Operation Manual for AD10/AD10S Intelligent Atomizing Sterilizer

Model: AD10 (standard)

AD10S (with plasma disinfection function)

Hygiene License No. of Manufacturer: No. 0108 Zhejiang Disinfection Product (2019)

Please be sure to read this manual carefully before using the sterilizer.



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Chapter 1 Product Overview

1.1 Product Name

AD10 / AD10S Atomizing hydrogen peroxide sterilizer.

1.2 AD10S Product Appearance



1.3 Specification Parameters

Par	ameters of AD10/AD10S Dry Mist Intelligent Sterlizer
Maximum operating speed	1m/s
Traffic capacity	Clearance between largest step of 2.5cm and widest step of 3cm
Walking area	Multi-area map can be set to switch over to different disinfection scenes
Navigate mode	Laser navigation, visual navigation, automatic obstacle avoidance
Control of sterilizer	Pad control, multilevel authority control
Disinfection record	Saved disinfection records can be traced back
Network	WiFi, 4G
Power supply	24V Lithium battery
Operating temperature	-10°C~40°C
Atomizing speed	≥55ml/min
Charging	Standard charger (it can be fully charged for about 5 hours) and the automatic charging can be selected
Disinfectant	H2O2 solution at concentration of 7.5%
Typical particle diameter	1-10µm
Sterilization effect	Air disinfection in laboratory and simulation sites with killing rate \geq 99.9%; air disinfection in unmanned room with the natural bacteria extinction rate \geq 90%
Sterilization action time	After completing atomizing, continue to keep the area enclosed for 20-60 minutes for continuing to disinfect (according to the specific environment)
Sterilizable volume	≤1500m³
Solution tank	10L
Disinfection	After disinfection, H2O2 is decomposed into H2O and O2 without

effect	residue, secondary pollution and harmful substances
Type of sterilization	It can kill intestinal pathogenic bacteria, suppurative coccus, bacteria and spore in the air and achieve spectral sterilization effect
Spray covering diameter	≥5m
Dimensions	540*365*770mm
Weight	75kg
Rated power	500W
Characteristics of plasma	Man-machine co-existence, sustainable disinfection of 120 m ² room, keeping virus in the room in a small range, service life up to
disinfection	60,000 hours
Characteristics of Sterilizer	Automatic operation for disinfection, swing spray at the angle of $\pm 50^{\circ}$, uniform diffusion, rotation period of 5 seconds, able to realize the linkage with elevator control and door control.

1.4 Product Introduction

[Function Introduction]

The disinfection staff will place the sterilizer in the disinfection area to be disinfected, and start disinfection after closing the doors and windows, air conditioner and fresh air. The device will operate for 30~60 minutes after completing autonomous movement and spray according to the set map and route and the disinfection formula. After the disinfection is completed, please open the doors and windows for natural ventilation for 30 minutes, and detect the hydrogen peroxide concentration in the air. When the concentration is lower than 1ppm, the personnel can enter, which means that the disinfection is completed.

[Disinfection Principle]

The device adopts the principle of atomizing hydrogen peroxide for disinfection. The hydrogen peroxide solution with the concentration of 7.5% (W/W) is used as the original liquid. The hydrogen peroxide is continuously injected into the closed space through spraying to denature the microbial protein and genetic materials in the air and on the surface of the object, thus leading to the death of microorganisms so as to achieve the purpose of disinfection.



[Disinfection Flow]

[Main Functions and Features]

• The product is safe and reliable. The sterilizer has passed the inspection and test of the third party authority.

• Atomized particle size is small, 1~10 microns. The spray distance is long with the direct spray diameter more than 5 meters, and the room to be disinfected can be quickly

filled by the disinfectant through Brownian motion.

• With patented spraying technology, the device can directly cover the bottom and top space at the same time by use of double-nozzle and nozzle swing technique to quickly complete the fast effective spraying of disinfectant at the spray speed up to 50 ml/min.

