

# Dishwasher Dual Liquid Precise Digital Dispenser

## Installation and Operation Manual



**A600201-1C**



**A600201-2C**

**SHANGHAI CHANG JIAN HOTEL EQUIPMENT CO., LTD.**

## ***1.Introduction***

The dishwasher dispenser newly developed by ChangJian Company is suitable for any brand of dishwashers sold at home and abroad. It is an accurate, convenient, economical and practical dishwasher detergent and rinse additive dispenser. It has door type and channel type special types, probe and time speed dual-mode control method, CPU controlled probe and non probe (time and speed) dual-mode control, remote control type and non remote control type. It is suitable for any type of dishwasher.

## ***2.Installation***

### **1.0 Mount the unit (main body)**

Make 2 holes Ø6 mm in the wall above the dishwasher. Fix the dispenser onto the wall using the plastic expansion bolt. A sleeve gasket is needed to prevent from being eroded by steam.

### **2.0 Plumbing**

**2.1** Cut the Ø 6mm plastic pipe into a suitable length. Connect it with pump pipe and fix it by ties.

Do not mistake input for output. The alter course of pump is clockwise. A liquid suction pipe is installed at the end of the plastic pipe at the suction port, which can be put into the barrel of detergent and rinse additive, and the outlet is connected with the detergent dosing port and one-way valve.

**2.2** Make a hole Ø22 or  $F = 7/8"$  (a gauged orifice) in the dishwasher above water level of the wash tank for detergent entry.

**2.3** A one-way valve must be installed at the inlet of the rinse additive, and there is a reserved port on the dishwasher.

### **3.0 Install the probe**

It must be installed about 10cm below the horizontal plane of the washing tank. The best position should be close to the suction port of the water pump and far from the water inlet. It should not be installed near the heating pipe, otherwise it is easy to melt. After selecting the position, make a hole of Ø22mm or 7 / 8 inch, and connect it to the probe signal connecting column of the distributor with 0.75-1 square meter multi strand flexible wire.

### **4.0 Circuit installation**

**4.1** The working voltage of the dispenser (normal power supply) is 220V and 110V. If there is 24V voltage, it is not necessary to connect the transformer power supply. The power supply is set with a separate power switch (for dishwasher cleaning).

**4.2** Before connecting the main power supply, check the voltage at the output end of the dishwasher and then connect it to avoid burning the transformer and circuit board. Connect it after confirmation.

**4.3** Generally, the dishwasher is in the electric control box, and the power signal interface of detergent drier is reserved. It can be conveniently connected to the trigger signal connection column of the dispenser, and the voltage range is 14V~230V.

**4.4** If the dishwasher does not reserve the power signal of detergent and rinse additive, the trigger power signal can be connected to the power supply of main-wash contactor and rinse contactor.

**4.5** When the distributor selects the time and speed control mode, connect the power signal of the first dosing to the power supply of the water inlet solenoid valve.

**4.6** For remote alarm, connect peripheral alarm with the ALARM connector in the dispenser.(3v~24v)

### **5.0 Setting and Debugging**

**5.1** See the circuit board diagram, screen display and setting for details.

**5.2** There are detergent pump and rinse additive pump manual button on the control panel. When start it for the first time, you can pump the detergent or rinse additive to check whether it is working order.

**5.3** In the mode without probe, it has the function of adding detergent for the first time. Just connect the power signal of the water inlet solenoid valve to the DET.SIG terminal, and then set C2 and C3 to add detergent for the first time.

**5.4** In the mode without probe, supplement the control of dosage and connect the signal power supply to RINSE.SIG terminal. C4 and C5 can be adjusted at this time. The time delay function and timing function can be used for cyclic dosing, which is especially suitable in the channel dishwasher. Then adjust D2 and D3 to operate synchronously with the power signal (adjust the delay to 0 and the timing to 1). Adjust the amount of rinse additive with speed (channel type), or add the amount of rinse additive regularly (door type).

