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BGA 900D  
TWXBCB88  
BGA Rework System

Instruction Manual

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**Thank you very much for purchasing our product.**

**This operation manual describes the features and operation of the equipment. Before using, read the manual thoroughly for proper use of the unit. Store the manual in a safe easily accessible place for future reference.**

# Contents

I . General Notes .....	5
1.1 Safety Labels .....	5
1.2 General Safety Information .....	6
1.3 Safety Instructions - Electrical Machine Components.....	6
1.3.1 Power Switch.....	6
1.3.2 Electrical Current.....	6
1.3.3 Emergency Stop Button .....	6
1.3.4 Turn-On.....	7
1.3.5 Turn-Off.....	7
1.4 Residual Safety Check .....	7
1.4.1 Bottom Preheating Zone .....	7
1.4.2 Cleaning.....	7
1.4.3 Safety at the Workplace .....	7
II . Technical Data .....	8
2.1 Parameter .....	8
2.2 Dimension (Reference).....	9
III. Transport and Installation .....	10
3.1 Transport Instruction.....	10
3.1.1 General Transport Instruction .....	10
3.1.2 After Transport.....	10
3.2 Installation Instruction .....	10
3.2.1 Preparing to Remove Machine.....	10
3.2.2 Install Machine .....	11
IV. Debugging .....	13
4.1 Switching on Machine .....	13
4.1.1 Check before Starting .....	13
4.1.2 Switching On .....	13
4.2 First Time Operation.....	13
4.2.1 Access the Operation Panel.....	13
4.2.2 Soldering Technology .....	13
4.2.3 De-soldering Technology.....	15
V . Functions .....	16
5.1 Power Switch .....	16
5.2 Components Introduction .....	16
5.2.1 Operation Buttons.....	17

5.2.2 Top Heating Component .....	18
5.2.3 Bottom Preheating Zone .....	19
5.3 Operation Panel Description .....	19
5.3.1 Enter the password.....	19
5.3.2 Modify Working Flow .....	20
5.3.3 Modify Working Mode .....	21
5.3.4 Modify Parameter of Working Flow .....	21
5.3.5 Modify Laser Alignment Mode .....	25
5.3.6 System Instruction .....	26
VI. Troubleshooting.....	27
VII. Maintenance.....	29
7.1 Daily Inspection and Maintenance.....	29
7.2 Switch Cabinet Maintenance (option) .....	31
7.3 Cooling Fan Maintenance.....	31
7.4 Movement Mechanism Maintenance.....	31
7.5 Cleaning.....	32
VIII Parts List .....	33
8.1 Packing List .....	33
8.2 Tooling Box List .....	33
8.3 Consumable Material.....	34

# I . General Notes

## 1.1 Safety Labels



**Potential danger to life and health of persons (serious injuries or hazards)!**

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**Do not touch or put hands on the moving parts when the device is working!**

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**Keep hands away from moving parts to avoid injury!**

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**Protect yourself against electric shock. Do not change any connection in the product and never touch live components.**

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**Disconnect the product from main power as well as air source before performing any maintenance. Wrong handling might cause hazards for the operator and it may terminate the warranty.**

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**Warn high voltage. Protect yourself against electric shock.**

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**Mind your head!**

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### NOTE:

- 1) Use original spare parts from QUICK to replace defective ones.
- 2) If the problem occurs on any designated purchasing components, clients can also source the same models from their own purchasing channels.
- 3) Please feel free to contact QUICK if there's any problem during the maintenance.

## 1.2 General Safety Information

● Robot must be used or stored in an applicable environment: working ambient temperature is 0~40°C, relative humidity is 20%~90%.

● Follow the steps and drawings to maintenance.

## 1.3 Safety Instructions - Electrical Machine Components

● Maintenance may only be performed by a certified electrician, or by persons who have been instructed in electrical engineering under the direction and supervision of a certified electrician in accordance with standard electrical engineering practice.

● On machines with fixed connection, turn off power disconnecting device (power switch). The power disconnecting device (power switch) itself is then still under voltage (live)! Cover live parts!

● Disconnect the machine from the power supply before performing maintenance on any electrical or opening the control cabinet.

● Disconnect main power plug. Machine is safely isolated from the power supply.

● Maintenance work must be performed in accordance with related drawings.

### 1.3.1 Power Switch

Secure the power disconnecting power switch with a lock to prevent it being switched on again.

If the power switch needs to be switched on for certain repair jobs, particular care must be taken to ensure that persons cannot be harmed.

The power disconnecting power switch must be secured to prevent it being switched on during interruptions in repair work.

### 1.3.2 Electrical Current

● Defective electrical components may be live (under voltage), danger of death on contact with them.

● Molten particles can spray out in the event of short-circuits, risk of burn injuries.

● Defects which found on the electrical components and equipment must be changed immediately.

● Check that all electrical connections are made and secure before starting up this machine.

### 1.3.3 Emergency Stop Button

Activating the E-Stop button immediately stops the movement of all mechanical parts (include electrical and pneumatic supply) of the machine. After resolving the error, the E-Stop button must be pulled out as acknowledgement. Thereafter the error can be acknowledged on the operation panel.

### **1.3.4 Turn-On**

Ensure that the machine is supplied with power before operating. Please follow this sequence to turn on the machine:

- 1) Connect power cord and turn on power switch.
- 2) Turn on the computer, if installed.
- 3) Activate the operating software.

### **1.3.5 Turn-Off**

Please follow this sequence to turn off the machine:

- 1) Close the operating software.
- 2) Turn off the computer, if installed.
- 3) Turn off power switch and make sure main power cord disconnected.

## **1.4 Residual Safety Check**

### **1.4.1 Bottom Preheating Zone**

- The bottom preheating component temperature could be still very high when the working is finished. Wait until it has cooled down to room temperature to replace.
- When the temperature is cooled to room temperature, maintenance & installation & disassembly can be carried out.

### **1.4.2 Cleaning**

- Hydrocarbons dissociate causing an explosion if contacting aluminum(Zn) and chrome-plate. In this machine, aluminum and chrome-plate surface are used.
- Only use solvents or cleaning agent without hydrocarbons! Before you use a solvent or cleaning agent, check its ingredients!

### **1.4.3 Safety at the Workplace**

- Ensure adequate ventilation of the workplace to protect operator from dangerous fumes and vapors.
- Do not eat and drink at the workplace, keep soldering process away from food-stuff, beverages and feedstuff. The possibility of smoke in the soldering process may be contaminated food and drink.
- Keep workplace clean and tidy is the prerequisite for ensuring soldering.

## II . Technical Data

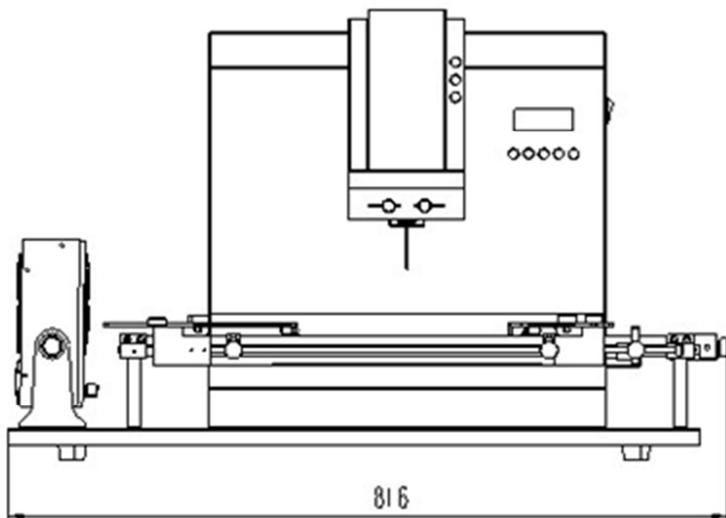
### 2.1 Parameter

Model		BGA 900D-TWXBCB88
Input voltage		220V AC 50/60HZ
Power consumption		3200W(max)
Top heating power consumption		720W
Bottom preheating power consumption		2400W(max)
Bottom preheating temperature		400°C (max)
Top heating temperature		400°C (max)
PCB size		450mm*420mm (max)
Chip size		2*2mm ~ 60*60mm
Chip placement accuracy		±0.025mm
Noise		<70dB (measure in the distance of 1m)
Working ambient	Temperature	0~40°C
	Relative humidity	20%~90%, no condensation
Dimensions (mm)	Width	816
	Depth	608
	Height	516
Temperature stability		±5°
Weight (Kg)		About 36 Kg

