

# Component List

## ■ Standard

ITEM	MODEL	QTY
Main Unit	3905	1
Power Cord	-	1
Standard Inlet	3910-06	1
Isokinetic Suction Probe	3905-07	1
Zero Filter	3910-04	2
Tygon Tube (2M)	-	1
Printer Paper for 3910/3905	3910-05	2
Measurement Software	-	1
Operation Manual	-	1
Test sheet/Certificate Calibration Traceability Certificate	-	1
AC adapter(15V 4A)	3910-08	1
USB flash drive – 16GB	-	1
Lithium-ion Battery	3910-12	1

## ■ Optional Extras

ITEM	MODEL	QTY
Carrying Case	3910-01	1
Lithium-ion Battery	3910-12	1
Battery Charger	3910-10	1
6531-2G VHT Probe with 2m Cable	6531-2G-P	1
Pressure Sensor with Connection Cable	3910-11	1
Contact Output Cable	3900-03	1

## ■ Consumables

ITEM	MODEL	QTY
Zero Filter (w/t joint and tube (70cm))	3910-04	1
Printer Paper for 3910/3905	3910-05	5
Standard Inlet	3910-06	1
Isokinetic Suction Probe	3905-07	1

For more information on consumables, please contact your distributor or your KANOMAX service center.

## Laser Classification

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This instrument is classified as a Class 1 Laser Product in accordance with the following standards:

- EN60825-1: 2007
- I EC60825-1: 2007

**CLASS 1 LASER PRODUCT**  
**EN60825-1 : 2007**

\* Class 1 Laser:

Lasers that are considered to be safe under reasonably foreseeable conditions of operation, including the use of optical instruments for intrabeam viewing.

## Laser Safety Instruction

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**Danger** - This instrument employs a laser inside the unit as the light source of the sensor. Never open/close the case of the unit or disassemble the optical sensor inside the unit.

Wave Length	775-800nm
Maximum Output	80mW



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

## Important Safety Information

In this manual, warning types and classifications are defined as follows.

### [Classification]



#### **WARNING: To Prevent Serious Injury or Death**

Indicates a potentially hazardous situation which, if not avoided, may result in serious injury or death.



#### **CAUTION: To Prevent Damage to the Product**

Indicates a potentially hazardous situation which, if not avoided, may result in damage to the product that may void the product warranty.

### [Description of Symbols]



△ Indicates the condition (including danger) that requires caution. The subject of each caution is illustrated inside the triangle (e.g., the symbol shown to the left is high temperature caution).



⊘ Indicates prohibition. Do not take the prohibited action shown inside or near this symbol. (e.g., The symbol shown to the left prohibits disassembly.)



• Indicates a mandatory action. A specific action is described near the symbol.



## **WARNING**



Do not  
modify/disassemble

⌘ Do not disassemble, modify or repair the instrument.

..... A 3B laser diode is used as the optical source inside the instrument. Therefore, never attempt to disassemble the instrument as it is extremely dangerous. Also, disassembling the unit may result in short circuit or malfunction.



Handle Properly

⌘ Use the instrument properly by carefully following this operation manual.

..... Misuse of the instrument may result in electric shock, fire, damage to the instrument, etc.



⌘ If any abnormal noise, unusual odor or smoke is emitted, or any liquid enters into the instrument, turn the power off immediately, remove the battery and disconnect the power cable.

..... It may result in electric shock, fire, or damage to the instrument.  
Contact your distributor or your KANOMAX service center for repair.

## ⚠ WARNING

Prohibited  
Installation

- ✘ Do not use this instrument in an ambient temperature of 35 °C or greater.
- ..... The performance may deteriorate significantly.  
Also, dielectric degradation may occur, which may result in short circuit or fire.



- ✘ Unplug the power cord when the instrument is not in use.
- ..... Failure to observe the above may result in electric shock, fire or damage to internal circuitry.
- ✘ Install the instrument where you can pull the power cord out anytime.
- ✘ When using the power cord, ensure there is no dust on the power plug. The AC outlet used must be within the specified power requirement of 100 ~ 240V.
- ..... Failure to observe the above may result in fire.
- ✘ When using a power cord or an AC adapter, make sure to use the one provided with this instrument.
- ..... Other commercially available cords may have different voltage specifications and polarity, which could result in short circuit, fire or damage to the instrument.
- ✘ When charging the batteries by the instrument, do not insert or pull the batteries out.
- ..... Failure to observe this may result in damage to battery or internal circuitry.

## ⚠ CAUTION



Handle Properly

- ✘ Remove battery when the instrument will not be used for an extended period of time.
- Also, do not leave a discharged battery inside the instrument.
- ..... Failure to observe the above may result in battery leakage and damage to the instrument.



Prohibition

- ✘ Do not perform measurements in environments exceeding or falling below the specified temperature and RH levels of the instrument.
- The instrument should not be exposed to direct sunlight for prolonged periods.
- ..... The instrument may not function properly outside the specified environment.  
(10~35°C, 20~85%RH, with no condensation)



Prohibition

- ✘ Do not wipe the instrument with volatile solvents.
- ..... The body may be deformed or deteriorated. Use a soft dry cloth to remove stains. If stains persist, soak the cloth in a neutral detergent or water and wipe the instrument with the cloth. Never use volatile solvents such as thinner or benzene.



Prohibition

- ✘ Do not subject the instrument to strong shock. Do not place heavy objects on the instrument or sensor.
- ..... Failure to observe the above may cause damage to the instrument.



Prohibition

- ✘ Do not move the main unit or the probe from a cold place to a warm place quickly. It will cause condensation.
- ..... Even when used in an environment within the specified operating temperature and humidity, a sudden temperature change may cause condensation. Condensation generated on the sensor may cause inaccurate measurements. Condensation on metal parts may cause rusting and lead to a malfunction.



⌘ Do not touch the instrument when it is electrically charged.

..... Failure to observe the above may affect the measurement value and cause damage to the instrument circuitry.

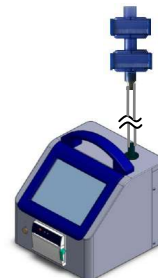


Handle Properly

⌘ Do not let the instrument suck in highly concentrated particles that exceed the specification level.

..... Failure to observe the above may contaminate the instrument. As a result the instrument may fail to obtain zero count. In order to check the performance under highly concentrated environments, make sure to attach the filter to the inlet.

If you accidentally let the instrument suck in highly concentrated particles, attach the filter to the inlet and brush inside the instrument while the pump is running.



Prohibition

⌘ Do not dispose of the instrument as household waste.

..... Please note that the disposal of the instrument and the batteries should be in line with your local or national legislation. For details, please contact your local distributor.

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# 1. Part Names and Functions

## 1.1 General Outline

This Airborne Particle Counter is a light scattering laser particle counter using semiconductor laser radiation as a light source. This counter is used to detect ultrafine airborne particles in a cleanroom or other environment equivalent to a cleanroom. Mainly this counter is used as a monitoring measurement equipment to monitor the cleanliness in a cleanroom.

By using option sensors, air velocity, temperature, humidity and differential pressure can be measured simultaneously.

Each measurement value is displayed on the LCD screen and can be stored in the internal memory of the instrument and be printed out by the internal printer. As for the power supply, either an AC adapter (100-240V) or batteries can be used.

## 1.2 Airborne Particle Counter

### FRONT

#### Inlet

--- Particles enter the unit from here. Attach the provided standard inlet. To use the provided isokinetic suction probe, attach the Tygon tube to the end of the inlet.

#### LCD Touch Panel

--- This touch panel allows you to setup and control all instrument functions.

#### Paper Cover Open Switch

--- Slide this switch to open the cover when changing the printer roll-paper. To change printer paper refer to **2.4.1 Printer Paper Replacement**.

#### Printer

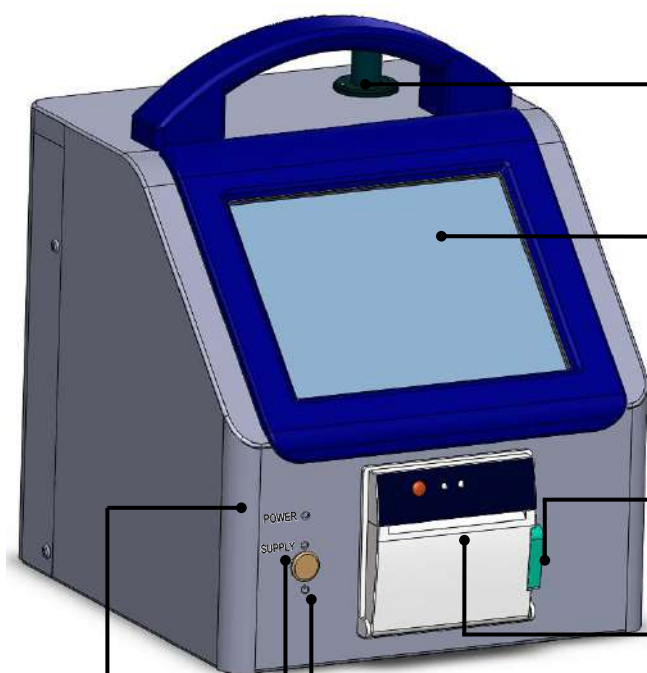
--- For printing measurement data. Set the printer roll-paper here.

#### Power Switch

--- When the main power switch located on the rear of the unit is ON, you can turn the power on or off by using this button.

POWER LED:  
--- Indicates  
ON/OFF of the  
unit.

SUPPLY LED





**BACK****Optional Sensor Connecting Terminal**

--- Terminals where optional sensors can be connected. Refer to **5. Connecting Option Sensors** for details.

**Sampling Air Exhaust Port**

--- Filtered sample air is exhausted at this port.  
Do not block the port as it may result in damage to the instrument.

Upper: SERVICE PORT1 Connector  
(Service only.)

Middle: SERVICE PORT2 Connector  
(Service only.)

Lower: USB Connector

--- Insert a USB flash drive to store measurement data.

To be used to transfer measurement data and other files to be processed on PCs.

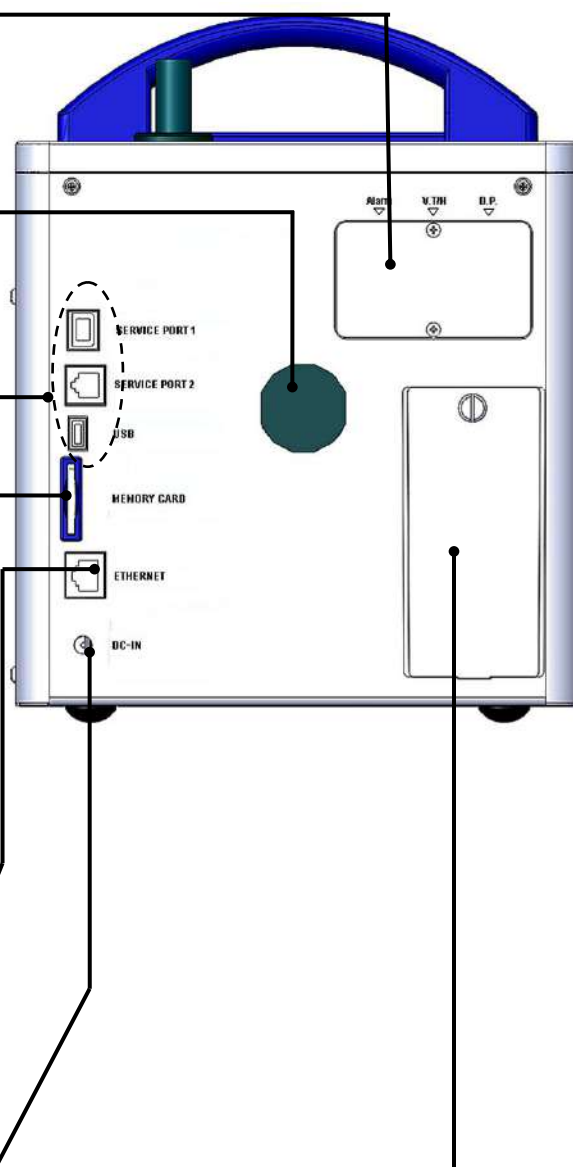
MEMORY CARD Insertion Slot  
(Service only.)

**ETHERNET Connector**

---To be used when controlling the instrument by the software. For details, refer to the operation manual for the software.

**DC-IN**

---This is an inlet to supply AC power to the instrument. Connect the provided AC adapter here.

**Battery Compartment**

--- Insert rechargeable battery here.  
Refer to **2.1 Power Supply** for how to install the battery.

## 2. Getting Started

### 2.1 Power Supply

Supply power to the main unit.

There are two ways to supply power; using the AC adapter or a battery.

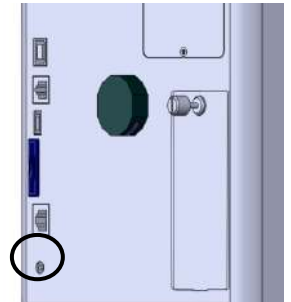
#### -- AC Adapter --

Plug the AC adapter into the connecting port.

AC100V~240V power supply shall be used.

Output voltage ..... DC 15V

Polarity of output voltage ...  $\ominus \text{---} \oplus$

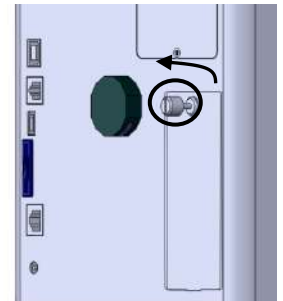


#### -- Battery --

Charge the battery by installing it in the instrument and then connecting the provided AC adapter.

Refer to **7. Battery** for charging the battery.

You can also charge the battery with the optional charger.



Open the battery compartment cover on the rear of the instrument.

Loosen the screw on the cover to open it.

Connect the battery to the connector inside the compartment.

Insert the battery as shown to the right picture (the connector end should go to the rear of the compartment).

Put the cover back and tighten the screw to fix the cover.



When you plug in the AC adapter, the SUPPLY LED will light up red. When the batteries are being charged, the red LED will blink.

After pressing the POWER switch on the front of the instrument, you will hear a beep and the POWER LED will light up. If the power is supplied by the AC line, the SUPPLY LED will be red and if supplied by battery, the LED will be yellow.

Several seconds later, the main screen appears automatically. Refer to **3. Display Description and Operation Procedure** for the details about the operation screen.



## **2.2 Zero Check**

If the internal optical system is dirty, you may not be able to perform an accurate measurement.

To confirm the cleanliness of the internal optical system, perform a Zero Check before measuring.

Remove the rubber cap that is mounted on the inlet on the upper side of the main unit.

Next, attach the zero filter to the inlet using the supplied Tygon tube.

The length of the tube is not critical. However, make sure that the tube is not bent. (Approx. 60cm)

Follow the above procedure in order to prevent particles from entering the instrument.

Perform a measurement for one minute and then conduct a Zero Check.

(Refer to **3.4 Monitor** for the operation procedure.)

Perform a Zero Check at least once a day.

It is recommended a Zero Check be done before and after each measurement.

If the count value is not zero, keep the zero filter attached to the inlet and tap [MONITOR] until the count reads zero.

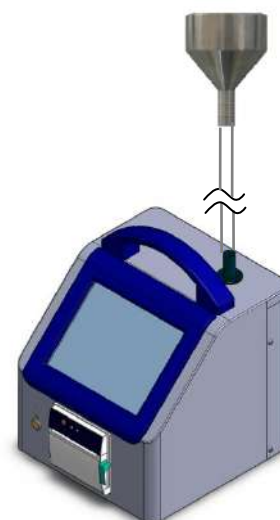
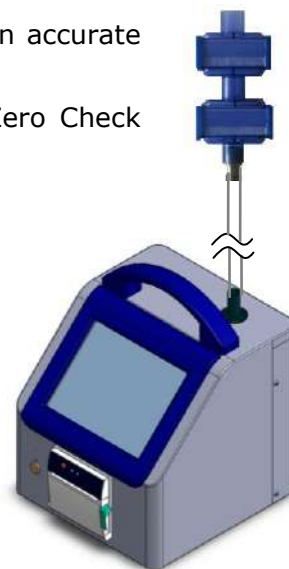
## **2.3 Isokinetic Suction Probe**

Use the Isokinetic Suction Probe to ensure the sampling air velocity is equivalent to the operating environment air velocity. This allows you to perform a measurement without significantly disturbing the normal air flow.

Attach the Isokinetic Suction Probe to the standard inlet by using the provided Tygon tube.

When using the Tygon tube, cut the tube to the most suitable length for your measurement requirements.

(We recommend the Tygon tube not be extended more than 1.5 meters)



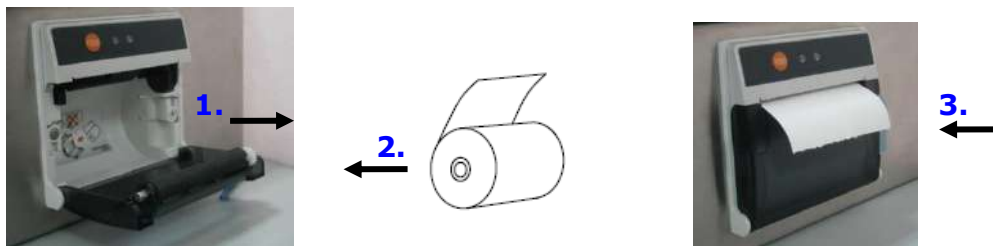
## **2.4 Consumables**

### **2.4.1 Printer Paper Replacement**

When the provided printer paper runs out, please purchase new printer paper (dust free paper), Model 3910-05.

Installing printer paper

1. Press the Paper Cover Open Button to open the paper cover.
2. Place the paper as shown in the picture below.
3. Pull the top of the paper so that a slight portion is sticking out of the printer when the cover is closed.



### **2.4.2 Zero Filter Replacement**

If the performance of the provided zero filter is deteriorated, please purchase a new Zero Filter. To replace a Zero Filter, refer to

## **2.2 Zero** Check.

### **2.4.3 Isokinetic Suction Probe Replacement**


If the provided Isokinetic Suction Probe is damaged or lost or any air leak is detected, please purchase a new Isokinetic Suction Probe, Model 3910-07.

To replace an Isokinetic Suction Probe, please refer to **2.3 Isokinetic Suction Probe**.

## **2.5 User Authentication**

This instrument allows you to configure an authentication using a user ID and a password for security purposes.

When the User Authentication function is activated, the user authentication is required for logging in at start-up and for changing settings. This function also allows for limiting possible activities for each user.

There are some operating procedures that are only effective or necessary when the User Authentication function is enabled, which are marked  in this manual.

Setting a user authentication can be done from the Security Setting display.

Please refer to **3.8.3 Other – Security Setting**.

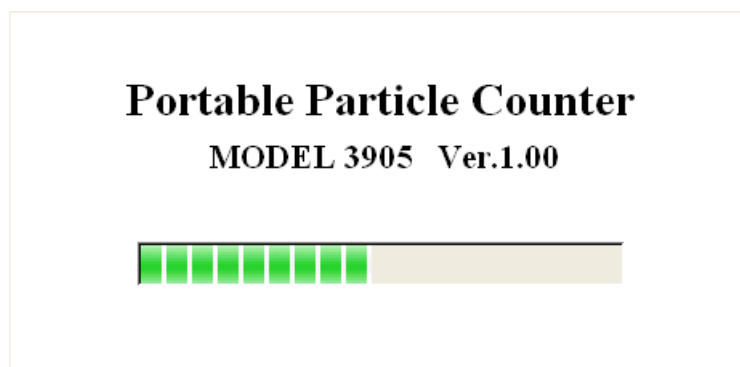
## 3. Display Description and Operation Procedure

### 3.1 Boot Screen



A few seconds after the instrument is turned ON, the screen shown to the left will be displayed.

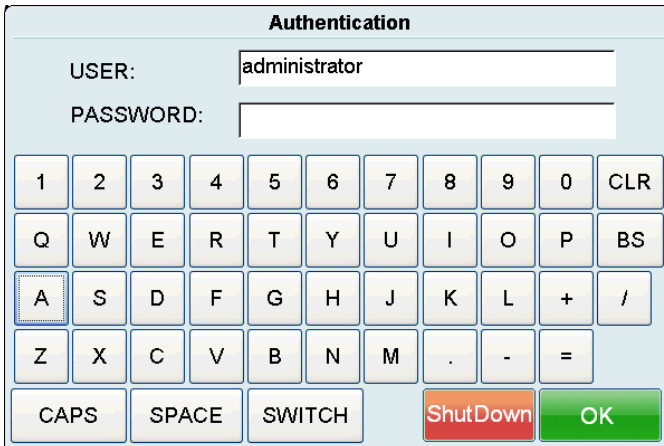
Please wait for a few moments, while the system is initialized.



## 3.2 Log-In

[A log-in is a necessary when the User Authentication function is activated]

### 3.2.1 Log-In Screen



The Authentication screen displays a keyboard interface. At the top, the title 'Authentication' is centered. Below it, there are two input fields: 'USER:' with the text 'administrator' and 'PASSWORD:' which is empty. Below the input fields is a numeric keypad with buttons for digits 1-0, a CLR button, and a row of letters Q-P, BS. Below that is a row of letters A-L, +, / and a row of letters Z-M, ., -, =. At the bottom, there are four buttons: CAPS, SPACE, SWITCH, and a red ShutDown button, followed by a green OK button.

After the system is initialized, the Log-in screen shown to the left will be displayed.

Type your user ID and password in the field and tap [OK] button.

Press [Shut Down] button to turn off the instrument.

[CAPS] button: To type upper case letters

[SWITCH] button: Jump to next field

[CLR] button: Clear input

[BS] button: Back space, delete the preceding character

### ATTENTION!

If a user fails to enter a correct password 10 times, that user ID will become temporarily invalid; the user ID cannot be used to login for 24 hours.

\*A built-in user [administrator] is set in this instrument.

On the first log-in, [administrator] shall be displayed as a user ID. The initial password of the [administrator] is "1234". For security reasons, please change the password as soon as possible.

If multiple users are registered, the field of user ID on the log-in screen will be blank; type your user ID from the keyboard screen.

### 3.2.2 User

When the User Authentication function is activated, measurement data and operation details are recorded in this instrument together with the logged-in user's ID. It is also possible to limit the range of functions to be performed by each user.

Settings of User information are conducted on the User Setting display (Refer to **3.8.3 Other - User Management**).

User information consists of User name, User ID, Password, and Qualification.

**User name:** a user name with up to 40 characters

**User ID:** a user ID with up to 16 characters.

**Password:** The instrument recognizes users with the combination of user ID and Password. Passwords need to be 4 to 16 alphanumeric characters. Passwords expire every 180 days, after which the user ID will be invalid until a new password is set.

**Qualification:** When the User Authentication function is activated, restrictions on certain functions/operations can be set for each user by the administrator.

Authorization to use specific functions will be assigned to each user by the administrator.

For example, if a user has no authorization for the [Copy File] operation, he/she can view the contents of data files on the [FILE] screen, but cannot copy data files to USB flash drive.

If the current logged in user does not have the authorization to carry out a certain operation, the button for that operation is deactivated. Even if a user has the authorization, the user will need to enter his/her user name and password every time before initiating an action that requires the authorization.

The administrator can reset passwords for any users in case of a lost or forgotten password (Refer to **3.8.3. Other - User Management**).

If the administrator forgets his/her password when the User Authentication function is activated, nobody can operate the instrument. Therefore, registering multiple administrator users on the instrument is strongly recommended.

### 3.2.3 Authentication Screen

Certain operations and settings require user authentication.

In the Authentication screen, the current logged in user ID is displayed. Enter the password to authenticate.

#### ATTENTION!

If a user fails to entry his/her password 10 times, the user ID will become temporarily invalid; the user ID cannot be used for 24 hours.

### 3.2.4 Operation Log

When the User Authentication function is activated, the instrument saves a history of operations, error messages, and alarms in the log file.

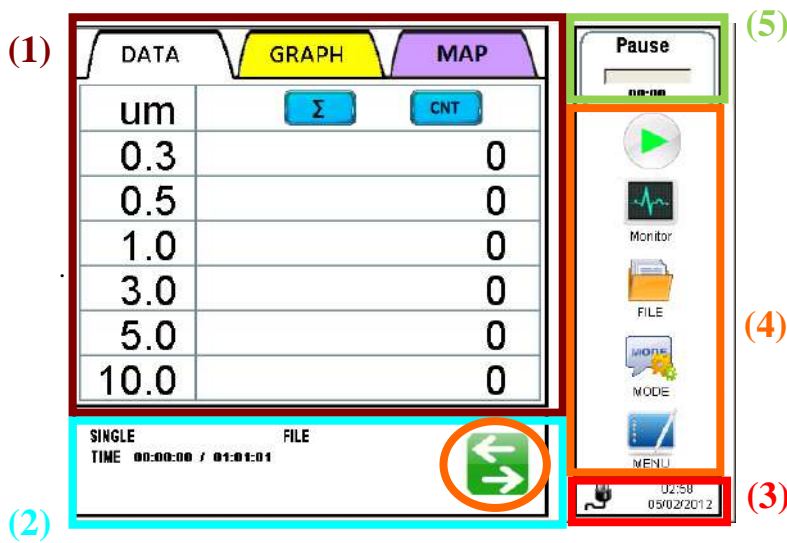
The operation log stores the time, User ID, operation detail, result, and parameter of the occurrence. (Please refer **3.8.3 Other** for details on the operation log.)

A user can review logs on the [Log Maintenance] screen. (To review logs, the user needs to have the authorization to review logs).



### 3.3 Main Screen

#### 3.3.1 Main Screen

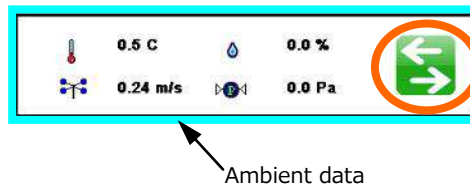


After the instrument is booted up and a user has logged in, the main screen shown to the left will be displayed.

All operations can be started from this screen.

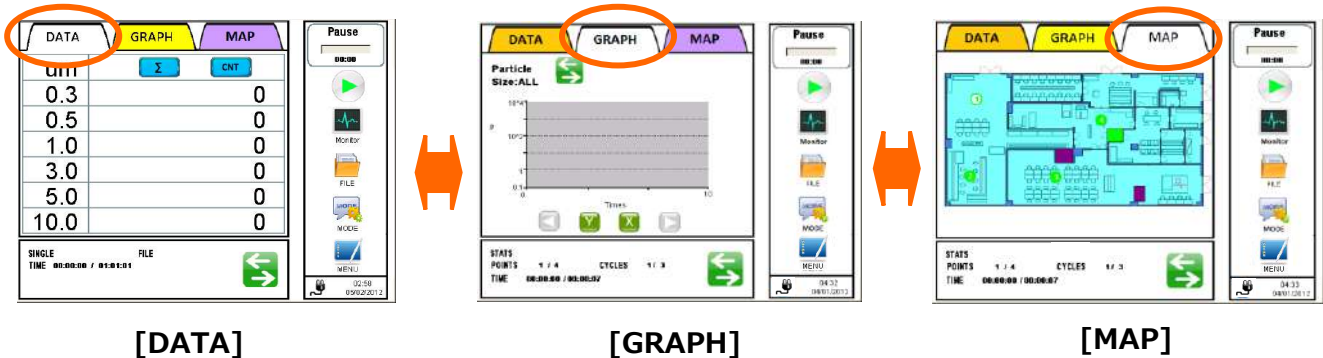
The measurement parameters are displayed on the Measurement Condition / Ambient Data display area (2).

When an option sensor is attached, you can tap the [SWITCH] button to show the ambient data.



Ambient data

Tap the title to switch between data, graph and map.

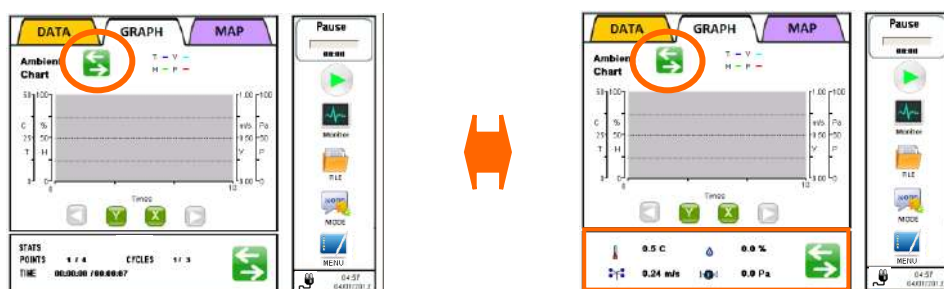









[DATA]

[GRAPH]

[MAP]

When a chart is displayed, you can change the particle chart to the ambient chart by tapping the [SWITCH] button.



- (1) Data Display: Displays numeric value, chart and map.
- (2) Measurement Condition/  
Ambient Data: Displays measurement mode, measurement setting and measurement status/  
Displays the current status when option sensors are connected.
- (3) Status Display: Displays the status of power source, pump, LD error, over count.
- (4) START:  Starts measuring in the configured mode. This button becomes [STOP] button after sampling starts. Tap [STOP] button to stop sampling.
- MONITOR:  Performs a measurement and displays a measurement value. This mode does not save measurement results. The measurement display value is updated every second.
- MODE:  Selects measurement mode. Select either "SINGLE", "CONTINUOUS", "INTERVAL", "STATS", "STANDARD" or "REMOTE" mode. Configures advanced settings in items such as INTERVAL, SAMPLE T. and CYCLES can be set in each mode. In "PRESET" loads stored measurement setting file. 
- FILE:  Loads, prints and deletes stored measurement data.
- MENU:  Configures chart settings, alarm settings and system settings. 
- Displays operating status. The remaining time is counted during a wait time; the measurement time and interval time are counted during a measurement.
- (5) Operating Status Display:
- |            |   |
|------------|---|
| Pause:     | Not in operation                        |
| Waiting:   | Waiting for the next measurement        |
| Measuring: | In the process of measurement           |
| Preparing: | Preparing to start a measurement        |
| Suspended: | In a temporary state of suspension      |
|            | Tap [START] to restart the measurement. |



When the User Authentication function is activated, a user needs to have the authorization for [Change Measurement Mode] to select a measurement mode and to conduct measurement setting. In addition, User Authentication is required.

