

Operation Manual



BAMN-201




Medical Class N Autoclave

Thank you very much for Choosing Biolab products. Please read the "Operating Instructions" and "Warranty" before operating this unit to assure proper operation.

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Explanation of symbols

	Symbol for "Caution!"
	Symbol for "PROTECTIVE CONDUCTOR TERMINAL"
	Symbol for "HOT SURFACE, KEEP AWAY"
	Symbol for "ENVIRONMENTAL PROTECTION – Electrical wastes should not be disposed together with household wastes. If possible, please contact local distributor or government to recycle it."
	Symbol for "MANUFACTURER"
CE 0197	Symbol for "COMPILES WITH MDD93/42/EEC REQUIREMENTS"
	Symbol for "DATE OF PRODUCTION"
	Symbol for "SERIAL NUMBER"
	Symbol for "EUROPEAN REPRESENTATIVE"
	Symbol for "THIS SIDE UP"
	Symbol for "KEEP AWAY FROM RAIN"
	Symbol for "DO NOT ROLL"
	Symbol for "STACKING LIMITED 3"
	Symbol for "Room Temperature: 5℃~40℃"
	Symbol for "Relative humidity: ≤80% "

Safety warning

Please read below carefully:



Electric Shock, Fire or Equipment damage might happen if you ignore below warning

Please use 3-hole socket, and ensure the socket has been connected well with the ground. Do not put the autoclave on a place that the power are difficult to be cut off.

Do not use power with different voltage with that stated in this manual.

Do not touch the plug or socket with wet hands.

Do not pull, change, over-bend or twist the wires, and do not put heavy things on the wires.

Do not put the autoclave on an unstable table.

Do not block the door of autoclave, or cover the ventilation holes and radiation holes.

Do not put anything on the top of autoclave.

If you find any abnormal smell or sound during operation, please cut off the power immediately and contact your local distributor or us.

If you do not use the autoclave for a long time, please cut off the power and store the autoclave in a dry and cool place.

01 Brief introduction

This autoclave is automatic type steam sterilizer, which is very easy to operate. The parameters and conditions of the program will be displayed automatically on the digital screen during the sterilization. If there's problem, the autoclave will alarm automatically. If there's over-temperature or over-pressure, the autoclave will automatically stop working and ensure the safety of operator. Inside the autoclave, there's a waste water tank to collect waste water and vapor to ensure they will not pollute the inner clean pipes.

1. POWER OUTLET
2. FUSE
3. WASTE WATER PIPE
4. CLEAN WATER PIPE



02 Using range

This autoclave can be used for medical purposes, e.g. In general medical practices, dentistry, facilities for personal hygiene and beauty care and also veterinary practices. It is also used for materials and equipment which are likely to come into contact with blood or body fluids, e.g. Implements used by beauty therapists, tattooists, body piercers and hairdressers.

Type of This Autoclave

Type	Description of Intended Use
N	The Sterilization of Non Wrapped Solid Products



Do Not Sterilize Liquid

03 Parameters and sterilization programs

3.1 Parameters:

The working condition of the autoclave:

Environmental temperature: 5°C~40°C

Relative humidity: ≤80%

Atmospheric pressure: >70kPa;

Voltage: 220V/110V, 50Hz

The max. working pressure: 0.21~0.23MPa

The max. working temperature: 134~137°C

Life span of the autoclave: 5 years

Vapor pressure: 0.3 – 0.6 MPA

Water pressure: 0.15 – 0.3 MPA

The requirements of transportation and storage:

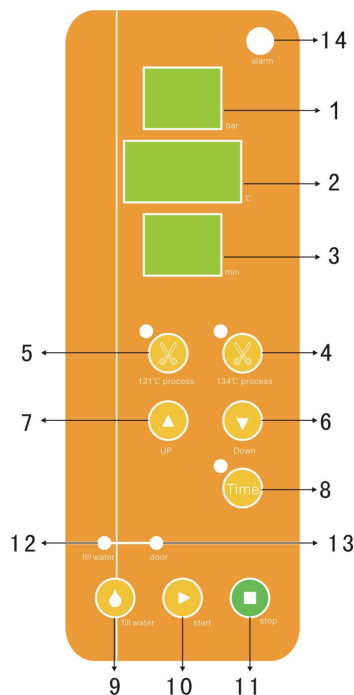
Environmental temperature range: 5~40°C

Relative humidity: ≤80%

No corrosive gases

3.2 Sterilization programs

Process	sterilizing time	Sterilizing temperature	Sterilizing pressure
121°C/unwrapped	20min	121°C	1.1bar
134°C/unwrapped	5min	134°C	2.1bar



04 Control Panel

1 Pressure

It shows the relative pressure inside chamber.