• With plasma sterilization function, the device can keep the plasma disinfection function continue for a long time after the atomizing disinfection to realize the long-term disinfection and clean in the sterilized space. The maximum plasma coverage area is 120 m².

• Simple to use: press to start through the PAD control; the data of the use process are detailed and accurate. The disinfection process can be recorded and stored.

• It can disinfect the space of 1500 m³ at most after each charging, and is characterized by large covering area and low power consumption.

• It can realize the automatic navigation and automatic disinfection. The device is equipped with laser, ultrasonic, depth camera and other navigational and obstacle avoidance sensors to realize accurate positioning and ingenious obstacle avoidance.

• Equipped with the weight sensor, it can monitor the weight of the remaining disinfectant in the machine in real time.

• Due to the drainage design, the device can draw out the remaining disinfectant in the machine through the PAD operation.

1.5 Packaging Introduction

• Product Packing List

No.	Name	Quantity	Specification
1	Intelligent sterilizer	1 set	AD10/AD10S
2	24V Charger	1 set	Input: 200-240VAC,50/60Hz,15A Output: 28.8V,20A
3	Operation control PAD	1 set	Equipped with charger and USB cable
4	Feed hopper	1 piece	

• Product Packaging Picture



Chapter 2 Precautions

2.1 Precaution Overview

When operating the sterilizer and treating the bottled hydrogen peroxide, the operator must carry out the operation according to the requirements of this Operation Manual. Operators must review all precautions before operating and maintaining the sterilizer.

The symbol represents hazard and warning signs for situations some potential hazards.

• The symbol represents the precautions that need to be addressed before operating the device.

2.1.1 Emergency Treatment for Exposure of Hydrogen Peroxide

Eye	Wash it with sterile distilled water for 10 minutes at least.
Inhalation	Quickly remove the site to the fresh air, keep warm and rest. Go to a doctor when appropriate.
Skin	Remove clothing and immerse the injured part in water.
Ingestion	Rinse thoroughly with distilled water and drink plenty of water. Go to a doctor when appropriate.

2.1.2 Related Operation of Hydrogen Peroxide

The hydrogen peroxide solution should be stored in a cool and
ventilated place. The solution within the validity period should be
used, and the matching hydrogen peroxide solution should be
used. The concentration value of hydrogen peroxide solution
should not be changed.

Please wear nylon gloves, long sleeves, and protect your eyes when handling hydrogen peroxide.



Direct exposure to the hydrogen peroxide solution can cause blistering and burns to skin tissue and eyes. The hydrogen peroxide mist can irritate the eyes, nose, throat and lungs.



Use a mop with a large amount of water to drain the sewage into the wastewater tank and dilute it at a ratio of at least 20:1. 2.1.3 Before Disinfection

Check whether that the disinfected area is sealed to prevent leakage of hydrogen peroxide mist. Check and make sure that all connectors which may possibly leak are sealed or locked and place warning signs in these places. Check and make sure that there are no moving people or animals in the disinfected area. Check and make sure that there is no large amount of exposed chromic acid, potassium permanganate, metal powder in the disinfected area. It is recommended to turn off precision electronic instruments in the disinfected area.



Before entering the disinfected area, firstly check the concentration of hydrogen peroxide atomized residue should be below the exposure limit, i.e. PEL requirements, and not exceed 1ppm for 8h working time (refer to OHSA).

2.1.5 Warning-Machine Damage



Do not tilt, move or hit the running sterilizer.



The repair, maintenance or commissioning of the device can only be carried out by qualified operators trained by our company.



The maintenance must be implemented according to the maintenance plan in order to use the system safely.



After using the disinfectant that is easy to crystallizes in the sterilizer, be sure to inject at least 500ml of pure water into it and perform the manual spray until the pure water is completely consumed to clean the device.



Do not knock down the sterilizer or use the sterilizer in a dangerous place at high altitude.



The sterilizer can hold up to 10L disinfectant; do not add the disinfectant more than 10L, or else it may cause damage to the machine.