To change settings from the [MENU], the user needs to have the authorization for [Access Control Panel]. In addition, User Authentication is required.

### <Icons in the Status Display>



Indicates if the instrument is powered by the AC power cord or a battery. If it's battery-powered, the remaining battery level is also shown.



Indicates a pump error status. If the pump is operating abnormally, this icon will be shown.



Indicates an LD error status. If the LD is operating abnormally, this icon will be shown.



Indicates if the measurement count per second exceeds the maximum measurable concentration.



Indicates if an instrument Alarm error is occurring. Tap this icon to cancel the Alarm sound.



Switches between Total display and Single display.



is displayed when Total display is selected.



is displayed when Single display is selected.

The range of indicated data is as follows:

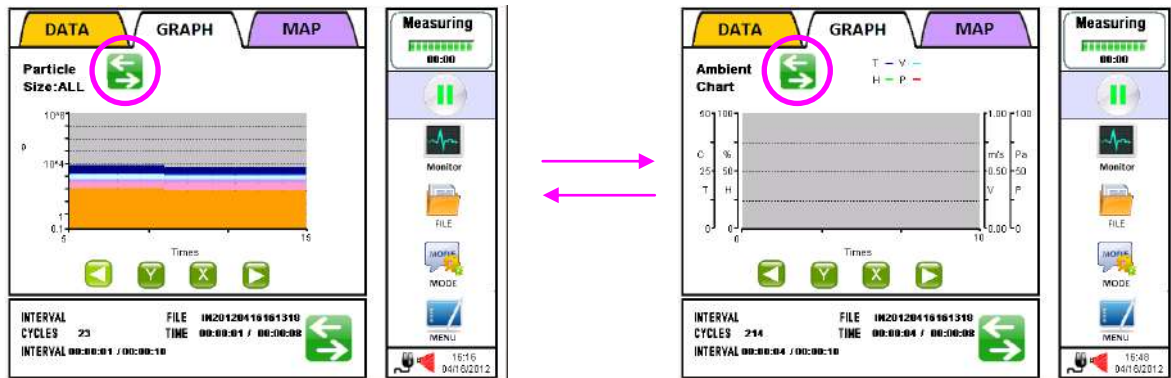
Channel	Total Display	Single Display
0.3um	$X \geq 0.3\text{um}$	$0.3\text{um} \leq X < 0.5\text{um}$
0.5um	$X \geq 0.5\text{um}$	$0.5\text{um} \leq X < 1.0\text{um}$
1.0um	$X \geq 1.0\text{um}$	$1.0\text{um} \leq X < 3.0\text{um}$
3.0um	$X \geq 3.0\text{um}$	$3.0\text{um} \leq X < 5.0\text{um}$
5.0um	$X \geq 5.0\text{um}$	$5.0\text{um} \leq X < 10.0\text{um}$
10.0um	$X \geq 10.0\text{um}$	$X \geq 10.0\text{um}$

\* X: detected particle count

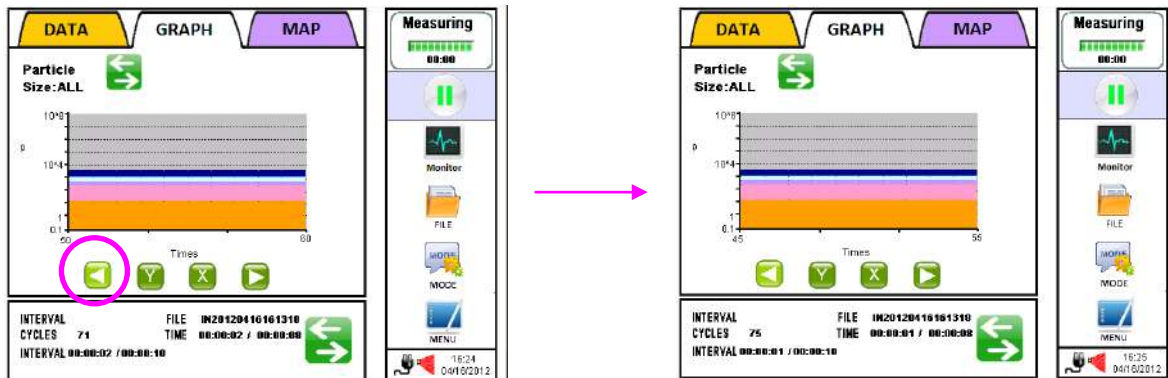
The numeric value will be indicated in black when Total display is set and in gray when Single display is set.

**<Chart Operations>**

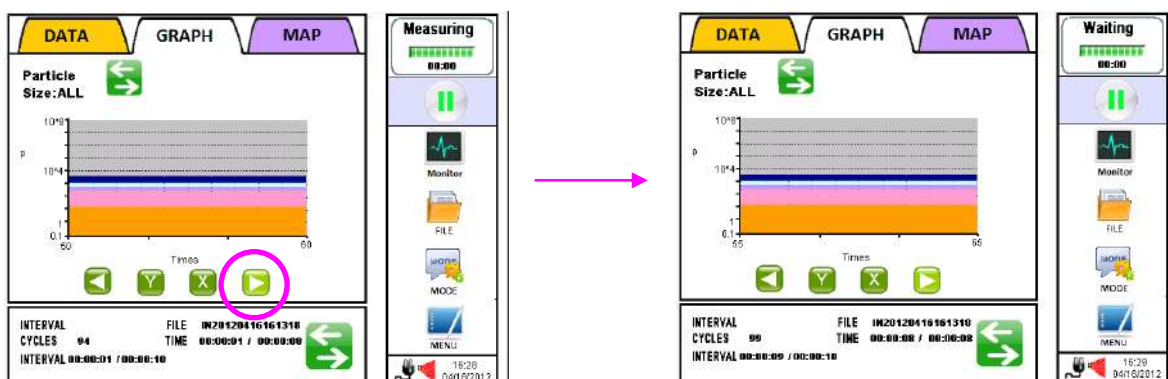
: Switches the display between the particle chart and the OP sensor chart on the GRAPH screen.



: Scrolls the chart to the left (half of the display can be scrolled at a time).



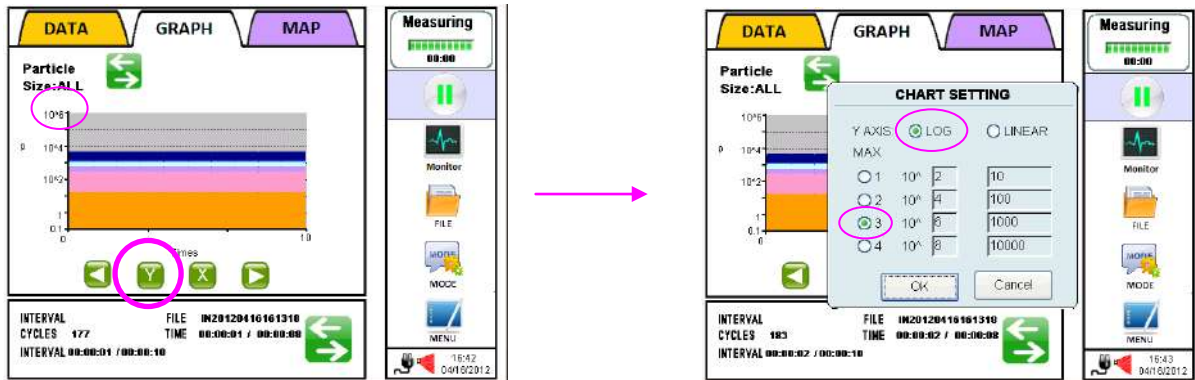
: Scrolls the chart to the right (half of the display can be scrolled at a time).





: Sets the range of the Y axis.

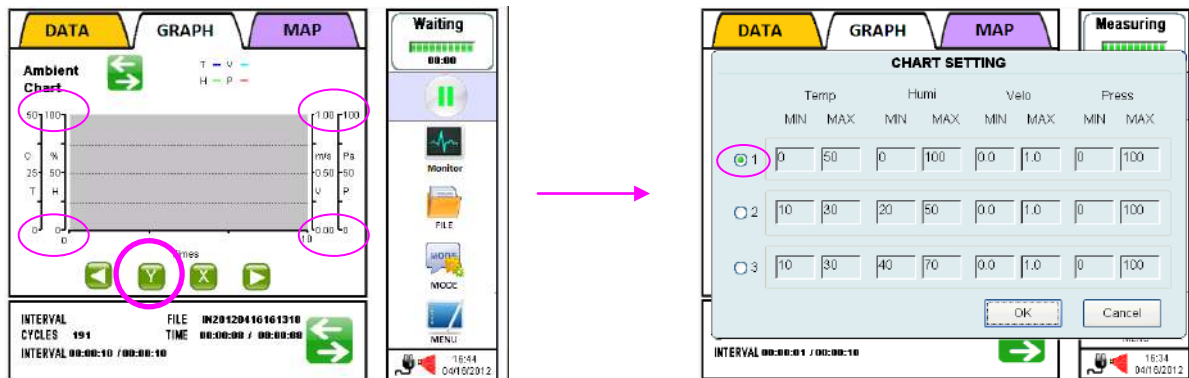
### Particle Graph (Example) :




Select either LOG or LINEAR for the Y axis. Select the maximum scale value from four options. For setting the four maximum values for each option, please refer to 3.8.1 MEASURING – CHART SETTING.

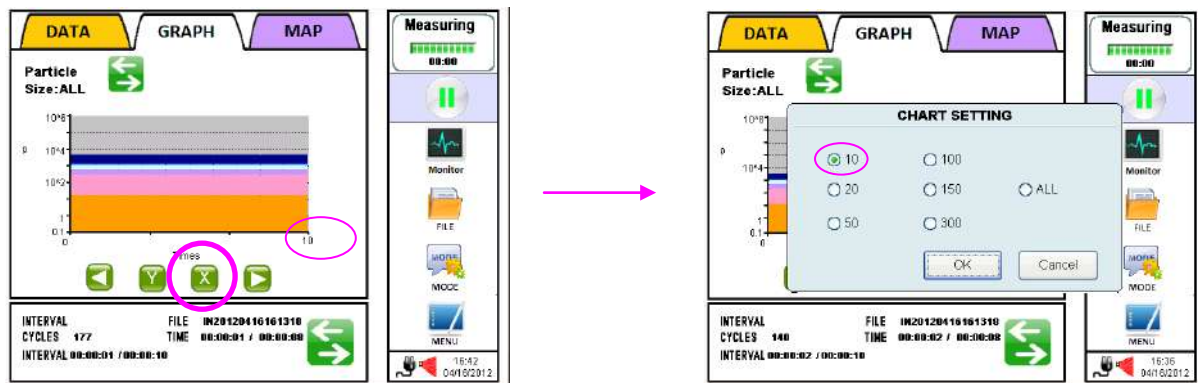
In the display shown above, LOG is selected for the scale of the Y axis and the maximum scale value of the Y axis is set to 10 to the sixth.

### Option Sensor Graph (Example) :



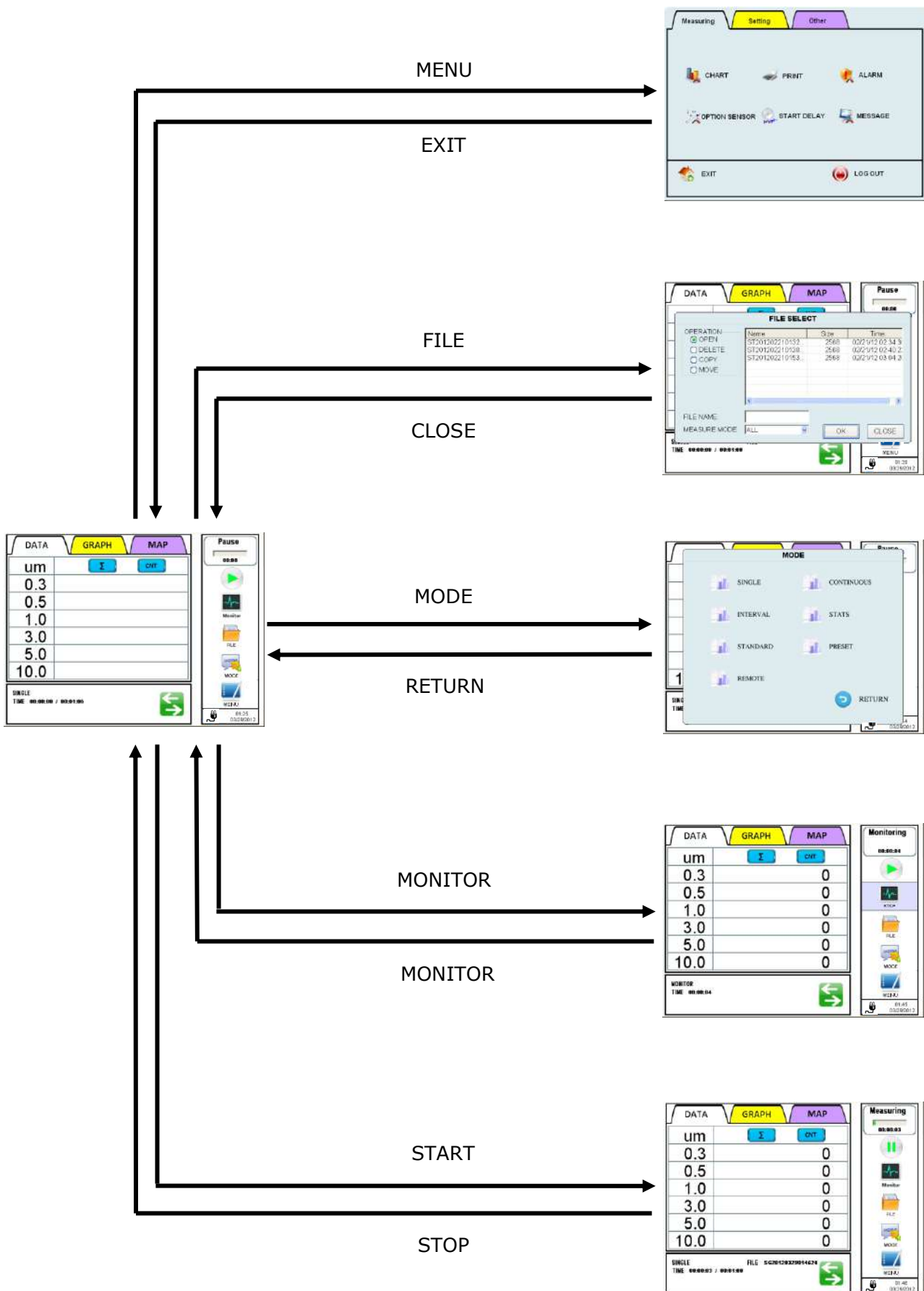
Select one of the three combinations of minimum and maximum scale values of the Y axis for each sensor. For setting the combination of minimum and maximum values for each option, please refer to 3.8.1 MEASURING – CHART SETTING.

 : Sets the range of the X axis.



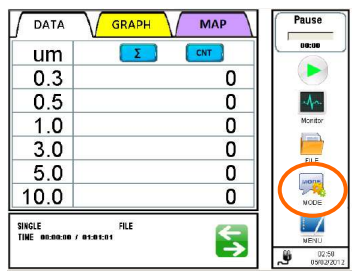
- |     |  |
|-----|--|
| 10  | Sets the maximum scale value of the X axis to 10.  |
| 20  | Sets the maximum scale value of the X axis to 20.  |
| 50  | Sets the maximum scale value of the X axis to 50.  |
| 100 | Sets the maximum scale value of the X axis to 100. |
| 150 | Sets the maximum scale value of the X axis to 150. |
| 300 | Sets the maximum scale value of the X axis to 300. |
| ALL | Displays all data.                                 |

### 3.3.2 Screen Change – Main Screen

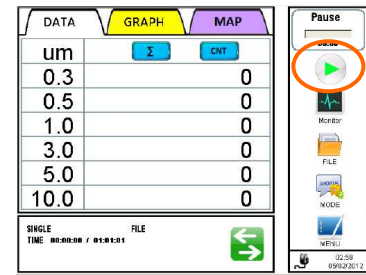




## &lt;Measurement Procedures&gt;



Main Screen



Main Screen

1. Tap [MODE] on the Main Screen.

3. Tap [START] on the Main Screen.



MODE Screen

2. Configure the measurement conditions on the MODE screen.

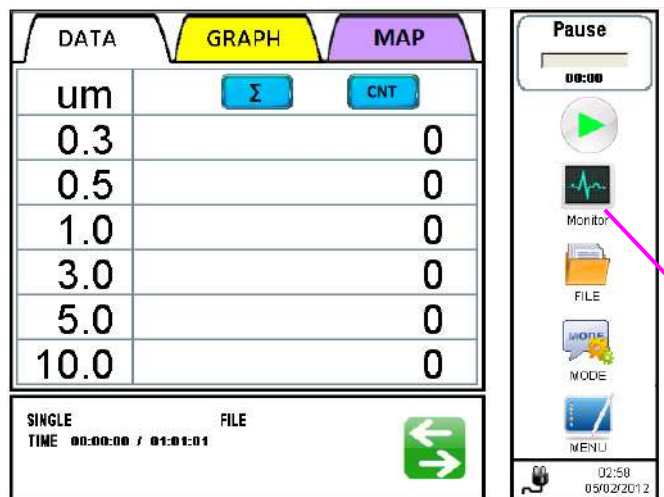
Select a desired measurement mode from the MODE screen and tap [RETURN].



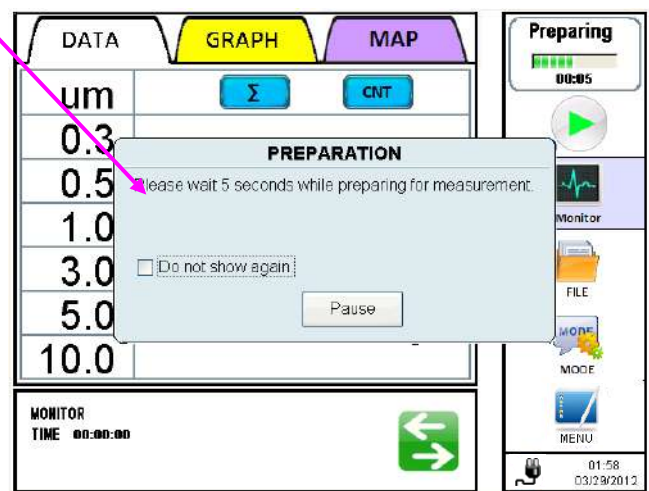
To select the measurement mode or conduct measurement settings when the User Authentication function is activated, a user needs to have the authorization for Change Measurement Mode. In addition, User Authentication is required.



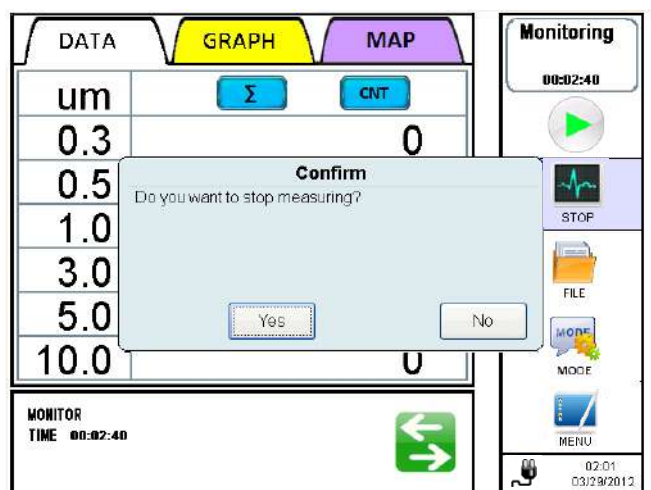
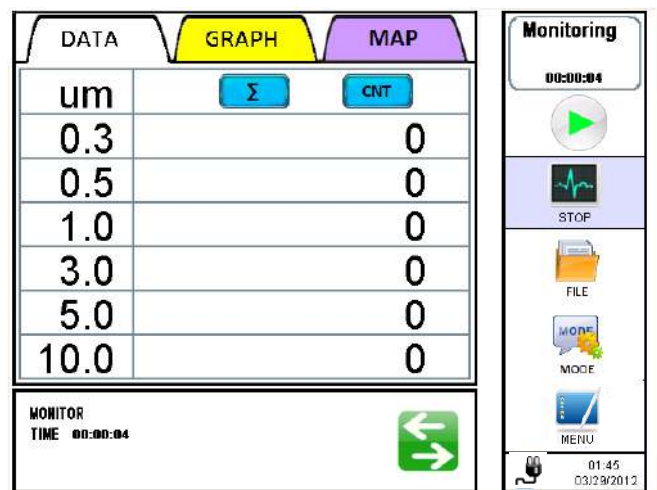
### 3.4 MONITOR



Tap [MONITOR] on the main screen to start monitoring. Sampling for a measurement will start in 10 seconds after the pump starts operating.



\* Note that the instrument is capable of 180 hours of continuous operation.



While measuring, tap [MONITOR (STOP)] again. A dialog will be displayed asking you if you want to stop monitoring. Tap [Yes] to stop monitoring.

Note that you cannot save measurement data or display the chart when you are monitoring in this mode.

### 3.5 MODE

Tap [MODE] to display the mode selection window.



\*Note that the instrument is capable of 180 hours of continuous operation in every measurement mode.



**\*A User needs to have the authorization (Change Measurement Mode) to change measurement mode.**

In the Mode setting screen you can configure measurement settings in each mode.

Select a mode from below and tap it; "SINGLE", "CONTINUOUS", "INTERVAL", "STATS", "STANDARD", "PRESET", "REMOTE".

You can set items such as INTERVAL, SAMPLE T., CYCLES, MANUAL STOP, AUTO SAVE, AUTO PRINT and START DELAY. Please note that the setting items vary depending on the measurement mode.

#### 3.5.1 SINGLE

##### [Measurement Flow]

Perform a measurement once within the pre-set time frame.

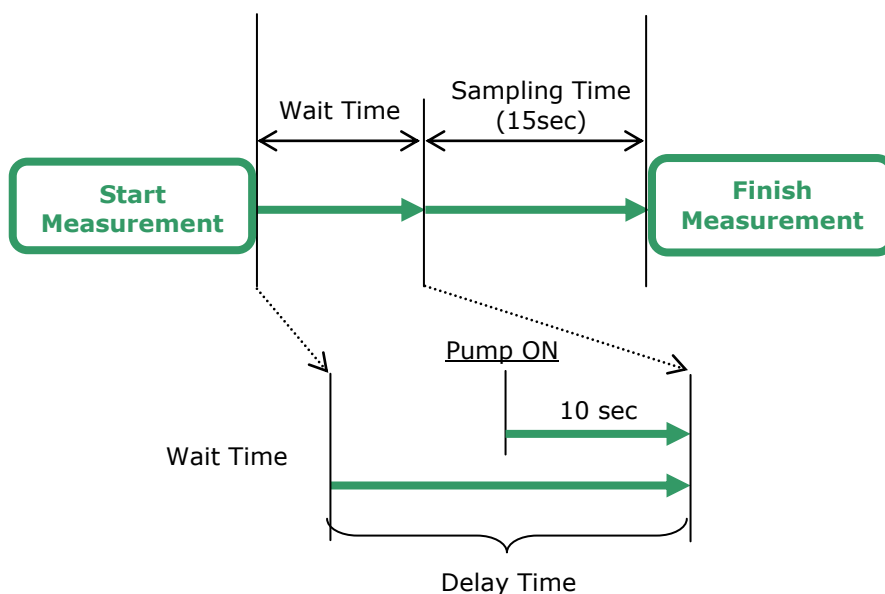
Example: If the setting is as follows:

INTERVAL: N/A

SAMPLE T.: 00:00:15

CYCLES: N/A

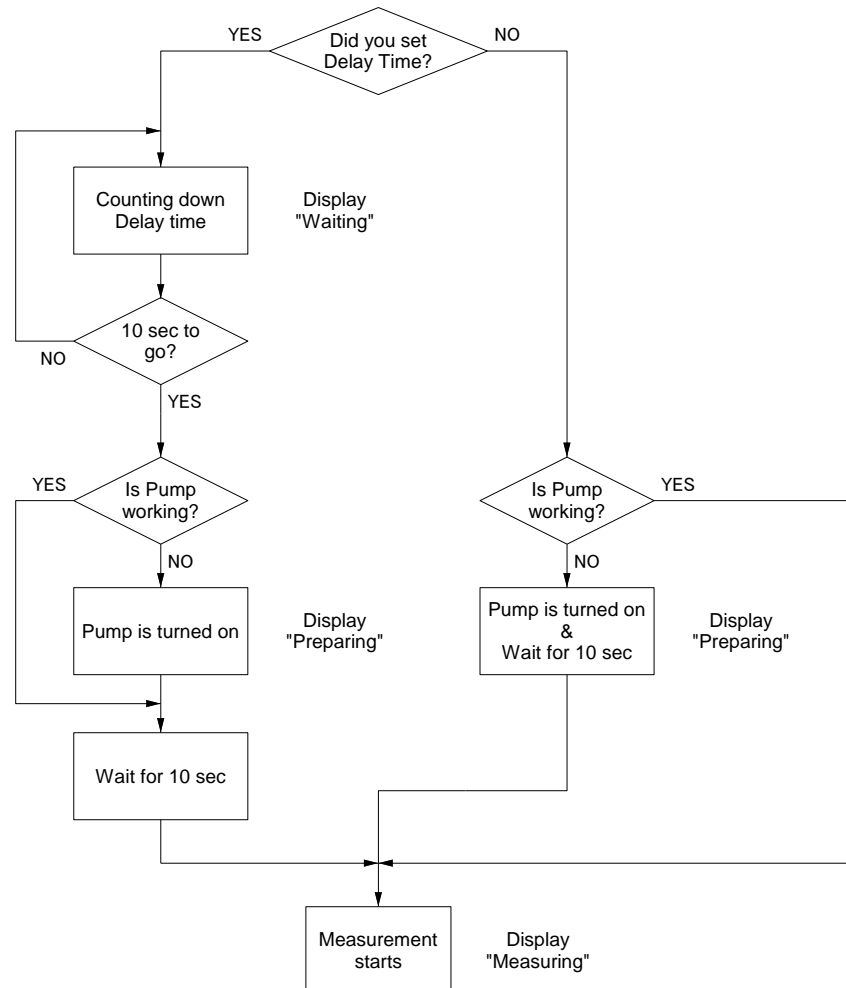
A 15 second sampling is performed.



\* Delay Time: Set Delay Time in START DELAY screen (Refer to **3.8.1 Measuring**).

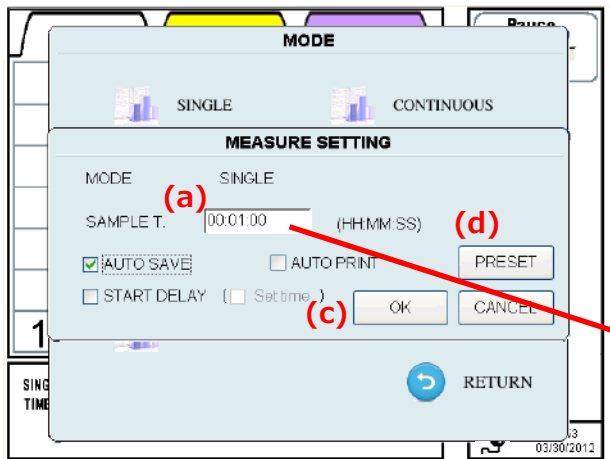
## [Delay Time]

You can set Delay Time in the START DELAY screen. Please refer to **3.8.1 Measuring** for details. Below is a breakdown of the Wait Time.



## [Measurement Settings]

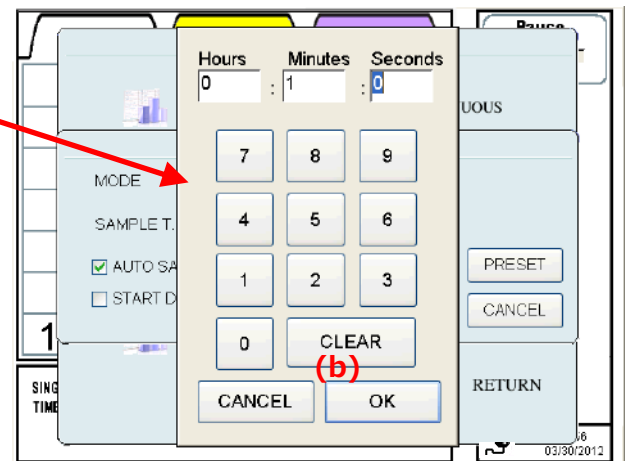
Tap [SINGLE] to open the [MEASURE SETTING] dialogue box.



### [SAMPLE T.] (Sampling Time)

Tap the entry field (a) to display a numeric keypad.

Enter "hours", "minutes" and "seconds" on the numeric keypad and tap [OK] (b).



Check "AUTO SAVE" to store the data automatically.

Check "AUTO PRINT" to print the data automatically.

Check "START DELAY" to use a delay time prior to a measurement.

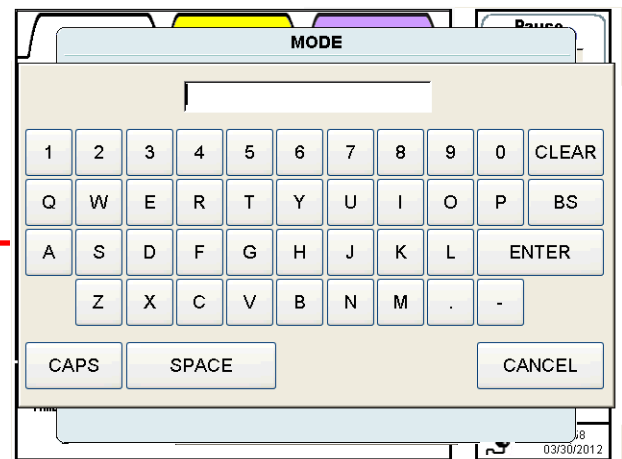
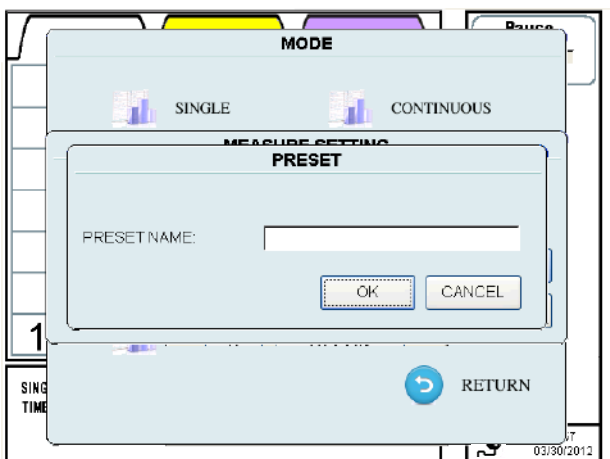
Check "Set time" to set the time when you want to start a measurement.