Unit: Bar

2. Temperature

It shows the temperature inside chamber.

Unit: °C

3. Status/Error Code screen

It shows the status of current sterilization. For details, please check attached chart.

The error code will be displayed when the sterilizer has some problems, and you would figure out the reason by checking "Error Codes and Resolutions"

4~5. 2 sterilization programs

Below 2 sterilization programs are available:

121°C solid

134°C solid

6~8. Adjust sterilization time

9. Fill water

Press "fill water" key once, the "fill water" indicator will be on, the water can fill into the product.

Press "fill water" key again, the "fill water" indicator will be off, water will be stopped filling.

10. Start key

Press it to start the sterilization program you selected,

11. Stop key

Stopping the bactericidal process, press this key when any abnormal situations of the machine happen.

12. "Cycle" indicator

The lamp will be on after press "Cycle" key.

13. "Door" indicator

When it is on, it means the door is not locked properly and sterilization program cannot be started. You need to close the door again.

14. "Waste Water Tank" indicator

When it is on, it means, there're too much waste water inside. You need to drain them.

15. "Water Storage Tank" indicator

When it is on, it means, clean water is not enough.

16. Alarm

If it is on, it means, there's some problem with current sterilization program. The sterilization program has been automatically stopped.

05 Installation

The autoclave is packed by a wooden carton. To open the carton, you need a flat screwdriver to open the cover. Then, the autoclave can be lifted out by 2 persons.

5.1 Installation

When installing the autoclave onto the table, please keep the autoclave at least 10 cm away from surroundings. And keep the rear side of the autoclave at least 20 cm away from the surrounding.

It is recommended to install the autoclave in a well-ventilated location. Don't block the radiator of the sterilizer.

Keep the table stable & horizontal.

5.2 Adjust atmospheric pressure

Open the door, press 134°C/unwrapped for 5 seconds. When you hear a beep sound, the atmospheric pressure has been adjusted.

5.3 Adjust time and date

1. Press "STOP" key for 20 seconds. The screen shows . Then, release the key.
2. Press "STOP" key again for 20 seconds. The screen shows . Now you can adjust the year. e.g. "11" means year of 2011. Press "start" key for up and "circle" key for down.

Press "STOP" key again to adjust month. On the screen, it shows:

D1: Year D2: Month D3: Day D4: Hour D5: Minute D6: Second

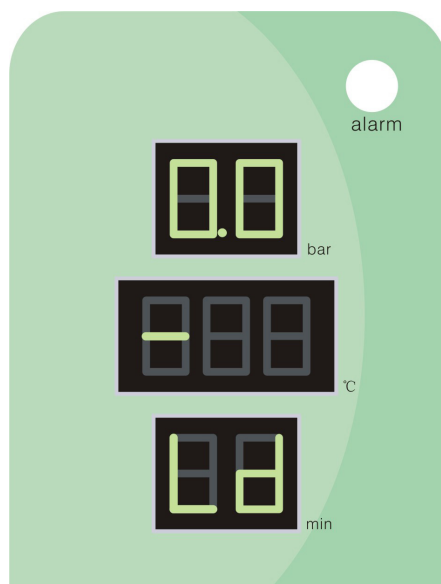
After adjustment, please cut off power.

06 Operation

Preparation before using

Connect with power before using this autoclave. Then, Press the power switch to I position.

At this time, this autoclave is ready to work and screen will show "LD".



6.1 Fill water

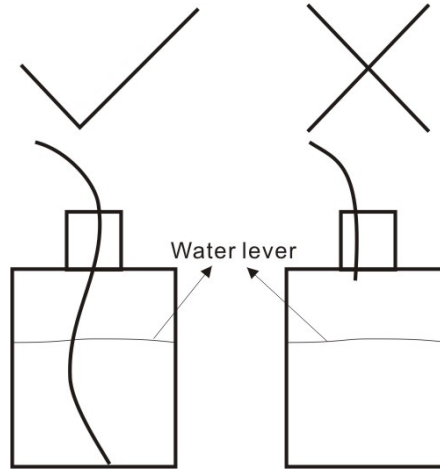
Before use the sterilizer, make sure the water in the outside clean water tank is enough for run the process (not less than 1 liter). If not, fill the outside clean water tank.