Please use the power grid of above 200-240VAC, 50/60Hz and 15A to charge the sterilizer, otherwise it may cause battery failure

AD10/AD10S is not waterproof, so the device must be protected from rain or being flushed, or else it may cause short circuit and other damage to the machine.

2.1.6 Beware of Personal Hazard



The weight of the sterilizer is about 75KG. Do not try to lift the machine with your bare hands. When moving the machine, please move the sterilizer through the tablet computer (PAD).



Cut off the power supply before opening the panel for inspection or repair of internal electrical components.



There are heating elements in the system which may cause scalding if touched immediately after the disinfection cycle.



When charging the sterilizer, it must be aligned with the buckle to insert into the connector, and cannot be inserted forcibly or reversely, thus resulting in short circuit and other hazards.



In the disinfection process, people and animals must leave the room to avoid causing harm.

	Beware of corrosion	Hydrogen peroxide solution is corrosive and should be used without direct contact with the skin
	Wear protective gloves	Be sure to wear gloves before contact
	Caution! Electric Shock	The area marked with this sign must be opened by the sales staff to guard against electric shock
	Caution! High-Temperature Scald	Do not get it in contact with the skin directly to avoid scalding
泰 ^{急停火}	Emergency Stop	It is used for emergency shutdown of equipment in case of danger

2.2 Warning Signs and Functions

Chapter 3 Operation Instructions

3.1 Preparation for Disinfection

3.1.1 Power Supply

Before using the sterilizer, please check the electric quantity of the sterilizer and control PAD.

If the sterilizer is in low electric quantity, it is necessary to charge the sterilizer through its charger. Before charging, please turn off the power supply of the sterilizer, plug the output end of the charger (aviation plug) into the charging port below the back of the sterilizer, and then rotate the protective shell of the output end clockwise for clamping it so as to ensure that the plug is firmly connected. Then plug the input end of the charger into the AC220V mains (if the plug specifications are not consistent, please use the adapter).



Fig. 3 AD10/AD10S Charging Schematic Diagram

If the control PAD is in low electric quantity, it shall be charged with its charger.

After confirming that the sterilizer and the PAD are fully charged, press the "**Power**" button of the sterilizer and the "**Emergency Stop**" button at the top to keep it closed (press down) and wait for 30 seconds.

3.1.2 Login of Control System

Press and hold the Power button of the control PAD to start the PAD.

After turning on the PAD, click the "Setting" icon on the desktop, find "WLAN", and connect the WiFi of the sterilizer. The corresponding WIFI serial number of the sterilizer is pasted near the laser sensor of the machine. The default password of WiFi is **lingzhi123**. After the WiFi is connected successfully, click the "Sterilizer" icon on the desktop.



Fig. 4 Desktop of Control Panel

Enter your username and password on the login interface. The administrator user name is: **admin** and the administrator login password is: **a12345**. The IP does not need to be changed. Click the "Login" button.



3.1.3 Injecting Disinfectant

Screw off the filling opening cover counterclockwise, place the hopper firmly in the filling opening, and then inject the disinfectant into the sterilizer through the hopper.

Note: The sterilizer can hold up to 10L disinfectant; do not add the disinfectant more than 10L, or else it may cause damage to the machine. Please be careful not to spill the disinfectant to the machine when adding the disinfectant.



Fig. 6 Injecting Disinfectant

After filling the disinfectant, screw on the filling opening cover clockwise.

3.1.4 Related Instructions of Disinfectant

A. 7.5% Hydrogen Peroxide Solution

We recommend the hydrogen peroxide solution at the concentration of 7.5%.

Unit dosage of disinfectant: **7-10ml/m³**, and it shall be determined according to the actual disinfection requirements: The higher the disinfection requirements are, the greater the unit dosage will be.

