

Scotle Tehnology Group Limited

Email:sales@scotle.com [Msn:r4i@live.cn](mailto:msn:r4i@live.cn)

Tel:86-0755-83692414 Fax:86-0755-83692580

Instruction Manual

Revision 1.2



Our company continuously devotes to product development and technical improvement, if this parameter has change, we will not inform at first.

Tel:

Fax:

Email:

Contract

1. Use BGA rework station correctly	4
2. Installation BGA rework station	5
3. Operate manual of	6
4. PC410 Programmer/Controller General Description	7
5. Operation caution	19
6. Control by computer	20
7. Operate list	21



一、 Use BGA rework station correctly

In order to guarantee BGA rework station have the good operation, please follow the following measure

- Please put the BGA rework station to a lucid little dust work environment;
- Please don't bump shot with any object or use hand to sway heating plate.
- Don't use the fan or other equipments to blow breeze towards station directly, otherwise cause to heat to heat unusually and burn a bad work piece;
- Don't place a heavy thing in BGA rework station control box;
- After switching on, the heat has fever area to directly get in touch with any object, otherwise may arouse a fire or explosion, the PCB that need to heat should put on the support;
- Don't vibrate to BGA rework station, porter age should lightly put;
- Don't use hand to touch heat area while working, otherwise will get burned;
- Don't near to combustibile spray, liquefaction or air while working;
- Don't try to refit to rework station, otherwise arouse a fire or get an electric shock;
- Don't dismantle an electricity box front-panel or cover plank, there is high pressure parts in the electricity box, may arouse electric shock;
- If there are metal object or liquid falling into to rework station while working, immediately break the power, pulled out power cable, after machine cooling, thoroughly cleared to fell thing, dirty mark again; If still stays dirty mark, may send out strange smell while re-switching on to work;
- While BGA rework station to unusually heat or emit smoke, immediately break the power, and notify that the technique attendant maintains. Still continue to use while above-mentioned circumstance happening, may result in a fire or arouse electric shock;
- Want the conjunction line that will control electricity box and host part to dismantle while transporting, want to grasp plug while pulling out electric wire, otherwise cause contact bad, can not work as usual;
- Break the power while stop to use;

● Attention BGA rework station not to press at or roll over power cable or communication cable of other electricity equipment up, otherwise may arouse equipments breakdown or arouse a fire or electric shock.

Notice:

BGA rework station use as usual production in will produce little strange smell, for make sure the comfort operation environment of health and safety, please keep indoor outside air to circulate.

二、 Installation BGA rework station

In order to ensure the validity of BGA Rework Station, the installation should meet the following requirements.

Away from inflammable and explosives

Away from water and other liquids

Ventilated, dry place

Stable and flat, free from tremor

less dust

No heavy objects on the controlling box

Not affected by airflow of air conditioner, heater or ventilator

Leave a space of 30cm or more behind the rework station for the upper part to move and rotate.

The power

The power electric voltage is requested as follows:

● Use the electric voltage motion smaller power

The electric voltage undulates: 220~240 Vs ± 10 ..

The frequency undulates: 50/60 Hzs ± 0.3 ..

The space requests

● In order to ensure to be easy to an operation to maintain work station, replace spare parts and carry on maintaining, please according to bottom the space of suggestion request.

About 1.0 meters LX 1.3 meters

Notice:

Must stay about the 300 mm space in the back of BGA rework station, because the upper of the station must move back and fro.

三、Operate manual

1. BGA rework station to mainly used for BGA|IC soldering and welding.
2. BGA rework station to adopt several programmable on the decline types the temperature controller come to cent segment the control lord heating head, each heating temperature and time can press to need to be set, hot breeze heat adoption high quality Japanese white light heat in, PCB adopts far red in addition of big area under hot plank assistance heat, prepare with assurance hot even, make PCB plank whole to be subjected to hot even, prevent from transforming, promise to weld effect; This machine has hot breeze of various different model numbers to spray a mouth. (can press the customer to need to settle size)

3. the temperature cent segment set:

BGA dismantles to unload: Prepare heat- repair heat- repair heat- to melt temperature- absorb pen to dismantle to unload with the vacuum

BGA welding: Prepare heat- Prepare heat- Weld Cool off -Weld completion

4. soldering: Put PCB to BGA rework station, press to start switch, need procedure movement be over, move to open the upper part heating apparatus, then absorb pen to suck away BGA with the vacuum.

5. weld: Stick BGA to pack in the silk and print a frame in the center, put PCB to the PCB plank again to give in the plank, upper part lord heating the bottom move to work position and use hot the breeze spray a mouth to cover BGA betwixt position, hot the breeze spray a mouth to leave PCB plank to have around 1 mm; Press to start a switch, circulate to weld procedure, need procedure movement be over after, cool off at this time the fan beginning carries on cooling to the PCB plank and BGA, at this time upper part lord the heating apparatus promote and make hot the breeze spray mouth bottom to be apart from the surface 8~10 mms of BGA, and keep to cool off 10~20, or treat to start a switch light to move to open upper part after putting out lord heating apparatus, again give PCB plank to plank from the PCB plank up steady take away.

