QUICK7610

BGA/SMD 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.

Table of Contents

1. Summary

Thank you for using QUICK 7610 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 QUICK 7610 Rework System adopts micro-processor 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, QUICK 7610 supplies 2400W 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 middle-wavelength infrared heater of QUICK7610 has a well-proportioned and safe heating and power and flexibleness necessary for the system, so it can also deal with some PCBs with big thermal capacity and other high temperature situation (lead-free soldering) easily. The adjustable aperture under the infrared heater can protect the adjacent components (which are sensitive to the temperature) on PCB from being heated. No need for nozzles.

QUICK7610 has 10 types of working modes and programmable temperature controlling can modify the parameter of every work modes. IR system and setting of parameters are operated by outside Keyboard as well as by IR soft.

The use of RPC (reflow process camera) provides the critical visual information to accurately judge the melting of solder during the whole soldering and desoldering process.

2. Specification and Technical Parameter

2.1 Specification

1. Max Power: 2400W（max）
2. Power of Bottom preheating: 1600W（Infrared ceramic heating plate）
3. Power of Top heating: 720W（Infrared heating tube, 2~8μm Approx, Size: 60m×60 mm）
4. Preheating area of Bottom Heater： 260*260mm
5. Max PCB size: 420mm*500mm
6. Max BGA size: 60*60mm
7. Communication: standard RS-232C （Connect with PC）
8. Infrared Temperature sensor: 0~300℃（Testing range）
9. USB connect: output 5V DC, 1A,connect USB lighting equipment
10. Dimension : 80*58*52 (cm)
11. Weight: 14.3Kg

2.2 Technical Data

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

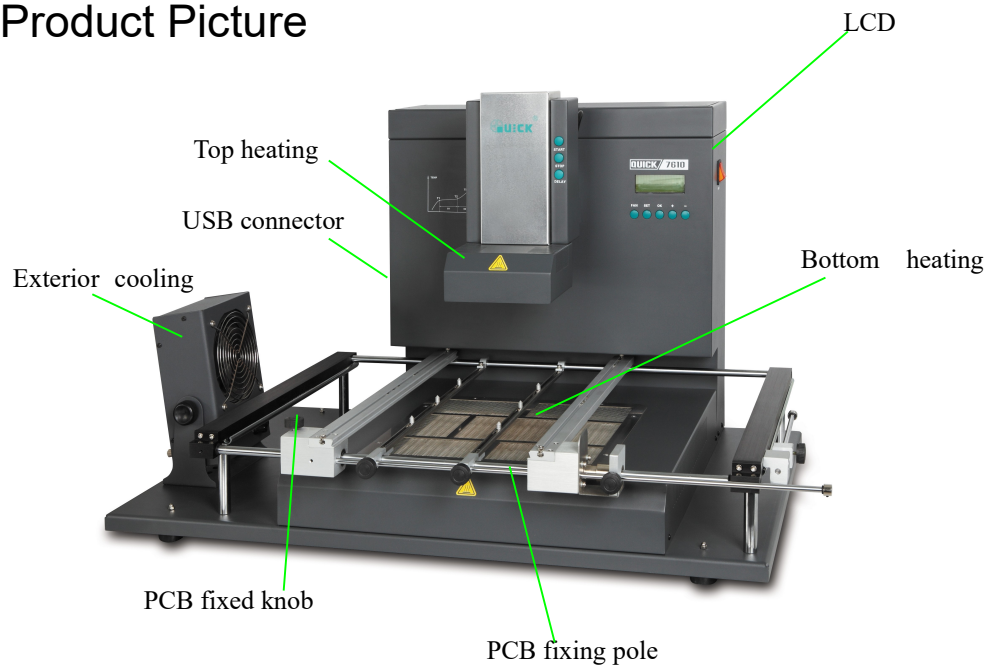
TC: The real time temperature value of top heater

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

⚠ Caution:

For 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 infrared heater and sirocco nozzle will be very hot during working, so explosive and combustible object or gas and solvent is strictly prohibited in working areas, also please don' touch the hot surface parts.

Caution:

The laser alignment device includes a secondary laser device, so don't see the laser bean directly.

Caution:

When the system in trouble and needs maintenance, it should be maintained by an experienced and authorized technician or expert, or contact with service agent and factory. The unit with dangerous voltage! The inexperienced maintenance is dangerous for the 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 the I760E main unit on the IR base plate.

