Automated Blood Culture System

（BC32）

User Manual

(Version 2.2)



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1. Introduction

1.1 Model

【Description】Automated Blood Culture System
【Model】BC32

1.2 Purpose

The product is used for clinical automated culture and detection of microorganisms in human blood or other sterile body fluids.

1.3 Performance

【Working conditions】

Ambient temperature: 10℃~30
℃ Relative humidity: ≤70%
Atmospheric pressure: 76KPa-106KPa
Mains voltage: AC100-240V 50/60Hz
Input Power: 250VA

1.4 【Specifications】

Appraisal capability: Able to detect 32 blood culture vials simultaneously, and obtain positive results in 72 hours.
Scanning frequency: Automatic scanning once 10 minutes.
Temperature deviation: ± 1.5℃。
Rated power: 250VA

2. Structural Illustration

【Dimensions】580mm×440mm×440mm

【Weight】30Kg

【Appearance】



3. Operation Conditions

To ensure its proper operation, the instrument must be run in the following conditions and environment:

1. Less dust, good ventilation environment. There is no corrosive, flammable and explosive gas or steam in the room.
2. Avoid direct sunlight or thermal radiation.
3. Good desktop level (inclination below 1/200).
4. The desktop strength to be able to withstand the weight of 50kg (including accessories).
5. Indoor temperature should remain 10 ~ 30℃.
6. Indoor relative humidity should remain ≤70% without condensate.
7. Spaces around the instrument: left 30cm, right 50cm, rear 20cm, upper 10cm. The instrument is recommended to place on a bench with a height of 77 ~ 92cm.
8. The instrument can only be used at an altitude of 0 ~ 3000m.
9. No body-perceivable shock.
10. Mains voltage fluctuation: AC100-240V, mains power 250VA.
11. No machinery transmitting high frequency near the instrument.
12. Cautions on electromagnetic wave: Please don't carry cellophane, walkie-talkie and other electric appliances transmitting electromagnetic wave into the room where the instrument is placed.
13. With protective earthling (below 10 ohms earth impedance).

4. Safety Rules

Below are warnings about BC32 Automated Blood Culture System. Failure to observe may lead to death or severe wound of operators. Severity is irrelevant to the following sequencing:

1. When using specimens harmful or infectious to human bodies, please wear rubber gloves, and don't touch the specimens directly. If your body is stained, flush it with a large quantity of water and sterilize it, and see a doctor if necessary. Sterilize the apparatus when stained.

2. Don't use flammable hazardous articles on or around the apparatus to avoid fire and explosive.

3. In the process of operation of the apparatus, don't touch the specimen pin, reagent pin, agitation bar, reaction container and cleaning mechanism to avoid personal injury.

4. The operation and maintenance of the apparatus should be conducted as per stipulated procedures. Don't touch any part other than the designated ones. It isn't allowed to open the front, rear and side panel of analysis part. Touching cooling fan may lead to injury.

Below are cautions about BC32 Automated Blood Culture System. Failure to observe may lead to minor wound of operators or property damage. Severity is irrelevant to the following sequencing:

1 When rear panel is opened, mains switch should be shut off (in OFF condition), and operation is only conducted at designated parts. There is a risk of electric shock if touching PCBs when mains switch is in ON condition.

2 It is forbidden to open the front right, rear and side panels of the apparatus. IC circuit may be damaged if PCBs are touched.

3 Don't look at light source lamps directly by naked eyes, otherwise eyes will be harmed. Please wear protective goggles when looking at light source lamps.

4 When reagent is stained on your skin, flush it thoroughly with water, and see a doctor if necessary.

5 The disposal of waste liquor should observe relevant regulations. Necessary treatment

should be conducted for the substances containing reagent as per facility drainage base level after consultation with reagent manufactory. Regarding concentrated waste liquor (including reagent liquor), disposal methods equivalent to those of infectious wastes should be adopted.

6 The apparatus uses serum and sterile body fluid as specimens to conduct clinical microbial testing, and may not be used for any other purpose.

7 Designated installation conditions should be observed, otherwise testing reliability may be affected or the apparatus may be damaged.

8 Organic solvent should not be used for reaction container, specimen cup and waste liquor stream. Reagent and specimen liable to stick to specimen cup, reagent nozzle and reaction container should not be used.

9 No fibrin, dust or other insoluble substances should be mixed in specimens. For example, fibrin suspending in serum may block specimen pin, which is one of the reasons for inaccurate testing results.

10 Don’t stare at computer screen for more than 6 hours a day. Take a break for 10 minutes after you work continuously for 1 hour.

The above-mentioned severe wound refers to the conditions with sequelae needing hospitalization or long-time medical treatment, including ablepsia, injury, burning (high-temperature or low-temperature), electric shock, fracture, and toxicosis. Minor wound refers to the conditions with no need of hospitalization or long-time medical treatment. Property damage refers to expanded damage to houses, properties and livestock.

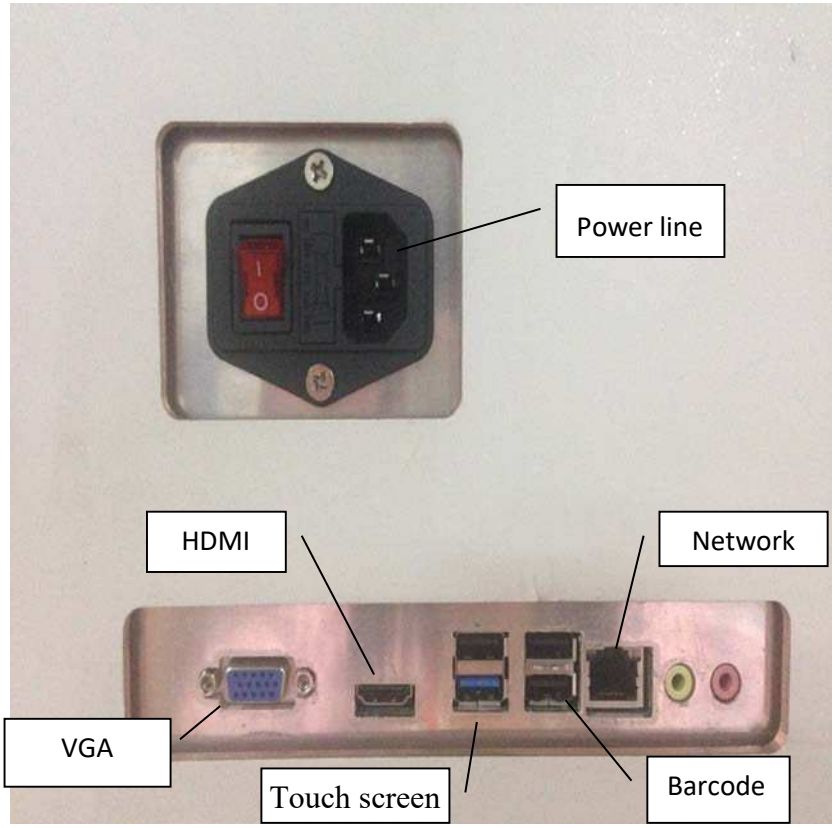
5. Operation

5.1 Installation

This machine is made up of the following parts:

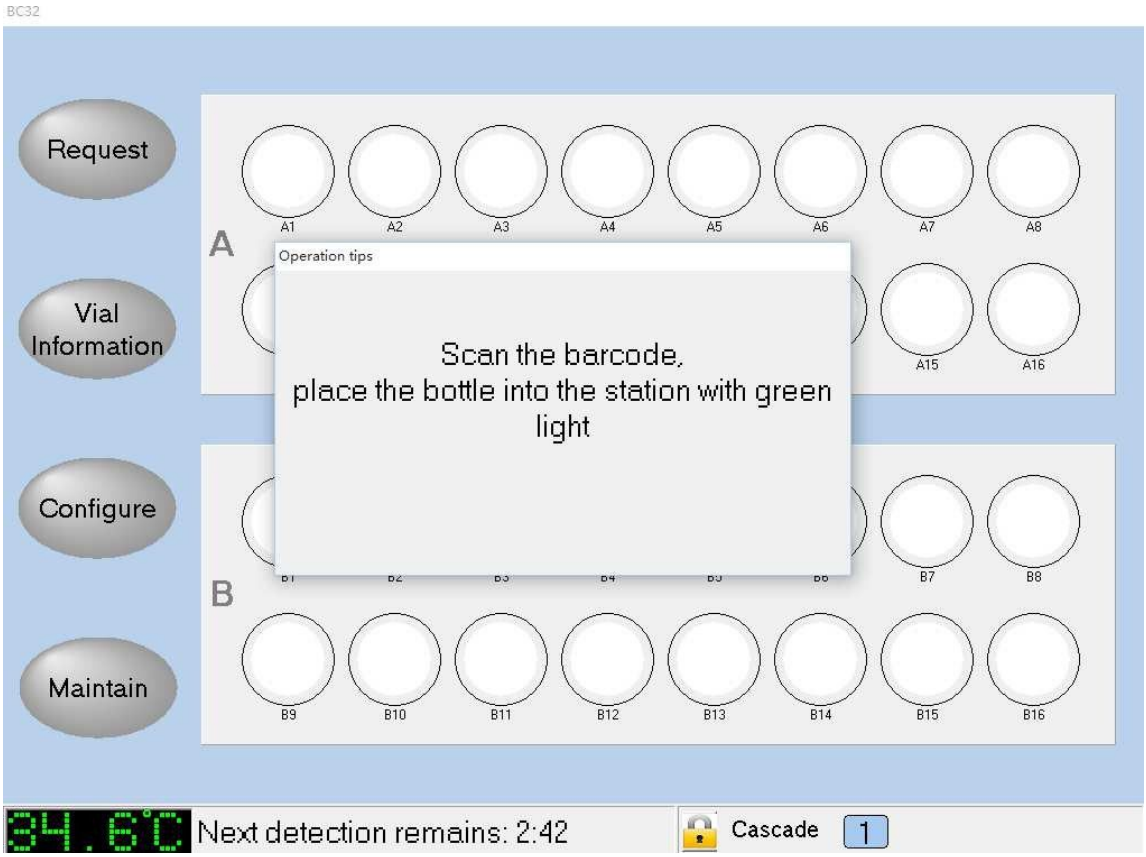
1) Host: include LCD touch display;
2) Barcode scanner;
3) Power line.

Equipment should be placed on solid surface, in accordance with the following interface identifier: in power line interface plug power line, in the scanner interface connected with the connecting barcode scanner, on the touch screen interface line connected to the touch screen, the power supply can be used to open



5.2 Entering New Vials

1. Click blank vial.
2. Open the door.

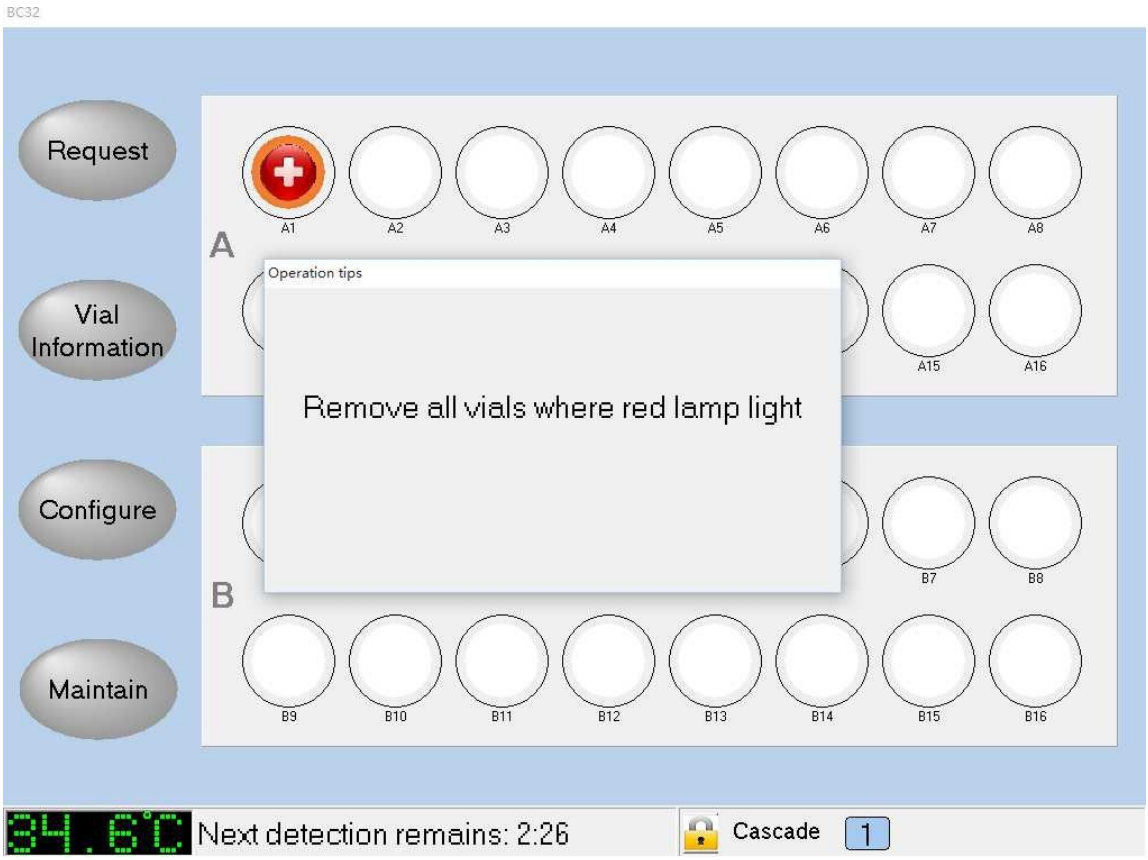


3. Scan barcode on vial. At this time, a sound of water dripping gives out, and the vial station indicator on culture station becomes green.
4. Put the culture vial in the designated vial station. A sound of water dripping gives out, and the vial station indicator becomes OFF, and corresponding vial station on software turns green.
5. Repeat steps 3 ~ 4 until all culture vials are put in place.
6. Close the door.