When the disinfection effect should be 99%, the unit dosage of disinfectant should be 7ml/m³;

When the disinfection effect should be 99.9%, the unit dosage of disinfectant should be 8ml/ m³;

When the disinfection effect should be 99.99%, the unit dosage of disinfectant should be $9ml/m^3$;

When the disinfection effect should be 99.999%, the unit dosage of disinfectant

should be 10ml/ m³;

The total dosage of hydrogen peroxide solution with concentration of 7.5% each time shall be equal to the room volume * unit dosage of disinfectant.

For example: For a room of 200 m3, if 99.999% disinfection effect is required and the unit dosage of disinfectant is 10ml/m³, then the disinfectant dosage can be calculated as follows:

200 * 10 = 2000ml;

The validity period of hydrogen peroxide disinfectant is 12 months. Do not prepare or change the concentration of hydrogen peroxide solution by yourself in order to ensure the disinfection reliability.

Before starting disinfection, it is necessary to confirm that the disinfectant is sufficient for this disinfection.

B. Hypochlorous Acid Solution

Recommended unit dosage of disinfectant: 10~12ml/m³; please refer to the calculation method of hydrogen peroxide disinfectant above.

Note: For disinfectants that tend to form crystals, please rinse the machine with 500ml pure water spray after use.

3.1.5 Create Map

Facing the new environment to be disinfected, we firstly need to use the sterilizer to create a map of the space to be disinfected.

Notes:

After the control system is logged in successfully, the WiFi connection status is indicated on the top left corner of the interface. If the status is \bigcirc , it means the normal WiFi connection; if the status is \bigcirc , it means the abnormal WiFi connection.

The percentage of the sterilizer's battery capacity is indicated on the upper right corner of the interface.

A1 Place the sterilizer at a certain position in the area to be disinfected which shall be marked on the ground and will be used as the starting point of the disinfection each time in future, referred to as "Disinfection Origin".

Press/release the "Emergency Stop" button at the top of the sterilizer.



WIFI O	2021-03-24 18:56 建立地图	72 📼 [i]> 返回	
Real-time video of sterilizer	过氧化氢消毒机	遥控模式	Remote Control/ Manual Push Mode
Control panel of sterilizer		建立地图	Create Map/Stop Creating Map
		保存地图	Save Map

Fig. 9 Create Map Interface

A4 Select "Remote Control Mode" or "Manual Push Mode"; "Remote Control Mode" is to remotely control the sterilizer to move in the room to be disinfected to get the outline of the room through the control panel of the sterilizer. "Manual Push Mode" is to get the outline of the room by pushing the sterilizer to move in the room by the operator.

A5 Click the "Create Map" button to start creating a map of the room to be disinfected.

Note: The irradiation radius of the laser sensor of the sterilizer is 5 meters. When creating the map, the distance between the sterilizer and the scanning outline should not be more than 4 meters so that the sterilizer should detect as many outlines in the room as possible.

When using "Manual Push Mode" to create the map, please push the sterilizer at a slow speed, and make sure that there are no driving wheel hanging in the air, idling and other phenomena.

A6 After creating the map of the room to be disinfected as shown in Figure 8, click the "Save Map" button, and enter the name and description of the map for subsequent use. Click the "OK" button to save the map and return to the "Application" interface. Click the "ESC" button to return to the interface of created map.

Each sanitizer can create multiple maps.

		2021-03-24 19:32 建立地图	(71 🕞
	i	过氧化氢消毒机		
		保存地图	遥控模式	
Contraction of the local division of the loc	地图名称	请输入地图名称		
	地图描述	请输入地图描述	建立地图	
	取消	确定		
			保存地图	
~			保存地图	

3.1.6 Add Route

The route consists of several disinfection points and is used to guide the sterilizer to carry out the disinfection task.

Based on the calculated dosage of disinfectant, it needs to be allocated during the process of adding routes.

The atomization speed of the sterilizer is 55ml/min, and the time that the sterilizer should execute the spray in the room is calculated according to the dosage.