Tap [OK] (c) to save and activate the settings



(User Authentication required).

## [PRESET]



Tap [PRESET] (d) on [MEASURE SETTING] dialog box to display a window asking you to input PRESET NAME.

Tap the entry field (e) to display the keyboard. Enter the file name and tap [Enter] (f).

Tap [OK] to save the current settings  (User Authentication required).

\* In the future you can automatically load the configuration saved here as a PRESET. Refer to **3.5.6 PRESET.**

### 3.5.2 CONTINUOUS

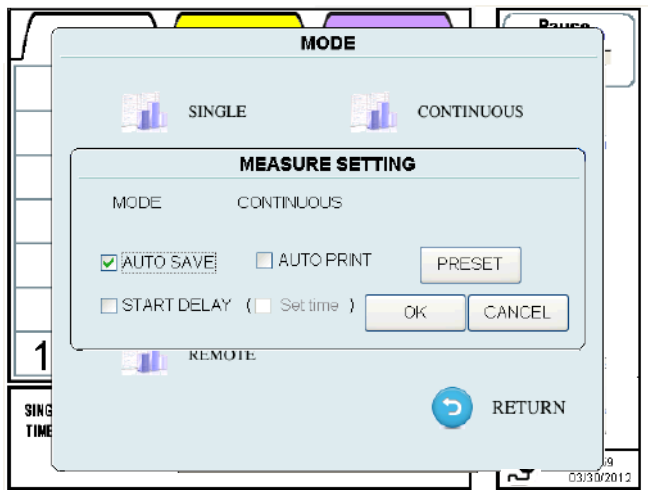
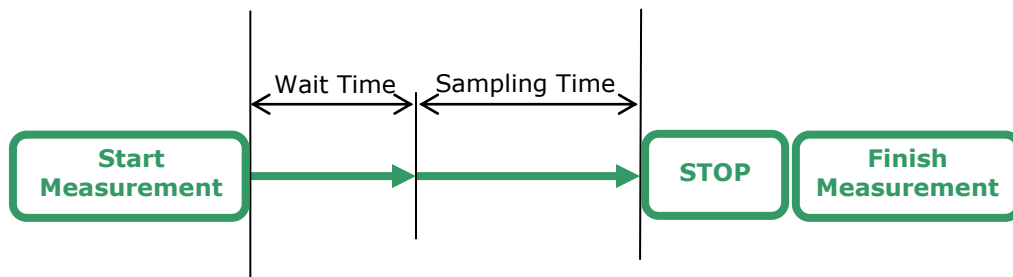
#### [Measurement Flow]

Start/Stop measuring manually.

Example: If the setting is as follows:

INTERVAL : N/A  
SAMPLE T. : N/A  
CYCLES : N/A

A continuous measurement is performed until you manually stop it.




#### [Measurement Settings]

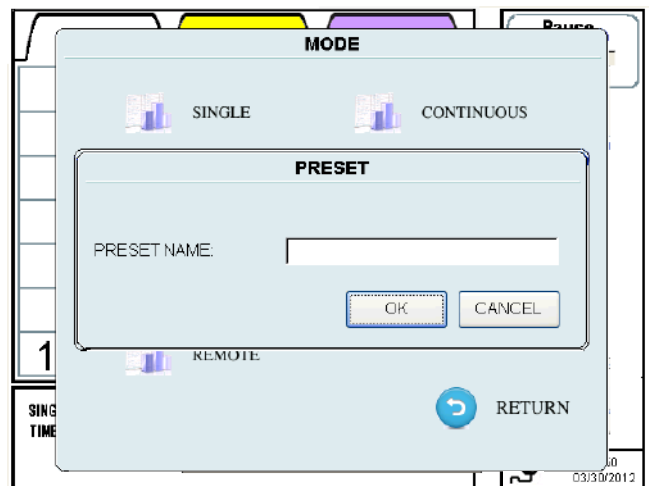
Check "AUTO SAVE" to store the data automatically.

Check "AUTO PRINT" to print the data automatically.

Check "START DELAY" to use a delay time prior to a measurement.

Check "Set time" to set the time when you want to start a measurement.


Tap [OK] to save and activate the current settings  (User Authentication required).



#### [PRESET]

Tap [PRESET] to display a window asking you to input "PRESET NAME".

Tap the entry field to display the keyboard. Enter the file name and tap [Enter].

Tap [OK] to save the current settings  (User Authentication required).

\* In the future you can load the configuration saved here as a PRESET. Refer to **3.5.6 PRESET**.

<Input PRESET NAME>

### 3.5.3 INTERVAL

#### [Measurement Flow]

Configure INTERVAL, SAMPLE T and CYCLES, and repeat measuring.

Example: If the setting is as follows:

INTERVAL: 00:01:00

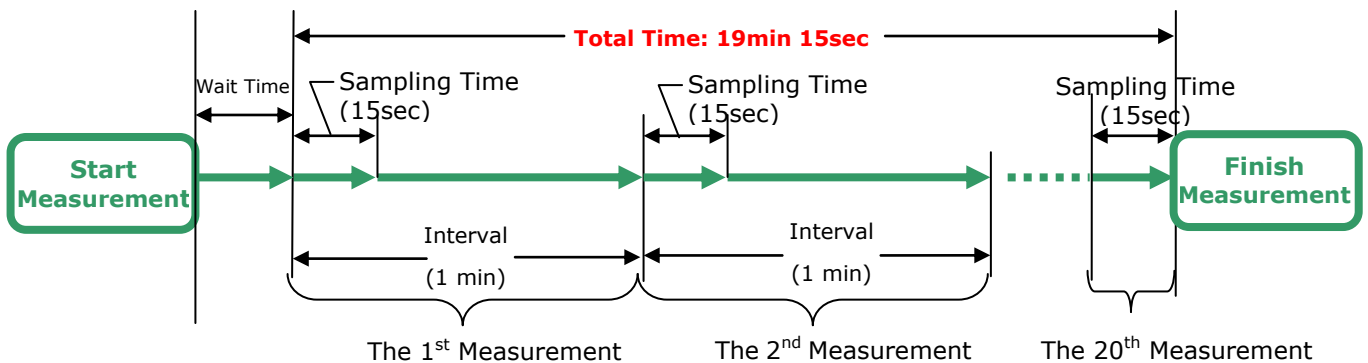
SAMPLE T.: 00:00:15

CYCLES: 20

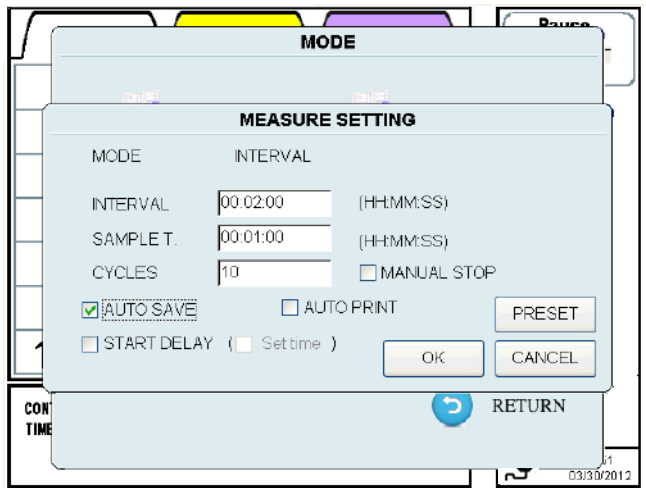
A total of 20 measurements are performed at one minute intervals.

Note: Sampling time is 15 seconds and standby time is 45 seconds.

#### Measurement Flow



If the time period between two samplings is 10 seconds or longer, the pump will be turned OFF after a sampling is finished. Then the pump will be turned ON again 10 seconds before the next sampling starts.



#### [Measurement Settings]

You can set INTERVAL, SAMPLE T., CYCLES and MANUAL STOP.

To set INTERVAL and SAMPLE T, tap the entry field to display a numeric keypad. Enter "hours", "minutes" and "seconds", and tap [OK].

Tap the entry field for CYCLES to display a numeric keypad. Tap the value you want to enter and tap [Enter].


Check "MANUAL STOP" to continue measuring until you manually stop it regardless of the CYCLES setting.

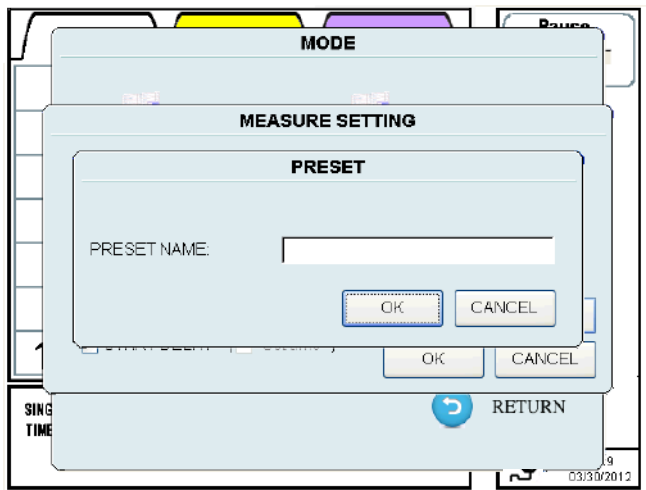
Check "AUTO SAVE" to store the data automatically.

Check "AUTO PRINT" to print the data automatically.

Check "START DELAY" to use a delay time prior to a measurement.

Check "Set time" to set the time when you want to start a measurement.

Tap [OK] to save and activate the settings  (User Authentication required).



<Input PRESET NAME>

### [PRESET]

Tap [PRESET] to display a window asking you to input "PRESET NAME".

Tap the entry field to display the keyboard. Enter the file name and tap [Enter].

Tap [OK] to save the current settings



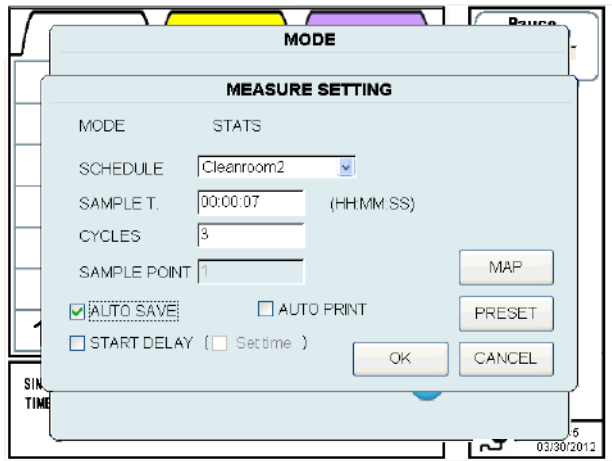
(User Authentication required).

\* In the future you can automatically load the configuration saved here as a PRESET. Refer to **3.5.6 PRESET.**

**3.5.4 STATS****[Measurement Flow]**

Configure SAMPLE T., CYCLES and SAMPLE POINT, and repeat measuring.

In STATS mode, INTERVAL and SAMPLE T. are configured with the same value. Measurements are repeated according to the CYCLES settings in each SAMPLE POINT.

**<MEASURE SETTING>**

Check "AUTO SAVE" to store the data automatically.

Check "AUTO PRINT" to print the data automatically.

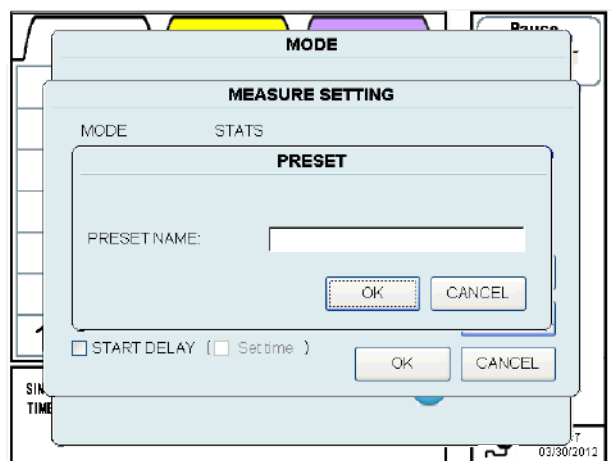
Check "START DELAY" to use a delay time prior to a measurement.

Check "Set time" to set the time when you want to start a measurement.

Tap [OK] to save and activate the settings



**(User Authentication required).**

**<Input PRESET NAME>****[Measurement Settings]**

If there are any MAP files saved or any MAP is saved on the USB flash drive, they are displayed in the dropdown list of SCHEDULE. When measuring by using a MAP file, select a FILE from the list.

Tap the entry field for "SAMPLE T.". to display a numeric keypad. Enter the values for hours, minutes and seconds on the numeric keypad and tap [OK].

Tap the entry field of "CYCLES" to display a numeric keypad. Enter a value and tap [ENTER].

Once a MAP file is loaded, you cannot change the settings for SAMPLE POINT. (The configured number of measurement points in the MAP file will be applied.)

When a MAP file is not loaded, tap an entry field of "SAMPLE POINT" to display a numeric keypad. Enter a value and tap [ENTER].

**[PRESET]**

Tap "PRESET" to display a window asking you to input "PRESET NAME".

Tap the entry field to display the keypad. Enter the file name and tap [Enter].

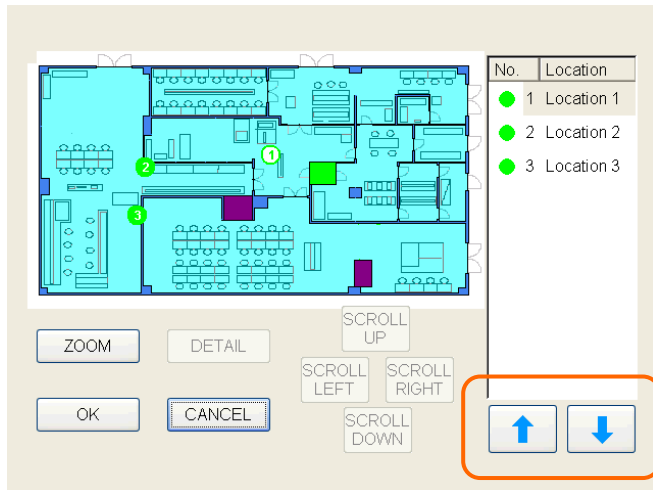
Tap [OK] to save the current settings



**(User Authentication required).**

\* In the future you can automatically load the configuration saved here as a PRESET. Refer to **3.5.6 PRESET.**



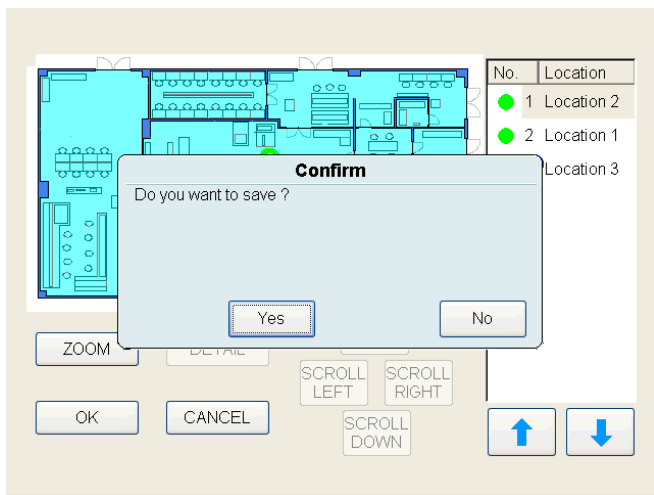


When a MAP file is specified in [SCHEDULE] on the [MEASURE SETTING] screen, tap [MAP] to display a MAP.

You can change the location order.

Tap the Location to be changed.

Use the  and  buttons to change the order.



Tap [OK]. Then a window will be displayed asking if you want to save the new order of the Location.

Tap [Yes] or [No]  (**User Authentication required**).

Tap [Yes] to set the changes and go back to [MEASURE SETTING] screen.

Tap [No] to go back to MAP screen.

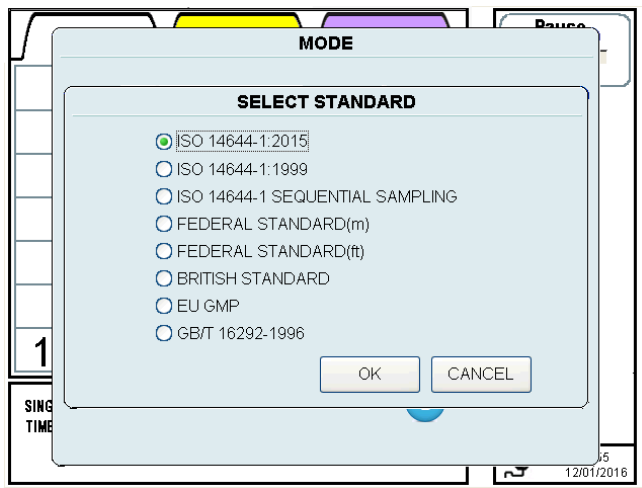
Tap [CANCEL] to discard the changes and go back to [MEASURE SETTING] screen.

### 3.5.5 STANDARD

#### [Measurement Flow]

You can perform a measurement which complies with 7 measurement standards as follows:

- ISO14644-1:2015 (International Standard) Refer to ISO14644-1. 2015
- ISO14644-1:1999 (International Standard) Refer to ISO14644-1. 1999
- ISO 14644-1 SEQUENTIAL SAMPLING (International Standard) Refer to ISO14644-1. 2015
- FEDERAL STANDARD (m) (The US Standard) Refer to FEDERAL STANDARD 209E.
- FEDERAL STANDARD (ft) (The US Standard)
- BRITISH STANDARD (British Standard) Refer to BS-5295.
- EU GMP (European Standard) Refer to EU GMP.
- GB/T 16292-1996 (Chinese Standard) Refer to GB/T 16292-1996.



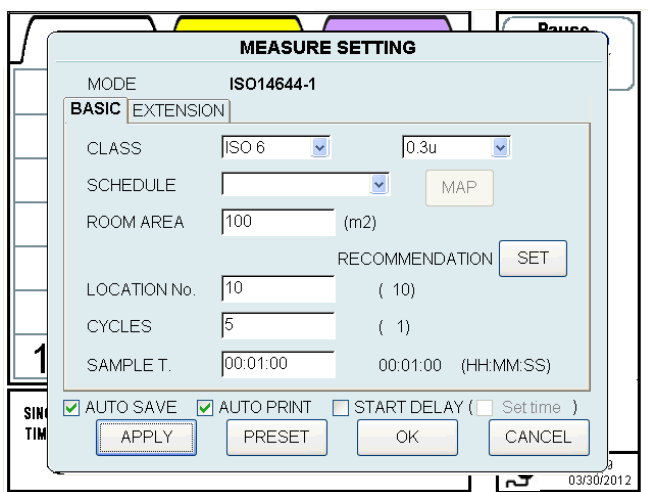
Tap [STANDARD] to open the SELECT STANDARD window to select a measurement standard to be applied in the STANDARD mode.

Select and set one of the above measurement standards.

Tap [OK] to display the MEASURE SETTING screen to configure measurement settings.

Tap [CANCEL] to go back to [MODE] screen.

#### [ISO14644-1 1999]



#### [Measurement Settings]

The setting items for CLASS and items in the EXTENSION tab varies depending on the STANDARD settings you configured.

In the BASIC tab;

Configure the settings of CLASS, SCHEDULE, ROOM, LOCATION, CYCLES, SAMPLE T and PARTICLE SIZE.

- CLASS:** Set the cleanliness level of the cleanroom to be measured. By configuring this setting, the appropriate particle size for the configured CLASS can be selected.
- SCHEDULE:** You can load a MAP file. If you select the file, the MAP function will be activated and the MAP will be displayed.
- ROOM:** Input the size of the room to be measured.
- LOCATION:** Input the number of measurement points.
- CYCLES:** Input the measurement cycles.
- SAMPLE T.:** Input the sampling time.
- PARTICLE SIZE:** Select one particle size which will be judged in EVALUATION DATA.

#### 【ISO14644-1 2015】

#### [Measurement Settings]

(for the measurement standard  
ISO14644-1:2015 + CLASS ISO1, ISO2,  
ISO3, ISO4, or ISO9)

The setting items for CLASS and items in the  
EXTENSION tab varies depending on the  
STANDARD settings you configured.

In the BASIC tab;

Configure the settings of CLASS, SCHEDULE,  
ROOM, LOCATION, CYCLES and SAMPLE T  
PARTICLE SIZE.

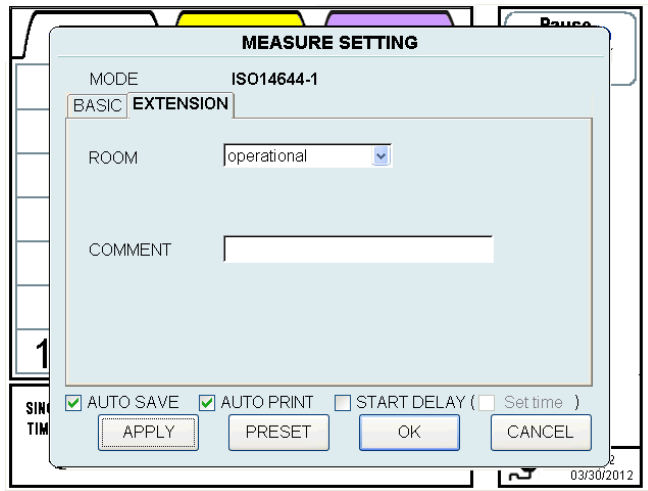
- CLASS:** Set the cleanliness level of the cleanroom to be measured. After configuring this setting, the appropriate particle size for the configured CLASS can be selected.  
Select the particle size(s) to be printed out. The setting here has precedence over the print setting on page 54.
- SCHEDULE:** You can load a MAP file. If you select the file, the MAP function will be activated and the MAP will be displayed.
- ROOM:** Input the size of the room to be measured.
- LOCATION:** Input the number of measurement points.
- CYCLES:** Input the measurement cycles.
- SAMPLE T.:** Input the sampling time.
- PARTICLE SIZE:** Select one or multi particle size which will be judged in EVALUATION DATA.

You can set [SAMPLE T.], [CYCLES], and [SAMPLE POINT] to repeat measurements.

INTERVAL and SAMPLE T. are configured with the same value. Measurements are repeated according to the CYCLES setting in each SAMPLE POINT.

After the all the measurements are finished, the results are evaluated according to the selected standard.

The numeric value shown next to the each entry field is the recommended value based on CLASS; ROOM and AIR DIRECTION (in EXTENTION tab). Tap [SET] to use the recommended value.



Tap [APPLY] to save the new settings.



**(User Authentication required).**

Tap [OK] to save the new settings and return to MODE screen.



**(User Authentication required).**

Tap [CANCEL] to discard the changes and close the window.

Check "AUTO SAVE" to store the data automatically.  
Check "AUTO PRINT" to print the data automatically.  
Check "START DELAY" to use a delay time prior to a

In the EXTENTION tab, configure the following;

- **ROOM STATUS**
- **AIR DIRECTION** (only for Federal Standard)
- **COMMENT**
- **ID**
- **COMPANY**

[AIR DIRECTION]

- Select **unidirectional** when wind direction is constant.
- Select **nonunidirectional** when wind direction is not constant.

(※Only FEDERAL STANDARD (m), FEDERAL STANDARD (ft), GB/T 16292-1996 mode are settable)

[ROOM STATUS]

Select either **as-built**, **as-rest** or **operational**.

- Select **as-built** when the cleanroom is setting up.
- Select **as-rest** when the cleanroom function is off.
- Select **operational** when the cleanroom function is on.

[COMMENT]

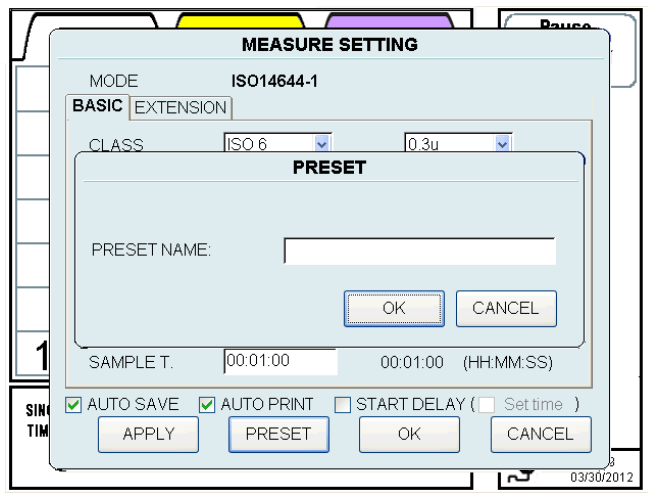
Tap the entry field to display a keypad. Enter comment and tap [Enter].

[ID]

Tap the entry field to display a keypad. Enter ID and tap [Enter].

[COMPANY]

Tap the entry field to display a keypad. Enter company name and tap [Enter].

**[PRESET]**

Tap [PRESET] to display a window asking you to input PRESET NAME.

Tap the entry field to display the keyboard. Enter the file name and tap [Enter].

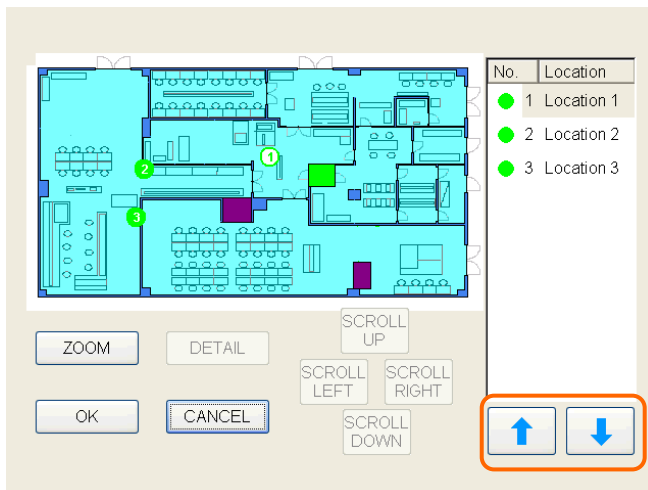
Tap [OK] to save the current settings





**(User Authentication required).**

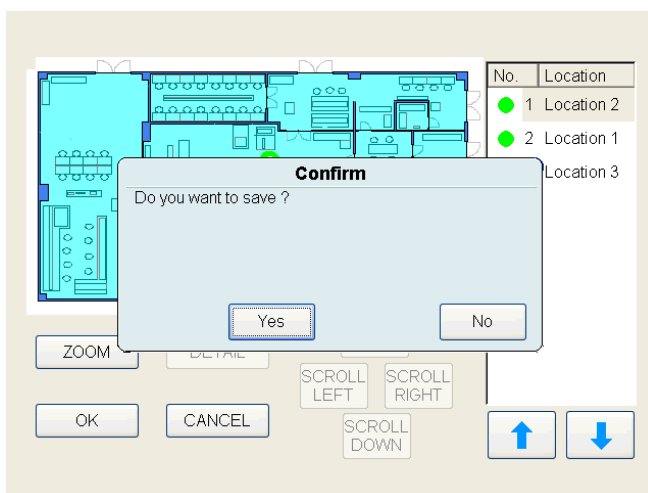
You can configure the saved measurement settings by loading a saved PRESET

Refer to **3.5.6 PRESET** for more details.



Tap the [MAP] button to display MAP.

You can change the location order by tapping the Location to be changed and then using the  and  buttons.



Tap [OK]. Then a window will be displayed asking if you want to save the new order of the Locations. Tap [Yes] or [No].

Tap [Yes] to save the changes and go back to [MEASURE SETTING] screen

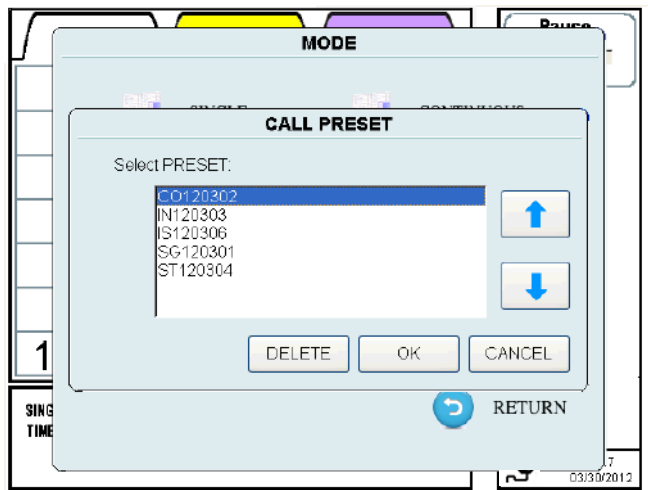


**(User Authentication required).**

Tap [No] to go back to display MAP.


Tap [CANCEL] to discard the changes and go back to [MEASURE SETTING] screen.

### 3.5.6 PRESET



Select [PRESET] on the mode screen to display [CALL PRESET] screen.

The settings in the selected PRESET file will be reflected in the MODE and Measurement Settings.

 **\*A User needs to have the authorization (Delete Files) to delete [PRESET] files.**

The first two letters of the file name indicates the mode type.

