

# Operation Manual

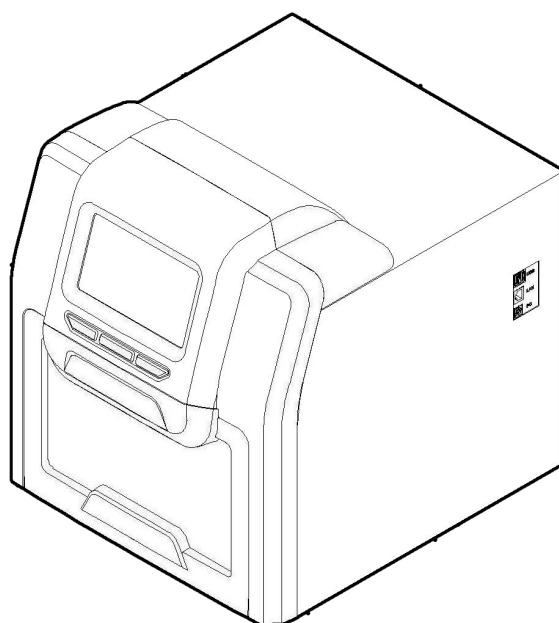
**Auto-Pure 20A**

**Auto-Pure 20B**

**Auto-Pure 32A**

## Auto-Pure Series

## Nucleic Acid Purification System



**ALLSHENG**

Hangzhou Allsheng Instruments Co., Ltd.

**Thank you for purchasing Auto-Pure series Nucleic Acid Purification System.**

**In order to use the instrument properly, please read carefully this manual before operating and keep it for future reference.**

## **Opening Check**

**Please check the instrument and Appendix with the packing list when you first open the package. If you find anything missing or incorrect, please contact the distributor.**

**HANGZHOU ALLSHENG INSTRUMENTS CO., LTD.**

**Address: Building 1&2, Zheheng Science Park, Zhuantang Town, Xihu  
District, Hangzhou, Zhejiang 310024, China**

**Telephone: +86-571-88802738, 88948289**

**Fax: +86-571-87205673**

**Post code: 310024**

**Website: [www.allsheng.com](http://www.allsheng.com)**

**Email: [info@allsheng.com](mailto:info@allsheng.com)**

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# Safety Warnings and Guidelines

## 1 Warning

Please read this Manual carefully before operation.



Operation without reading the manual may cause damage or even electrical shock.

## 2 Safety Tips

The operation, maintenance and repair of the Instrument should comply with the basic guidelines and cautions as below. Improper use of the instrument may cause damage to the system, inaccurate results, or potentially nullify warranties.



Indoor use only



Read the Manual carefully before operation, only qualified and trained staff can operate this Instrument.



The operator should not open or repair the Instrument without Vendor's authorization, if not, there might be cause potential damages or injuries and affect the warranty.



Before connecting to power, make sure the voltage used is same as the instrument required, and the maximum rated load should be sufficient for the instrument.

Please replace the power cord with same specs if the power cord is damaged. Please make sure there's nothing covered the power cord and keep it away from crowds when in use.

When plug in and plug out, make sure to hold the plug firmly and not to pull with power cord only.



During operation, the surface temperature of heating block inside operation window could be very high. To avoid possible scald or boiling of the liquid, do not touch the metal part when operating.



The Instrument should be placed in a position with low humidity, less dust, and keep it away from water, sunshine and strong light source. Make sure of adequate ventilation, no corrosive gases, no strong magnetic interference and to avoid any heat sources.

When operating more than one Instrument simultaneously, the spacing distance should be no less than 100 cm.



Power off the instrument after operation and please disconnect the plug if long time no use of the instrument and cover it with something to prevent from dust.



Under the following circumstances, please disconnect the power immediately and contact with your distributor.

- Liquids into the Instrument;
- Drenched by rain or water
- Abnormal operation especially like abnormal sound or smell
- Instrument fell or outer shell damaged.
- Malfunction

### **3 The maintenance of Instrument**

The inner side of drawer should be cleaned periodically by the cloth with alcohol. If there are any stains on the Instrument, clean them with cleansing cream.

### **4 The limiting condition of transportation and storage environment**

Ambient temperature range: 10℃~35℃

Relative humidity : ≤70%

Atmosphere range: 500~1060hpa

No corrosive gas and a well-ventilated room.

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## Chapter 1 Brief Introduction

Auto-Pure series Nucleic Acid Purification System use the magnetic rod to adsorb, transfer and release magnetic particles to transfer the operating sample and in this way to purify DNA/RNA, protein and cell etc. The Purification system able to handle 1-20 or 1-32 samples simultaneously with special reagent kit or 96 well reaction plate, and when using the different reagent, would be able to extract DNA/RNA from animal or plant tissue, blood and body fluid etc.

### Features

- Friendly interface with easy operation
- Touch screen with 3 shortcut key or mouse operation
- Heating function in Lyse and elution
- UV sterilization
- Quiet operation without vibration
- One stop operation to avoid contamination
- Rapid extraction:15~40 minutes / time
- Premium magnetic particles leads to high yield
- Extendable Ethernet remote control and WiFi
- APP software for mobile phone and PAD w/android system

## Chapter 2 Specification

### 1. Normal operating conditions

Environmental Temperature: 10°C~35°C

Relative Humidity ≤70%

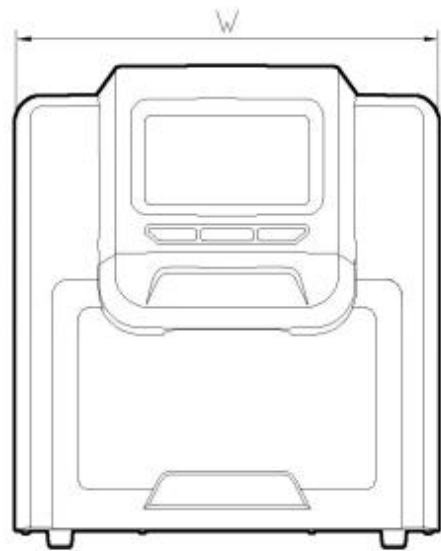
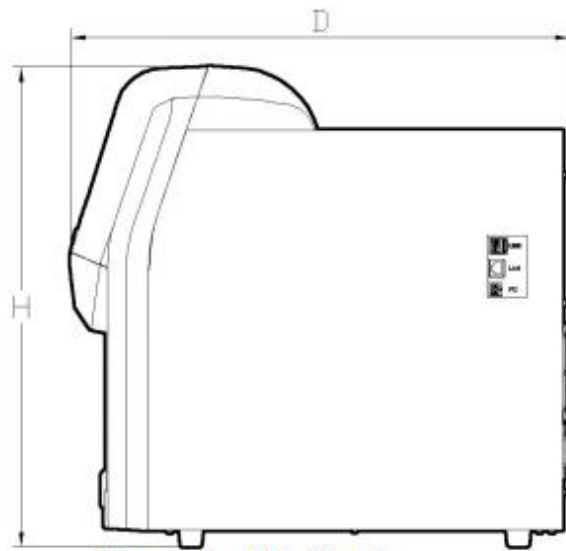
Input: AC 100~240V, 50Hz/60Hz

### 2. Basic parameter & Performance

Model Parameter	Auto-Pure 20A	Auto-Pure 20B	Auto-Pure 32A
Principle	Magnetic Particle Method		Magnetic Particle Method
Throughput	1~20		1~32
Sample Volume	20μL~2000μL	20μL~5000μL	20μL~1000μL
Magnetic rod number	20		32
CV	CV<5%		CV<5%
Heating Temp.	Room Temperature -- 120°C		Room Temperature --120°C
Temp. accuracy	±1°C		±1°C
Operating Surface	7" Touch screen w/3 shortcut key and mouse		7" Touch screen w/3 shortcut key and mouse
Program Capacity	Pre-installed 8 program and able to store max. 100 program		Pre-installed 8 program and able to store max. 100 program
Program Management	New, edit, save as, delete, model program		Create, edit, save as, delete, model program
Extendable terminal	USB and ethernet port		USB and ethernet port
Network	Extendable ethernet remote control and Wireless Wifi		Extendable ethernet remote control and Wireless Wifi
Sterilization	UV sterilization		UV sterilization
Venting	Fan		Fan
Data Storage	Store with SD card		Store with SD card
Max. Input wattage	450W		450W
Dimension (W×D×H)	400mm×520mm×450mm		400mm×470mm×450mm
Weight (kg)	30		28

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### 3. Overall Dimension



Dimension(W×D×H)