Also user should make sure the water can fill into the sterilize chamber. The method is: Open the door, press "fill water" key once. After seeing the water is filled into sterilize chamber, press "fill water"

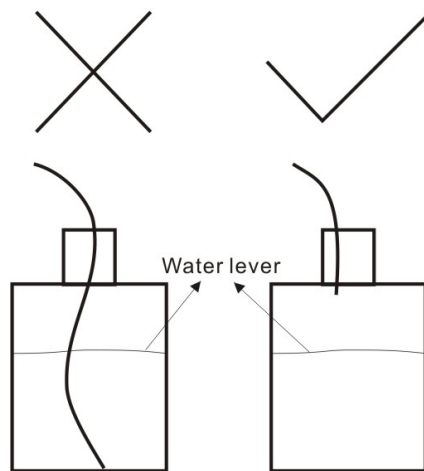
key again to stop fill water.

ATTENTION:

1. The pipe in clean water tank must reach the bottom of the tank. Please see below pic.



2. The pipe in waste water tank should not reach the water inside. Also, fix the pipe with the water tank. Otherwise, the pipe will move out from the tank during sterilization.



6.2 Working

6.2.1 Put the loads (instruments etc.) into the chamber

Warning:

Ensure the total CBM of the loads is less than 70% of the CBM of the chamber.

Keep the loads away from the surface, air outlet of chamber. Keep the loads at least 10mm away from the inner side of the chamber.

If you do B&D test, you need to put the test paper at the center of the sterilization package to ensure the reliable test result.

When putting into and taking out the loads, you shall use the tool attached to prevent your hands from touching the hot surface.

6.2.2 Close the autoclave's door

If the door is not locked, it will alarm.



Please turn the handle right to Max position to lock the door.

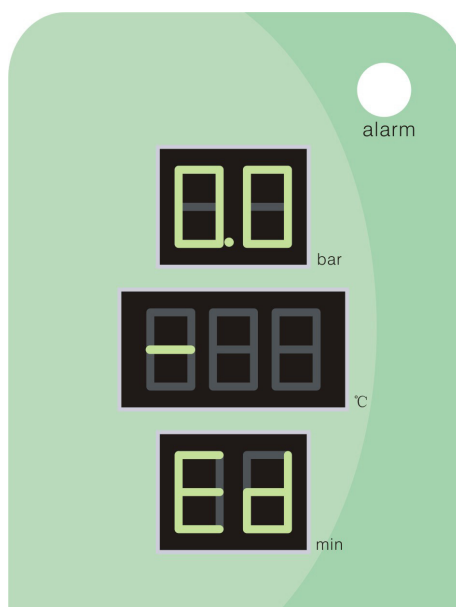
6.2.3 Choose sterilization program, then start

After the door is closed, choose the relative sterilization program according to the kinds of loads in the chamber.

Then, press "START" button to start the program.

6.2.4 After you have selected program, please press "START" to run program. The autoclave will complete the program automatically. The sterilization time is affected by the initial room temperature, water temperature, loads, and the program you selected.

6.3.5 After the program is finished, the screen will show "ED" with 3 beep sounds. You can open the door and take out the loads. If you will not use it for a long time, you shall disconnect the power supply.



07 Abnormal Situation

The sterilizer will give alarm, release pressure and stop heating automatically if it has any abnormal situations during working. It will absolutely keep the user safe and display the error code(See the below page 14).

If alarm appears, please write down the error code No. and cut off the power. Don't open the door and then turn on the power again to wait the pressure turn back to "-0.5~0.5".

Below is a list of alarms. If the user cannot solve the problem according to below chart, please contact your local distributor or us, we will help the user solve problems.

