Hydrogen Peroxide Sterilizer

User Instruction



BioTeke Corporation (Wuxi) co., Ltd.

Preface

Dear Customer:

Thank you for purchasing **Hydrogen Peroxide Sterilizer**! Before using this product, please be sure to read this user instruction carefully and keep it for future reference.

It is our great honor for you to be our customer. This user instruction is specially compiled for you to master the usage of **Hydrogen Peroxide Sterilizer** as soon as possible. We try to be comprehensive and concise in writing this product instruction, from which you will gain knowledge about the features, operating instructions and maintenance of this instrument. We strongly recommend that you read this user instruction carefully before using the product, and it will help you to better operate. We will not be liable for any losses caused by manipulation not in compliance with this instruction.

Thank you for your cooperation!

BioTeke Corporation (Wuxi) co., Ltd.
January 1, 2020

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Non-commitment

BioTeke Corporation (Wuxi) co., Ltd. keeps the right to change its product and service with the improvement of technology at any time. And adjustments will be made in this instruction without prior notice with the change of product and services. We try to be accurate in this instruction but will not be liable for any mistakes, errors and losses caused by application of this document information. This user instruction replaces all previous versions.

Disclaimer

BioTeke Corporation (Wuxi) co., Ltd. will not be liable for any losses caused by not using or inappropriate usage of this product.

Electromagnetic Compatibility Description

- A) This instrument meets the emission and immunity requirement specified in GB/T 18268.1 and GB/T 18268.26.
- B) This instrument is designed and tested according to Class A Instrument in GB4824. In home environment, this instrument may cause radio disturbance and protection measures are needed.
- C) It is suggested that electromagnetic environment be evaluated before using this instrument.
- D) Using this instrument near strong radiation source is prohibited. This may interfere with the normal operation of this instrument.

Contact

BioTeke Corporation (Wuxi) co., Ltd

Registered Address: 4th Floor, D5, No.1719, Huishan Avenue, Wuxi city, Jiangsu, China, 214 174

Tel: 400-678-8982

Email: <u>info@bioteke.cn</u>
Website: <u>www.bioteke.cn</u>

1. Safety Signs Description

1.1 In this instruction, please pay attention to contents using following safety signs

No.	Sign	Note
1	(i)	Caution sign: The caution information requires operator to
	<u>u</u>	confirm this step before next operation, otherwise the functions
		of this instrument may be affected.
2	\wedge	Attention sign: The attention includes very important
	2.5	information. Please read it carefully. The instrument may not be
		able to work properly if you do not follow the instruction.
3	Λ	Warning sign: The warning sign requires that you must be very
	717	careful when following operating steps or methods. The
		instrument may not be able to work properly or harms many be
		done to operator if you do not follow the correct instructions.
4	0	Forbidden sign: Operator is forbidden to execute this operation.
	G	Otherwise this instrument may be damaged or unable to work
		properly, or harms may be done to operator.

1.2 Safety signs on instrument

No.	Sign	Note	
1	· ~ ¬	"Protective Grounding" sign. This sign is found on terminal	
		which is connected with external protective conductor that	
	, J	prevents electrical shock when failure occurs. It may also be	
		found on terminal which is connected with protective grounding	
		resistance.	
2	~220V Input	Input voltage: 220V alternating current.	

1.3 Outer packaging safety signs

	- carer basing8 carer, c.8		
No.	Sign	Note	
1	U	"Fragile" sign, which indicates there are fragile objects inside	
		transport package. Please handle with care.	
2	- A A -	"Up" sign, which indicates this transport package should be kept	
		straight up during transportation.	
3	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	"No Turning Over" sign, which indicates this package cannot be	
	₹ <u>F</u> Ţ	turned over when handling.	
4		"Keep Away from Rain" sign, which indicates this transport	
		package should be kept away from rain.	
	_ J		



"No Stacking" sign, which indicates this transport package cannot be stacked up during transportation.

1.4 Safety Instructions

Users should have a complete knowledge about the usage of hydrogen peroxide sterilizer before operation. Please read this user instruction carefully before running the system.

Attention: We are not liable for any consequences caused by users not following the tips in this user instructions.