SG: SINGLE MEASUREMENT

CO: CONTINUOUS MEASUREMENT


IN: INTERVAL MEASUREMENT

ST: STATS MEASUREMENT

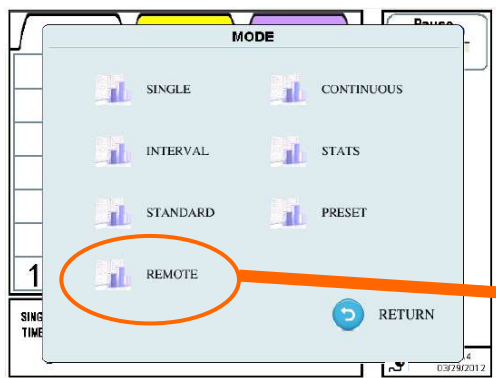
IS: STANDARD MEASUREMENT

Select the item that you want to load or delete.  
Tap [OK] to load the selected PRESET settings into MODE and MEASURE SETTING

 **(User Authentication required).**

Tap [DELETE] to delete the selected PRESET setting  **(User Authentication required).**

### 3.5.7 REMOTE



Tap [REMOTE] on the [MODE] screen to change to [REMOTE MODE].

**Working in REMOTE MODE now.**  
**To return MEASURE MODE, press RETURN button.**

COUNTS		OPTION SENSORS:		TIME(s)
0.3um	0	Temp(degC)		9
0.5um	0	Humi(%)		ERROR
1.0um	0	Velo(m/s)		
3.0um	0	Press(Pa)		
5.0um	0			
10.0um	0			

STATUS: Waiting for connect

Machine ID: 000

HOST NAME: APC3900

Host IP: 0.0.0.0

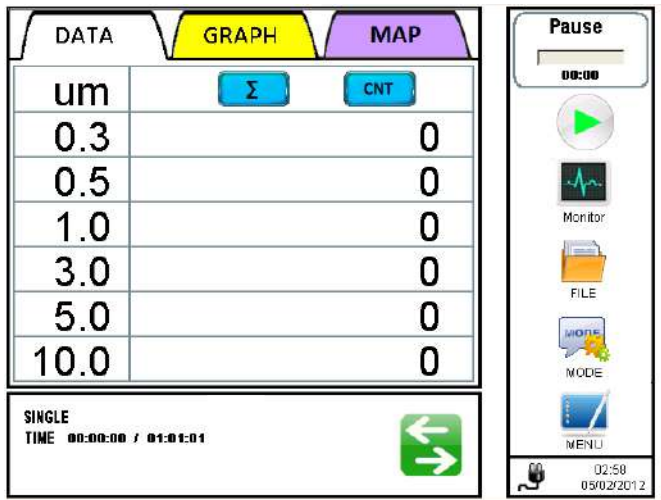
**RETURN**


Change to [REMOTE MODE] when performing a measurement from a PC connected via Ethernet using the remote sampling software.

Tap [RETURN] to stop the [REMOTE MODE] and return to [MODE] screen.


## 3.6 START

### 3.6.1 SINGLE, CONTINUOUS, INTERVAL




Tap [START]  on the main screen to start a measurement in accordance with the settings configured in **3.5 MODE**.


- If **"START DELAY"** is **NOT** checked in [MODE] setting:

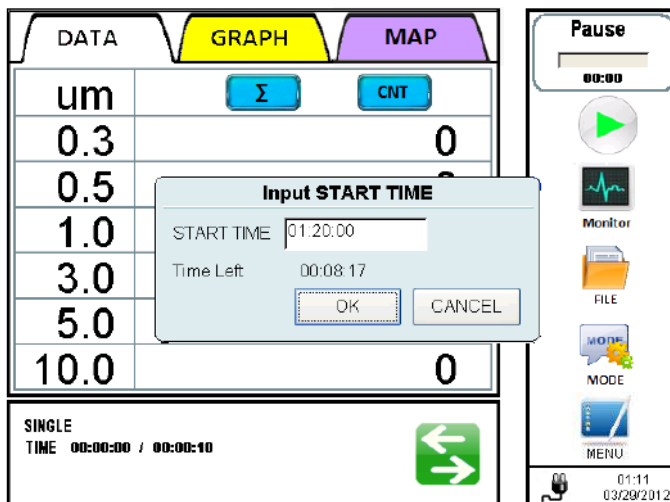
Upon tapping [START] , the pump will begin running. After the pump has run for 10 seconds to stabilize the flow rate, the measurement will begin.

- If **only "START DELAY"** is checked in [MODE] setting:

Upon tapping [START] , the count of the Delay Time begins. During the last 10 seconds of that Delay Time the pump will run to stabilize, after which the measurement will begin.

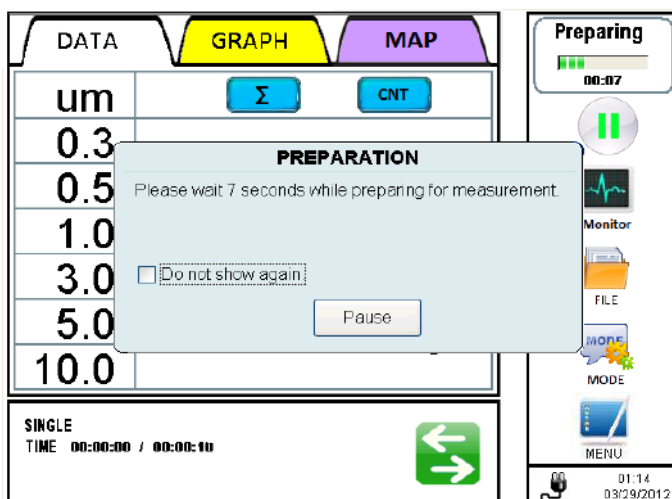
- If **"START DELAY"** and **"Set time"** are checked in [MODE] setting:

Upon tapping [START] , "Input START TIME" dialog box will be displayed. Enter the time when you want to start measuring and tap [OK]. During the last 10 seconds of the [Time left] time the pump will run to stabilize, after which the measurement will begin.



<Input START TIME dialog box>

Tap [CANCEL] to stop measuring and go back to the menu screen.

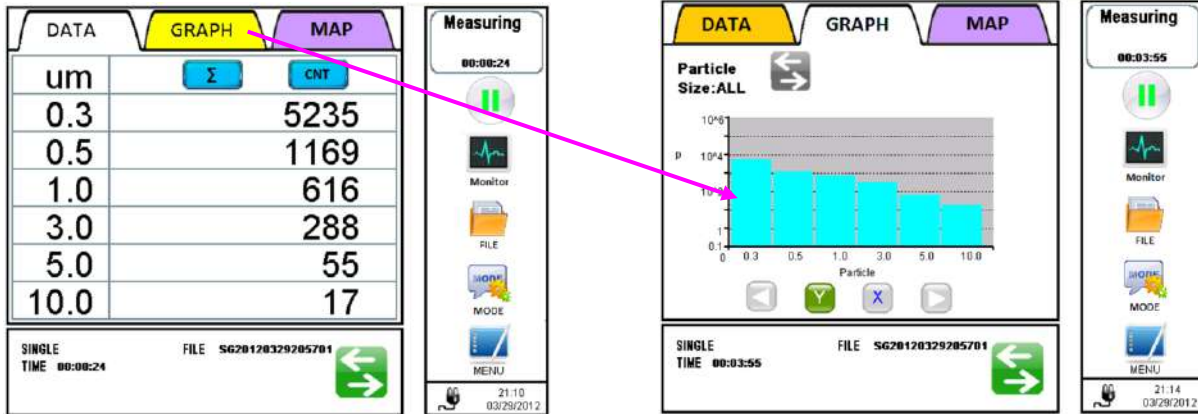



If you fail to press [OK] after entering "START TIME", and the entered START TIME arrives, the instrument will increase the start time in 10 minute intervals until you press [OK].

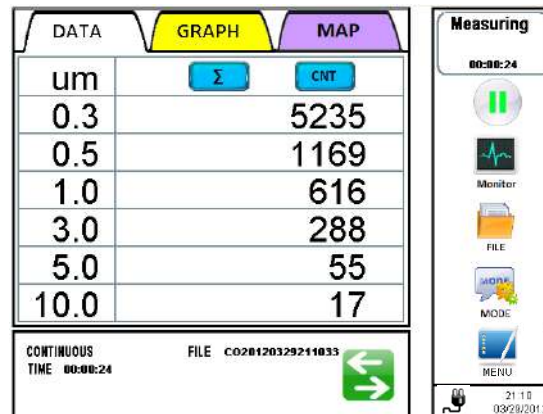
Tap the [STOP]  button to stop a measurement.

**Display screen example in each Measurement MODE.**

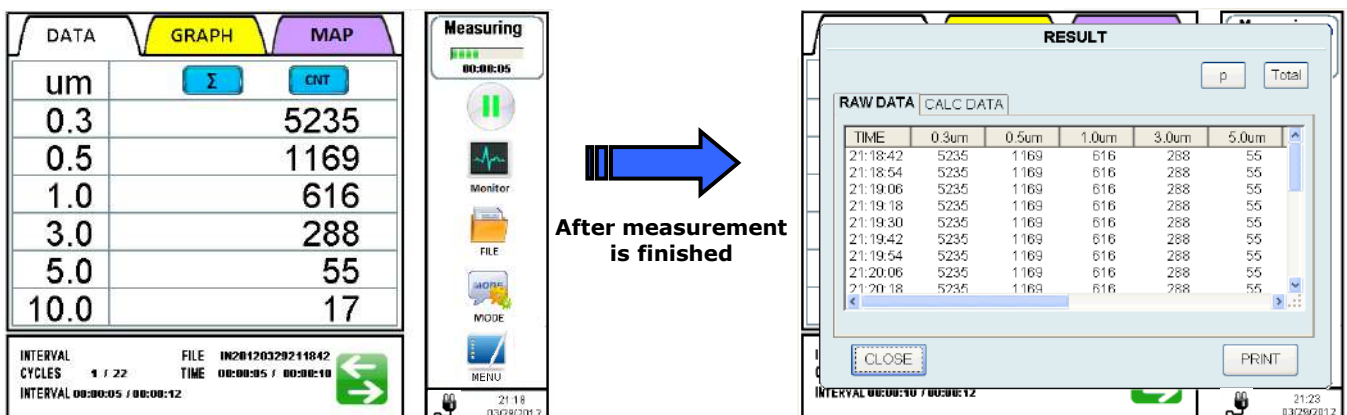
To display the chart tap  button while measuring.

**<SINGLE MODE>****<CONTINUOUS MODE>**

\*Tap [STOP]  to stop a measurement in CONTINUOUS mode.

**<INTERVAL MODE>**

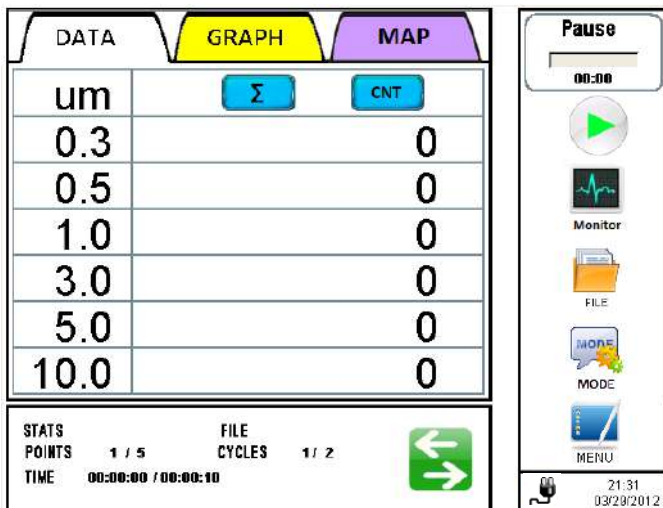
\* After a measurement in INTERVAL mode is finished, the measurement results will be displayed.






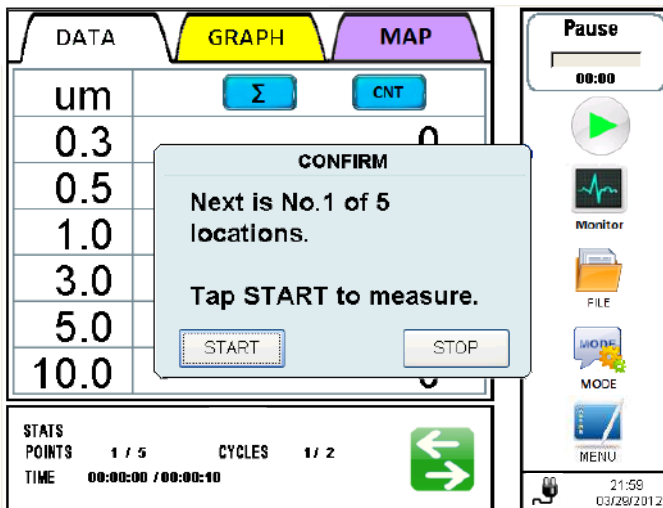
### 3.6.2 STATS

#### - When not using a MAP file



Tap [START]  on the main screen to display [CONFIRM] screen.

A measurement will start based on the setting configured in **3.5 MODE**.



Tap [START] to start a measurement.

- If **"START DELAY"** is **NOT** checked in **[MODE] setting**:

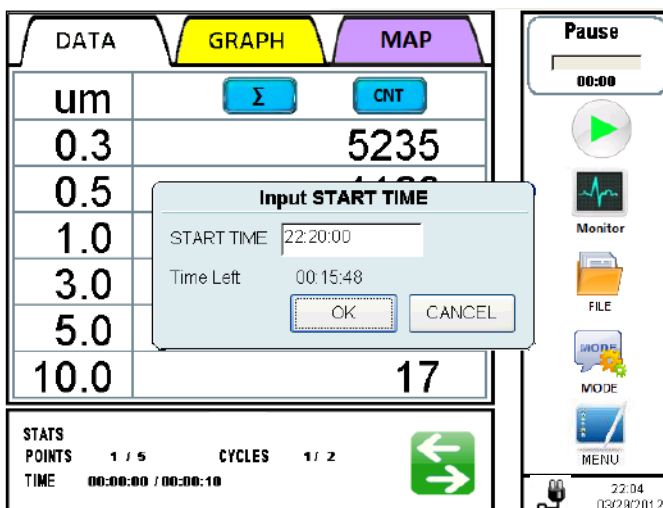
Upon tapping [START], the pump will begin running. After the pump has run for 10 seconds to stabilize the flow rate, the measurement will begin

- If **only "START DELAY"** is checked in **[MODE] setting**:

Upon tapping [START], the count of the Delay Time begins. During the last 10 seconds of that Delay Time the pump will run to stabilize, after which the measurement will begin.

- If **"START DELAY"** and **"Set time"** are checked in **[MODE] setting**:

Upon tapping [START], [Input START TIME] dialog box will be displayed. Enter the time when you want to start measuring and tap [OK]. During the last 10 seconds of the [Time left] time the pump will run to stabilize, after which the measurement will begin.





<Input START TIME dialog box>

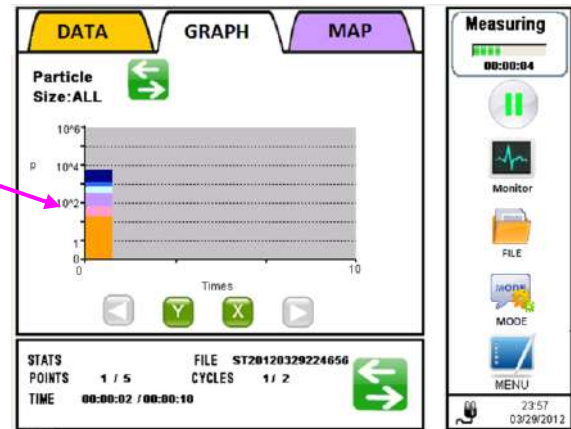
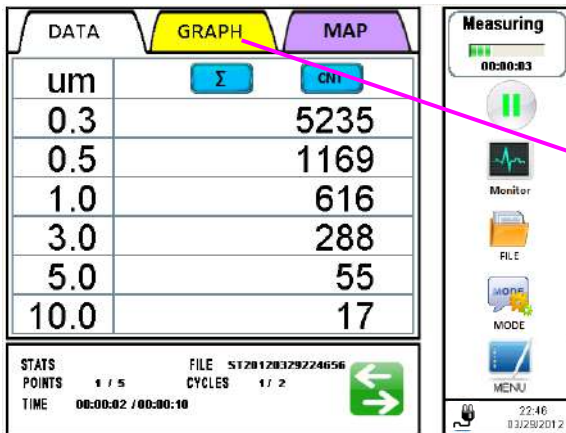
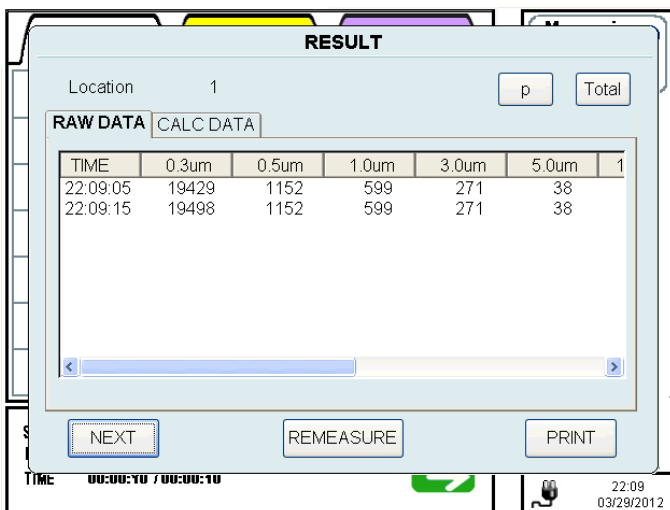
Tap [CANCEL] to stop measuring and go back to the menu screen.

If you fail to press [OK] after entering "START TIME", and the entered START TIME arrives, the instrument will increase the start time in 10 minute intervals until

you press [OK].

Tap [STOP]  to stop a measurement.

Tap  button while measuring to display a chart.

Location 1

RAW DATA | CALC DATA

TIME	0.3um	0.5um	1.0um	3.0um	5.0um	1
22:09:05	19429	1152	599	271	38	
22:09:15	19498	1152	599	271	38	

NEXT REMEASURE PRINT

TIME 00:00:00 / 00:00:10

When a measurement at each location is finished, the measurement results screen will be displayed.

Tap [NEXT] to display [CONFIRM] screen which informs you of the next measurement point then wait for the next measurement.

Tap [REMEASURE] to perform another measurement at this measurement point.

Tap [PRINT] to print the measurement results.

**RESULT**

Location: 5

p Total

RAW DATA CALC DATA

TIME	0.3um	0.5um	1.0um	3.0um	5.0um
22:16:41	21197	1152	599	271	38
22:16:51	21046	1152	599	271	38

CLOSE REMEASURE PRINT

TIME 00:00:10 / 00:00:10 22:17 03/29/2012

When all the measurements are finished, the final measurement results screen will be displayed.

You can view the results of a certain LOCATION by selecting a Location from the dropdown list of [Location].

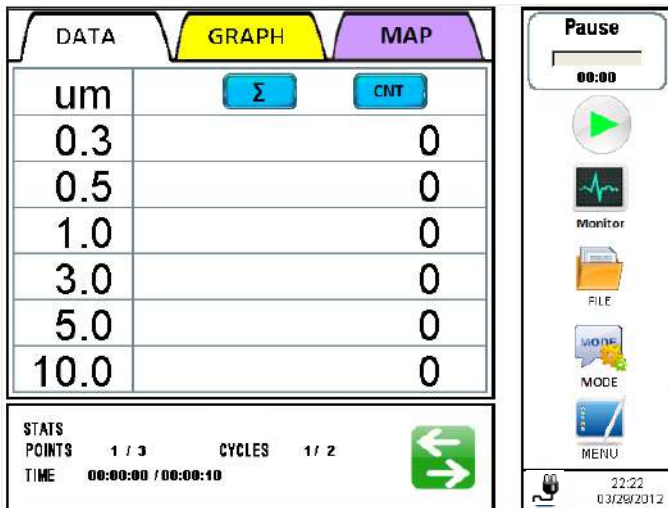
Tap [CLOSE] to end the measurement.

Tap [REMEASURE] to perform a measurement again at the last point. Tap [PRINT] to print measurement results of the last measurement point.

Every time you tap this button, the particle unit changes in the order of:  
**p → p/cf → p/m<sup>3</sup>.**

Use this button to select either Total display or Single display.  
(Only applicable for RAW DATA)

### - When using a MAP file



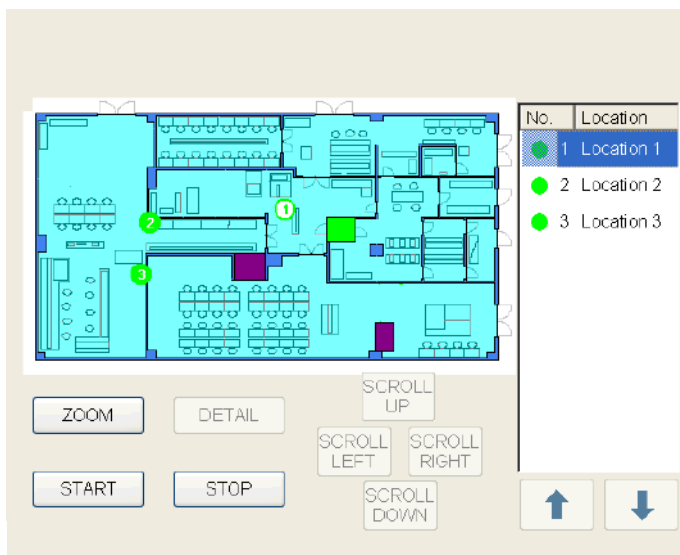
In STATS mode, a MAP will be displayed upon tapping [START] .

The map is displayed by data transfer from a PC or using MAP file in a USB flash drive.

(If a MAP is set from a USB flash drive, insert the USB flash drive and tap [START] to start a measurement.

If the USB flash drive storing a MAP is not inserted, a measurement cannot be started.)

A measurement will start based on the settings configured in **3.5 MODE**.



Select a Location and tap [START] to start a measurement.

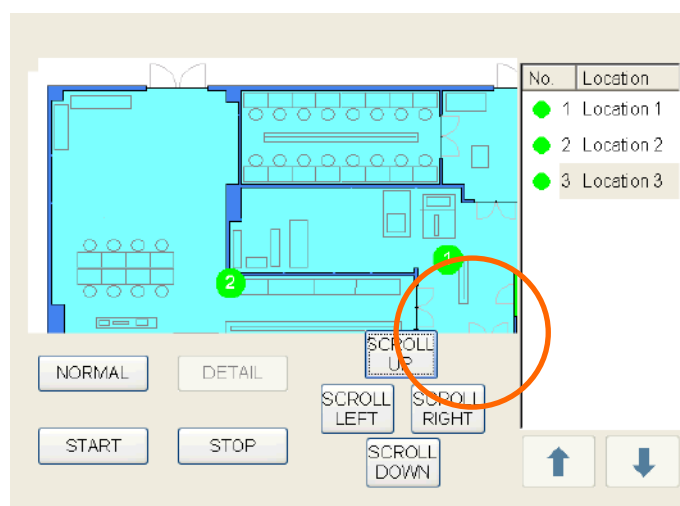
Tap [STOP] to stop a measurement.

Tap [ZOOM] to enlarge a MAP.

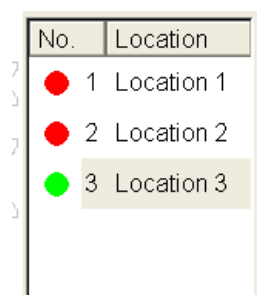
(Press [NORMAL] to return to viewing the entire MAP when a map is enlarged.)

Select a Location and tap [DETAIL] to view the image of the selected Location.

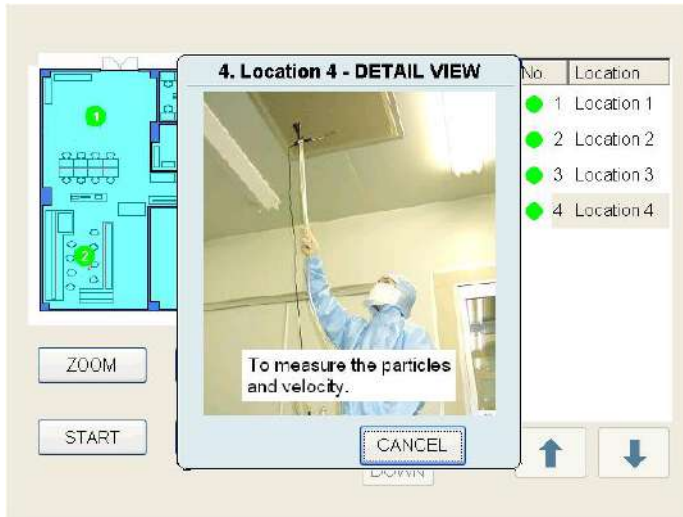
(You need to register the image for the [DETAIL] view when creating a Schedule using the provided PC application.)



When a MAP is enlarged, [SCROLL UP], [SCROLL DOWN], [SCROLL LEFT] and [SCROLL RIGHT] buttons are activated, which enables you to move the MAP from the left to right and up to down.

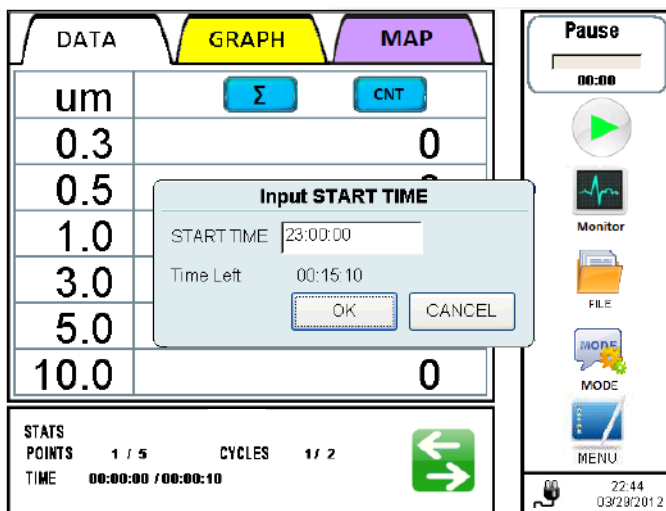


The color of a location changes from green to red once a measurement is done.



Select a Location and tap [DETAIL] to view the image of the selected Location. (The image of the Location needs to be registered when creating a Schedule using the provided PC application.)

Tap [START] on the MAP to start a measurement.



- If "**START DELAY**" is **NOT** checked in [MODE] setting:

Upon tapping [START], the pump will begin running. After the pump has run for 10 seconds to stabilize the flow rate, the measurement will begin.

- If **only** "**START DELAY**" **is** checked in [MODE] setting:

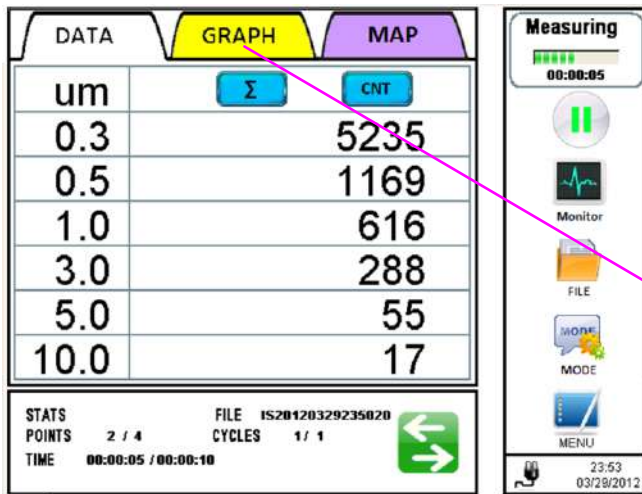
Upon tapping [START], the count of the Delay Time begins. During the last 10 seconds of that Delay Time the pump will run to stabilize, after which the measurement will begin.

- If "**START DELAY**" and "**SET time**" **are** checked in [MODE] setting:

Upon tapping [START], [Input START TIME] dialog box will be displayed. Enter the time when you want to start measuring and tap [OK]. During the last 10 seconds of the [Time left] time the pump will run to stabilize, after which the measurement will begin.

Tap [CANCEL] to stop measuring and go back to the main screen.

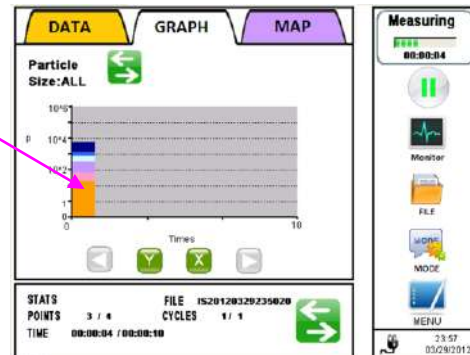
If you fail to press [OK] after entering "START TIME", and the entered START TIME arrives, the instrument will increase the start time in 10 minute intervals until you press [OK].



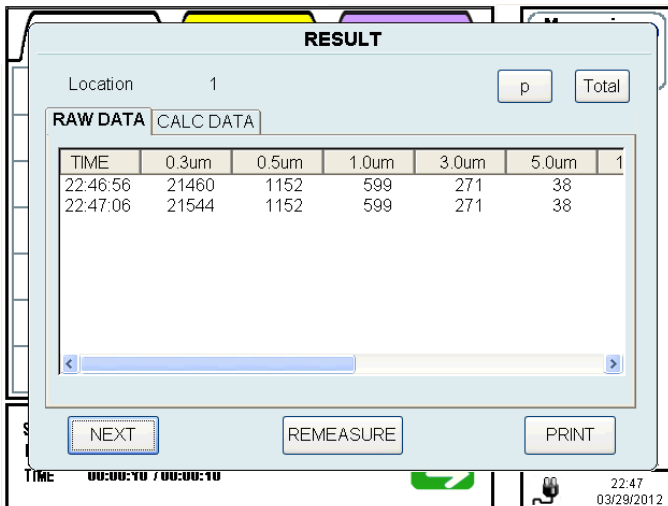
&lt;Screen while measuring&gt;

Tap **GRAPH** button while measuring to display a chart.

Tap [STOP] to stop a measurement.



When a measurement at each location is finished, the measurement results screen will be displayed.

