

SK300 Digital Control Panel Operational Manual

Industrial Automatic Washer And Extractor

Please read the details of the manual to
installed controller!

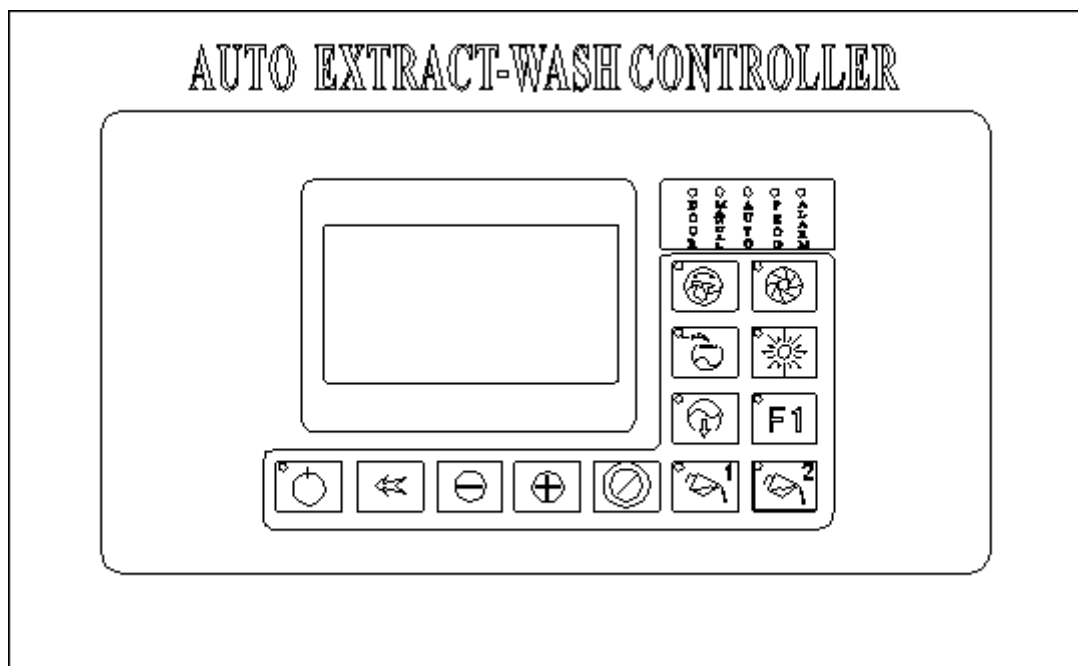
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一、SK300 Introduction



1-1 SK-300 plane

SK-300 microcomputer control panel is specially designed for the full automatic washer-extractor. It features stability and reliability in operation and adequacy in functions with 8 inputs and 16 outputs as well as simultaneous control of one temperature point. SK-300 microcomputer includes the electronic water level system that constantly monitors the level of the water in the wash wheel and displays the level in digits. The SK-300 microcomputer has very convenient man-machine interaction interface with liquid crystal display (128 X 64 dots) to show states of operation of the machine including time of each stage.

The microcomputer provides both automatic and manual working modes. Under manual mode all keys are properly interlocked to avoid possible miss operation. For automatic mode 30 different cycles (programs) can be programmed and upon a single touch of the "Start" key, the machine will run automatically to the end of the selected cycle. And each cycle (program) include 30 steps at most

The washer-extractor with SK-300 microcomputer has the following advantages:

- ◆ Show the temperature and water-level through figures, man-machine interaction interface gets better.
- ◆ Output with relays, no transition relays, decrease troubles and difficulties in maintenance.
- ◆ Timing in manual operation
- ◆ During automatic running, directly modify the work time and operation of the current step, No need to stop.
- ◆ During the running, see the fact temperature and set the temperature at any time, as well as modify the setting temperature
- ◆ The longer extract protection time can avoid damages to work and clothes in the long extract time
- ◆ Control logic of many modes of inverters inside, It can be set by the factory before sale.
- ◆ Lots of parameters inside, the whole machine can be installed flexibly

二、 Illustration Of Control Panel Keys

2.1 Illustration of control panel keys



Program Start Key

In the “door closed” 、 “door locked” status, press and then perform the selected program, selecting them by 《←》 、 《+》 、 《-》 。



Stop Key

In the “manual” status, press the key and stop the current operation.