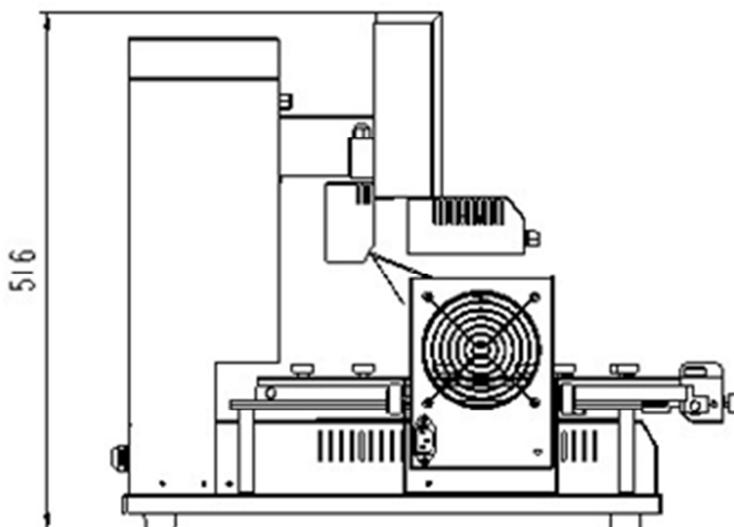
★Remark: Ensure that the input voltage data agrees with the information on the nameplate of machine before operating!

## 2.2 Dimension (Reference)

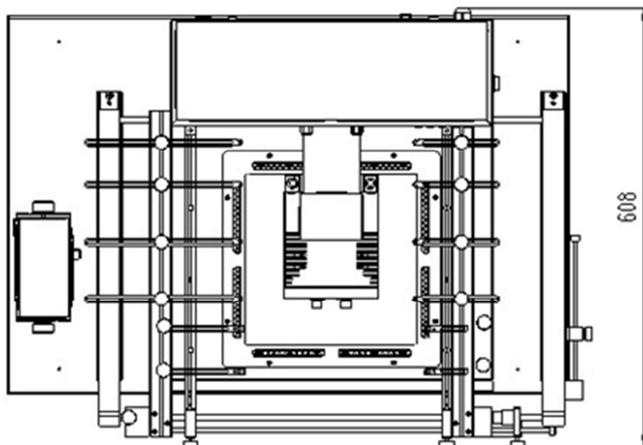
Front view



Left view



Top view



Unit: mm

## III .Transport and Installation

### 3.1 Transport Instruction

#### 3.1.1 General Transport Instruction

- 1) Wrap machine in suitable film to protect it from dust and water.
- 2) Pack machine on pallets safe for shipping or airlift. Place system on pallet and secure on all 4 sides with suitable blocks of wood. The blocks of wood must be screwed to the pallet.
- 3) The machine must be transported in an upright position.
- 4) Do not tilt machine when loading and unloading.

#### 3.1.2 After Transport

- 1) Remove the packaging not before being at the installation.
- 2) Check the delivery for damages. Report all damages immediately to QUICK.
- 3) Check if the scope of delivery corresponds to the indications on the packing list.
- 4) Place machine on a place that is dry and free of corrosive fumes and dust. Damage caused by corrosion is prevented.
- 5) Note local heat sources. Place machine so that it is not directly irradiated by thermal sources.

Proceed as follows:

- Determine the center of gravity and suitable lifting points of the entire unit transport by way of trial, refer to [3.2.2 Install Machine](#).
- Place machine on a flat. Ensure stability of machine.
- Look for good access to machine for operating and maintenance.
- Note mandatory safety area around machine and to other machines.
- Escape routes must be kept free!

### 3.2 Installation Instruction

#### 3.2.1 Preparing to Remove Machine

- Switch off system at power disconnecting device and secure to prevent it being inadvertently switched on again.
- Disconnect mains power plug. Make sure system is safely isolated from the power supply.

### 3.2.2 Install Machine

● The machine is to be installed such as to ensure unhindered access to the E-stop button. Care must be taken to ensure that the E-stop button can be reached directly in the case of emergency.

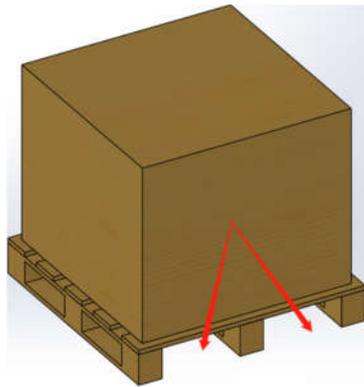
● At the place of installation, it must be possible to completely open the rear door. In particular, collision with open door of other machines must be ruled out.

NOTE:

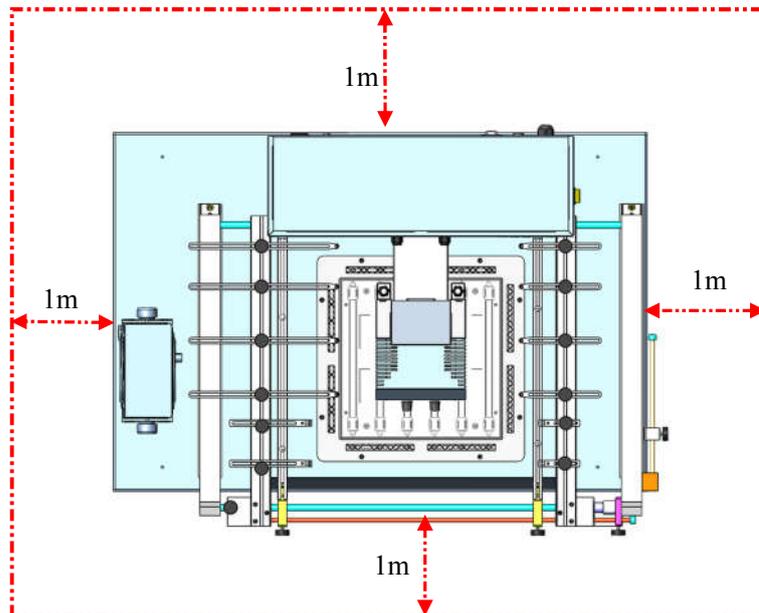
1. Machine weight: about **36Kg**
2. Use only lifting device that carry the weight of machine.



3. Determine the center of gravity and suitable points of the machine for transport by way of trial.



4. Never stand near the lifting device, load can move when lifting it!
5. We recommend a spare distance of 1m, see flow figure.



6. Connection



1. Power inlet module: connect 220V AC (refer to nameplate) power into power inlet module.
2. Fuse tube socket: The user can replace the fuse according to the corresponding model.
3. RS232: it follows RS 232 Standard Communication Protocol.
4. ESD socket: connect to grounding line.
5. Cool fan socket: connect fan line into fan socket.

**NOTE:**

**After all the connections are completed, plug the power cord into the socket and turn on the power switch.**

## IV . Debugging

### 4.1 Switching on Machine

#### 4.1.1 Check before Starting

- Make sure that the machine is connected to the required power supply and compressed air supply(if need).
- Operate the system only with a suitable transformer. Incorrect voltage and power rating can cause damage.
- Check that e-stop button has been installed correctly and are fully functional.
- Use your hands to feel if there is hot or cool air coming from out of the nozzle vents.