Error Codes and Resolutions

Item	Code	Alarm	Reason	Resolution
1	E1	"Du"long beep	The temperature sensor has problems.	Ask professional tests the temperature sensor.
2	E2	"Du"long beep	Over pressure	Ask professional tests the vacuum pump, or tests pressure sensor.
3	E3	"Du"long beep	Inner temperature over heat	Ask professional tests inner temperature sensor
4	E4	"Du"long beep	The heating stick temperature too high	"Check the water tank Ask professional tests temperature controller"
5	E5	"Du"long beep	The pressure can not be released.	Ask professional tests exhaust valve and vacuum valve.
6	E6	"Du"long beep	The gate is open	Check the gate.
7	E7	"Du"long beep	The local air pressure value too low	Can not use in these area
8	E8	"Du"long beep	Rising pressure failed.	"Check the water tank Ask professional tests pump, inhalation pipeline, heating stick."
9	E9	"Du"long beep	Keeping pressure failed	"Check the water tank Ask professional tests pump, inhalation pipeline, heating stick."

08 Maintenance

8.1 Door Tightness Adjustment

Door Adjustment

Push down the lever and rotate the door to adjust tightness. As shown in below picture, anticlockwise turning will tighten the door, i.e., the door will be closer to the chamber. Clockwise turning the door will loosen it.

Detailed steps:

1. Push down the lever a little
2. Rotate the door to a specific angle
3. Release the lever
4. Keep turning the door to a place where the door cannot move anymore.

8.2 Use thimerosal to sterilize water tanks every week.

8.3 To use ethyl alcohol to clean the inner surface of the autoclave every month.

8.4 Every 150 cycles, we recommend to replace the germ filter.

8.5 Replace the fuse

(1) Disconnect power

(2) Push screwdriver and turn the screws in anti-clockwise, and then take the fuse out.

(3) Replace the old fuse by a new one, then turn the screws in clockwise.

8.6 Clean seal ring regularly

The user needs to clean the seal ring regularly by distilled water. If leakage still happens after cleaning, the user may have to replace the seal ring.

8.7 Replace the seal ring

Tool: The user needs a flat screwdriver.

A. Hold the seal ring by a hand and use another one to hold a screwdriver carefully to separate the door and the seal ring. Then take the seal ring out slowly.

B. After the user takes the seal ring out, clean and check it. If it is damaged, the user must replace it.

C. After the seal ring is cleaned, assemble it.

D. **Attention:** if the user finds it hard to put the seal ring back, use screwdriver press it carefully until it is done.

09 Transportation & Storage

9.1 Preparation

Cool down the sterilizer and disconnect power.

9.2 Drain water

Empty all tanks, assemble the pipe without joint into bleeder valve. A is the outlet valve for waste water, while B is the outlet valve for clean water (If you will not use this autoclave for a long time, you shall drain clean water here). Turn anti-clockwise to drain water.

9.3 Terms of transportation

Please refer to sales contract.

9.4 Terms of storage

The autoclave should be stored in the clean warehouse where room temperature is 5°C~40°C, the relative humidity is no more than 80%, no corrosive gases and well-ventilated.

10 Warranty

1. Warranty: 2 years.

2. We will not offer free service even in the first year if the things happen as below:

- (1) The damage is caused by incorrect installation
- (2) The damage is caused by fall down or impact by carelessness
- (3) The damage is caused by customer's install or repair
- (4) Without invoice and guarantee card
- (5) The damage is caused by force majeure such as abnormal voltage, fire etc;

11 Accessories

No.	Accessories	Q'ty (PC)
1	Drainage pipe	1
2	Tray	3
3	Cable with plug	1
4	Tray shelf	1
5	Tray-hand-holder	1
6	Fuse	2
7	Instruction Manual	1



