

LT-1000 Microplate Washer User's Manual



C contents

Biohazard and Safety Instructions	1
1.Product Introduction	3
1.1 Product Overview	3
1.2 Normal operating condition	3
1.3 Normal storage and transport condition	3
2.Instrument structure and assembly process.....	4
2.1 Instrument structure	4
2.2 Assembly process of instrument	5
3.Instrument Button	7
4.Main Technical Indicator	8
5.Function Introduction	10
5.1 Adjustment	10
5.2 Rinse	10
5.3 Prewash	10
5.4 Soaking	10
5.5 Rinsing	10
5.6 Plate vibration	10
5.7 Programming and storage	11

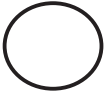






6.Application and operation	12
6.1 Main menu	12
6.2 Adjustment operation	13
6.3 Rinse operation	17
6.4 Prewash operation	18
6.5 Plate washing operation.....	19
6.6 Restore factory settings	22
7.Analysis and Troubleshooting of Common Faults	23
8.Care and Maintenance	26
9.Packing List	27
10.Product Contraindication	28
11.Commitment.....	29
12.Contact Us	30

Biohazard and Safety Instructions

LT-1000 microplate washer is the medical equipment for in vitro diagnosis. Please read the following instructions before operation and be in strict accordance with the regulations.

- 1) Some materials for certain test project may be of biological hazard, therefore, conduct safety protection according to the regulations of Guidelines for Clinical Laboratory Safety before using the instruments;
- 2) Do not contact the following matters when operating and maintaining the instruments: patient sample, quality control material, standard sample, waste liquid, for they are considered to be pollutant which is infective;
- 3) Be careful when handling the sample for there may be the hazard of virus infection, therefore, make sure to wear the rubber gloves to avoid direct contact with waste liquid. If you contact the patient sample or waste liquid carelessly, clean your hands immediately and go to hospital for medical examination.
- 4) The users are obliged to local or national regulations related to waste disposal;
- 5) This instruments is connected with earth via power line, therefore, make sure that the earth line of power socket is in good connection with earth to avoid electric shock;
- 6) Stabilized AC power supply is available and it is forbidden to be jointly used with high-power electric appliance with frequent on-off, the AC power supply shall be far away from powerful electromagnetic interference source;
- 7) Only those trained professional staff can operate this instrument in strict accordance with the instruction;
- 8) In case smog or special taste occur to the equipment, cut off the power supply immediately and contact the distributor;

- 9) The users are not allowed to dismantle this instrument or spare parts by themselves;
- 10) Power off during instrument maintenance and care;
- 11) Be sure to cut off power supply when the fuse is required to be replaced, and conduct replacement according to the specification in the instruction;
- 12) This product is equipment for laboratory test and no contraindication exists;
- 13) The following signs and marks are adopted in this instrument:

Mark	Meaning
	Cut off AC power supply
	Connect AC power supply
	Caution: Liquid wastes have potential biological risks
	Protective earthing
	CE is a kind of mark protected by EU, and the product shall be consistent with the 98/79/EC command
	IVD instrument
	Attention: please read carefully

1. Product Introduction

1.1 Product Overview

LT-1000 microplate washer is used for cleaning of elisa plate, which shall be used with microplate reader. It can be widely used in clinical laboratory of hospital, central lab, sanitation and antiepidemic station, Centers for Disease Control and Prevention (CDC), health supervision center, animal husbandry and veterinary medicine disease center and biological product enterprise.

This product is characterized by large screen liquid crystal display, Chinese interface, easy operation and convenient application. As long as the user operates according to the instruction step by step, he can complete plate washing. The users can modify and compile application program of microplate washer at will according to the actual conditions and the new compiled application program can be stored for the use in the future. Double diaphragm pump is adopted by this microplate washer to compose double pump without positive and negative pressure system, which can completely avoid cross infection of fluid, therefore, it is characterized by stable performance, safety and reliability.

1.2 Normal operating condition

- a) Environment temperature 5°C to 40°C;
- b) Relative humidity shall be no greater than 80%;
- c) The work place shall be of dust prevention and shock proof; acid, salt or other corrosive gas is forbidden to exit in the air;
- d) AC power supply: 100-240V; 50/60Hz; Input power: 60VA;
- e) Protective earthing environment shall be available;
- f) Specification and rated value of fuse protector: $\Phi 5 \times 20$ T2AL250V;
- g) Overall dimension: 420×416×159 mm;
- h) Instrument weight: 5.5 Kg.

1.3 Normal storage and transport condition

The packaged product shall be stored in well-ventilated room with the temperature between -20°C and 55°C and the relative humidity no greater than 93% and without corrosive gas. During transportation, the instrument shall be placed horizontally, in addition, damp-proof and shake-proof measures shall be taken.

2. Instrument structure and assembly process

2.1 Instrument structure

The characteristic of instrument structure is shown in Figure 1. The instrument is composed of two fluid path systems, injection and imbibition. The injection system is composed of liquid charge pump, several solenoid valves, wash reservoir and rinse reservoir . During liquid injection, the liquid charge pump starts to work, and the corresponding solenoid valve is opened, then the washing liquor (or distilled water) will enter be injected to the tiny pores of elisa plate thorough liquid injection pipeline and nozzle. The imbibition liquid path is composed of imbibition pump and waste reservoir. During imbibition, the imbibition pump is opened, and the waste liquid in the elisa plate will be charged to waste liquid bottom via the imbibition pump. During plate washing, the parameters such as lift and down of nozzle, movement of elisa plate, bay number of plate washing, cycle index, time of plate vibration and soaking time operate automatically under the control of prepared program in advance.