#### 4.1.2 Switching On

- After switching off the system always wait for at least 120s before switching it on again.
- If a mistake is made, switch off the machine and wait for at least 120s before switching it on again.
- Switch on the machine process as follows:
  - 1) Connect the power cord to the appropriate power supply.
  - 2) Connect the cool fan power cord to the fan socket.
  - 3) Install the new sucking nozzle.
  - 4) Switch on the power switch.

### 4.2 First Time Operation

#### 4.2.1 Access the Operation Panel

When the system is powered, the operation panel opens automatically. The default password is “000”. At the same time, system also has the omnipotent password “159”. If you forget the setting password, you can input “159” to make the password of system come back to initial password “000”.

#### 4.2.2 Soldering Technology

1. Turn on power switch of each part.
2. Move PCB Fixture with fixed PCB to make PCB over the Bottom Heater and make the soldered component between Top Heater and Bottom Heater. The position is easy to be measured with laser alignment device. The

right position should make the red laser point in the center of component. The component which to solder on the PCB have been aligned before soldering. Suggest using PL precision placement system.

3. Select parameter with keyboard. (Refer to “Parameter setting”)

- 1) Input password”000”
- 2) Select the required flow, if need to modify, perform relevant operation.
- 3) Select “solder” working mode.
- 4) Select “IR” laser alignment mode.
- 5) Not to change communication speed, and press “EXIT” key to exit. IR window shows:

TC: 022°C Tb: 019°C
Ready for flow

TC: ***°C Tb: ***°C
Ready for flow

6) Press “START” key and the system start to work, perform content of selected flow.

4. IR window will show series of setting temperatures and the current temperature of Tb and TC during working, and indicate when it reaches T0, T1, T2, T3 and TL. S1, S2 and S3 are counted down and user can know about the setting value clearly.

5. IR window will show series of setting temperatures and the current temperature of Tb and TC during working, and indicate when it reaches T0, T1, T2, T3 and TL. S1, S2 and S3 are counted down and user can know about the setting value clearly.

6. If you see the solder has melted down (It is watched with IR camera and LCD), you can press “CAL” Key to calibrate temperature of TL to adjust the display temperature to liquid temperature TL.

7. When the temperature reaches TL, there will be a voice signal.

8. When the temperature reaches T3, the voice signal is change to a hurry sound and the system prolongs heating by S3 seconds, after it, the system will not heat up anymore, and the technical process is over.

9. The system can perform a series of function action during working.

- a) After press “START” key, the top heater move downwards near to bottom.
- b) After the system sounds unvaryingly, the top heater moves upwards. Open the cooling fan to blow cooling wind.
- c) After the PCB has cooled, close the cooling fan, and the soldering technics has finished.

### 4.2.3 De-soldering Technology

1. Turn on power switch of each part.
2. Fix the PCB on the top of Bottom Heater and make the de-soldered component between Top Heater and Bottom Heater. The position is easy to be measured with laser alignment device. The right position should make the red laser point in the center of component and the suction pad also in center of component.
3. Adjust aperture system to get a proper window size.
4. Select parameter with IR keyboard. (Refer to “Parameter setting”)
  - A. Input password ”000”
  - B. Select the required flow, if need to modify, perform relevant operation.
  - C. Select “desolder” working mode.
  - D. Select “IR” laser alignment mode.
  - E. Not to change communication speed, and press “EXIT” key to exit. IR window shows:
  - F. Press “START” key and the system start working, perform content of selected flow.
5. After pressing “START” key, bottom heater starts to heat up and top heater moves downwards and reaches to bottom.
6. IR window will show a series of setting temperatures during working. Indicate when it reaches T0, T1, T2, T3 and TL. When the bottom temperature reaches T0, the top heater STARTs to heat up.
7. When the temperature reaches TL, it will give a sound alert automatically (Low frequency).
8. When the temperature reaches T3, it will also give a sound alert automatically. (Middle frequency)
9. When the solder has melted down, pick up the component.
10. Open the Cooling fan until the PCB has cooled down.
11. The top heater moves upwards and stops at top.

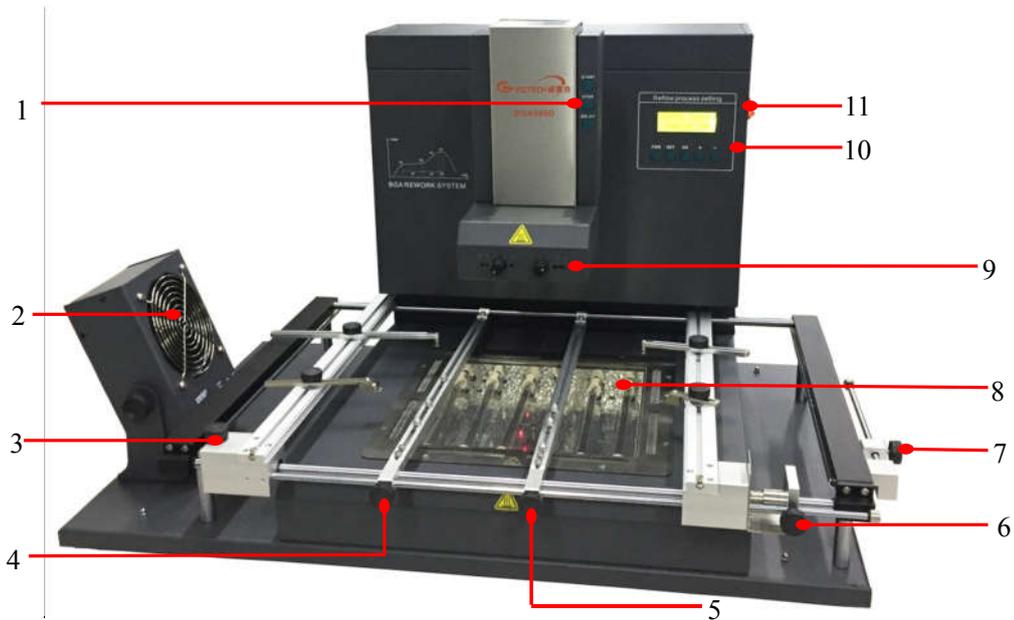
# V. Functions

## 5.1 Power Switch



The power disconnecting device (power switch) connects the system to the electrical circuit or disconnects it from the circuit. It is a power disconnecting device.

## 5.2 Components Introduction



### Part name list:

Item	Description	Item	Description
1	Operation button	7	Y Axis positioning button
2	Cooling fan	8	Bottom preheating zone
3	X Axis positioning button 1	9	Top heating component
4	PCB supporting frame button 1	10	Operation panel
5	PCB supporting frame button 2	11	ON/OFF Power switch
6	X Axis positioning button 2		

## 5.2.1 Operation Buttons

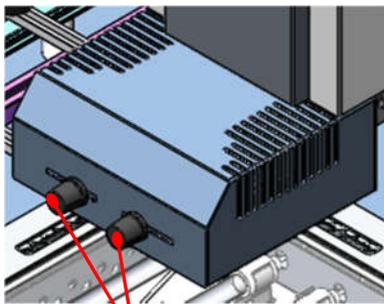


Operation button functions list:

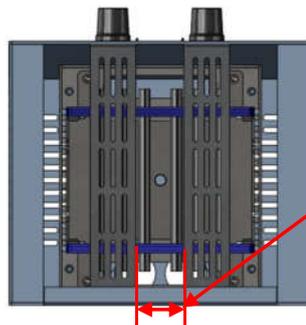
Button Symbol	Function
	Fan switch button.
	<ul style="list-style-type: none"> <li>① In the main menu, press it to enter into set menu.</li> <li>② In the set menu, press it to move the cursor to the next digit during changing numbers.</li> </ul>
	Press it to save the parameters and then press it to back to main menu.
	<p>During processing:</p> <ul style="list-style-type: none"> <li>① In the set menu, press it to move the cursor to up position.</li> <li>② Press and hold it to continuously increase the value.</li> </ul> <p>During idle mode: press it to move up the top heating component.</p>
	<p>During processing:</p> <ul style="list-style-type: none"> <li>① In the set menu, press it to move the cursor to down position.</li> <li>② Press and hold it to continuously decrease the value.</li> </ul> <p>During idle mode: press it to move down the top heating component.</p>
	Press it to activate each processing cycle in automatic mode.

