

I760B-DX
BGA Rework System

Operation Manual

Thank you for purchasing our IR Rework System. The system is exclusively designed for reworking and soldering SMD component. Please carefully read this manual before operating the system. Store this manual in a safe, easily accessible place for future reference.

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1. Summary

Thank you for using QUICK 760B Rework System. This system adopts micro-processor control and infrared sensor technology to do soldering and de-soldering to surface mount components safely and accurately and it can also control the whole technological process and record all information by means of the IR Software, thus meeting the higher technological demands of modern electronic industry. It becomes one of the most valued electronic equipments in this field.

This Rework System adopts microprocessor control and infrared sensor technology. It has the precision non-contact infrared temperature sensor for de-soldering parts and the middle wavelength infrared heater. The soldering process is under the monitoring of non-contact infrared sensor and optimum control of process can be achieved at any time. In order to get the best technological control and the nondestructive and reproductive PCB temperature, I760B supplies a 2200W heating power, suitable for all application, such as large or small PCB as well as lead-free process. The technology of re-flow soldering controlled by closed-loop ensures the precise and smaller technological window, even heat distribution and appropriate peak value of temperature for lead-free soldering.

The infrared heating tube of QUICK 760B, With a uniform and safe heating and power systems and the flexibility necessary for the large heat capacity of PCB and other high temperature requirements (lead-free soldering), etc. can be easily addressed. QUICK 760B with 10 kinds of operating parameters of model, a model for each parameter can be modified. In addition QUICK 760B also provides effective cooling of the PCB board, for professional users is a complete, ideal soldering tool.

2. Specifications and Technical Parameter

2.1 Specifications

1. Max Power	2200W (max)
2. Power of Bottom preheating	1500W (Infrared heating tube)
3. Power of Top heating	720W (Infrared heating tube, Size: 60m×60 mm)
4. Preheating time of Bottom	260*260mm
5. Adjusting rang of Top Heater	20~60mm
6. Heating time of Top Heater	Approx 10s (From room temperature to 230□)
7. LCD display screen	Size: 65.7×23.5 (mm) 16×2 character
8. Communication	Standard RS-232C (Connect with PC)
9. Infrared Temperature sensor	0~300□ (Testing range)
10. Outside K type sensor	Optional
11. Dimension	33×38×44 (cm)
12. Weight	20Kg

Note: When purchasing the equipment, please point out the working voltage.

2.2 Technical Parameter

TL: Melting temperature of solder

T1: Heat preservation starting temperature of reflow soldering

T2: Heat preservation ending temperature of reflow soldering

T3: Peak value temperature of soldering and de-soldering

T0: Valve temperature: The lowest temperature of bottom heater when top heater heats up. $T0 < TB$

TB: The set temperature of bottom heater

Tb: The real time temperature value of bottom heater

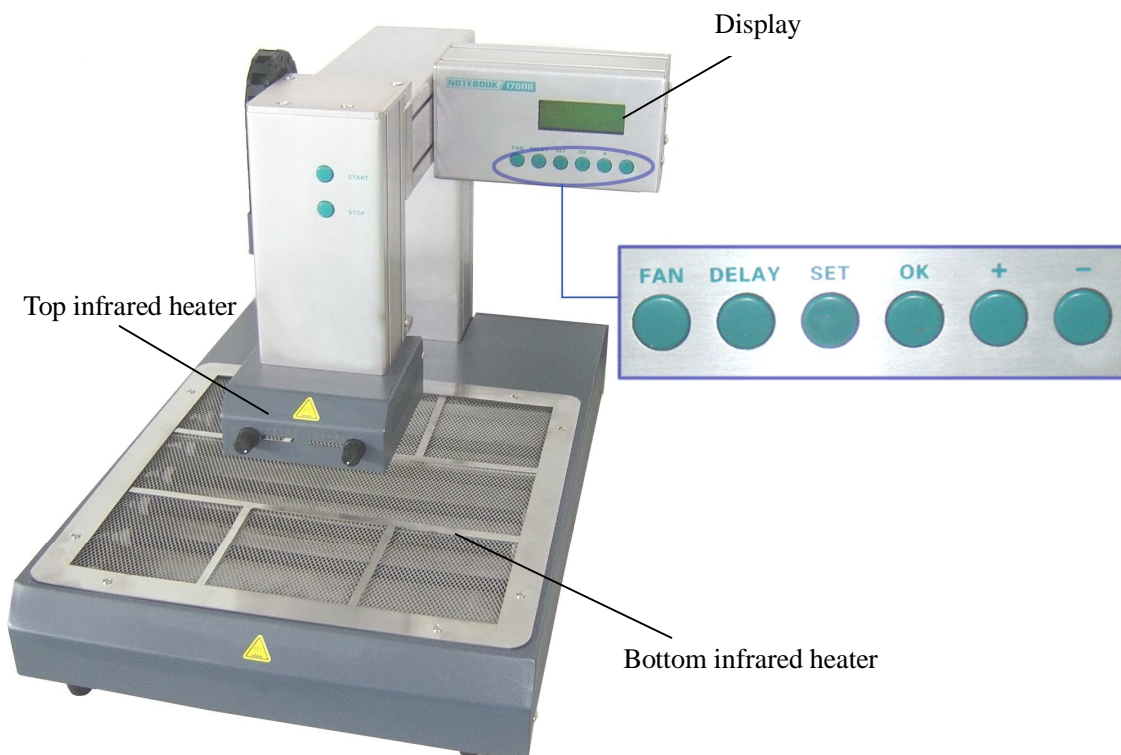
TC: The real time temperature value of top heater