Auto-Pure 20A:400mm×520mm×450mm

Auto-Pure 20B:400mm×520mm×450mm

Auto-Pure 32A:400mm×470mm×450mm



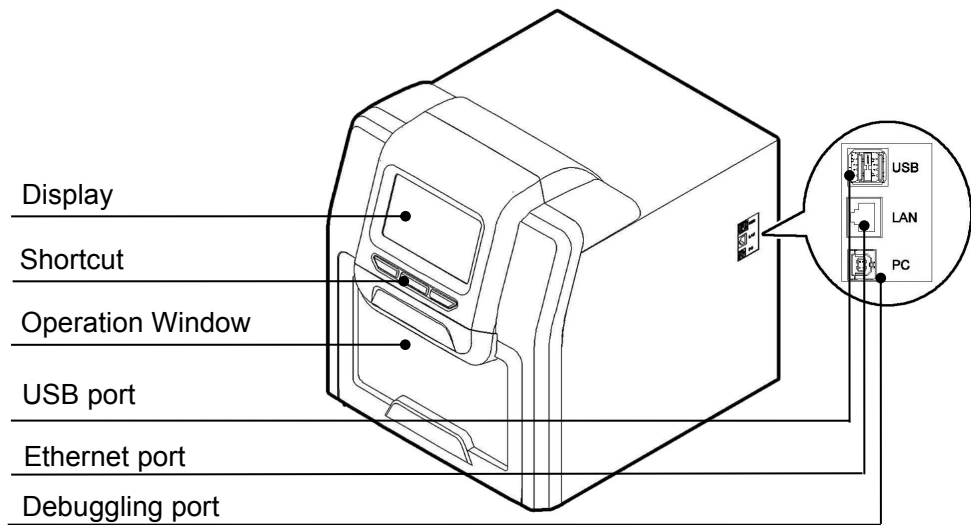
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## Chapter 3 Product Introduction

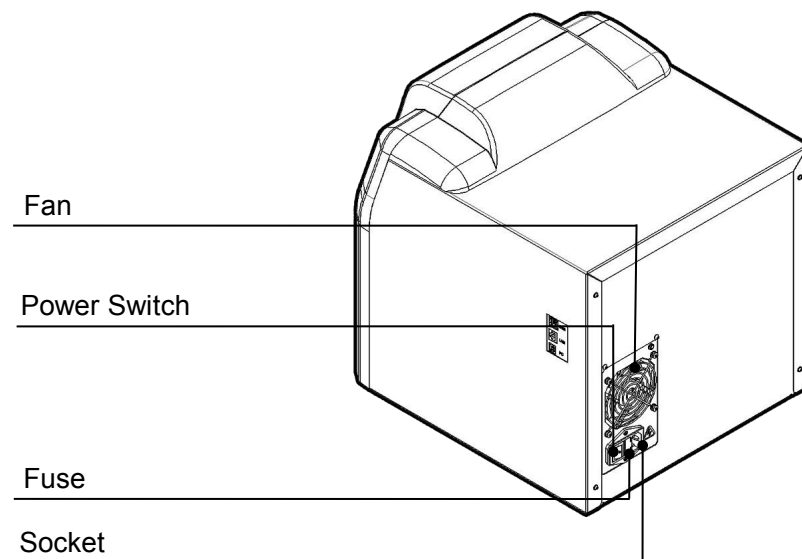
This chapter basically introduce the instrument structure, operation buttons, display panel as well as the preparations before operate. For the first time user, please make sure to read this chapter before start.

### 1. Structure

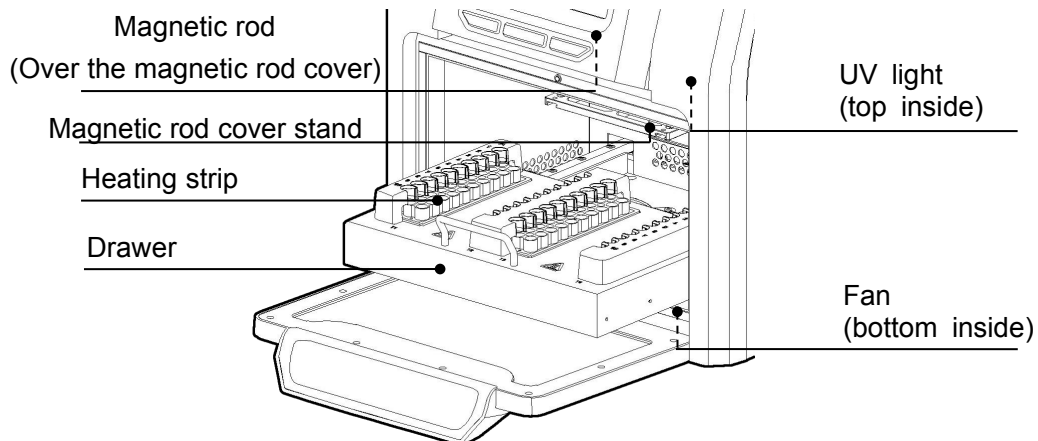
#### 1.1. Front



#### 1.2. Back

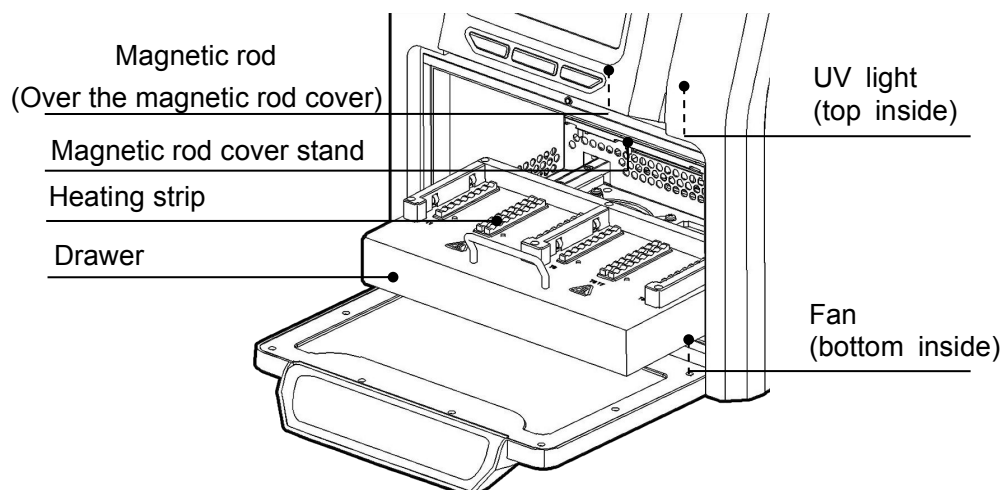


### 1.3. Auto-Pure 20A & Auto-Pure 20B Inside view

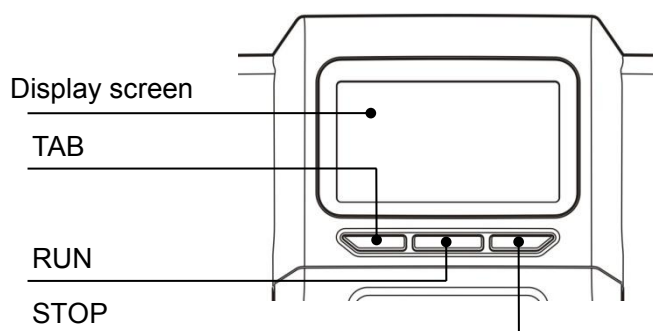


**Note:** The only difference between the experiment module of Auto-Pure 20A and Auto-Pure 20B is the shape of the heating strip.

### 1.4. Auto-Pure 32A Inside view



## 2. Operation panel



**Display screen:** Operate by touch screen or mouse which connect with USB port

**TAB:** Select for the shortcut program

**RUN:** Run for the shortcut program

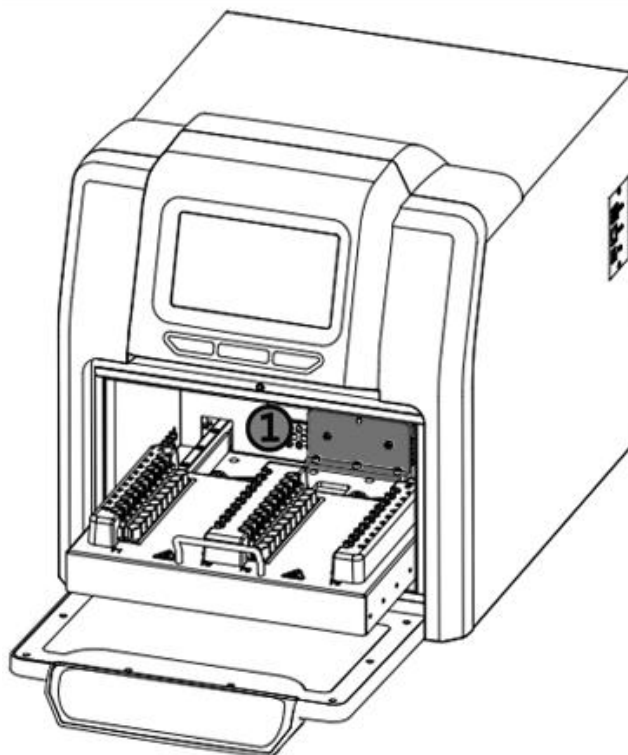
**STOP:** Stop operating

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## Chapter 4 Operation

### 1. Preparation

Take out the instrument from packing carton and tear off the tape on the edge of operation window, then open it and take out the foam. Screw out the screw of position ① as below and take out the baffle and release the drawer.