Button Symbol	Function
	<p>Press it to disable each processing cycle in automatic mode.</p>
	<p>Press it to keep more 5s than setting temperature in T3 Zone.</p>
	<p>Power switch, all movements are connected/disconnected power supply.                      “ON” indicates the machine is powered on;                      “OFF” indicates the machine is powered off.</p>

### 5.2.2 Top Heating Component



Adjustable knob

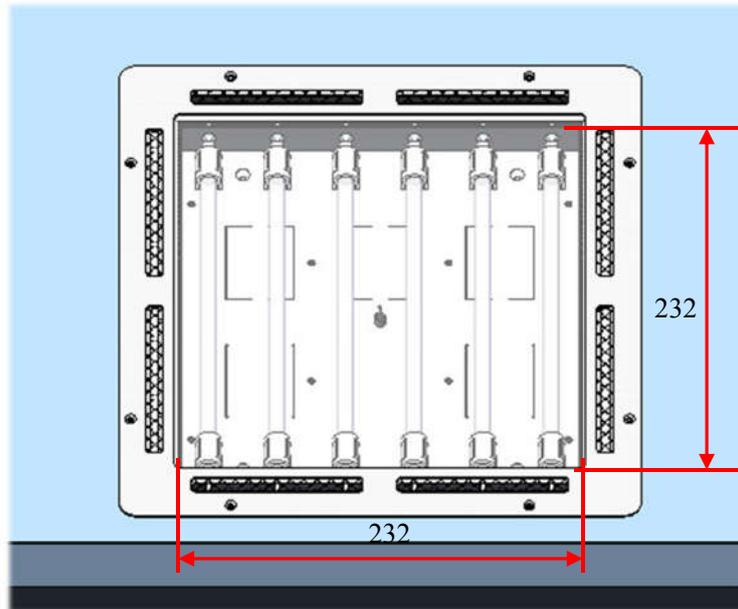


Adjustable range: 20-60mm

The Aperture System of Top Radiator can be adjust from 20 (mm) to 60mm by two Adjustment Knobs. Unscrew the knobs before adjusting, and adjust the window size, then tighten knobs. The scale “2” on the housing means 20mm and “3” means 30mm, other scale is similar. For example, if you want to adjust size to 50×50(mm), adjust two knobs to the scale of “5” and tighten them.

Note: Adjusting the aperture system can protect the adjacent components on the PCB from being heated. But, when the aperture system is adjusted to small size, the Top Radiator will be very hot and decrease its lifetime, so it’s necessary to increase the window size appropriately to avoid the damage of the Top Radiator.

### 5.2.3 Bottom Preheating Zone



- 1. Preheating Zone: 232x232mm ;
- 2. Power consumption: 400Wx6=2400W ;

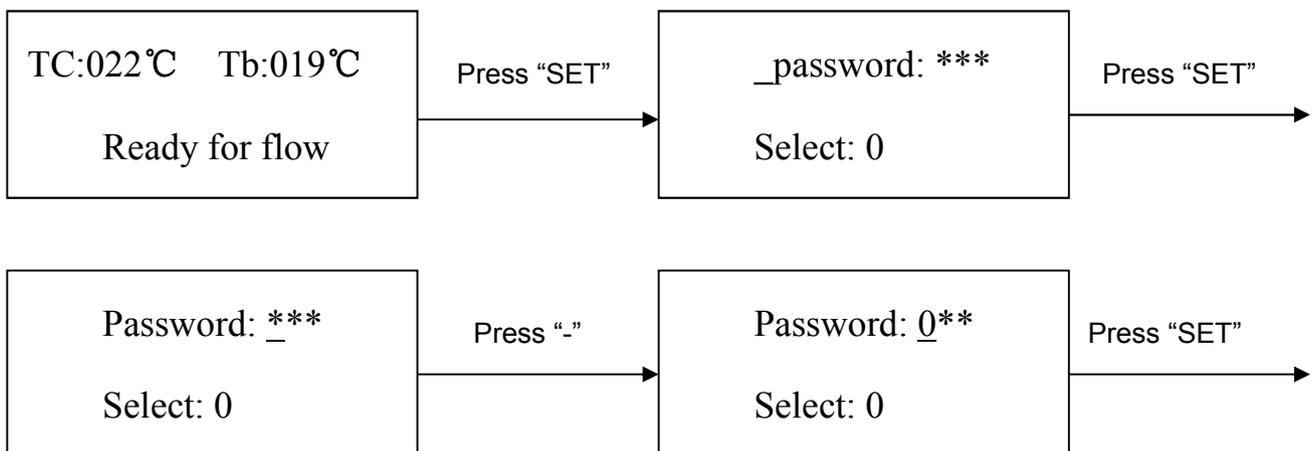
## 5.3 Operation Panel Description

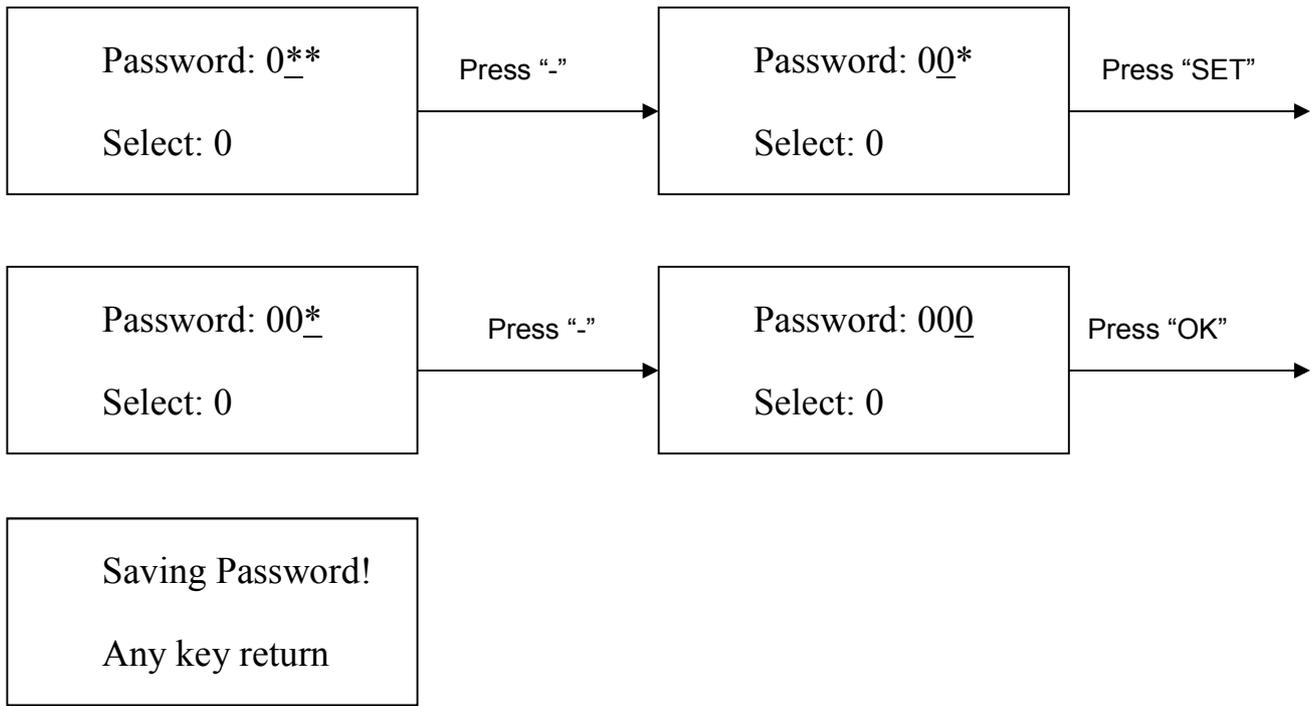
### 5.3.1 Enter the password

When the system is powered, the operation panel opens automatically. The default password is “000”. At the same time, system also has the omnipotent password “159”. If you forget the setting password, you can input “159” to make the password of system come back to initial password “000”.