S1: Heating time rising from T1 to T2

S2: Heating time rising from T2 to T3

S3: Heat preservation time of T3

3. Product Picture



4. Safety Instructions

Note: For the safety of system and operator, please read this manual carefully before operating the unit. Please note that the unit is suitable for soldering and de-soldering of electronic components.



CAUTION:

Top and bottom IR heater will be very hot during working, so explosive and combustible object or gas and solvent is strictly prohibited in working areas, also please don't touch the hot housing parts.



CAUTION:

Because the laser alignment device includes a laser device Class II, don't see the laser beam directly.



CAUTION:

When the system is in trouble and needs maintenance, it should be maintained by an experienced and authorized technician or maven, or you can contact with service agent or our company.

The inside of the unit with dangerous voltage! The inexperienced servicing is dangerous for operators.

5. Install the Unit and Adjust Parts

5.1 Place the Unit

Unwrap the packing of the unit, then take it out and put it on the solid level worktable. Put I760B main unit on the base plate.

5.2 Check the Pack

Please check whether the following parts are in good condition and they aren't missed.

- * I760B Main unit
- * IR Base plate with PCB Fixture (Optional)
- * Power cord
- * Operation Manual
- * IRsoft Disc
- * RS232 cable
- * External cooling fan (selected parts)

Note: The parts will be packed according to the packing list, if you don't purchase the optional part and it isn't in the package. If any above part is missed out, please contact with our company or agents immediately.



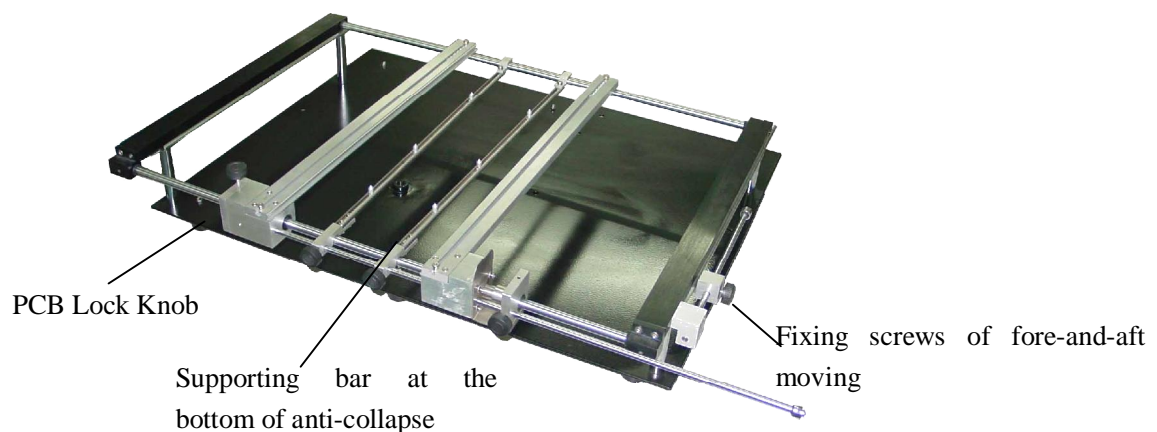
CAUTION:

Top and Bottom heater will be very hot during working, so explosive and combustible object or gas and solvent is strictly prohibited in working areas, also please don't touch the hot housing parts.

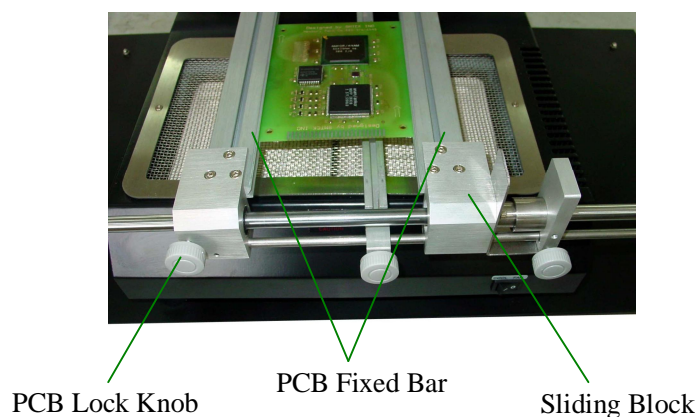
5.3 Connect the Unit

- * Please check whether the power voltage according with the rated voltage on the equipment nameplate.
 - * Please check whether the switches are turned off. (Set to "0")
 - * Connect Power cord to the power socket behind equipment.
 - * If you use IR Soft, please connect the RS232 connecting cord to the RS232 socket behind the unit.
- After finishing above steps, insert power plug into power socket, and switch on power.

