SINNOWA

W600

Auto Washer

（V1.0）

User's Manual

INDEX

1 Introduction

W600 automatic washer is a microprocessor-controlled washer. It can be fitted with either an 8 or 12 channel manifold which are fitted with one aspirating and one dispensing needle per well. Up to 50 user-defined programs can stored in the memory and recalled by user.
This manual gives the installation and operations for the W600 Automatic Washer, it shouldbe read carefμlly in its entirety prior to any attempt to operate the washer.

1.1 Features

Washer has the feature of simple structure, stable working condition, and low maintenance cost. Chinese / English version is free to switch for users.

1.2 Working environment requirements

Power requirements	110/220 V ± 10% ,50/60Hz ± 2%
Fuse	T1AL250V
Power consumption	100VA
Operation temperature	10°C to 40°C
Relative humidity	No more than 75 percent
Atmospheric pressure	86.0kPa ~ 106.0kPa
Other requirement	Avoid dust, strong electromagnetic interference and corrosive gases
	Avoid mechanical vibration
	Good grounding of network power supply

1.3 Performance

Washing strips	1-12
Washing cycle	1-99
Washing scope of application	96-well plate, 48-well plate and single plate
Residual volume	< 2uL per well
programs storage	50 stored programs
Washing capacity	50-500μl, optional setting(step length is 50μl)
Soake time:	0-3600 seconds
plate-type options	U plate, flat plate, V plate
Shake time	1-99 seconds

1.4 Instrument structure

Washer is content of control system, movement system, pump,valve, washing manifold and carrier home.

2 Installation

2.1 Unpacking

(1) Lift the unit from the box by holding the unit.
(2) Remove the accessories from the unit.
(3) Verify that all items on the packing list have been received.
(4) Inspect all components for shipneedleg damage. In case of damage, contact the shipper who delivered your equipment.
(5)Save all packing material in case it becomes necessary to return the unit.
(6)Put the instrument on a flat level platform.

2.2 Connect the outer pipe

Six pieces of silicon rubber tubes is used to connect the unit with the outer bottles,please connect them according to apellation. Cut off the belts on the washing manifold after the outer pipe has been well connected.

2.3 Connect the power

Connect the power cable to the unit, switch on the power, the washer begins self-initialize, after a few minutes the LCD will display:

```
        W600 Auto Washer



        SINNOWA
```
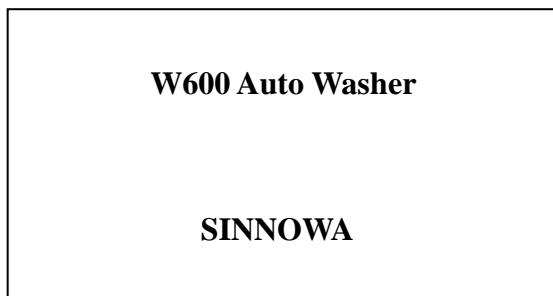
Then the washer is ready to use. Press Enter key to come into main menu :

```
        W600 Auto Washer
Wash
Program setup
System setup
Wash pipe
```
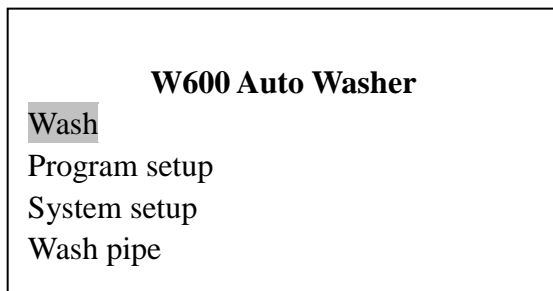
3. Operations

3.1 System setup

It is recommendable that you should check and adjust the position parameter before you begin to use the washer in order to get the good washing effect.

