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Manual
Food/HygieneTester
PCE-ATP 1

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This manual is subject to change without prior notice. The updated version prevails.

Special Declaration

Please read this manual carefully before the usage of portable ATP hygiene monitoring system!

Symbols Used in This Manual

Symbols used in this manual that directly refers to the safe and proper operations of portable ATP hygiene monitoring system.

Icon	Description
⚠	**Warning** Warning operation personnel pay attention to a certain operation. Operating the portable ATP hygiene monitoring system in any manner unspecified in this manual may result in device damage or abnormal function.
❗	**Reminding** Providing important information that critical to the success of the operation or use of the device, including the information explained in further detail elsewhere in this manual.
🚫	**Prohibit** Prohibiting operation personnel from a certain dangerous operation. Otherwise may result in device damage or abnormal function.

Conventions Used in This Manual

Convention	Meaning

Ordered list	Procedure steps must be performed follow the list order.
Click/Double click A	Click or choose **A** on the ATP PC software.
Press B	Press **B** key on the keyboard of the detector.
***italic* + Bold**	Refers to the key/button or operation instructions of the ATP PC software.
< Bold >	Refers to the key/button or options of the detector.
[ ]	Refers to keys on the computer keyboard.

Safety and Regulatory Compliance

General Precautions:

1. The portable PCE-ATP1 hygiene monitoring system is safely and reliably designed and manufactured. Personal injury can be avoided if the product is operated properly (as instructed in the manual) and the related precautions are strictly followed.
2. Users shall be aware of hazards that may be caused by the portable PCE-ATP1 hygiene monitoring system and its accessories.
3. All operators shall be familiar with the safety precautions and warnings described in this section before the usage of portable PCE-ATP1 hygiene monitoring system.
4. Non-observance of the instruction provided or performing any operations not stated in the manual may affect the safety protection provided by the portable PCE-ATP1 hygiene monitoring system.

Operation Environmental Precautions

Icon	Meaning
	Prohibit Never run the portable PCE-ATP1 hygiene monitoring system in places that have or may have flammable and explosive gas.
	Warning in an extreme temperature environment. Do not place the portable PCE-ATP1 hygiene monitoring system

ATP Quickswab Precautions

Icon	Meaning
	Warning Please carefully read the related information and precautions of PCE-ATP1 Quickswab before the usage of detector.
	Reminding Please follow national and local environment protection regulations and laws for the usage of PCE-ATP1 Quickswab.
	Warning Do not insert any other articles into the detector except the PCE-ATP1 Quickswab, and do not squeeze the PCE-ATP1 Quickswab while inserting.
	Warning

Please make sure the outside surface of PCE-ATP1 Quickswab is clean and dry before inserting it into the detector.

Battery Precautions

Icon	Meaning
⚠	**Warning** Please use the supplied rechargeable lithium-ion battery and adaptor. The recharging voltage is limited to 4.2 V.
⚠	**Warning** Please discard the used battery according to local regulations

Keyboard and Keys Precautions

Icon	Meaning
⚠	**Warning** Do not continuously press the keys on the keyboard of detector.

USB Interface Precautions

Icon	Meaning
⚠	**Warning** The computer that connected to the USB interface of the detector shall comply with BSEN60950/IEC950 standard.

Device Parts Precautions

Icon	Meaning
⚠	**Warning** The detector is not provided with spare parts. Do not remove any part from the device without permission.

Use Restrictions

The detector is designed to following universality, safety and EMC requirements:

Universality

► Low voltage indicator 73/23/EEC

► EMC indicator 89/336/EEC

Safety

► IEC 61010-1:2010

► IEC 61326-1:2013

► IEC 61326-2-6:2013

► IEC 61010-2-081:2015

► IEC 61010-2-101:2015

Declaration

The design of detector conforms to and able by the requirements in section 11 of low voltage specification 73/23/EEC. The design of detector also accords with the regulation that the design of electronic products should be work under specified voltage regulation and the requirements of BS EN 61010-1: 2001.

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1. Overview

The portable PCE-ATP1 hygiene monitoring system adopts the PCE-ATP1 inescent theory to realize simple hygiene monitoring in t o order help reaching HACCP and food hygienic standard.

The portable PCE-ATP1 hygiene monitoring system is consisted of two parts: ATP Quickswab and detector. This manual mainly introduces the operation, maintenance and troubleshooting of the detector in details. For details of ATP Quickswab, please refer to the user's manual of ATP Quickswab.

⚠ **Warning**: The detector belongs to highly sensitive measuring device that shall be used with due care and protected from damp condition and impact.

1.1 Applications and Features

1.1.1 Scope of Application

The portable PCE-ATP1 hygiene monitoring system is intended for on-site quick cleanliness (microbial content) test in various industries such as food processing, catering, medical treatment, sanitation, daily chemicals, paper making, water treatment, environmental protection, water administration, entry-exit inspection and quarantine and other law-enforcing departments.

Examples are as follows:

1. Food processing industry

The portable PCE-ATP1 hygiene monitoring s ystem is capable of testing bacteria, microorganism or food residue in the production environment of food, beverage and catering industry. It is very suitable for HACCP system cleanliness test; Cleanliness control during production; and the cleanliness test of food production line;

-
- Disinfection evaluation of food packages;
- Microorganism contents measurement of finished products and raw materials;
- Hygiene monitoring of the processing environment, capable of detecting organic matter residue and thus prevent growing environment of microorganism.

2. Catering industry

Used by law-enforcing departments for hygienic security screening for catering services.

- Cleanliness control of kitchens, dining tables, work bench and operating tools;
- Disinfection evaluation of tableware as well as the disinfection effect evaluation of one-off disinfection table-wear;
- Disinfection control of tableware used in airline, train and high-speed rail;
- Sanitary control of quality control department;
- Quick cleanliness test of large dining places such as Olympic Games and World Expo.

3. Healthcare Industry

Used by infection control departments to detect hospital hygiene and disinfection & sterilization conditions.

- Object surface cleanliness detection of main department of the hospital, such as disinfection center and ICU;

-
-

  Hand cleanliness inspection of medical staff;

  Cleanliness and disinfection detection of medical apparatus and instruments, such as surgical instruments and endoscope;

- Hospital environment cleanliness detection. Ensure the hospital is entirely clean, safe and free of microbial contamination;
- Disinfection effect evaluation of medial disinfection products. Comparison of test result before and after disinfection to ensure disinfection products are high quality and reliable.

4. Environment Protection

- Biological contamination assessment of water or waste water samples.

5. Other Industries

- Daily chemicals manufacturing industry;
- Quality supervision department;
- Sanitary supervision of hotel and lodging industry; ➢ Port supervision.

1.1.2 Features

- Small in size: handheld design, total weight is less than 300g, one-hand operation;
- Low power consumption: lithium battery, duration time is up to 10 hours, standby time is up to 600 hours;

-
- Auto operating mode: 3.5’ color screen, simple keys, and friendly HMI;

-
-
  Quantified result: the test result is accurate to 1×10^{-18}mol ATP;

  Quick test: 10 seconds per sample. The detector can be connected to a thermal printer via Bluetooth. The test result can be printed in real time;
- Test protection: the detector possesses built-in inclinometer which will stop the test in case the incline angle is out of range to ensure test accuracy;
- Control network: the detector can smartly check whether the bacterial colony amount is out of limit. It can be connected to electronic terminals such as PC;
- Maximum storage capacity: the detector is capable of storing 256 Users, 256 Plans, 2000 Programs and 10000 Records;
- Data template: the detector is integrated with data templates to facilitate user for viewing or calling;
- Intelligent software: test data can be uploaded to the dedicated PC software after test. Combine with this software, users could track, save the test results and analyze the trend of the tested locations.
- Open reagent: suitable for ATP test reagents from multiple manufacturers. It is strongly recommended to use the supplied consumables to ensure the test result accuracy.