5.3 Remove Positive Vials

After the host detects the positive bottle, the position of the bottle and the external indicator light of the host will give the positive indication, accompanied by the alarm sound.

1. Click positive vial.
2. Open the door.

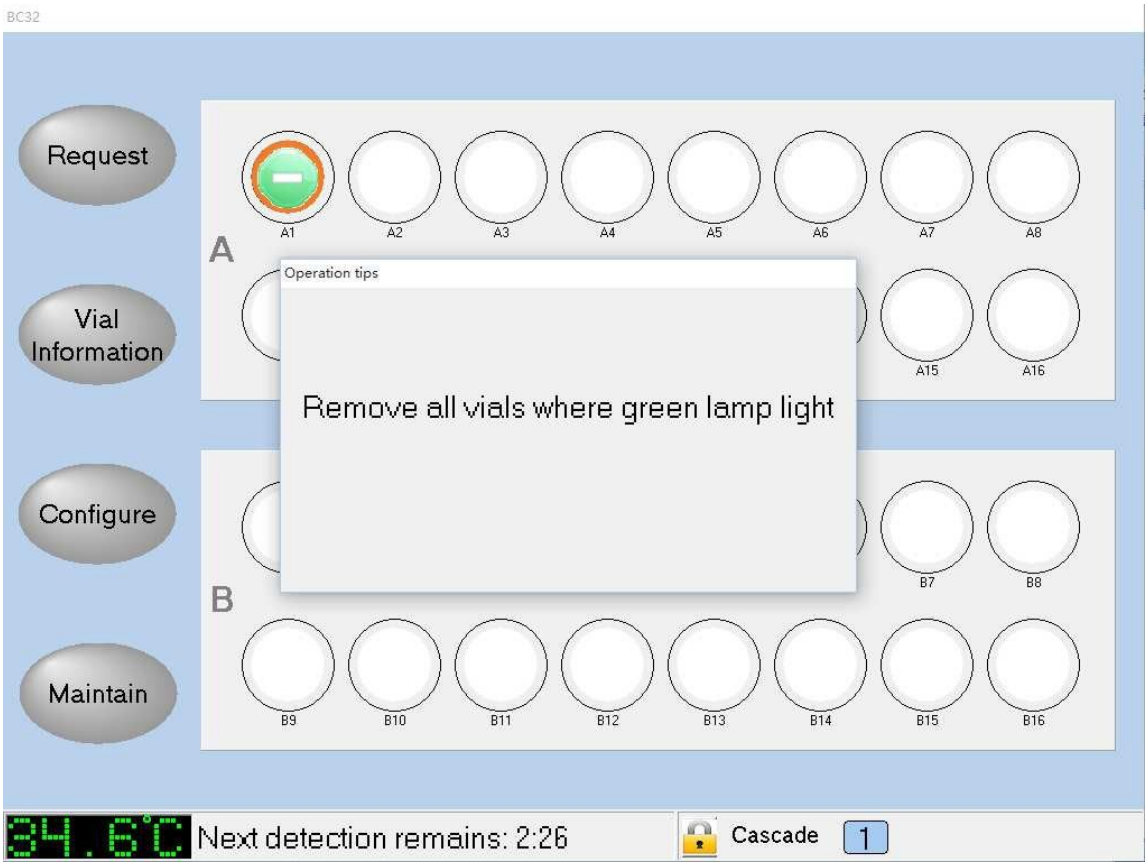


3. The indicators of vial station where positive vials are located become red.
4. Remove positive vials one by one.
5. Operation ends. Close the door.

5.4 Remove Negative Vials

The host machine has a 5-day default cycle of ordinary bacterial culture. If bacterial growth isn't detected in 5 days, the vials will be treated as negative.

1. Click negative vial.
2. Open the door.

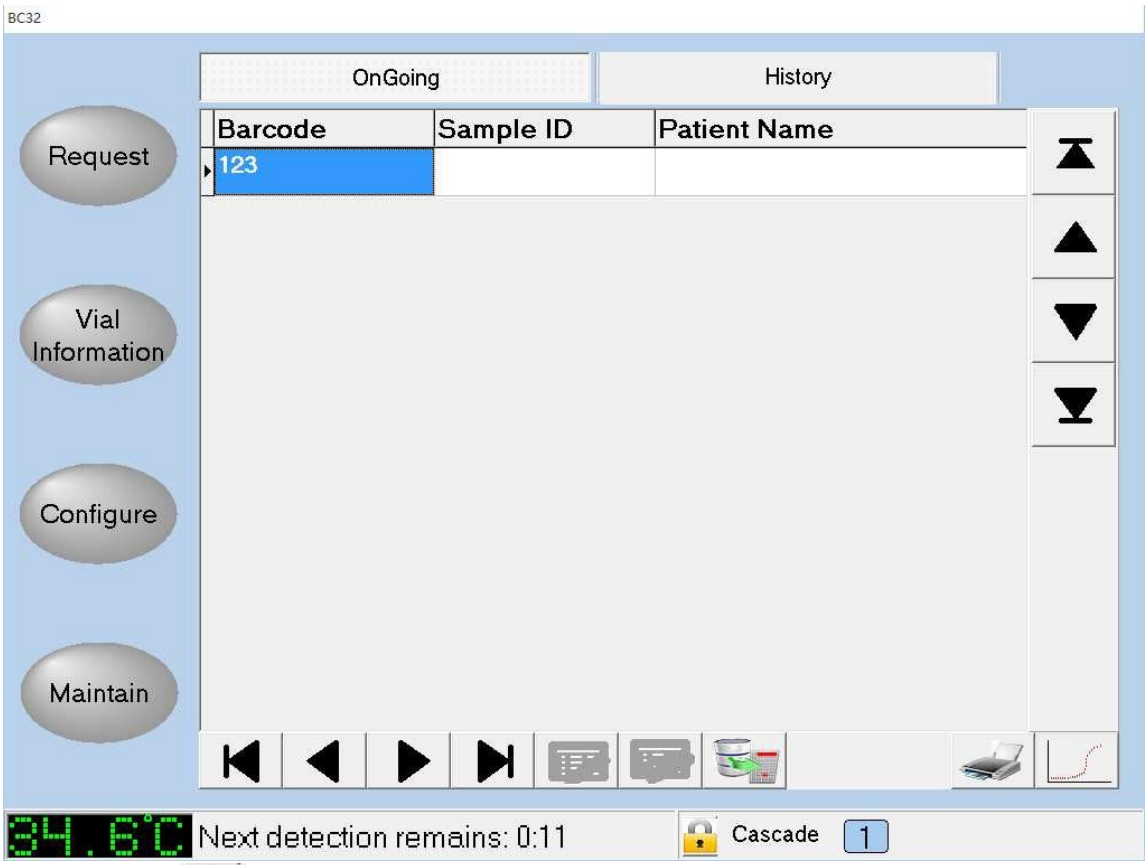


3. The indicators of vial station where negative vials are located become green.
4. Remove negative vials one by one.
5. Operation ends. Close the door.