Note: If want to modify parameter of system, you must input correct password, otherwise, you can only browse them.

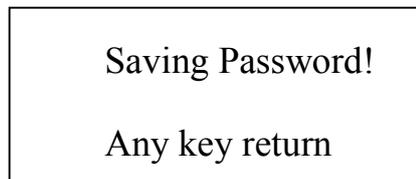
For instance: Input the initial password “000” of system.





After password inputting:

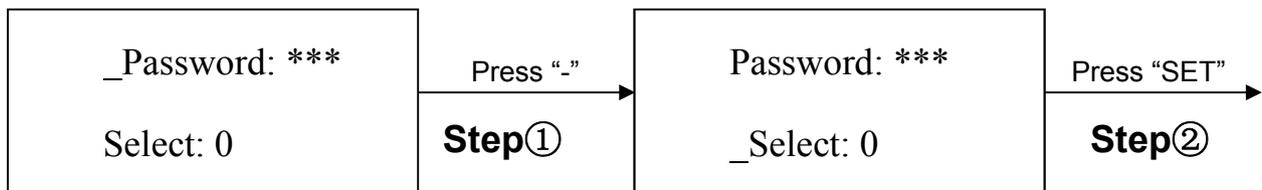
1. If you want to modify the password, return to above mode to input the new password. If password is modified successfully, it will show:

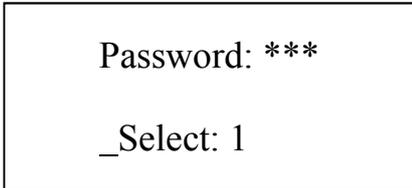
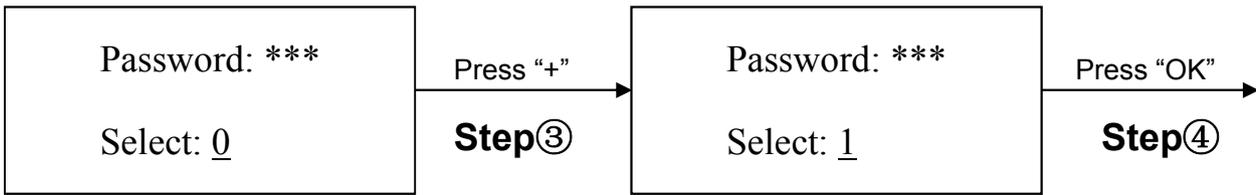


2. If you want to modify the next working flow, operate as the following B item. If you don't want to modify, please press "DOWN" key to browse the following parameter settings.

### 5.3.2 Modify Working Flow

For instance: Modify the working flow and make it become 1 flow.

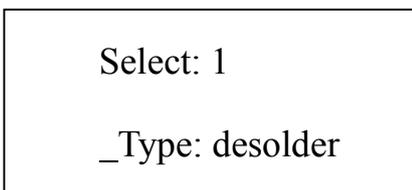
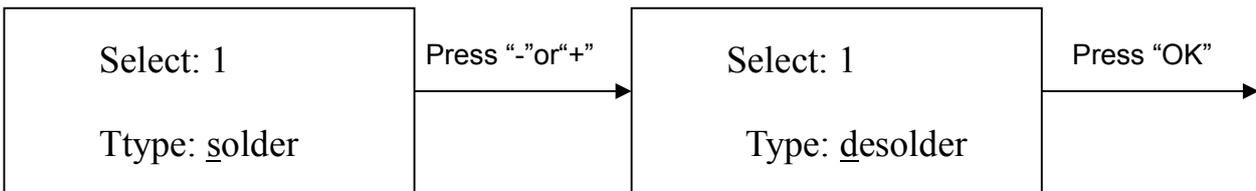
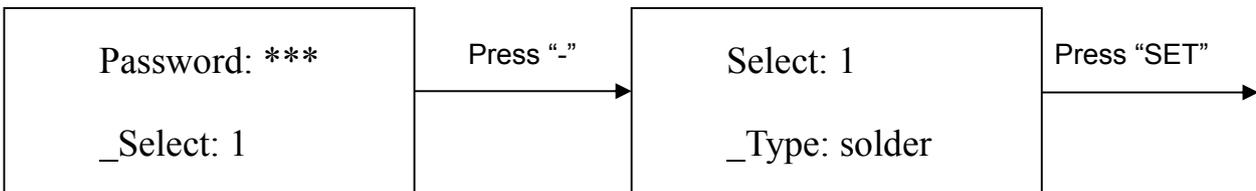




1. When carry on the forth step (Step④), if press “SET” key, you can browse and modify parameter of this flow, shown as C-1 item.
2. After finishing modifying of working flow 1, if you want to modify the next working mode, operate as C item shows. If you don’t want to modify it, you can press “DOWN” key to browse the next parameter settings.

### 5.3.3 Modify Working Mode

For instance: Modify the working mode and make it in “desolder” mode.



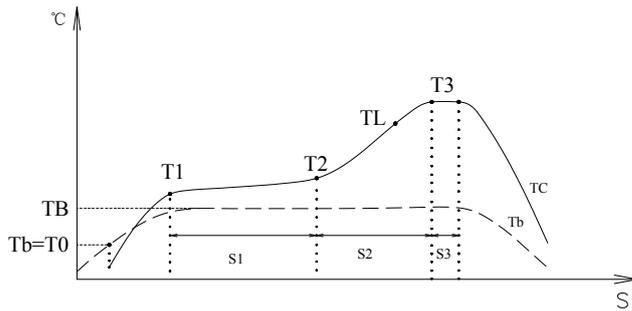
After finishing modifying working mode, if you want to modify laser alignment mode, operate as D item shows; if no need to modify it, please press “DOWN” key to browse the next parameter settings.

### 5.3.4 Modify Parameter of Working Flow

1. If it is necessary to modify parameter of a working flow, first you must select the working flow and then

modify its parameter.

2. The modification of parameter must accord with the following technic graph.



The soldering technics is decided by T0, TB, T1, T2, T3, S1, S2 and S3. It describes the temperature graph during the system working. TL denotes Melting temperature of solder and the range between T2 and T3.

### T0

T0 is the valve temperature for bottom heater required by top heater when it heats up. Also it is the first temperature of this technics process. When the work flow begins, the bottom heater starts to heat up. After reaching the T0, the top heater begins to heat up.

### TB、Tb、TC

TB: The setting temperature of bottom preheating Tb: Real-time temperature of bottom heating TC: Real-time temperature of top heating

### T1

It is the heat preservation starting temperature of reflow soldering. It is the second temperature of this technics process. The temperature rises to T1 with a proper speed the component permits. Use the “UP” and “DOWN” key to set the value of T1 in parameter setting interface.

### T2

It is the temperature when finish the heat preservation of reflow soldering. The pre-heating temperature rises to T2, after the time of S1 finishes. Within this time, PCB and component pre-heating is finished and the solder is activated. Use the “UP” or “DOWN” key to set the value of T2 in parameter setting interface.

### T3

It is the peak value temperature of reflow soldering. When the temperature reaches T2, the temperature equably rises to T3 with a definite raising speed. The soldering or de-soldering will be finished when the temperature reaches to the peak value and performs the next step. Use the “UP” or “DOWN” key to set the value of T3 in parameter setting interface.

### TL

Melting temperature of solder. At this temperature, the solder starts to melt down and turn into liquid.

### S1

Heating time rises from T1 to T2. User can set the value in the range of 0~300s.

### S2

Heating time rises from T2 to T3. User can set the value in the range of 0~300s.

S3

Prolonged heating time (Heat preservation time) after the temperature reach T3, and user can also set the value in the range of 0~300s.