1.2 **Technical Specifications**

- Dimension: 189mm×70mm×35mm;
- Weight: 280g;
- Display screen: 3.5’ color screen, graphic HMI;

- Start-up time: 15s and 60s available;

  Test time: 10s;

  Storage capacity: 256 Users, 256 Plans, 2000 Programs and 10000 Results;

- Battery type: 3.7V rechargeable lithium battery, whose recharging voltage is limited to 4.2 V;

- Battery capacity: 2300mAh (duration time is up to 10 hours, standby time is up to 600 hours);

- Communication mode: the detector can be connected to your PC via USB cable; and also can be connected to mobile, tablet PC or printer via Bluetooth;

- Real-time print: the detector can be connected to a printer via Bluetooth, and the test result can be printed in real time;

- Incline angle detection: this feature of detector ensures the test accuracy. The test will stop processing if the device incline angle is over 30°, and the screen will display icon as an alert;

- Auto calibration: the detector possesses light source auto-calibration system and temperature detection system that can automatically be adapted to changes of environment;

- Test range: 0-999999RLUs;

- Test accuracy: 1×10^{-18}mol ATP;

- Test error: ±5% or ±5 RLUs;

- Test repeatability: 8%-20%;

- Correlation coefficient: ≥0.995;

- Operating temperature range: 5°C-40°C;

- Operating humidity range: 20-80%;

➢

➢

➢ Storage temperature range: -10℃-40℃; ➢ Storage humidity range: ≤ 60%.

1.3 **Terms and Abbreviations**

ATP: Adenosine tri-phosphate (energy transfer molecule)

RLU: Relative light unit (measuring unit)

USB: Communication port between the device and PC

1.4 **Accessories and Consumables**

Accessories include lithium battery, USB cable, USB charger, hang rope, Bluetooth printer (optional). The software can be downloaded here: https://www.pce-instruments.com/english/download-win_4.htm

·For details about other accessories and consumables, please ask local dealer for assistance.

1.5 **Working Principle**

The portable PCE-ATP1 hygiene monitoring system adopts the inescence technique to convert invisible ATP concentration (ATP content in sample) into visible light output, the basic working principle is as shown in the Figure 1.1.

Fig 1.1 Working principle

The portable PCE-ATP1 hygiene monitoring system takes the light energy as reference to output the test value and displays the test result in quantitative and qualitative form. The test result exhibits the cleanliness of the tested specimen, which should be between 0 and 999999 relative light units (RLU, 1 RLU = 1× 10^{-18}mol of ATP). According to the user-deined upper & lower limits, the detector will automatically offer the determination of the test result and displayed as **<** ***Pass*** **>** , **<** ***Fail*** **>** or **<** ***Caution*** **>** .

1.6 **Quick Operation Instructions**

The PCE-ATP1 Quickswab contains exclusive high-sensitivity liquid stable integrative reagent. It is capable of detecting bacteria or other microorganisms on object surfaces and total ATP activities within food residues in order to quickly provide cleanliness test results.

The PCE-ATP1 Quickswab should be used together with the portable ATP hygiene monitoring systems.

1.6.1 ATP Quickswab Structure Diagram

The structure diagram of the ATP Quickswab is as shown in figure 1.2.

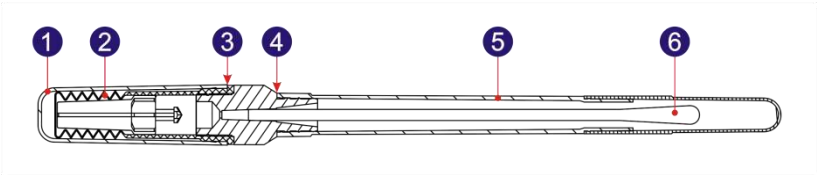


Fig 1.2 ATP Quickswab Structure Diagram

1. Cap	2. Spring cap (inside)	3. Joint port
4. Unplug point	5.Test tube	6. Swab tip.

1.6.2 ATP Quickswab Operating Procedures

The operating procedures of the ATP Quickswab are shown in the figure 1.3.

1. **Unfreezing**: Take out the ATP Quickswab from the refrigerator. Wait about 10 to 20 minutes until the internal reagent reaches the room temperature.

2. **Sampling**: Hold the joint port of the ATP Quickswab and unplug the cap at the unplug point, as shown in figure 1.2. Remove the test tube and pull out the pre-moistened swab tip. Keep 15 to 30 degrees angle of the swab tip and zigzag swab the sampling area, please remember to rotate the swab tip while swabbing to ensure the closely contact with the sampling area. (The sampling area should be around 10x10 cm^2 and it could be marked within the sampling card).

3. **Installation**: After sampling, please hold the joint port of the ATP Quickswab and insert the swab tip back into the test tube. (The

end face of the test tube should be aligned with the lower end face of the blue joint port).

4. **Injection**: Remove the cap of the ATP Quickswab, make sure it is griped in upright position, and forcibly press down the spring cap several times to the reagent fully flows into the bottom of the test tube and submerge the swab tip.

5. **Mixing**: Hold the upper spring cap of the ATP Quickswab and swing 30 degrees to the left and right (for five seconds), allowing the reagent to fully react with the sample.

6. **Insertion**: Insert the ATP Quickswab into the test camber of detector which is on the To-be-Tested interface, close the top cover and start the test.

Fig1.3-1 Unfreezing

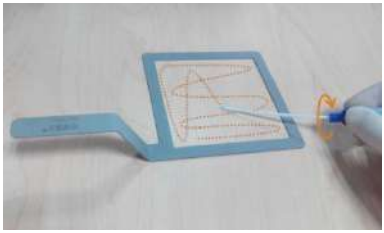


Fig1.3-2 Sampling

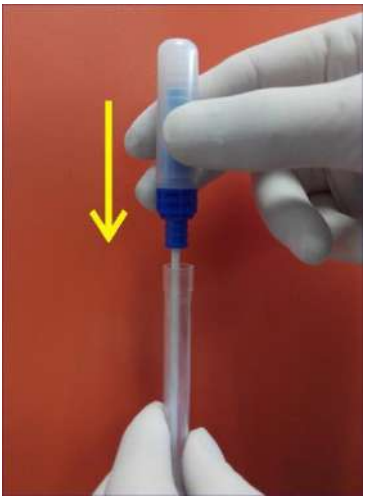


Fig1.3-3 Installation

Fig1.3-4 Injection

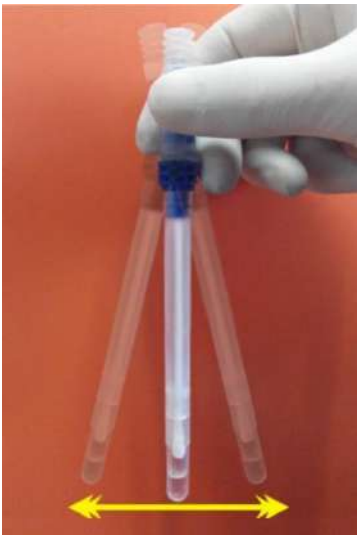


Fig1.3-5 Mixing

Fig1.3-6 Insertion

⚠ **Warning**:

a. The swab tip shall not contact any other object surfaces, in order to avoid the test result from being affected;

b. Let the internal reagent fully reacts with the sample inside the swab, and then insert the ATP Quickswab into the test chamber and complete the test within 60s.

1.6.3 ATP Quickswab Storage

1. The ATP Quickswab test tube shall be stored under -10℃ to -20℃, with shelf life of 12 months.

2. Direct sunshine shall be avoided. Please maintain the ATP Quickswab with aluminized foil bag for storage. Do not use the reagent beyond the warranty period.

1.6.4 ATP Quickswab Safety

1. The internal reagent of ATP Quickswab is diluted and can be safely used for detection in food processing industry.

2. If standard lab operation procedures are strictly followed, the compositions of ATP Quickswab will not be harmful for human health. The internal reagent contains 0.05% w/v of Sodium azide to exhibit its preservative effect. Please dilute the waste solution with large amount of water before disposal.

⚠ **Warning**: In case the internal reagent of ATP Quickswab into eyes or onto skin, please flush eyes or skin with plenty of water. The material safety data sheet (MSDS) can be provided in demand.

2. Basic Operation Instructions of Detector

2.1 Structural Diagrams of Detector

The structural diagrams of Detector are as shown in figure 2.1-1/2.

Fig 2.1-1 Detector structural diagram

1.Test chamber	2. Screen	3. Keyboard
4. Top cover	5. Hang rope hole	6. USB interface

Fig 2.1-2 Detector structural diagram

1.Battery compartment 2. Label 3. Back scaffold

2.2 **Function of Keys**

The keyboard of detector is as shown in figure 2.2. The corresponding key functions are listed in table 1.

Fig 2.2 Detector keyboard

Table1.

Key	Icon	Function
Power	⏻	Power on/off; Standby mode.
OK	OK	Confirm; Start the test.
Setting	SET	Return; Switch between test and setting interface.
Up	▲	Move the cursor up; Shortcut key for records.
Down	▼	Move the cursor down; Shortcut key for statistics.
Left	◀	Move the cursor left; Shortcut key for plan
Right	▶	Move the cursor right; Shortcut key for program.