For example: The 2000ml disinfectant should be sprayed for a room of 200m³, then: Required spraying time: 2000/55≈37min (round up to an integer); the sum of the site standing time should be greater than or equal to 37 minutes.

B1 Place the sterilizer at the "Disinfection Origin", select the newly created map on the "Application" Interface and click the "Add Route" button to enter the Add Route interface, as shown in Fig. 9.



Fig. 11 Add Route Interface

B2 Select "Remote Control Mode" or "Manual Push Mode"; "Remote Control Mode" is to remotely control the sterilizer to move to the route position in the area to be disinfected through the control panel of the sterilizer. "Manual Push Mode" is to push the sterilizer to the route position in the area to be disinfected by the operator.

B3 Click the "New Route" button so that the dialog box of "New Route" will appear, as shown in Figure 10. Enter the name of the route in the [Route Name] text box, and enter the number of turns in the "Number of Cycles". Click "OK" button to save the route information; at the moment, the "Add Site" button will be on. Click "Cancel" button to go back to "Add Route" interface.

Note: "Number of Cycles" refers to the number of times that the sterilizer repeats the disinfection route in the disinfection process. The sum of the standing time of multiple repeated sites should be greater than or equal to the spraying time. It is recommended to set the number of cycles as 1 for the room less than 50 m², and set multiple cycles of spraying for the room greater than 50 m².

_		添加路线	[返回	
		过氧化氢消毒机	遥控模式	
		新建线路		
Sector And Sold	线路名称	请输入线路名称		VEI
	循环圈数	请输入循环圈数	新建路线	HUA
	取消	确定		L

Fig. 12 New Route Dialog Box

B4 Move the sterilizer to the predetermined disinfection position by remote control/manual push mode. Note that the direction of the sterilizer nozzle will be the same as the swing direction of the machine during automatic disinfection. Click the "Add Site" button to enter the name and the standing time of the current site.

Note: The standing time is in seconds (s). The standing time for each site should be allocated according to the time sum in the disinfection plan.

B5 After adding the sites for the area to be disinfected, click the "ESC" button to return to the "Application" interface. Select the newly created map and newly created route; and then an overview of the map and route will appear on the application interface.



3.1.7 Edit Route

C1 In the application interface, select the corresponding map and route, and click the [Edit Route] button to enter the Edit Route interface, as shown in Fig.11.

C2 The list of route sites is in the upper right corner of the Edit Route interface; hold down the first line and slide it to the left, then the "Edit" and "Delete" buttons will appear.

C3 When you click the "Edit" button, the site editing pop-up window will appear. Please input the settling time in the corresponding field which can be adjusted according to the following table and may be adjusted according to the site.

Standing time (s)	< 60	< 180	< 300	≥300
Settling time (s)	30	60	90	120



Fig. 14 Edit Route Interface

C4 If you are not satisfied with the existing sites, you can select the corresponding site to slide to left and click the "Delete" button.

C5 When needing to add a new disinfection site, please move the sterilizer to the predetermined disinfection location and click the "Add Site" button according to the procedures as the same with that for adding site.

Note: The remote control/manual mode switch button function is the same as above.

"Start Navigation" button is used to automatically test the route of the sterilizer. The automatic navigation will be based the preset disinfection route, including the waiting of standing time and settling time and the number of cycles. The sterilizer will not start the spraying function at this time.

Before enabling "Start Navigation", place the sterilizer at "Disinfection Origin", release the "Emergency Stop" button, and switch it to "Remote Control Mode".

"Navigate to Site" is to let the sterilizer automatically run to the designated site.

Before enabling "Start Navigation", place the sterilizer at "Disinfection Origin", release the Emergency Stop button, and switch it to "Remote Control Mode".

3.2 Start Disinfection

D1 In the application interface, select the map of the area to be disinfected and the route to be disinfected, then click the Disinfection Center" button to enter the disinfection center interface, and wait 2-5 seconds to refresh the data.

Note: Before entering the disinfection center, place the sterilizer at the origin and release the Emergency Stop button.