Attention: Please check the contents inside package according to packing list after opening the box. If items are found damaged or missing, please contact us or suppliers. After checking and acceptance, please fill in the Installation Feedback form and send it back to us for filing and warranty. After opening the box, please keep packaging material safely for later use. We are not liable for any instrument damages caused by improper packaging during transportation to maintenance department.

Attention: In the following cases, please plug power socket away from power outlet immediately and contact supplier or our professional maintenance personnel:

- 1 The instrument is exposed to rain or water;
- 2 There is unusual sound or odour when the instrument is working;
- 3 The instrument falls off or the outer case is damaged;
- 4 The functions of this instrument has obviously changed.

Warning: The operator must not open, change components of or debug this instrument without authorization from our company. This must be done by professional personnel and with the approval from our company. Otherwise we will not be responsible for warranty.

Warning: The voltage in this instrument may cause harm to human body. Please power off each time you open the outer case.

Forbidden: Do not clean this instrument when it is working. Do not use organic solvent such as concentrated alcohol for surface cleaning.

2. General Product Information

Product Name	Hydrogen Peroxide Sterilizer		
Model	DS1000, DS1001, DS1002		
Hygienic License No.			
Germicidal factor and	Germicidal factor: 6%-20% food grade or analytically pure hydrogen		
its intensity, principle	peroxide solution.		
and microorganism	Sterilization principle: This instrument adopts specially designed fluid		
types killed	feeding and disperse system, where low concentration of H2O2 is		
	nebulized into nano micron liquid globules (0.5-5μm). The dispersed		
	liquid globules are spread to every corner through Brownian movement		
	and thus achieves space and surface disinfection and sterilization.		
	Microorganism killed: natural bacteria, escherichia coli and		
	staphylococcus aureus in the air etc.		
Application Range and	A special equipment for space disinfection in research laboratories and		
Method	places that has microbial limit requirements.		
Warranty	One Year		
Notice	1 Please place the machine horizontally to ensure nebulization		
	efficiency;		
	2 When moving or transporting the machine, be sure to drain the liquid		
	to avoid spilling.		
Executive Standard			
Manufacturer (name,	BioTeke Corporation (Wuxi) co., Ltd.		
address, telephone	4th Floor, D5, No.1719, Huishan Avenue, Wuxi city, Jiangsu, China, 214		
and postcode)	174		
	400-678-8982		
Hygienic license of	苏卫消证字(2020)第 3202-0003 号		
manufacturer	NO. 3202-0003		