2.3 Battery Installation

The detector battery is installed by opening the cover of battery compartment, inserting the battery and re-installing the cover.

2.4 Power-on Self-test

Press the **< Power >** key to power on the detector. In non-Silent mode, the device will give the power-on alert (one 'beep' sound) to enter the initial interface, as shown in figure 2.3.

In case the detector is charging, please long-press the **< Power >** key (about 2 seconds) on the keyboard to enter the initial interface.

Fig 2.3 Initial Interface

Reminding:

a. In case of low battery power, the detector may fail to power on or you will be alerted with a low battery alert following with the automatically shuts down. In this condition, please charge the detector or change its battery.

b. If users are alerted with **< Calibration is halted! >**, it indicates that the power-on self-test of detector failed. Please eliminate the fault as instructed.

c. For troubleshooting, please refer to'**7. Troubleshooting**'.

2.5 Internal Calibration

2.5.1 Power-on Calibration

After power on and the initial interface is displayed, the detector will enter the calibration interface, as shown in figure2.4.

Fig 2.4 Calibration Interface

Two self-test modes are available, with the calibration time of 60s and 15s (**< Fast boot >** mode) accordingly. The difference is that with 60s calibration time, the detector will obtain more stable and

accurate test result. It is recommended to choose 60s self-test mode when the machine is powered on for the first time of the day.

Reminding:

a. While the calibration time the power-on self-test is counting down, users could press **< Setting >** key to enter the setting interface.

b. On the setting interface users could select **< Settings >** to enter the system setting page, where the **< Fast boot >**is shown, select the **< Fast boot >**, the calibration time will be 15s; Unselect the **< Fast boot >**, the calibration time will be 60s.

c. Press the **< Setting >** key again to return to the previous interface and the calibration time counting down restarts. The detector will start the calibration, after this it will enter the test interface.

Reminding:

a. The calibration pre-conditions of the detector are: there is no ATP Quickswab within its test chamber and its top cover is properly closed.

b. If the icon and **< Calibration is halted! >** are displayed on the screen of detector, as shown in figure 2.5-1. Please take out the ATP Quickswab from the detector to continue the calibration process.

c. If the icon and **< Calibration is halted! >** are displayed on the screen of detector, as shown in figure 2.5-2. Please close the top cover again to continue the calibration process.

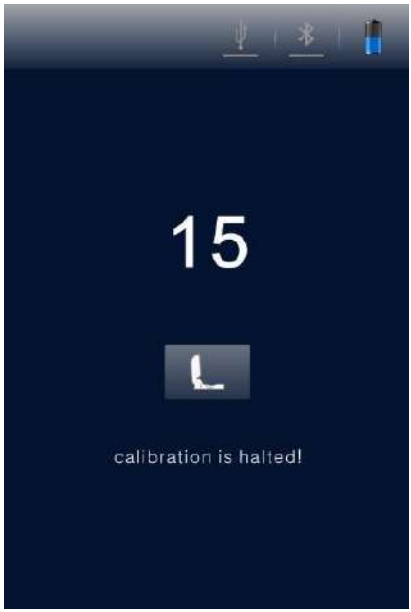


Fig 2.5-1 Fig 2.5-2

Take out the ATP Quickswab Close the top cover again

2.5.2 Recalibration

User could re-calibrate the detector if it is necessary. Please take out the ATP Quickswab and close the top cover, long press (about 3 sec) **< OK >** key on the test interface. After sounding a short 'beep', the detector will enter the calibration interface again for recalibration.

2.5.3 Auto-calibration

1. If the detector is on the test interface and all the calibration conditions are met, it will automatically perform the calibration process;

2. If the detector is not on the test interface, please press the < SET **Setting** > key to return to this interface, the detector will automatically enter the calibration interface.

Reminding: In case the detector has been continuously working for over 30 minutes, or the temperature change of working environment is over 5°C.The device will automatically perform the calibration process to ensure the accuracy of test result.

2.6 Power-off

Press the < **Power** > key to display the power option menu on the screen of detector, as shown in figure 2.6. Please select and can press < OK **OK** > key to power off the detector.

icon

Fig 2.6 Power off

2.7 Power Saving Mode On and Resuming

Two kinds of power saving mode are provided with the detector: Sleep mode and Manual mode.

1. **Sleep mode**: sleep power saving mode can be started automatically according to user-defined sleep time. When the device is on, and no activity happens during the set time, the device will automatically on standby and the screen will turn off.

   Users could press **< Power >** key for resuming.

2. **Manual mode**: manual power saving mode can be started by pressing **< Power >** key to display the power option menu, where users could select icon as shown in figure 2.7. Press **< OK >** key to let the detector on standby, press **< Power >** key for resuming.

Fig 2.7 Screen Locker

2.8 Low Battery Alert

The detector will display icon on the status bar in case the electric quantity is low. Please charge the battery in this condition; when the status bar displays icon, it indicates that the electric quantity is very low and the device will be power off immediately. Users will be alerted with three 'beep' sounds before the automatically low battery power off.

Reminding: If battery low battery alert displays, please charge the detector as soon as possible. In case the device will be unused for a long time, please remove the battery and place it at cool and dry place.

2.9 Icons and Meanings

Table 2.

Icon	Meaning
	The top cover is not properly closed, close it again.
	Please insert the ATP Quickswab.
	Please take out the ATP Quickswab.
	The incline angle of device is too large . (The incline angle of device should be less than 30°)
OK	Ready, press the < OK > key to start the test.
	Pass, test result is lower than the lower limit.
	Caution, test result is between the upper and lower limit.
	Fail, test result is high than the upper limit.
	USB cable is not connected.
	USB cable is connected.
	Bluetooth is not connected.
	Bluetooth is connected.
	Charging.
	Electric quantity is low.
	Electric quantity is very low, charge or power off.

3. Setting and Operation

3.1 Setting Interface

On the test interface, press < SET **Setting >** key to enter the setting interface, as shown in figure 3.1.

Fig 3.1 Setting Interface

Users could also enter the setting interface by pressing < SET **Setting >** key while the power-on self-test. Press < SET **Setting >** key again to restart the self-test and start counting down the calibration time. After the calibration, users will be directed to the test interface.

3.2 User

Select < **User >** on the setting interface, and press < OK **OK >** key to access the user select option, as shown in the figure 3.2.

Fig 3.2 User Select

- Press < **Up** > key or < **Down** > key to view the existing users for selection;
- Press < **OK** > key to confirm the selection;
- Press < **Setting** > key, users could return to the previous interface.

Reminding: The device configures **<User 0>** by default. Users could also execute the same related operations via PC software. For details, please refer to ' **Portable ATP Hygiene Monitoring System Software Specification**'.

3.3 Program

Select < **Program** > on the setting interface, and press < **OK** > key to access the < **Set Program** > option, as shown in the figure 3.3.

Fig 3.3 Set Program

- Press < **Up** > key or < **Down** > key to select the desired program;
- Press < **Left** > key or < **Right** > key to view the < **Location** > and < **Surface** > of the selected program.

Reminding: The detector offers two kinds of program:

a. One kind of program is written by computer and marked with icon before program number, and its upper and lower limits cannot be changed on the device;

b. The other kind of program is modified on the device and without the icon before the program number, and its upper and lower limits can be user customized;

c. For a program not marked with the icon, users could press < **Up** > key or < **Down** > key to select the procedure (as shown in Figure 3.4) and press < **OK** > for confirmation;

d. Move the cursor to the upper limit setting box (as shown in Figure 3.5), using < **Up** > key or < **Down** > key to set the value (range: 1~9999) and press < **OK** > for confirmation;

e. Move the cursor to the lower limit setting box (as shown in Figure 3.6), using < **Up** > key or < **Down** > key to set the value (range: 1~9999) and press < **OK** > for confirmation and return to the setting interface;

f. Press < **Setting** > key to quit setting and return to the previous interface.

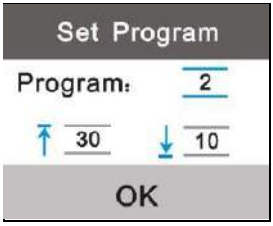


Fig 3.4 Program Select

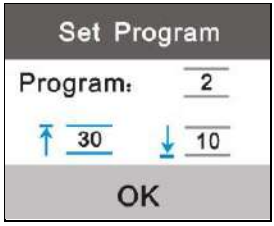


Fig 3.5 Upper Limit Setting

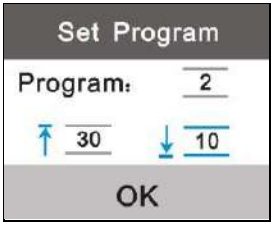


Fig 3.6 Lower Limit Setting

Reminding: If the detector is stored with programs. Users could press < **Right** > key on the test interface to access the set program option.