5.2 Check the Unit

- Please check whether the following parts are in good condition and they aren't missed.
  * Main unit
  * Operation Manual
  * IRsoft Disc
  * RS232 connect line
  * Power cord
  * Outer cooling fan
  *monitor （optional）

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.

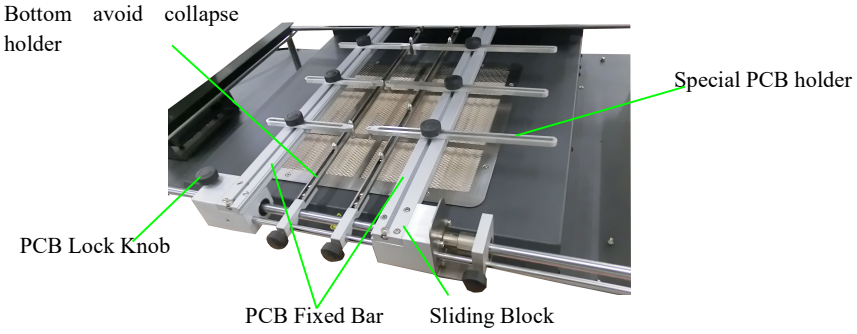
5.3 Connect the Unit

- Please check whether the power voltage accords with the rated voltage on the equipment nameplate.
- Please check whether switches are turned off before connection.
- Connect Power cord to the power socket behind equipment.
- If use IR Soft, please connect RS232 to behind RS232.
- COOLFAN: connect cooling fan power line.
- USB: output 5V DC, connect floodlight.

After finishing above steps, insert power plug into power socket, and switch on power.

5.4 PCB Fixture

1. Movable PCB fixture is able to fix PCB with different size. The Lock Knobs lock PCB Fixed Bar to fix PCB.
2. The movable distance from forward to back is 125mm, and the maximal movable distance from left to right is 280mm.
3. The usable height is 125mm, the outer dimensions of fixture is: 690（L）* 480(W) * 135(H)mm.
4. Unscrew PCB Lock Knobs and push Sliding Blocks by hand to open PCB Fixed Bars, make the distance between PCB Fixed Bars accord with PCB size. Fix PCB between them and screw down PCB Lock Knobs after adjusting position.



6. Keyboard and Parameter Setting

6.1 Keyboard

A. When select workflow,“+”、“-”key control cursor up down movement or the digital increase and decrease.

B. When waiting state, press“+”、“-”key, top heating movement up and down.

C. The function of “SET” key is BGA-IR enter parameter setting state, and cursor enter next menu (when change digital, cursor select next digital).

D. The function of “OK” key is: In setting state, BGA-IR cursor return to the last menu, until return to operation interface, and save, change result.

E. The function of “Delay” key is: in the process of solder and de-solder, when temperature rise to T3, click once, the keep temperature of setting time delay 5S, can delay arbitrarily times.

F. The function of “FAN” key is: outer cooling fan working or suspend.

G. The function of “START” key is: in the state of standby, BGA-IR enters into the process of de-solder or solder.

H. The function of “STOP” key is: exit the process of de-solder or solder.

6.2 Parameter setting

System parameter setting successively order:

A. _password: *** （Password settings）

B. _select: 0 （Flow settings, it can modify parameter inside.）

C. _type: solder （Working mode settings）

D. _laser: off (Working mode settings)

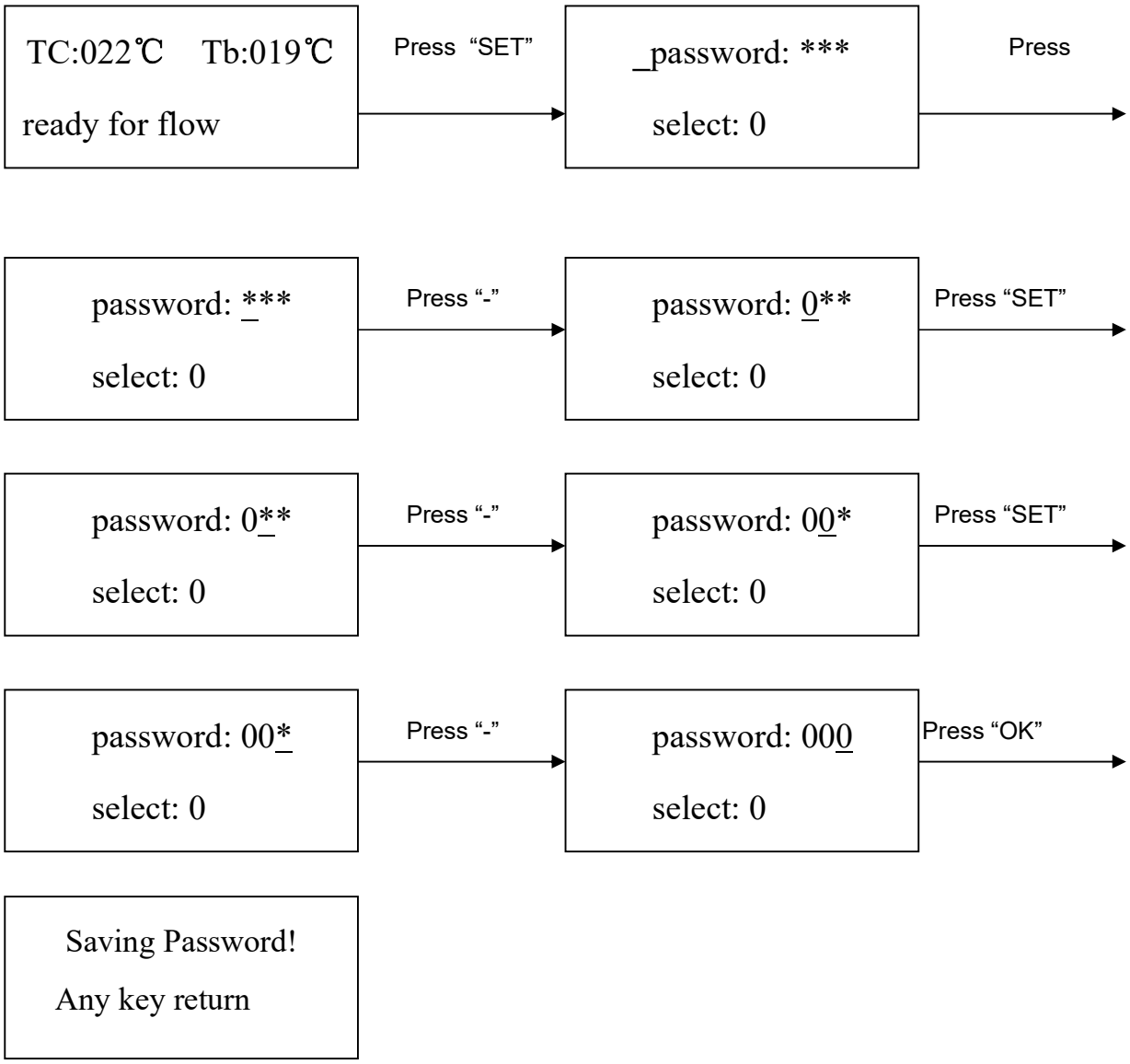
E. _baud: 19200 （Working mode settings）

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”.

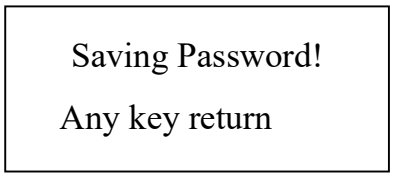
Note: If want to modify parameter of system, you must input correct password, otherwise, you can only browse them.

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



Finish password inputting:

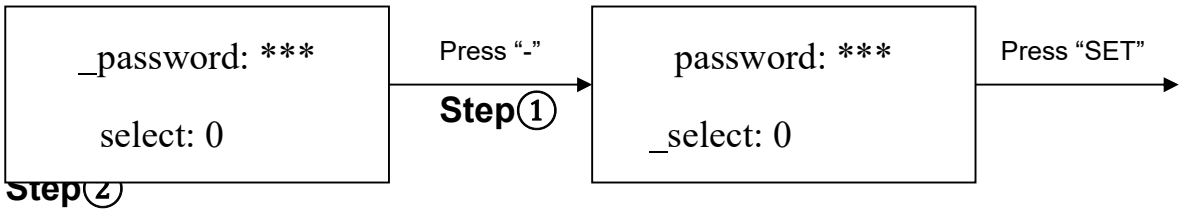
1. If you want to modify the password, return to above mode to input the new password. If password is modified successfully, it will show:



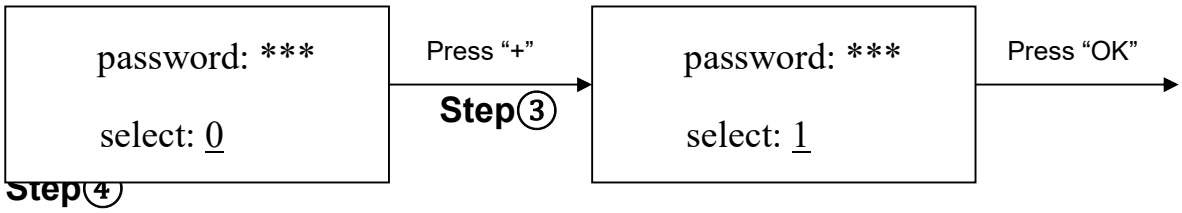
2. If you want to modify the next working flow, operate as the following B item. If you don't want to modify, please press "DOWN" key to browse the following parameter settings.

B. Modify working flow

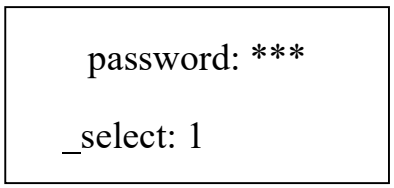
For instance: Modify the working flow and make it become 1 flow.



Step②



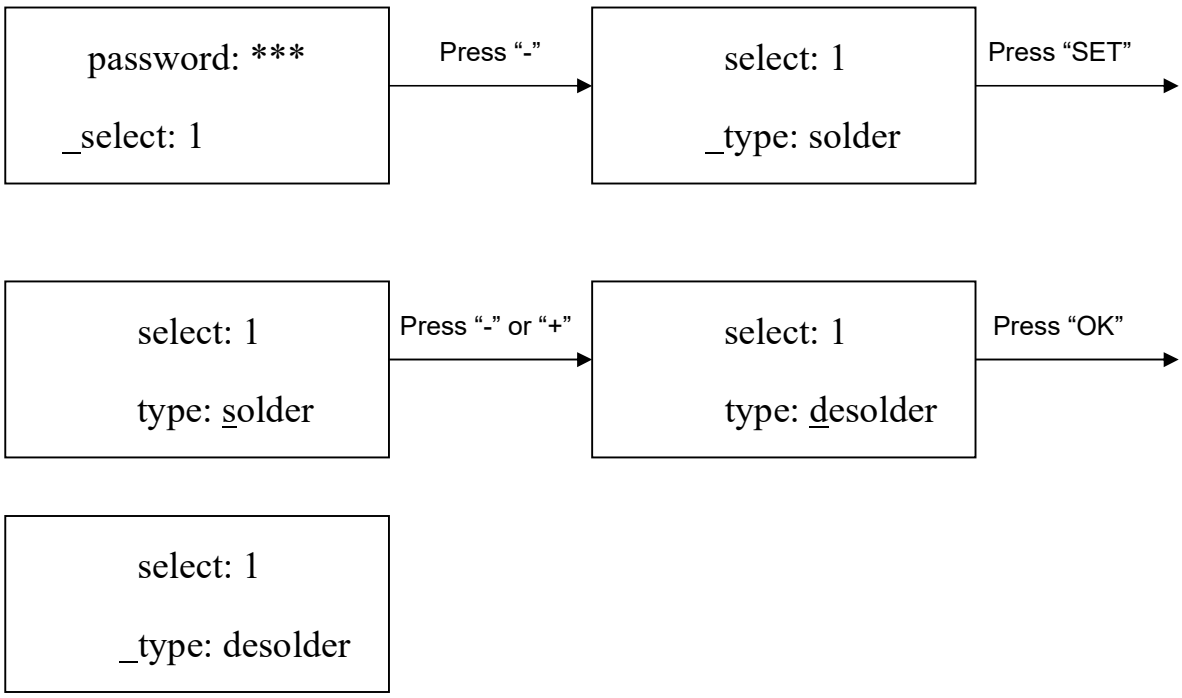
Step④



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.