This instrument is equipped with three bottles, which are respectively used for storing washing liquor, distilled water and waste liquid, and the three bottles are connected with corresponding connectors of instrument via silicone tube.

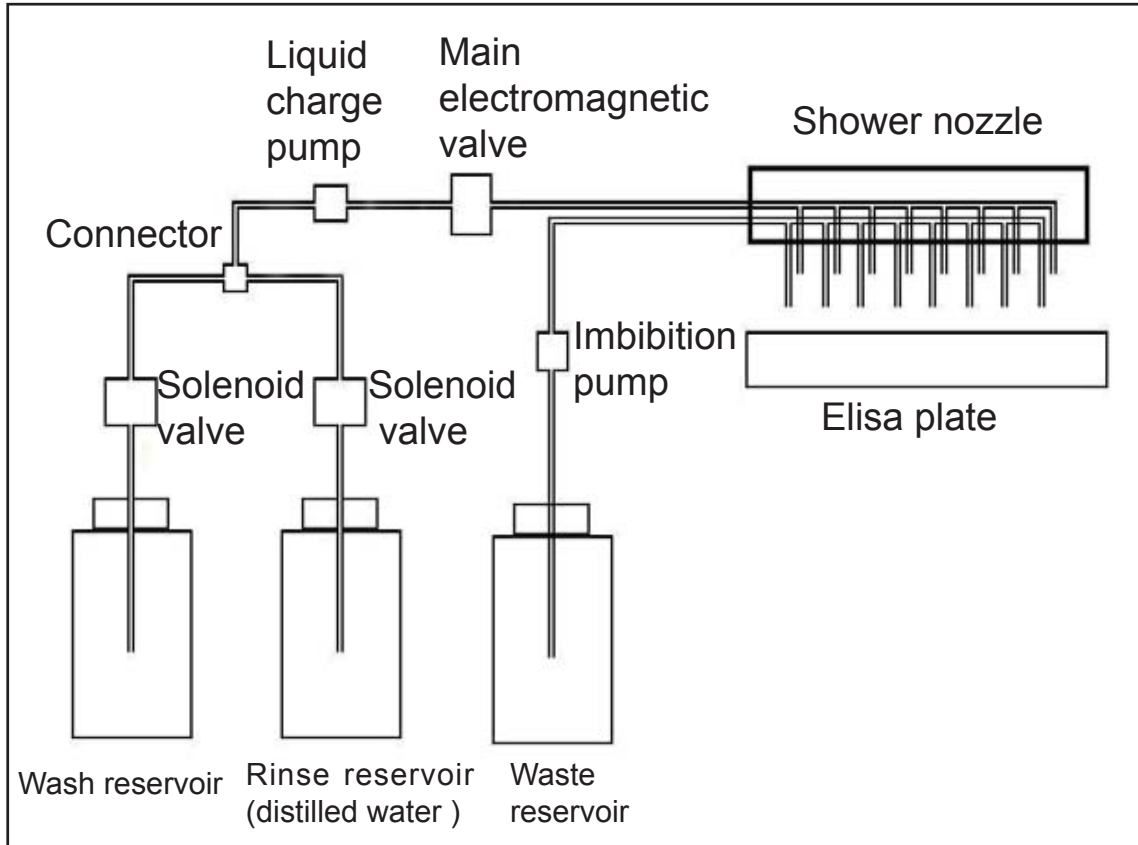
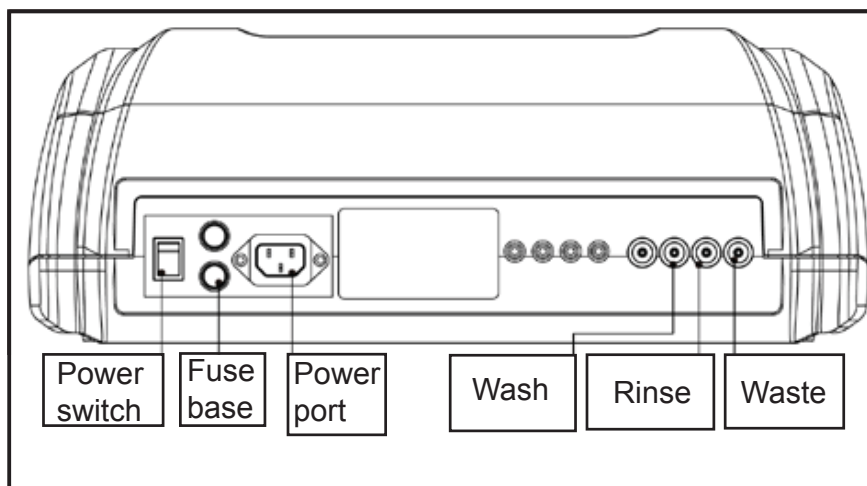