**Note:** Be careful in operating or the magnetic rod will be broken.

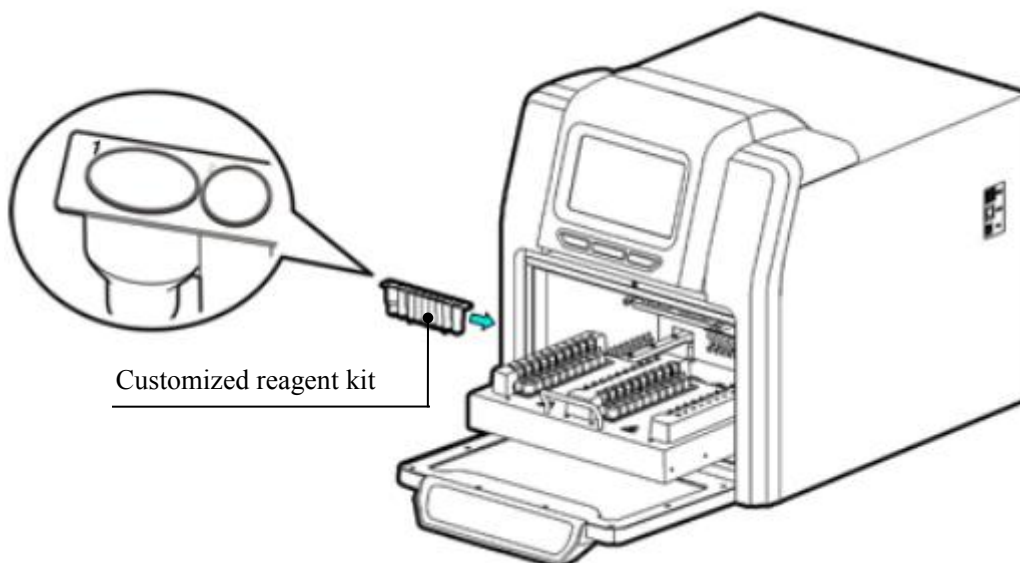
### 2. Connect the power

Connect one end of power cord to the instrument socket and the other to power (AC200~240V), then turn on the power switch.

### 3. Install the reagent kit

#### 3.1 Install the customized reagent kit for Auto-Pure 20A & Auto-Pure 20B.

Open the drawer and mount the customized reagent kit on the heating strip, make sure the sample well marked with 1 should be on the left side, then push back the drawer slowly.

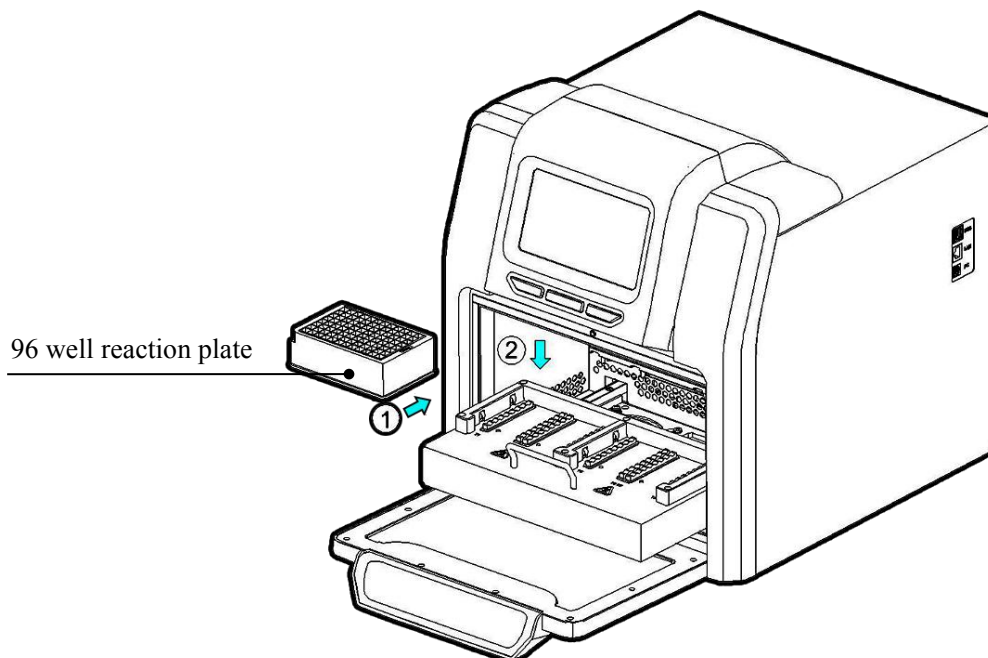


Customized reagent kit

**Note:** The shape of customized reagent kit of Auto-Pure 20B is different from Auto-Pure 20A, while the installation is the same.

### 3.2 Install the 96 well reaction plate on Auto-Pure 32A.

Take out the drawer and put the 96 well reaction plate which already filled with samples mounted on the locating slot, make sure the plate with chamfering should be on the left side, then push back the drawer slowly.



96 well reaction plate

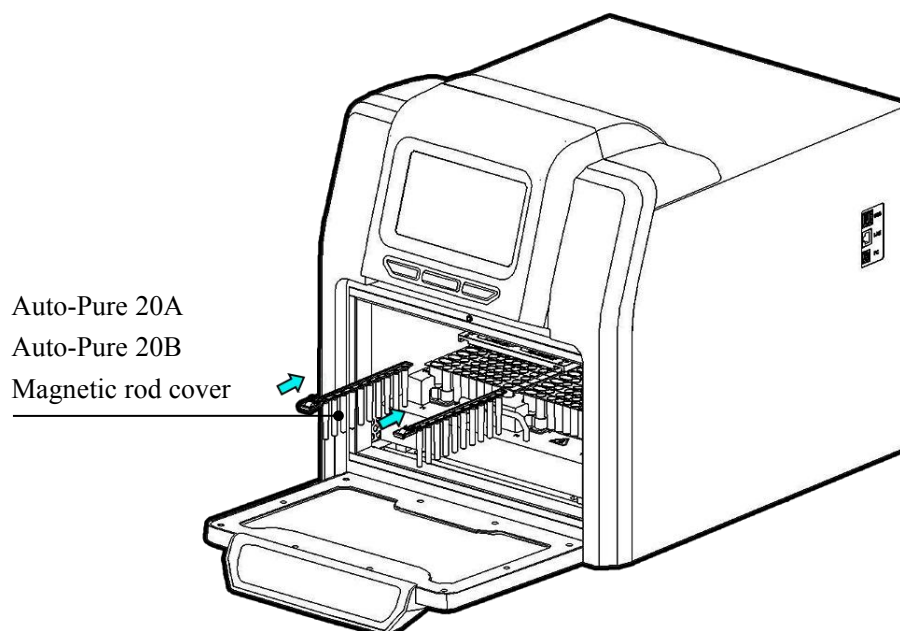
## 4. Install the magnetic rod cover

### 4.1 Install the magnetic rod cover for Auto-Pure 20A & Auto-Pure 20B

Insert the magnetic rod cover completely on the mounting groove, and the installation

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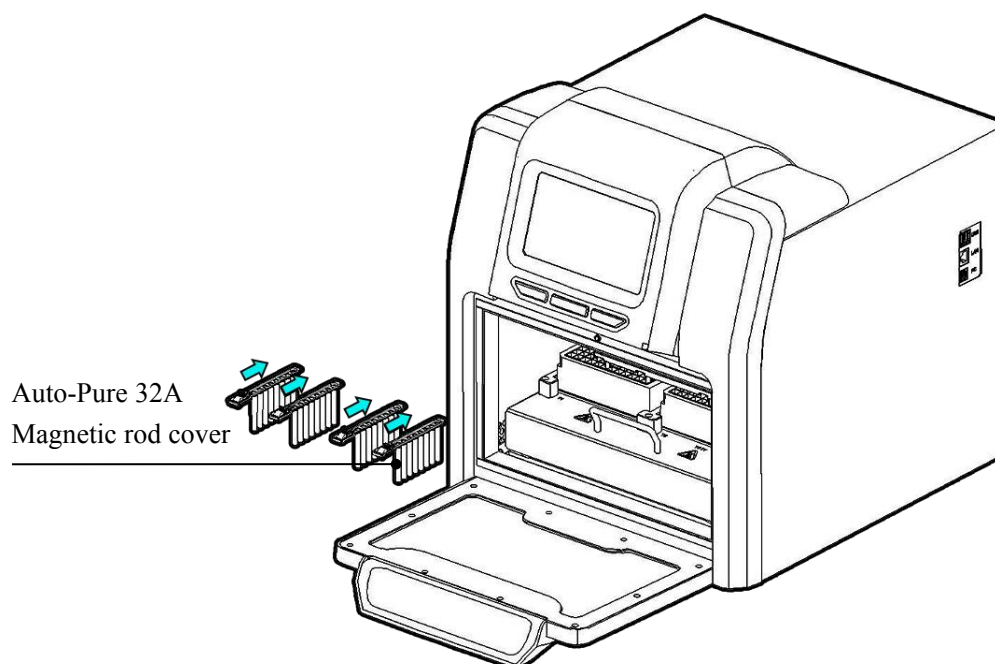
quantity depends on the reagent kit number.