5.4 PCB Fixture



1. Fore-and-aft moving distance is more than 100mm.
2. Maximum moving distance from left to right is about 400mm.
3. Maximum height can be used is about 92mm.
4. PCB Fixture Dimensions: 700 (L) * 580(W) * 170(H)mm
5. Movable PCB fixture is able to fix PCB with different size. The Lock Knobs lock PCB Fixed Bar to fix PCB. Unscrew PCB Lock Knobs and push Sliding Blocks by hand to open PCB Fixed Bars, make the distance between PCB Fixed Bars accord with the PCB size. Fix PCB between them and screw down PCB Lock Knobs after adjusting position.



6. Keys and Parameter Setting

6.1 Keys Instruction

1. During selecting working flow period, “+” and “-” keys are used for controlling the cursor moving upward or downward and increasing or decreasing the number.
2. During the soldering or de-soldering period, also top IR heater haven’t yet started to heat up, key “+” and key “-” are used for controlling movement upward or downward of top IR heater. That is to say, during movement upward and downward of top IR heater, after pressing the key “BEGIN”, “+” and “-” keys make the top heater stop at a proper position.
3. Under the standby condition, if the cooling fan has already drawn back, press “+” and “-” keys to make the top IR heater move up and down.
4. Under the standby condition and the top IR heater is at top position, press “ALIGN” key, the cooling fan (it has laser alignment device inside) will hold out or draw back. When cooling fan completely holds out, the laser alignment device will switch on automatically. After the cooling fan has held out, if you double click “ALIGN” key, the cooling fan will be on or off.
5. Function of “OK”: When in the settings so that the cursor BGA-IR menu to return to higher levels, until the return of user interface, and save the changes the result.
6. Function of “SET” key: Make the BGA-IR enter parameters setting mode and cursor move a step forward.
7. Function of “Delay” Key: During the soldering or de-soldering process, pressing this key, make the setting value of S3 delays five seconds after the temperature up to T3. If pressing the key continuously, the time of heating (S3) continuously prolongs.
8. Function of “FAN”Key: Make the external cooling fan to work or to stop.
9. Function of “STOP” key: During the setting mode, make BGA-IR cursor exit until to the setting mode. During the soldering or de-soldering process, make BGA-IR exit operation.
10. Function of “START” key: During the standby condition, make BGA-IR get into soldering or de-soldering situation.

6.2 Parameter Setting

Parameter settings order as the followings:

- A. (Password settings)
- B. (Flow settings, it can modify parameter inside.)
- C. (Working mode settings)
- D. (Laser alignment settings)
- E. (Communication speed settings)