**5.5** In the probe mode, set A1 as the maximum speed. The higher the number is, the faster the speed is, and the maximum is 99. A2 is the concentration setting. The higher the number is, the higher the concentration is. You should use the chemical titration method to set the detergent concentration range you need. A3 is the alarm delay time, and the maximum time is 188 seconds (i.e. set the number x2). If the dosing concentration is not within the set range within the set time, the alarm will beep and the detergent pump will stop working. At this time, turn off the power supply and start it after finding out the cause.

**5.6** In the probe mode, the setting of the rinse additive pump can adjust the dosage by speed (adjust B2 to 0 and B3 to 1), or by delay time and timing time (generally on the door type).

## **6.0 Troubleshooting**

**6.1** Alarm and the display show E1.

6.1.1 Alarm time is too short to inject detergent to reach the required concentration level. Reset the alarm time.

6.1.2 Check the detergent tin whether it is empty. Reload.

6.1.3 Check the intake end of detergent pump pipe whether it is below the detergent water level.

6.1.4 Check the probe. Make sure the sensor is clean and the wire connected well.

6.1.5 Check the peristaltic pump pipe, and replace if it is aging. Check PVC for leak.

**6.2** Alarm and the display show E2.

If the probe fails and there is a short circuit, check whether the probe is stuck with metal objects and whether the connecting wire is connected.

**6.3** Washing agent pump/rinse additive pump does not work.

6.3.1 Check the control panel to find out whether the peristaltic pump or the control panel does not work.

6.3.2 If the control panel does not work, you may check whether the setting is right, triggered power signal is right, the connection with dishwasher is right or the fuse is melted.

6.3.3 Peristaltic pump does not work. If the motor is running, but gearbox output axis does not work. Then the gearbox is breakdown. If the motor is not running but input voltage is measured, then the motor is broken or stuck by foreign matters.