**Note: The installation of magnetic rod cover between Auto-Pure 20A and Auto-Pure 20B is the same.**

#### 4.2 Install the magnetic rod cover for Auto-Pure 32A

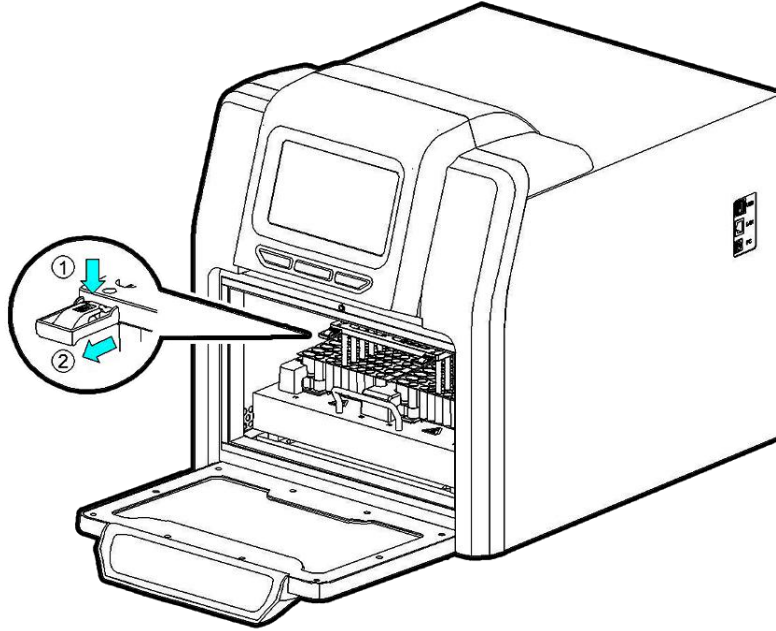
Insert the magnetic rod cover completely on the mounting groove, and the installation quantity depends on the reagent kit number.



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## 5. Remove magnetic rod cover

Press the button and take out the magnetic rod cover as per below photo.



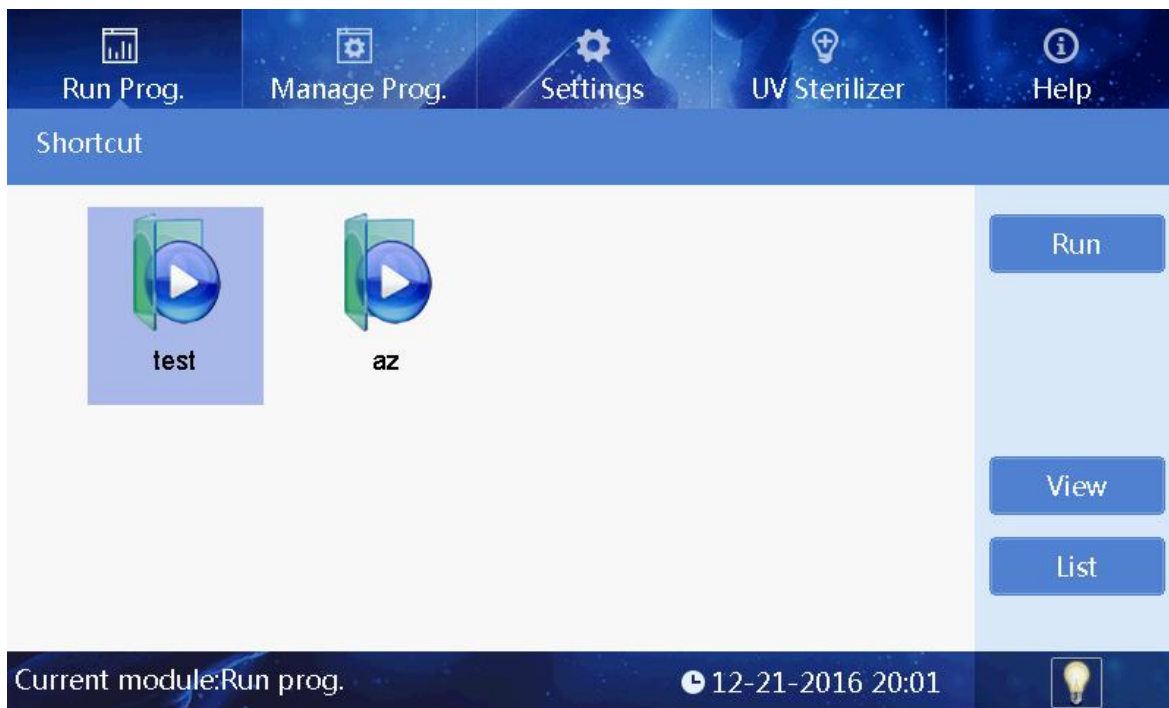
## 6. Operation

### 6.1 Start-up Interface

Turn on the instrument and make sure the drawer is closed before start, the screen will display the start-up interface.



After start, it will enter into the shortcut mode as below:



### 6.2 Program Run

#### 6.2.1 Shortcut mode

Under the shortcut mode, select the program needed and click “Run”, it will enter into the program run interface.

The program can also be selected by press “Tab” button on the panel and then press “Run” for start or “Stop” for terminate.

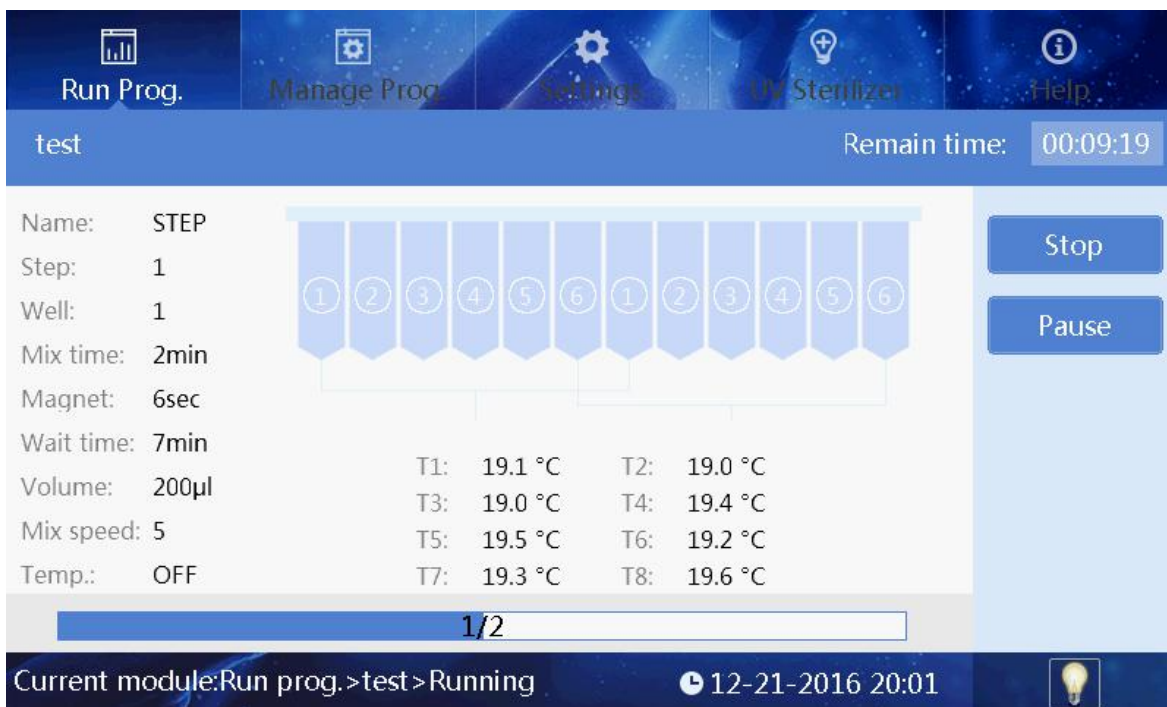


Auto-Pure 20A Run interface



Auto-Pure 20B Run interface





Auto-Pure 32A Running interface

On the left side, it shows the current step info., when the exact reagent position start to run, then this position will be highlighted, and there will be temperature display on the position of heating function. The progress bar will display the progress and there's also left time display on the top right corner.

Click "Pause" to pause or continue the program.