3. Overview

3.1 Schematic View of Hydrogen Peroxide Sterilizer

3.1.1 Outline diagram

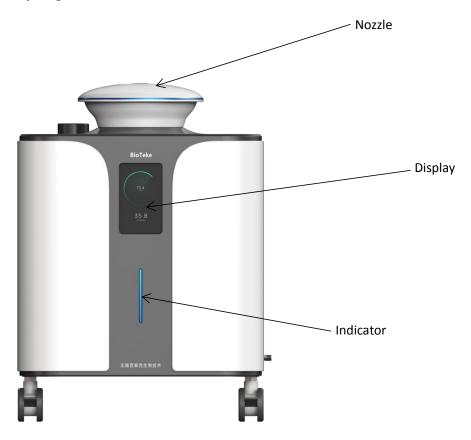


Figure 1: Outline diagram

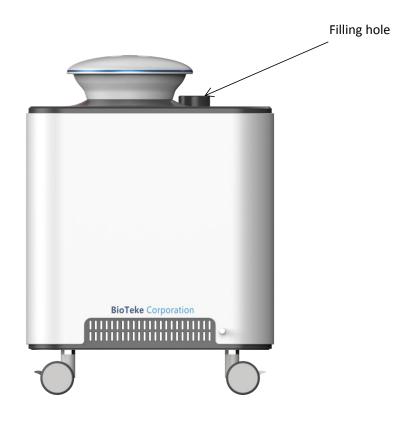


Figure 2: Outline diagram

3.1.2 Touch screen control panel





H202 Sterilizer



Figure 3: Touch screen control panel

3.1.3 Switch, power cord and other interfaces



Figure 4: Switch and Power Jack

3.2 Working principle of hydrogen peroxide sterilizer

Hydrogen peroxide sterilizer is a specially designed equipment of space disinfection, suitable for research laboratories as well as places that has microbial limit requirements. This instrument adopts specially designed fluid feeding and disperse system, where low concentration of H2O2 is nebulized into nano micron liquid globules (0.5-5 μ m). The dispersed liquid globules are spread to every corner through Brownian movement and thus achieves space and surface disinfection and sterilization. Please avoid using high concentration of H2O2. Small enough liquid globules, high diffusivity and increased specific surface area ensure that sterilization effect is greatly enhanced.

3.3 Features of hydrogen peroxide sterilizer

★Reservation

Input the date and time of sterilization and the instrument will start up automatically and sterilize according to preset parameters;

★Remote control

Remote control function enables you to control the state of instrument outdoors;

★Alarm

After disinfection, the instrument will beep and alarm;

★Local data storage

Historical data can be exported through USB port, and historical sterilization data can be printed out, includes: start and stop time, disinfection volume and disinfection area.

4 Performance indexes

4.1 Operating environment

Power supply: AC 220V \pm 10%;

Frequency: 50-60Hz; Input power: 1100W;

Temperature range of operating environment: 15 $^{\circ}$ C-40 $^{\circ}$ C;

Relative humidity: 20-70%;

Nebulization efficiency: 20ml/min.

4.2 Dimension and weight

Dimension: (Length*Width*Depth) 580*580*760mm;

Net weight: 48kg.

5. Installation

The following basic safety measures must be strictly followed during the operation, maintenance and repair phases. The safety protection provided by this instrument may be affected if these measures or warnings in other parts of this user instruction are not followed. Meanwhile, this may also destroy safety standards of design and manufacture and affects expected application range of the instrument.

BioTeke Corporation (Wuxi) co., Ltd. will not be liable for any consequences caused by users not following the below requirements.

5.1 Instructions before usage

5.1.1 Acceptance

This instrument is transported in cartons with wooden support. Please check whether the packaging is intact before opening box. Contact transportation parties or our company if there are shortages, damages, collisions or signs of water immersion.

After opening the box, please verify the contents inside according to packing list. Contact suppliers if there are items missing or damaged. Fill in the Acceptance Sheet and send it back to us after acceptance for filing and warranty. Please keep packaging material and relevant accessories safely for later use. We are not liable for any instrument damages caused by improper packaging during transportation to maintenance department.

5.1.2 Check integrity

Check all components according to attached packing list in reversed order. If there are any components missing, please contact BioTeke or our local suppliers.

5.1.3 How to unpack

Please move the unpacked instrument to its working site and open cartons in the usual way. You will get the following documents after opening the package.

- a) Packing List
- b) Acceptance Form
- c) Certificate of Quality
- d) Warranty Card
- e) User Instruction

Attention: Unless specifically indicated in this instrument, please do not touch or loosen screws or other components. Otherwise the instrument may be inaccurate and the warranty would be void.

Attention: Please keep wooden support in original package for later transportation. The design of wooden support could ensure transportation safety and reduce damages in transportation. Choosing other packing materials would void the warranty. Meanwhile please

keep attached documents for later use.

5.1.4 Requirements for operating environment

- 1) Power supply
- a) Instrument grounding

To avoid electric shock, the input power cord of the instrument must be grounded firmly. This instrument uses three-pin plug. Please use power outlets accordingly. This is a safety device.

b) Power

Before connecting to AC power supply, please ensure that power voltage is consistent with the voltage required by the instrument ($\pm 10\%$ deviation allowed). Also ensure the rated load of power outlets is no less than required by the instrument. Please do not use the instrument when voltage is unstable, too high or too low.

c) Power cord

This instrument uses included power cord. If power cord is damaged, please change it instead of repairing. Replace it with same type of power cord with same specifications. Please do not place items on power cord when the instrument is operating. Do not place power cord in places where people walks around frequently. Please be sure the power cord does not go through high temperature objects such as heaters.