**6.4** The external power supply is normal, but there is no display on the panel

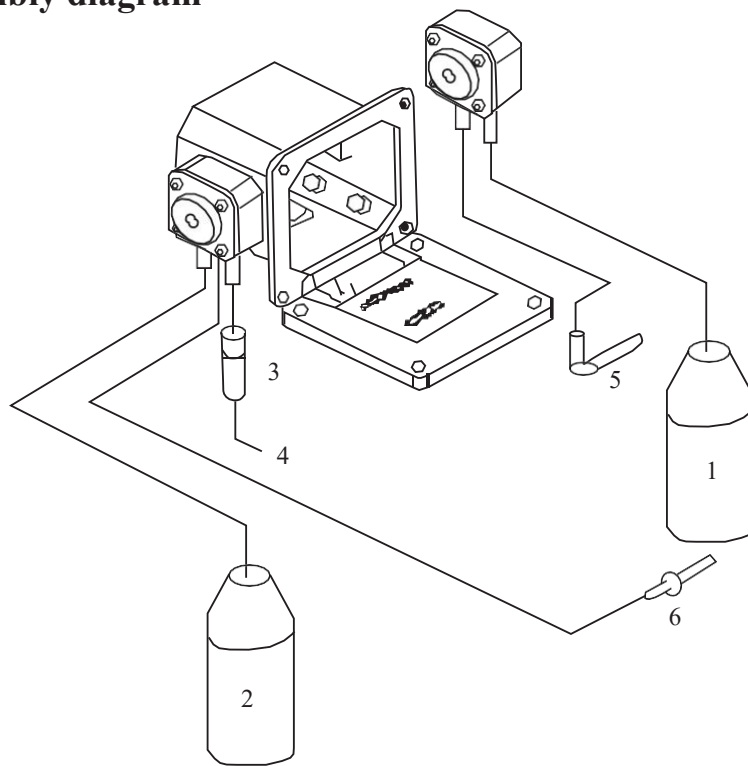
6.4.1 Check the power on/off switch

6.4.2 Check the fuse.

6.4.3 Check the all the connector, whether loose or exfoliate.

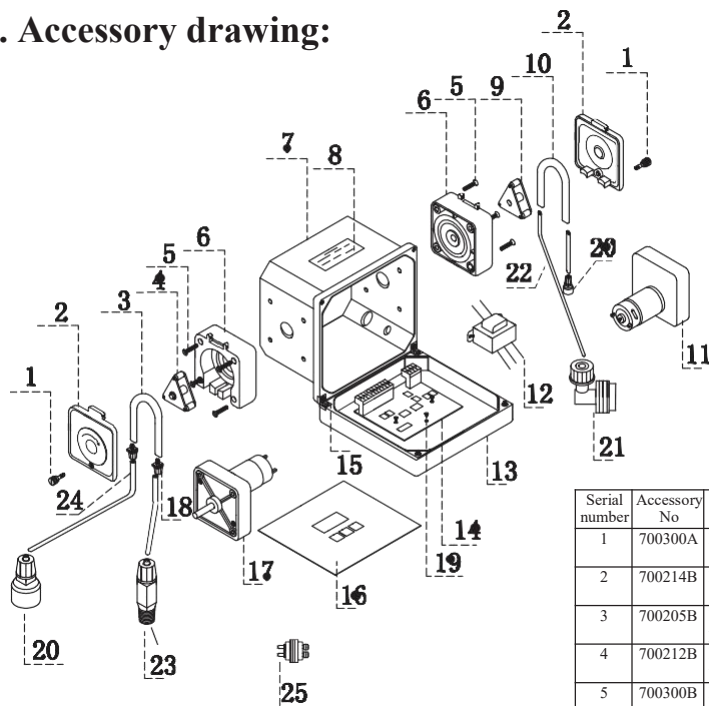
6.4.4 Check the working condition of the transformer and whether the primary voltage and secondary voltage are correct.

## Assembly diagram



- 1 Detergent tin
- 2 Rinse additive tin
- 3 Check valve
- 4 Plastic pipe
- 5 Detergent entry
- 6 Probe

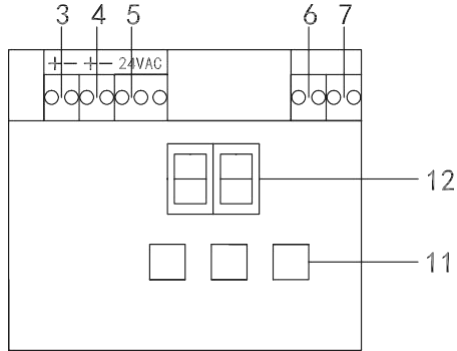
## 2. Accessory drawing:



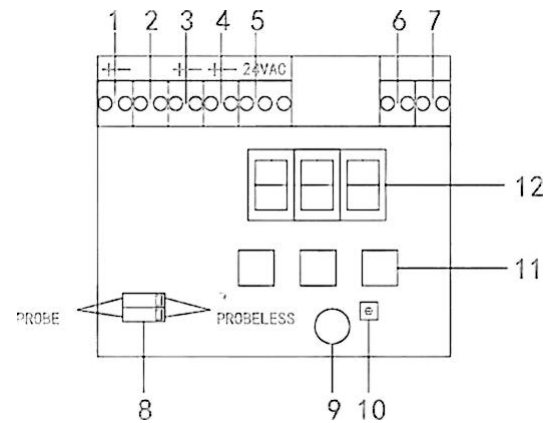
Serial number	Accessory No	Accessory name	Serial number	Accessory No	Accessory name	Serial number	Accessory No	Accessory name
1	700300A	Pump cover screw	10	700205A	Detergent pump Tube	19	700300C	Circuit board screw
2	700214B	Pump cover	11	700204A	Detergent transmission	20	700211	Suction port
3	700205B	Rinse additive pump tube	12	700206	Transformer	21	700209	Detergent entry
4	700212B	Rinse additive triangular roller	13	700220A	Housing cover	22	700210A	Plastic pipe (hard)
5	700300B	Pump casing screw	14	700201	Circuit board	23	700208	Check valve
6	700214A	Pump casing	15	700322	Shell hinge	24	700210B	Plastic pipe (soft)
7	700220B	Dispenser casing	16	700323	Face paste	25	700207	Probe
8	700324	Warning label	17	700204B	Rinse additive gearbox			
9	700212A	Detergent triangular roller	18	700216	Soft plastic pipe joint			