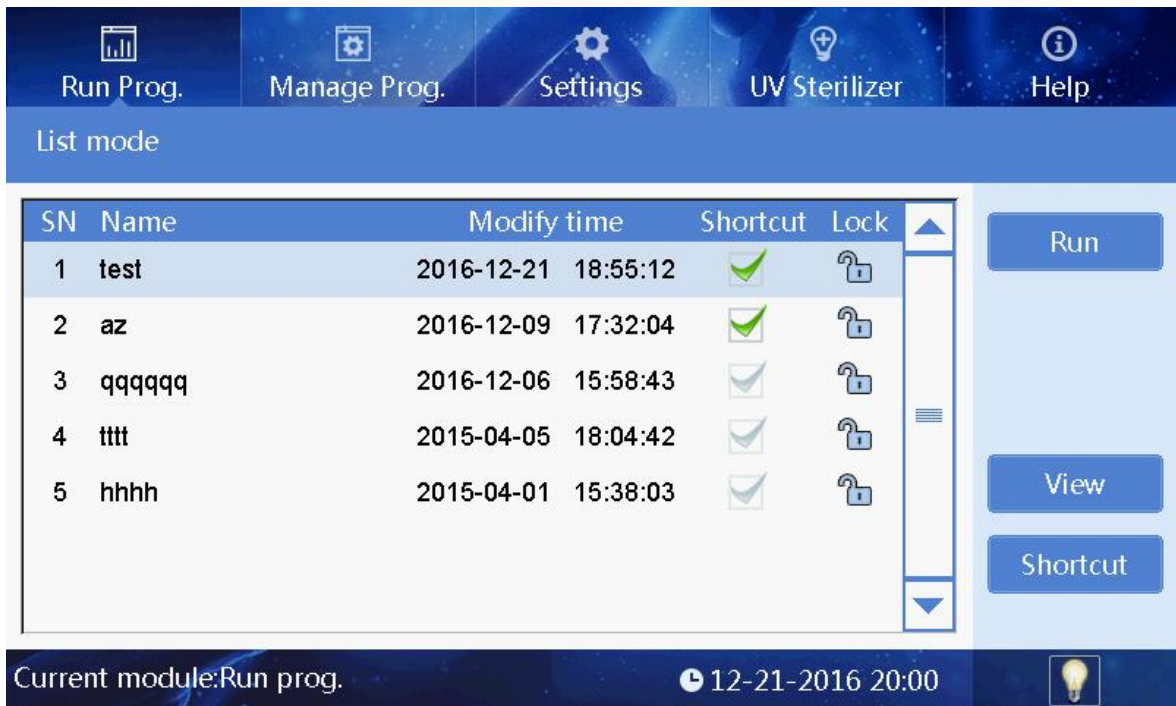
Click "Stop", the program will stop and there will be check box. Click "Cancel", program will be continue and click "OK" the program run will be back to original place and the "Stop" button will change to "Run Again". Click "Run Again" to continue the program.

Click "Back" to return the previous menu.

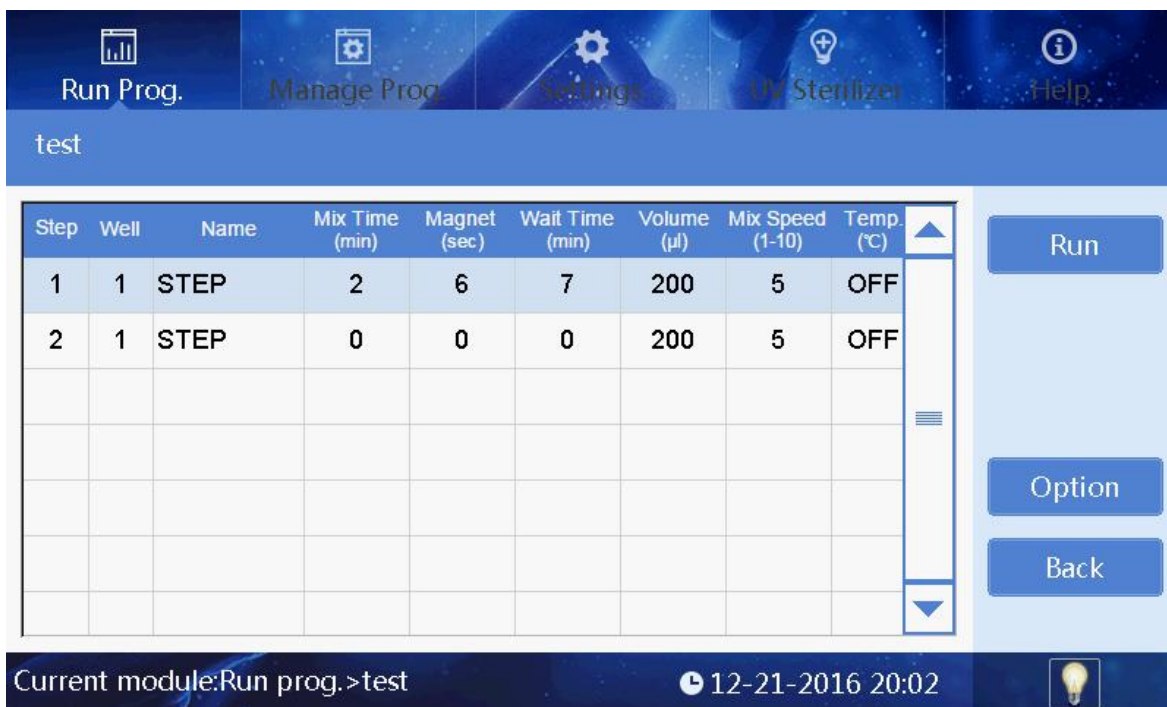
**Remark: If the drawer is open during operation, there will be below message box and the device will stop to run, and the instrument will continue to run only after the drawer is closed.**



### 6.2.2 List mode





Select the program and click "Run" to enter into the run interface.  
Click "View" to enter into the check interface.



- Click “Run” to enter the running interface.
- Click “Option” to view the parameter setting of the program.
- Click “Back” to previous interface.

### 6.2.3 Lamp

At the bottom of interface, the icon “” shows that the lamp is on, and the icon “” shows that the lamp is off. Click this icon to change the state of the lamp.

### 6.3 Program Management

Click “Manage prog” into the surface of program management

Run Prog. Manage Prog. Settings UV Sterilizer Help

Manage Prog.



SN	Name	Modify time	Shortcut	Lock
1	test	2016-12-21 18:55:12	✓	🔒
2	az	2016-12-09 17:32:04	✓	🔒
3	qqqqqq	2016-12-06 15:58:43	✓	🔒
4	tttt	2015-04-05 18:04:42	✓	🔒
5	hhhh	2015-04-01 15:38:03	✓	🔒

New Edit Save as Delete

Current module:Manage prog. 12-21-2016 20:02

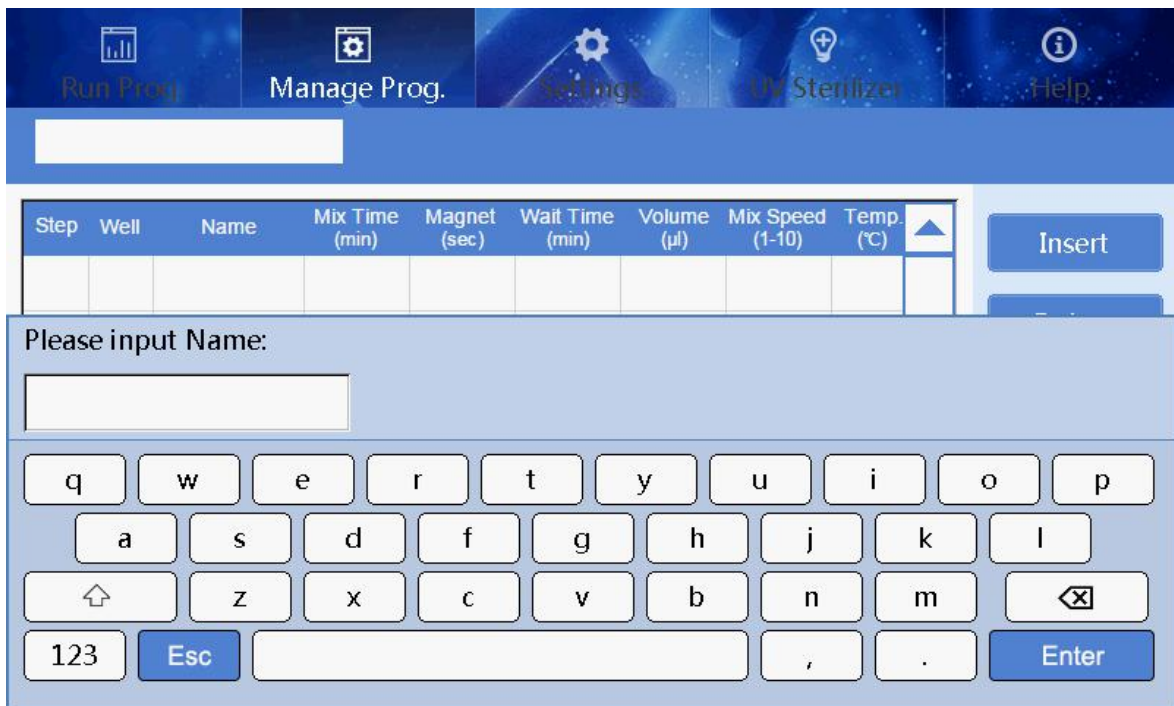
### 6.3.1 Shortcut operation

Click “√” of the program in the “Manage Prog.” interface, the program will be displayed in the “Shortcut” list interface.

In the list of “Lock”, if the icon is “”, the program can not be edited, deleted and saved as; if the icon is “”, the program can be edited, deleted and saved as.

### 6.3.2 Program Management--Insert

Click “Insert” under the “Manage prog.” to enter into the “Insert” surface.



When new program, you should input the name of program in the first place.

Step	Well	Name	Mix Time (min)	Magnet (sec)	Wait Time (min)	Volume (µl)	Mix Speed (1-10)	Temp. (°C)
1	1	STEP	0	0	0	200	5	OFF
2	1	STEP	0	0	0	200	5	0

Click “Insert” to add a new step.

Click “Well” to fix the well number, then input the program name, waiting time, mixing time, magnetic time and sample volume. At the end, please click the mixing speed to select the speed.