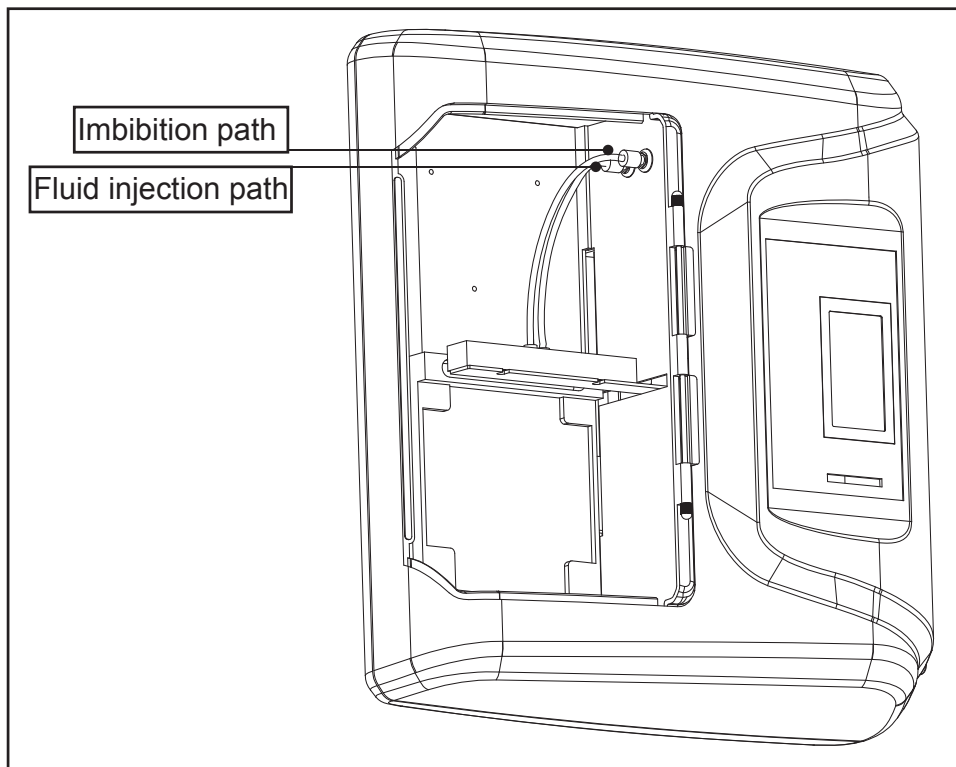
Figure 1 Schematic Diagram of Instrument Structure Characteristic

2.2 Assembly process of instrument

- 1) Compare the color of rear panel of instrument with that of wash reservoir connector, then connect the wash reservoir, rinse reservoir and waste liquid bottom with corresponding water nozzle with silicone tube, and connect the power line. The port of instrument rear panel is shown in the following figure:



2) Connect the two water nozzles on the shower nozzle with the silicone tube and hang the shower nozzle on the trunnion axis of instrument. Then connect the upper water nozzle of the shower nozzle with the upper read water nozzle (imbibition path) on front panel of the instrument, and connect the lower water nozzle of shower nozzle with the lower green water nozzle (fluid injection path) on the front panel of instrument. The connected shower nozzle is shown in the following figure:



3. Instrument Button

Six independent keys are adopted in the instrument: “<”, “>”, “+”, “-”, “OK” and “||”, as shown in the following figure:



- a) Press “<”, the cursor in the liquid crystal display (LCD) will move to the left for one position.
- b) Press “>”, the cursor in the liquid crystal display (LCD) will move to the right for one position.
- c) Press “+”, the number at the cursor of LCD will be increased by 1.
- d) Press “-”, the number at the cursor of LCD will be decreased by 1.
- e) Press “OK”, the position of cursor in LCD will be chosen.
- f) Press “||”, the operating program of microplate washer will be paused, at this time, if you press “>”, pause will be canceled and the microplate washer will operate normally; if you press “<”, the microplate washing will stop working completely, the cursor will return to the main menu.

4. Main Technical Indicator

- 4.1 Uniformity of fluid injection: mean relative deviation of washing liquor injection rate to each pore of the elisa plate shall be no greater than +5%;
- 4.2 Residual volume after plate washing and the average residual volume of washing liquor in each pore of the elisa plate shall be no greater than 2 μ L per pore;
- 4.3 Repeatability: variable coefficient CV of injecting liquid volume shall be no greater than 3%;
- 4.4 Stability: when the injecting liquid volume of the pore is set as 300 μ L, the variable quantity of average injecting liquid volume of pore shall be no greater than \pm 25 μ L within 8 hours;
- 4.5 Accuracy of injecting liquid: when the injecting liquid volume of the pore is set as 300 μ L, the relative deviation of each injecting liquid volume accuracy on the elisa plate shall be no greater than \pm 5%.
- 4.6 Row number of washing: it can be set at will within row 1 to row 12;
- 4.7 Soaking time: it can be set at will between 0s and 3600 s;
- 4.8 Cycle index: it can be set at will for 1 time to 20 times;
- 4.9 100 plate washing programs can be set and stored at most in this instrument;
- 4.10 Cleaning mode: the 96-pore (or 48-pore) elisa plate can be cleaned in the mode that 8 pores are cleaned each row or 12 pores are cleaned each row;
- 4.11 Flushing function of pipeline: it shall be functioned by washing on the pipeline of instrument itself, and it can be set at will between 0 s and 600 s;