### 3. Circuit board diagram:

**A600201-1C Dispenser:**



**A600201-2C Dispenser:**



1. ALARM	7. Rinse additive pump signal power supply 14-240V AC
2. PROBE	8. Slide Switch
3. Rinse additive pump RINSE OUT	9. ALARM
4. Detergent pump DET OUT	10. Volume adjustment potentiometer
5. Main power supply 24V AC	11. Touch switch
5. Detergent pump 14-240V AC	12. Display screen
Signal power supply DET SIG	

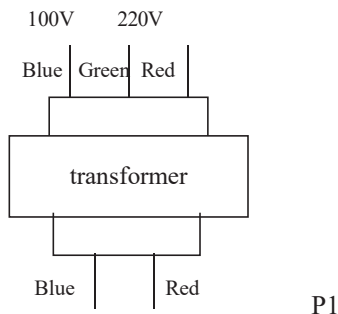


## Recommended Connection and Debugging

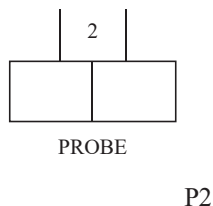
### 1. Probe mode ( Conveyor type, Hood type )

Connection:

Main power source-dishwasher on-off power

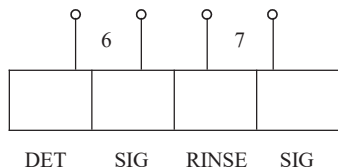


Probe signal  
Probe terminal



### Trigger signal power (AC24V-220V )

DET signal power RINSE signal power



## Debugging:

Detergent pump: A1 speed 99

A2 Concentration range:  
the larger the number set  
according to the test  
requirements, the higher  
the concentration  
A3 delay 60~99

Rinse additive pump:

B1 speed  
Determine the speed  
according to the required  
dosage (channel type)  
For uncovering type, adjust  
it to 99  
B2 delay 00  
B3 timing 01 (channel type)  
timing generally 5~8  
depends (cover type)

## 2. Probe-less mode (controlled time and speed )

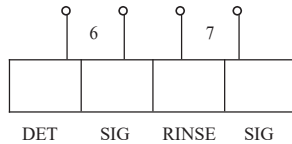
Connection:

### 1 ) Channel type connection

Water inlet solenoid valve

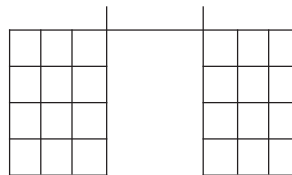
(first dosing)

Rinse additive signal power  
supply(supplementary dosing)



P8

Spray trigger switch



Washing basket

P9

Direction of travel

### Debugging:

Detergent pump: C1 speed 99

First dosing C2 delay 5-10

C3 The dosage is calculated according to the volume of the water tank to reach the concentration range that can be cleaned

Supplementary dosing

C4 First calculate the time  $t$  when a washing basket passes through the water trigger signal, as shown in Picture 8. For example, the time is 28 seconds,  $C4 = (28 - \text{detergent dosing time}) + 2$  (indefinite)

C5 According to the dosage of detergent, it is generally set between 3-6 (indefinite number)

Rinse additive pump:

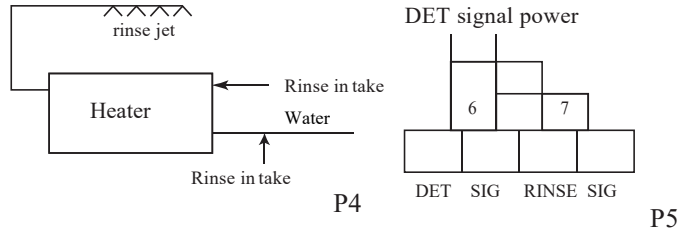
D1 The speed shall be determined according to the dosage of rinse additive

D2 Set 00 Synchronization with trigger signal

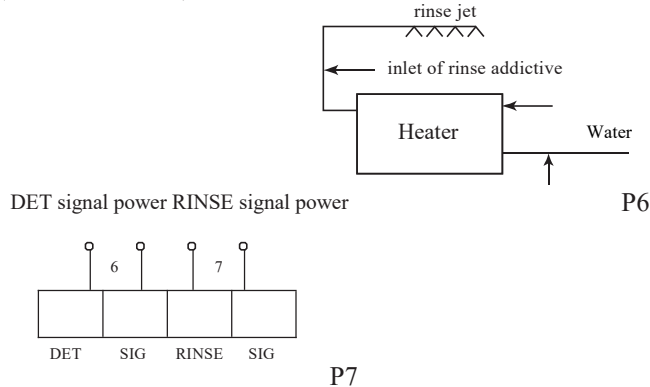
D3 Timing 01

## 2) Cover type wiring mode

① Firstly, confirm that the inlet of rinse additive is in front of or in the heater (as shown in P4)



② If the inlet of rinse additive is behind the heater (as shown in P6)



Detergent pump:

C1 speed 99

C2 delay 00

C3 depends on your requirement generally 3~6

C4 delay 00 (default)

C5 timing 00 (default)

Rinse additive pump:

D1 speed 99

D2 =C3+2

D3 depends on your requirement generally 3~10

Detergent pump:

C1 speed 99

C2 delay 00

C3 depends on your requirement generally 3~6

C4 delay 00 (default)

C5 timing 00 (default)

Rinse additive pump:

D1 speed 99

D2 set 00

D3 01

## A600201 Dispenser

### Operation setting:

- 1) Press and hold the SET key until PA appears. And the digit 50 or 500 will be displayed when you let go.
- 2) Press the up key or down key to the password number (The initial password is 52 or 522).
- 3) Press SET, A1 or C1 appears. (A1 for probe mode, C1 for probe-less mode)
- 4) You can set various program data and enter the normal working state after completion.

### Password setting:

- 1) Power off. Hold the SET and power on.
- 2) EE appears with a long voice, release, 50 or 500 appears.
- 3) Give the original password, and then press SET.
- 4) Display 50 or 500, and then adjust to the number you set, and then press the SET key with a long voice. The number display disappears and the power is turned off. The setting is completed.

# Display & Setting

1. Probe mode	Detergent pump	A1	Detergent pump speed	99
		A2	Concentration	Low 0 → 810 high
		A3	Delay alarm	If the set concentration is not reached within the set time, the alarm will be given and the pump will be stopped
	Rinse additive pump	B1	Rinse pump speed	Slow 0 → 99 fast
		B2	Delay action	0-99 seconds To operate synchronously with the trigger signal, set it to 0
		B3	Timing operation	0-99 seconds To operate synchronously with the trigger signal, set it to 1
2. Probe-Less mode	Detergent pump	C1	Detergent pump speed	99
		C2	Delay alarm(first dosing)	0-99 seconds To operate synchronously with the trigger signal, set it to 0
		C3	Timing operation(first dosing)	0-99 seconds To operate synchronously with the trigger signal, set it to 1
		C4	Delay action	0-99 seconds (cycle operation)
		C5	Timing operation (supplement dosage per basket)	0-99 seconds (cycle operation)
	Rinse additive pump	D1	Detergent pump speed	Slow 0 → 99 fast
		D2	Delay alarm	0-99 seconds To operate synchronously with the trigger signal, set it to 0
		D3	Timing operation	0-99 seconds To operate synchronously with the trigger signal, set it to 1
	3. Other displays	E0	Password incorrect	Redefine
		E1	Alarm	Detergent does not enter the dishwasher
		E2	Probe failure	Electrode short circuit