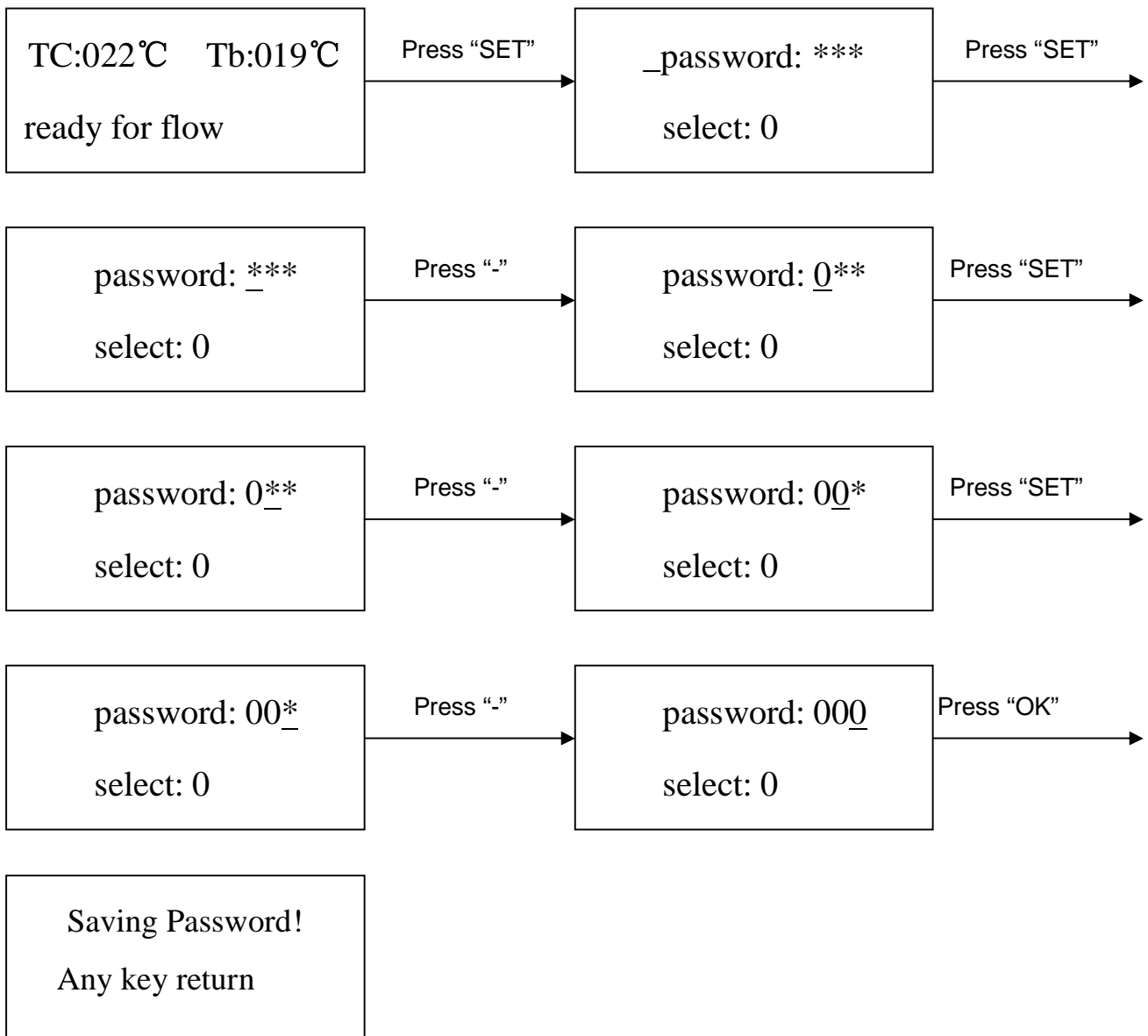
A. Input password

The initial password of system 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 only

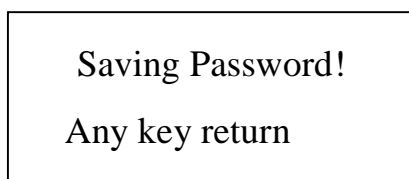
can browse them.

For instance: Input the initial password "000".
When in initial state, TC, Tb display room temperature.



Password input complete :

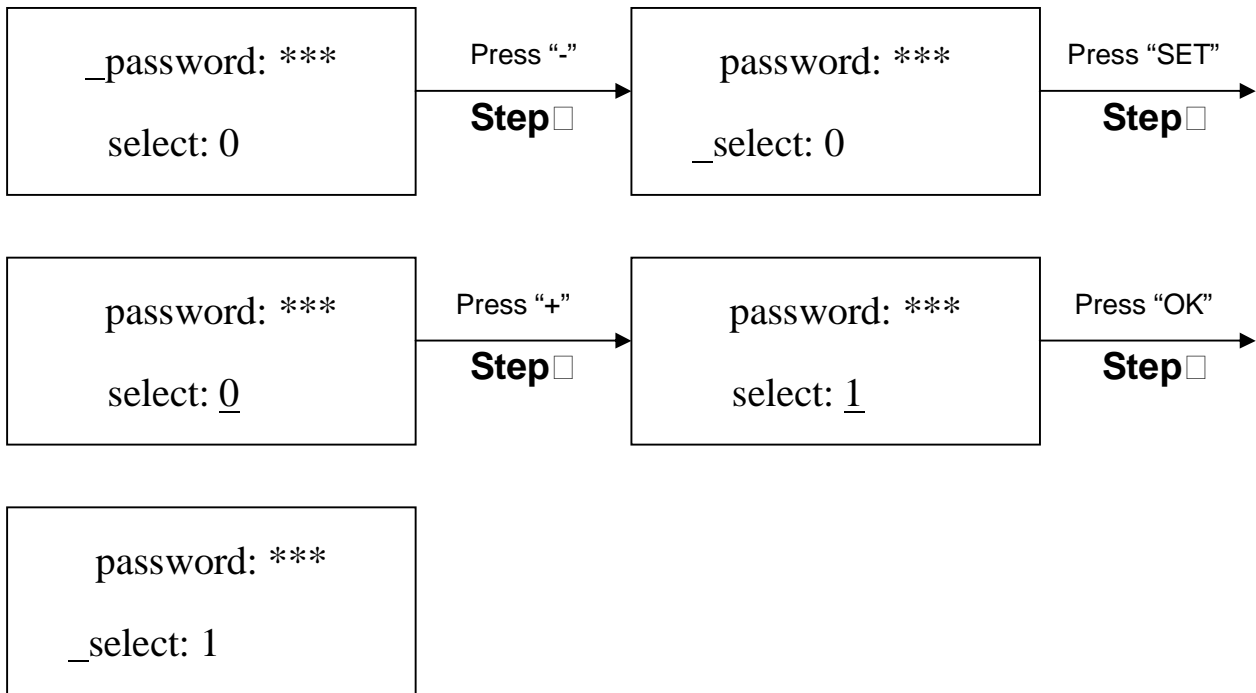
1. If want to change the password, it needs enter into this mode and input the new password as password inputting. If changing successfully, the display shows as following:



2. If want to change the workflow, it needs enter into the next step "B. Modify workflow". If not need to change, press "-" key can see the parameter data.