- 4.12 The liquid exchange time shall be adjusted: it can be set at will between 0 s and 600 s;
- 4.13 Possess function of plate vibration: it can be set at will between 0 s and 600 s;
- 4.14 Discharge prevention function: when the injecting liquid is excessive, the surplus washing liquor will be absorbed automatically and it will not flow to interior of instrument;
- 4.15 Two-point imbibition function, and the distance between two points can be adjusted;
- 4.16 Rinsing function at the pore bottom: the rinsing time can be set at will between 0 s and 60 s;
- 4.17 Adjustable injecting liquid function of each pore: it can be set between 10 μ L and 3000 μ L.

5. Function Introduction

5.1 Adjustment

Although the instrument have been adjusted and verified before leaving the factory, for the dimension, specification and model of the elisa plate produced by each factory differ; the parameters of plate washing shall be adjusted again before plate washing by entering the adjustment interface. After adjustment, the microplate washer will store the adjusted parameters automatically. For detailed operation, refer to 6.2.

5.2 Rinse

Washing liquid path is very important. If the washing liquor remains in the liquid path for long time, tiny crystals will appear during evaporation to cause blocking of liquid path and even damage the fine liquid injection needle tubing. Therefore, you must wash the liquid path with distilled water before turning off the microplate washing and replace the washing liquor in the liquid path. In addition, if the instrument has not been used for long time, before use, the liquid path shall be washing with distilled water. For detailed operation, refer to 6.3.

5.3 Prewash

The liquid shall be exchanged each time before plate washing or after washing liquor exchange. Exchange the retained distilled water or original liquid in the liquid path with washing liquor to ensure the quality of washing plate. For detailed operation, refer to 6.4.

5.4 Soaking

Soak the tiny pores of elisa plate with washing liquor before the second plate washing each time after one plate washing circulation.

5.5 Rinsing

The shower nozzle shall be lowered to the tiny pore bottom of elisa plate for rinsing during each plate washing.

5.6 Plate vibration

After each plate washing circulation and before the second plate washing,

the elisa plate will vibrate by itself to ensure the washing quality of microplate washer on the elisa plate.

5.7 Programming and storage

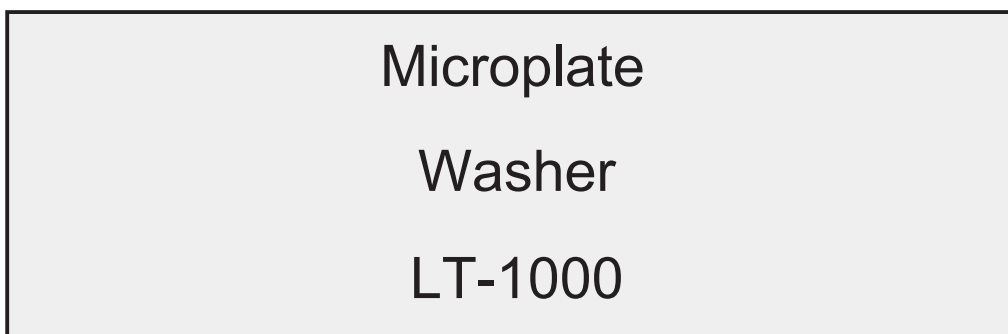
This product can store 100 sets of microplate washing programs independently to facilitate the operation of users. It is unnecessary to repeat the program of microplate washing. Once the program have been stored, the user can directly use for the next time. For detailed operation, refer to 6.5.

6. Application and operation

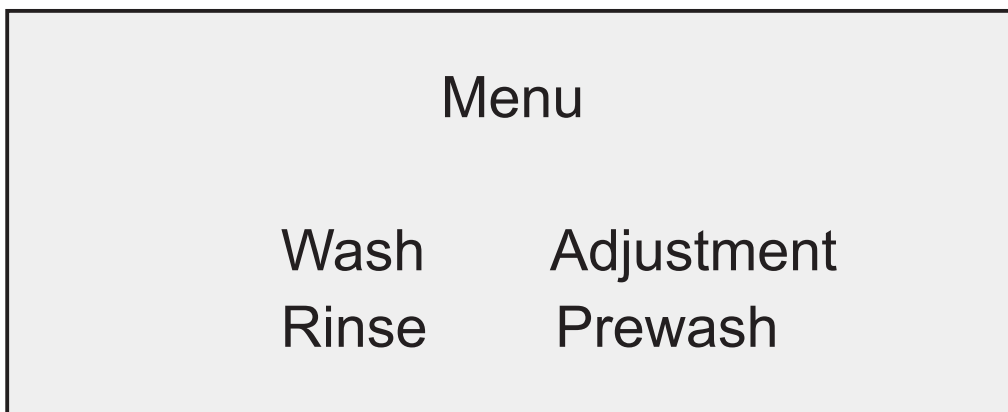
Attention: before plate washing, liquid exchange and flushing please ensure that the wash reservoir, rinse reservoir and the Waste reservoir have been connected with the instrument correctly and the wash reservoir as well as the rinse reservoir is full of washing liquor and distilled water respectively. Then check whether the Waste reservoir is full to avoid overflow of washing liquor during plate washing.