6, characteristics:

Safety: Can in operation regulate amount of breeze, the hot breeze only heats to the pin, can't result in to the surrounding component hot harm.

Fast: The time and temperature number suggests and sets convenience, keep a view, accurate, make maintenance time excellent to turn to arrive the shortest.

Convenience: Can quickly replace the hot breeze of dissimilarity to spray a mouth,

PCB plank can on the fixed position X direction and Y lord to regulate, ascend heating apparatus arbitrarily position and highly work.

7, main parameter: PCB size: MAX 380mmW*420mmL

PCB thickness: Unlimited

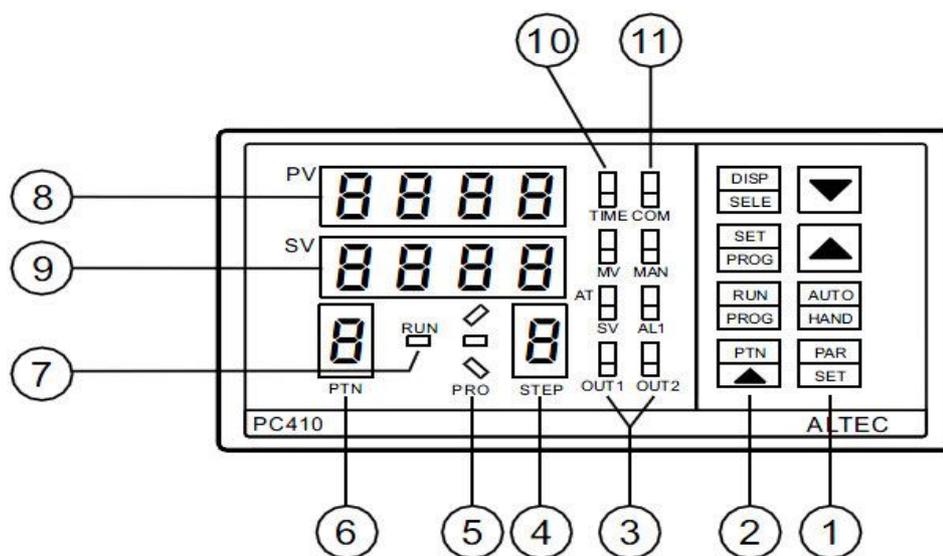
Min BGA size:1 mm × 1 mm

Max BGA size:60 mm × 60 mm

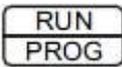
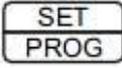
The upper power:400 W; bottom power 2000 W;

四、PC410 Programmer/Controller General Description

The programmable controller contains an in-built set point generator in addition to the controller function. This set point generator can produce a temperature/time profile with 10*16 segments (0~9, 10 Sets of Curves). When the program is running, the current set point from the set point generator is fed to the control algorithm. The current set point is continuously shown on the lower display. The sixteen segments are defined in the order: Ramp 1, Dwell period 1, Ramp 2, Dwell period 2..., and are executed in succession.



S.N.	Item	Functions
(1)	PERSET	Parameters setting key
		(Up key) Increase value
		(Down key) Decrease value
(2)	PIN	Selects the program pattern number

		Starts/hold the program, changes the mode from fixed value control to program control
		Program parameters setup
		Changes the indication on SV/MV/TIME display
(3)	OUNT	Output indicator
(4)	STEP	Indicates the step number of program
(5)	PRO	(Program monitor indicator) During program control, 'I' is lit when the PV is rising During program control, '-' is lit when the PV is constant During program control, 'V' is lit when the PV is falling
(6)	PTN	(Pattern number display) Indicates the pattern number '0~9'
(7)	RUN	(Program control running indicator)

		The LED indicator is lit during program control
(8)	PV	(PV Display) Indicates the Process/Measured value
(9)	SV	It is lit when the Setting Value(SV) is being displayed on the lower display
(10)	TIME MV SV	(SV/MV/TIME display) It indicates the Setting Value(SV), Manipulating Value(MV), or Time(TIME) (The display content can be changed by the 'DISP/SELECT' key)
(11)	AL1	It is lit when the Alarm1 output is 'ON'
	COM	(Communication indicator) It flashes when the controller is in active communication with a host computer

Program Parameters Setting

Ramp Rate1:

A ramp consists of a slope(linear gradient) and a target set point. The control set point increases or decreases at a linear ramp rate from the actual measured value until a specified target set point is reached. The relative positions of the actual measured value and the target set point determine whether the slope of the ramp is positive or negative. Parameters R1, R2, R3... express the ramping rate in unites per minute(0.01~99.99), parameters L1, L2, L3... the appropriate target set point in display units. If R1 = END, the program will be ended when the program runs to the slope.