3.4 Plan

Select < **Plan** > on the setting interface, and press < **OK** > key to access the < **Plan Select** > option, as shown in the figure 3.7.

- Press < **Up** > key or < **Down** > key to select the desired plan;
- Press < **OK** > key to confirm the selection;
- Press < **Setting** > key to return to the previous interface.

Fig 3.7 Plan Select

Reminding: If the detector is stored with plans. Users could press < **Left** > key on the test interface to access the set program option.

3.5 Records

Select < **Records** > on the setting interface, and press < **OK** > key to enter the test records interface, as shown in figure 3.8.

Fig 3.8 Test Records Interface

- Press < **Left** > key or < **Right** > key to page up or down;

- Press < **Up** > key or < **Down** > to move the cursor and select test record.
- Press < **OK** > key to confirm the selection and enter the test record detail interface, as shown in figure 3.9.
- Press < **Setting** > key to return to the previous interface.

Fig 3.9 Test Records Detail Interface

On the test record detail interface, and options are available. Press < **Down** > key to move the cursor and select option as shown in Figure 3.10.

Fig 3.10 Test Record Deletion

Fig 3.11 Test Record Print

- Press < **Left** > key or < **Right** > key to select and options for test record deletion or print;
- Press < **Up** > key to cancel the selection, press < **OK** > key to confirm and execute the selection;
- Press < **Setting** > key to return to the previous interface.

Reminding: If the detector is stored with test records. Users could press < **Up** > key on the test interface to access the test records interface.

Reminding: Before printing the test records, please check whether the matched Bluetooth printer is connected and power on.

3.6 Statistics

Select < **Statistics** > on the setting interface, and press < **OK** > key to access the < **Statistics** > option, where the statistical information about < **Pass** > , < **Caution** > and < **Fail** > are displayed as shown in figure 3.12.

Fig 3.12 Statistics

- Press < **Right** > key to check the storage capacity of the detector, as shown in Figure 3.13;
- Press < **Left** > key return to the < **Statistics** > option;
- Press < **Down** > key to move the cursor and select for storage deletion, as shown in Figure 3.14.

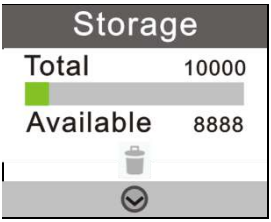


Fig 3.13 Storage Capacity

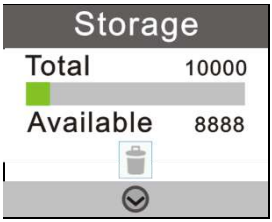


Fig 3.14 Storage Deletion

- Press < **Up** > key to cancel the selection;
- Press < **OK** > key to confirm the selection and display the secondary confirmation for all test records deletion, as shown in figure 3.15.

Fig 3.15 All Test Records Deletion

- Press < **Left** > key or < **Right** > key to select < **Yes** > or < **No** > (< **No** > is selected by default);
- Press < **OK** > key to confirm the selection;
- Press < **Setting** > to return to the previous interface.

Reminding: If the detector is stored with test records. Users could press < **Down** > key on the test interface to access the < **Statistics** > option, with other operations same as the above mentioned method.

3.7 System Settings

Select < **Settings** > on the setting interface, and press < **OK** > key to enter the system setting interface. The options on this interface and their corresponding functions are listed in table 3 as follow.

Table 3.The options on system setting interface.

Option	Function
Date & Time	Set the date and time and its format
Sleep time	Set the auto-standby duration
Save test	Save test results or not
Fast boot	15s and 60s calibration time selection
Silent Mode	Buzzer On / Off
Language	Select the display language
Factory reset	Clear all user information
Bluetooth	Bluetooth On / Off
Brightness	Adjust the screen brightness

3.8 Template

Select < **Template** > on the setting interface, and press < **OK** > key to enter the reference template interface where the commonly-used templates are provided. Users could select a certain reference template and press < **OK** > to confirm the selection and access the reference template for this industry. The template itself provides the test < **Sites**>, < **Upper** > and < **Lower** > limits.

- Press < **Left** > key or < **Right** > key to page up or down;
- Press < **Up** > key or < **Down** > key for line feed;

- Press < OK > key to confirm the selection;
- Press < SET **Setting** > to return to the test interface and the selected template will be automatically set as the test program.

3.9 Help

Select < **Help** > on the setting interface, and press < OK **OK** > key to enter the help interface where the < **Company** > name and < **Website** > information of the manufacture are provided.

3.10 About

Select < **About** > on the setting interface, and press < OK **OK** > key to enter the about interface where the information of < **Battery level** >, < **Temperature** >, < **Device name** >, < **Hardware version** >, < **Software version** > and < **Serial number** > are provided.

4. Test and Test Result

4.1 To-Be-Tested Interface

After power-on self-test and calibration, the detector will enter the To-be-tested interface, as shown in figure 4.1.

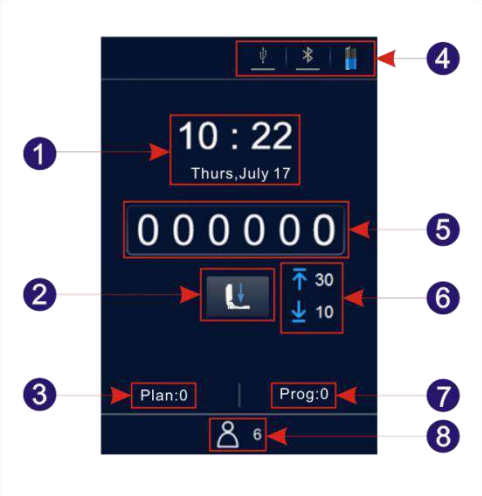


Fig 4.1 To-be-tested Interface

1. Date & Time
2. Condition prompt
3. Plan No.
4. Status bar
5. Test result
6. Upper & lower limits
7. Program No.
8. User No.

4.2 Program Selection and Setting

There are three program selection methods, including calling of plan program; calling of template program and user-defined program.

4.2.1 Selection and Setting of User-defined Program (Upper and Lower Limit)

1. User-defined programs are those not marked with the icon before program number.

- Press < **Right** > key on the test interface to access the < **Set Program** > option;
- Press < **Up** > or < **Down** > key to select a program and press < **OK** > key to confirm the selection;
- Move the cursor to the upper limit setting box, press < **Up** > key or < **Down** > key to set its value and press < **OK** > key to confirm the setting;
- Move the cursor to the lower limit setting box, and press < **Up** > key or < **Down** > key to set its value;
- Press < **OK** > key tree times to confirm the setting and return to the test interface, whose current test program will be the one has been just modified.

2. User could also select < **Program** > on the setting interface, and press < **OK** > key to access the < **Set Program** > option;

- Press < **Up** > key or < **Down** > key to select a program and press < **OK** > key to confirm the selection;
- Move the cursor to the upper limit setting box, press < **Up** > key or < **Down** > key to set its value and press < **OK** > key to confirm the setting;

- Move the cursor to the lower limit setting box, press **< Up >** key or **< Down >** key to set its value;
- Press **< OK >** key tree times to confirm the setting and return to the test interface, whose current test program will be the one has been just modified.

Reminding: The detector is stored with 1999 programs that not marked with the icon by default ranging 1~1999 (0 is the default procedure and cannot be modified);

Reminding: In case a program is written by users from PC software, such program will increase progressively from 1 and replace the original program with the same number on the detector. The information about the upper & lower limits, sites of the program can be freely set on PC software according to users' requirements.

Reminding: The programs written on the PC software whose program number is marked with icon cannot be edited again on the detector. For details, please refer to '**Portable ATP Hygiene Monitoring System Software Specification'.**

4.2.2 Plan Setting and Program Selection

Plan is written on PC software and imported into the detector via USB cable. One plan can contain several programs. For details, please refer to '**Portable ATP Hygiene Monitoring System Software Specification**'.

1. Select **< Plan >** on the setting interface, and press **< OK >** key to access the **< Plan Select >** option.

- Press **< Up >** key or **< Down >** key to select the desired plan;

- Press < OK **OK** > key to lock the selected plan;
- Press < **Up** > key or < **Down** > key to select the desired program;
- Press < **Right** > key to view the < **Location** > and < **Surface** > of the selected program;
- Press < **Left** > key to return to the previous step;
- Press < OK **OK** > key to confirm the selection and return to the setting interface;
- Press < SET **Setting** > key to return to the test interface and the selected program will be automatically set as the current test program.