2) Environment requirement

This instrument should be put in places with low temperature, little dust and far away from water sources (such as water sink and water pipe etc.), with good ventilation and free of corrosive gas and high-intensity magnetic field. Please do not put the instrument in wet or dusty places, not to mention operation in places with or probably with inflammable or explosive gases.

The opening on the instrument is designed for ventilation and heat dissipation. To avoid overheat, do not block or cover these holes.

When the instrument is operating, the heat dissipation and ventilation holes on front and back sides of the instrument should be no less than 25cm from its nearest objects. Also please do not use the instrument on soft surface. Otherwise the ventilation and heat dissipation on the bottom of the instrument will be affected.

High environment temperature will result in malfunction or disorder. Do not use the instrument under direct sunlight and keep it far away from heater, furnace or other heat source.

When the instrument will not be in use for a long time, unplug the power cord and cover the instrument with soft cloth or plastic bags to keep out dust.

5.2 Procedures before operation

5.2.1 How to start properly

- a) Ensure the switch on the rear side of the instrument is always off. Please be sure to ground power supply before instrument operation.
- b) Connect attached power cord to power jack on the rear side of the instrument. Local authorized certification (for example, 3C in China) shall be required if other type of power cord is to be used. Before plugging in the power cord, be sure the nominal voltage on the bottom of the backboard matches with local voltage.
- c) Connect the instrument to power outlets with protective grounding conductor.

Attention: Please switch off the instrument when connecting or disconnecting the power cord.

5.3 Performance Testing

- a) Switch on the instrument and initialization check and adjustment starts.
- b) After initialization check and adjustment, the screen will automatically goes to software home screen.

6. Methods of Operation

6.1 Main Menu

When the instrument is switched on, it will perform self-inspection and enter main menu interface. See figure below:





H202 Sterilizer

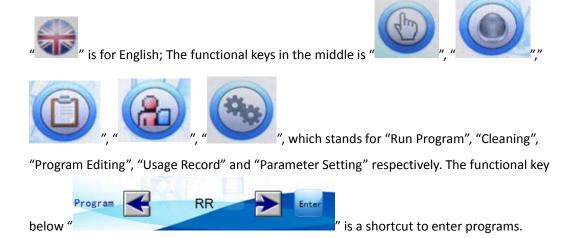


Figure 5 Main Menu

This interface mainly includes instrument functions and file shortcuts:

ey: " " is for Ch

The functional key on the top right corner is Chinese-English switch key: "



6.2 Running programs

6.2.1 Running files

Touch " to run program, or choose program by left and right arrow and then click "Enter".



Figure 6 Choose program by left and right arrow and then click "Enter"

The program running interface is as follows:

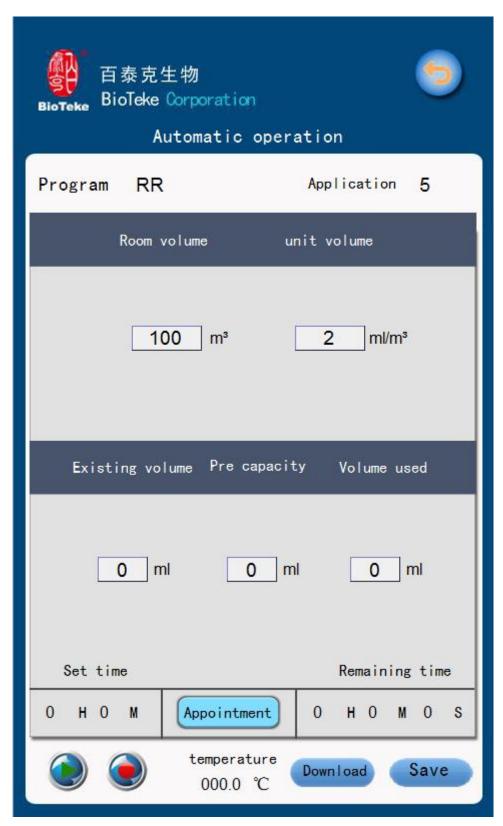
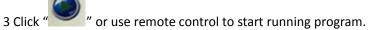


Figure 6 Program running interface

1 Enter cubic volume of the room to be disinfected in [Room volume], volume of disinfectant solution required per cube in [Unit Volume] (10ml/m^3 by default). [Existing Volume], [Pre capacity] and [Volume used] is calculated automatically by program. Before running disinfection

program, make sure existing volume is larger than preserved capacity (e.g. the required volume is 1L based on theoretical calculation of room volume*unit volume. Considering that the instrument requires extra 1.7L, the actual volume to be added is 2.7L).