C. Modify working mode

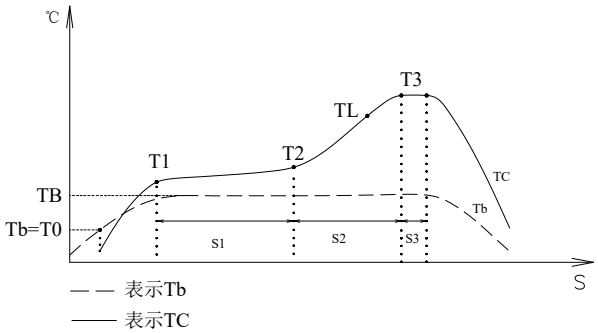
For instance: Modify the working mode and make it in “desolder” mode.



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.

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 accord with the following technics 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 STARTs, the bottom heater starts to heat up. After reaching the T0, the top heater STARTs 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

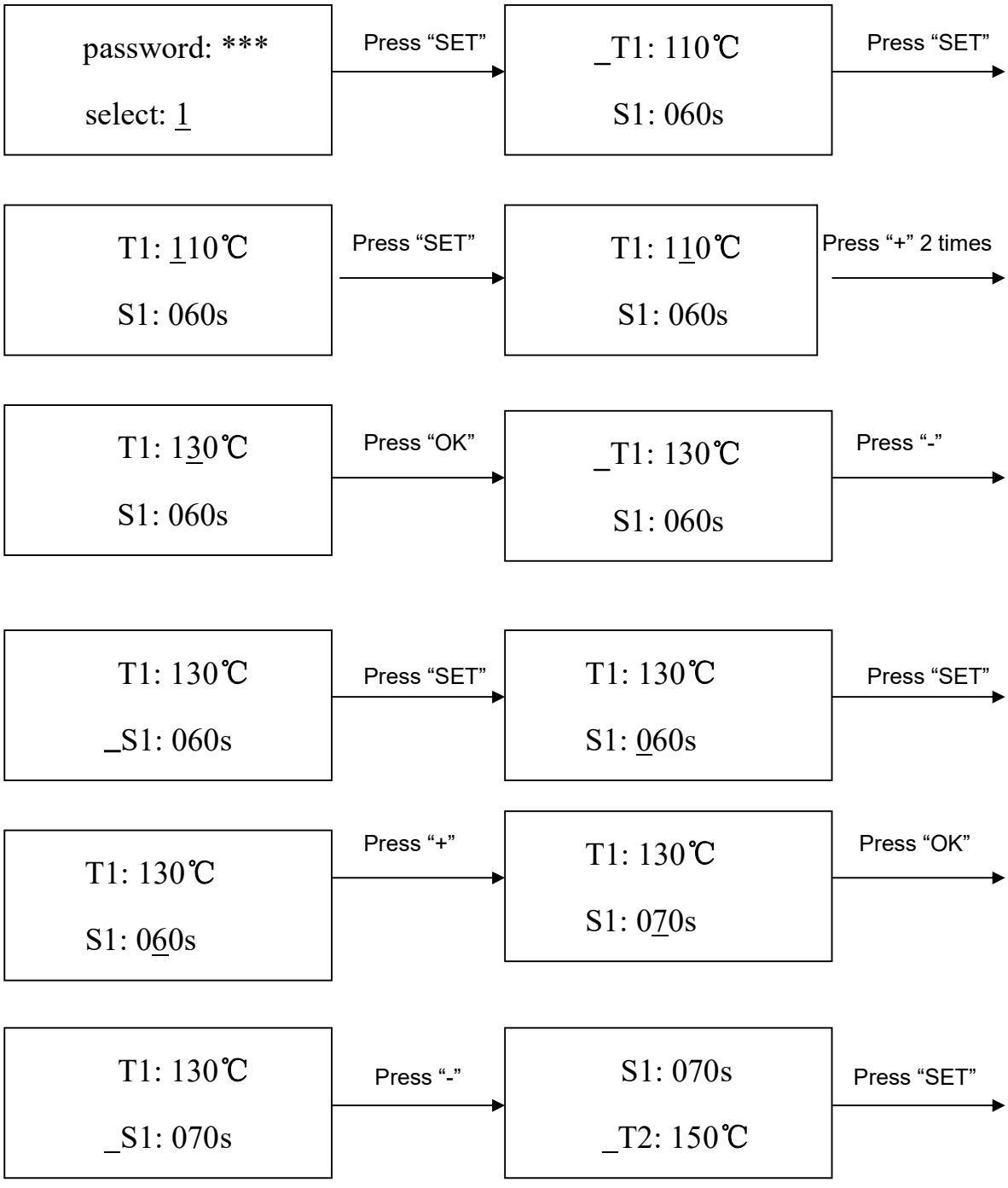
It’s able to set the unit of display temperature during work flow. In parameter modifying, use “UP” and “DOWN” keys to set the value of it.