B . Modify workflow

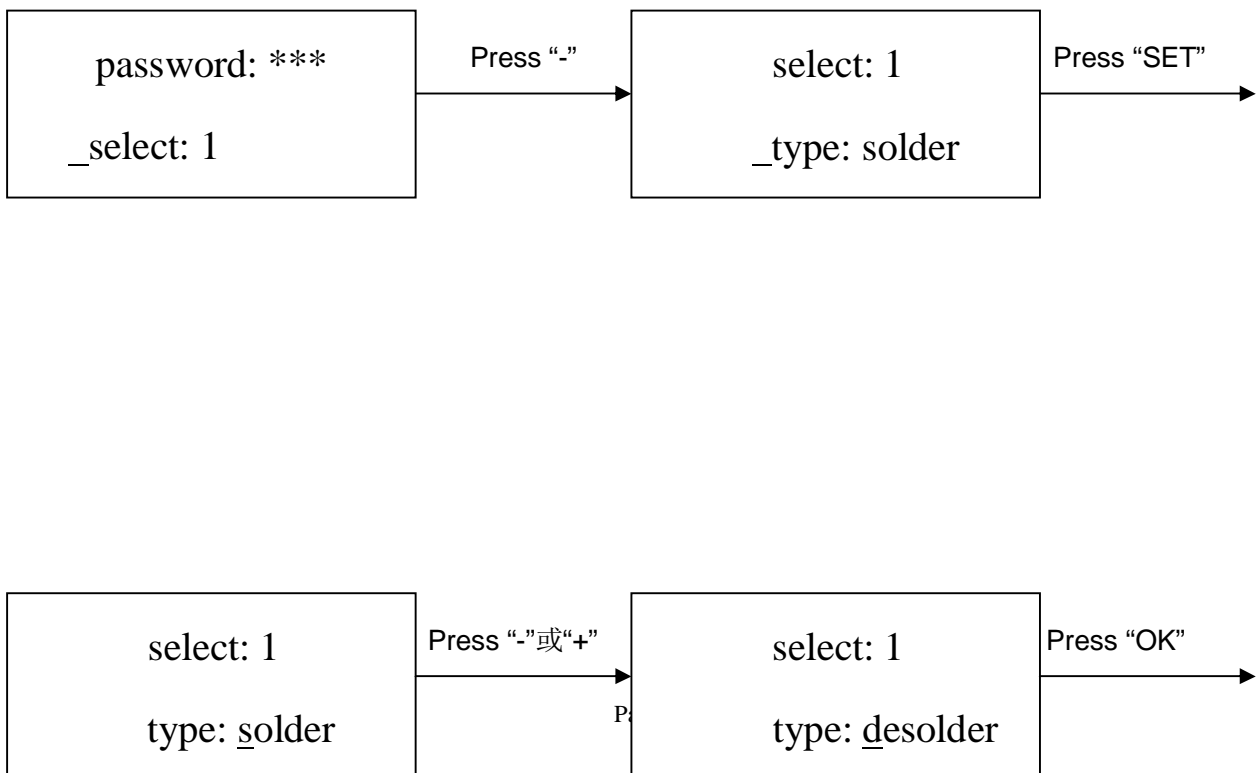
For example: to amend the process. So that the workflow for the process1:



1. When carry on the forth step (Step□), 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 “-” key to browse the next parameter settings.

C . Modify Working Flow

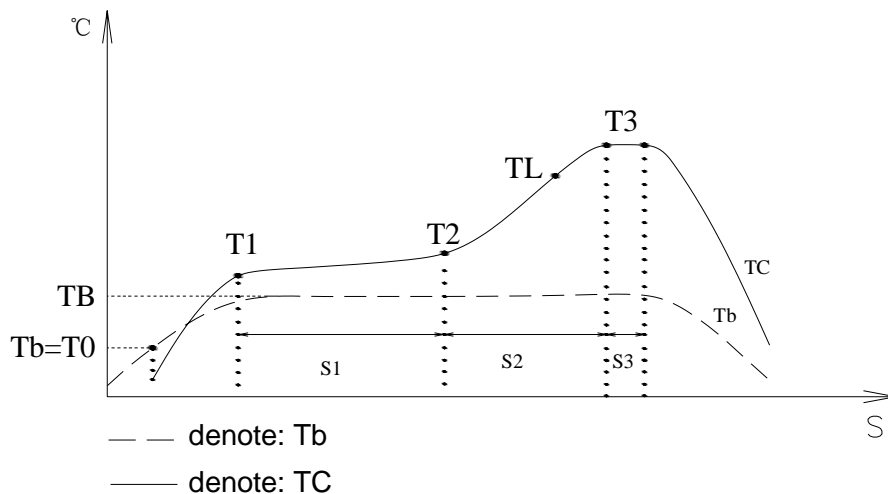
For instance: Modify the working flow and make it become 1 flow.



select: 1
_type: desolder

C-1. 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 be according with the following technics graph.



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

T0

T0 is the valve temperature of the top heater comes to heat up. Also it is the first temperature of this technics process. When the workflow 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 the bottom preheating.

Tb: Real-time temperature of the bottom heating.

TC: Real-time temperature of the 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. In parameter modifying, use the “↑” and “↓” key to set the value of T1.