2 Click "Download" to download the program and "Save" to save it.



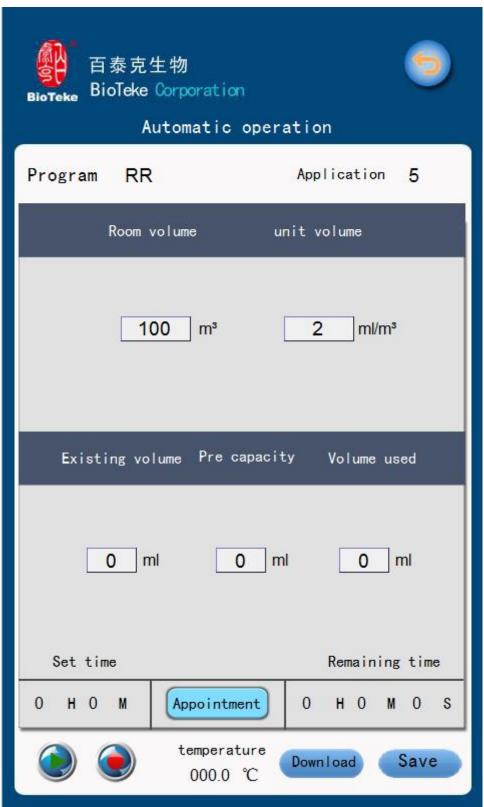
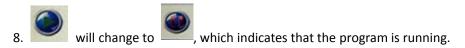


Figure 7 Running Interface

When the program starts running, the current start button will turn into red, as is shown in Figure



6.2.2 Pause file running

When running files, touch the key or remote control, the program pauses and the key changes to ; To continue running this program, touch the key or remote

control, the program continues and the key



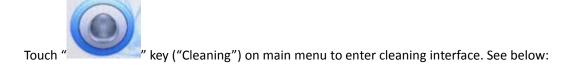
6.2.3 Stop running files and reset



6.2.4 When the file finished running

When the program finished running, the buzzer alarms and the screen prompts that the disinfection is over.

6.3 Cleaning



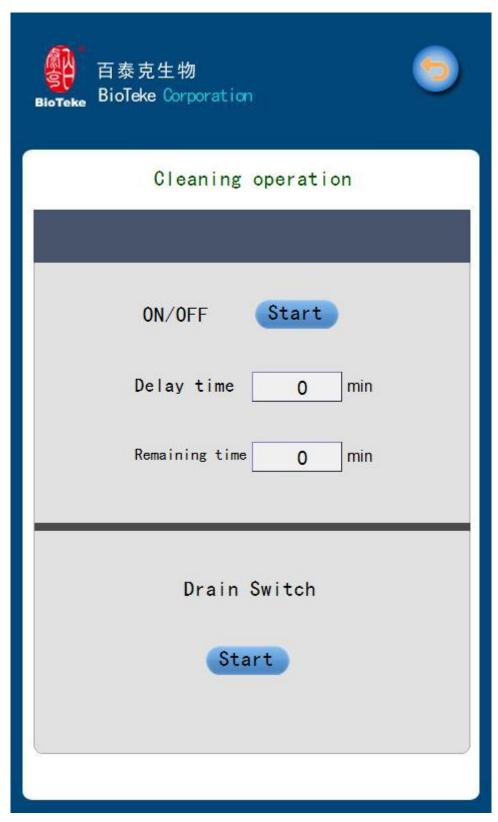


Figure 8 Cleaning interface

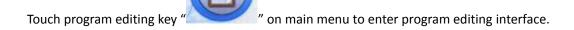
Set cleaning delay time and then touch "Start". The cleaning starts and countdown begins. Touch "Shut" to close cleaning.