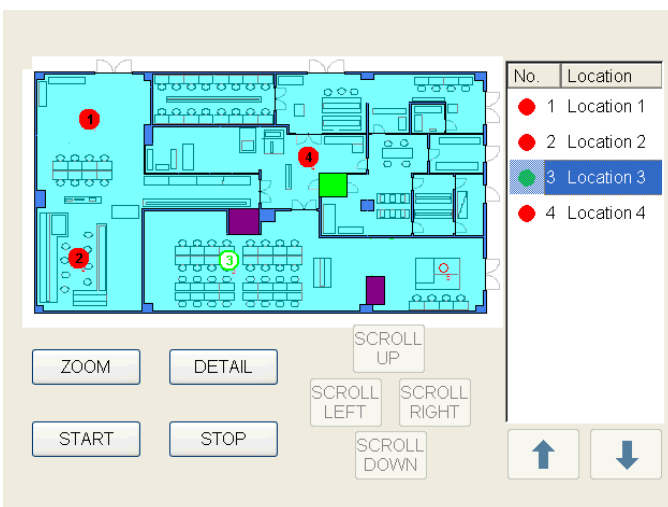


Tap [NEXT] to display the MAP again.

Then the instrument waits for the next measurement point to be selected.

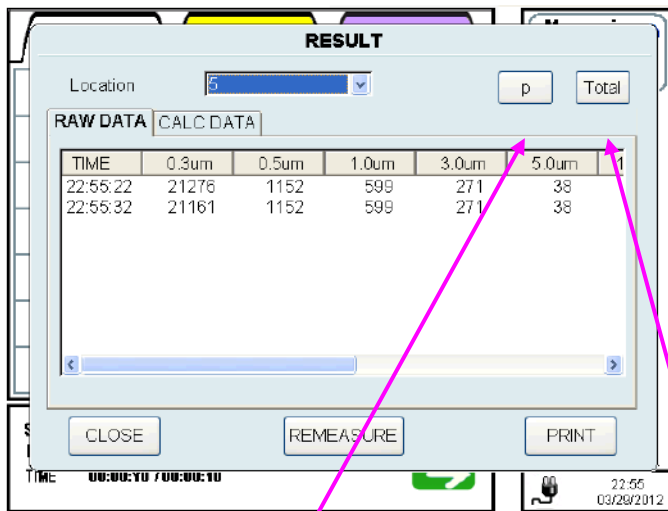
Tap [REMEASURE] to perform a re-measurement at the current location.

Tap [PRINT] to print the measurement results.



The color of a location changes from green to red once a measurement is done.

When all the measurements are finished, the final measurement results screen will be displayed.



You can view the results of a certain LOCATION POINT by selecting Location from the dropdown list of [LOCATION].

Tap [CLOSE] to end the measurement.

Tap [REMEASURE] to perform a measurement again at the last point.

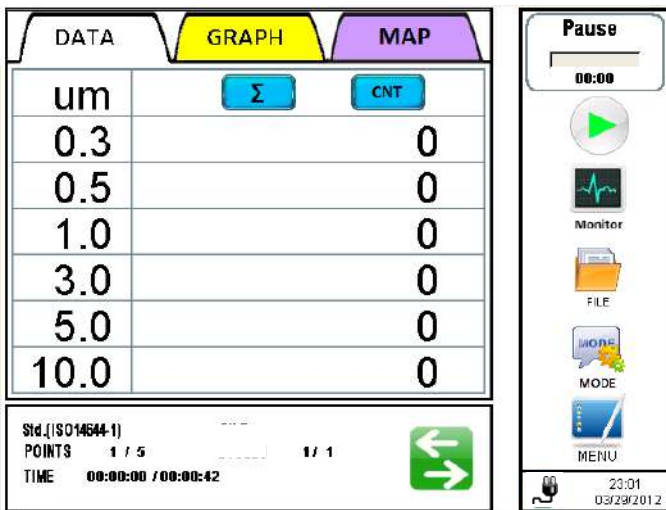
Tap [PRINT] to print measurement results of the last measurement point.


Every time you tap this button, the particle unit changes in the order of:

**p -> p/cf -> p/m<sup>3</sup>.**

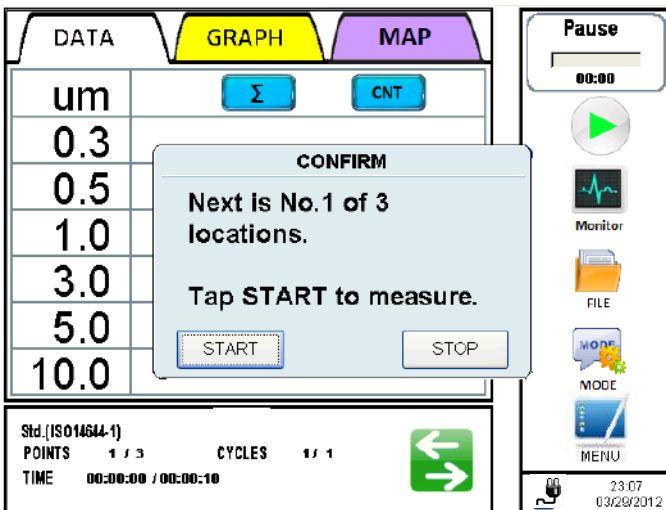
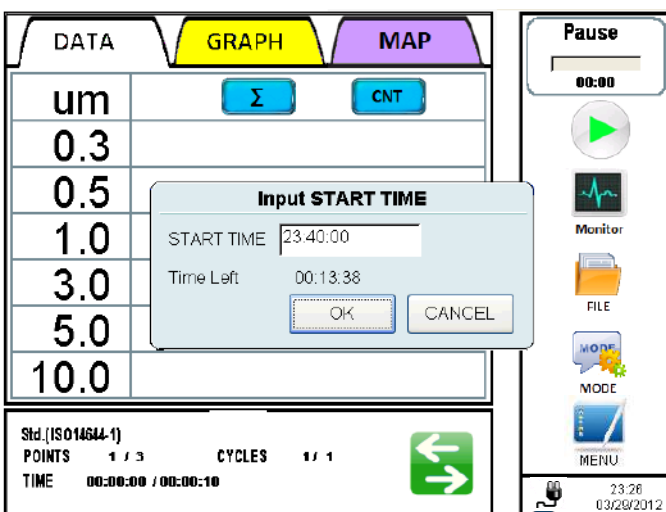
Use this button to select either Total display or Single display.  
(Only applicable for RAW DATA)



**3.6.3 STANDARD****- When not using a MAP file**

Tap [START]  to display [CONFIRM] screen.

A measurement will start based on the settings configured in **3.5 MODE**.

**<CONFIRM window>****<Input START TIME dialog box>**

Tap [START] to start a measurement.

- If **"START DELAY"** is **NOT** checked in **[MODE] setting**:

Upon tapping [START], the pump will begin running. After the pump has run for 10 seconds to stabilize the flow rate, the measurement will begin.

- If **only "START DELAY"** is checked in **[MODE] setting**:

Upon tapping [START], the count of the Delay Time begins. During the last 10 seconds of that Delay Time the pump will run to stabilize, after which the measurement will begin.

- If **"START DELAY"** and **"Set time"** are checked in **[MODE] setting**:

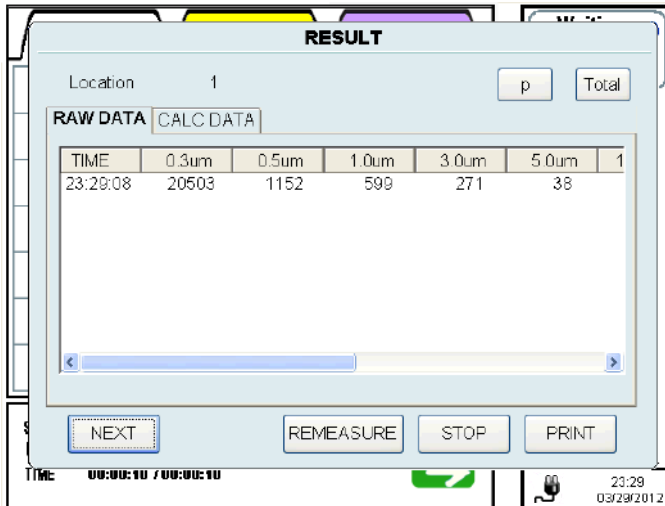
Upon tapping [START], "Input START TIME" dialog box will be displayed. Enter the time when you want to start measuring and tap [OK]. During the last 10 seconds of the [Time left] time the pump will run to stabilize, after which the measurement will begin.

Tap [CANCEL] to stop measuring and go back to the menu screen.

If you fail to tap [OK] after entering "START TIME", and the entered START TIME arrives, the instrument will increase the start time in 10 minute intervals until you press [OK].



When a measurement at each location is finished, the measurement results screen will be displayed.

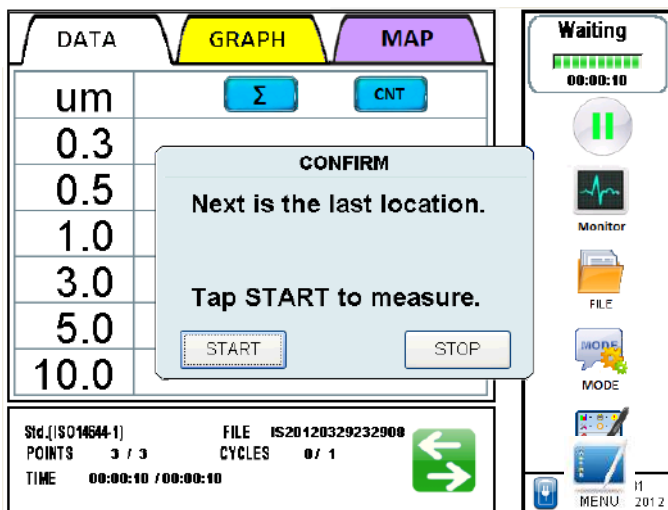


Tap [NEXT] to display a [CONFIRM] window informing you of the next measurement point, and wait for the next measurement.

Tap [REMEASURE] to perform a re-measurement.

Tap [STOP] to stop a measurement.

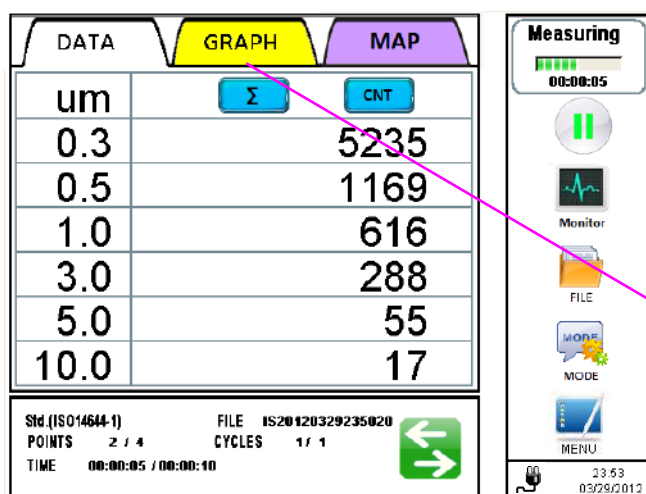
Tap [PRINT] to print a measurement result.



Tap [START] on the [CONFIRM] screen to start a measurement.

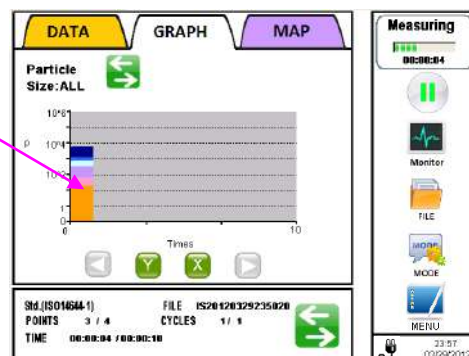
Tap [STOP] to stop a measurement.

<CONFIRM window>



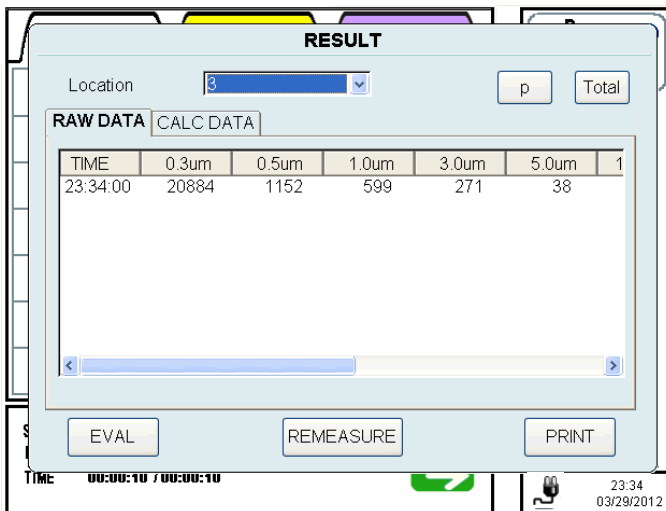
Tap **GRAPH** button while measuring to display a chart.

Tap [STOP]  to stop a measurement.



<Screen while measuring>

When all the measurements are finished, the final measurement results screen will be displayed.



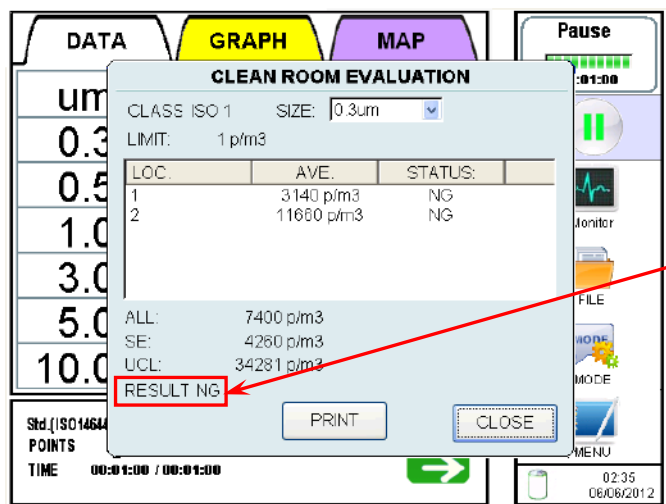
You can view the result of a certain LOCATION POINT by selecting Location from the dropdown list.

Tap [EVAL] to display CLEAN ROOM EVALUATION window.

Tap [REMEASURE] to perform a re-measurement.

Tap [PRINT] to print a measurement result.

### <Measurement RESULT>



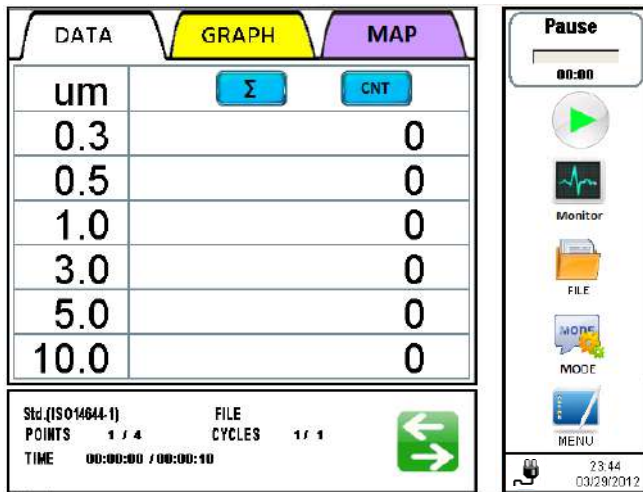
Tap [PRINT] to print a measurement result.


By selecting particle size you can change the particle size of the data to be evaluated. However, the status indicated by RESULT is determined based on the particle size selected in [MODE] settings.

Tap [CLOSE] to close the window.

### <CLEAN ROOM EVALUATION>

### - When using a MAP file



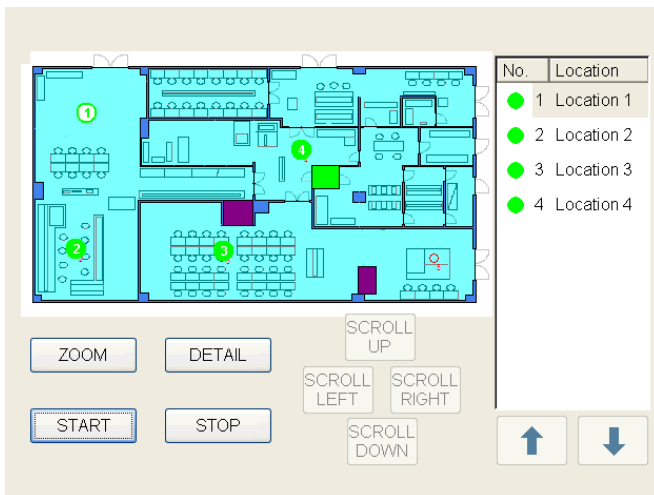
In STANDARD measurement tap [START]  to display a MAP.

The map is displayed by data transfer from a PC or using MAP file in a USB flash drive.

(If a MAP is set from a USB flash drive, insert the USB flash drive and tap [START] to start a measurement.

If the USB flash drive storing a MAP is not inserted, a measurement cannot be started.)

A measurement will start based on the settings configured in **3.5 MODE** .

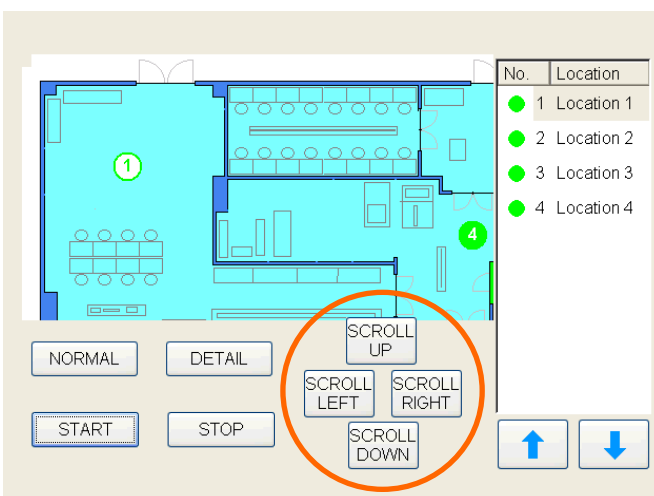


Select a Location and tap [START] to start a measurement.

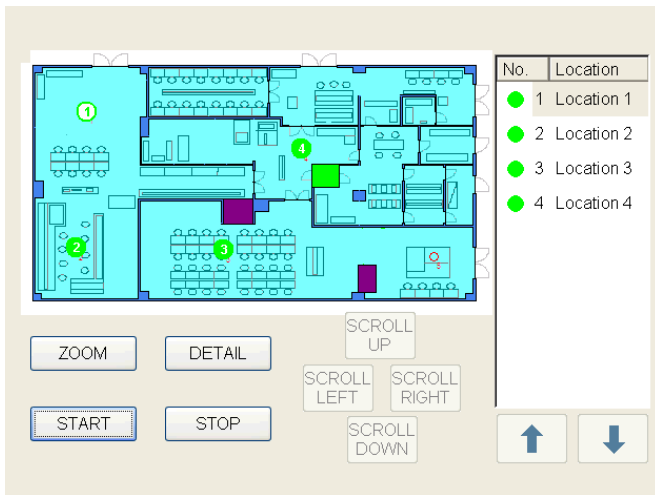
Tap [STOP] to stop a measurement.

Tap [ZOOM] to enlarge a MAP.

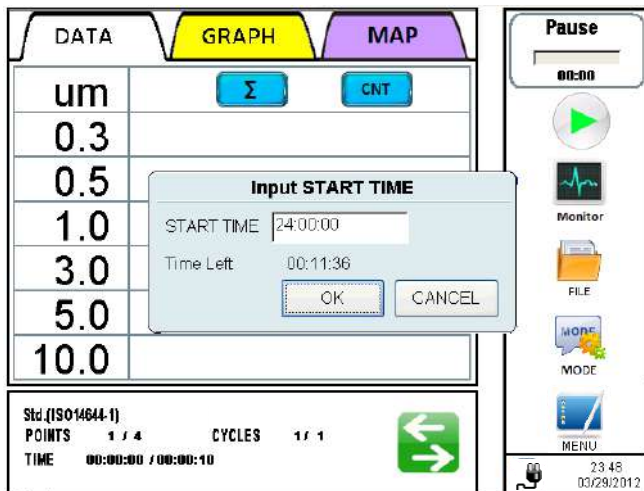
(Press [NORMAL] to return to viewing the entire MAP when a map is enlarged.)



When a MAP is enlarged, [SCROLL UP], [SCROLL DOWN], [SCROLL LEFT] and [SCROLL RIGHT] buttons are activated, which enables you to move the MAP from the left to right and up to down.



Select a Location and tap [DETAIL] to view the image of the selected Location. (The image of the Location needs to be registered when creating a Schedule using the provided PC application.)



<Input START TIME dialog box>

Tap [START] to start a measurement.

- If "START DELAY" is **NOT** checked in [MODE] setting:

Upon tapping [START], the pump will begin running. After the pump has run for 10 seconds to stabilize the flow rate, the measurement will begin.

- If **only** "START DELAY" **is** checked in [MODE] setting:

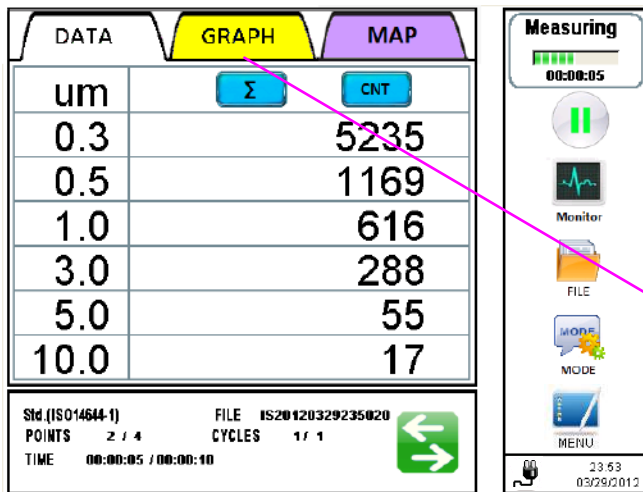
Upon tapping [START], the count of the Delay Time begins. During the last 10 seconds of that Delay Time the pump will run to stabilize, after which the measurement will begin.

- If "START DELAY" and "Set time" **are** checked in [MODE] setting:

Upon tapping [START], [Input START TIME] dialog box will be displayed. Enter the time when you want to start measuring and tap [OK]. During the last 10 seconds of the [Time left] time the pump will run to stabilize, after which the measurement will begin.

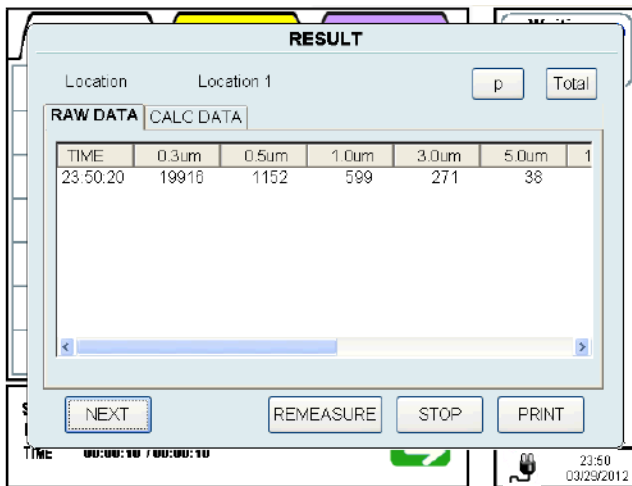
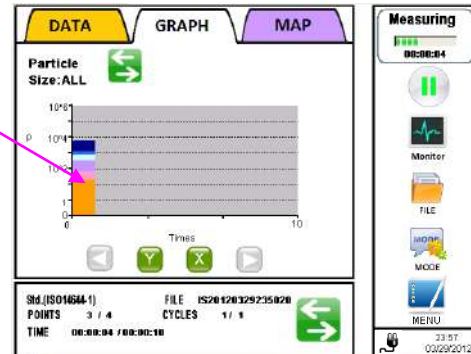
Tap [CANCEL] to stop measuring and go back to the main screen.

If you fail to press [OK] after entering "START TIME", and the entered START TIME arrives, the instrument will increase the start time in 10 minute intervals until you press [OK].



&lt;Screen while measuring&gt;

Tap **GRAPH** button while measuring to display a chart.



When a measurement at each location is finished, the measurement results screen will be displayed.

In [RAW DATA] tab, measurement data will be displayed.

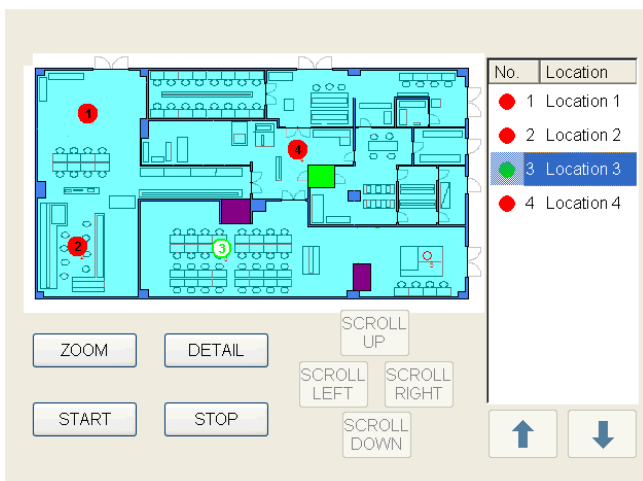
In [CALC DATA] tab, data of minimum (MIN), maximum (MAX) and average (AVE) measurements will be displayed.

Tap [NEXT] to display the MAP again and wait for the next point to be selected.

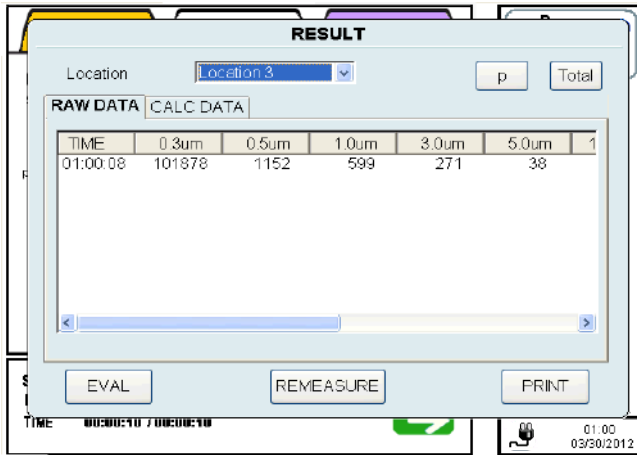
Tap [REMEASURE] to perform a re-measurement.

Tap [STOP] to stop a measurement.

Tap [PRINT] to print measurement results.



The color of a location changes from green to red once a measurement is done.

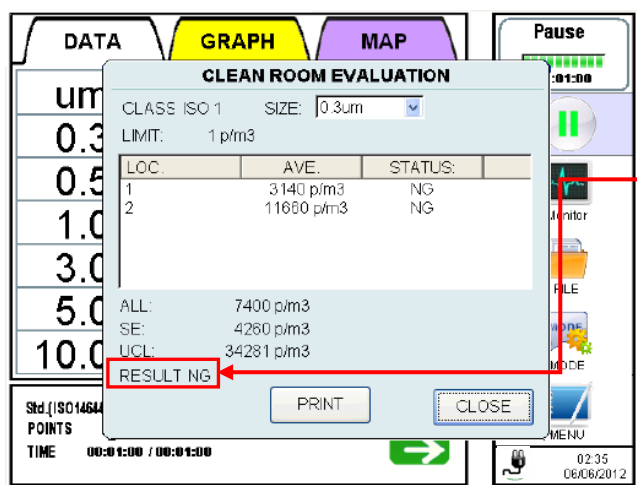


When all the measurements are finished, the final measurement results screen will be displayed.

You can view the result of a certain LOCATION POINT by selecting Location from the dropdown list.

Tap [EVAL] to display [CLEAN ROOM EVALUATION] screen.

Tap [REMEASURE] to perform a re-measurement at the current location. Tap [PRINT] to print a measurement result.

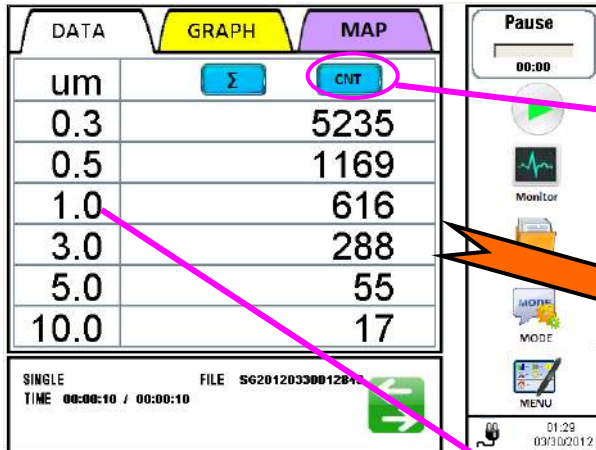


By selecting particle size you can change the particle size of the data to be evaluated. However, the status indicated by RESULT is determined based on the particle size selected in the [MODE] setting.

Tap [Close] to close the window.

<CLEAN ROOM EVALUATION>

### 3.6.4 Interlocking Operations

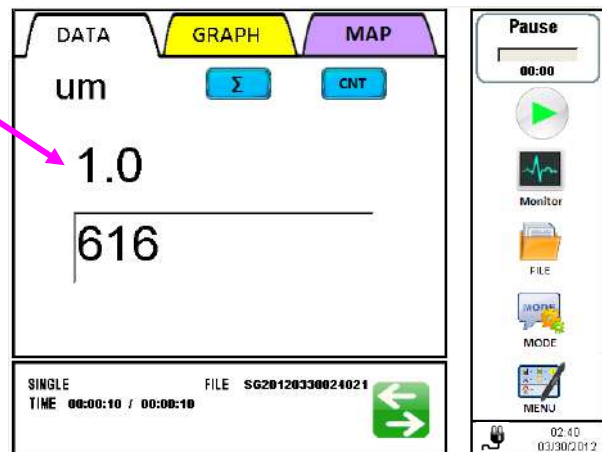


Every time you tap the particle unit, it changes in the order of:  
**CNT** → /cf → /m<sup>3</sup>.