For Auto-Pure 20A, only well location 1, 2 & 9 have heating function.

For Auto-Pure 20B, only well location 1 & 7 have heating function.

For Auto-Pure 32, only well location 1,6, 7 & 12 have heating function.

When selecting other well location than the above, there won't be display any “temperature”.

There will be “temperature” display on the above well location and the temperature is able to set according to requirements, if input with “Zero”, it means no heating required.



Click “>>” to enter the extended parameter setting interface, it isn’t necessary to set in normally use, or you can reset if have special requirement. Click “<<” back to the parameter setting interface.

Click “Delete” and then click “OK” to delete the last step; or click “Cancel” not to delete the last step.

Click “Save” and then click “OK” to save the editing program; or click “Cancel” not to save the editing program.

Click “Back”, if the new program has saved, then it will be back to “Management prog.” interface. If not, Click “Yes” to save and back to “Management prog.” interface.

Click “Cancel”, it will be back to “Management prog” interface and without save.

Click “Cancel”, it will stay in the “Insert” surface.

### 6.3.3 Program Management--Edit

Choose the program in the “Manage prog.” interface, then click “Edit” enter into edit program.

Same step as “Insert” in 6.3.2

### 6.3.4 Program Management-Save as

Under the “Manage prog.” interface to make selection, Click “Save as” and then input a new program name, click “Enter” to save the current programe, or “ESC” to not save.

### 6.3.5 Program Management-Delete

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Under the “Manage prog.” interface to make selection, Click “Delete” and then click “Ok” to confirm the delete, or “Cancel” to not delete.

## 6.4 System Setting

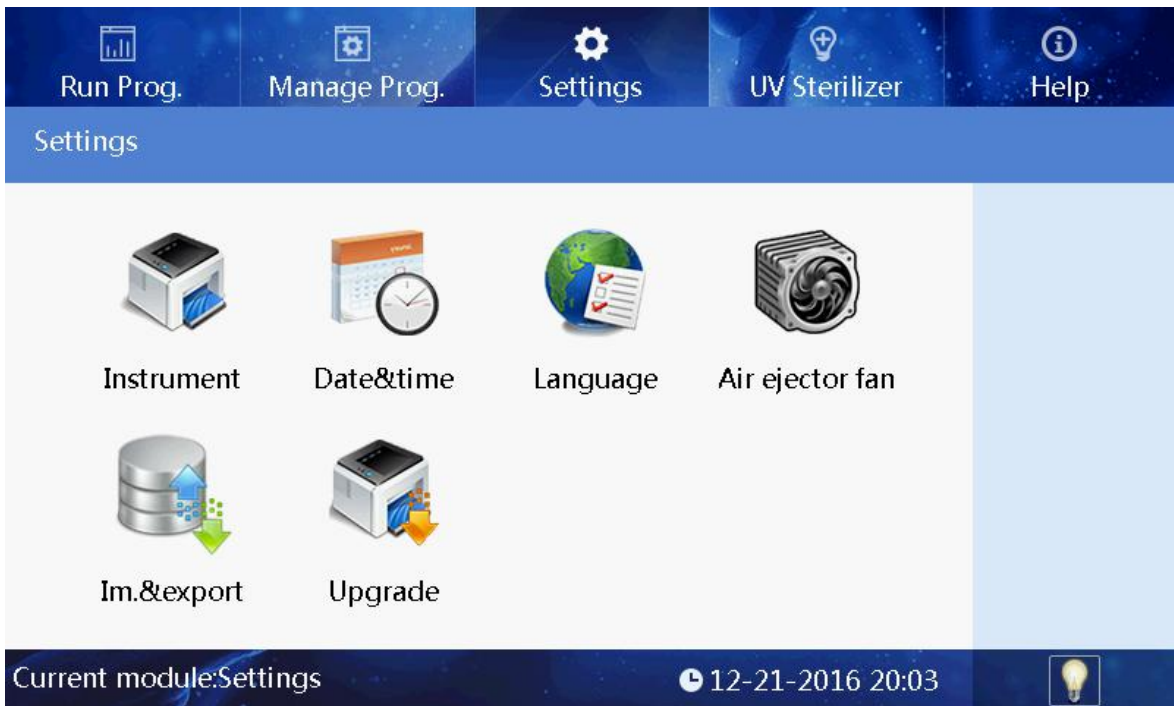
Click “Settings” and enter into the System Setting surface



### 6.4.1 System Setting-Instrument Setting

Click “Instrument” to input the right password and then enter the setting interface to set the parameter of instrument.

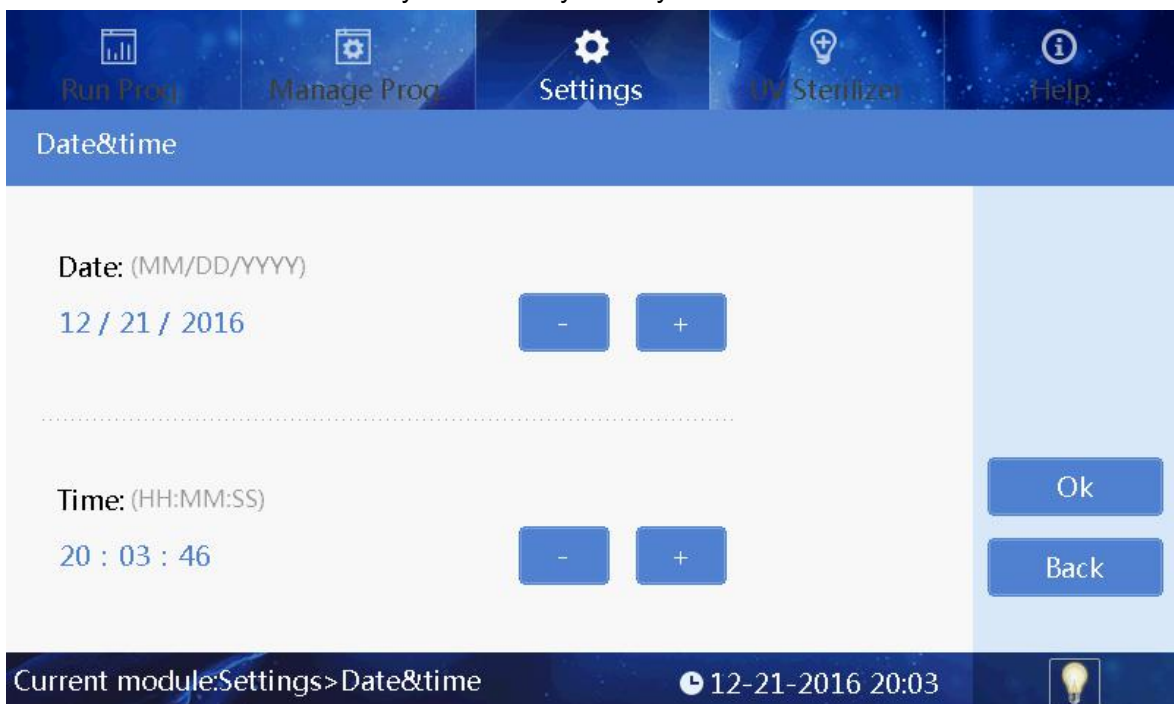




**Remarks :** Regularly, there's no need to set unless it's failed and need repair, as instrument has already finished setting before factory dispatch, and even if it's failed, this kind setting will be authorized by distributor or manufacturer.

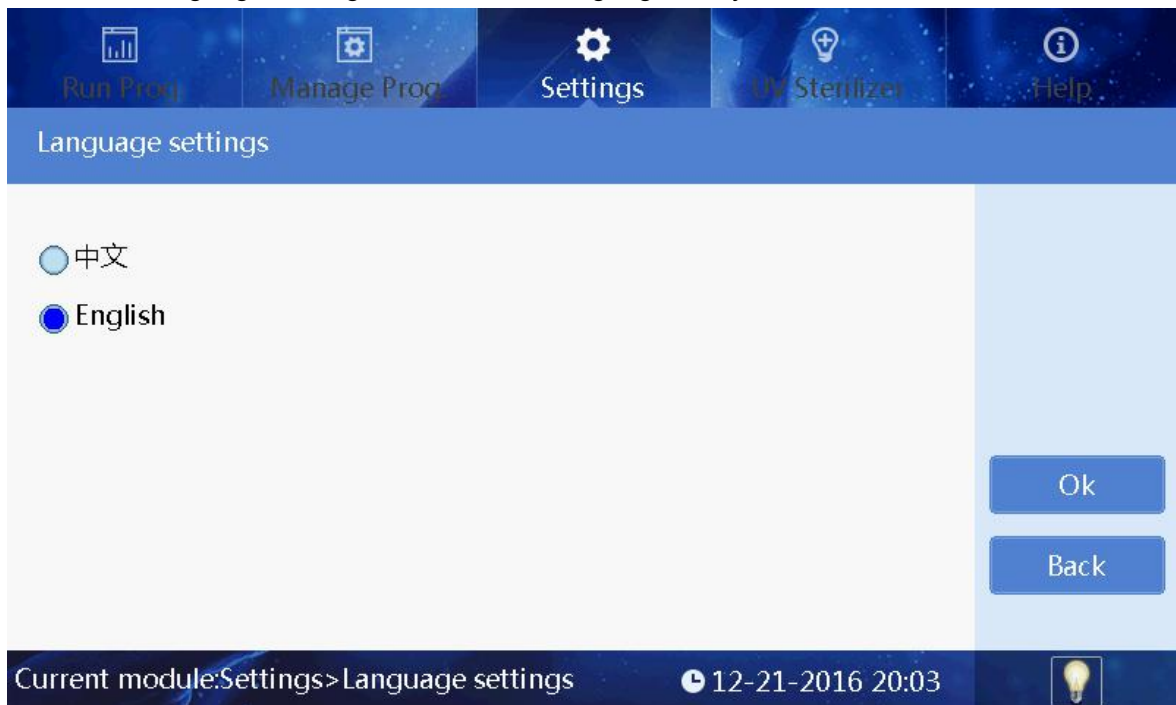
#### 6.4.2 System Setting -- System Time

Click "Date & Time" to set system time by directly enter into number or click "+" "-".