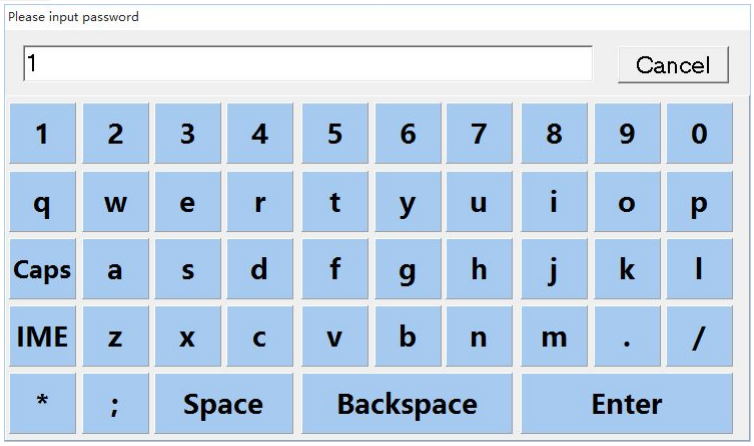
5.5 Input Data of Culture Vials

After preparation of culture vials is completed:

1. Click “Vial information”, and then click “On line”



2. Click , then input password (default is 1)



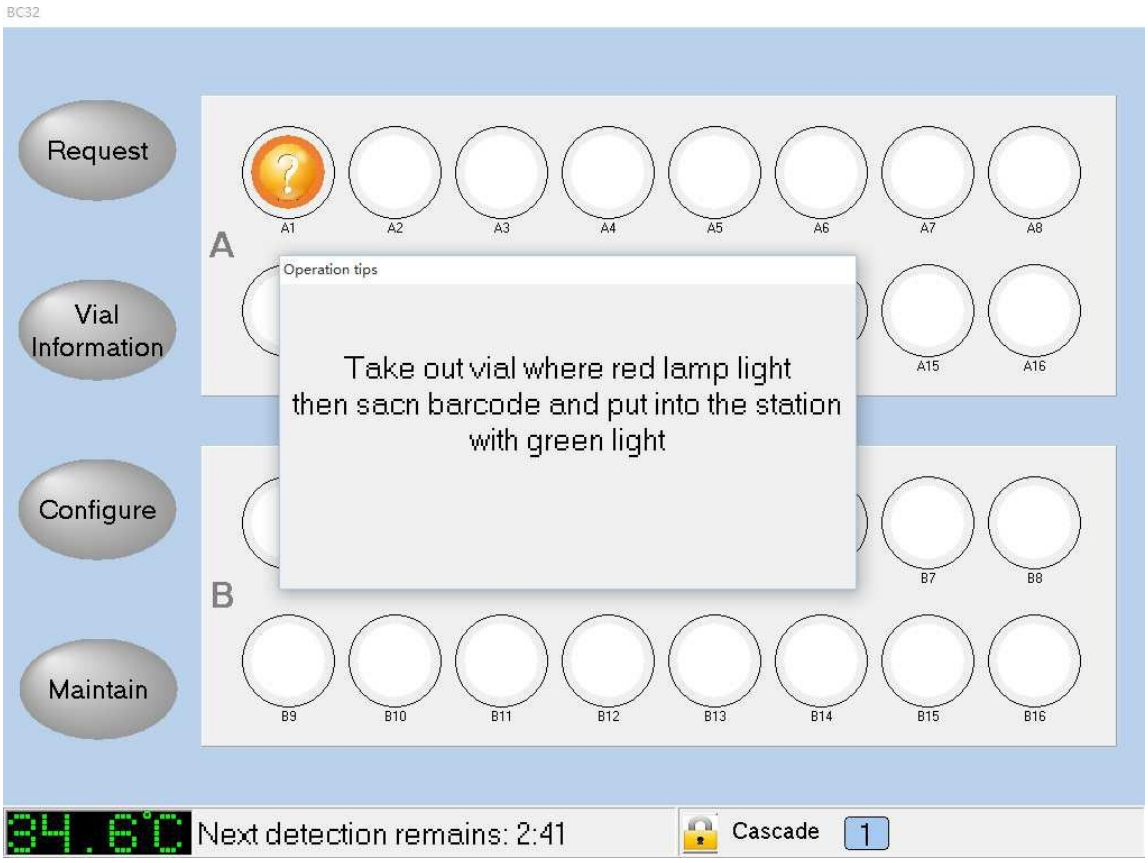
3. is modify, is delete, and  id print the selected vialinformation.

4. For some special sample can set “Cycle” to modify the culture period, or some repack vial may be set short culture period.

5.6 Identifying Anonymous Vials

If a culture vial isn't put in its designated vial station or the barcode on a vial isn't scanned before it is entered in the apparatus, the apparatus will be unable to find relevant data of the culture vial and will report error. Error type is anonymous vial. On software and the external indicators of the host machine, and alarm sound will give out.