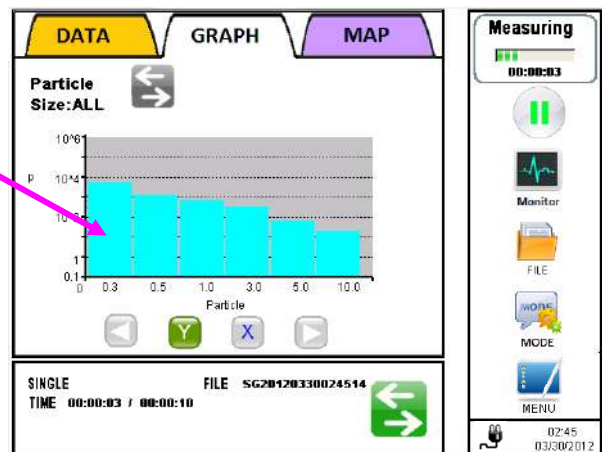
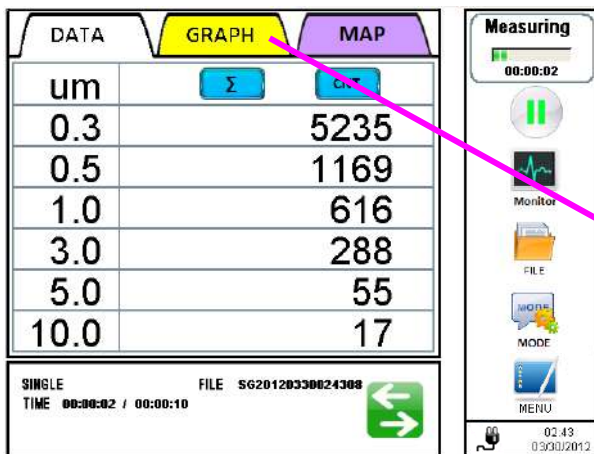
um	Σ	1cf
0.3		31410
0.5		7014
1.0		3696
3.0		1728
5.0		330
10.0		102

Tap a particle size on the screen to display the data for the particular particle size.

Tap **ALL** to return to displaying data for all 6 particle sizes.



#### <SINGLE and CONTINUOUS mode>



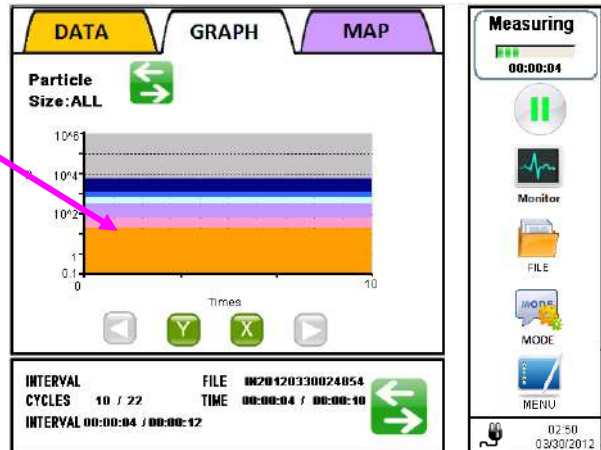
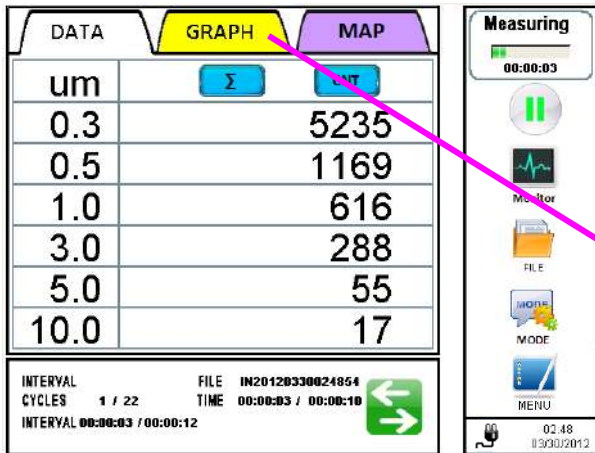
Tap **GRAPH** to switch to displaying a chart while measuring.

A particle-size-based histogram will be displayed in SINGLE and CONTINUOUS modes.

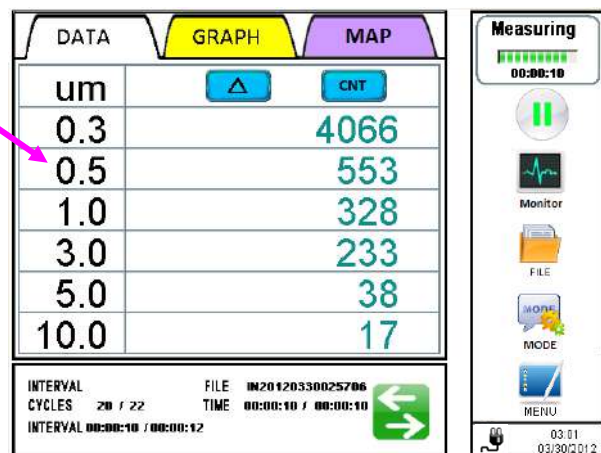
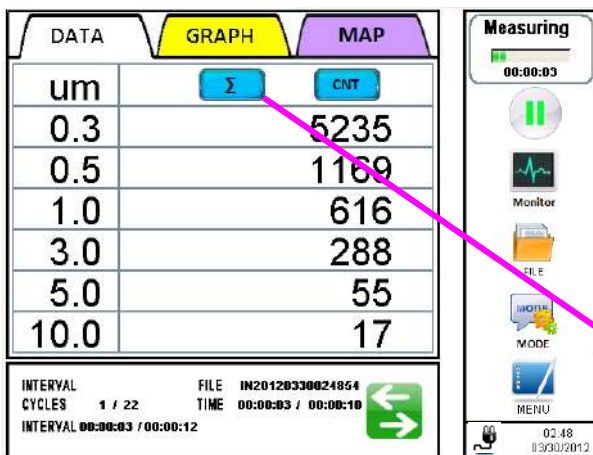
Tap **GRAPH** again to return to displaying data for all 6 particle sizes.



## &lt;INTERVAL, STATS and STANDARD modes&gt;



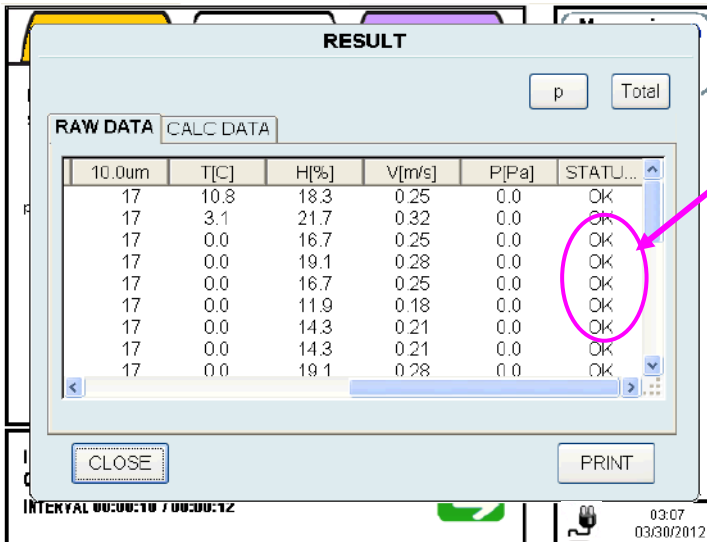
A time series chart will be displayed in INTERVAL, STATS and STANDARD modes.



Tap  $\Sigma$  to switch to the Single display.  
 Tap  $\Delta$  to return to the Total display.  
 For details on Total display and Single display,  
 please refer to **P10 Icons in the Status Display**.



### Status of Measurement RESULT display



There are six indications for STATUS;  
"OK", "F", "L", "O", "V" and "B".

Each means;

OK: No error

F: FLOW error

L: LD error

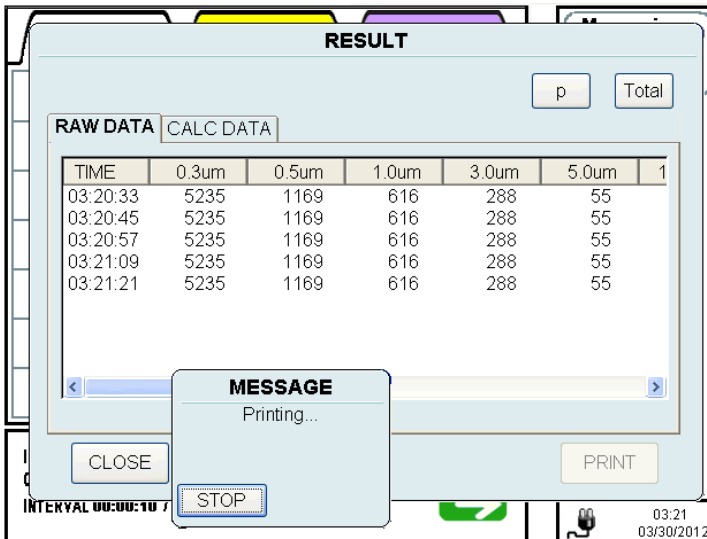
O: OPTION SENSOR error

V: OVER error

(The count per second exceeds  
the maximum detectable  
concentration)

B: BATTERY error

### Message when printing

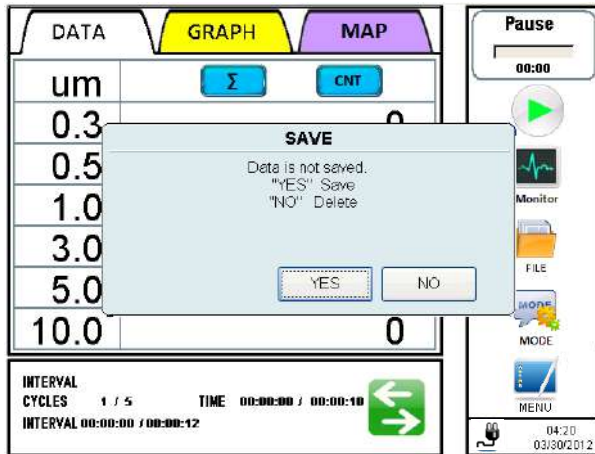


While data is being printed, the message shown to the left will be displayed.

If you tap [STOP], you can cancel the printing. However, the data already transmitted to the printer will be printed.

### 3.6.5 Saving Data

If AUTO SAVE is not checked on the MODE setting window, data will not be saved to a file after measuring. If you try to change the MODE or start another measurement when AUTO SAVE is not checked, you will get the message shown below, which asks you whether you want to save the data.



- Tap [YES] to save the data.
- Tap [NO] to discard the data.

If the electricity goes out during a measurement, data will be treated as below.

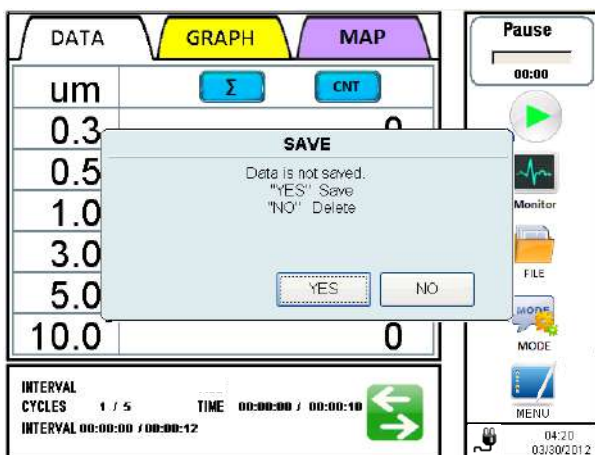
#### **[SINGLE] and [CONTINUOUS] Mode**

Data during a measurement will be discarded when the power goes OFF.

#### **[INTERVAL] Mode**

Data taken before electricity goes out remains stored in the instrument.

When restarting the instrument, you will get the message shown below, which asks you whether you want to save the data.



- Tap [YES] to save the data.
- The calculation data will be created using the data collected before the power went out.
- Tap [NO] to discard the data.

#### **[STATS] and [STANDARD] Mode**

Data taken before electricity went out remains in the instrument. However, the data from the location where a measurement was being performed when the power went out is not saved.

The measurement will be in a temporary state of suspension.

-> Refer to the next page: **3.6.6 In Case a Measurement is Interrupted.**

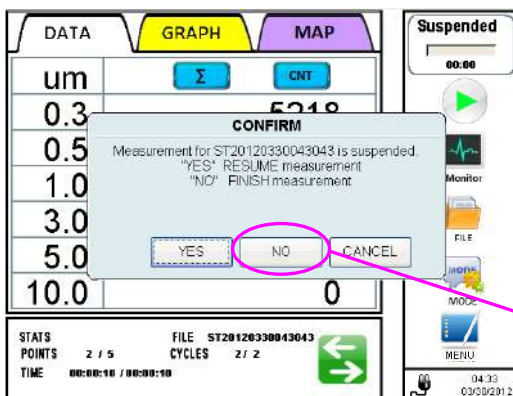
### 3.6.6 In Case a Measurement is Interrupted

If you stop a measurement in STATS or STANDARD mode before all measurements complete, and there is more than one location where a determined set of measurements is finished, the instrument will be in a temporary state of suspension. In this case, the Operating Status Display indicates "Suspended".

The instrument will remain in a temporary state of suspension until a measurement restarts or completes. During this period you cannot change the measurement mode or MODE settings.

#### [STATS]

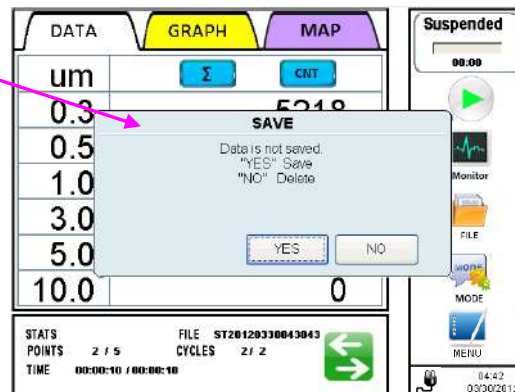
If you start a measurement when the instrument is in a temporary state of suspension, the message below will be displayed, asking you if you want to restart a measurement or not.



Tap [YES] to resume measuring from the next LOCATION.

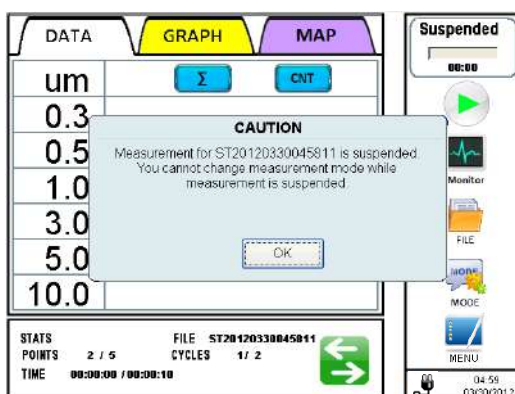
If you tap [NO], you will get a message asking if you want to save the data or not.

Tap [CANCEL] to go back to the main screen.



If you tap [NO] on the window above, a confirmation window will be displayed asking if you want to save the data or not. Tap [YES] to save the data. Tap [NO] to discard the data.

If you try to switch the mode, the message below will be displayed, indicating that the instrument is in a temporary state of suspension.

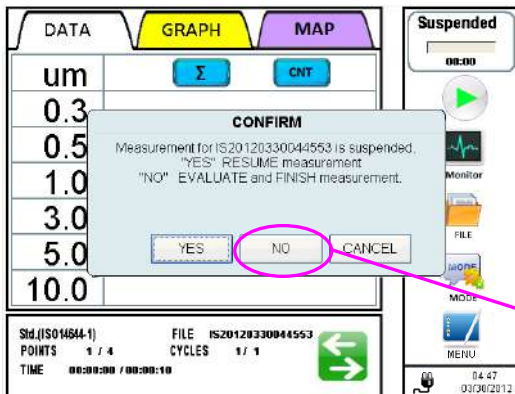


Tap [OK].

You cannot change the mode when a measurement is in a temporary state of suspension.

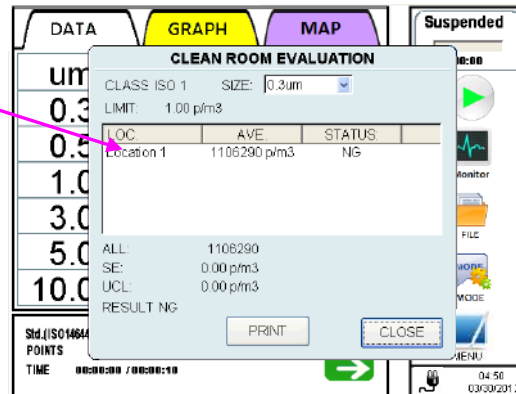
**[STANDARD]**

If you start a measurement when the instrument is in a temporary state of suspension, the message below will be displayed, asking you if you want to restart a measurement or not.



Tap [YES] to resume measuring from the next LOCATION.

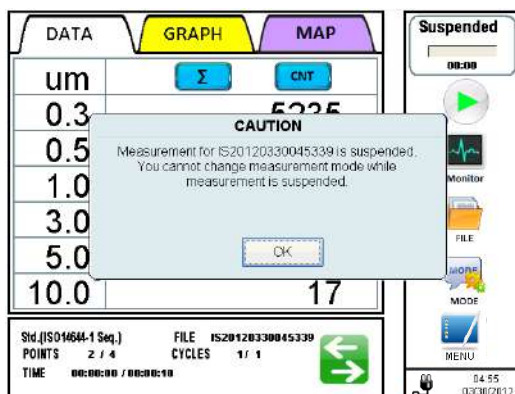
Tap [NO] to display CLEAN ROOM EVALUATION. Then the measurement will be completed.



Tap [PRINT] to print out the result.

Tap [CANCEL] to close the CLEAN ROOM EVALUATION window.

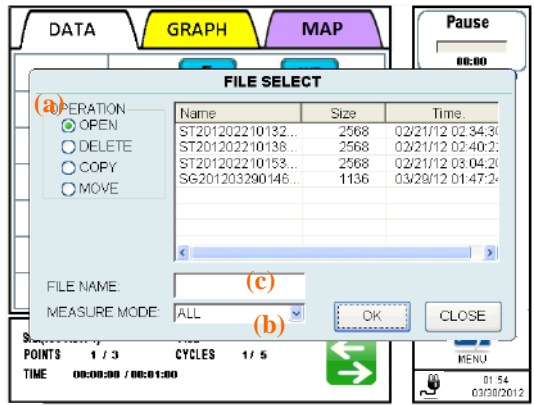
If you try to switch the mode, the message below will be displayed, indicating that the instrument is in a temporary state of suspension.



Tap [OK].

You cannot change the mode when a measurement is in a temporary state of suspension.

### 3.7 FILE



Select [FILE] on the main screen. Then a screen shown to the left will be displayed. You can display, print, delete, copy and move data here.

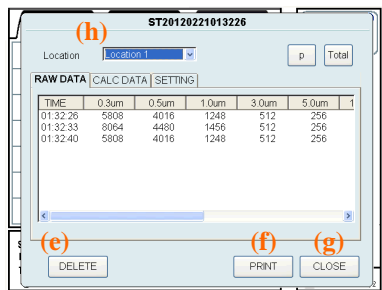
The file name consists of an abbreviation of the Measurement mode + Date + Time.

The measurement mode abbreviations are:

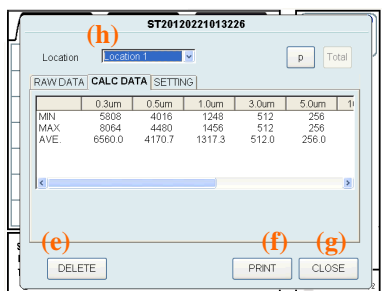
SG: SINGLE	FS: FEDERAL STANDARD
CO: CONTINUOUS	BS: BRITISH STANDARD
IN: INTERVAL	EC: EU GMP
ST: STATS	GB: GB/T
IS: ISO	

#### Data Display

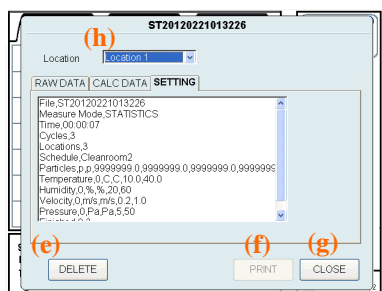
- To display names of every saved file, check [OPEN]. (When this screen is open, [OPEN] is selected by default.)
- Use [MEASURE MODE] to narrow down the files to be displayed.
- Tap the file name that you want to display, then the file name will be displayed in the box for [FILE NAME]. Then tap [OK] to open the data display screen as shown below.



<RAW DATA TAB>



<CALC TAB DATA>



<SETTING TAB>

Tap [CALC DATA] tab to display CALC result.

Tap [SETTING] tab to display the setting information.

- To delete the displayed file, tap [DELETE]. A dialog will be displayed asking you if you want to delete it or not. Tap [YES] to delete the file displayed.



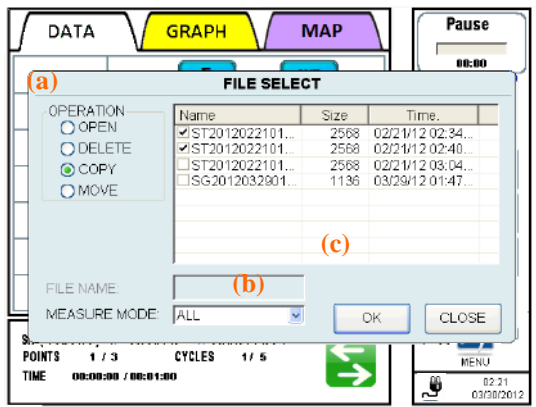
**(To delete files, a user needs to have authorization to Delete Files, and User Authentication is required)**

- Tap [PRINT] to print the data.

- Tap [CLOSE] to close a window.

- In STATS mode and STANDARD mode, you can change the data to be displayed by selecting LOCATION.

### Copy Files



- Select the [COPY] button to copy file and insert USB flash drive to store the selected file(s). A check box will be displayed at the beginning of each file name so that you can check the file(s) that you want to copy.
- Use [MEASURE MODE] to narrow down the files to be copied.
- Select the file(s) to copy and tap [OK] to save.



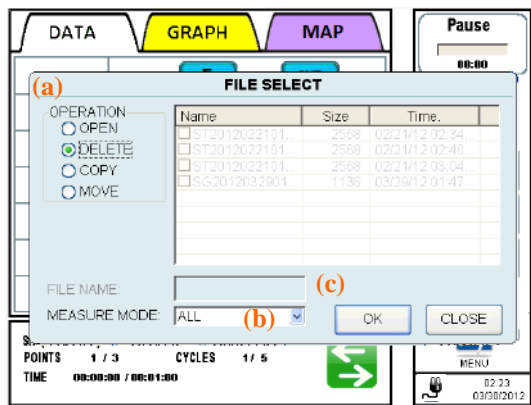
**(User Authentication required)**



**\*A User needs the authorization (Copy Files) to copy files.**

Copied files are encrypted, and can be converted to text files with the provided user management software.

### Delete Files



- Select the [DELETE] button to delete files. A check box will be displayed at the beginning of each file name so that you can check the file(s) that you want to delete.
- Use [MEASURE MODE] to narrow down the files to be deleted.
- Select the file(s) that you want to delete and tap [OK] to delete them.



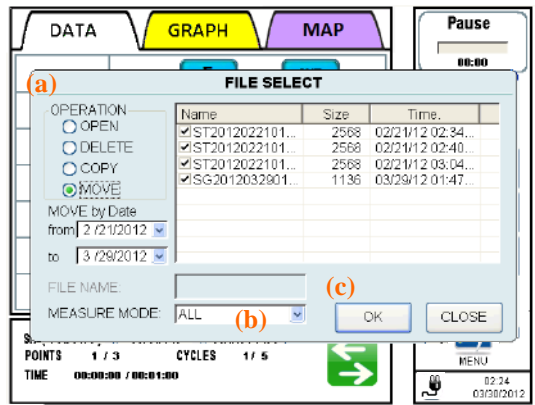
**(User Authentication required)**

**\*For data protection purpose, files can be deleted only after they have been copied.**



**\*A User needs the authorization (Delete Files) to delete files.**

## Move Files



- Select the [MOVE] button to move files from internal data storage. Insert USB flash drive to store the selected file(s). Select the dates of files to be moved. A check box will be displayed at the beginning of each file name so that you can check the file(s) that you want to move.
- Use [MEASURE MODE] to narrow down the files to be moved.
- Select the file(s) to be moved and tap [OK] to move them.



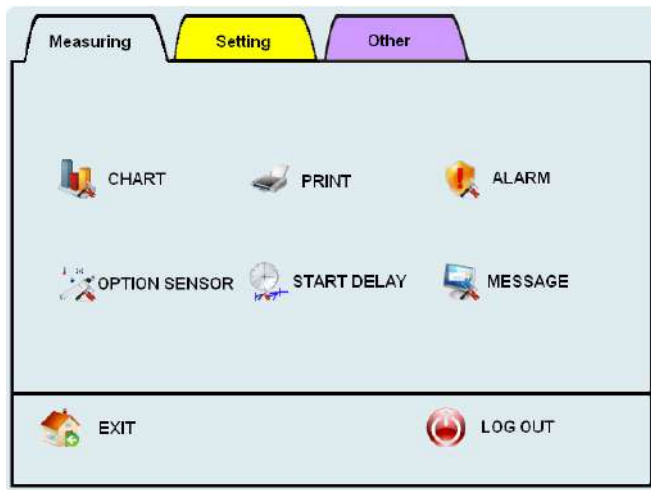
(User Authentication required)

**\*After files are moved to the USB flash drive, they are deleted from the internal data storage.**



**\*A user needs authorization to both Copy Files and Delete Files to move files.**

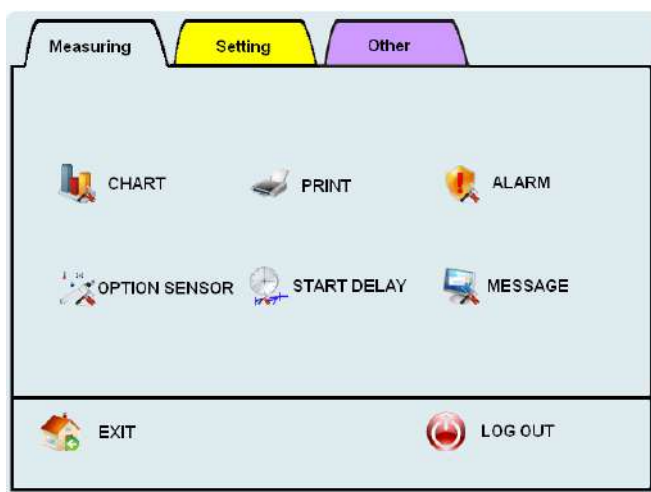
### 3.8 MENU



Select [MENU] on the main screen to display the window.

 **\*A user needs to have the authorization (Access Control Panel) to change the settings on the menu.**

#### 3.8.1 Measuring

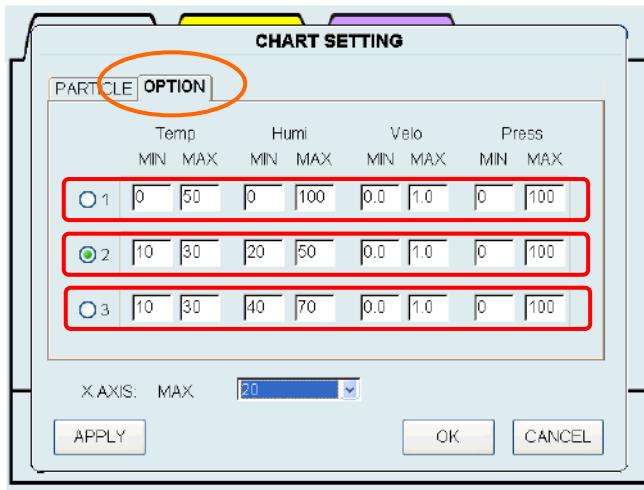


In the Measuring window you can configure the following settings;

- CHART
- PRINT
- ALARM
- OPTION SENSOR
- START DELAY
- MESSAGE









In the OPTION tab, configure the [MIN] and [MAX] settings for each sensor.

For each sensor you can set three different values.

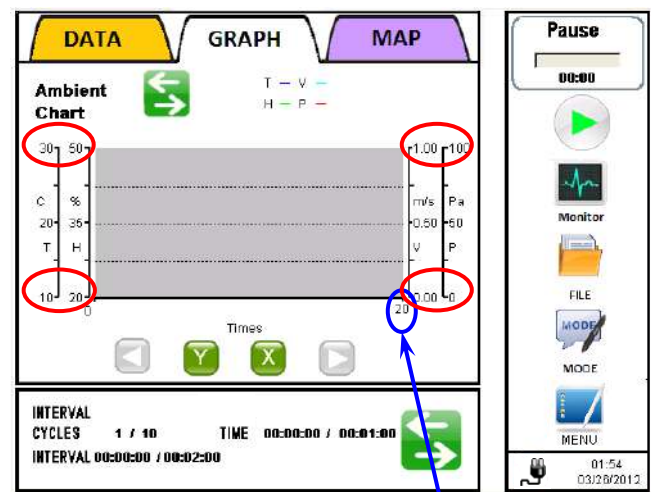
Tap [APPLY] to save the values that are currently displayed in the tab (  **User Authentication required**). The window remains open.

Tap [OK] to save the values and close the window (  **User Authentication required**).

Tap [CANCEL] to discard any changes you have made to the values and close the window. The previous values will be applied.

Select 1, 2 or 3 to determine which of the 3 value settings will be displayed on the chart.