In the “automatic” status, press the key and stop the current running operation.

When the machine is in trouble, the microcomputer will warn automatically and continuously ,press the key and eliminate it.

When setting parameters, press the key and mean agreeing the hints.

In programming, press the key for 3 seconds and the current program is changed to the blank program, when exiting, press it and mean agreeing the hints.



Select Key

Press the key ,modify set items.



Increase and Decrease Key

Press the two keys to regulate valves of all set items. the detailed information is same to the above.





Wash

Wash Key

Press the key and start to wash normally , press again and invert to the heavy wash, press thirdly and stop washing, by so cycle.



Cool Water

Wash Key

Press the key and start to wash normally , press again and invert to the heavy wash, press thirdly and stop washing, by so cycle.



Heat

Heat Key

Press the key, if the temperature is not up and there is water in the roller, and heat; press again and then stop.



Drain

Drain Key

Press the key and then drain key is opened; press again and stop.

If set the double drain function ,double press,the drian2 output.



Extract

Extract Key

If the customers set the extract number to 4,press once and perform the extract 1 operation, press secondly, perform the extract 2 operation, press thirdly, perform the extract 3 operation, press again, perform the extract 4,press fifthly and then stop extracting and so on. If the customers set the extract number to 1,press once and perform the extract 1 operation; press again and then stop. If the level is lower to the lowest level of extract during “manual” operation, not able to extract; in the “automatic” operation, it can add water automatically up to the lowest level of extract-during the course,



Supply 1

Cup1 Key

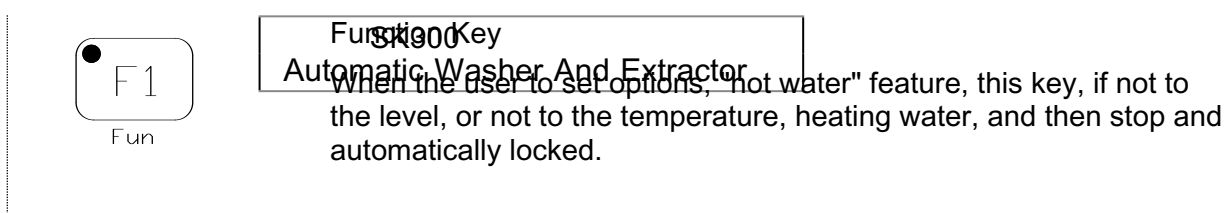
In either manually or automatically, for the first time this key, flash light, liquid soap dispensers, the next 3 seconds, if not again press the button, liquid soap dispensers, soap 1 cup of work; in 3 seconds, liquid soap dispensers key Press again, soap Cup 3, in the press, then close the soap dispenser 3, then close the soap dispenser in the press 1. Period can also be manually stopped. And automatically locked.



Supply 2

Cup2 Key

In either manually or automatically, for the first time this key, flash light, liquid soap dispensers, the next 3 seconds, if not again press the button, liquid soap dispensers, soap 2 cup of work; in 3 seconds, liquid soap dispensers key Press again, soap Cup 4, in the press, then close the soap dispenser 4, then close the soap dispenser in the press 2. Period can also be manually stopped. And automatically locked.