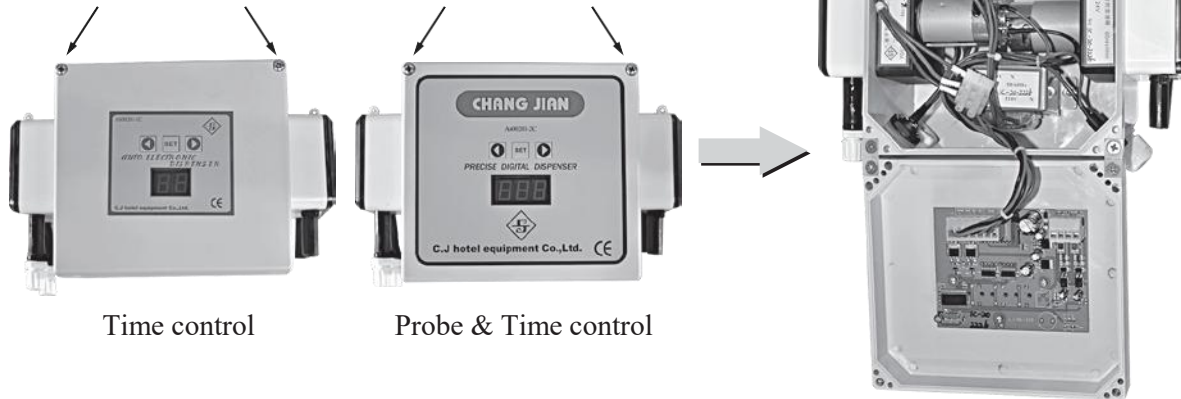
Note: Generally, the speed of A1 and C1 detergent pumps does not need to be adjusted. Please contact the company under special circumstances.

## Installation Diagram of Dishwasher Dispenser

### Overall appearance

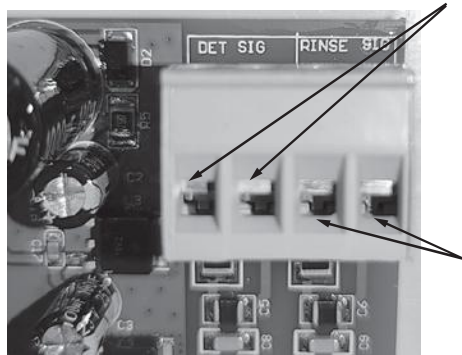
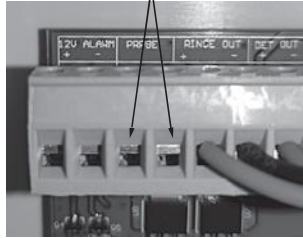
※The power must be turned off before opening the cover ※

The dispenser can be opened by unscrewing the screw indicated by the arrow with a cross screwdriver.



## 2# Terminal

The two wiring holes are connected to the probe signal, and a two core wire (wire diameter: 0.75 Square) is connected here from the probe metal terminal of the dishwasher water tank.



## Dispenser main power interface

There are two voltage access options:

1. 220V voltage connected to red and blue,
2. 110V voltage connected to green and blue

The main power supply of the dispenser should be connected with the switching power supply of the dishwasher so that the dispenser can be turned on together when the dishwasher is started.



## 6# Terminal

The two wiring holes are connected to the detergent signal power supply (AC14V - 240V). Use a two core wire (wire diameter: more than 0.5 square meters) from the dishwasher to connect the detergent feeding signal power supply (generally marked with the label on the dishwasher or circuit diagram) here. If you don't know how to connect the dishwasher, you can ask the dishwasher manufacturer.