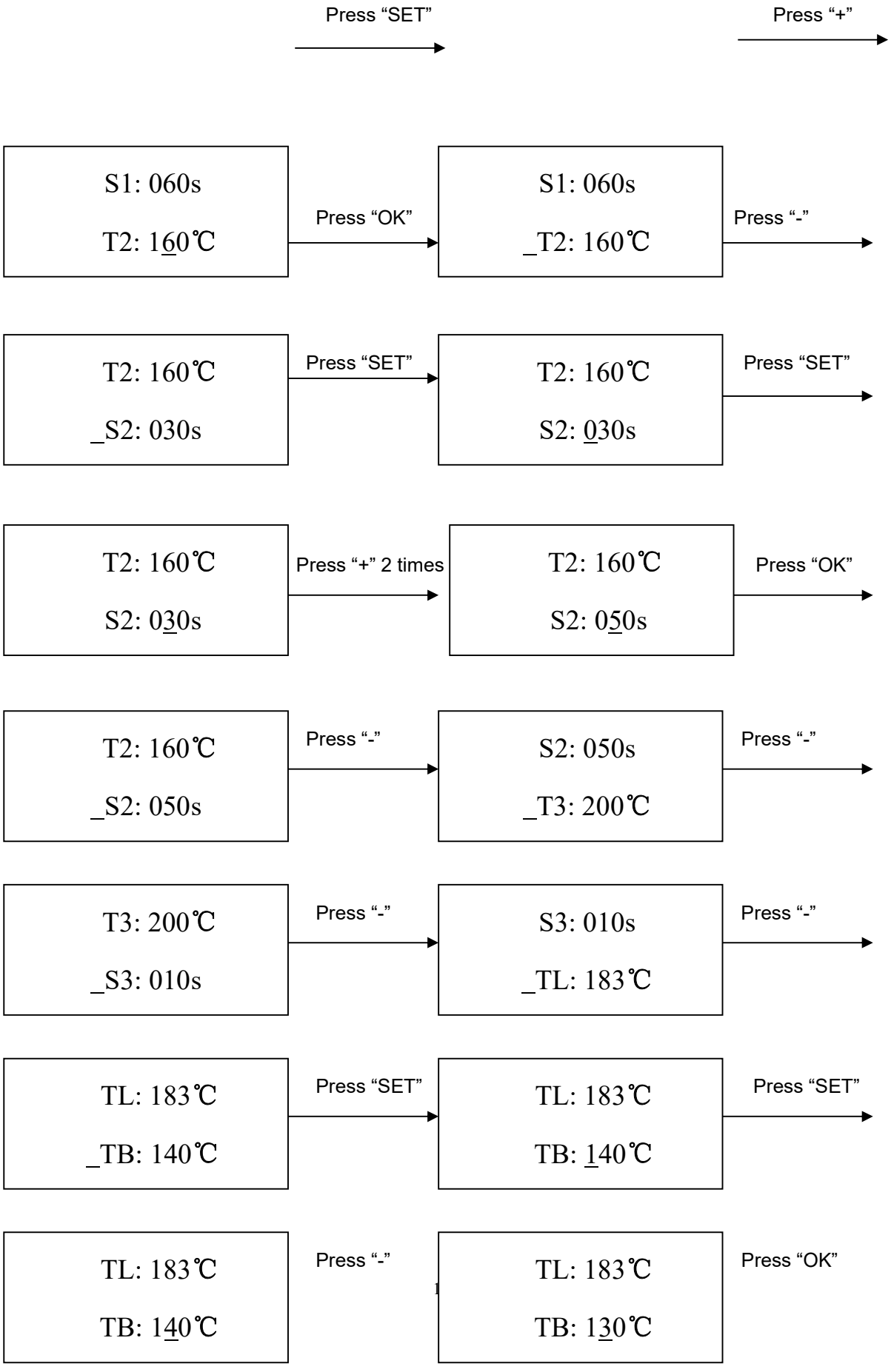
Password

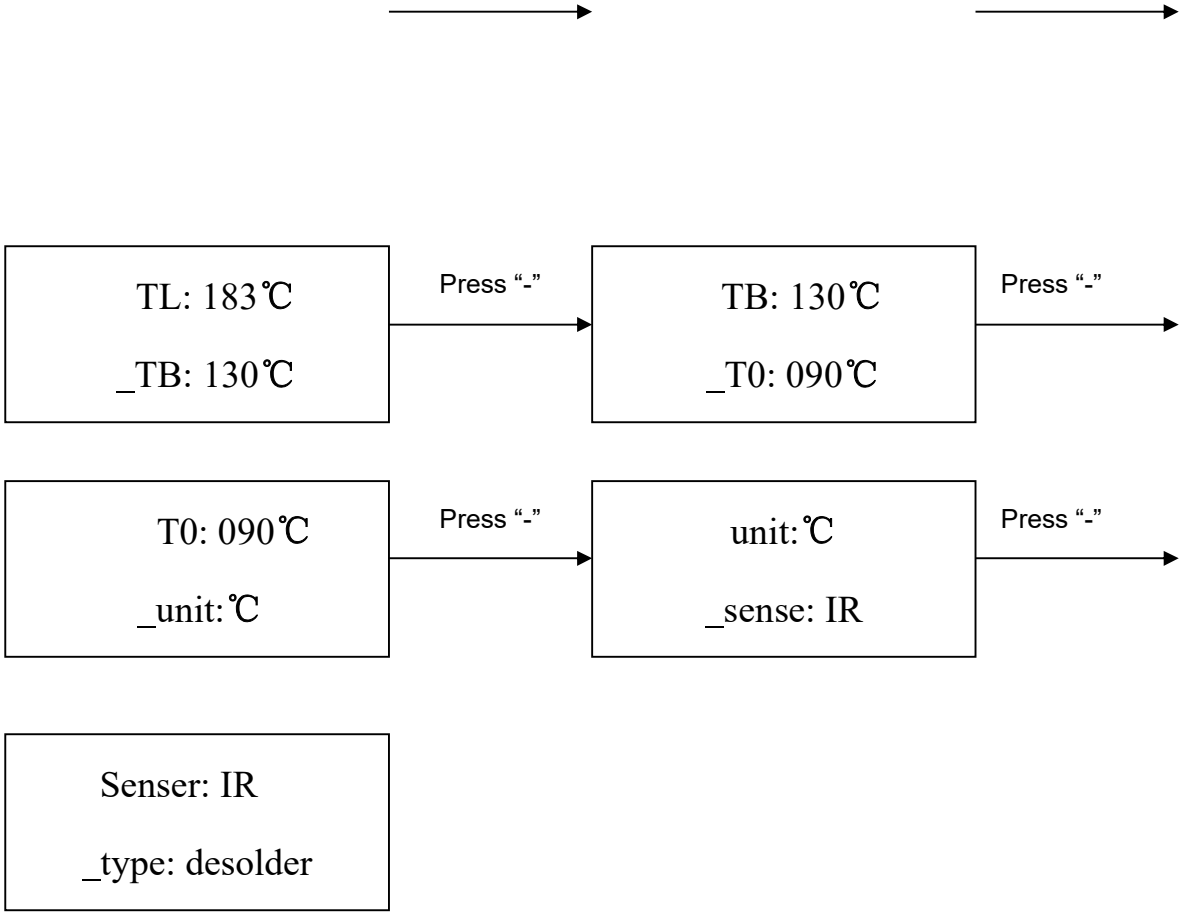
It is used for setting password. It is designed for preventing the equipment unnecessary or non-authorized change. When it is set to “000”, the password protecting is useless. The password is used for all flows and it can be useful and useless in each flow. The system requires inputting correct password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