Unit

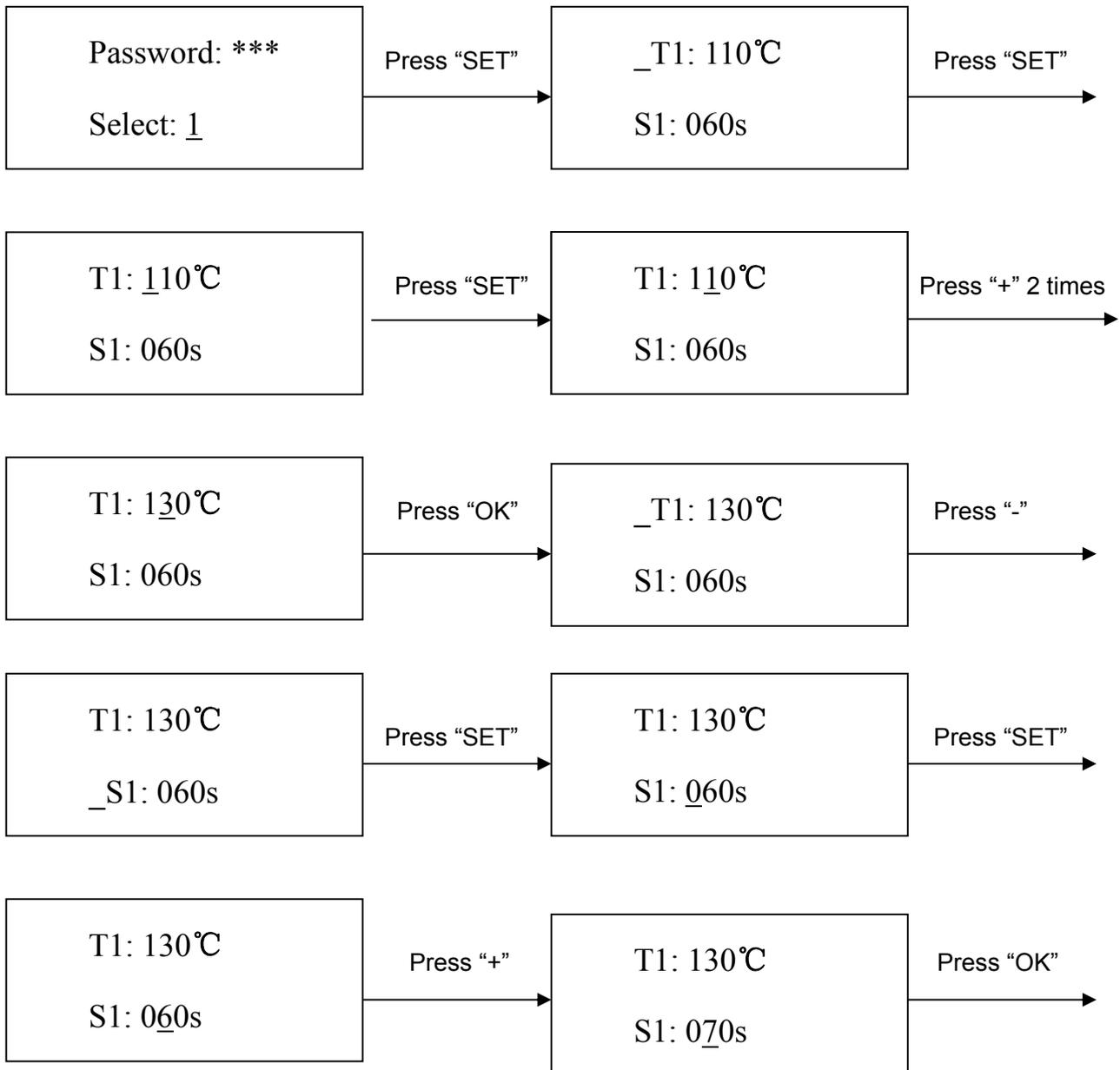
It's able to set the unit of display temperature during work flow. In parameter modifying menu, click "UP" and "DOWN" keys to set the value.