※Time mode (C2,C3) ; Probe mode (A2,A3)

## 7# Terminal

The two wiring holes are connected to the rinse additive signal power supply (AC14V - 240V). Use a two core wire (wire diameter: more than 0.5 square meters) from the dishwasher to connect the rinse additive feeding signal power supply (generally marked with the label on the dishwasher or circuit diagram) here. If you don't know how to connect the dishwasher, you can ask the dishwasher manufacturer.

※Time mode (C4,C5,D2,D3) ; Probe mode (B2,B3)

**Check valve for rinse additive:**

Connected to the reserved opening of dishwasher rinse additive



**Dishwasher cleaner drain:**

It must be installed about 10cm above the water tank on the back of the dishwasher. Generally, the dishwasher may have an installation hole with a diameter of 22mm. If there is no mounting hole, it is necessary to drill a mounting hole about 10 cm above the water tank on the back of the dishwasher with a drilling machine.



**Probe:**

It must be installed about 10cm below the horizontal plane of the washing water tank, preferably close to the suction port of the water pump and far from the water inlet. The general dishwasher may have a mounting hole with a diameter of 22mm. If there is no mounting hole, it is necessary to drill a mounting hole 10 cm below the level of the dishwasher water tank with a drilling machine.



**Filter suction head:**

This suction head is connected to  $\Phi 6 \times 4$  plastic pipe, placed in the barrel, can sink to the bottom of the barrel.



### Rinse additive pump:

The transparent cover of the pump is indicated by an arrow, the rotation direction is clockwise, the head of the arrow is the liquid outlet interface, and the tail of the arrow is the liquid inlet interface. The liquid inlet is connected to the rinse additive barrel of the dishwasher with a  $\Phi 6 \times 4$  plastic pipe, and the liquid outlet is connected to the check valve with a  $\Phi 6 \times 4$  plastic pipe into the reserved port of the rinse additive.



### Detergent pump:

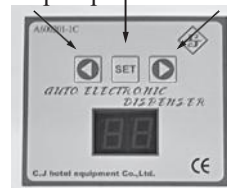
The transparent cover of the pump is indicated by an arrow, the rotation direction is clockwise, the head of the arrow is the liquid outlet interface, and the tail of the arrow is the liquid inlet interface. The liquid port is connected to the detergent bucket of the dishwasher with a  $\Phi 6 \times 4$  plastic pipe, and the liquid outlet is connected to the lower liquid port of the detergent of the dishwasher with a  $\Phi 6 \times 4$  plastic pipe.



Uncovered dishwasher

These three buttons are the adjustment setting buttons of the dispenser. The middle square button (SET) is the setting and confirmation key, the right triangle is the increase key, and the left triangle is the decrease key. The increase key and decrease key can also be used as manual keys to fill the pipeline on the newly installed dispenser and eliminate air.

Set and confirm keys  
Decrease key      Decrease key  
Manual button of rinse additive pump      Manual button of detergent pump



## 1. Setting of dispenser (probe mode):

(1) Probe mode (for channel dishwashers only):

A1=99(cannot be changed)

A1 is the speed per minute of the alkaline pump (it cannot be changed)

A2 is the concentration range (the greater the number, the higher the concentration), which is set according to the test requirements

A3 is the alarm delay. The alkali liquor pump has not reached the set concentration for a certain period of continuous operation, so as to trigger the dispenser alarm. Generally, it can be set to 60-99. The dispenser alarm usually indicates that the reagent in the detergent barrel has been used up and needs to be replaced.

B1 is the speed per minute of the rinse additive pump (the larger the number, the greater the quantity). The speed of the channel machine is used to adjust the amount of rinse additive. The amount of rinse additive is directly related to the effect of rinse additive.

B2 is the delay of rinse additive, 0 means no delay, and it will be added as soon as the signal arrives.

B3 is the dosage of rinse additive, which is set to 1 on the channel machine (dosing must be synchronized).