三、 Operations

1. Power On

Power on ,LCD Display

Delay 4 seconds, When abnormal phenomena is detected during self-checking, alarm will arise and the LCD screen will show the error hints, eliminate trouble referring to chapter 6: 《trouble settlement》 .for example:

System Errors
#20 Not setting motor type
Press 《O》 stop speak

Models have
with a capacity

Model : SK300
Ver : V1.00
Motor : Invt
Capacity : 15KG

been set up for the converter,
of 15 kg, it may be displayed:

Delay 10

seconds,the LCD display:

Prog 1

Pls operation machine
30/ 70°C Level: 0/ 22

2. Manual Operation

After supplying the main power and closing the door, get into the “unlocked” status , to press any key can get into the “manual” status and automatically be locked: 《hot water》、《cool water》、《wash》、《heat》、《drain》、《extract》、《supply》 and etc. In the “manual” status, Press 《stop》 key and exit to the “locked” status. lock and enter into the “locked” status.

During the “manual” operation, To press “《←》”、“《+》”、“《-》” can choose and modify the time .

3. Automatic Running

Press “《←》”、“《+》”、“《-》” to select the desired program, in the “locked” status ,press 《start》 and then enter into automatic status, at the same time, start to perform the selected program. If there is trouble, the microcomputer will stop and warn automatically, eliminate trouble referring to chapter6: 《trouble settlement》 ,then startup again.

When the automatic program is finished, the computer will alarm for 1 minutes, and then enter into the “locked” status, during the course, press 《stop》 to stop alarming.

Before the automatic program ends, it will alarm if the door is opened.

四、 Program

methods

1. Program

In "door status,press

```
Prog 2 Step1
00 : 00 : 15 Ins Del
Prog water
30/ 70°C Level: 0/ 22
```

Modify Edit

open" "door close" "door lock"
《←》 key 3 seconds,enter programming,LCD display:

- ◆ When current step finished ,press 《←》 step to make its anti-white display,press 《+》 key to skip to the next step, enter program next step, so until the last step. Also by 《-》 key to jump last step,Inspection procedures.
- ◆ In "Programming" state, press 《←》 key 3 seconds, exit programming,LCD screen emerging prompted to choose, according to 《RUN》 after the confirmation from the "programming", to return to the "open door" or "door "Status.

◇Step six: middle-speed for 3 minutes.

Program methods

If we want the six program ,to edit the above ,the steps are as follows:

- 1) Clean up the program to edit according to the running steps. at the same time referring the above step.
- 2) In the“unlocked”、 or “locked”status, , press 《←》、 《+》、 and 《-》 to select the program ,“prog 6” (in the left-up of the LCD) .
- 3) press 《←》 for three seconds and then get into the “prog” status(in the left-down corner of LCD),note: there is “prog 6” in the left-up corner.
- 4) The program ,“prog 6” , is set to “1.often—standard”, so delete all the program .press 《stop》 for 3 seconds .
- 5) Note :there is “step one” in the left-up of LCD, press 《cold water》 once and the LED of cold water will light; select the level to the middle level; press 《cup1》 once, the LED of cup1 will light; press 《wash 》 once, select the standard ;the set time is 0 seconds.
- 6) press 《←》、 《+》、 and 《-》 ,select the next step, at this case, there is “step two” in the left-up of LCD, press 《cold water》 once, the LED of cold water will light; select the level to the middle level; press 《wash 》 once, select the standard ;press 《heat》 once, the LED of heating will light; press 《←》、 《+》、 《-》 many times, time is set to 10 minutes.
- 7) press 《←》、 《+》、 《-》 ,select the next step, there is “step three” in the left-up of the LCD. press 《drain》 once, the LED of the drain will light; press 《level》 two times, select no setting, LCD displays the set level is 0;press 《wash 》 three times, select single-aspect wash; press 《←》、 《+》、 《-》 many times, to set time is 30 seconds.
- 8) press 《←》、 《+》、 《-》 ,select the next step, there is “step four” in the left-up of LCD ,press 《cold water》 once, the LED of cold water will light; select the level to the middle level; because the set time is 0,not modify time, in this step, add the water to the middle level.
- 9) press 《←》、 《+》、 《-》 ,select the next step, there is “step five” in the left-up of LCD, press 《cold water》 once, the LED of cold water will light; press 《level》 to middle level, press 《wash 》 once, select the standard; press 《←》、 《+》、 《-》 many times, the set time is 5 minutes.
- 10) press 《←》、 《+》、 《-》 , select the next step, there is “step six” in the left-up of LCD, press 《extract》 once, the LED of the “mid extract” will sparkle; press 《←》、 《+》、 《-》 many times, the set time is 3 minutes.
- 11) press 《←》、 《+》、 《-》 ,check whether there are errors in every step.
- 12) after check, press 《←》 three seconds, exit program,then press 《RUN》 save and exit to the “prog” status and come to the “unlocked”、 “locked” status.