6.1 Main menu

Connect the power supply and turn on the power switch of instrument and then the following interface will be displayed on the LCD.



Afterwards, the instrument will initialize automatically, after initialization, the following interface will be displayed.



6.2 Adjustment operation

Before plate washing, adjust some parameters.

First, put the elisa plate to the microplate washer and then enter to the adjustment interface and press ">" to achieve reverse display of "Adjustment", at this time, press "OK" and enter to the interface below.

Home	:	183	
Dist	:	40	
Pour	:	300	
Back			Next

And press "Next" and enter to the interface below.

Low	:	177	
Cistern	:	170	
Overflow	:	132	
Back			End

Attention:

- 1) The number at this position is just for illustration and the actual value may be different, the same below.
- 2) After replacing the shower nozzle or different types of elisa plate, you have to enter to the adjustment menu at first and adjust each parameter.
- 3) After entering "adjustment" menu, at first, adjust "Home", and then conduct adjustment according to the sequence of "Dist", "low", "Pour", "Cistern" and "Overflow".
- 4) Before adjustment, to avoid damaging the shower nozzle, put the shower nozzle at first, adjust the initial position to proper position, then install the shower nozzle and conduct accurate adjustment.

● Initial position adjustment

In the "adjustment" menu, press "<" or ">" to achieve reverse display of number after "Home", press "OK" to choose the one, at this time, "End" at the lower right corner of screen will change to "adjustment", and the shower nozzle will move the tiny pore in the first row of elisa plate. Press "+" or "-" to change the value, change the relative position between the imbibition needle tubing of shower nozzle and the left wall of elisa plate tiny pore. After adjustment, press "OK" to stop the adjustment operation on initial position, and the "adjustment" at the lower right corner of screen will change to "completion" and the shower nozzle will return to the initial position.

Attention: to reduce residue volume, the imbibition needle tubing for elisa plate with flat bottom shall be close to the left side edge of reaction pore as much as possible (for U-shaped or V-shaped elisa plate, the imbibition needle tubing shall be align at the center of reaction pore as much as possible).

- Spacing adjustment: press "<" or ">" under the "adjustment" menu to achieve reverse display on the numbers after "Dist", press "OK" to

choose the number, In the middle of the bottom of the screen will appear "ADJ", and the shower nozzle will move to the first row of tiny pores on the elisa plate; press "+" or "-" to change the value and change the relative position between imbibition needle tubing and the right wall of tiny pores on elisa plate. After adjustment, press "OK" to stop adjustment operation on spacing, then Bottom of the screen in the middle position of "ADJ" will disappear and the shower nozzle will return to the initial position.

Attention: to reduce residual liquid volume, the elisa plate with flat bottom shall enable the imbibition needle tubing close to the edge at right side of reaction pore (U-shaped or V-shaped elisa plate shall make the spacing of 0) as much as possible.

- Low position adjustment:

Press "<" or ">" under the "adjustment" menu to achieve reverse display on the numbers after "low position", press "OK" to choose the number, then In the middle of the bottom of the screen will appear "ADJ", and the shower nozzle will move to the first row of tiny pores on the elisa plate; press "+" or "-" to change the value and change the lowest position of imbibition needle tubing of the shower nozzle during each falling. The best position refers to that the imbibition needle tubing just contacts the reaction pore bottom of elisa plate. After adjustment, press "OK" to stop adjustment operation on low position, then in the middle position of "ADJ" will disappear and the shower nozzle will return to the initial position.

- Injecting liquid volume adjustment:

The injecting liquid volume has been initially adjustment before the instruments are delivered from the factory, therefore, it shall not be adjusted in general. If the injecting liquid volume is not proper or there are special requirements on injecting liquid volume. Press "<" or ">" under the "adjustment" menu to conduct reverse display on the number after "water injection", press "OK" to choose the number and then the "completion" at the lower right corner of screen will change to "adjustment"; at this time, press "+" or "-" to change the value, and the volume of injecting liquid during each plate washing will be changed. After adjustment,

press "OK" to stop adjustment operation on injecting liquid volume and the "adjustment" at the lower right corner of screen will change to "completion".

- Pool position adjustment:

Press "<" or ">" under the "adjustment" menu to conduct reverse display on the number after "pool position", press "OK" to choose the number and then the "completion" at the lower right corner of screen will change to "adjustment"; at this time, press "+" or "-" to change the value, and the lowest position of imbibition needle tubing of shower nozzle. The best position refers to that the imbibition needle tubing is about 1 mm from the pool bottom. After adjustment, press "OK" to stop adjustment operation on pool position and the "adjustment" at the lower right corner of screen will change to "completion".

