print Preview" to open the preview screen. Click "Print"

to print the data report, or click on 

Airy HLPC Software

Print... Next Page Prev Page Two Page Zoom In Zoom Out Close

---

Record # 0008/2224

ISO 14644-1 \*\*\*\*\*Handheld Particle Counter P611\*\*\*\*\*

Serial #: 0310301 Targeted Class : 5  
 Room Area : 82 ft^2 Room Status : At rest  
 Air Flow : Unidirectional  
 Min Locations : 10 Min Samples/Room : 1

06/26/2011, 13:16:23

---

Particle Size : 0.3um Cumulative, Unit: p/m^3  
 Vol Req : 2.830 L Concen Limit : 666

Locations	Samples	AvgConcen
1	2	84755340.0
2	2	84755340.0
3	2	84755340.0

---

Max	Min	Mean
84755340.0	84755340.0	84755340.0

StdDev 0.0 95% UCL 84755340.0  
 Min Vol 1.965

---

Particle Size : 0.5um Cumulative, Unit: p/m^3  
 Vol Req : 2.830 L Concen Limit : 666

Locations	Samples	AvgConcen
1	2	33902136.0
2	2	33902136.0
3	2	33902136.0

---

Max	Min	Mean
33902136.0	33902136.0	33902136.0

StdDev 0.0 95% UCL 33902136.0  
 Min Vol 1.965

---

Page 1

## Calibration

Please send the unit annually to Airy Technology or authorized service center for calibration.

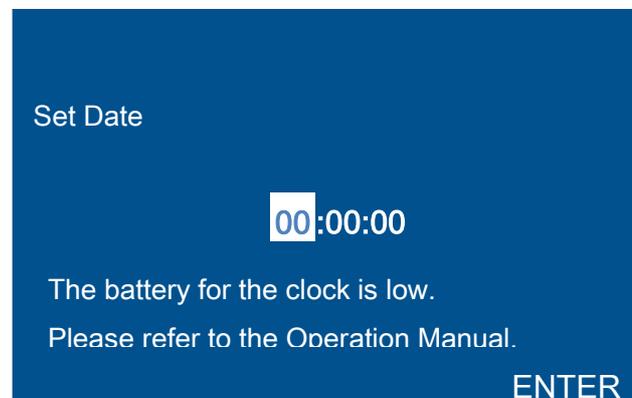
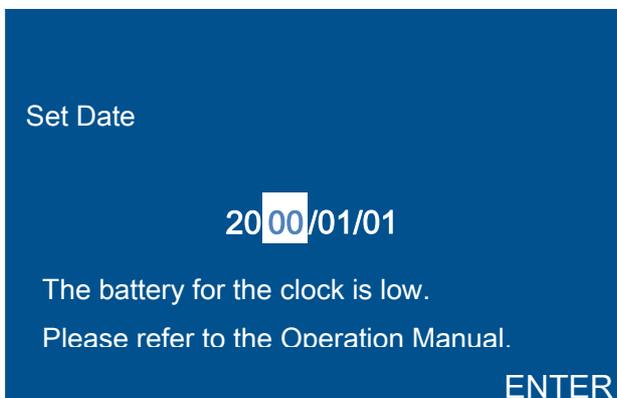
## Instructions on Charging Internal Battery

A rechargeable battery for the clock is located inside the main body. When the instrument is turned ON, the battery is charged automatically.

If the instrument has not been used for a while, the clock battery voltage will become low. In that case, the following screen will show up when the instrument is turned on.

To fully charge the battery, connect the instrument to the AC adaptor and keep the instrument ON for at least 24 hours.

The information above is applicable to the clock battery only and has nothing to do with the 4 x AA batteries that drive the instrument. Sampling is possible without charging the clock battery and the sampling data will be stored in the memory.



# APPENDIX A

## Specifications

Channel Sizes	Standard: 0.3, 0.5, 0.7, 1.0, 2.0, 5.0 $\mu$ m Standard: 0.3, 0.5, 1.0, 3.0, 5.0, 10.0 $\mu$ m Standard: 0.3, 0.5, 0.7, 1.0, 2.5, 5.0 $\mu$ m Standard: 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 $\mu$ m Optional: Other combinations (Please contact Airy Technology)
Counting Efficiency	50% at 0.3 $\mu$ m; 100% for particles > 0.45 $\mu$ m (per JIS)
Concentration Limits	4,000,000 particles / ft3 at 5% coincidence loss
Light Source	Long life laser diode
Zero Count Level	<1 count / 5 minutes (per JIS B9921)
Size Resolution	<15% at 0.5 $\mu$ m(per ISO 21501-4)
Flow Rate	0.1 CFM (2.83 LPM)
Flow Rate Control	Automatic flow control
Calibration	NIST traceable
Sample Probe/Tubing	Isokinetic sampling probe, probe for tubing
Sampling Modes	Manual, Automatic, ISO* <sup>1</sup> , GMP* <sup>2</sup> , Cumulative/Differential, Count/Concentration
Sampling Time	1 second to 99 minutes 59 seconds (Configurable)
Sampling Frequency	1 to 9999 cycles or continuous (Configurable)
Sample Output	Internal HEPA filter
Vacuum Source	Internal pump
Communication Interface	USB
Data Storage	10000 sample records
Security	2-level password protection
Alarm	Counts, Low battery, Flow, Laser
Display	3.5-inch 320 x 240 Color LCD
Power	DC 5V 1A (Mini USB TYPE-B)
Battery	4 x AA
Battery Life	Up to 4.5 hours of continuous use (LCD Backlight low, Included Ni-MH Battery)
Environmental Sensors	Optional temperature/humidity probe
Dimensions (L x W x H)	178x90x47mm (without isokinetic inlet, temperature/humidity probe)
Weight	480g (without battery)
Standards	JISB9921, ISO 21501-4
Warranty	2 year limited warranty
Operating Conditions	5° to 35°C 20% to 95%RH non-condensing
Storage Conditions	-20° to 50°C Up to 98%RH non-condensing
Included Accessories	Operating manual on CD, Quick guide, AC adapter, Isokinetic inlet, Probe for tubing, USB cable, Zero filter, Software, 4 x AA batteries with charger, Calibration certificate, Carrying case
<b>Temperature and Relative Humidity Probe (Optional)</b>	
Temperature Range	32.0 to 122.0°F (0.0 to 50.0°C )
Temperature Accuracy	0.5°C
R/H Range	3.0 to 98.0%RH
R/H Accuracy	3%

\*<sup>1</sup> ISO 5-9 at 0.3-5.0  $\mu$ m excluding ISO 5 at 5.0  $\mu$ m, \*<sup>2</sup> GMP A-C in operation, A-D at rest