2. Users could also press < OK **OK** > key to access the < **Plan Select** > option for the plans contained.

- Press < **Up** > key or < **Down** > key to select the desired program within the selected plan;
- Press < **Right** > key to view the < **Location** > and < **Surface** > of the selected program.
- Press < **Left** > key to return to the previous step
- Press < OK **OK** > key to return to the test interface and the selected program will be automatically set as the current test program.

4.2.3 Calling of Template Program

1. Select < **Template** > on the setting interface, and press < OK

OK > key to enter the reference template interface where the commonly-used templates are provided.

2. Users could select a certain reference template and press **< OK >** to confirm the selection and access the reference template for this industry. The template itself provides the test **< Sites >**, **< Upper >** and **< Lower >**limits.

- Press **< Left >** key or **< Right >** key to page up or down;
- Press **< Up >** key or **< Down >** key for line feed;
- Press **< OK >** key to confirm the selection;
- Press **< Setting >** key to return to the test interface and the selected template will be automatically set as the test program.

Reminding: After selecting and confirming a certain template program, please press **< Setting >** key to return to the test interface, the selected template program will be set as the current test program.

4.3 Start Test

1. After completing the program setting, users could open the top cover of the detector, insert the test ATP Quickswab, and properly close the top cover.

2. Keep the detector upright and ensure its incline angle is less than 30°during the test. The detector will display the test interface, as shown in figure 4.2.

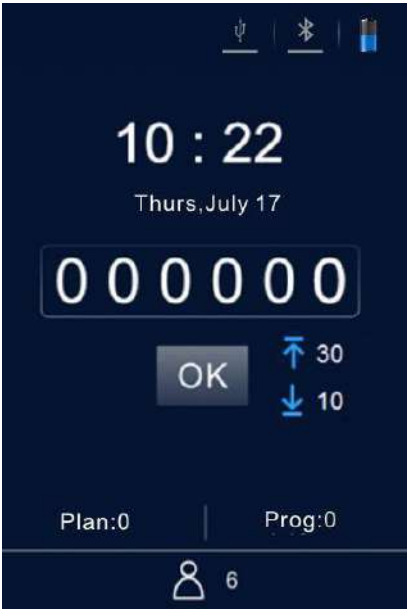


Fig 4.2 Test Interface

- Press < OK **OK >** key to start the test and counting down the test time (10s). After this, the detector will display the test result.
- The detector will automatically analyze the test result according to the program upper and lower limits and offer the determination of the test result, displayed as **< Pass >**, **< Caution >** or **< Fail >**.
- In non-silent mode, one beep will sound before the detector automatically return back to test interface, where users could press < OK **OK >** key again for second or more tests.

4.4 Records Regarding Operations

4.4.1 View Records

1. Select < **Records** > on the setting interface, and press < **OK** > key to enter the test records interface.

- Press < **Left** > key or < **Right** > key to page up or down;
- Press < **Up** > key or < **Down** > to move the cursor line feed.
- Press < **OK** > key to confirm the selection and enter the test record detail interface to view the test result.
- Press < **Setting** > key to return to the previous.

2. User could also press < **Up** > key on the test interface to directly enter the test records interface.

- Press < **Left** > key or < **Right** > key to page up or down;
- Press < **Up** > key or < **Down** > key to move the cursor line feed.
- Press < **OK** > key to confirm the selection and enter the test record detail interface to view the test result.
- Press < **Setting** > key to return to the previous.

4.4.2 Print Records

On the test record detail interface, and options are available.

- Press < **Down** > key to move the cursor to option;
- Press < **Right** > key to select the option;

- Press < OK > key to confirm the selection and print the current record.

Reminding: Before printing the test records, please check whether the matched Bluetooth printer is connected and power on.

4.4.3 Delete Records

On the test record detail interface, and options are available.

- Press < Down > key to move the cursor and select option;
- Press < OK > key to confirm the selection and delete the current record.

5. Connect Detector to PC or Other Terminals

5.1 Connect Detector to PC

1. Open the PC software on the computer and use the provided USB cable to connect this computer with the detector while it is power on;
2. The < USB > icon on the status bar of detector will be lighted in blue and a prompt < **Connected** > will pop up on the screen of

detector, reminding users that the device is successfully connected to the control computer;

3. Click the ***Connect*** icon in the toolbar of the PC software. The screen of detector will display a prompt **< Communicating… >**, reminding users that the device is communicating with the control computer to realize data exchange and other operations.

5.2 Disconnect Detector from the connected PC

After the detector is successfully connected to the control computer.

1. Users could press **< OK >** key on the detector to disconnect the device from the conncted computer;

2. Users could also click ***Disconnect*** icon in the toolbar of the PC software to disconnect the device from the conncted computer.

5.3 Connect Detector to Bluetooth Printer

1. Select **< Settings >** on the setting interface, and press **< OK >** key to enter the system setting interface.

2. Open the **< Bluetooth >** option on this interface and the **< Bluetooth >** icon on the status bar of detector will be lighted in blue (The device is named is and its password is 0000);

3. After the Bluetooth is enabled, the device can be matched with the Bluetooth printer;

4. After matching, the test result can be printed on paper.

6. Operation and Maintenance

6.1 Daily Precautions

- Please carefully read this manual before using the detector;
- Please power off the detector after test; In case the device will be unused for a long time, please remove the battery and place it at cool and dry place;
- The detector belongs to high-precision optical device which shall be stored and used against damp as well as water and rain;
- The detector shall not be operated in dusty environment to ensure the test result accuracy;
- If the detector automatically powers off due to the low battery. Please charge it as soon as possible and do not forcibly start it again and again;
- The detector shall not be operated in environment with strong magnetic field interference;
- No person other than the qualified maintenance staff assigned by our company shall disassemble the detector.

6.2 Battery Charge or Replacement

- In case the low battery alert displayed in the status bar of the detector, please charge the battery and be sure to use the supplied power adaptor.
- In case the discharge time of the provided battery is short or the battery fails to recharge or discharge, please contact our service support or local distributor for battery replacement.

6.3 Test Chamber Clean or Replacement

The test chamber of detector can be removed for cleaning or replacement.

1. Users could open the top cover of detector, insert one finger into the test chamber, and use the friction force between the finger and test chamber to pull out the test chamber.

2. As the acquisition channel for optical signal, the bottom structure of the test chamber is designed as a special transparent cap. In order to ensure the optical performance, thus the performance of detector, the test chamber cap shall be well protected during disassembly. If any part of it is damaged, please contact our service support or local distributor for test chamber replacement.

3. Users could clean the test chamber interior with warm water or mild detergent. Let the test chamber natural air drying, after this please insert it back into the detector till it reaches the bottom and is locked. Please pay attention to ensure the right insertion direction.

⚠ **Warning**: Please power off the detector and remove the battery before cleaning or replacing the test chamber.

🚫 **Prohibit**: It is prohibited to clean the test chamber with strong detergent.

7. Troubleshooting

Table 4. The main possible errors during the self-test process of detector and their possible causes.

No.	Description	Possible causes
1	Storage unit error	Memory storage fails
2	File system error	Initialization of the file system fails
3	Temperature test error	The temperature test module fails
4	Temperature error	The environment temperature is not within 5~40°C
5	Incline angle test error	The incline angle sensor is invalid
6	Battery error	The battery voltage is very low
7	Background error	The background value of the test environment is out of specification
8	Test module error	The test module fails

Corrective instruction: for errors during self-test process, the detector can be restarted on the condition that the battery has sufficient voltage and the working environment meets the pre-mentioned requirements.

Reminding: If the error persists, please contact our service support or local distributor.

Table 5. Other possible errors and their corrective instructions.