Fig. 15 Disinfection Center Interface

D2 Switch the mode to "Remote Control Mode" on the Disinfection Center Interface, click "Start Disinfection] button, click "OK" button to enter the disinfection number (or automatically generate the number), and click "OK" button to start the disinfection.

Note: The sterilizer will wait for 30s when starting the disinfection so that the staff can evacuate from the room to be disinfected and keep the room airtight.

"Manual Disinfection" refers to the way that the sterilizer can stay in place and perform atomizing disinfection when the machine is in the starting state and the emergency stop is released. After clicking "Manual Disinfection" button, set the atomizing disinfection time in minutes. After you click "OK" button, the sterilizer should stand still and perform the spraying. This function does not require the sterilizer to move to the "Disinfection Origin".

"Timing Function" refers to that the sterilizer starts the automatic disinfection at the disinfection time set when the sterilizer is at "Disinfection Origin" or in start-up state and

the Emergency Stop button is released.

The status of the sterilizer is indicated in the upper right area of the disinfection center interface. Parameters are shown in the following table:

Status	Automatic sterilization/ Wait
Humidity	Real-time humidity in room
Temperature	Real-time temperature in room
Weight	Real-time weight of disinfectant
H ₂ O ₂	Real H ₂ O ₂ concentration in air in room (optional
concentration	parameter of the machine)

3.3 End Disinfection

After the disinfection is finished, the disinfection completion information report will pop up on the control PAD.

WIFI O	2021-03-25 13:01 消毒山心		95 🚍
	加毎中心 此次消毒信年時间:13:01:09 消毒空间通风时间:15 分钟 此次消毒作用时间:30 分钟 倒计时	名称 状态 湿度 温度	状态 待机 43.3RH% 21.4℃
	29:56 确定	遥控模式 定时功能	手动消毒
		启动	消毒

Fig. 16 Disinfection Completion Interface

3.4 Disinfectant Discharge

E1

If there is much disinfectant left in the sterilizer after disinfection and it will not be used again in the next week, please discharge the disinfectant.

Open the operation window in the rear of the sanitizer.



Fig. 17 Schematic Diagram of Opening Operating Window Adjust the two blue water pipe valves to the positions as shown in the E2 following figure, take out the hose inside the sterilizer and place it in the container.



Fig. 18 Drainage Operation Schematic Diagram

E3 Click the [Drainage ON] button on the disinfection center interface to enable the drainage function of the sterilizer; when the disinfectant in the sterilizer is discharged, click the [Drainage Off] button on the interface to disable the drainage function and reset the two blue water pipe valves to its original positions.

3.5 Alarm

F1 Click the [Alarm] button on the home page to enter the alarm record interface.

Alarm interface can display the fault record of the sterilizer and the system automatically records all operation alarm information;

Alarm contents include: chassis collision alarm, low electric quantity alarm, communication alarm;

Once the device gives an alarm, it must be dealt with immediately. After eliminating the fault, click the [Confirm All] button on the interface to clear the alarm information; the system automatically enters the normal work; in case of serious fault, stop it to check and troubleshoot. (See Chapter 4 for troubleshooting).

日期	选择日期			打印
序号	发生时间	结束时间	消息	
1	2021-03-23 16:23:43	2021-03-23 16:23:49	导航失败	
2	2021-03-22 18:05:24	2021-03-22 18:05:39	导航失败	
3	2021-03-19 14:09:12	2021-03-19 14:09:12	导航失败	
4	2021-03-19 14:09:09	2021-03-19 14:09:12	导航失败	
5	2021-03-16 14:22:02	2021-03-16 14:22:07	导航失败	
6	2021-03-16 14:21:06	2021-03-16 14:21:08	导航失败	
7	2021-03-07 16:47:33	2021-03-07 16:47:42	导航失败	

3.6 Report

G1 Click the [Report] button on the home page to enter the report record

interface.

G2 Select the date.