- Overflow prevention adjustment:

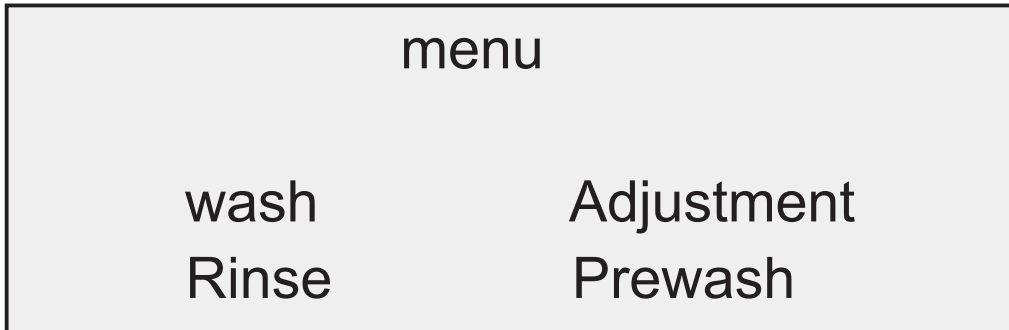
Press "<" or ">" under the "adjustment" menu to achieve reverse display on the numbers after "overflow prevention", press "OK" to choose the number, then the "completion" at the lower right corner of the screen changes to "adjustment", and the shower nozzle will move to top left of the first row of tiny pores on the elisa plate; at this time, press "+" or "-" to change the value and change the relative vertical position of imbibition needle tubing of the shower nozzle and the tiny pores of elisa plate. The best position refers to that the long needle tubing just exceeds the plane of elisa plate or is parallel with the plane. After adjustment, press "OK" to stop adjustment operation on overflow prevention, then the "adjustment" at the lower right corner of the screen will change to "completion".

Attention: to achieve full cleaning on the pores of elisa plate of instrument and prevent overflow of washing liquor, the overflow prevention position shall be set on the plane which is about 1-2 mm higher than the pores of elisa plate.

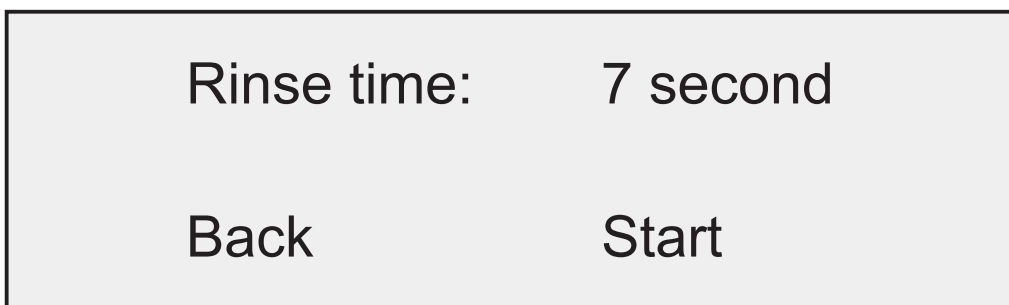
- If the options above have been completed, press "<" or ">" under the "adjustment" to conduct reverse display on "completion", and the press "OK" to return the main menu.

6.3 Rinse operation

Press "<" or ">" under the main menu to conduct reverse display on "Rinse".



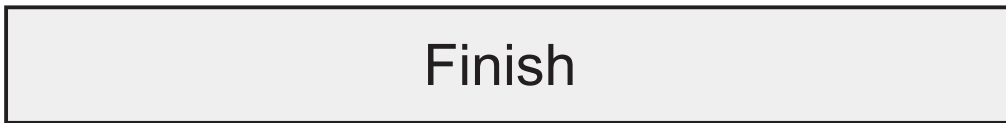
Press "OK" to enter the flushing interface, as shown in the figure below



Press "<" or ">" to enable reverse display of number "7" after rinse time, press "+" or "-" to change the washing time, which shall be set at will between 0 s and 600 s. After completion, press "<" or ">" to achieve reverse display of "washing"; at this time, if you press "Ok", the shower nozzle will move to the water channel of tray and fall to the pool position to conduct pipeline washing; if you want to achieve reverse display of "back", press "OK", then you will return to the main menu. During liquid path washing, the interface is shown as below:



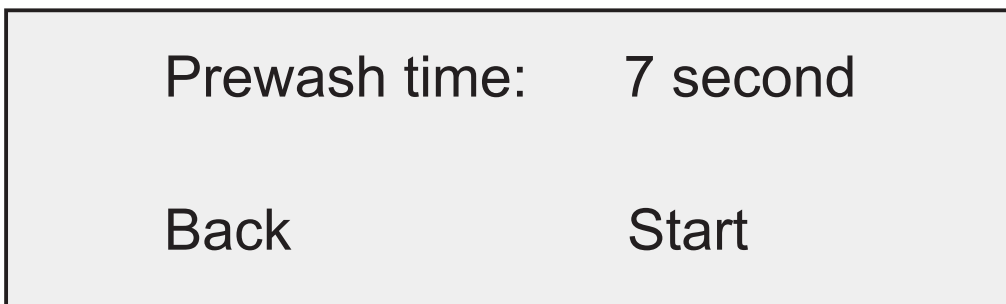
When the timing is completed, the pipeline flushing is also completed, then the interface will be displayed:



Afterwards, the shower nozzle will return to the initial position and the interface will return to the main menu.