NO.	Error Description	Possible Cause	Corrective Instructions
1	Press the < **Power** > key, while the detector cannot be powered on	a. Low battery; b. Battery is loosened; c. Device or keyboard is damaged.	a. Connect to an external power supply. If the device starts normally, charge the battery or re-install the battery; b. Otherwise please contact us.
2	Press the < **Power** > key, while the detector cannot be powered off	a. Improper operation; b. Device or keyboard is damaged.	a. Replace the keyboard; b. Restart or power-down restart.
3	Abnormal shutdown	a. Low battery; b. Battery is loosened; c. The device has been fell damaged or strongly vibrated; d. The device is automatically powered off within the standby time; e. The device is	a. Re-install the battery; b. Check the integrity of the device; c. Restart the device.

		damaged or malfunctioned.	
4	The screen has no display or partial display	a. The screen is damaged; b. Auto power saving mode; c. The device is automatically powered off due to low battery.	a. Wake up power saving mode; b. Charge the battery.
5	The test records cannot be stored	a. The system has been set not to store the test records; b. A certain part of the device is loosened or damaged	a. Check if the system is enabled to store the test records; b. Check the integrity of the device.
6	The test results always reads 0 or a value lower or higher than the set limits	a. The ATP Quickswab is not properly used; b. The ATP Quickswab is expired; c. The test is performed in an unstable environment; d. The device is contaminated.	a. Properly use a functional ATP Quickswab; b. Recalibrate the instrument; c. Operate the device in a compliant environment; d. Clean the test chamber

Reminding: If the error persists, please contact our service support or local distributor.

Warning: in case of any following condition occurs, please immediately power off the device, and contact our service support or local distributor to ask for qualified maintenance staff for assistance:

1. Any liquid has enter into the device;
2. Any abnormal sound or smell appear inside the device;
3. Device is soaked with water or rain;
4. Any housing damage caused by accidently drop of the device;
5. Obvious functional changes of the device.

8. Commitment Statements of After-sale Services

8.1 Warranty Service

We will provide 24 months of warranty period beginning from the delivery of the detector. Within the warranty period, our company guarantees the maintenance of the device in case any malfunction is caused by the defects of materials and device manufacture. Users could contact us, and we will arrange maintenance personnel for processing (We promise to provide the list of components and the electric circuit for the maintenance personnel). Or directly send the device back to the maintenance department assigned by our company (Users shall be responsible for the transportation fees), and we will send back the well maintained device to the users for free.

Reminding: The following circumstances are not within the scope of warranty:

1. The device damages caused by improper, negligent operation or force majeure including: war, fire, flood, earthquake, typhoon and any other unforeseen accidents.
2. The parts or components damages caused by abnormal voltage.
3. Users did not comply with the rules of transportation and use.
4. Users did not comply with the maintenance instructions.
5. The device has been opened or maintained by person, manufacturers or agents that are not authorized by our company

8.2 Response Time

We will respond within 24 hours upon receiving the notification, no matter whether the device is within the warranty period or not. For

any problems that cannot be solved through the phone, the device will be sent back to our company for repair.

8.3 Spare and Accessory Parts

For post warranty service, our company still provides the maintenance service for the device, we will charge for the maintenance fee according to the specific situation and our company will supply the commonly used spare parts at most preferential price for long-term.

8.4 Special Statement

It is a product of PCE-Instruments and provided with dedicated ATP Quickswabs. Please purchase our genuine ATP Quickswabs to ensure the accuracy of test result and avoid the unnecessary trouble due to the unmatched ATP Quickswab. The company assumes no responsibility for the non-genuine device or ATP Quickswab.

⚠ **Warning**: in case the device occurring any problem, please contact our service support or local distributor. Do not disassemble the device without permission.

⚠ **Warning**: our company assumes no responsibility for any problem raised from disassembly of the device without permission which will invalid the warranty.

9. Portable ATP Hygiene Monitoring System Software Specification

9.1 Overview

ATP data management system is mainly used to realize functions such as data exchange between PC and the device, test record analyzing and processing and unidirectional command control.

ATP data management software has following main features and advantages:

- Compatible with current mainstream Windows OS versions such as Win8/Win7/Vista/XP;
- Fully independent from any third-party software;
- Its communication employs the standard Windows driver, requiring no third-party driver;
- Chinese and English are fully supported;
- Capable of directly uploading test data from one or more devices;
- Editable templates such as User, Program and Plan, which can be downloaded to the device for usage;
- Uploaded data and edited templates can be directly exported as Excel-compatible format;
- Test data can be output as statistical graph based on specified conditions (histogram, sector diagram, line chart and so on) and can be printed;
- Uploaded test data is encrypted.

9.2 **Setup**

Open the included CD and locate 'setup.exe' to run the executable file.

You will be automatically directed to the 'Installation Confirmation' interface, as shown in figure 9.1.

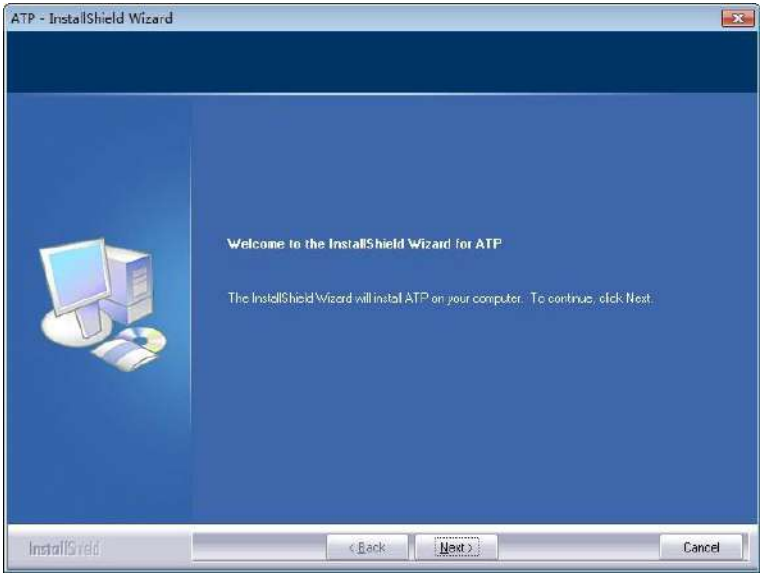


Fig 9.1 Installation Confirmation

Click the ***Next*** button to enter the 'Installation Directory Selection' interface, as shown in figure 9.2.

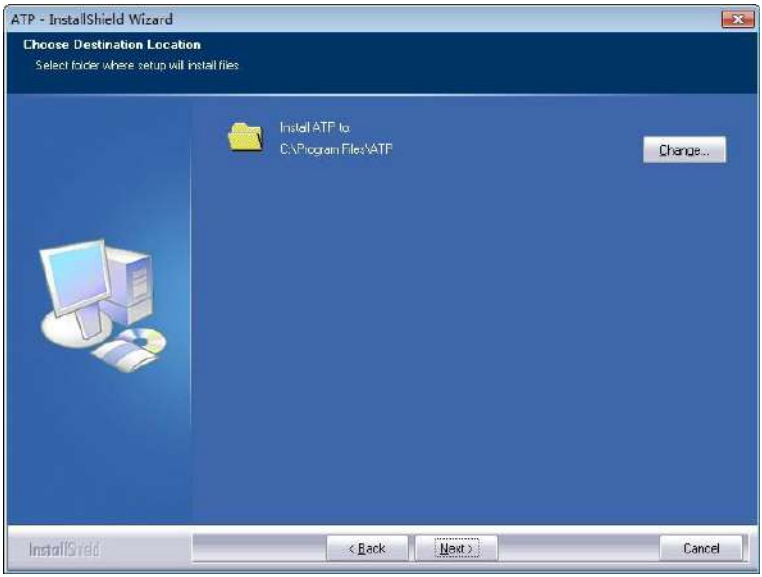


Fig 9.2 Installation Directory Selection

Users could click the ***Change*** button to change the Installation directory. Click the ***Next*** button to enter the 'Software Installation' interface, as shown in figure 9.3.

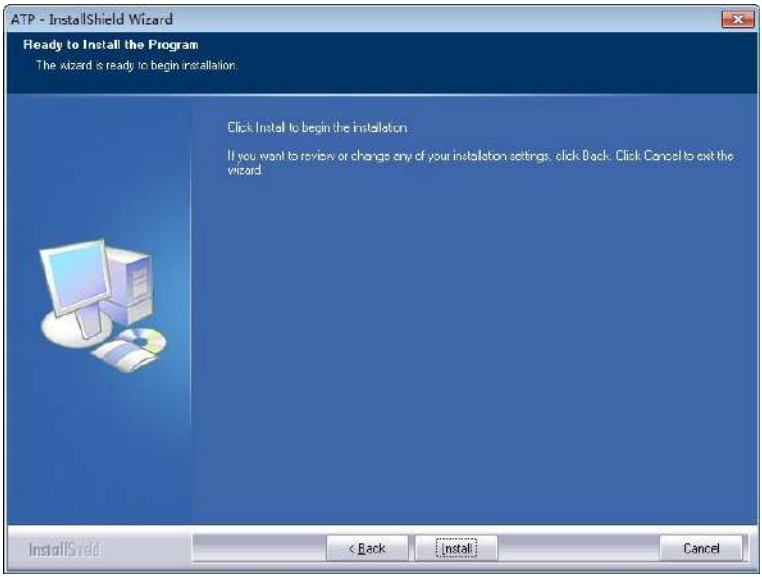


Fig 9.3 Setup

Click the ***Install*** button to enter the '***Installation Status***' interface;

After the installation, you will be directed to the ***'Installation Complete'*** interface, as shown in figure 9.4. Please click ***Finish*** to confirm.