Press △▽ to choose "System setup".

```
          W600 Auto Washer
Wash
Program setup
System setup
Clean pipe
```

Press Enter key to come into "System setup".

```
          System setup
     Please   input   password:



```

Input six "△".

```
          System setup
     Please   input   password:
               *******



```
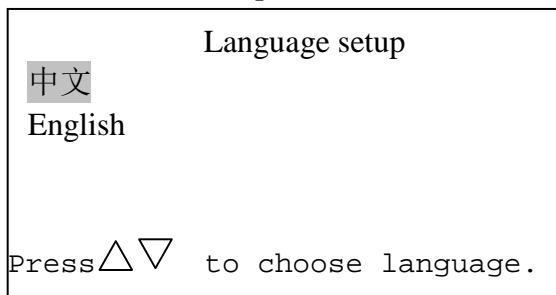
Press Enter to confirm.

```
          System setup


Language setup
Position setting
Title setup

```

Press Enter key to come into "Language setting".

```
                 Language setup
中文
English



Press△▽  to choose language.
```

Press △▽to choose language.

Press △▽to choose "Position Setting".

```
                System setup

Language setup
Position setting
Title setup


```
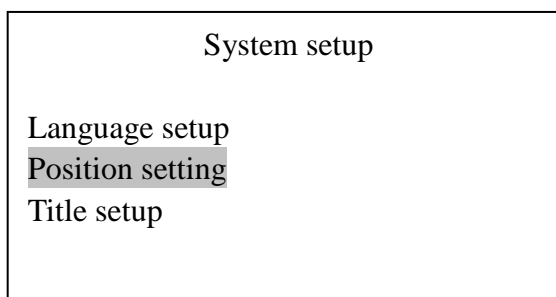
Press Enter key to come into "Position Setting".

```
          Position setting
Long   needle   to   the   bottom  of
trough

     △ needle up    ▽down
       Please press "Entre" to sure

```
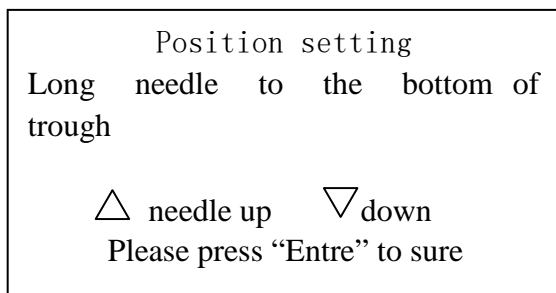
Press △ ▽ key to adjust long needle to reach the bottom of trough.

```
          Position setting
Long   pin   in the  center  of   first
strip micro-well

    ◁ micro-well   left   ▷ right

       Please press "Entre" to sure

```
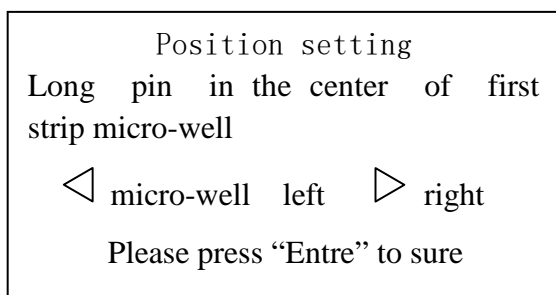
Press ◁▷ to move the carrier to the left or right to adjust long needle to the center of first strip micro-wells ,and as following shown:
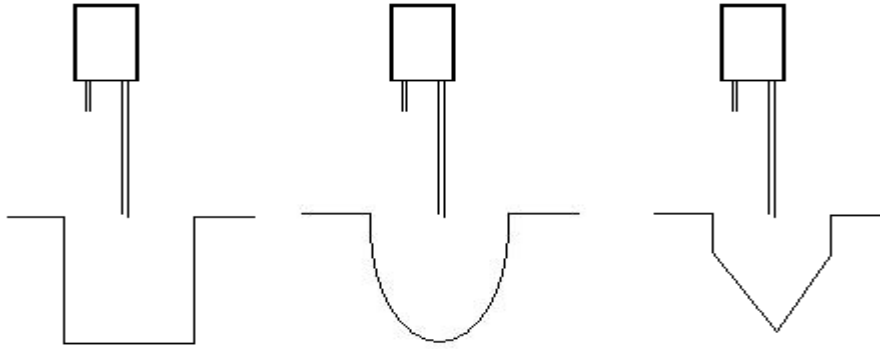
Press Enter key to confirm.

```
        Position setting
Long    needle   on   the    left  of
micro-well

   ◁  micro-well left    ▷  right

       Please press "Entre" to sure
```

For flat micro-well, this is the first point of the manifold aspiration needle when use two-point aspiration. Press ◁ ▷to move the carrier to the left or right, the best position should be close to the left wall of the micro-well.Adjusted position is as shown below.