1. Click anonymous vial.
2. Open the door.

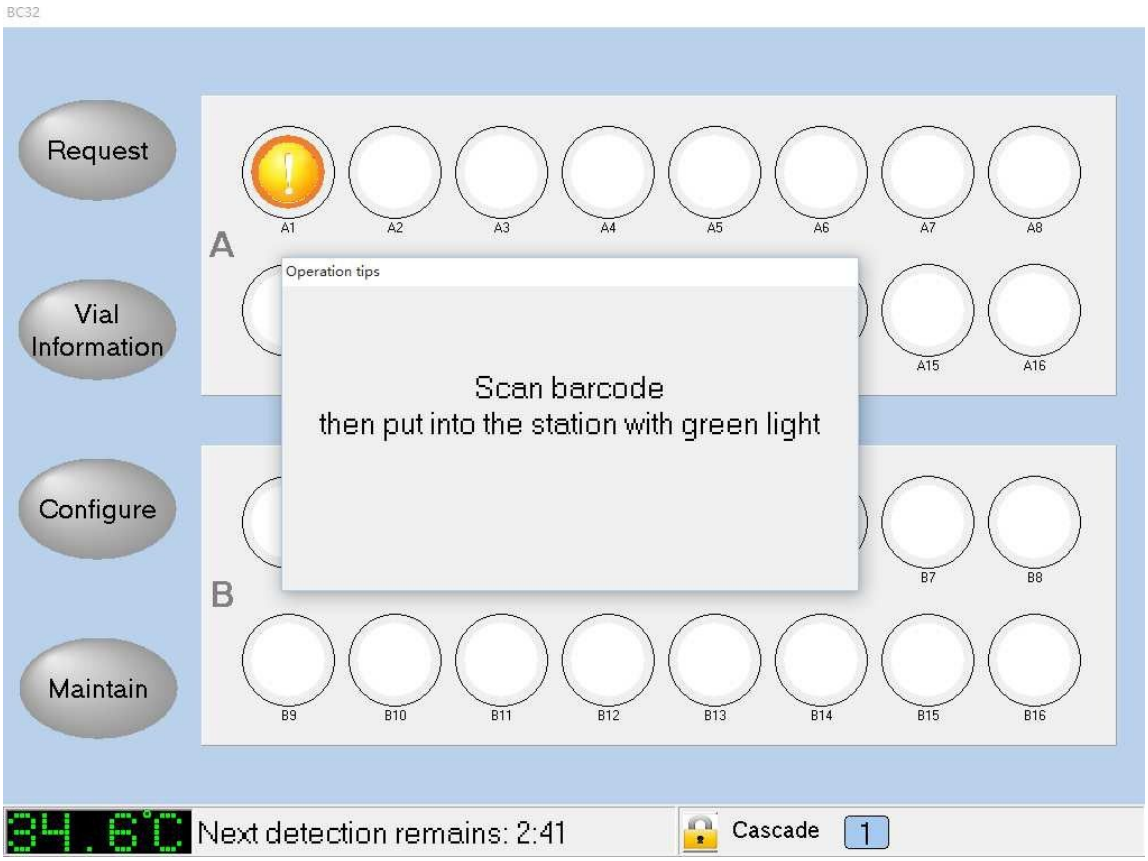


3. The indicators of culture stations where anonymous vials are located become red.
4. Remove an anonymous vial from the designated location and scan its barcode. The apparatus shows the designated station where it should be put. The indicator of the designated station becomes green.
5. Put the culture vial in the designated station.
6. Repeat steps 4 ~ 5 until all anonymous vials are identified.
7. Operation ends. Close the door.

5.7 Resolve Missing Vials

In case of missing vials in **"Ongoing"** vial stations or faults of the detector, the apparatus will report error. On software and the external indicators of the host machine, and alarm sound will give out.

1. Click lost vial.
2. Open the door.



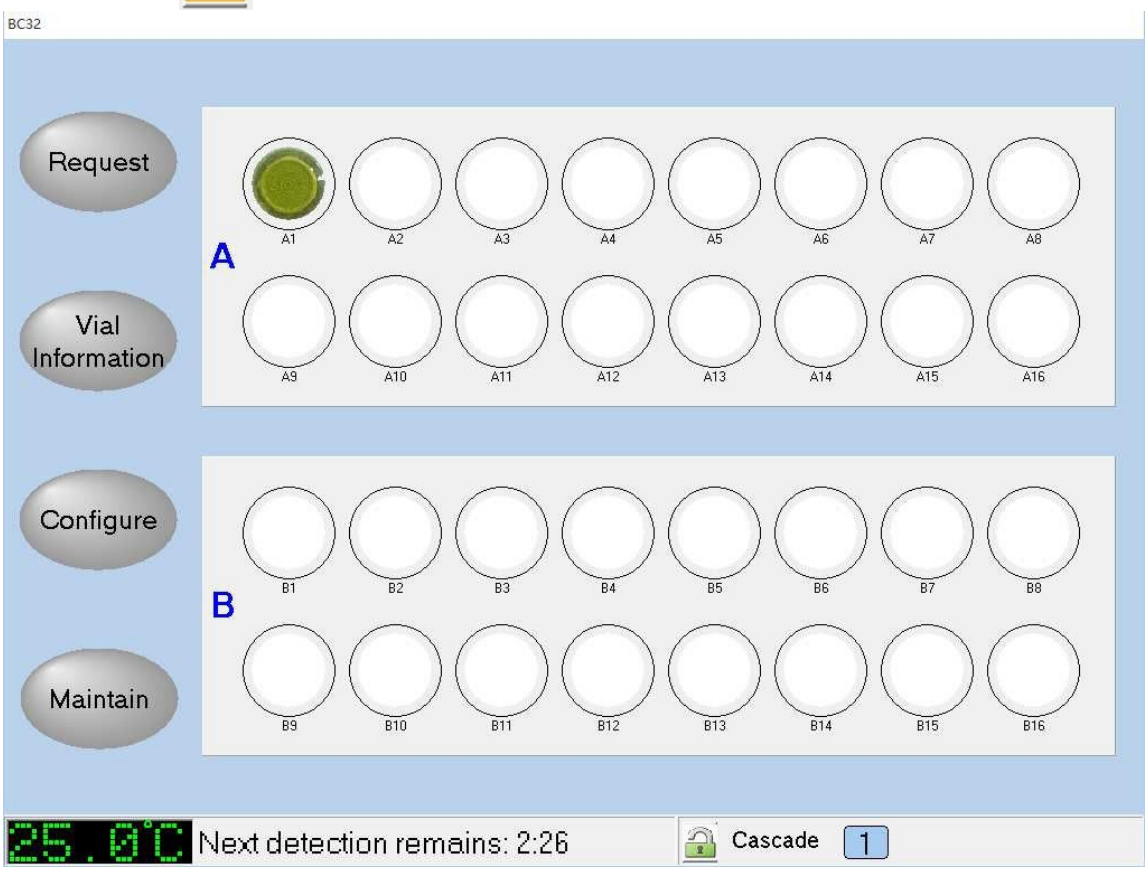
3. Scan the barcode of the missing vial retrieved.
4. The indicators of culture stations where missing vials should be located become green. Insert the missing vials. Operation ends when a sound of water dripping gives out.
5. Repeat steps 4 ~ 5 until all missing vials are put in place.
6. Operation ends. Close the door.

If missing vials can't be retrieved, should to delete the missing vial and empty the vial station. If a culture vial has been properly inserted in its designated station, but it is still shown missing after detection, it should be judged as the problem of vial station detection.