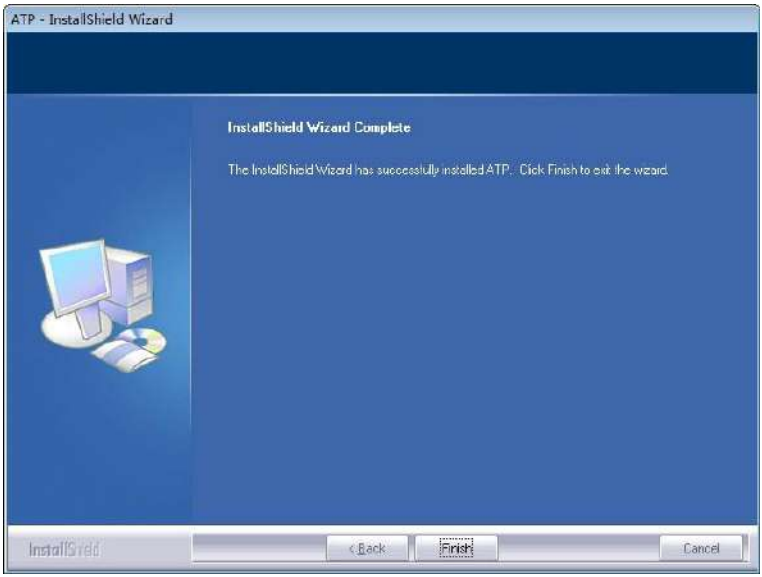


Fig 9.4 Software Installation

The software will run automatically upon completion of installation, and generate a shortcut icon ‘ ’ on the desktop for easy operation.

9.3 **Remove**

Users could find the ‘ uninstall’ icon in the Start menu of Windows operation system, click it and a uninstall dialog box will pop up, according to whose prompt, the uninstall operation can be done.

Users could also uninstall the software from the ‘Control panel - Program and function’ menu of the computer.

10. Software Interfaces and Features

10.1 Software Interfaces

The initial interface is as shown in figure 10.1.

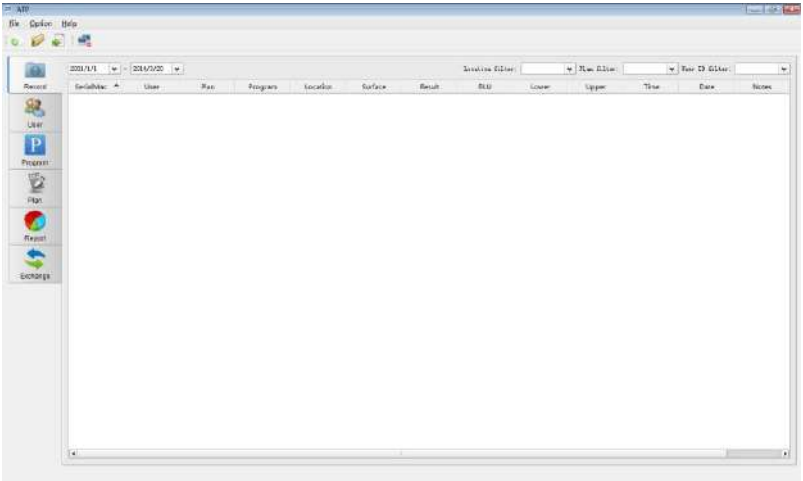


Fig 10.1 Initial Interface

10.2 Overview of Features

10.2.1 Menu Bar

File Pull-down Menu

File	Icon	Feature
New...		Generate a statistical graph report according to test data;
Open...		Open a statistical graph report from the disc;
Export...		Export list contents such as test records and

		templates to the disc;
Exit	/	Exit the software.

Option Pull-down Menu

Option	Icon	Feature
Login...		Login as administrator
Switch to Chinese	/	Switch interface language
Connect...		Connect the device
Exit	/	Exit the software.

Help Pull-down Menu

Help	Icon	Feature
Contents F1	/	Display help document information
About	/	Software Version Information

10.2.2 Tool Bar

This area contains shortcuts of ***New***, ***Open***, ***Export*** and ***Connect***.

10.2.3 Function Options

Function option	Icon	Feature
Record		View, sort, search, delete and edit of uploaded test records
User		Edit, add or delete user templates
Program		Edit, add or delete procedure templates
Plan		Edit, add or delete plan templates
Report		View, print or delete statistical graphs
Exchange		Data sync with device, firmware update and issue of control command

11. Operating Guidance

11.1 Connect Device to PC

Start up the device and use the data cable to connect the device to the USB port of your PC.

11.2 Connect Device to Software.

Open the software, select the connect icon from the pull-down menu of the 'Option', or directly click the icon on the tool bar. After the device is successfully connected to the software, the device interface is as shown in Figure 11.1, and the connect icon also changes to icon.

Fig 11.1 Connecting

11.3 Record

11.3.1 Description

Click the < Record> from the function options on the main interface, the software will directly enter the record interface as shown in figure 11.2.

	SerialMac	User	Plan	Program	Location	Surface	Result	RLU	Lower	Upper	Time	Date	Notes
1	3		0	0	Hotel	Cushion	Pass	0	450	450	13:39:52	2014-07-18	
2	3		0	0	Hotel	Cushion	Pass	0	450	450	13:40:58	2014-07-18	
3	3		0	0	Hotel	Cushion	Pass	112	450	450	09:09:13	2014-07-19	
4	3		0	0	Hotel	Cushion	Pass	111	450	450	09:09:30	2014-07-19	
5	3		0	0	Hotel	Cushion	Pass	112	450	450	09:12:30	2014-07-19	
6	3		0	3	F3	Plate	Pass	2	7	20	11:45:43	2014-07-19	
7	3		0	3	F3	Plate	Pass	1	7	20	11:46:07	2014-07-19	
8	3		0	2	F2	Faucet	Caution	113	100	250	11:46:40	2014-07-19	
9	3		0	3	F3	Plate	Fail	112	7	20	11:47:17	2014-07-19	

Fig 11.2 Record

After the device is successfully connected to the software, and data synchronization is completed, the test record will be displayed in the record management section to display detailed record information.

Users could edit, delete, export and generate the statistical report based on the test records, and also analyze these data by time, location, user or schedule.

Filter the displayed options

Users could select the records within a certain period of time.

Displays the record of a certain location

Displays the record of a certain schedule

Displays the records of a certain user

11.3.2 Records Editing

Administrator privilege is required for management of the test records. Under the administrator model, The **< User >**, **< Plan >**, **< Program >**, **< Location >** and **< Surface >** information of these test records can be edited.

11.3.2.1 Login as Administrator

From the pull-down menu of 'Option' on the menu bar, click the icon ***Login...*** to display the 'Input administrator password' dialogue box, as shown in figure 11.3.

Fig 11.3 Input administrator password

In the 'Input administrator password' dialogue box, you can input the password '0000' to get the administrator privilege, and click ***OK*** to log in, as shown in figure 11.4.

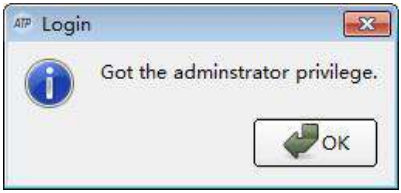


Fig 11.4 Login Successfully

You can double click the cell to be edited to edit the related records.

11.3.2.2 Logoff

From the pull-down menu of 'Option' on the menu bar, click the icon ***Logoff*** to exit from the system.

11.3.3 Records Deletion

After login as administrator, users could select a certain record and right click to delete the selected test records.

11.3.4 Records Export

Click the icon ***Export*** from the pull-down menu of 'File' on the menu bar, or directly click the icon ( ) on the shortcut on the tool bar to display the Export dialogue box. Select the save position, and enter the file name. Click ***OK*** to save the file in 'CSV' format that can be opened by Excel or in txt format which facilitates data entry of users.

11.4 User

11.4.1 New User

When the button ***Add*** in the work area is enabled, click it to add a new user. Input user name and press the [Enter] key to confirm it, as shown in figure 11.5.