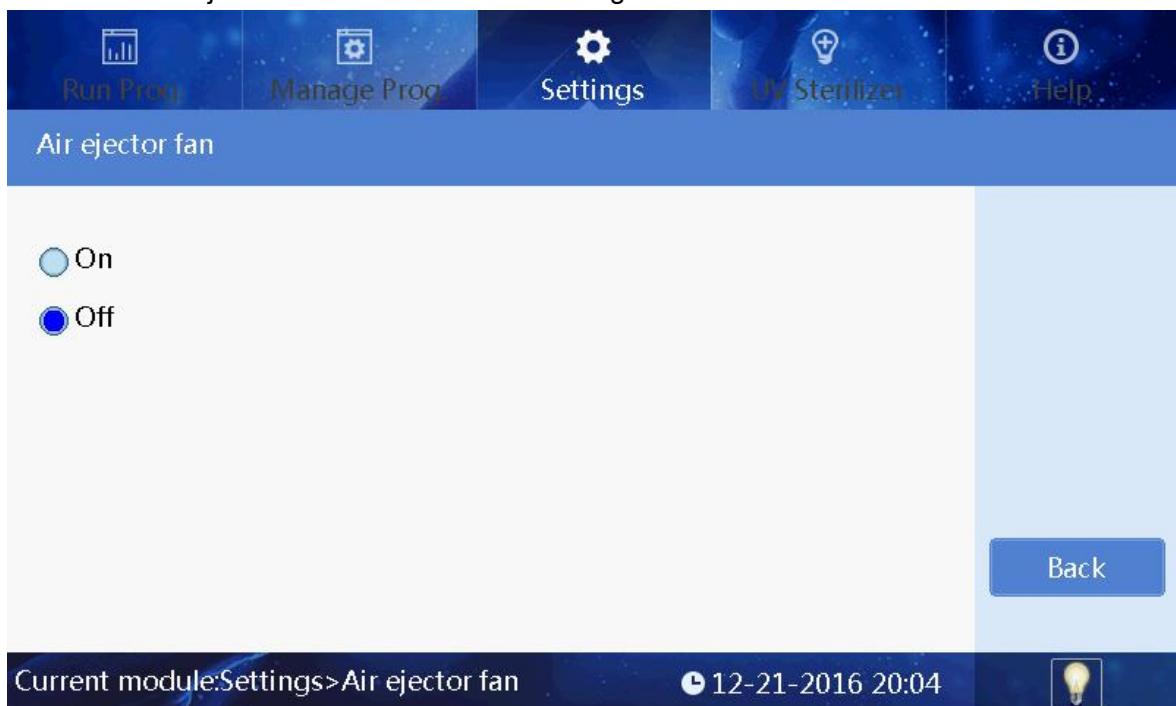
### 6.4.3 System Setting--Language

Click “Language Setting” to choose the language that you need.



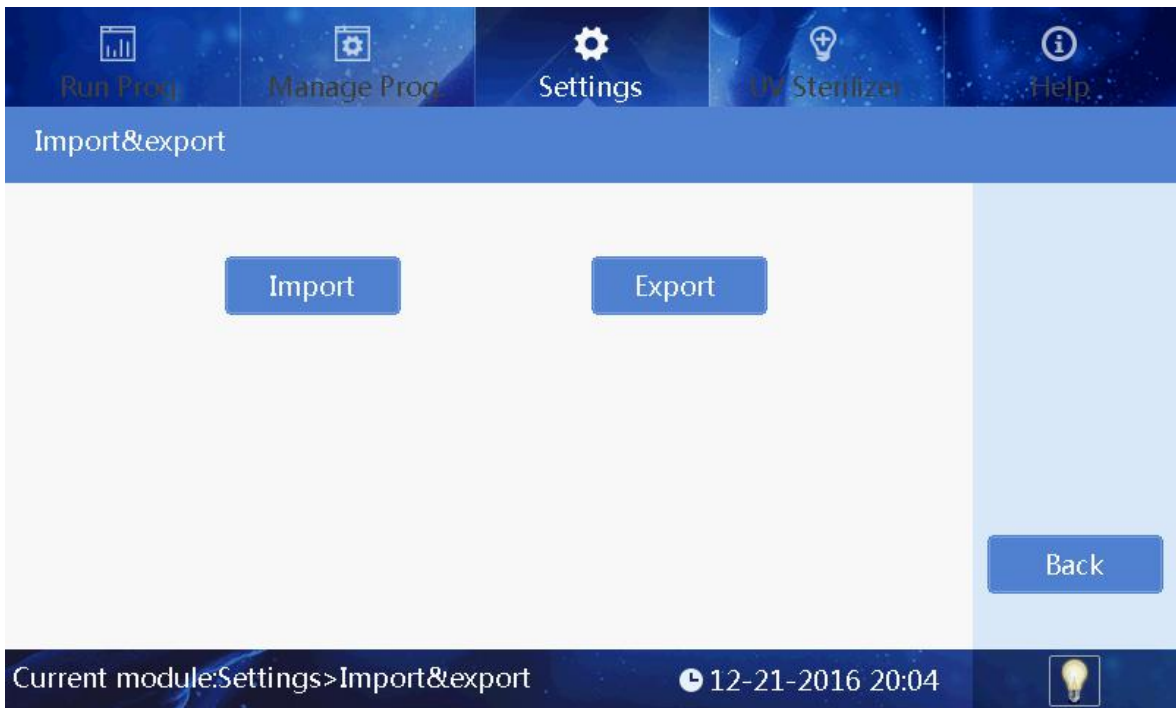
### 6.4.4 System Setting -- Fan

Click “ Air Ejector Fan” to have the fan setting



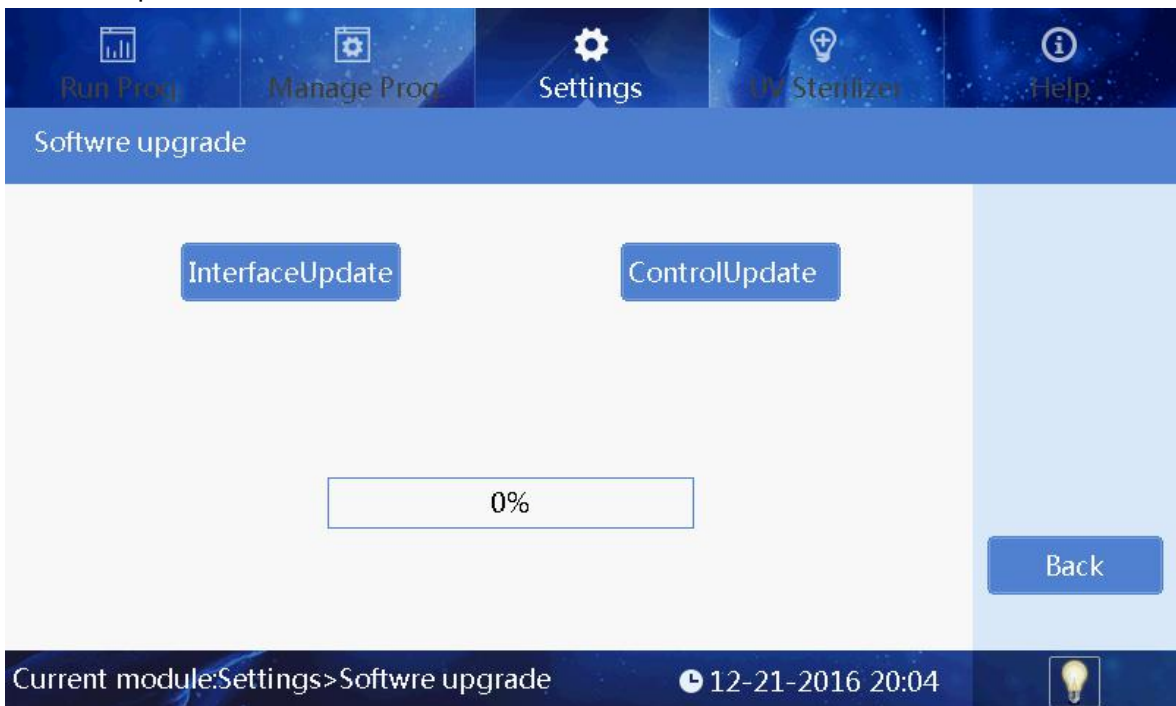
### 6.4.5 System Setting -- Import/Export

Click “Import/Export” and insert U disk to finish the step.