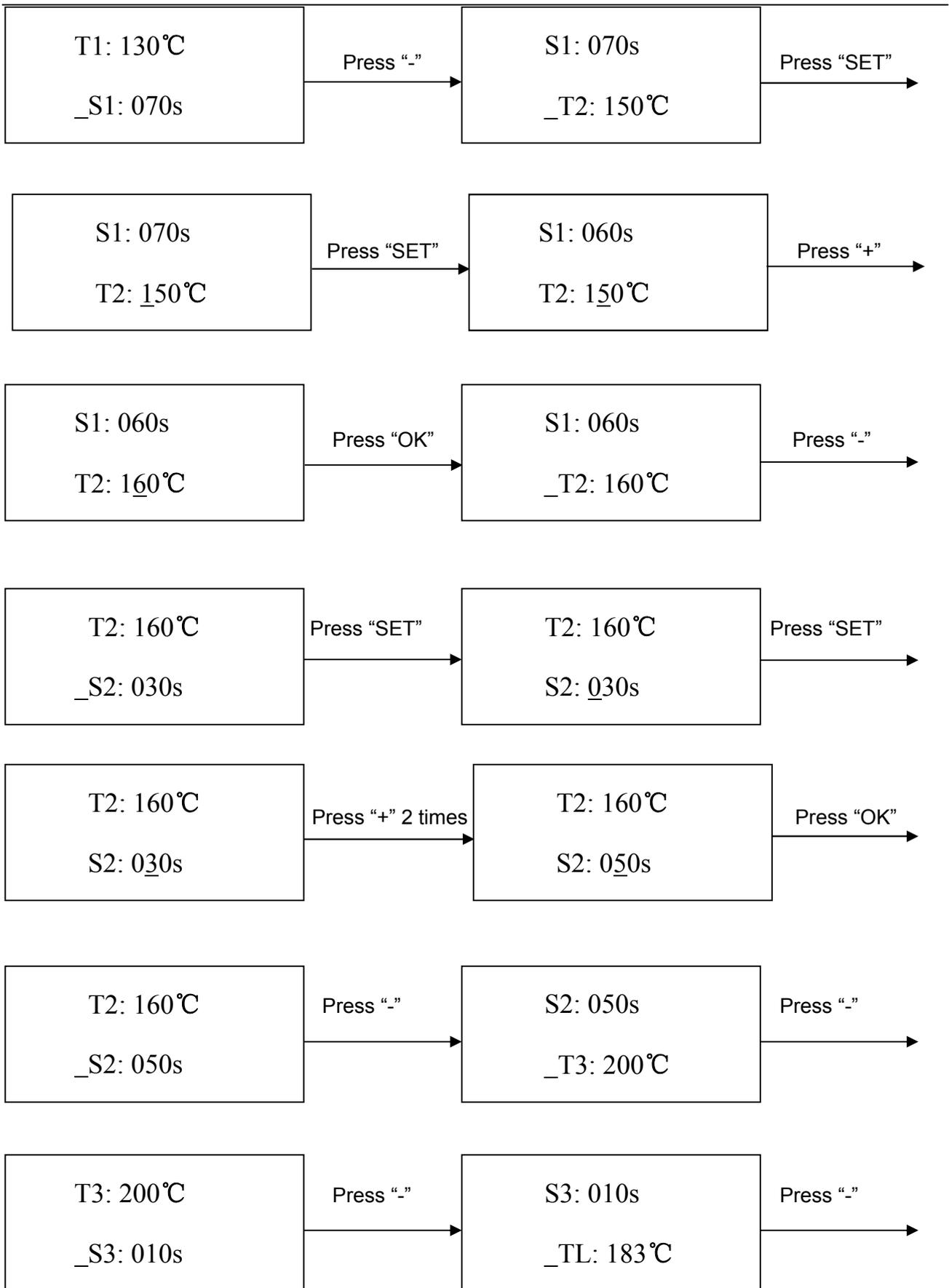
Password

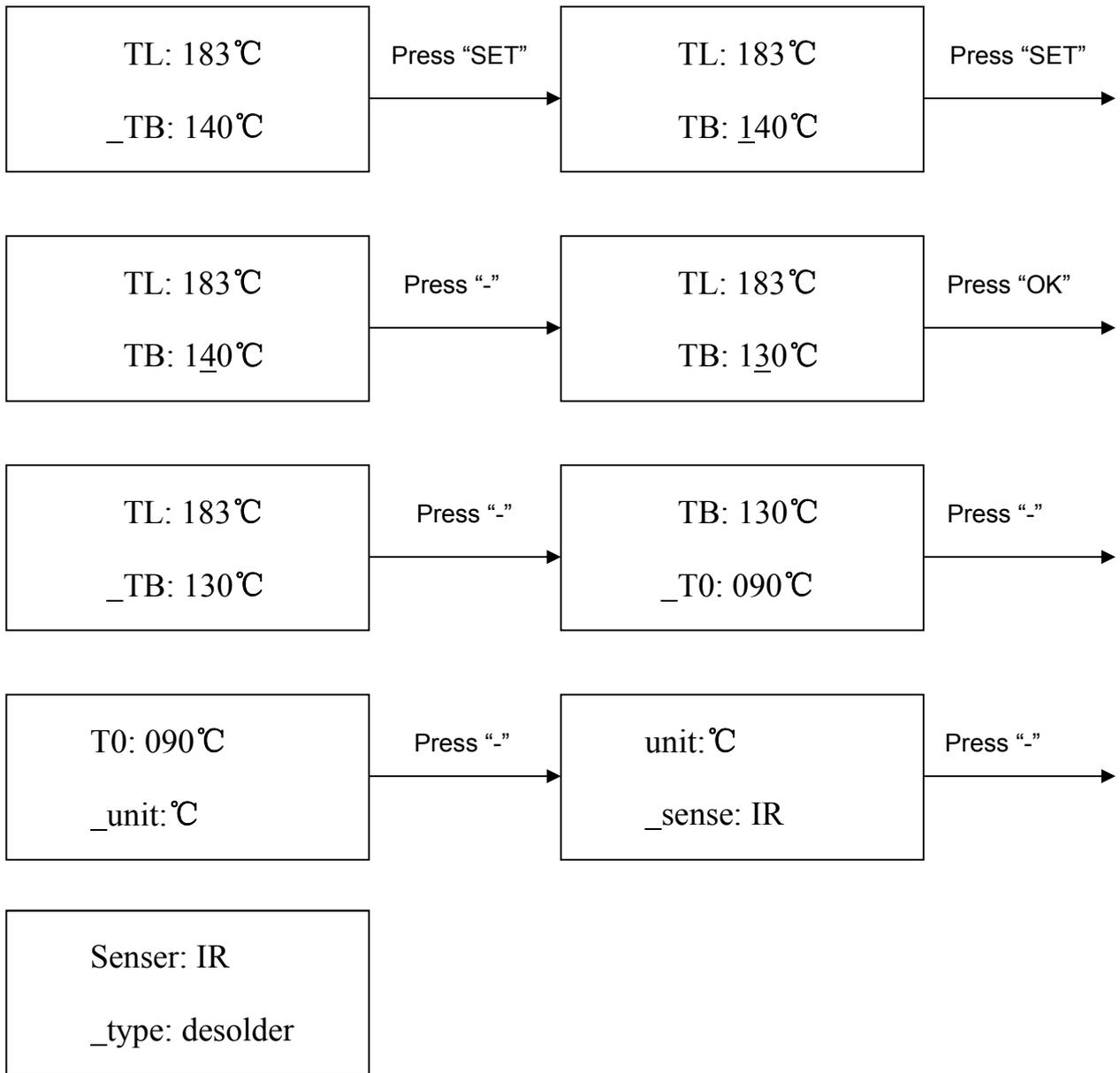
It is used for setting password. It is designed for preventing the equipment unnecessary or non-authorized change. When it is set to "000", the password protecting is useless. The password is used for all flows and it can be useful and useless in each flow. The system requires inputting correct password before any change.

Using of password refer to "A" item.

For instance : **Modify parameter of flow one (Flow one has been selected) and make T1=130°C, S1=70s, T2=160°C, S2=50s, TB=130°C.**

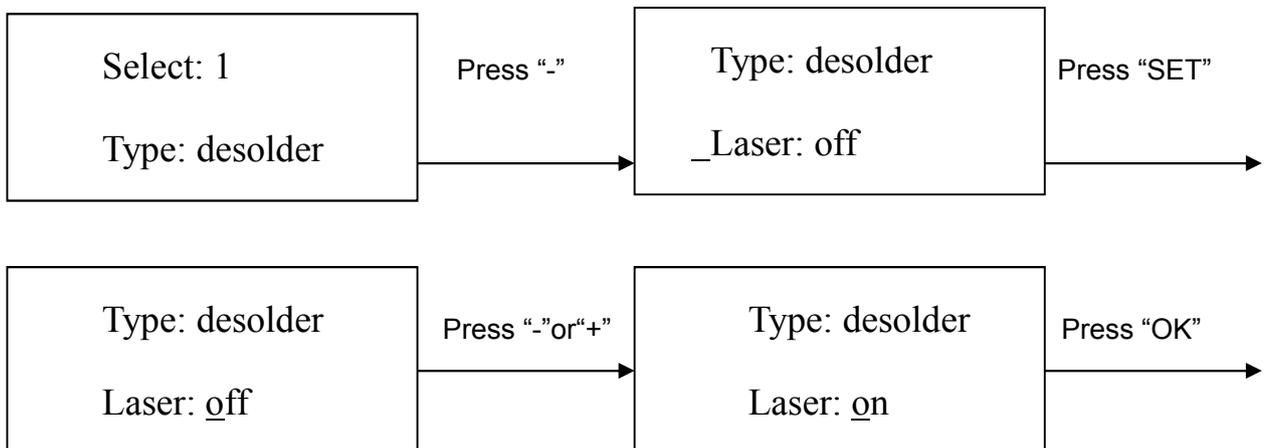






### 5.3.5 Modify Laser Alignment Mode

For instance: Modify the laser alignment mode and set it to “on”.



Type: desolder

\_Laser: on

1. After finishing the modification, the next step communication speed, will not be able modified by keyboard.
2. Press “EXIT” key to exit. Now, the system has saved all parameter settings, IR window will display:

TC:022°C Tb:019°C

Ready for flow

3. After all technological parameters have been selected, press “START” key and the system perform the set flow.

### 5.3.6 System Instruction

1. In initial state, if the top sensor or outer sensor is broken, it displays:

TC: \*\*\*°C Tb: \*\*\*°C

T sense error!

If the bottom sensor is broken, it displays:

TC: \*\*\*°C Tb: \*\*\*°C

B sense error!

When happening above status, user must stop operating.

2. In working process ,if the temperature TC greater than 270°C , system enter temperature protect, exit working process, return initial state.

## VI. Troubleshooting

No.	Troubleshooting	Possible Reason	Solution
1	The unit can't reset.	Please check if the emergency stop button is pressed or not.	Dismiss the emergency stop button and press the reset button.
2	The Z axis unit movement isn't accurate.	Out of the weight or the speed.	If the unit's accurate decreased, reduce the speed and it will remission .Adjust the verticality or parallelism of the track, tighten the screws of the tracks.
3	The motor is abnormal.	The board or the motor is bad.	If it was still bad after changed the signal wires of motor, the board doesn't have matter. Change the wires of drivers, if the bad one works after changed the wires, it proves the motor was bad, if the normal one doesn't work, it proves the driver is bad.
4	The fuse has burned.	If the replacement of the fuse is still malfunctioning, it could be that the motherboard is broken	Replace it.
5	The motor is vibrating at the origin when reset.	The photoelectric switch is bad or the drive plate has a problem	Replacing the photoelectric remains the problem, it will be driven problem.
6	X-axis only turns to one direction motion.	Driver board of X-axis broken	Replace it
7	The unit is always alarming.	If overcome the trouble it was still alarming, maybe the emergency BTN was bad or the alarm flag wasn't feedback.	Press the emergency BTN and check if power will be cut or not. If the power isn't cut, the emergency BTN is bad.
8	The high temperature of the motor, no power input.	The chain guide wheel falls off, breaks	Change guide wheel.
9	Drive shaft of motor fracture.	Because of the long time force operation, the drive shaft and the base screw loose, creating a gap, resulting in wear and tear.	Remove the drive shaft and weld and tighten the loose screws.
10	The motor position is	The motor bracket is not fixed with	Adjust the motor position and fix it.