(2) Probe mode(only for dishwashers with open lid):

A1=99(cannot be changed)

A1 is the speed per minute of the alkaline pump (it cannot be changed)

A2 is the concentration range (the greater the number, the higher the concentration), which is set according to the test requirements

A3 is the alarm delay. The alkali liquor pump has not reached the set concentration for a certain period of continuous operation, so as to trigger the dispenser alarm. Generally, it can be set to 60-99. The dispenser alarm usually indicates that the reagent in the detergent barrel has been used up and needs to be replaced.

B1=99

B2=00

B3 is the dosage of drying agent (the larger the number, the greater the quantity). Generally, it is 5 to 8. There will be water stains if more rinse additive is added.

## 2. Setting of dispenser (time mode):

(1) Time mode (for channel dishwashers only) :

C1=99(cannot be changed)

C1 is the speed per minute of the alkaline pump (it cannot be changed)

C2 is the delay of adding alkaline for the first time (it doesn't have to be used)

C3 is the first dosage (it doesn't have to be used)

C4 is the dosing interval of each cycle (generally set to 20 and add once for each basket)

C5 is the dosage of each cycle (the larger the number, the greater the quantity). Generally, it is about 3 to 6.

D1 is the speed per minute of the rinse additive pump (the larger the number, the greater the quantity). The speed of the channel machine is used to adjust the amount of rinse additive. The amount of rinse additive is directly related to the effect of rinse additive.

D2 is the delay of rinse additive, 0 means no delay, and it will be added as soon as the signal arrives.

D3 is the dosage of rinse additive, which is set to 1 on the channel machine (dosing must be synchronized).

(2) Time mode (only for dishwashers with open lid):

C1=99(cannot be changed)

C1 is the speed per minute of the alkaline pump (it cannot be changed)

C2 is the delay of adding alkaline, set to 0

C3 is the dosage (the larger the number, the greater the quantity). Generally, it is about 3 to 6.

C4 is the dosing interval of each cycle (must be set to 0), which is used by the channel machine

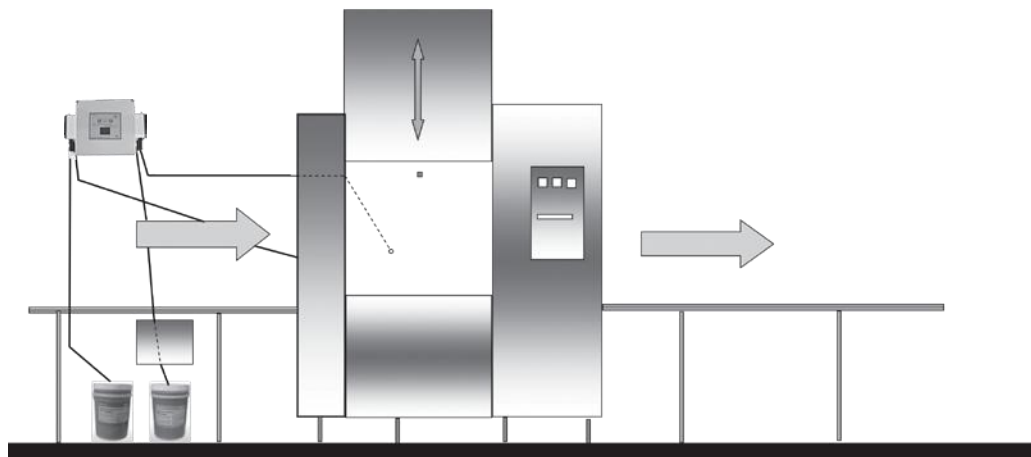
C5 is the dosage of each cycle (must be set to 0), which is used by the channel machine

D1 is the speed per minute of the rinse additive pump (it can be set to 80-99)

D2 is the delay of the rinse additive dosing pump (set as C3 digital plus 2)

D3 is the dosage of each rinse additive (the larger the number, the greater the quantity). Generally, it is 6 to 10. If the rinse additive is added more, there will be water stains.

## Installation diagram of dispenser



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