Press Enter key to confirm.

```
        Position setting
Long    needle   on   the    right  of
micro-well

   ◁  micro-well left     ▷  right

       Please press "Entre" to sure
```

For flat micro-well, this is the second aspirating point in two-point aspiration process. Press ◁ ▷ to tune up long probe position. Adjusted position is as shown below.
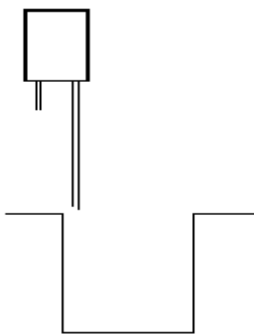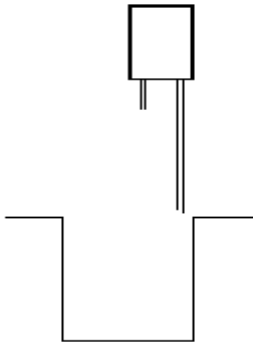
Attention: When adjust long needle to the left or right of first strip micro-wells, the position should not too close to or too far away with wall according to washing effect.
Press Enter key to confirm.

```
        Position setting
Long   needle   to the   bottom   of
micro-well
     △needle up   ,  ▽down
     Please press "Entre" to sure
```

Press △ ▽ to move the washing manifold so that long needle to reach the bottom of micro-well, the best position is the position that the long needle be closest to the bottom of the micro-well.Adjusted position is as shown below.
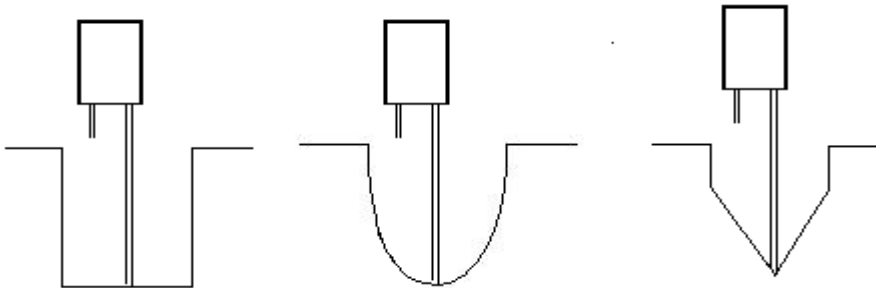
Press Enter key to confirm.

```
        Position setting
Long   needle   at the   upside   of
micro-well

     △needle up   ,  ▽down
     Please press "Entre" to sure
```

This is edit the overflow position of the micro-well,Press △ ▽
key to move the washing manifold so that the long needle r is just
above the top of the wells,and adjusted position is as shown below.
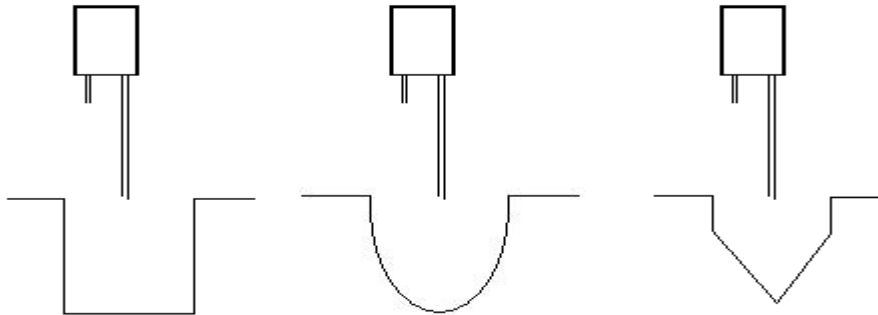
Press key Enter to get in to main menu.