6.4 Liquid exchange operation

Press "<" or ">" under the main menu to enable reverse display of "Prewash". Press "OK" to enter the following interface:



Press "<" or ">" to enable reverse display of number "7" after liquid prewash time, and press "+" or "-" to achieve reverse display "prewash", at this time, if you press "OK", the shower nozzle will move to the water channel of tray and fall to the pool position, then liquid exchange will be conducted; if you want to achieve reverse display of "back" and press "OK", you will return to the main menu. The interface during liquid exchange is shown as follows:



After waiting that the time is finished, the liquid exchange is completed, and the following interface will be displayed:

Finish

Afterwards, put the shower nozzle to the initial position and then the interface will return to main menu.

6.5 Plate washing operation

Press “>” or “>” under the main menu to achieve reverse display of “Wash”, and then press “OK” to enter the following interface:

No. 1 Strip:12
Repeat: 1 Times
Rinsing: 1 S
Back Next

- 1) Press “<” or “>” to achieve reverse display of number “1” after “program number”, press “+” or “-” to change program number, which can be set at will between 1 and 100. Each program number corresponds to the date of one set of microplate washer.
- 2) Press “<” or “>” to achieve reverse display of number “1” after “Wash”, press “+” or “-” to change the cycle index of microplate washer. The time can be set at will between 1 and 20 times.
- 3) Press “<” or “>” to achieve reverse display of number “2” in front of “Strip”, press “+” or “-” to change the row number of microplate washer. It can be set at will between row 1 and row 12.

- 4) Press “<” or “>” to achieve reverse display of number “1” after “rinse”, press “+” or “-” to change the rinsing time of microplate washing on the tiny pore bottom on the elisa plate. It can be set at will between 0 s and 60s.
- 5) Press “<” or “>” to achieve reverse display of “black, and the press “OK” to return to the main menu.
- 6) Press “<” or “>” to achieve reverse display of “Next” and press “OK” to enter the following interface:

Soak:	0 M	3 S
Shake:	3 S	
Wash Tips:	8	
Back		Wash

- 7) Press “<” or “>” to achieve reverse display of number “0” in front of “minute”; press “+” or “-” to change the minutes of soaking; similarly, press “+” or “-” to achieve reverse display of number “3” in front of “S”, and press “+” or “-” to change the seconds of soak.
- 8) Press “<” or “>” to achieve reverse display of number “3” after “plate vibration”; press “+” or “-” to change the plate vibration time of microplate washer on the elisa plate, which shall be set at will between 0 s and 60 s.
- 9) Press “+” or “-” to achieve reverse display of number “8” after “needle head”; press “+” or “-” to change “8” needles or “12” needles, and the corresponding setting shall be conducted according to the specific shower nozzle.

Attention: the exchanged parameters such as times of p plate washing, row number, soaking time, plate vibration time, rinsing time, needle head type will be stored under the current program number, which can be used for plate washing in the future. If the other parameters under the stored program number shall be reset, the original program parameters will be covered.

10) Press “<” or “>” to achieve reverse display of “back”, and press “OK” to return to the previous menu.

11) Press “<” or “>” to achieve reverse display of “plate washing” and press “OK” to enter the plate washing interface as follows:

No. 1			
Remain	:	1 R	2 S
Shake	:	3 S	
Soak	:	0 M	3 S

At this time, the instrument will operate in accordance with the programmed program automatically. The interface will display the detailed information of plate washing of this microplate washer in real time. After the completion of plate washing, the following interface will be displayed:

Finish	
Continue	Back

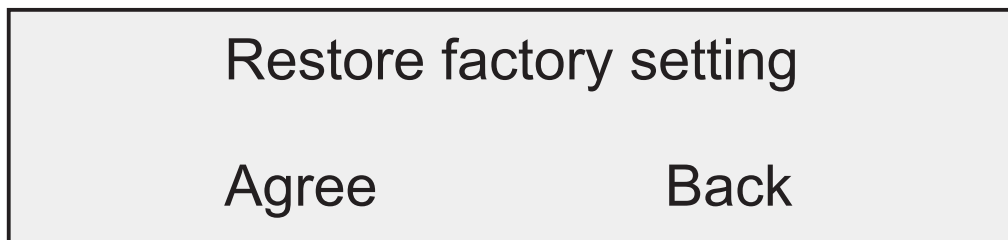
At this time, reverse display of “back” is achieved, if you press “OK”, you will return to the main menu. If you press “<” or “>” under this menu, you will achieve reverse display of “continue” and the instrument will repeat the plate washing operation of last time.

Caution: during plate washing, in case of emergency, such as overflow of washing liquor, the shower nozzle fails to enter to the tiny pores of elisa plate, please press “||” to pause operation of instrument, then press “<” to return to the main menu. Then enter to “adjustment” interface to set parameters of each items correctly.

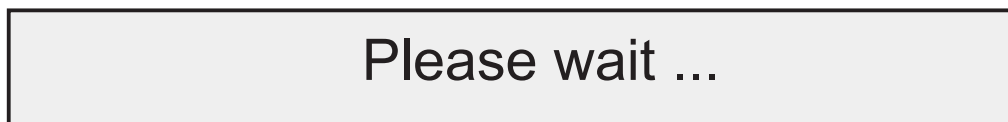
6.6 Restore factory settings

The instrument is provided with the function of restoring factory setting. Restoring factory setting will enable the plate washing program compiled by the users disappear; therefore, the users shall make the choice cautiously.