When the delay time ends, the cleaning stops, and screen prompts that cleaning is over and the

buzzer alarms. Touch "" to return to main screen.

Please ensure that the valve to drain outlet is open before clicking drainage switch. After drainage, the screen prompts that drainage is over and the buzzer alarms.

6.4 Program Editing



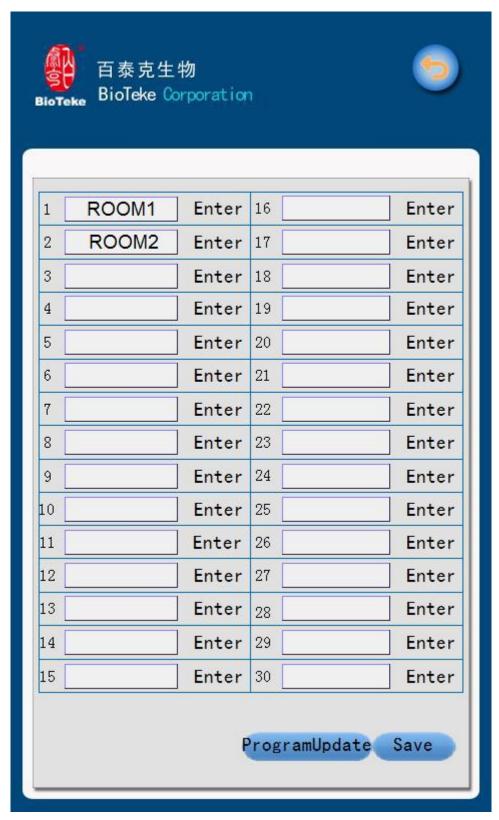


Figure 9 Program editing interface

6.4.1 Creating new programs

Touch white space and a keyboard will pop up. Enter the name of new program (letters or numbers, with maximum input of 8 characters).

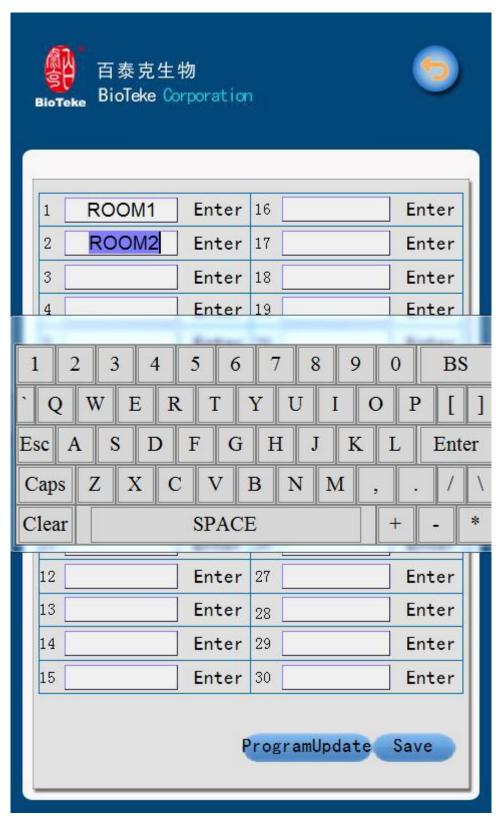


Figure 10 Program editing interface

Click to confirm after entering names. Click ProgramUpdate and then Save.

Click to go to newly created interface.