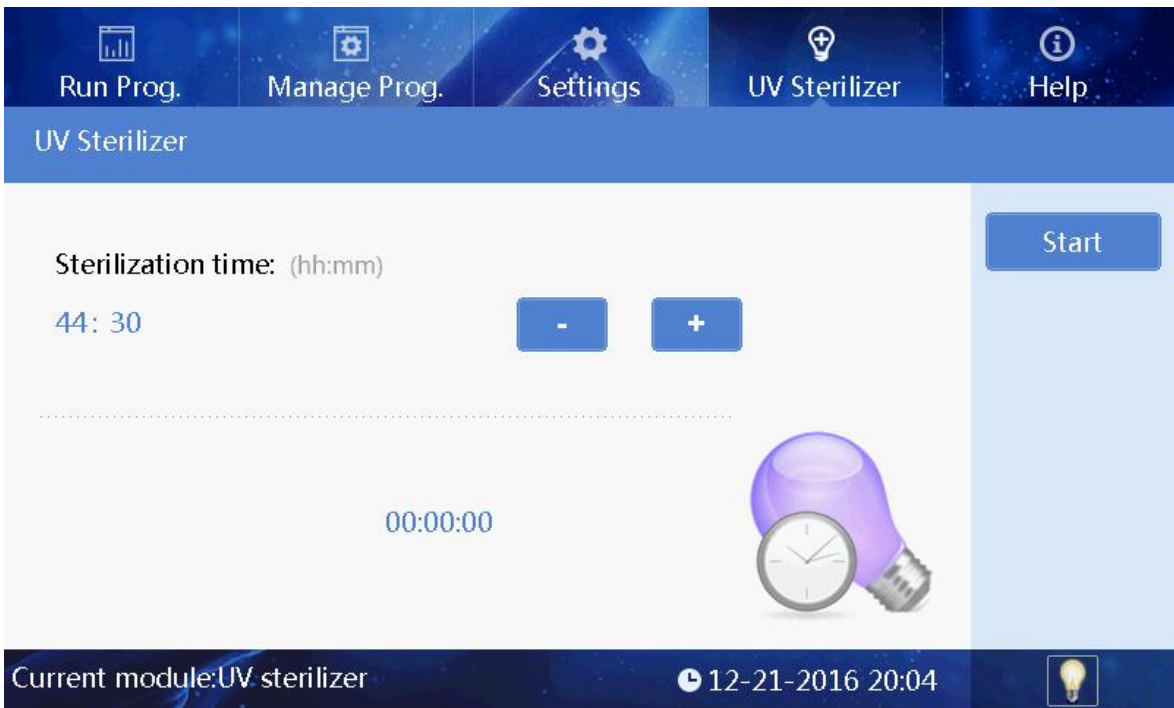
#### 6.4.6 System Setting--Software upgrade

Click “Software upgrade” to input the right password enter the interface and then insert the U disk to operation.



#### 6.5 UV sterilization

Click “UV sterilization” and input number or click “+” “-”to set time.

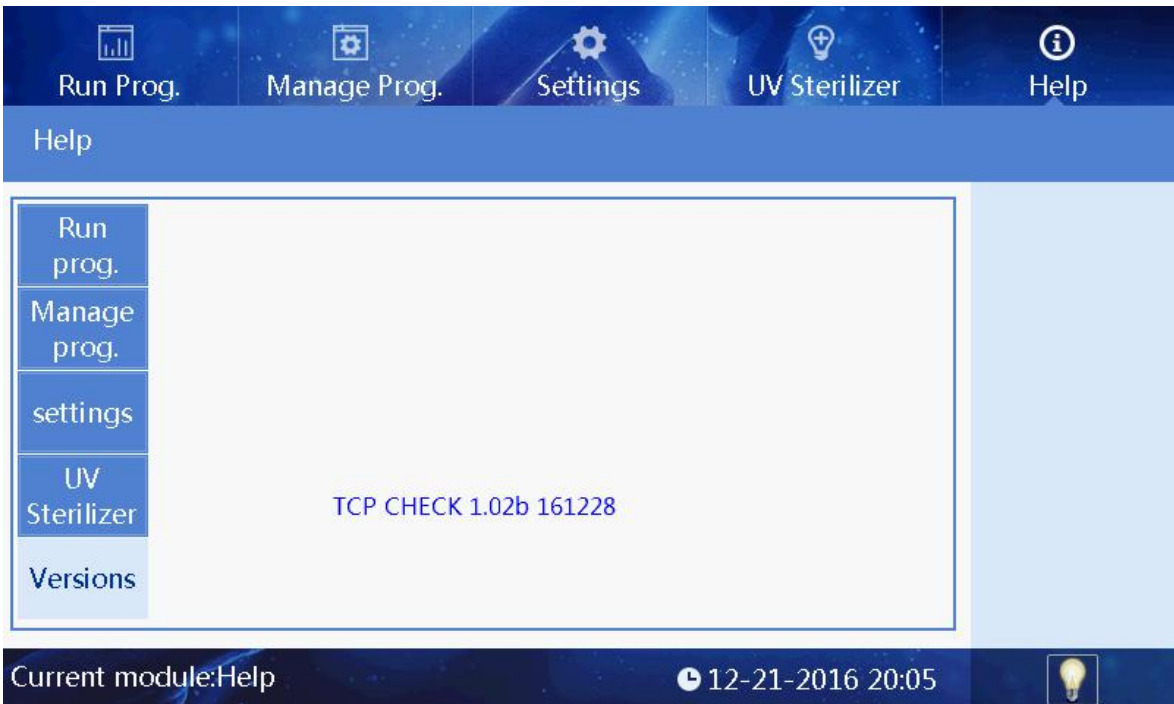


Click “Start” to open the UV light to start UV sterilization and time count down.  
 Click “Stop” to stop the UV sterilization.

During sterilization, the UV light will automatically stop when the drawer is open, and it will continue after the drawer is closed.

### 6.6 Help

Click “Help” to check the help info.Help interface displays the relevant features and version information.



## Chapter 5 Trouble Shooting

No	Fault phenomenon	Possible Causes	Solution
1	No display after switch on	Power not connected	Check power
		Switch failure	Replace switch
		Fuse failure	Replace fuse (5X20 250V 8A)
		Others	Contact with Distributor
2	No UV light	UV light failure	Replace light tube Contact with distributor
3	No light	Light failure	Replace light tube Contact with distributor
4	Instrument not able to automatically stop after drawer is open	Sensor failure	Contact with distributor
5	Big variance between actual and display temperature	Sensor failure	Contact with distributor
6	No heating in heating strip	Sensor failure	Contact with distributor
		SCR failure	
		Heater failure	
7	Instrument can't run	Controller failure	Contact with distributor
		Motor failure	
8	Abnormal sound during operation	guide rail install incorrect	Contact with distributor
		Motor failure	
		synchronous belt abrasion	
9	Press button failure	Press button failure	Contact with distributor

## Software fault alarm list

Fault type	Fault name	Displayed symbol	Model
Temperature (code: 0)	T1,T2,T3,T4,T5,T6, T7,T8Overheat	E011,E021,E031,E041, E051,E061,E071,E081	Auto-Pure 32A
	T1,T2,T3,T4 Overheat	E011,E021,E031,E041	Auto-Pure 20A Auto-Pure 20B
	T1,T2,T3,T4,T5,T6, T7,T8Drive circuit fault	E018,E028,E038,E048, E058,E068,E078,E088	Auto-Pure 32A
	T1,T2,T3,T4 Drive circuit fault	E018,E028,E038,E048	Auto-Pure 20A Auto-Pure 20B
	T1,T2,T3,T4,T5,T6, T7,T8Open circuit	E015,E025,E035,E045, E055,E065,E075,E085	Auto-Pure 32A
	T1,T2,T3,T4 Open circuit	E015,E025,E035,E045	Auto-Pure 20A Auto-Pure 20B
	T1,T2,T3,T4,T5,T6, T7,T8Short circuit	E016,E026,E036,E046, E056,E066,E076,E086	Auto-Pure 32A
	T1,T2,T3,T4 Short circuit	E016,E026,E036,E046	Auto-Pure 20A Auto-Pure 20B
	The drive circuit of exhaust fan fault	E019	Auto-Pure 20A Auto-Pure 20B Auto-Pure 32A
	The drive circuit of cooling fan fault	E009	
Electric machinery (code: 1)	Electric machinery brake lock fault	E108	Auto-Pure 20A Auto-Pure 20B Auto-Pure 32A
Electric machinery stroke position (code:4)	The left sensor	E403	
	The sensor of magnetic bar cover on electric machinery position fault	E425	
	The sensor of magnetic bar on electric machinery position fault	E415	
LCD, Crystal oscillator, Storage (code: 7)	The clock crystal fault	E702	Auto-Pure 20A Auto-Pure 20B Auto-Pure 32A
	The storage chip fault, setting parameter lost	E703	
Communication (code: 8)	Online failure	E801	

## Notes