**When you configure the chart settings as shown above, the chart will be as shown below.**



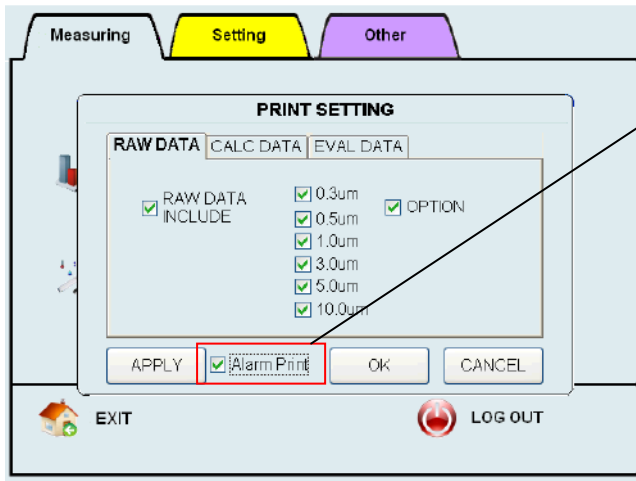
The **MAX and MIN values** set for each sensor in the OPTION tab in the CHART SETTING window is applied in the chart.

Tap **MAX or MIN value** to change it.  
(It changes in the order of MIN & MAX settings 1, 2, and 3.)

The **MAX value** set in the OPTION tab in the CHART SETTING window is applied to the chart.

Tap **MAX value** to change it.  
(It changes in the order of "10", "20", "50", "100", "150", and "300".)

## • PRINT SETTING



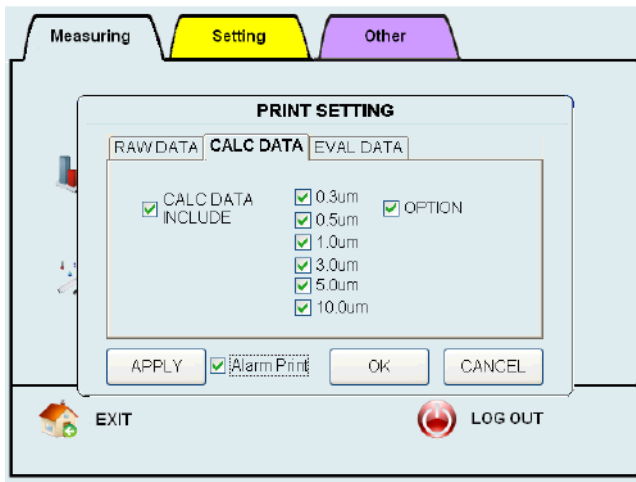
In the [PRINT SETTING] screen you can set output items for printing.

Check "Alarm Print" to print the data at the moment of an alarm being issued and when it is lifted. In [RAW DATA] tab, you can configure the following settings:

- RAW data printing ON/OFF
- Particle size(s) to be printed
- Option sensor data printing ON/OFF

Check "RAW DATA INCLUDE" to print RAW data. Check the particle size of the data that you want to print.

Check "OPTION" to output data of the option sensor.



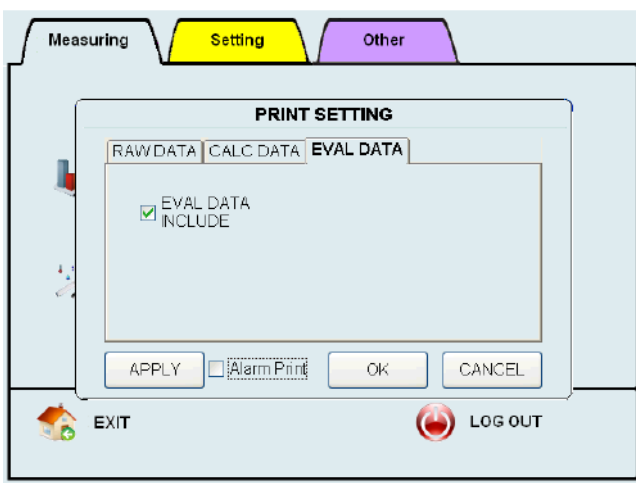
In [CALC DATA] tab, you can configure the following settings;

- CALC data printing ON/OFF
- Particle size(s) to be printed out
- Option sensor data printing ON/OFF

Check "CALC DATA INCLUDE" to print calculated data (MAX, MIN and AVE).

Check particle size of the data that you want to print out.


Check "OPTION" to output data of the option sensor(s).




In [EVAL DATA] tab, configure the following setting;

[EVAL data printing ON/OFF]

Check "EVAL DATA INCLUDE" to print out evaluation data.

Tap [APPLY] to save the settings (  **User Authentication required** ).

The window remains open.

Tap [OK] to save the settings and close the window (  **User Authentication required** ).

Tap [CANCEL] to discard the settings and close the window. The previous configuration will be applied.

## • ALARM SETTING

**ALARM SETTING**

PARTICLE OPTION

UNIT: p

ENABLE	ALARM LEVEL
<input checked="" type="checkbox"/> 0.3	9999999
<input checked="" type="checkbox"/> 0.5	9999999
<input checked="" type="checkbox"/> 1.0	9999999
<input checked="" type="checkbox"/> 3.0	9999999
<input checked="" type="checkbox"/> 5.0	9999999
<input checked="" type="checkbox"/> 10.0	9999999

APPLY ☒ Alarm Sound OK CANCEL

In ALARM SETTING you can set thresholds for the particle alarm and option sensor alarm.

In the PARTICLE tab, configure the unit and threshold for each particle.

Check the particle size that you want to alarm by external contact output and audible alarm\*.

(\* Note that audible alarm will be activated only when "Alarm Sound" is checked.)

Also enter the threshold that you want to trigger the alarm.

To enter the threshold, tap the entry field to display a numeric keypad. Enter a value and tap [Enter].

**ALARM SETTING**

PARTICLE OPTION


	Temp	Humi	Velo	Press
UNIT	C	%	m/s	Pa
MIN	10.0	20.0	0.2	5.0
MAX	40.0	60.0	1.0	50.0

APPLY ☐ Alarm Sound OK CANCEL


In the OPTION tab, you can set an alarm threshold for TEMPERATURE, HUMIDITY, VELOCITY and DIFFERENTIAL PRESSURE.

Tap the entry field to display a numeric keypad. Enter a value and tap [Enter].

To activate the audible alarm check "Alarm Sound".

Tap [APPLY] to save the settings (  **User Authentication required** ).

The window remains open.

Tap [OK] to save the settings and close the window. (  **User Authentication required** ).

Tap [CANCEL] to discard the settings and close the window. The previous configuration will be applied.

## • OPTION SENSOR SETTING


The screenshot shows the 'OPTION SENSOR SETTING' window. It has a header with 'Measuring', 'Setting' (highlighted), and 'Other' tabs. Below the tabs, there's a table-like structure for four sensors: Temp, Humi, Velo, and Press. Each sensor row includes a 'USE/NOUSE' checkbox (all are checked), a unit selection dropdown (C, %RH, m/s, Pa), and input fields for MIN and MAX values. Below these are 'INSTANT' dropdowns for each sensor. At the bottom of the window are 'CHECK', 'OK', and 'CANCEL' buttons. The very bottom of the screen shows 'EXIT' and 'LOG OUT' options.

In the OPTION SENSOR SETTING screen you can confirm if the option sensor is connected or not, and whether or not to use the sensor.

You can also set the unit and MIN/MAX measuring range for each sensor. MIN/MAX value should be the spec range for each sensor.

A sensor will be displayed in blue if it is connected or in gray if it is not.

To use an option sensor, check USE/NO USE box.

Tap [OK] to save the settings and close the window (  **User Authentication required** ).

Tap [CANCEL] to discard entries and close the window.

### UNIT:

Set the unit for TEMPERATURE and VELOCITY.

For TEMPERATURE, select °C or °F

For VELOCITY, select m/sec or FPM.

### MIN/MAX:

Set the measurable range of the sensor according to the specifications of each option sensor.

Tap an entry field to display a numeric keyboard. Enter a value and tap [Enter].

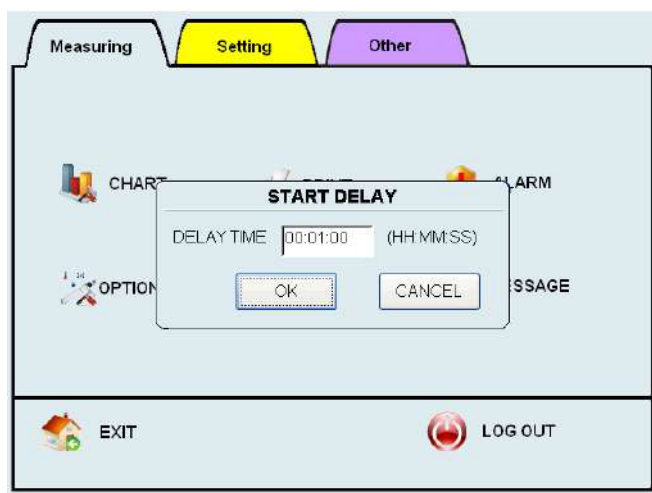
### INSTANT/ AVERAGE:

Select INSTANT or AVERAGE for measurement display format.

### CHECK button:

Tap [CHECK] to confirm if the option sensor(s) are connected or not.

### • START DELAY

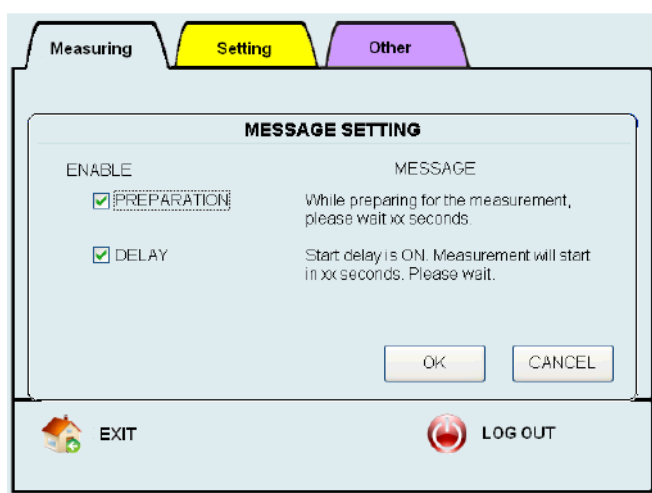


In the START DELAY window set a measurement delay time.


Tap the entry field to display a keyboard. Enter "hours", "minutes" and "seconds" then tap [OK] to activate the settings

( **User Authentication required**).

### • MESSAGE SETTING



In the MESSAGE SETTING window, you can choose whether or not to display messages for "PREPARATION" and "DELAY".

Tap [OK] in order to activate the settings ( **User Authentication required**).

#### - PREPARATION:

displays a message after the pump is ON before sampling starts.

#### - DELAY:

displays a message before sampling starts when START DELAY function is ON.

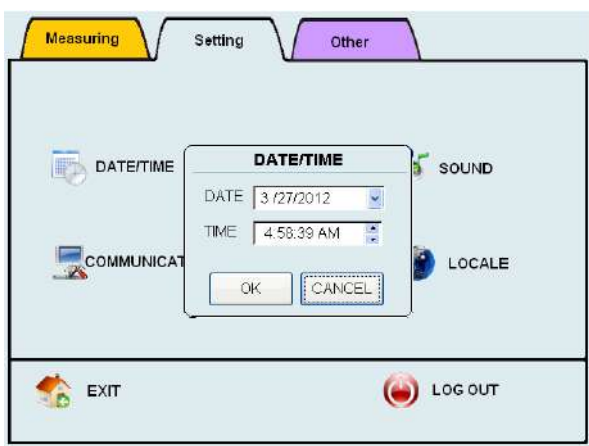
### 3.8.2 Setting



In the Setting window you can configure the following;

- DATE/TIME
- LCD
- SOUND
- COMMUNICATION
- REGION

#### • DATE/TIME



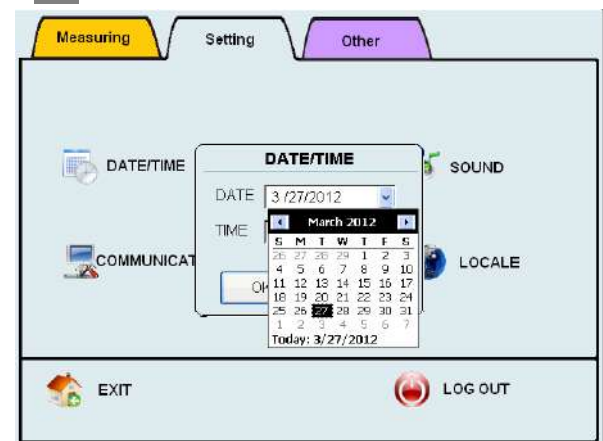
In the DATE/TIME settings:

To adjust DATE, tap [▼] to display a calendar and set the date.

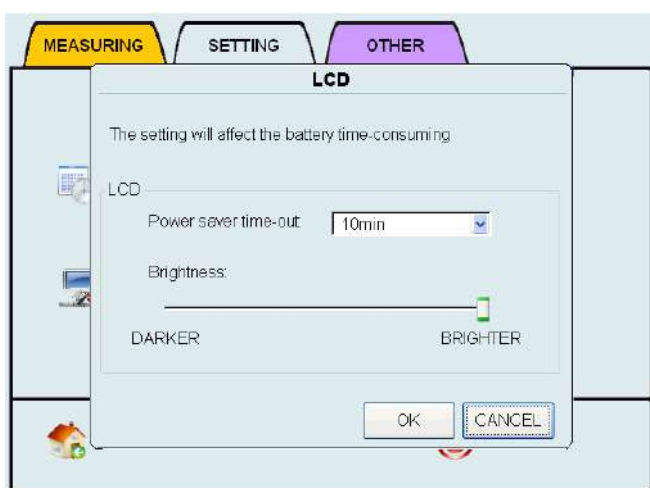
To change the TIME, tap "hours", "minutes" and "seconds" then use the [▲/▼] buttons to adjust the selected number.

Tap [OK] to activate the settings

( **User Authentication required**).



#### • LCD



In the LCD settings, configure the Power saver time-out and Brightness setting. Also the LCD displays the power state of the unit (battery level, power source (AC/battery), battery charging, etc.)

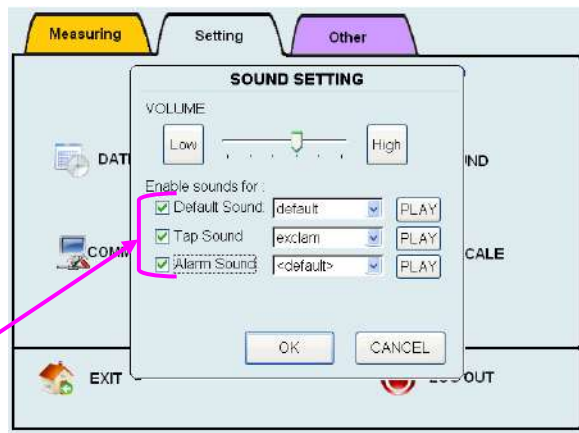
For the Power saver time-out setting, select one among 1min, 2min, 5min, 10min, 15min, & 30min.

To configure the brightness setting, move the slider to the desired setting.

Tap [OK] to save the settings

( **User Authentication required**).

## • SOUND



### Default Sound:

Set the sound for erroneous operation. When this item is unchecked, this sound function will be off.

### Tap Sound:

Set the tap sound on the screen. When this item is unchecked, there will be no tap sound.

### Alarm Sound:


Set the sound for the Alarm. When this item is unchecked, there will be no alarm sound.

In the SOUND settings, you can configure the sound volume and sound type.

You can use any Windows standard WAV format file for the sound functions.

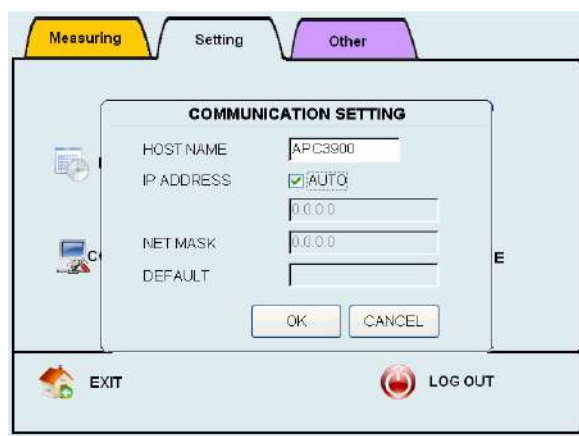
Create a folder named "Sound" on the USB flash drive. Then copy the WAV file(s) in the folder. You will be able to select the file from the list as long as the USB flash drive is installed (\* is added to all of the WAV file names on the USB flash drive).

Selected WAV files are transferred to internal data storage. Therefore, after selecting the files and choosing [OK], you can remove the USB flash drive.

Tap [OK] to save the settings and close the window (  **User Authentication required** ).

Tap [CANCEL] to discard the configured settings (Previous settings will be applied).


## • COMMUNICATION



In [COMMUNICATION SETTING], configure the settings for Ethernet connection. This settings need to be configured when connecting the instrument to a PC using remote console or remote mode.

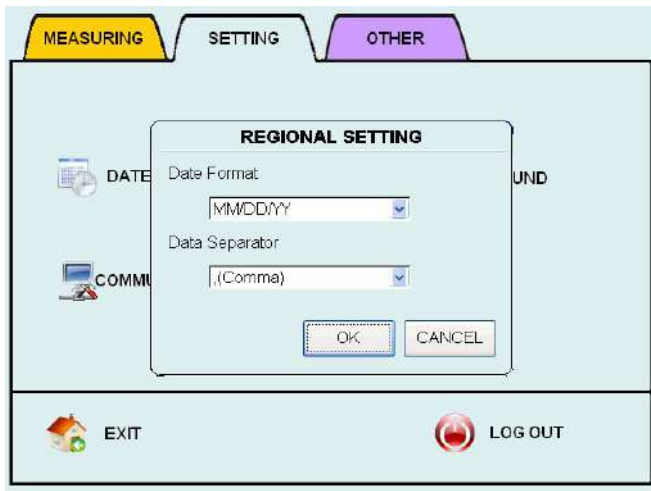
For the HOST NAME, enter a name to identify the instrument when it is connected to a network or workgroup by Ethernet. (Be sure not to use the same name as other PCs or devices on the network or workgroup.)

For IP ADDRESS, check AUTO to acquire an IP ADDRESS automatically. If AUTO is unchecked, enter IP Address, NET MASK and DEFAULT Gateway.


Tap [OK] to save the settings and to close the window (  **User Authentication required** ).

Tap [CANCEL] to discard the configured settings (Previous settings will be applied).



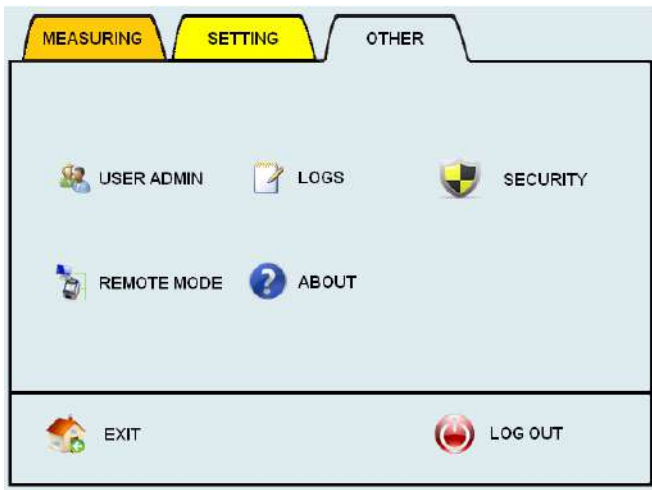
**REGION**

In [REGIONAL SETTING], you can set the date display format to be used when saving files.


Tap [OK] to save the settings and close the window. (  **User Authentication required**)

Tap [CANCEL] to discard the current settings.

### 3.8.3 Other



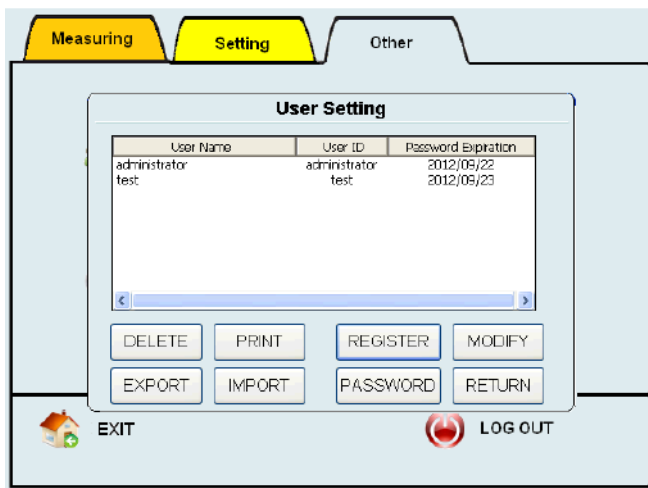
In [Other] window you can configure the following settings;

- USER ADMIN  (to open User Information screen)
- LOGS
- ABOUT (for version information)
- REMOTE MODE
- SECURITY (for security settings)

#### • User Setting



[User Setting] is displayed only when the User Authentication function is activated.



[User Setting] screen shows up by choosing [USER ADMIN] menu on the control panel. Registering a user, modifying user information, deleting an account, importing/exporting user information, printing user information, and changing a user password can be done from the [User Setting] window.




**\*Registering, modifying, and deleting User information have to be done by an Administrator user.**





**\*A user needs to have the authorization (Copy Files) to import and export User information.**


User Setting window shows registered users.


Select one of the registered users displayed on the screen and tap [DELETE] to delete the selected user (  **User Authentication required** ).

Select one of the registered users displayed on the screen and tap [PRINT] to print out the selected user information.

Tap [REGISTER] to register a new user (  **User Authentication required** ).

Select one of registered users and tap [MODIFY] to edit the selected user information (  **User Authentication required** ).

Tap [EXPORT] to copy the selected user information into storage (  **User Authentication required**, insert USB flash drive ). Exported user information can be modified by PC software.

Tap [IMPORT] to import user information from the USB flash drive (  **User Authentication required** ).

Tap [PASSWORD] to change the selected user's password.

Tap [RETURN] to go back to the control panel.

**User Information Window (Configured only by an Administrator User)**

**(a)** User Information

NO. 1

Name: administrator **(b)**

Information Qualification

ID: administrator **(c)**

Password: \*\*\*\*\* **(d)**

Password reenter: \*\*\*\*\* **(e)**

Company/Division: **(f)**

Memo: **(g)**

Password expires on 2012/09/23  
Registered by administrator on 2012/03/27  
Last modified by administrator on 2012/03/27

OK CANCEL

Select [REGISTER] or [MODIFY] in the [User Setting] screen to display [User Information] window.

In [User Information] window you can add users and edit user information.

[Information] tab contains user information

[Qualification] tab is for setting user authorizations.

(a) User Number: automatically assigned

(b) User Name: up to 40 characters

(c) User ID: up to 16 characters. Duplicate IDs are not allowed

(d) Password: 4 to 16 characters

(e) Password Reenter: confirmation of password

(f) Company / Division: up to 99 characters

(g) Memo: up to 99 characters

**(h)** Qualification

☒ Administrator

☒ Manage Users

☒ Access Control Panel

☒ Change Measurement Mode

☒ Copy Files (Include Remote Access)

☒ Delete Files

☒ View Logs

Password expires on 2012/09/23 **(i)**  
Registered by administrator on 2012/03/27 **(j)**  
Last modified by administrator on 2012/03/27 **(k)**

OK CANCEL

(h) Qualification:

Check the items to set user authorizations. Administrators automatically have the authorization to perform all tasks.

Items (i), (j), and (k) show the information of the current user.

(i) Password expiration:

Shows the expiration date of the password. Passwords expire every 180 days.

The default Administrator password needs to be changed within 60 days.

(j) Registration date:

Shows the registration date and the User ID which registered the information

(k) Last modified date:

Shows the latest modified date and the User ID which modified the information

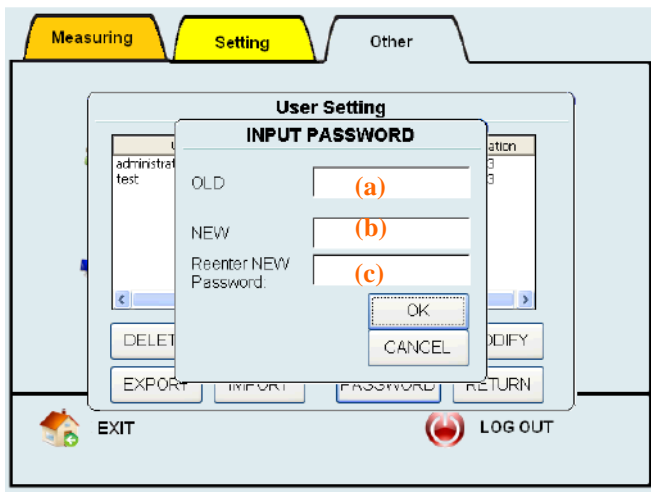
Tap [OK] to register the information and go back to [User Setting] window.

Tap [CANCEL] to cancel the registration and go back to [User Setting] window.

### Qualification

Qualification	Definition
Administrator	An administrator automatically has the authorization to perform all tasks. [Manage Users] are only assigned to the administrator.
Manage Users	Allows a user to add, edit, delete and activate/deactivate users.
Access Control Panel	Allows a user to change settings in the control panel.
Change Measurement Mode	Allows a user to change the measurement mode.
Copy Files	Allows a user to copy data, such as measurement data, log data And user information. Data can be copied via network.
Delete Files	Allows a user to delete data, such as measurement data and user preset.
View Logs	Allows a user to review the log data.

### Input Password



Select [PASSWORD] in [User Setting] window to open [INPUT PASSWORD] window.

Edit password from [INPUT PASSWORD] window.

The keyboard shows up when a user taps entry fields.

(a) OLD Password: type in the current password.

(b) NEW Password: type in the new password.

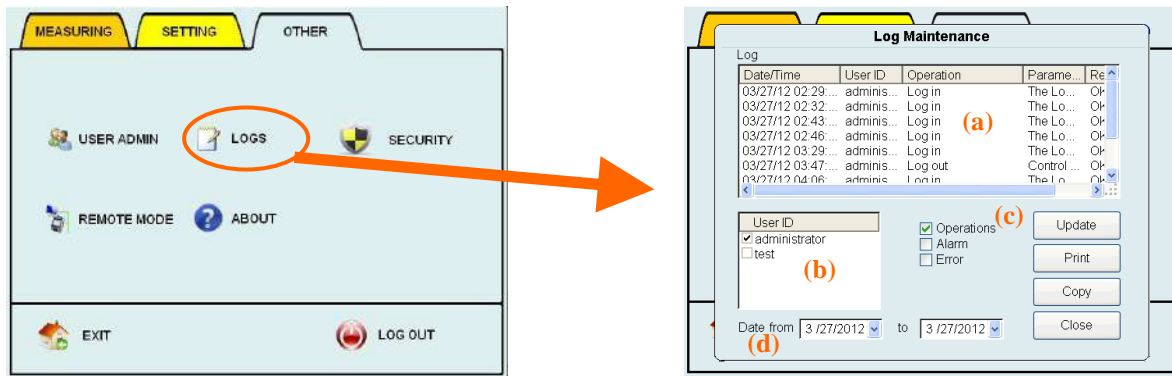
(c) Reenter NEW Password: confirm the new password

Tap [OK] to renew your password and go back to [User Setting] window.

Tap [CANCEL] to cancel the process and go back to [User Setting] window.

## • Log Maintenance

The [Log Maintenance] screen shows up when you select “LOGS” on the control panel. Users can review and print-out the log files, such as the operation log, alarm log, and error log.



**\*A User needs the authorization (View Logs) to view logs.**



**\*A User needs the authorization (Copy Files) to copy files.**

### (a) Log List

Shows following information; Date/Time, User ID, Operation (requests and results), and Parameters

### (b) User ID

Select user ID to review the user's logs.

User ID is displayed only when the User Authentication function is activated.

### (c) Operations / Alarm / Error

Select the type of log from the following:

Operations: show operation logs.

Operations are displayed only when the User Authentication function is activated.

Alarm: shows alarm logs.

Error: shows error logs.

### (d) Date

Select start date and end date for logs

Tap [Update] to refresh the log list, which is based on the criteria you select in (b), (c) and (d).

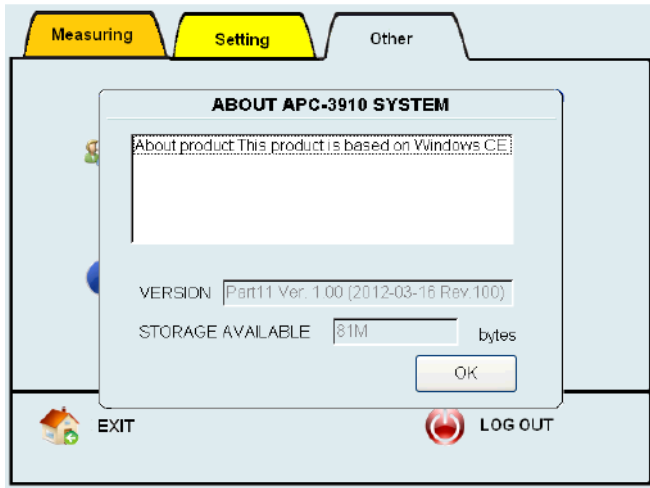
Tap [Print] to print out the current information from the log list.

Tap [Copy] to copy the selected log files to the USB flash drive..

(  **User Authentication required** ).

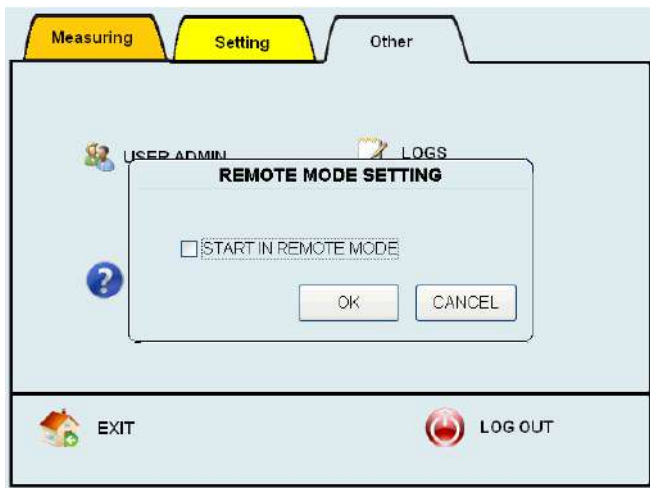
Tap [Close] to go back to the control panel.