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. In parameter modifying, use the “↑” and “↓” key to set the value of T2.

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. In parameter modifying, use the “↑” and “↓” key to set the value of T3.

TL

Melting temperature of solder. At this temperature, the solder starts to melt down and turn into liquid. During the soldering and de-soldering, users can press “CALTL” Key to calibrate the value of TL when the solder turn into liquid. In parameter modifying, use the “↑” and “↓” key to set the value of TL.

S1

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

S2

Heating time rising 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, use “↑” and “↓” keys to set the value of it.

Sense

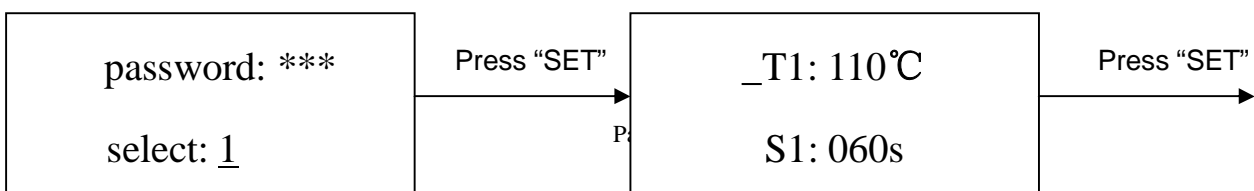
It is used for choosing the system's sensor type. Users can also choose K type sensor used for measuring temperature, besides system's IR sensor. The signal of chosen sensor will be displayed and used for process controlling. In parameter modifying, use the “↑” and “↓” key to set the value.