5.8 Manual Negative/Positive

Manual setting of culture vials may be made in the process of culture for eliminating errors.

1. Press  and input unlocking password in the pop up window (default 1).

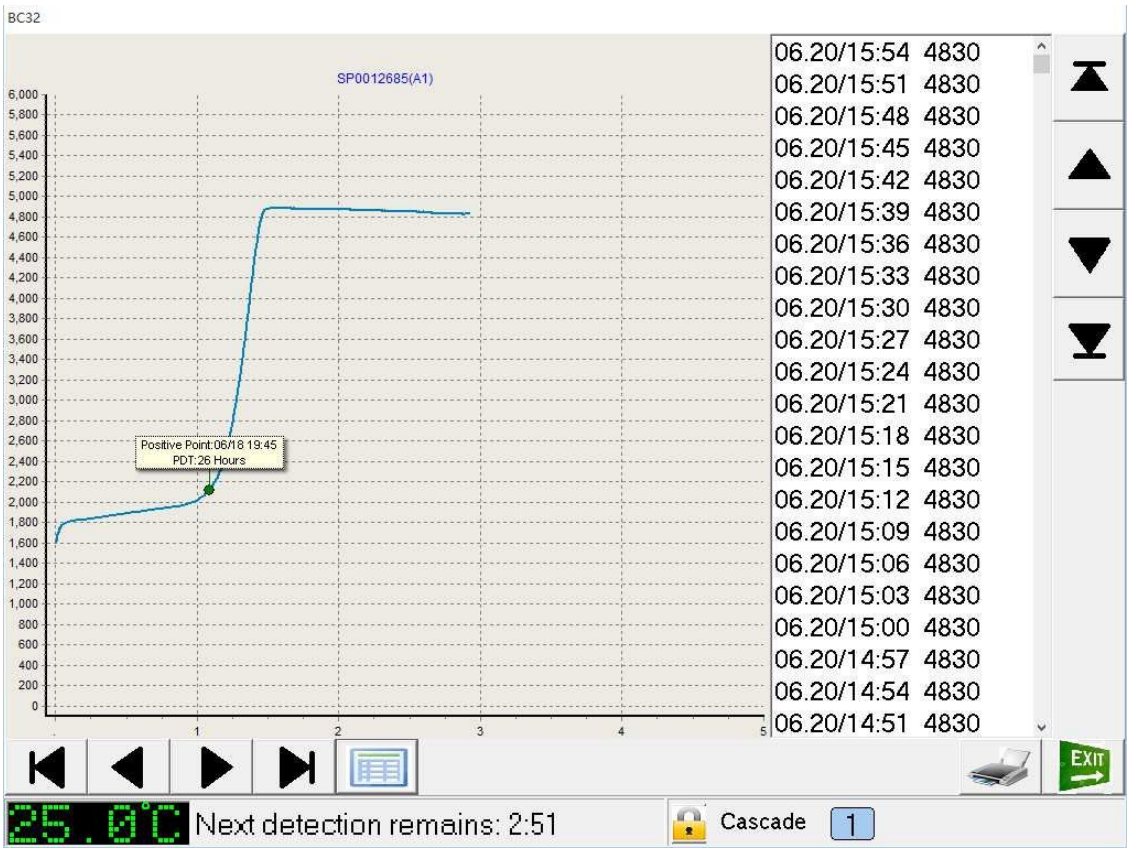


2. After unlocking, culture vial station A and B become blue.
3. Move the cursor to the culture vial station needing manual setting and modify its positive or negative state (in unlocking state, error station and empty station can't be selected).
4. After modification, press  again, and then the culture station on software becomes red. It can't be modified after locked.

5.9 Inquiry of Growth Curve

Growth curves of ongoing culture vials or the culture vials whose culture has been completed can be inquired directly on the computer:

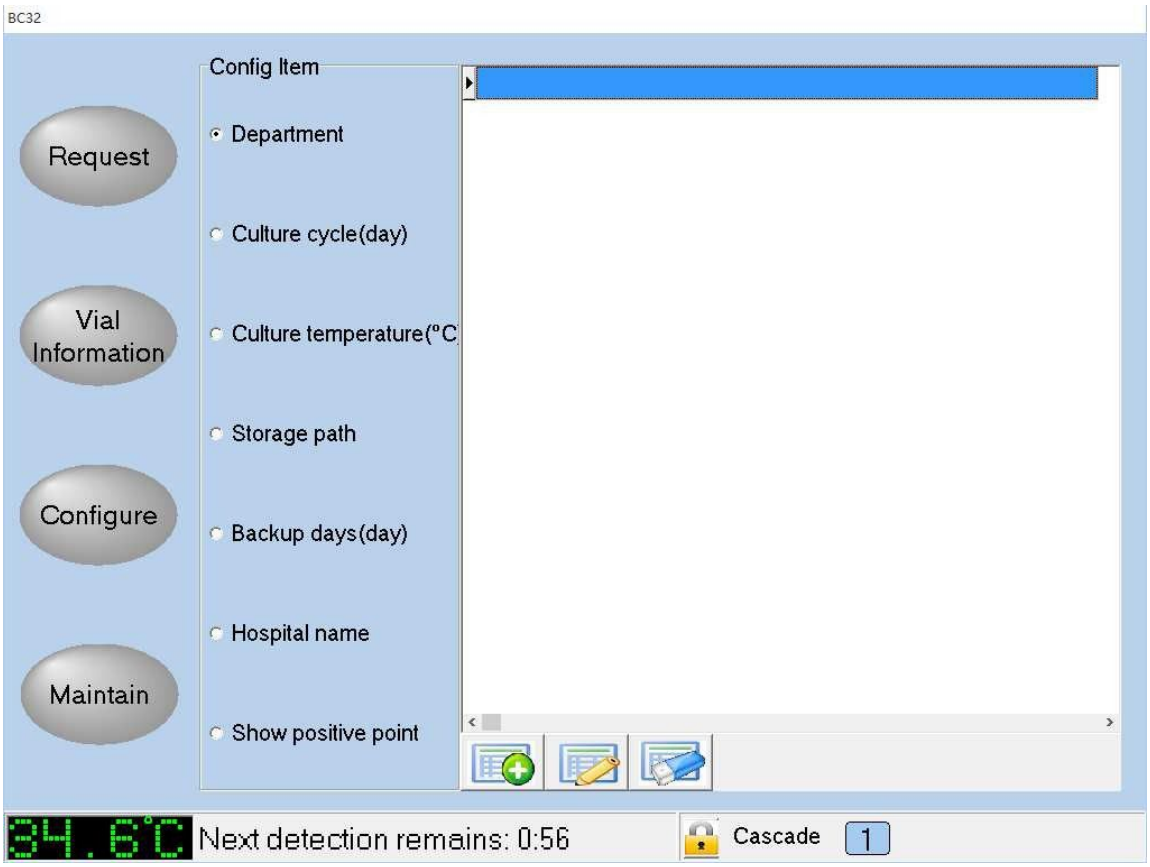
1. Input the barcode of the vial station to be inquired, or
2. Click the vial station to be inquired.