Press △▽to choose "Title setup"

```
           System setup
Languang setup
Position setting
Title setup

```
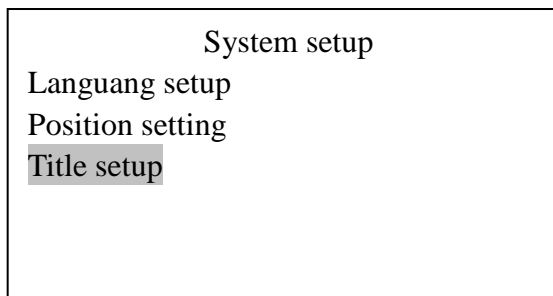
Press "Enter" to come into "Title setup"

```


W600 Auto Washer
SINNOWA


```
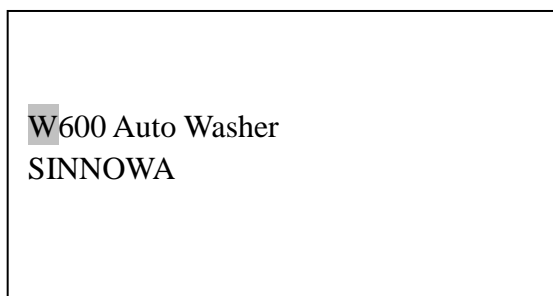
Press △▽to choose character,press ◁ ▷ to move cursor.

Press "Enter" to choose "SINNOWA" to setup company information.

3.2 Program setup

Press △ ▽ to choose program setup.

```
        W600    Washer
Wash
Program setup
System setup
Wash pipe
```

Press Enter key to come into "Program setup".

```
         Program setup

Program add
Program modify
Delete one program
Delete all program
```

Press Enter key to add new program.

```
         Program Setup
Program No. 02
Plate model
   Flat        U         V


 ◁ ▷ Select      " Enter"Sure
```

Press ◁ ▷ to choose plate model，and press Enter key to confirm.

```
         Program setup
Program No. 02
Micro-wells
      8           12


 ◁ ▷ Select      "Enter"Sure
```

Press ◁ ▷key to choose micro-well number on single plate, and press Enter key to confirm.

```
         Program Setup
Program No. 02
Strips（1-12）
            12

 △▽Date alter      " Enter"Sure
```

Press △▽ key to setup wash strips , and press Enter key to confirm.

```
              Program setup
 Program No. 02
 Volume    （50-500，50μl/step）
                400 μl


 △▽  Date alter       " Enter"Sure
```

Press △▽ key to setup washing volume, and press Enter key to confirm.

```
              Program setup
 Program No. 02
 Wash times    （1-99）
                10


 △▽◁▷ Date alter" Enter"Sure
```

Press ◁▷ key to choose program number and press △▽ key to adjust washing times.

```
              Program setup
 Program No. 02
 Shake time    （0-99）
                05 Sec


 △▽◁▷ Date alter" Enter"Sure
```

Press ◁▷ key to choose program number and press △▽key to adjust shaking time, and press Enter key to confirm.

```
              Program setup
 Program No. 02
 Soak time    （0-3600）
                0020 Sec


 △▽◁▷ Date alter" Enter"Sure
```

Press ◁▷ key to choose program number, then press △▽ key to adjust soaking time, and press Enter key to confirm.

```
            Program setup

Sure to add？

              Yes              No


```

Press "YES" to confirm , and press "NO" to quit.

Press △ ▽ to choose "Program modify".

```
            Program setup

Program add
Program modify
Delete one program
Delete all program

```

Press Enter key to come into "Program modify".

```
  Modify program    No. 01
Plate Modle ： Flat
08micro-wells            12strips
Volum 450µl        Wash 03times
Shake 05 Sec       Soak 0010Sec


△▽  Date alter      " Enter"Sure
```

Press △▽ key to choose program to edit.