Appendixes

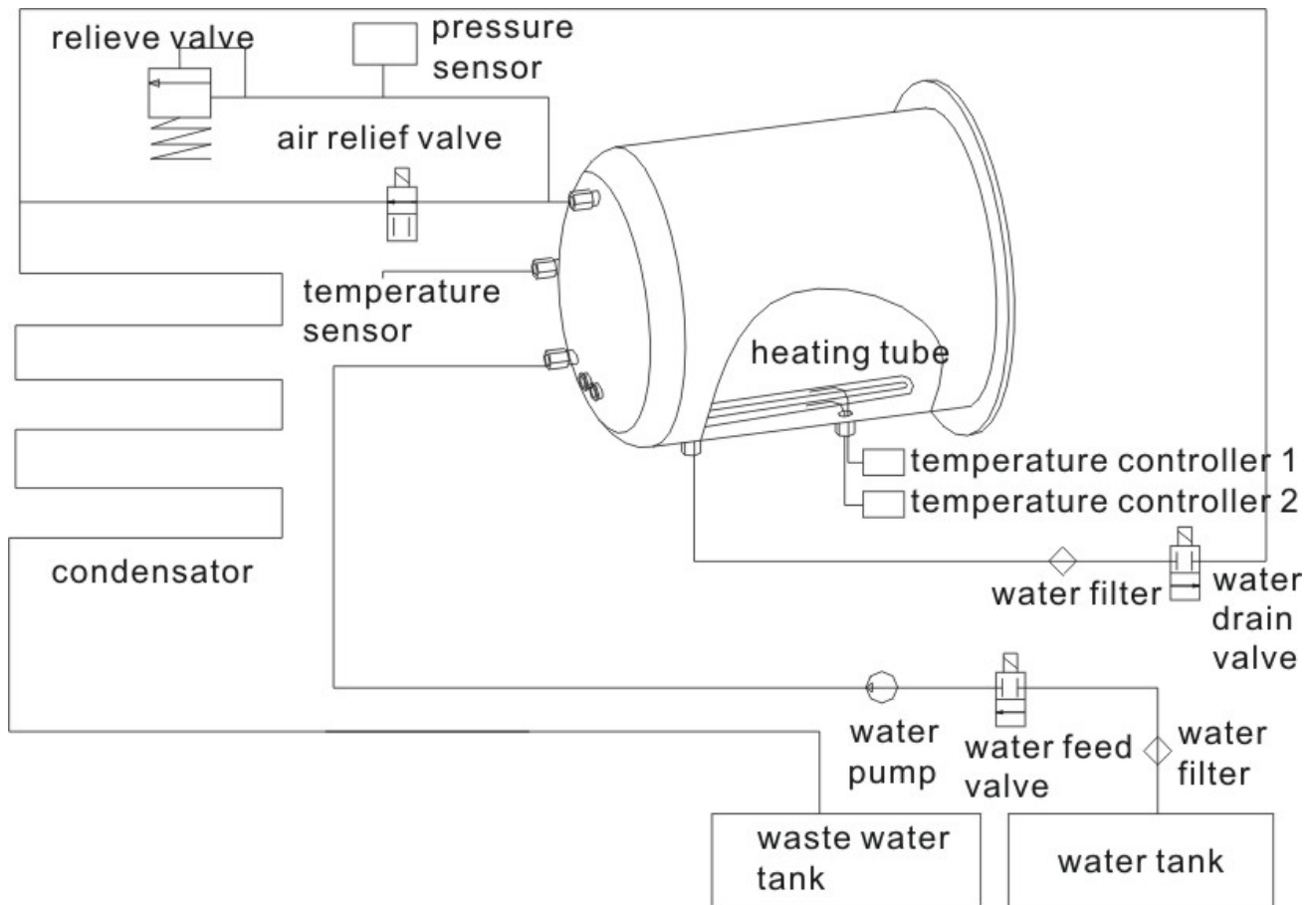
Appendix 1: Code and Explanation

Item	Code	Condition	Condition explanation
1	Ld	Prepare	Sterilizer prepares to start work
2	UR	Vacuum	Sterilizer starts to pre-vacuum or three times vacuum
3	Show working time	Bactericidal	Showing working time
4	dry	Drying	Drying the equipment's inside of the sterilizer
5	Show drying time	Drying	Showing drying time, and count down
6	LE	Pressure balance	Balance inside pressure with the barometric pressure
7	Ed	Ending work	Program finished, and open gate
8	Show error code	Error	Showing error codes