3. Press screens print to print the curve.

5.10 System Setting

Click “Configure” to set system information.



Items	Functions
Department	Input department name, can be selected at input vial information.
Culture cycle	Set culture cycle within the range from 5 to 30 days. Default is 5 days.
Culture temperature	Constant temperature.
Storage path	Data backup path.
Backup days	Days of keeping records.
Hospital name	Input hospital name. The hospital name input will appear on the top of main screen.
Show positive point	If show positive tip at vial growth curves

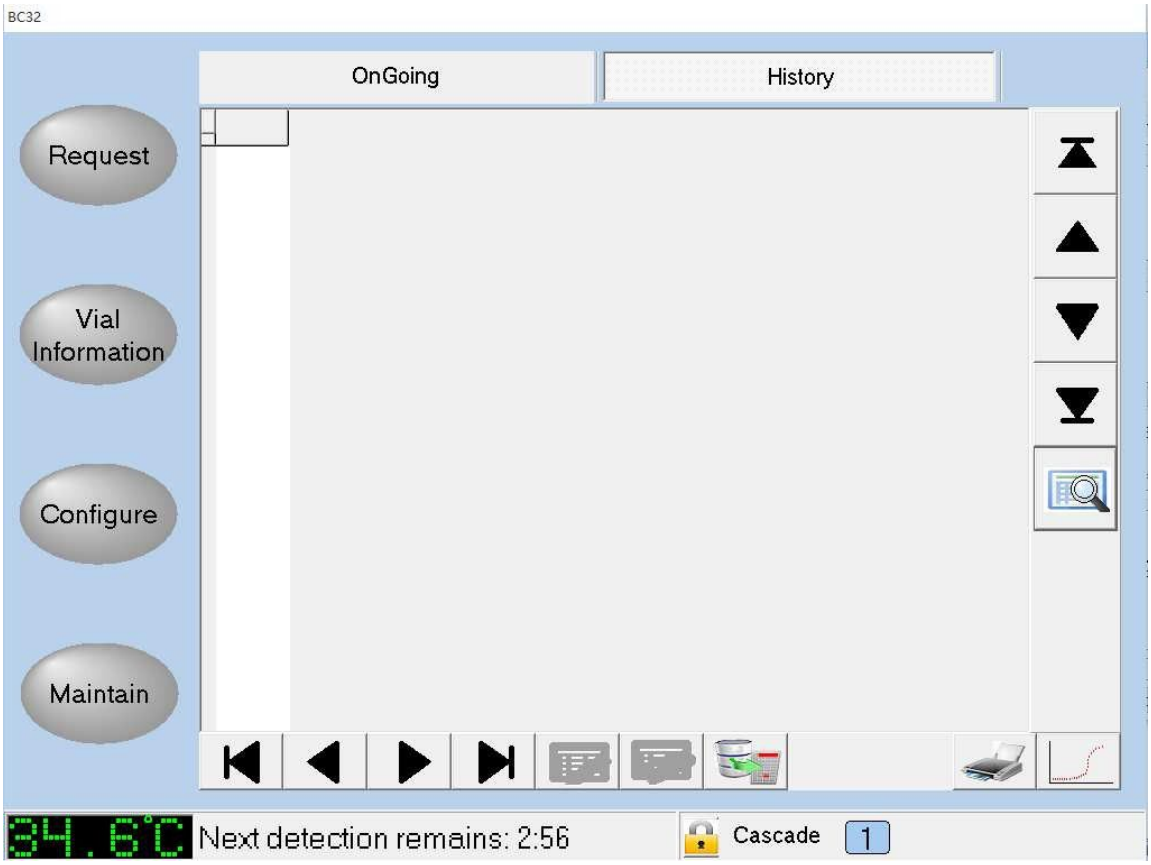
Click  to add new record.

Click  to edit information.

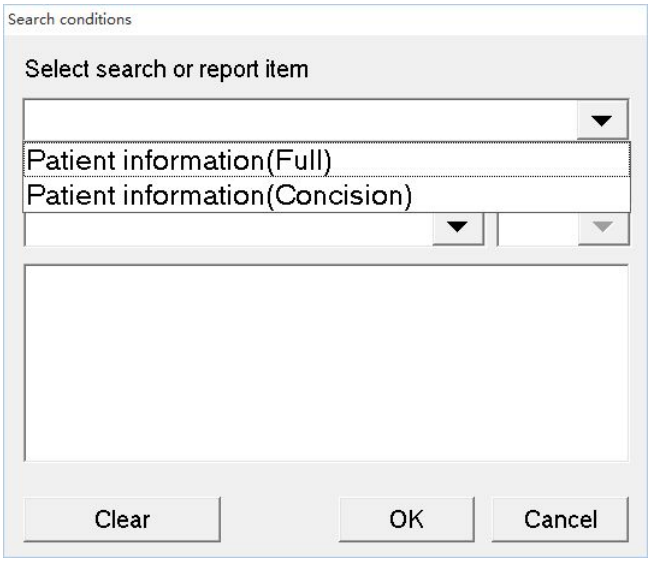
Click  to delete record.