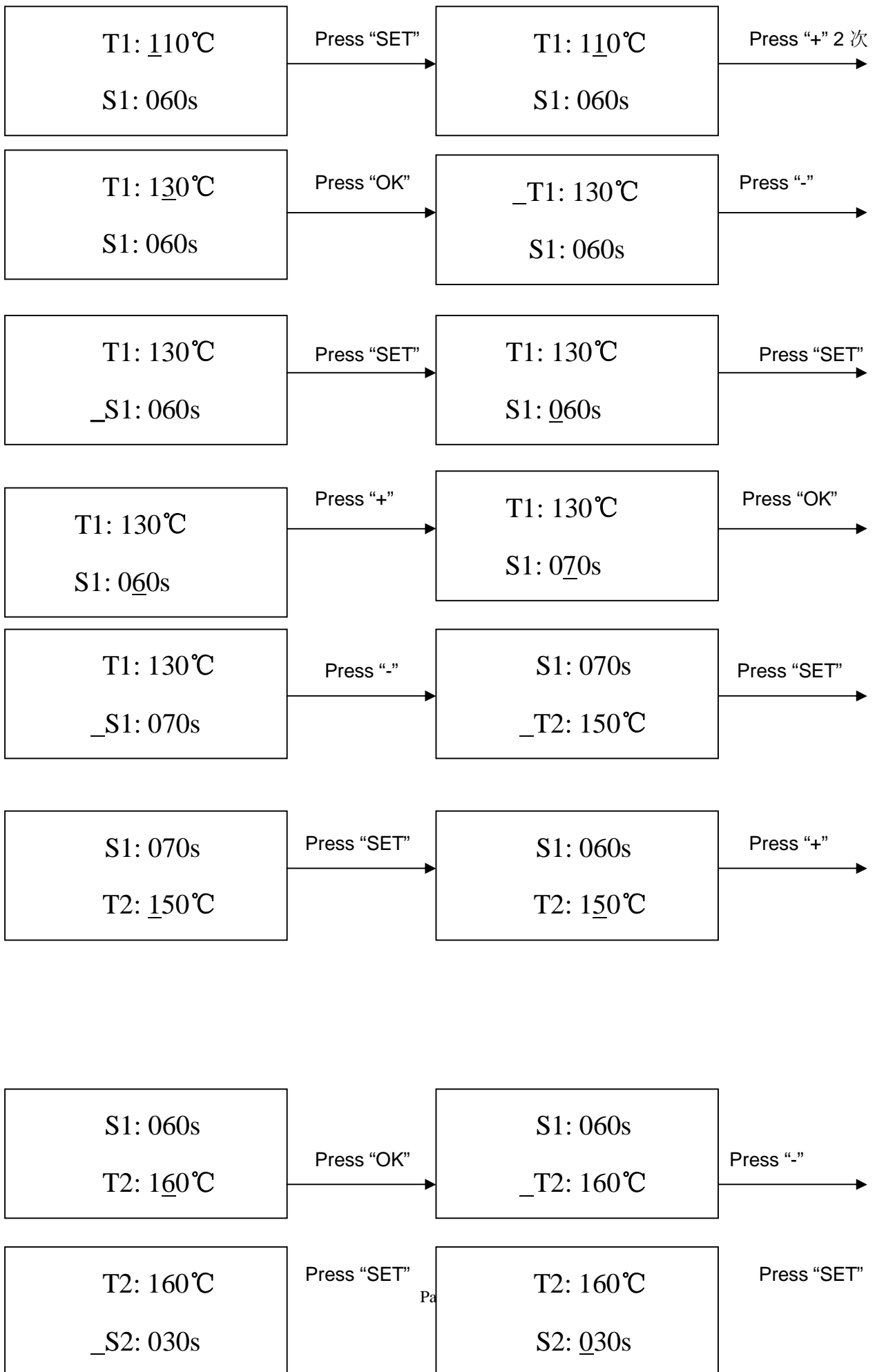
Password

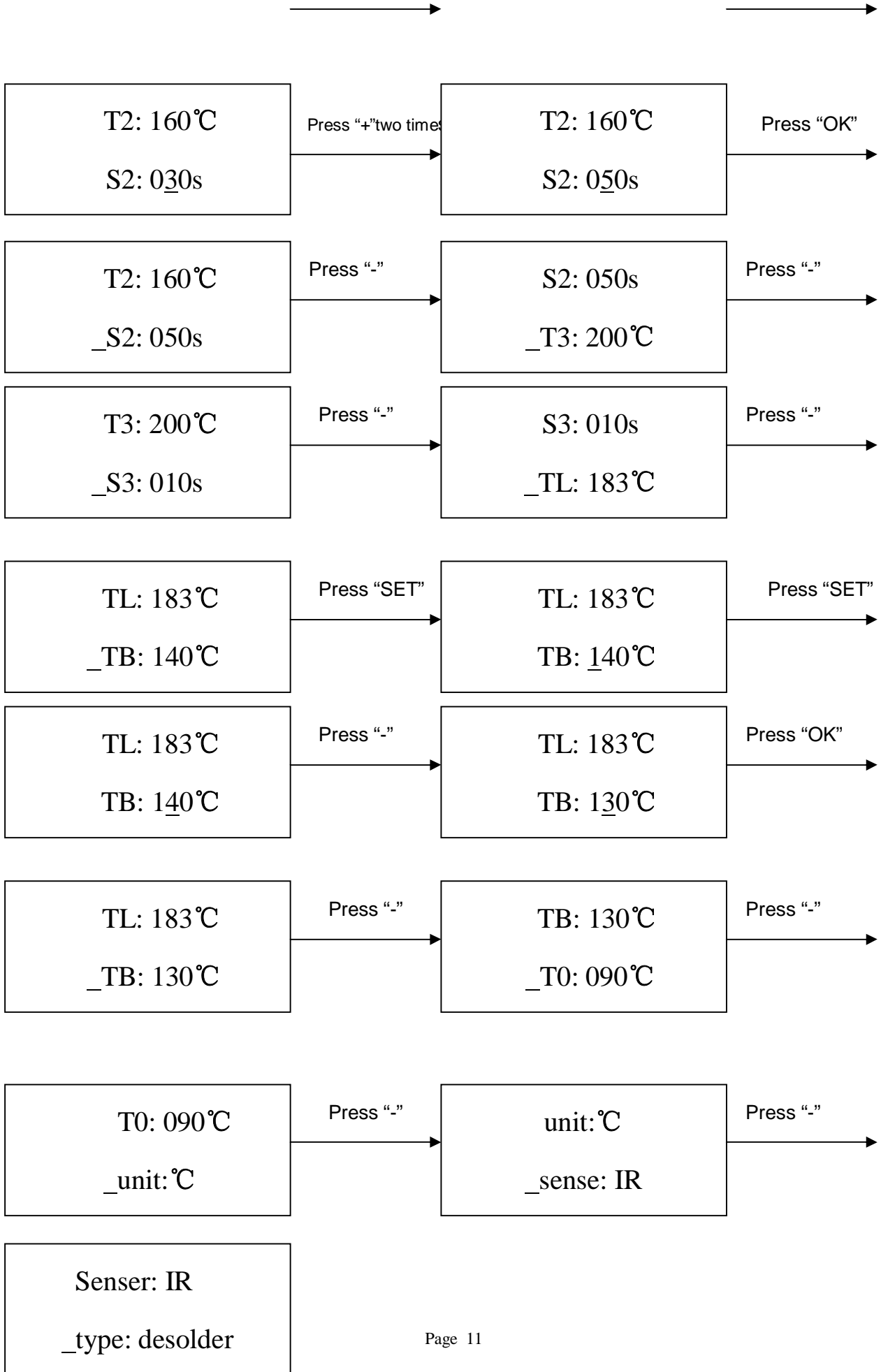
It is used for setting password. It is designed for preventing the equipment unnecessary or non-authorized change. When it is set to “000”, the password protecting is useless. The password is used for all flows and it can be useful and useless in each flow. The system requires inputting correct password 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□, S1=70s, T2=160□, S2=50s, TB=130□.