## • ABOUT



Tap [ABOUT] to view the firmware version of the instrument and the remaining capacity of the internal data storage.

## • REMOTE MODE SETTING



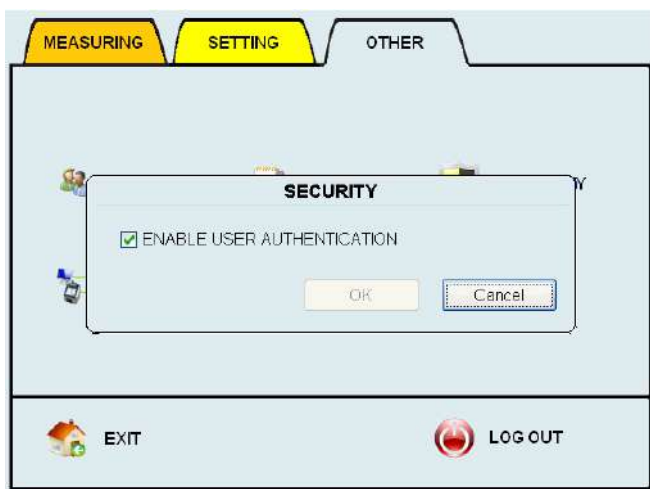
In the REMOTE MODE SETTING, check "START IN REMOTE MODE" to activate remote mode automatically when the instrument is turned ON.

Enter remote address in the entry field for ID.

Tap [OK] to save the settings and close the window.

Tap [CANCEL] to discard changes.

## • SECURITY SETTING



In the SECURITY SETTING, the User Authentication function can be activated and deactivated.

Check [ENABLE USER AUTHENTICATION] to enable the User Authentication function.

Tap [OK] to save the settings and close the window (🛡️ **User Authentication required**).

Tap [CANCEL] to discard the settings.

**When activating the User Authentication function**

Login from the [Log-In] screen.

For more information on Log-In, please refer to **3.2 Log-In**.

Authentication											
USER:		<input type="text" value="administrator"/>									
PASSWORD:		<input type="password"/>									
1	2	3	4	5	6	7	8	9	0	CLR	
Q	W	E	R	T	Y	U	I	O	P	BS	
A	S	D	F	G	H	J	K	L	+	/	
Z	X	C	V	B	N	M	.	-	=		
CAPS		SPACE		SWITCH		ShutDown			OK		

Log-In Screen

**When deactivating the User Authentication function**

User Authentication is required. A user without administrator authorization is not allowed to deactivate the User Administration function.

### 3.8.4 LOG OUT



#### When User Authentication is deactivated

Tap [LOG OUT] to display a dialogue asking if you want to shut down.

Tap [YES] to turn the instrument OFF 5 seconds later.



#### When User Authentication is activated

The Authentication screen features a title bar labeled 'Authentication'. Below it are two input fields: 'USER:' with the text 'administrator' and 'PASSWORD:' which is currently empty. Below the input fields is a numeric keypad with buttons for digits 1-0, a CLR button, and letters QWERTYUIOP, BS, ASDFGHJKL, +/, ZXCVBNM, ., -, and =. At the bottom of the screen are four buttons: CAPS, SPACE, SWITCH, and a red 'ShutDown' button next to a green 'OK' button.

Tap [LOG OUT] to return to the [LOG IN] screen.

At this screen, you can switch the users and also can shut-down the instrument.

When the [OK] button is tapped after a user ID and password are inputted, you return to [MENU] screen.

Tap [SHUTDOWN]. A window will be displayed asking "Do you want to shut down the power?"

5 seconds after tapping [YES], the instrument will shut down.

**\*Make sure to turn the power off at the [LOG IN] screen. If the power is not turned off from the [LOG IN] screen, settings or data loss, as well as hardware errors may occur.**

### 3.8.5 EXIT

Go back to the main screen.



## 4. PC Applications

The provided PC applications allow you to process measurement data and to operate the instrument from a Windows computer via network.

This section describes important settings when using the PC applications.

For details of each application, refer to the operation manual "AIRBORNE PARTICLE COUNTER SOFTWARE".

### **4.1 User Management**

You can transfer files from the instrument and edit them on PCs. In addition to the management of data and log files, you can also edit user information files.

Data and log files may be converted into text files, so that they can be used with other applications.

- To transfer files via network, connect the instrument to the network and enter the appropriate settings in the COMMUNICATION SETTING screen.
- To access the instrument from a PC, enter the HOST NAME specified in the COMMUNICATION SETTING.
- When the User Authentication function is activated, user authentication is required in order to connect to the instrument via PC. Enter your user ID and Password as registered in the instrument.
- To transfer data to a PC using the USB flash drive, select "COPY" in the [FILE SELECT] window to transfer data files, and "COPY" in the [LOG MANAGEMENT] window to transfer log files. Select "EXPORT" in the [USER MANAGEMENT] window to transfer user information files. A User needs the authorization (Copy Files) to copy files.
- To update the user information file on the instrument, in the [USER MANAGEMENT] window, import the user information file edited on a PC.

### **4.2 Remote Console**

The program allows remote operation of the instrument from a PC via network.

- Connect the instrument to the network and enter the appropriate settings in the COMMUNICATION SETTING screen.
- To access the instrument from a PC, enter the HOST NAME specified in the COMMUNICATION SETTING.
- When the User Authentication function is activated, user authentication is required in order to connect to the instrument via PC. Enter your User ID and Password as registered in the instrument. The user Authentication is required for remote control.

### **4.3 Create Schedule**

You can create schedules to be used for STATS mode and STANDARD mode, and upload them to the instrument.

- Connect the instrument to the network and enter the appropriate settings in the COMMUNICATION SETTING screen.
- To access the instrument from a PC, enter the HOST NAME specified in the COMMUNICATION SETTING.
- When the User Authentication function is activated, user authentication is required in order to connect to the instrument. Enter your User ID and Password as registered in the instrument. A user needs the authorization (Copy Files) to copy files.

#### **4.4 Remote Measurement**

You can read data stored in the instrument directly from PCs connected via network to take measurements.

- You need to connect the instrument to the network and make appropriate settings in the COMMUNICATION SETTING.
- Before taking remote measurements, "START IN REMOTE MODE" needs to be checked in the [REMOTE MODE SETTING] window, which can be displayed from the CONTROL PANEL screen of the instrument.  
(Please refer to 3.6.7 REMOTE MODE.)
- Enter the HOST NAME specified in the COMMUNICATION SETTING for the destination.

## 5. Connecting Option Sensors

Two types of sensors plus an alarm function are available as optional extras for this instrument. By connecting the sensors or an alarm to three different connectors on the rear of the unit, you can perform two different kinds of measurement and one contact output for the alarm simultaneously.

Temperature, Humidity, Velocity Probe - Model 6531	
Temp. Range	-20 to 70 °C
Temp. Accuracy	±0.5 °C
Humidity Range	2 to 98 %RH
Humidity Accuracy	±2 %RH (when in the range of 2-80%RH, other ±3 % )
Velocity Range	0.01 to 30 m/s
Velocity Accuracy	±2% of reading or ±0.015m/s, whichever is greater
Dimension	Φ10 to 16 x212 mm Length of the probe cable: 2m



Contact Output Cable - Model 3910-03	
When the alarm function is ON and the threshold is exceeded, the alarm will be turned ON.	
Spec	Photocoupler Maximum rating: 60V/400 mA Red: + / Black: -

\*The alarm output is a single set of contacts that activates upon any sensor threshold being exceeded. It can be used to activate an alarm light, etc.

Pressure Transmitter - Model C264 0-100Pa	
Pressure Range	0 ~ 100 Pa
Pressure Accuracy	±1 %F.S.
Guaranteed Temp	5 to 65 °C
Output	4 to 20 mA

\*When connecting the pressure transmitter, cable MODEL 3900-02 is required separately. Please check with your sales representative.

## 6. Printing Examples

### 6.1 Printing Example for Each Measurement Mode

#### 6.1.1 SINGLE

[SG20101201120000]  
Instrument ID = Model 3910  
Ser.No. = 654321  
Calibrated on 11/22/2010  
Measured by kanomax  
Measured on 12/01/2010  
Sample Time = 00:01:00  
Cycles = 1  
Printed by kanomax

Particle [p][DIFF]

TIME 12:00:00

0.3um	8000
0.5um	5000
1.0um	3000
3.0um	1000
5.0um	500
10.0um	100

T[C]	:	25.2
H[%]	:	68.5
V[m/s]	:	0.1
P[Pa]	:	15

**6.1.2 CONTINUOUS**

[C020101201120000]

Instrument ID = Model 3910

Ser.No. = 654321

Calibrated on 11/22/2010

Measured by kanomax

Measured on 12/01/2010

Sample Time = 00:01:00

Cycles = 1

Printed by kanomax

Particle [p][DIFF]

TIME 12:00:00

0.3um 8000

0.5um 5000

1.0um 3000

3.0um 1000

5.0um 500

10.0um 100

T[C] : 25.2

H[%] : 68.5

V[m/s]: 0.1

P[Pa] : 15

**6.1.3 INTERVAL**

[IN20101201120000]

Instrument ID = Model 3910

Ser. No. = 654321

Calibrated on 11/22/2010

Measured by kanomax

Measured on 12/01/2010

Sample Time = 00:00:06

Cycles = 10

Printed by kanomax

Start at 12/01/2010 12:00:00

Sample Time = 00:00:06

Repeats = 10

Particles [p]

0.3um

Min= 15623

Max= 16136

Ave= 15848.3

0.5um

Min= 389

Max= 521

Ave= 441.9

1.0um

Min= 57

Max= 103

Ave= 90.9

3.0um

Min= 3

Max= 12

Ave= 7.4

5.0um

Min= 0

Max= 4

Ave= 1.4

10.0um

Min= 0

Max= 2

Ave= 0.2

Temperature [C]

Min= 24.8

Max= 25.3

Ave= 25.2

Humidity [%]

Min= 64.3

Max= 68.2

Ave= 65.4

Velocity [m/s]

Min= 0.1

Max= 0.3

Ave= 0.2

Pressure [Pa]

Min= 13

Max= 21

Ave= 15

Stat. data

Particles [p][DIFF]

TIME 12:00:00

0.3um 15942

0.5um 389

1.0um 92

3.0um 6

5.0um 2

10.0um 0

TIME 12:01:00

0.3um 15623

0.5um 439

1.0um 102

3.0um 5

5.0um 0

10.0um 0

...

...

TIME 12:09:00

0.3um 15759

0.5um 521

1.0um 103

3.0um 10

5.0um 2

10.0um 2

Raw data

TIME 12:00:00

T[C] : 24.8

H[%] : 64.3

V[m/s] : 0.2

P[Pa] : 13

TIME 12:01:00

T[C] : 24.8

H[%] : 64.3

V[m/s] : 0.2

P[Pa] : 13

...

...

TIME 12:09:00

T[C] : 25.1

H[%] : 68.1

V[m/s] : 0.3

P[Pa] : 20

## 6.1.4 STATS

[ST20101201120000]  
 Instrument ID = Model 3910  
 Ser. No. = 654321  
 Calibrated on 11/22/2010  
 Measured by kanomax  
 Measured on 12/01/2010  
 Sample Time = 00:01:00  
 Cycles = 5  
 Printed by kanomax  
 1:Location1 (1/5)  
 Start at 12/01/2010 12:00:00  
 Sample Time = 00:00:06  
 # of Data = 1

Particles [p]  
 0.3um  
 Min= 15623  
 Max= 16136  
 Ave= 15848.3  
 0.5um  
 Min= 389  
 Max= 521  
 Ave= 441.9  
 1.0um  
 Min= 57  
 Max= 103  
 Ave= 90.9  
 3.0um  
 Min= 3  
 Max= 12  
 Ave= 7.4  
 5.0um  
 Min= 0  
 Max= 4  
 Ave= 1.4  
 10.0um  
 Min= 0  
 Max= 2  
 Ave= 0.2

Temperature [C]  
 Min= 24.8  
 Max= 25.3  
 Ave= 25.2  
 Humidity [%]  
 Min= 64.3  
 Max= 68.2  
 Ave= 65.4  
 Velocity [m/s]  
 Min= 0.1  
 Max= 0.3  
 Ave= 0.2  
 Pressure [Pa]  
 Min= 13  
 Max= 21  
 Ave= 15

2:Location2 (2/5)  
 Start at 12/01/2010 12:25:00  
 Sample Time = 00:00:06  
 Repeats = 10

(Print 5 locations)

Stat. data

Particles [p][DIFF]  
 TIME 12:00:00  
 0.3um 15924  
 0.5um 389  
 1.0um 92  
 3.0um 6  
 5.0um 2  
 10.0um 0  
  
 T[C] : 24.8  
 H[%] : 64.3  
 V[m/s]: 0.2  
 P[Pa] : 13

TIME 12:00:00  
 0.3um 15924  
 0.5um 389  
 1.0um 92  
 3.0um 6  
 5.0um 2  
 10.0um 0

T[C] : 24.8  
 H[%] : 64.3  
 V[m/s]: 0.2  
 P[Pa] : 13



(Print 25 points)

TIME 12:45:00  
 0.3um 15758  
 0.5um 320  
 1.0um 85  
 3.0um 6  
 5.0um 2  
 10.0um 5

T[C] : 24.8  
 H[%] : 64.3  
 V[m/s]: 0.2  
 P[Pa] : 13

Raw data

**6.1.5 STANDARD(for the measurement standards ISO14644-1:2015)**

Company = KANOMAX  
 [IS20101201120000]  
 Instrument ID = Model 3910  
 Ser. No. = 654321  
 Calibrated on 11/22/2010  
 Measured by kanomax  
 Measured on 12/01/2010  
 Start at 12:00:00  
 End at 12:45:00  
 Sample Time = 00:01:00  
 Cycles = 5  
 Printed by kanomax  
 Class = ISO 6  
 Sizes = 0.3um

1:Location1 2887279 p/m3 NG  
 2:Location2 2848409 p/m3 NG  
 3:Location3 2793992 p/m3 NG  
 4:Location4 2904593 p/m3 NG  
 5:Location5 2840989 p/m3 NG

Limit : 102000 p/m3  
 Result 0.5u: NG  
 Result 5.0u: NG

Limit : 3520 p/m3 (0.5um)  
 Limit : 29 p/m3 (5.0um)  
 Result 0.5u(GMP):NG  
 Result 5.0u(GMP):NG

1:Location1 (1/5)  
 Start at 12/01/2010 12:00:00  
 Sample Time = 00:00:06  
 Cycles = 10

Particles [p]  
 0.5um  
 Min= 389  
 Max= 521  
 Ave= 441.9  
 5.0um  
 Min= 0  
 Max= 4  
 Ave= 1.4

All Locations=1-5  
 Particles [p]  
 0.5um  
 Min= 389  
 Max= 521  
 Ave= 441.9  
 5.0um  
 Min= 0  
 Max= 4  
 Ave= 1.4

Temperature [C]  
 Min= 24.8  
 Max= 25.3  
 Ave= 25.2  
 Humidity [%]  
 Min= 64.3  
 Max= 68.2  
 Ave= 65.4  
 Velocity [m/s]  
 Min= 0.1  
 Max= 0.3  
 Ave= 0.2  
 Pressure [Pa]  
 Min= 13  
 Max= 21  
 Ave= 15

**Eval. data**

2:Location2 (2/5)  
 Start at 12/01/2010 12:25:00  
 Sample Time = 00:00:06  
 Repeats = 10



(Print 5 locations)

Particles	[p]	[DIFF]	[CUMUL]
TIME	12:00:00		
0.3um	15924		15535
0.5um	389		297
1.0um	92		86
3.0um	6		4
5.0um	2		2
10.0um	0		0

TIME	12:01:00		
0.3um	15623		15184
0.5um	439		336
1.0um	103		98
3.0um	5		5
5.0um	0		0
10.0um	0		0



(Print 25 points)

TIME	12:45:00		
0.3um	15623		15164
0.5um	459		336
1.0um	123		113
3.0um	10		8
5.0um	2		0
10.0um	2		2

TIME	12:00:00
T[C]	24.8
H[%]	64.3
V[m/s]	0.2
P[Pa]	13

TIME	12:01:00
T[C]	24.5
H[%]	64.0
V[m/s]	0.2
P[Pa]	13



(Print 25 points)

TIME	12:45:00
T[C]	25.1
H[%]	68.1
V[m/s]	0.3
P[Pa]	20

Operated by

Checked by

**Raw data**



**6.1.6 STANDARD(for the measurement standards other than ISO14644-1:2015)**

Company = KANOMAX  
 [IS20101201120000]  
 Instrument ID = Model 3910  
 Ser. No. = 654321  
 Calibrated on 11/22/2010  
 Measured by kanomax  
 Measured on 12/01/2010  
 Sample Time = 00:01:00  
 Cycles = 5  
 Printed by kanomax  
 Class = ISO 6  
 Sizes = 0.3um

1:Location1 2887279 p/m3 NG  
 2:Location2 2848409 p/m3 NG  
 3:Location3 2793992 p/m3 NG  
 4:Location4 2904593 p/m3 NG  
 5:Location5 2840989 p/m3 NG

ALL : 2855053 p/m3  
 SE : 19317 p/m3  
 UCL : 2896198 p/m3

Limit : 102000 p/m3  
 Result : NG

1:Location1 (1/5)  
 Start at 12/01/2010 12:00:00  
 Sample Time = 00:00:06  
 Repeats = 10

#### Particles [p]

0.3um

Min= 15623  
 Max= 16136  
 Ave= 15848.3

0.5um

Min= 389  
 Max= 521  
 Ave= 441.9

1.0um

Min= 57  
 Max= 103  
 Ave= 90.9

3.0um

Min= 3  
 Max= 12  
 Ave= 7.4

5.0um

Min= 0  
 Max= 4  
 Ave= 1.4

10.0um

Min= 0  
 Max= 2  
 Ave= 0.2

#### Temperature [C]

Min= 24.8  
 Max= 25.3  
 Ave= 25.2

#### Humidity [%]

Min= 64.3  
 Max= 68.2  
 Ave= 65.4

#### Velocity [m/s]

Min= 0.1  
 Max= 0.3  
 Ave= 0.2

#### Pressure [Pa]

Min= 13  
 Max= 21  
 Ave= 15

### Eval. data

2:Location2 (2/5)  
 Start at 12/01/2010 12:25:00  
 Sample Time = 00:00:06  
 Cycles = 10



(Print 5 locations)

Particles [p][DIFF]	TIME 12:00:00
0.3um	15924
0.5um	389
1.0um	92
3.0um	6
5.0um	2
10.0um	0

TIME 12:01:00
0.3um 15623
0.5um 439
1.0um 103
3.0um 5
5.0um 0
10.0um 0



(Print 25 points)

TIME 12:45:00
0.3um 15623
0.5um 459
1.0um 123
3.0um 10
5.0um 2
10.0um 2

TIME 12:00:00
T[C] : 24.8
H[%] : 64.3
V[m/s] : 0.2
P[Pa] : 13

TIME 12:01:00
T[C] : 24.5
H[%] : 64.0
V[m/s] : 0.2
P[Pa] : 13



(Print 25 points)

TIME 12:45:00
T[C] : 25.1
H[%] : 68.1
V[m/s] : 0.3
P[Pa] : 20

### Raw data

## 7. Battery Charge

### 7.1 Charging Battery

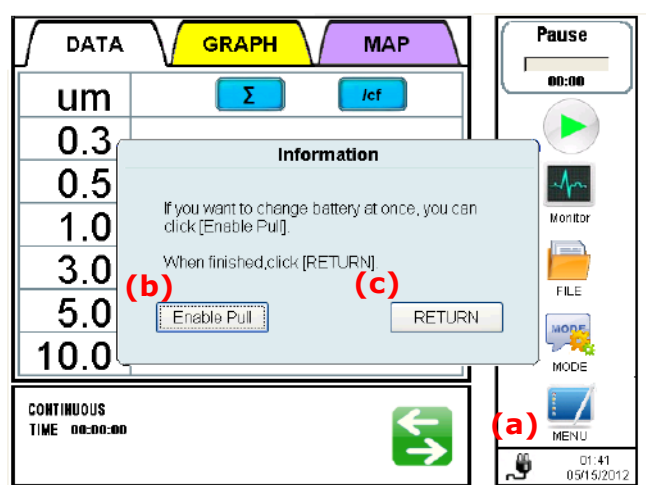
When the AC adapter is connected, you can charge the battery (one or two) when it is installed in the instrument.

When the battery is fully charged, the SUPPLY LED turns red.

When the battery is charging, the SUPPLY LED will blink.

**Note: if the battery is charging now, you should not pull the battery out or insert another battery.**

**It may damage the battery or the instrument.**



If you must exchange the battery when the power is on and the battery is charging, you can follow this instruction:

First, tap the Power Icon (a) on the main screen.

Tap [Enable Pull] (b), and then you can pull the batteries out or insert them.

When you are finished, you must tap [RETURN] (c) to finish it.



You may also charge the battery with the provided charger instead of using the instrument and AC adapter:

Open the battery compartment cover on the rear of the instrument by hand.

Connect the battery to the provided charger to recharge the battery. It takes about 4 hours to charge one battery fully.





After the battery is charged, install it into the instrument (Refer to **2.1 Power Supply** for installing the battery).

## 8. Main Specifications

Product Name	Airborne Particle Counter
Model	Model 3910
Optical Source	Laser Diode (two-year warranty)
Particle Size Distribution	0.3 / 0.5 / 1.0 / 3.0 / 5.0 / 10.0 $\mu\text{m}$ (6 Channels)
Rated Flow	28.3L/min.
Counting Efficiency	50 $\pm$ 20% (Compliant with ISO 21501-4)
Spurious Count	0.2 counts/cf or less (Compliant with ISO 21501-4)
Max Detectable Concentration	500,000 counts/cf (=17,667.8 counts/L)
Sampling Time	6sec ~ 23hours 59min 59sec (Configurable)
Interval Time	6sec ~ 23hours 59min 59sec (Configurable)
Delay Time	11sec ~ 1hour (=3,600sec) (Configurable)
Repeat Times	1 ~ 9,999 times (Continuous) (Configurable)
Location Number	Configurable in the range of 0~999 (Schedule can also be configured.)
Alarm Setting	1 ~ 9,999,999 count (= count/cf, count/m <sup>3</sup> ) (Unit is Configurable)
Measurement Mode	SINGLE Mode, CONTINUOUS Mode, INTERVAL Mode, STATS Mode, STANDARD Mode
Display	Color LCD Dot Matrix
Data Storage Capacity	80MB (Internal data storage) 1 unit of data = Approx.100 bytes (For example, Repeat measurement $\times$ 1,000 times → 100 bytes $\times$ 1,000 times = 100k bytes) Up to 10,000 files can be stored.
Printer	Built-in (Compatible with Dust-free Paper)
Interface	Ethernet , USB-Host
Power Supply	- AC adapter (100 to 240V) - Rechargeable Lithium-ion battery (2 battery slots, Provides 5+ hours of continuous usage from 2 fully charged batteries, User replaceable)
Operating Environment	This model can be used in the environment described below: - Temperature 10 ~ 35 $^{\circ}\text{C}$ / Humidity 20 ~ 85 %RH (Non condensing) - This instrument is for indoor use only - This instrument cannot be used if the altitude is higher than 2,000 m. - Overvoltage Category II - Pollution Degree: Class 2
Storing Environment	Temperature -20~50 $^{\circ}\text{C}$ / Humidity 0~85%RH (Non condensing)
Dimension	W 200 $\times$ D 205 $\times$ H 200 mm (Excluding Handle)
Weight	Approx. 5.5kg with 2 batteries
Standard Accessories	Manual(All, Quick-start guide), test-report, Zero filter, Li-ion battery $\times$ 1, Printer Paper $\times$ 2, AC adaptor, Tygon tube $\times$ 2m, Isokinetic probe, Software,USB flash drive
Optional Extras	Carry case, Battery charger, Li-ion battery, Option Sensors (6531 Probe, Pressure-sensor, Alarm-output), Tripod, Filter Scan Probe, Operation Manual (Dust Free Paper), IQ/OQ Sheet (Dust Free Paper) *For specifications for the Option Sensors, please refer to <b>5. Connecting Option Sensors.</b>

## 9. Troubleshooting

Symptom	Possible Cause	Maintenance
Cannot obtain Zero Count (When using a filter)	1) The inside of the optical system may be dirty.	Attach the zero filter and perform purging for a prolonged time. After performing a measurement in a highly concentrated environment, attach the zero filter and perform purging.
	2) The filter's air tightness may be deteriorated.	Replace your zero filter.
	3) Leaks may be occurring inside the instrument.	Return the instrument to your distributor or to your KANOMAX service center for repair.
Count value is too high (Higher than the expected)	1) The particle concentration at the measurement site may be high.	-
	2) The inside of the optical system may be dirty.	Attach a zero filter and perform purging for a prolonged time. After performing a measurement in the highly concentrated environment, attach the zero filter and perform purging.
	3) The instrument may be being used outside the operating environment defined in the specifications. (Measurement Environment Temperature / Humidity / Concentration etc.)	Use the instrument under the environmental conditions set in the specifications.
	If you have checked the above 1), 2) and 3), and the instrument readings are still too high, the instrument may require calibration or repair.	Contact your distributor or your KANOMAX service center for repair or calibration.
Count value is too low (Lower than the expected)	1) The particle count at the measurement site may be low.	-
	2) The pump vacuum is low.	Pay attention to the pump performance. Check if an error status is displayed on the screen.
	3) The instrument may be being used outside the operating environment defined in the specifications. (Measurement Environment Temperature / Humidity / Concentration etc.)	Use the instrument under the environmental conditions set in the specifications.
	4) If you have checked the above 1), 2) and 3), and the instrument readings are still too low, the instrument may require calibration or repair.	Contact your distributor or your KANOMAX service center for repair or calibration.
The output of the option sensors is not displayed.	1) The sensor may not be connected properly.	Check the option sensor connection.
Touch panel becomes unresponsive	1) The touch panel may be damaged.	Return the instrument to your distributor or to your KANOMAX service center for repair.

Symptom	Possible Cause	Maintenance
<b>【LD ERR】</b> 	The laser may be damaged.	Return the instrument to your distributor or to your KANOMAX service center for repair.
<b>【FLOW ERR】</b> 	The flow channel may be interrupted.	Make sure that the inlet and outlet are not blocked.
	The pump may be damaged.	Return the instrument to your distributor or to your KANOMAX service center for repair.
<b>【BATTERY ERR】</b> 	Power capacity is low.	If using a rechargeable battery, charge the battery. If using the AC line, the line may have problems.
<b>【OVER ERR】</b> 	The operating environment may be outside the range defined in the specifications.	The inside of the optical system may be dirty. Attach the zero filter to the inlet and perform purging.

## 10. Warranty and After-sales Service

### KANOMAX Limited Warranty

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The limited warranty set below is given by KANOMAX with respect to the KANOMAX brand Airborne Particle Counter, its attachment parts including Probe and other accessories (hereafter referred to as "PRODUCT") that you have purchased. PRODUCT you have purchased shall be the only one that the limited warranty stated herein applies to.

Your PRODUCT, when delivered to you in new condition in its original container, is warranted against defects in materials or workmanship as follows: for a period of two (2) years from the date of original purchase, defective parts or a defective PRODUCT returned to your sales representative, as applicable, and proven to be defective upon inspection, will be exchanged for a new or comparable rebuilt parts, or a refurbished PRODUCT as determined by your sales representative. Warranty for such replacements shall not extend the original warranty period of the defective PRODUCT.

This limited warranty covers all defects encountered in normal use of the PRODUCT, and does not apply to the following cases:

- (1) Use of parts or supplies other than the PRODUCT sold by your sales representative, which cause damage to the PRODUCT or cause abnormally frequent service calls or service problems.
- (2) If any PRODUCT has its serial number or date altered or removed.
- (3) Loss of damage to the PRODUCT due to abuse, mishandling, improper packaging by the owner, alteration, accident, electrical current fluctuations, failure to follow operating, maintenance or environmental instructions prescribed in the PRODUCT's instruction manual provided by KANOMAX, or service performed by a party other than KANOMAX.

**NO IMPLIED WARRANTY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, APPLIES TO THE PRODUCT AFTER THE APPLICABLE PERIOD OF THE EXPRESS LIMITED WARRANTY STATED ABOVE, AND NO OTHER EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON OR ENTITY WITH RESPECT TO THE PRODUCT SHALL BIND KANOMAX. KANOMAX SHALL NOT BE LIABLE FOR LOSS OF STORAGE CHARGES, LOSS OR CORRUPTION OF DATA, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE OR MISUSE OF, OR INABILITY TO USE, THE PRODUCT, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF KANOMAX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL RECOVERY OF ANY KIND AGAINST KANOMAX BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE PRODUCT SOLD BY KANOMAX AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, THE OWNER ASSUMES ALL RISK AND LIABILITY FOR LOSS, DAMAGE OF, OR INJURY TO THE OWNER AND THE OWNER'S PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE OR MISUSE OF, OR INABILITY TO USE, THE PRODUCT NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF KANOMAX. THIS LIMITED WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THE PRODUCT, OR THE PERSON FOR WHOM IT WAS PURCHASED AS A GIFT, AND STATES THE PURCHASER'S EXCLUSIVE REMEDY.**

## **After-sales Service**

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If the PRODUCT is malfunctioning, please see "Troubleshooting" page 81 to find possible causes first.

Repair parts are retained for a minimum period of five (5) years after production cessation of the PRODUCT. This storage period of repair parts is considered as the period during which KANOMAX can provide repair service.

For more information, please contact your sales representative. When you call, please have the following information at hand:

- (1) PRODUCT name;
- (2) Model number;
- (3) Serial number;
- (4) Probe number;
- (5) Description of Symptom, and;
- (6) Date of purchase

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