G3 Select the disinfection number. The corresponding disinfection report can be queried as shown in the figure.

	据表记录					返回	
1	日期	2021-03-25	日历选择	编号	202103250001	60s 查询 打	印
		-		数据	报表		
		灭菌批次	202103250001		操作用户	超级管理员	
		设备编号	2020-001atom		设备型号	LZ-ATOM	
		开始时间	2021-03-25 11:5	54:17	结束时间	2021-03-25 11:55:16	
		地图名称	第 3		线路名称	第 3	13
0		灭菌类型	自动消毒		灭菌结果	手动停止	MAU
				报警	记录		H
		消息	发生时间		确认时间	操作用户	
				操作	记录		
		消息		发生时	间	操作用户	
				c c c	12		

G4 Click the "Print" button, then the current report will be exported as a PDF file and stored in the PAD.

3.7 Log

H1 Click the "Log" button on the home page to enter the log record interface where you can select a date to view the log list on that date. The query results are shown in the figure below:

WIFI	•	2021-03-25 14:07 日志记录		93 🗖	
日非	明 选择日期				
序·	号 时间	描述	操作用户	用户账号	
1	2021-03-25 11:57:29	用户admin登录成功	超级管理员	admin	
2	2021-03-25 11:07:03	用户admin登录成功	超级管理员	admin	
3	2021-03-25 10:55:11	用户admin登录成功	超级管理员	admin	
4	2021-03-25 09:19:23	用户admin登录成功	超级管理员	admin	
5	2021-03-24 16:15:30	用户admin登录成功	超级管理员	admin	
6	2021-03-24 14:58:20	用户admin登录成功	超级管理员	admin	
7	2021-03-23 17:33:40	用户admin登录成功	超级管理员	admin	
8	2021-03-23 16:29:32	用户admin登录成功	超级管理员	admin	
9	2021-03-23 16:27:49	用户admin登出成功	超级管理员	admin	

Fig. 21 Log Record Interface

3.8 More Interface

I Click the "More" button on the main interface to enter the "More" setting interface for the Log. Users can carry out "User Management", "Data Management", "Password Modification" and check the device information on this interface.



3.9 Maintenance

3.9.1 Cleaning Filling Opening Strainer

If the sterilizer is used for a long time, the strainer at the filling opening should be cleaned regularly. Firstly, unscrew the filling opening cover; the operator wears gloves to take out the strainer at the filling opening and rinse it with water until there is no residue, crystallization and other impurities on the strainer.

3.9.2 Cleaning Plasma Module

Please maintain the plasma module every 3 months.

- Turn off the power switch of the sterilizer and wait for 10 minutes;
- Use the screwdriver to remove the 2 mounting screws on the plasma module shell;



• Use the cotton swab (medical alcohol is better) dipped

in water to gently wipe the glass electrode bar and then use dry cotton swabs to absorb the moisture;

• If finding white crystals on the air outlet or glass electrode bar, clean it again with the method above, or wipe it with cotton swab through the air outlet.

3.9.3 Replacing Water Pipe Filter

The sterilizer has a water pipe filter located in the operation window in the back of the sterilizer. Obtain the replacement of the filter from the manufacturer, cut the fixed ties at both ends of the filter, and pull out the filter. Take out the new water pipe filter, install it and secure it with ties. Note: Do not pull the water pipe forcefully during the process of replacing the filter.



Fig. 23 Water Pipe Filter Diagram

3.9.4 Cleaning

In order to ensure cleanliness, the surface of the sterilizer can be cleaned according to the standard for ordinary equipment: Use the cleaning cloth to dip an appropriate amount of water to wipe it and cut off the power supply before cleaning. All kinds of sensors and their surrounding areas are strictly prohibited from soaking in water and being wiped with alcohol.



All kinds of sensors and their surrounding areas are strictly prohibited from soaking in water and being wiped with alcohol.