Press “+” and then press “-” in the main interface, the interface of restoring factory settings will be displaced.



At this time, reverse display of “Back” is achieved, if you press “OK”, you will return to the main menu; if you press “<” or “>” under main menu, you will achieve reverse display of “Agree”, and then press “OK”, the instrument will operate the program of restoring factory settings, and the following interface will be displaced:



After a few seconds, the instrument will complete restoring factory settings and the interface below will be displayed.



Afterwards, the instrument will return to the main interface automatically.

Attention: it will take about a few seconds to restore factory settings, during this period, avoid to stop the program forcibly in case that restoring factory setting fails.

7. Analysis and Troubleshooting of Common Faults

If you encounter faults during instrument operation, conduct troubleshooting according to the table below; if you still fail to solve the problems, please contact the after-sale service technician for repair.

Fault phenomenon	Reason analysis	Troubleshooting method	Attentions
There is no picture on the LCD after starting up the machine	The power supply is not connected	Check whether the power supply is connected and the fuse is required to be replaced	Cut off power supply when replacing the fuse
Display disorder of LCD	Electromagnetic interference	Cut off power supply and then start up the machine after one minute	

<p>There is no liquid during plate washing or flushing.</p>	<p>The wash reservoir is not connected with the rinse reservoir .</p>	<p>Connect the wash reservoir with the rinse reservoir and ensure there are washing liquor or distilled water in the bottle.</p>	
<p>The injecting liquid or imbibition of shower nozzle is not smooth.</p>	<p>Crystal inside the shower nozzle or pipeline or the silicone tube ages.</p>	<p>The shower nozzle can be unchoked by the matched syringe needle; in case of pipeline clogging, the shower nozzle shall be replaced; if the silicone tube ages, it shall be replaced.</p>	<p>After the shower nozzle is replaced, enter to the adjustment menu and readjust the position of shower nozzle.</p>
<p>The shower nozzle inclines</p>	<p>The retaining nut is loose or it bends after hitting.</p>	<p>Adjust the retaining nut of shower nozzle; if the needle of shower nozzle bends obviously, replace the shower nozzle.</p>	<p>After adjusting retaining nut or replacing the shower nozzle, enter to the adjustment menu to readjust the position of shower nozzle.</p>

Noise of instrument becomes louder.	The guide rail is lack of lubricating oil.	Smear appropriate jelly for medical purposes at the track position.	
The instrument stops operating abnormally.	Electromagnetic interference	Cut off power supply and then restart up the machine after one minute.	
The washing liquor overflows from the elisa plate during plate washing.	The overflow prevention position is set improperly.	Enter to the adjustment interface, set the overflow prevention position to be above 1-2 mm higher than the surface of elisa plate pore.	
During plate washing, the shower nozzle fails to enter to the tiny pores of elisa plate correctly.	The parameters of initial position and spacing are set improperly.	Enter to the adjustment interface to set the parameters of initial position and spacing.	

8. Care and Maintenance

Although the instrument operates stably and reliably, and there is no special requirement on the environment, however, if you master a certain method of care and maintenance, you will avoid some faults and extend the service life of instrument.

- 1) Avoid direct sunlight and be far from heat source;
- 2) Avoid starting up and shutdown frequently. Wait for 15 seconds to restart up the instrument after shutdown;
- 3) Strictly prevent hit to the shower nozzle of microplate washer from any direction;
- 4) Strictly prevent spraying liquid to the inside of microplate washing, which cause internal rust and short circuit, resulting in danger;
- 5) Enter to the adjustment menu to adjust the shower nozzle before plate washing to prevent fault adjustment parameters and damage to elisa plate and shower nozzle of microplate washer.
- 6) After plate washing, conduct flushing operation on the pipeline to avoid long time retain of washing liquor in the liquid path, which will cause blocking on shower nozzle, thus resulting in irreparable damage on shower nozzle;
- 7) Wipe off the microplate washer with wet cloth each time after operation to keep the instrument clean;
- 8) If the instrument is not used for long time, package it well and store it in a well-ventilated room with the temperature of -20°C and 55°C , the relative humidity no less than 93%, and without corrosive gas;
- 9) During transportation of instrument, prevent strenuous vibration, inversion, overturn and rain.

9. Packing List

Name	Quantity
1) Host machine	1
2) User's manual	1
3) Accessories	
• Power cord	1
• Reservoir	3
• Silicone tube:	4
• Dust cover:	1
• Shower nozzle	
8-needle	1
12-needle	1
• Fuse $\phi 5 \times 20$ T2AL250V	2

10. Product Contraindication

The product is temporarily not found contraindications.

11. Commitment

Under the condition that the users comply with various of specifications in the Operating manual, within one year since the date of good delivery, the manufacturer shall repair or replace this product for users for free if the instrument fails to operate normally due to quality. If the fault and instrument damage are caused because the users fail to comply with the specification in the Operating manual or dismantle the instrument by themselves, the manufacture will charge for repair cost of production. After one year, the users shall pay for the long-life maintenance service of this instrument provided by the manufacturer.

12. Contact Us

Company name:

Life Technologies (India) Pvt. Ltd.

Mailing address:

306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi - 110034.