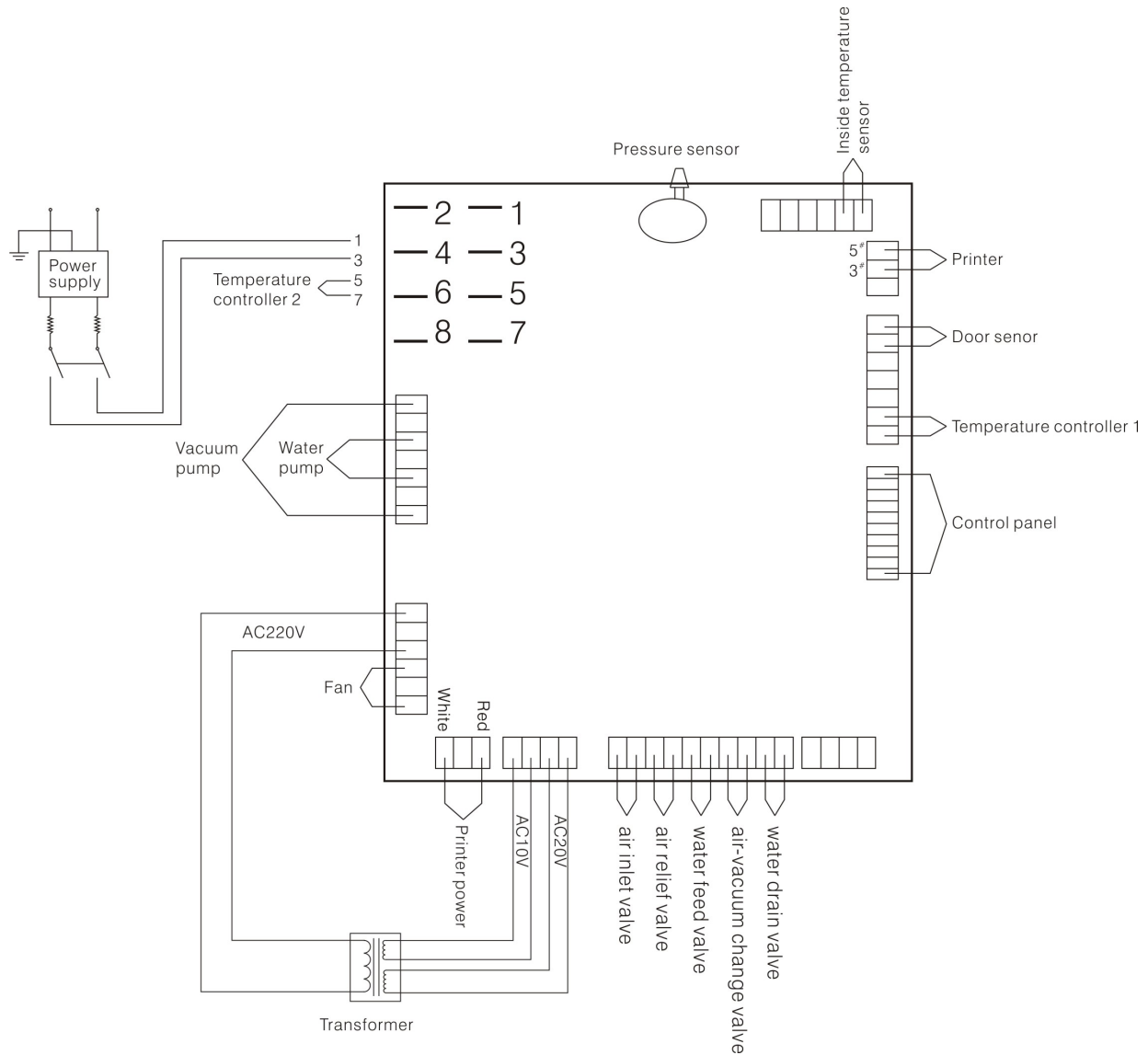
Appendix 2: Adjust Sterilization Time

1. Press "fill water" button for 5 seconds to start adjustment.
2. Press the sterilization program button to select the sterilization program that you want to adjust.
3. Adjust sterilization time: Press "start" button once to add 1min; Press "stop" button once to reduce 1 min. Time scale: 4-60 min.
4. Press "fill water" button to save and exit.
5. Default: If you want to let sterilization time be default, please press " start " button for 5 seconds. When it shows " 55", press "start" button again. At that time, the sterilization time of all programs will be default.

Appendix 3: Structure Diagram



Appendix 4: Circuit Diagram



Component parameters:

Water pump power: AC: 230V 50Hz 47W


Heating circle: AC: 230V 50Hz 1500W

Heating rod: AC: 230V 50Hz 750W

Solenoid valve: DC: 24V 5W



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