No.	Name	Specification & Model	Replacement Frequency
1	Water pipe filter tap	AD10-WP-06	When there are more impurities or crystals in the filter valve, it needs to be replaced; Replace it at least once a year.
2	Atomization nozzle	AD10-WP- KS2.5N	Replace it when the normal atomization fails due to blockage.
3	Lithium battery	AD10-DC48V88Ah	Damage caused by improper use; When the battery capacity is less than 60% due to repeated use.
4	Fuse	Zeeman-ATS-30A	When the fuse is broken due to short circuit of sterilizer.
5	Fuse	CHINT-RT28-32-6A	When the fuse is broken due to short circuit of sterilizer.
6	Fuse	CHINT-RT28-32-32A	When the fuse is broken due to short circuit of sterilizer.

3.9.5 List of Wear Parts

Chapter 4 Faults and Solutions

4.1 Fault Table

No.	Fault	Troubleshooting
1	Sterilizer unable to start	Check whether the battery works. After pressing the [Power] button, use the multimeter to measure the voltage of the disinfectant charging port. Please charge the sterilizer first if the voltage is lower than 23V.
2	Control PAD failing to be connected to sterilizer	Check whether the sterilizer is normally started, or restart the sterilizer.
3	Sterilizer action failure after "Start Disinfection" enabled	Check that the Emergency Stop button is released Check whether it is placed in remote control mode, not manual push mode
4	Control PAD failing to obtain disinfection report	Check whether the storage permissions of the APP are enabled
5	Control program failing to control sterilizer	Restart sterilizer
6	No action after clicking the control program	Restart PAD
7	Abnormal spraying of sterilizer	Check whether the water pipe filter is clogged Check whether the water pipe is bent
8	The sterilizer sprays the mist on the housing	Check whether the nozzle installation direction is correct, and rotate the nozzle to adjust the direction if necessary
9	Sterilizer collides with the objects in the room for many times	Check whether the sites on the disinfection route are properly set up
10	Sterilizer is difficult to move	Check whether there are obstacles on the floor Check whether there is soft carpet on the floor
11	WiFi disconnection of control program	Check whether the sterilizer is too far away from the PAD
12	Too large weight deviation of disinfectant	Check whether there are other obstacles at the filling bottle
13	Sterilizer works without spraying	Check whether there is disinfectant in the sterilizer

When there is an alarm during the running of the sterilizer, the alarm information will be displayed on the touch screen, and you can click the "Clear Alarm" button.

4.2 Other Troubleshooting

The sterilizer is intelligent sterilizing equipment and consists of complex circuit system and body. In case of other unsolvable problems, please contact the sales service center of the manufacturer in time to obtain technical support.

Chapter 5 Appendix

5.1 Regulations on Care and Maintenance

The whole machine has the quality warranty for one year from the date of sale (the date on the invoice shall prevail).

The sterilizer in the warranty period can enjoy the free maintenance for the fault caused by the product itself.

The following cases are not within the scope of free maintenance, but can be subject to the repair with charge:

- Loss or injury caused by human factors or improper use of user (knock, hit and lock body exposed to corrosive objects or liquids, etc.);
- Damage caused by force majeure, such as earthquake, flood, fire, typhoon or war etc.;
- Damage caused by the maintenance on its own without the permission of our company or the maintenance not by special maintenance sites of our company;
- User's improper operation, maintenance or modification without authorization, operation failing to follow up the Operation Manual, etc.;
- Use time of products beyond warranty period.

5.2 Company Contact Information

Company Name	Suzhou Qingle Intelligent Technology Co., Ltd.
Responsible Organization	Shanghai TRENDS Technology Co., Ltd.
Manufacturing Company	Lingzhi Intelligent Technology (Zhejiang) Co., Ltd.
Address of R&D Center	Building 6, No. 27, Zigang Road, Suzhou City, Jiangsu Province
Address of Marketing Center	4 / F, Building 1, No. 58 Yuanmei Road, Minhang District, Shanghai
Company Website	www.sterbot.com
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