Notes:

◆While carrying out the procedure of auto, if the current step adds the water and has no the rinse operates, then stopping accounting keep to the water level after arriving, just start count down the time;

◆ While carrying out the procedure of auto, judge the term that procedure carry out complete is :After carrying out over and current step, next move of time for zero, and have no following and any key request the work: The 《 water 》 , 《 heats 》 , 《 drains 》 , 《 extract 》 , 《 supply 》 .Past when any procedure circulates, meet to satisfy the above conditional step, stop the movement procedure immediately, can't carry out below any step. because of each a procedure at most only there is 30 steps, past movement over 30 empres, also will end current procedure.

◆ if you set “ P14 Function setting” no 3 ,have double drain, you can press the drain key ,select the drain2 ,and the screen display “2”,press again select drain1 ,the screen will display “1”, default extract will select drain1 output .and the screen will not display “1”.6 Must set “ P14 Function setting” no 6, Y16 is DRAIN2 output.

五、 *Parameter settings*

Note: machine factory parameters have been set up, if no special needs would not be appropriate to change the parameters so as not to affect the normal operation of the machine.

1. *Parameter settings*

In power on within 15 seconds, press 《←》 key 3 seconds, will enter a " **Parameter settings**", this time by press 《+》、《-》 may choose to set up the project, press 《RUN》 into the Projects, press 《←》 into the sub-project, this time by the 《+》、《-》 to modify the parameters, the completion of the revised, press the 《←》 return on a sub-project. press 《STOP》 to return to the main item, and then press 《STOP》 to save parameters and exit " **Parameter settings**",return to normal operation of laundry.

2. Before enter “**Parameter settings ,the password is :<wash><extract><water><heat><drain><fun><cup1><cup2>**”

3. **Parameter list**

ITEM	SCOPE	DEFAULTL	NOTE
P01 Manufacturers settings			
(1)Initialization procedure	—	—	Press <I> key to initial factory auto program
(2)Display Manufacturers name	No, Name1, Name2...	no	
(3)Motor model	No set, Inverter, Double Motor, Other Iverter.	Inverter	
(4) Capacity	1 -100KG	25KG	
(5) Language	China、English	English	
P02 Machine settings			
(1)Use automatic adding heat	NO、 YES	NO	Auto re-heat when temperature is lower than set value.
(2)Use automatic adding water	NO、 YES	NO	Auto re-fill when level is lower than set value.
(3)Use skip step function	NO、 YES	NO	Press <+> skip step when auto run
(4)Use delicate wash	NO、 YES	NO	Press <WASH> key double,use the Gentle wash
(5) Retry alarm function	NO、 YES	NO	If auto run display alarm,press <STOP>key,if alarm cancel,continue the step
(6)Cup,halt water	NO、 YES	NO	While add cup ,halt add water
(7)Whole drain extract	NO、 YES	NO	Drain when extract forward begin
P03 Switch input definition			
(1)Door switch	ON,OFF	ON	Door is open
(2)Shock switch	ON,OFF	ON	No shock
(3)Inverter overload	ON,OFF	ON	No overload
(4)Emergency	ON,OFF	ON	No emergency
(5)Check shock	YES,NO	YES	Allow check extract shock?