Fig 11.5 Add New User

Note: When the user name is empty， already exists or exceeds 10 characters, the software will reminding that the user name is invalid, please re-set the user name again.

11.4.2 Edit User

Double click the user entries to be edited to enter the Edit mode, after editing the user name please press the [Enter] key to confirm the modification.

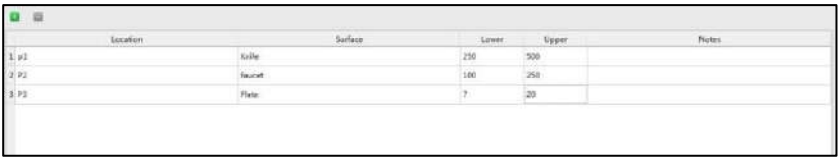
11.4.3 Delete User

After selecting the user entries to be deleted, the button ***Delete*** in the work area will be enabled. Press the button and click ***Yes*** in the displayed Confirm Delete dialogue box to delete the selected user entries.

11.5 Program

This module provides the feature to customize test program which essentially consist of test 'Location', 'Surface', 'Upper' reference limit and 'Lower' reference limit.

Among them, the test 'Location' and 'Surface', have the maximum character length of 30 characters and the range of 'Upper' and 'Lower' reference limit is 1 - 9999, while the upper limit is not less than the lower limit. Up to 1999 programs can be added, as shown in figure 11.6.



Location	Surface	Lower	Upper	Notes
1: p1	Knife	250	500	
2: P2	faucet	100	250	
3: P3	Plate	7	20	

Fig 11.6 Program

11.5.1 New Program

When the button ***Add*** in the work area is enabled, click it to add a new program. Input all the corresponding information of the new program and press the [Enter] key to confirm it.

11.5.2 Edit Program

Double click the cell to be modified to enter Edit mode, edit the corresponding content and press the [Enter] key to confirm the modification.

11.5.3 Delete Program

After selecting the program entries to be deleted, the ***Delete*** button in the work area will be enabled. Press the button and click ***Yes*** in the displayed Confirm Delete dialogue box to delete the selected program entries.

Reminding: Delete the program in the 'Program' module, the corresponding program in the 'Plan' module will be also deleted.

11.6 Plan

This module provides the feature to customize test plan that consist of several test programs. As shown in the above figure, the left section

displays the t test plan, while the right section displays test programs contained in the selected test plan.

Up to 255 test plans can be added, each of which contains up to 255 test programs, as shown in figure 11.7.

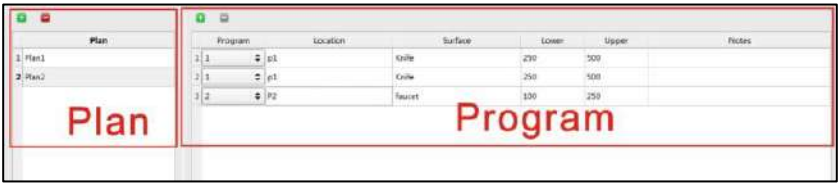


Fig 11.7 Plan

11.6.1 New Plan

When the button ***Add*** on the schedule column in the work area is enabled, please press the Add button to add a new plan. Users could use the system automatically generated plan name or manually customize the new plan name. After adding a new plan, the right program column will add the first test record of the current program template by default. Users are allowed to add or change program contents and sequence in the right program column.

Reminding: A plan can be added only when the test program is not null.

11.6.2 Edit Plan

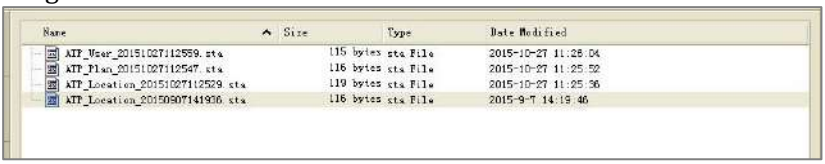
Plan editing is to modify the program information of the selected plan. You can select the desired program from the pull down list in the program column.

11.6.3 Delete Plan

After selecting the plan entries to be deleted, the button ***Delete*** in the work area will be enabled. Press the button and click 'Yes' in the displayed Confirm Delete dialogue box to delete the selected plan entries.

11.7 Report

The contents displayed are statistical graphs report generated and saved by New Wizard under the current 'Report' directory, As shown in figure 11.8.



Name	Size	Type	Date Modified
ATP_User_20151027112559.sta	115 bytes	sta File	2015-10-27 11:28:04
ATP_Plan_20151027112547.sta	116 bytes	sta File	2015-10-27 11:25:52
ATP_Location_20151027112529.sta	119 bytes	sta File	2015-10-27 11:25:36
ATP_Location_20150907141936.sta	116 bytes	sta File	2015-9-7 14:19:46

Fig 11.8 Report

Double click a certain report to open it, the statistical graph is as shown in figure 11.9. User could also right click it to display the Delete option.

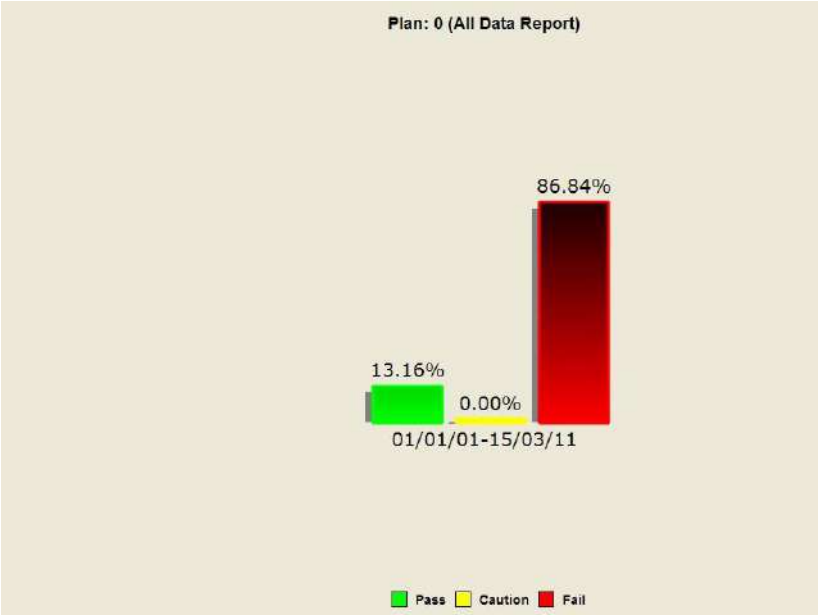


Fig 11.9 Statistical Graph

Right click on the statistical graph to display options menu, as shown in figure 11.10.

Fig 11.10 Options Menu

Functional description

Options	Description
Close	Close the current statistical graph
Print…	Print the current page
Print Preview	Preview the current page printing effect
Histogram	Display the histogram for statistical report
Pie chart	Display the statistical report in form of pie chart
Line chart	Display the change trend of statistical results in form of line chart
Hide/show Label	Hide/show the percent comment of charts

11.8 Exchange

This module is not enabled when the software starts.

11.8.1 Activation Method

1. Check that the device is properly connected to your PC through the data cable;
2. Click the button ***Connect*** on the tool bar. This button will change to after connection succeeds.

If it is not properly connected, check if the device is reliably connected to your PC.

After successfully connected the device with PC, 'Device Firmware Upgrade', 'Synchronization' and 'Control Command' buttons will be

enabled for data exchange between your PC and device, as shown in figure 11.11.

Fig 11.11 Exchange Interface

11.8.2 Device Firmware Upgrade

This module is used to update the device firmware program. Please make sure the unit is successfully connected to computer via the provided USB cable update. Do not shutdown the computer or the device during the update process.

11.8.3 Synchronization

This module is used to synchronize the data between the device and PC. After successfully connecting the unit to the computer, please click ***Synchronization*** to upload the test results from the unit to the computer. After the completion of the upload, the software will

automatically reminding the users 'Whether to clean all the data in device?' Click ***NO*** the data device will not be deleted; Click ***YES*** the test data in the device and downloaded template will be cleared, and the **< User >**, **< Program >** and < Plan > templates created on the computer will be downloaded into the device in turn to complete data synchronization.

11.8.4 Command Send

This module is used to send control commands to the device, in order to realize the remote control of PC software on the device. There are two control commands: 'Single Test' and 'Shutdown'.

Single Test: place the swab and close the top cover to ensure the swab is being tested. Press the ***Single Test*** key to start test.

Shutdown: Shut down the device.