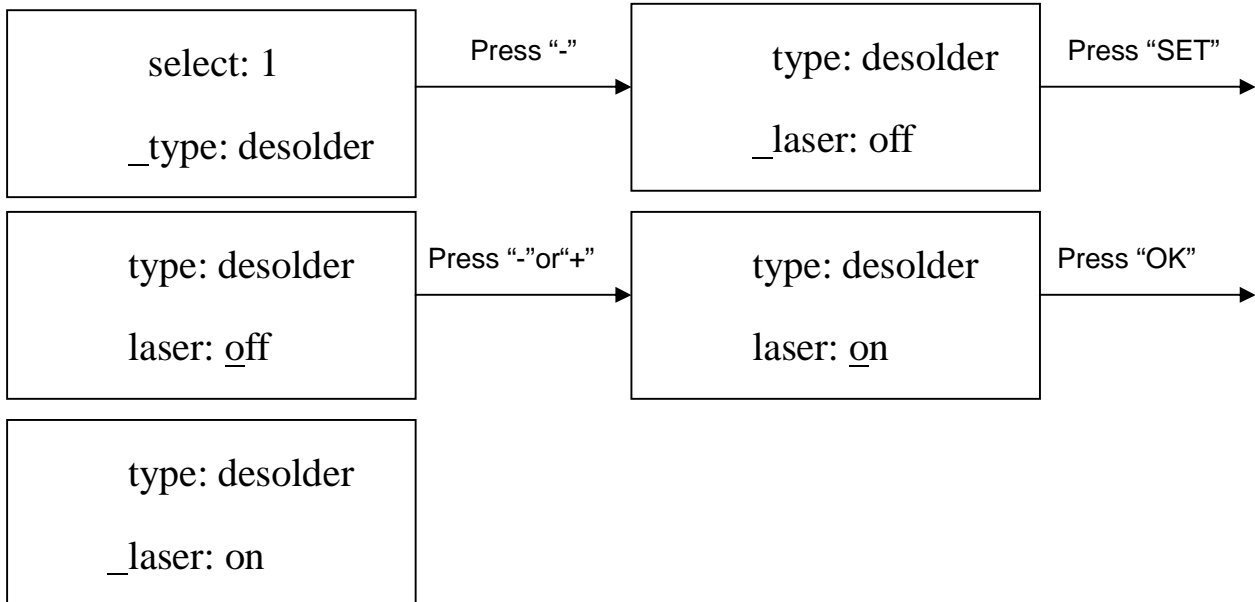






D. Modify Laser Alignment Mode

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



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

```
TC:022°C  Tb:019°C  
ready for flow
```

3. After all technological parameters have been selected, press "BEGIN" key and then the system perform the set flow.

E . System Instruction

1. In the initial state, if the top sensor or the 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 or do not begin the work process.

2. During work, when the TC (real temperature of the top heater) is below 180°, if the temperature heating up is less 7° in 10 seconds, the system will enter into the protection process, exit from the heating flow and display "TC raise error". At the time, it needs to restart and reposition the device before beginning work.

TC: ***°C Tb: ***°C
TC raise error !

3. If TC is more than 267° during working, the system will also exit the process and back to the initial state.

7. Technics Instruction



CAUTION:

Top and bottom IR heater will be very hot during working, so explosive and combustile object or gas and solvent is strictly prohibited in working areas, also please don't touch the hot housing parts.



CAUTION:

Because the laser alignment device includes a laser device Class II, don't see the laser beam directly.

7.1 Soldering Technics (Switch on the System's Power)

1. Turn on the power switches of the 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.
3. Adjust aperture system to get a proper window size.
4. 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 "OK" key to exit. The window shows:

TC: ***°C Tb: ***°C
ready for flow

- 6) Press "BEGIN" key and the system starts to work, perform content of selected flow.
5. The 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. When the temperature reaches TL, there will be a voice signal.
7. 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.
8. The system can perform a series of function action during working.
 - A. After press "BEGIN" key, the top heater move downwards near to bottom.
 - B. After the system sounds unvaryingly, the top heater move upwards and cooling fan spread out to blow cooling wind.
9. After the PCB cooling down to the befitting temperature, turn off the cooling fan to stop working and the whole process has finished.

7.2 De-soldering Technics (Switch on the System's Power)

1. Turn on the power switches of the 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
3. Adjust aperture system to get a proper window size.
4. 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 "desolder" working mode.
 - 4) Not to change communication speed, and press "OK" key to exit. the window shows:

TC: ***°C Tb: ***°C

ready for flow

5. After pressing "BEGIN" key, bottom heater starts to heat up and top heater moves downwards and reach 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 begins 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, take down the component and the top heater moves upwards and stops at the maximal position.
10. The outer cooling fan runs automatically and blows cooling airflow to cooing the PCB. After the cooling fan blows cooling wind for 150 seconds, the whole soldering technics finished.

8. Turn Off the System

Please turn off the power switch of each part and pull out power plug when not using it.

9. System Maintenance

Remark: For ensuring reliable function and maintenance of equipment, please use parts provided by original factory.



Note:

After cutting off the power supply, the housing is still very hot, so please do the clean after it has cooling down and don't use any dangerous or combustible solvent to clean it.

Clean parts:

- Clean the dust on system with clean towel.
- Add lubricating oil periodically to the transmission part.
- Use the towel with cleaning oil to clean PCB fixture and orbit.
- Solder on the gridding of the bottom heater can be cleaned out with hard object.