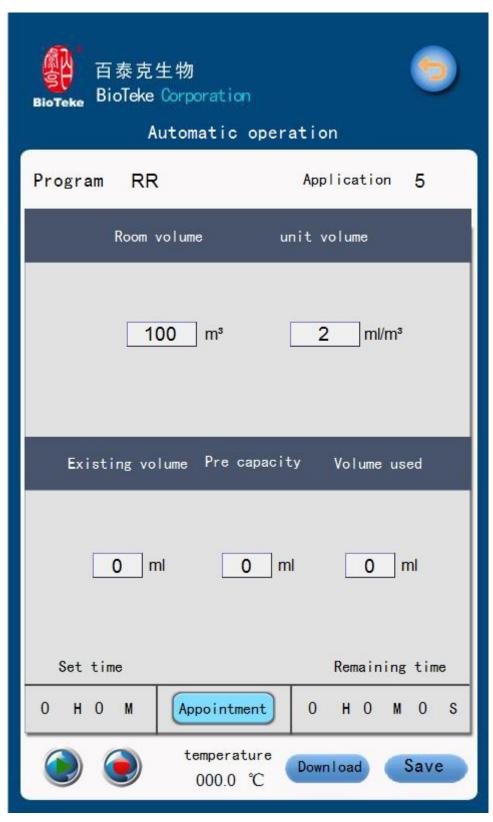


Figure 11 Program editing interface

6.4.2 Modify programs

6.4.2.1 Modify on program editing interface

Open program editing interface. Click and go to the program to be modified and make

modifications. After modification, click Download and Save to save modified program. 6.4.2.2 Modify when program is running

When program is running, ,click the parameters to be modified and make modifications. After modification, click download and the program will continue to run according to modified program.

6.5 Usage Record

Touch program editing key " on main

" on main menu to enter usage record interface.

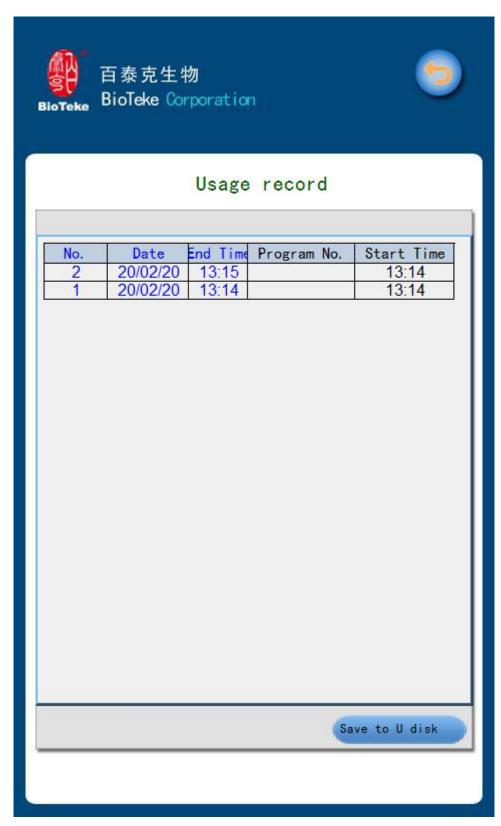


Figure 12 Usage Record interface

This table lists disinfection records, including start time, end time and program numbers. Click "Save to U disk" button and the screen will be saved to USB in picture format.

6.6 Parameter setting



Touch program editing key "

" on main menu to enter parameter setting interface.

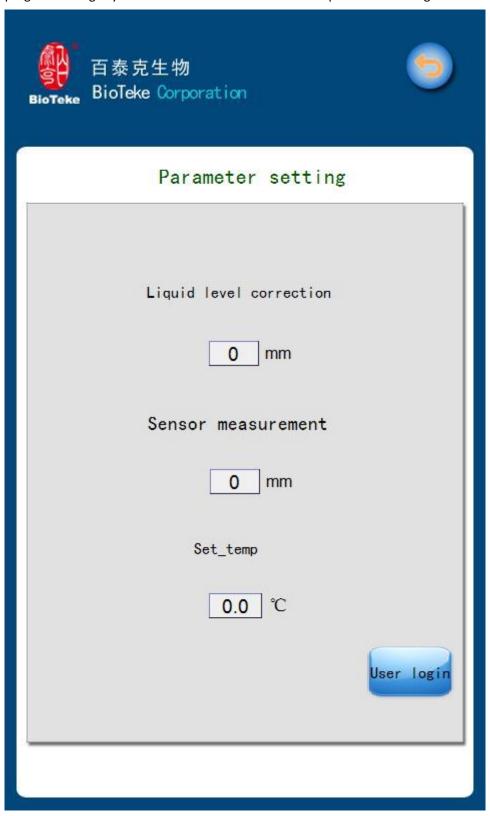


Figure 13 Parameter setting interface

Liquid Level Correction is used to correct the liquid level in container. Set_temp is the cooling temperature of sterilized solution. Login credentials are required to change these two parameters. Please click User Login and enter password to change. (Password is 1234)

6.7 Power off

Press power switch to power off the instrument. The power switch is on the right bottom of the backboard (see Figure 3).