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(6)Check overload	YES,NO	NO	Allow check motor overlaod?
(7)Check emergency	YES,NO	NO	Allow check emergency ?
P04 Output definition			
(1) Drain define	ON,OFF	ON	OFF: Drain valve is opened while draining. ON: Drain valve is closed while draining.
(2) Lock define	ON,OFF	ON	OFF: Lock valve is opened while running. ON: Lock valve is closed while running.
P05 Water level input define 1			
(1)High level value	1-99	20	Set the high level for manual or auto run.
(2)Mid level value	1-99	15	Set the middle level for manual or auto run.
(3)Low level value	1-99	9	Set the low level for manual or auto run.
(4)Protect level	1-99	25	If the level over the protect level will drain output
P06 Water level input define 2			
(1)Base height of zero level	0-50	7	Set the relative zero level.
(2)Difference of level for stopping	0-30	5	Will stop wash ,and wait the level arrive the setting level.
(3) Heat allow level	0-99	3	Auto fill cold water when level is lower than safety level while heating.
(4)Add cup level	0-99	0	Auto fill water when level is lower than safety level while soaping.
P07 Supply working time 1			
(1)Cup 1 work time	1-255sec	30sec	Default set time of soap 1.
(2)Cup 2 work time	1-255sec	30sec	Default set time of soap 2.
(3)Cup 3 work time	1-255sec	30sec	Default set time of soap 3.
(4)Cup 4 work time	1-255sec	30sec	Default set time of soap 4.
P08 Wash cycle			
(1)Minimum pause fwd/rev	1-99sec	3sec	Min time between forward and reverse to avoid motor overload.
(2))Run time of standard wash(second)	1-120sec	25 sec	Standard wash run time, includes forward and reverse.
(3)Stop time of standard wash(second)	1-120sec	5 sec	Standard wash stop time, includes forward and reverse.
(4)Run time of delicate wash(second)	1-120 sec	15 sec	Gentle wash run time, includes forward and reverse.

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(5)Stop time of delicate wash(second)	1-120 sec	5 sec	Gentle wash stop time, includes forward and reverse.
P09 Extract time			
(1)Extraction start delay time	1-255 sec	4 sec	Delay time begin extract
(2)Rotate time of forward(second)	1-255 sec	10 sec	Forward run time at beginning of extract.
(3)Level while Extraction	0-99	22	Auto fill to level at least before extract to avoid shock.
(4)Balance drain level	0-99	10	If the level is higher than level at most after balance drain, controller will alarm.
(5)Balance time	1-255 sec	20 sec	Balance with water time at extract.
(6)Balance drain time	1-255 sec	30 sec	Balance drain water time at extract.
P10 Middle extract			
(1)Middle extract to high extract delay	1-255 sec	30 sec	Middle to high extract delay time
(2)Balance end time	1-255 sec	30 sec	Delay time from end of balance
(3)Balance end brake	1-255 sec	10 sec	
(4)Middle extract end delay	1-255 sec	45 sec	Delay time from end of middle extract.
(5)Middle extract end brake	1-255 sec	10 sec	
(6)Middle extract work time	1-255 min	8min	Time of middle extract.
(7)Shock restart count	1-3	1	Re-extract times when shock. If the times is larger than the set value, controller will alarm.
(8)Restart to wash time	1-255sec	30sec	Wash time before re-extract to unroll the clothes.
P11 High extract			
(1)High extract protect time	1-120min	8min	Max time of extract at all phase.
(2)High extract number	1-4	4	High extract number. There are four high extract most
(3)High extract 1 (minute) max time	1-255sec	30sec	
(4)High extract 2 (minute) max time	1-255sec	30 sec	
(5)High extract 3 (minute) max time	1-255sec	30 sec	
(6)High extract end delay	1-255sec	120 sec	Delay time from end of high extract
(7)High extract brake	1-255sec	10 sec	
P12 Brake time			Not use
(1)Brake on time	1-255sec	3 sec	
(2)Brake off time	1-255sec	5 sec	
(3)Delay brake	1-255sec	5 sec	