Press △▽ key to choose to "Delete one program".

```
            Program setup

Program add
Program modify
Delete one program
Deleteall program

```

Press Enter key to come into "Delete a program".

```
┌─────────────────────────────────────┐
│   Del Program    No. 01             │
│ Plate Modle ：Flat                  │
│ 08 micro-wells              12strips│
│ Volum 450µl          Wash   03times │
│ Shake 05 Sec         Soak 0010Sec   │
│                                     │
│ △▽  Date alter       " Enter"Sure   │
└─────────────────────────────────────┘
```

Press △▽ to choose program to delete.

Press △▽to choose to "Delete all the programs".

```
┌─────────────────────────────────────┐
│            Program setup            │
│                                     │
│ Program add                         │
│ Program modify                      │
│ Delete one program                  │
│ Delete all program                  │
│                                     │
└─────────────────────────────────────┘
```

Press Enter key to come into "Delete All Program".

```
┌─────────────────────────────────────┐
│         Delete all program          │
│                                     │
│                                     │
│                                     │
│       No              Yes           │
│                                     │
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│         Delete all program          │
│                                     │
│         Sure to delete?             │
│                                     │
│       No              Yes           │
│                                     │
└─────────────────────────────────────┘
```

Press "Yes" to confirm delete, and press "No" to quit.

3.3 Wash

Press △▽ to choose "Wash".

```
                  W600    Washer
Wash
Program setup
System setup
Wash pipe
```

Press "Enter" to get into wash process.
At this moment, it needs to call the programs stored in the instrument.

```
   Run Program No.   01
Plate Mode：Flat
08micro-wells              12strips
Volume   450µl           Wash 03times
Shake   05Sec            Soak 0010Sec
    △ ▽Select       "ENTER"   Sure
```

This code program is 01 that means No.01 program is been stored.

Plate type	Flat
Washing manifold	8 micro-wells
Washing strips	12strips
Washing volume	450µl
Washing times	3 times
Shaking time	5 seconds
Soaking time	10 seconds

You also can press ◁ ▷ key to choose other programs, or press

ENTER to choose to implementation of the washing procedure. (If there are no pre-storage programs, the possibility is they not being set up when leave factory, or have been deleted at all.)

Press ENTER key into operate program 01.

```
┌─────────────────────────────────────┐
│  **Run Program   No.   01**          │
│                                      │
│                                      │
│            Adding pression           │
│                                      │
│                                      │
└─────────────────────────────────────┘


┌─────────────────────────────────────┐
│  **Run Program   No.   01**          │
│                                      │
│                                      │
│               Wash                   │
│                                      │
│           Remain 02 times            │
└─────────────────────────────────────┘


┌─────────────────────────────────────┐
│  **Running Program   No.   01**      │
│                                      │
│                                      │
│               Shake                  │
│                                      │
│            Remain 04 Sec             │
└─────────────────────────────────────┘


┌─────────────────────────────────────┐
│  **Run Program   No.   01**          │
│                                      │
│                                      │
│               Soak                   │
│                                      │
│           Remain 0009 Sec            │
└─────────────────────────────────────┘


┌─────────────────────────────────────┐
│  **Run Program   No.   01**          │
│                                      │
│                                      │
│              Sucking                 │
│                                      │
│                                      │
└─────────────────────────────────────┘
```

After 3 washes, the display below will show.

```
        Running Program   No.   01


                Wash complete

            Press any key to return!


```

Attention: If liquid surface is raised or overflow happens in the
process of washing , adjust air-pressure adjuster on the back of
the instrument.