WARNING: All sterilized solutions should be treated as bio hazards.

7. Maintenance

7.1 Regular Maintenance and Repair

- a) Daily maintenance: always keep the instrument clean and free of liquid residues; when the equipment is idle, protect nozzle with transparent plastic bags to keep dust from entering inside.
- b) Strong detergent is not recommended for use, which will damage the surface coating of the instrument.
- c) Regular cleaning is recommended. Wet cloth dipped with 70-75% alcohol or mild detergent is fine.
- d) If the instrument is stained with saline solution, organic solvent or acid-base solutions, please wipe it out immediately in case the instrument is damaged.

The coating surface of the instrument can be cleaned using conventional detergent in laboratories according to its user instructions. Do not expose coating surface to strong acid and high purity ethanol for long!

Clean touch screen of the instrument with mild laboratory scavenger.

Clean plastic cabin door and its surface with ethanol or wild laboratory detergent.

When the instrument surface is contaminated with toxic biological reagent, clean it with wild sterilized solution only.

Do not autoclave any parts of the instrument.

7.2 Package requirement for repairing

When the instrument is ready to be shipped back for repair, please be noted to:

- a) Inform whether biohazard is used or not.
- b) Disinfect the instrument beforehand and attach certificate of disinfection with signature and date.
- c) The inside of the instrument should be lined with foams for securement.
- d) Pack the instrument according to instructions.
- e) Use original package to ensure there is no damage during transportation. Any damage will result in extra human and material cost.

- f) After contacting distributor or BioTeke maintenance department, be sure to mark instrument failure.
- g) Transportation conditions: -40^+70° C (package), storage condition: -25^+50° C (package). Please transport and store the instrument under specified conditions.

7.3 Service Contract

We suggest that you sign service contract with BioTeke Corporation(Wuxi) Co., Ltd, under which your instrument will be maintained yearly by BioTeke engineers. Your instrument will be maintained properly and you do not have to worry about malfunctions. Contact BioTeke for details.

7.4 Instrument Disposal

- a) The instrument must be disinfected before disposal. See 7.3.
- b) Please dispose the instrument according to laws and regulations released by local authorities, especially those on recycle of electronics and waste.
- c) The outer packaging of flight case and other packaging materials are recyclable.
- d) For more information about the instrument, please consult local distributor or BioTeke corporation.

8. Disinfectant

8.1 Applicable disinfectants for hydrogen peroxide sterilizer and instructions for use

Disinfectant	Recommended	Recommended	Dilution
	concentration	space concentration	
Hydrogen	8%	10 mL/m ³	Add 267 mL 30% of hydrogen peroxide
peroxide			into one litre of water
Peroxyacetic	0.5%	20 mL/m ³	Add 25 mL 20% of peroxyacetic acid into
acid			one litre of water
Chlorine dio	1000 mg/L	10 mL/m ³	Add 1000 mg of chlorine dioxide into one
xide			litre of water

8.2 Instructions for use





Before dilution, please wear rubber gloves and safety goggles. If there are disinfectant residues on your hands or any other part of your skin, immediately wash thoroughly with plenty of water.

No humans are allowed in the room when hydrogen peroxide sterilizer is working.

Hydrogen peroxide and peroxyacetic acid may cause corrosion to metals. We suggest surface cleaning with clear water after sterilization.

After sterilization, please ensure continuous ventilation indoors (2h is suggested). No entrance is allowed until there is no irritant gas inside.

9. Troubleshooting

9.1 No screen display

- A. Check whether power switch is on.
- B. Check whether power cord is well connected.
- C. Test the voltage of power outlets.

9.2 No vapor coming out from the nozzle

- A. Check whether the liquid storage barrel is running out of liquid;
- B. The atomizer plate may needs replacement after long term usage.

9.3 After-sales service information

BioTeke Corporation (Wuxi) co., Ltd.

Address: 4th Floor, D5, No.1719, Huishan Avenue, Wuxi city, Jiangsu, China, 214 174

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