time			
P13 Temperature setting			
(1)Default manual temperature(°C)	1-99°C	70°C	The default value of temperature of heat
(2)Default automatic temperature(°C)	1-99°C	70°C	The default value of temperature of heat
(3)Maximum temperature(°C)	1-99°C	90°C	The max value of water set temperature.
(4)Minimum temperature(°C)	1-99°C	10°C	The min value of water set temperature.
P14 Function setting			
(1) Function	NO, Hot water	Hot water	F1 key function
(2)Inverter Rotate ratio	0-2	0	Base number of inverter while use input signal.
(3) Double drain	NO,YES	NO	
(4) Use CUP3	NO,YES	NO	Control cup1 key
(5) Use CUP4	NO,YES	NO	Control cup2 key
(6) Y8 Relay Output	BRAKE,CUP4 ,DRAIN2	CUP4	Select :BRAKE,CUP4 or DRAIN2 output
(7) Y16 Relay Output	CUP3,GASBAG	CUP3	Select: CUP3 or Gasbag output
P15 Unload setup			Door open ,press <I> key
(1) Unload type	0-1	0	
(2) Unload run	1-255sec	5sec	
(3) Unload stop	1-255sec	5sec	

The following inverter at different speeds corresponding to the base list, (the specific location as the last page of terminals of the electrical connection diagram)

Inverter Rotate ratio 0	Wash FWD	Wash REV	Bal	Midd Extr	High Extr 1	High Extr 2	High Extr 3	High Extr 4
FWD	1	0	1	1	1	1	1	1
REV	0	1	0	0	0	0	0	0
SS1	0	0	1	0	0	1	1	0
SS2	0	0	0	1	0	1	0	1
SS3	0	0	0	0	1	0	1	1
ACC	0	0	0	1	1	1	1	1

Inverter Rotate ratio 1	Wash FWD	Wash REV	Bal	Midd Extr	High Extr 1	High Extr 2	High Extr 3	High Extr 4
FWD	1	0	1	1	1	1	1	1
REV	0	1	0	0	0	0	0	0
SS1	1	1	0	1	0	1	0	1
SS2	0	0	1	1	0	0	1	1
SS3	0	0	0	0	1	1	1	1
ACC	0	0	0	1	1	1	1	1

Inverter Rotate ratio 2	Wash FWD	Wash REV	Bal	Midd Extr	High Extr 1	High Extr 2	High Extr 3	High Extr 4
FWD	1	0	1	1	1	1	1	1
REV	0	1	0	0	0	0	0	0
SS1	0	0	1	0	1	0	1	1
SS2	1	1	1	0	0	1	1	1
SS3	0	0	0	1	1	1	1	1
ACC	0	0	0	1	1	1	1	1

六、Trouble shooting

Number explanation:

1.1 Overload ,No #1x

#10 Inverter overload

1.2 System trouble, No #2X

#20 Not setting motor type

#21 Emergency stop

#22 Door is opened when running automatically

#23 Machine shock

1.3 Sensor trouble ,No #4X

#40 Temperature sensor short

#41 Temperature sensor open

1.4 Microcomputer trouble ,No #5X

#50 Data area error

#51 Computer system error

Note: if the above troubles appears again and again or doesn't eliminate, please contact sellers in time.