5.11 Report

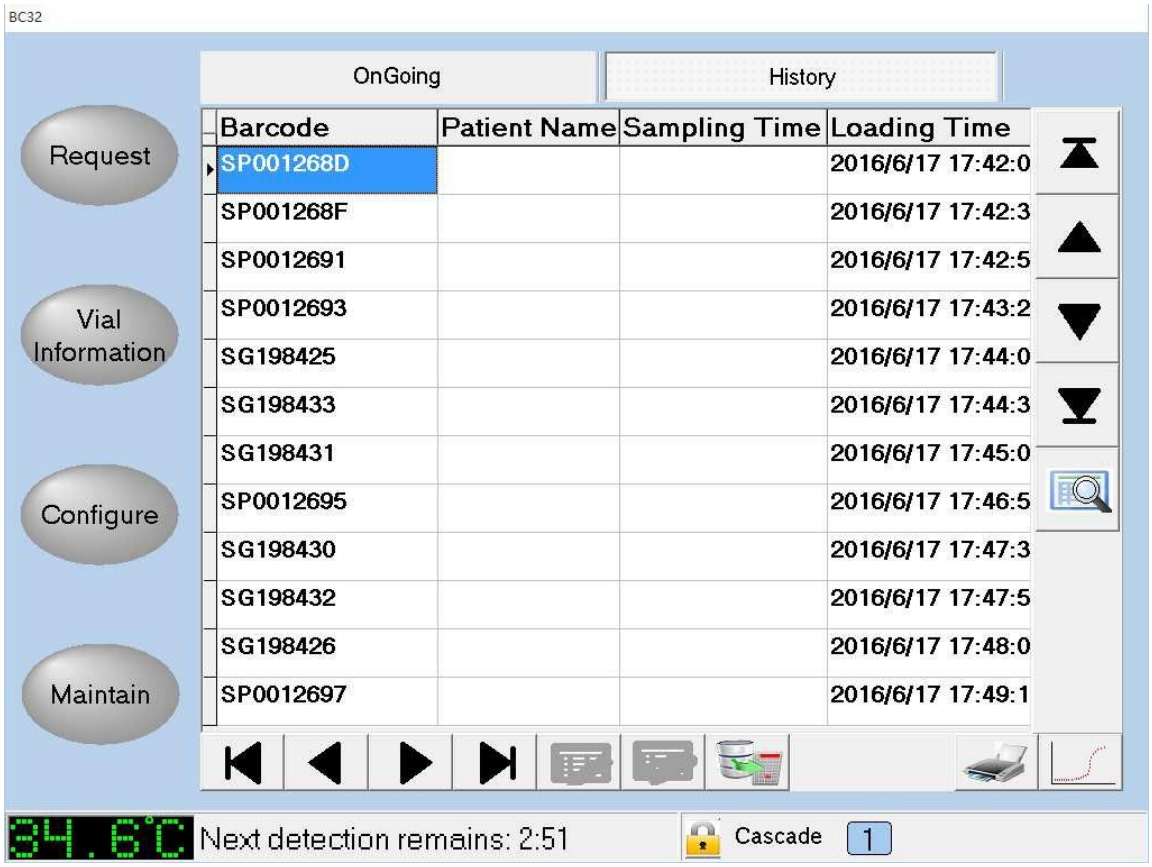
1. Click “Vial Information”, then click “History”.



2. Click  , select a report item.



3. Select the statistics item.
4. Press “OK”.



5. Press  to print out the data.

6. Quality Control

Don't use culture vials beyond shelf life.

Don't use any damaged or faulty culture vials. Dispose of waste culture vials as per relevant regulations. A quality certificate is provided for each carton of culture vials. ATCC quality control bacteria are noted in quality certificates according to Quality Control Guidelines of NCCLS Commercial Culture Media. Quality control bacteria should be detected within 72 hours as per requirements.

Quality control bacteria of aerobic vials:

N. Meninyitidis	*Monilia Albicans*
ATCC 13090	*ATCC 18804*
Haemophilus Influenzae	*Staphylococcus Aureus*
ATCC 19418	*ATCC 25923*
Streptococcus	*Escherichia Coli*
Pneumoniae	*ATCC 25922*
ATCC 6305	
Streptococcus Pyogenes	*Alcaligenes Faecalis*
ATCC 19615	*ATCC 8750*
Bacillus Pyocyaneus	
ATCC 27853	

Quality control bacteria of anaerobic vials:

Clostridium Histolyticum	*Streptococcus Pneumoniae*
ATCC 19401	*ATCC 6305*
Clostridium Perfringens	*Escherichia Coli*
ATCC 13124	*ATCC 25922*
Fragile Mimetic Bacteria	*Staphylococcus Aureus*
ATCC 25285	*ATCC 25923*
Ordinary Mimetic	
Bacteria	
ATCC 8482	

It is recommended to make testing of positive and negative vials for each batch of culture vials. For positive testing, 1ml 0.5-maclagan-unit Escherichia Coli or Staphylococcus Aurous may be inoculated in a culture vial. The culture vial and a culture vial without specimen inoculation should be placed in the apparatus at the same time for testing. Positive reporting should be made for positive vials in 72 hours, and the culture vial without specimen inoculation should remain negative. The result shows that the storage and transportation of culture vials meet requirements. Otherwise, please don't use them and contact MeihuaMedical's technical service department.

7. Routine Maintenance

1. Check the status of all indicators and alarm signals.
2. Check once a month whether readings of thermometer in the apparatus and the temperature display on the screen are consistent (deviation <±1.5℃) on the condition that the door of the apparatus is closed for more than 2 hours.
3. Check once three months whether detectors in the apparatus are clean. Clean them with dry cotton swabs if necessary.
4. Please keep room temperature at 10 - 30 ℃ , and keep laboratory dry and clean. Don't open windows if not necessary. Keep doors closed at any time.
5. In case of power failure, please power off the apparatus, and re-start it after power recovery.
6. In the event of trouble alarm that can't be eliminated, please power off the apparatus, and re-start it after 3 minutes.

8. FAQ

1. Prompt “Barcode error. Please re-enter.”

A: The barcode is not scanned correctly or does not meet the standard. Please rescan the barcode.

2. Should the culture vial with positive reporting be removed immediately?

A: The time of positive reporting is within the acceleration period of bacterial growth. After continued culture for some period, it is suggested to remove the vial when the curve turns flat (i.e. reaches the growth peak) from accelerating rise.

3. Why is there no response to vial barcode scanning?

A: Check whether the barcode is contaminated. If yes, turn the vial to scan another position. If no response to scanning of all the culture vials, check whether the barcode scanner is damaged.

4. Why vial station is still shown in culture page after positive or negative vial has been removed?

A: Different from vial entry, vial removing is updated in batch. Close the door of apparatus, or rescan the command code “Vial Entry”, “Remove Positive” or “Remove Negative”, and then the software will delete the state of culture vials of the previous batch.

5. The culture station cannot stop shaking after the door of apparatus is opened.

A: Close the door if “In detecting” is shown in the lower right part of software page. Do not open the door until “Last detecting time: XXX” is shown. Please contact the dealer or manufacturer if shaking continues.

6. Prompt “Detected value abnormal. Please contact after-sales service staff.”

A: Detection is affected by the factors such as abnormal power failure. Please contact the dealer or manufacturer.

7. Prompt “System time: XXX; last detecting time: XXX; system time is earlier than last detecting time; please make sure that system time setting is correct.”

A: This prompt will appear when the user changes the operating system time. Changes in the operating system time will affect the positive reporting judgment to some extent.

Do not change it without authorization.

8. Temperature control

A: Current temperature is shown in the upper left part of software page. Please contact the dealer or manufacturer if temperature cannot reach the preset temperature within a long period after start-up.

9. The curve chart of positive growth

A: In the chart, flat period of bacterial growth and obvious logarithmic phase can be seen.



10. In vial barcode scanning, lamp does not turn on after bubble sound is heard, and then a long alarm sound is given out.

A: The sample has been detected and removed normally. Input the vial barcode in the "Barcode" space in "Information" column on the right side and Enter to see the history information and culture result of the vial.

[Basic Information]

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