BGA 900D-TWXBCB88

No.	Troubleshooting	Possible Reason	Solution
	tilted and the running chain is abnormal.	the limit bolt.	
12	Sports parts are jammed	The screw of the proximity sensor loosens, leading to a deviation near the sensor position.	Calibration of proximity sensors.
13	The accuracy of the machine declined	1. Loose guide rail. 2. X-axis and Y-axis out of the vertical.	1. Readjust the straightness, perpendicularity and levelness of the guide rail. 2. Adjust the bolts of the crossbar and machine link.
14	There is something strange in the lead screw.	1. The bearing is damaged. 2. Lack of lubricating oil.	1. Clean or change the bearings. 2. Add the lubricating oil.
15	The lead screw was shaking while moving.	1. The lead screw was bent. 2. The lead screw was not concentricity with the motor.	1. Change the lead screw. 2. Adjust the place of the lead screw.
16	The pressure watch is beating at work, and the pressure value is set to swing back and forth	The sealing surface of the valve is attached to water or oxides.	Remove the valve and clean the moisture and oxides.
17	The belts are slipped.	1. The belts loosen. 2. There is some lubricating oil on the belts.	1. Adjust the motor's place for tightening the belt. 2. Clean the lubricating oil.
18	The sliding block movement is retarded, the guide way is febrile, and wear phenomenon.	The gap between guide rail and slider is too small.	1. Adjust the clearance between guide rail and slide block. 2. When the puncture is worn, it needs to remove the guide rail and slide, and repair the puncture site.

NOTE: Select required solution if available.

## VII.Maintenance

### 7.1 Daily Inspection and Maintenance

Safety instructions:



Risk of electric shock

Be sure to open the cabinet door after the power off

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Cut off the power supply for 5 minutes and replace the servo unit (including the rectifier) and control the power unit. During this time, please do not touch the terminal!

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Risk of electric shock and injury

After the repair, please do not forget the tool in the electric control cabinet, make sure the door of the electric control cabinet is closed

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The total power supply control cabinet and the relevant control box should be labeled "no power supply", so as to prevent non-related personnel from closing the switch

Daily check of robot:

- 1) Check if there are flammable or explosive items close to the soldering robot.
- 2) Check if the working voltage is correct.
- 3) Clean the nozzle. Check if the nozzle is corroded or worn out. If so, please replace it.
- 4) Check if airflow is normal.
- 5) Check if zero position of each axis is correct.
- 6) Test the movement and communication performance of robot.
- 7) Clean the working environment of robot.
- 8) Check if the external screws of the robot are screwed well.
- 9) Write down equipment condition in each shift.
- 10) Run a testing program.

Daily check

Inspection before turning on the power.

Parts Name	Item	Service	Remarks
Ground cable & cables	Looseness	Re-tightening	
	Breaking or damage of wire	Replacement	

BGA 900D-TWXBCB88

Working voltage & grounding.	Checking		
Motion platform	Attachment of spatter or dust.	Removal of spatter or dust.	Do not blow them off with compressed air, dust and spatter may enter the clearance or inside the cover, resulting in damage to the robot.
	Looseness	Re-tightening	
Safety device	Damage	Replacement	Read the technical information on their manual.
Working area	Tidiness		

Inspection after turning on the power

Note: checks that no personnel are present within the working area before turning on the power.

Parts Name	Item	Service	Remarks
Emergency stop button	Turn off the servo power immediately.	Replacement	Do not use the robot unless the button is repaired.
Motion platform	Each axis makes steady and smooth motions (no abnormal vibration, noise or looseness) in manual and operation mode.		Do not use the robot unless the motion platform is repaired.
Limiting sensor	When the home return is completed, the origin limit sensor is sheltered.	Replacement	
Fan	Cooling air inlet fan of the control cabinet. Attachment of dust on the fan.	Clean	Turn off the power before cleaning the fan.
Testing	Run a testing program		

## 7.2 Switch Cabinet Maintenance (option)

Maintenance schedule

Task	Operating hours	Daily	Weekly	Monthly	Every 3 months	Every 6 months	Annually
Clean control cabinet	8	√					
Check lines	40		√				
Check terminal blocks	160			√			
Change filter pad			√				
Check emergency stop button	8	√					
Check power switch		√					
Check control cabinet seals (option )			√				
Check indicator lights			√				

Check whether the door is closed or not.

Make sure that the control cabinet is in close condition under any circumstances, even when the control cabinet is not working.

Check for gaps and damage.

When opening the door, the edge of the inspection door is broken.

Check whether there is any abnormal dirt inside the control cabinet. If it is, when the reason is found, try to clean it.

Check whether there are gaps in the control cabinet.

## 7.3 Cooling Fan Maintenance

Cooling fan rotation is abnormal, the temperature in the control cabinet will rise, the electric control cabinet will malfunction, all should check cooling fan

Control the fan in the cabinet and the back fan to turn when the power is connected, so check whether the fan is rotating, and the air volume of the outlet and the suction vents are checked to confirm whether the rotation is normal.

## 7.4 Movement Mechanism Maintenance

Robot is a precision equipment, need time and maintenance, keep good lubrication condition, must strengthen the

maintenance and maintenance, at any time, timing, clean up dirt, oil, ensure the robot to work under a good condition, this can avoid some faults occur frequently, reduce downtime, and can guarantee or to extend the service life of machine.

Although the lubrication interval may vary according to use condition and the service environment, lubrication should be performed approximately every 100km in travel distance (3 to 6months).It is recommended to add grease to the ball screw and guide rail. Replace the grease if there is any color change.

## 7.5 Cleaning

- Hydrocarbons dissociate causing an explosion if contacting aluminum(Zn) and chrome-plate. In this machine, aluminum (Zn) and chrome-plate surface are used.
- Only use solvents or cleaning agent without hydrocarbons! Before you use a solvent or cleaning agent, check its ingredients!

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## VIII Parts List

### 8.1 Packing List

No.	PART NAME	TYPE	QTY.	REMARK
1	Equipment		1 pcs	
2	Manual Instruction		1 pcs	
3	Heat dissipation fan		1 pcs	
4	Tool Box		1 pcs	Refer to tool box list
5	Prevent collapse support		2 pcs	
6	Ground line		1 pcs	
7	Alligator clip		1 pcs	
8	RS232 Communication Cord		1 pcs	IR

### 8.2 Tooling Box List

No.	PART NAME	QTY.	REMARK
1	Solder paste	1	
2	Writing brush	1	
3	tinfoil	1	
4	ESD metal tweezer	1	
5	High temperature adhesive tape	1	
6	Absorb Stannum Line	1	
7	Alcohol Bottle	1	
8	Clean Cotton Stick	1	
9	Screwdriver with Short Handle	1	
10	Spanner	1	
11	ESD gloves	1	

12	PCB Supporting Bar (S)	4	
13	PCB Supporting Bar (L)	4	
14	CD	1	
15	Tin globe	4	

### 8.3 Consumable Material

No.	PART NAME	TYPE	QTY.	REMARK
1	Heating tube	215mm/ $\phi$ 10/400W/230V	1 pcs	
2	High temperature glass	EA-H15-JSSZGY1-01-01-03	1 pcs	

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