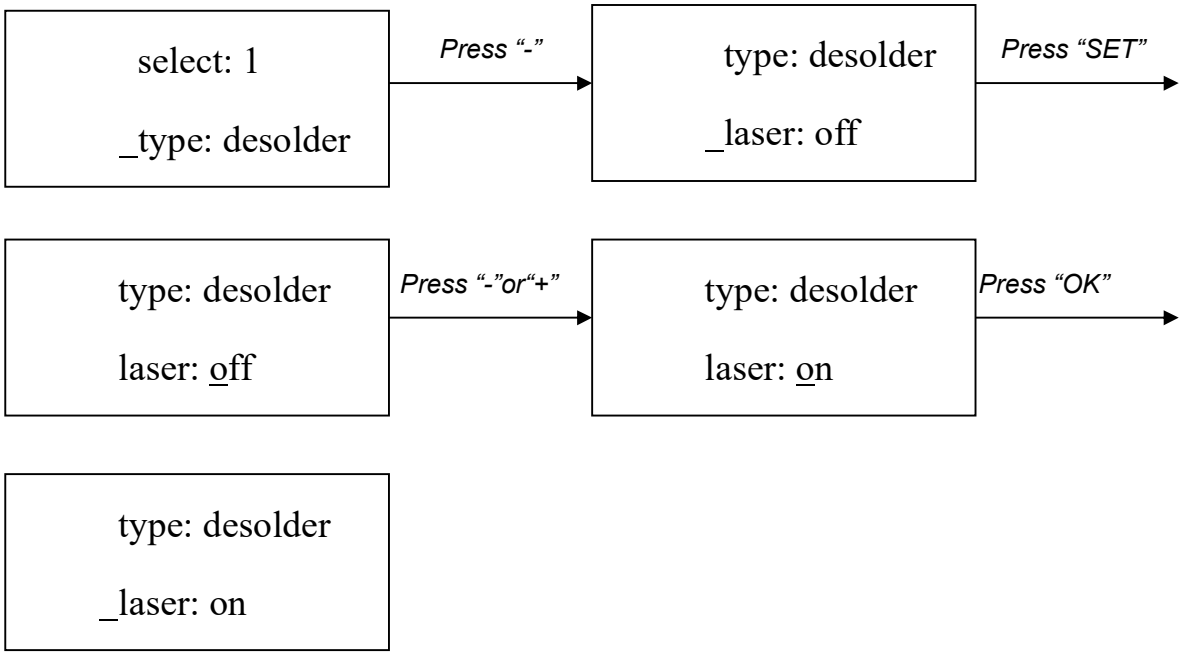



Press “SET”
Press “+”
S1: 060s
T2: 160℃
Press “OK”
S1: 060s
_T2: 160℃
Press “-”
T2: 160℃
_S2: 030s
Press “SET”
T2: 160℃
S2: 030s
Press “SET”
T2: 160℃
S2: 030s
Press “+” 2 times
T2: 160℃
S2: 050s
Press “OK”
T2: 160℃
_S2: 050s
Press “-”
S2: 050s
_T3: 200℃
Press “-”
T3: 200℃
_S3: 010s
Press “-”
S3: 010s
_TL: 183℃
Press “-”
TL: 183℃
_TB: 140℃
Press “SET”
TL: 183℃
TB: 140℃
Press “SET”
TL: 183℃
TB: 140℃
Press “-”
TL: 183℃
TB: 130℃
Press “OK”



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 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℃ Tb:019℃
ready for flow

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

E. System instruction

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

TC: ***℃ Tb: ***℃
T sense error !

If the bottom sensor is broken, it displays:

TC: ***℃ Tb: ***℃
B sense error !

When happening above status, user must stop operating.

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

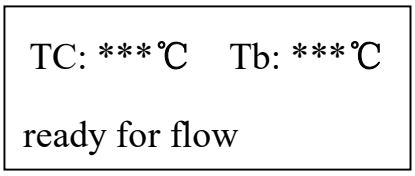
7. Technology Instruction

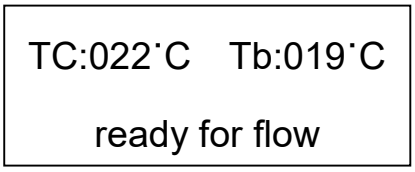
Note: Top and bottom Heater will be very hot during working, so please don’ touch the hot housing parts.

Note: The laser alignment device includes a secondary laser device, so don’t see the laser bean directly.

7.1 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:





   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.

7.2 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.

8. Turn off the System

Please turn off 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 don’t use any dangerous or combustible solvent to clean it.

Clean parts:

Clean the dust on system with clean towel.

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.

component	toxic and harmful substance or element					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
transformer	×	○	○	×	○	○
wire	×	○	○	○	○	○
Welding spot	×	○	○	○	○	○
fan	×	○	○	×	○	○
dynamo	×	○	○	○	○	○
radiotube	○	○	○	×	○	○
LCD	×	○	○	○	○	○
PCB	×	○	○	○	×	○
○: show the content of this toxic and harmful substance behind the standard of SJ/T11363-2006						
×: show the content of this toxic and harmful substance beyond the standard of SJ/T11363-2006						

10. Toxic and harmful substance or element form