3.4 Wash pipe

Press △ ▽to choose "Wash pipe".

```
              W600    Washer
  Wash
  Program setup
  System setup
  Wash pipe
```

Press Enter key to come into wash pipe.

```
              Wash pipe
          Wash Time： 04 Sec

  Input date press▽ △ ◁ ▷

  Cancel to return, Enter to sure
  Reset   please   press   Reset
```


Press ◁ ▷ to choose program number, and press △▽ to adjust
washing time.
Press "Cancel" to quit.

```
              Wash pipe


          Remain time 04 Sec


```

4. Wash process Operation Summary

1. Before power on the washer, check the washer, be sure that:
   The pipe is well connected;
   The waste bottle is empty;
   These are distilled water in the distilled water bottle.
   These are regent in the washing bottle.
2. Switch on the washer, wait a moment until main menu has been displayed, then washer is ready to use.
3. Place a microplate to be washed in the carrier.
4. Use "System setup" to check and set the position of the microplate.
5. Get into "Program setup" to edit washing parameter.
6. Used "wash pipe"to washing pipe.
7. Come into "Wash" to wash a microplate.
8. Wait until wash process finished.
9. Used "wash pipe"to washing pipe before power off the washer everyday.
10. Power off the washer.

5. Routine maintenance

1. Rinse pipe and manifold using distilled water after finishing assay
   The salt deposits left by the dried wash solution can easily clog the system. So it is recommended to wash pipe and manifold using distilled water everyday beore power off the washer.
2. Ensure that the waste bottle is emptied
   Ensure that the waste bottle is emptied regulated and at least every time that lotion and distilled water bottle is loaded.
3. Cleaning manifold needles
   A needle cleaning wire is supplied with each manifold, and may be used to unclog aspirate or dispense needles, which have been plugged by dirt or dried salt deposits.
   It is possible that the dispense/aspirate tips of the wash manifold may become clogged with salt deposits. To clear them, lift up the manifold and unclog the tips using the small declogging tool provided.
4. Clean the instrument as necessary
   It is recommended that the instrument is wiped with a soft cloth moistened with a mild detergent solution. Spillage of liquid on the carrier should be wiped off promptly as this may cause the plate carrier to drag during operation.
5. Check and adjust the position of microplate when it is necessary .
6. Switch off the unit after washing.

6. Troubleshooting

SYMPTOM	PROBABLE CAUSE	REMEDY
The instrument does not work, no message display on the LCD.	**1.**AC power not getting to the unit.check AC line cord. **2.**Blown fuse.	Connect to AC line. Replace fuse with proper type.
Needle of manifold can not extend into the micro-well	**1.**The location of first strip of the micro-plate is not correct. **2.**Something may be put on the working platform or micro-well carrier.	Adjust the location of the first strip of micro-well. Remove things put on the carrier , try again.
Needle of the manifold can not aspirate waste liquid	**1.**Aspirating liquid nozzle of washing manifold has not been well connected with inlet nozzle of waste bottle. **2.**Cover of the waste bottle is not tightly closed. **3.**Extracting air nozzle of waste bottle has not been well connected with the vacuum pump. **4.**Silicon pipe is broken or creased. **5.**Aspirating needle of manifold has been blocked. **6.**Vacuum pump does not	Check and well connect the pipe. Tight the cover of waste bottle. Check and well connect the pipe. Replace the silicon pipe. Use needle of dim 1.0mm to delicate the black of long needle hole. Contact with manufacture.

	aspirate air.	
Washer can not add liquid	1.Inlet nozzle of washing bottle has not been well connected with the pressure air outlet. 2.Outlet nozzle of washing bottle has not been well connected with the inlet nozzle of the main unit. 3.Cover of the washing bottle has not been tightly closed. 4.Silicon pipe is broken or crashed . 5.Dispense needle of manifold has been blocked. 6.Lotion and distilled water bottle has been emptied. 7.No air output from vacuum pump	Check and well connect the pipe. Check and well connect the pipe. Tight the cover of waste bottle. Replace the silicon pipe. Use needle to delicate the black of long needle hole. Add lotion and distilled water. Contact with manufacture.

7. Transportation and storage

7.1 Transportation

Transport the instruments according to transportation.
Do not transport the instruments with toxic, hazardous, corrosive substances.

7.2 Storage

Store the wrapped instruments in well-ventilated room.
Do not store the instruments with toxic, hazardous, corrosive substances.

8. Added

Note: Our Company will offer the new supplementary information according to improved product.

ISO9001＆ISO13485 Certified

Version number：V1.0　Issue Date：January 2009

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