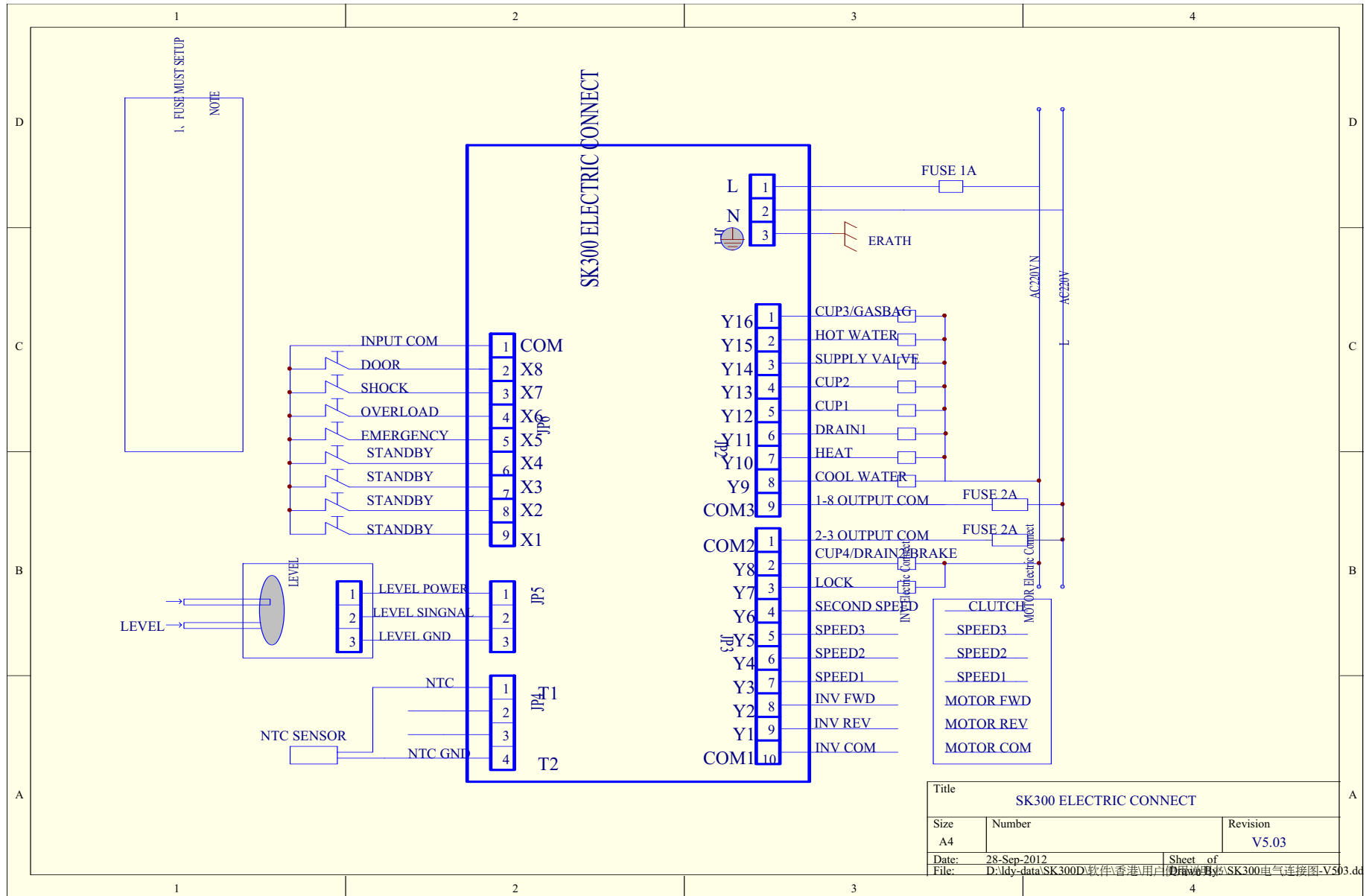
七、 ***Electric connect and mechanism install***

1. Electric connect

2. Mechanism install

2.1 Plane : L 256 X W 150MM Box : L 174 X W 126 X H 69.3MM

SK300 Wash-Extract Controller



Title		
SK300 ELECTRIC CONNECT		
Size	Number	Revision
A4		V5.03
Date:	28-Sep-2012	Sheet of
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