Target Set point 1:

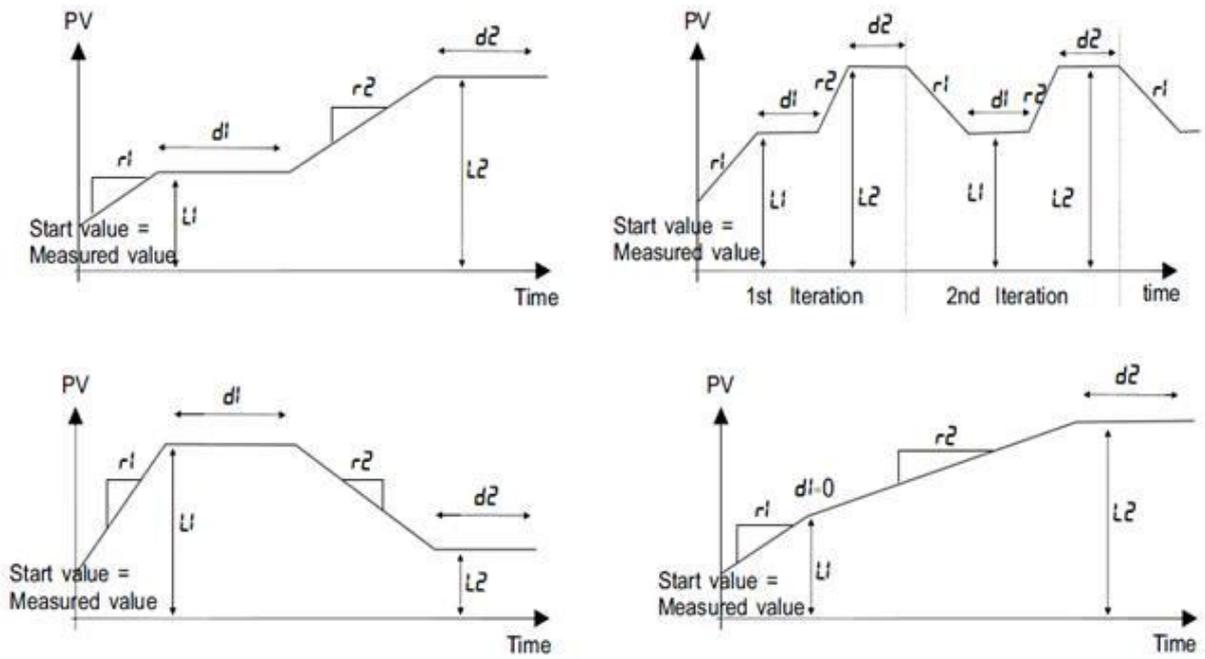
The target value to which the set point ramps when the programmer has been placed into RVN.

Dwell period 1:

In a Dwell period, the target set point, which has been attained, remains unchanged for a fixed period. All the dwell periods are defined by their duration in minutes with parameters D1, D2, D3... (0~9999). When the program is running, these parameter display the time remaining in the active dwell period. If the parameter equals zero, the dwell period is skipped. When the controller runs in the PV displaying status: 1). Select the target program pattern number with the PTN/ key. 2). Press SET/PROG key, the first program parameter appears in the upper display. The value associated with this parameter will be shown in the lower display. 3). Use and key to modify the value. 4). Press the PAR/SET key, the next parameter appears. At the same time, the modification has been saved in the memory. Use and key to modify the value. Repeat this procedure till all the parameters are set. Or if there is no key operation within 16seconds, the menu times out automatically.

Program Parameter List

S.N	Mnemonic	Parameter	Adjustable Range
1	r1	Ramp Rate	1
2	i1	Target Set point 1	0~230 End
3	d1	Dwell Time 1	0~9999sec
4	r2	Ramp Rate 2	1
5	i2	Target Set point 2	0~230 End
6	d2	Dwell Time 2	0~9999sec
...
	HB		230



Program Examples

Pc410 default set as follows:

- 1、 Press PAR/SET 3seconds to enter the procedure and compared, according to   to revise
- 2、 Next page ,Press PAR/SET



Picture-1



Picture-2



Picture-3



Picture-4



Picture-17

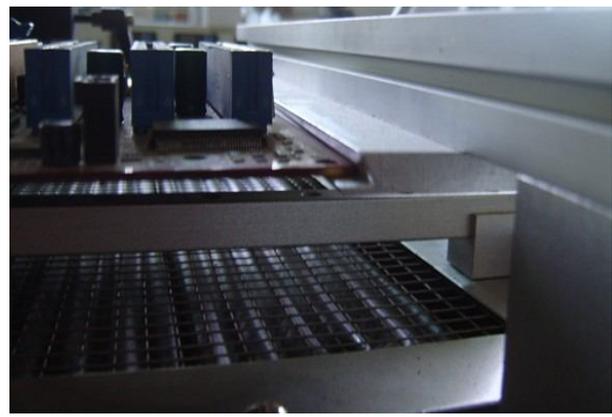


Picture-18

Rework station Steps

1. Be all set

① Fixed motherboard



② Shift sensor , sensor press close to BGA chip.



③ Adjust the height of heating head with adjustment knob Prompt BGA chip in the middle of heating head heating head away from BGA chip 2CM.)

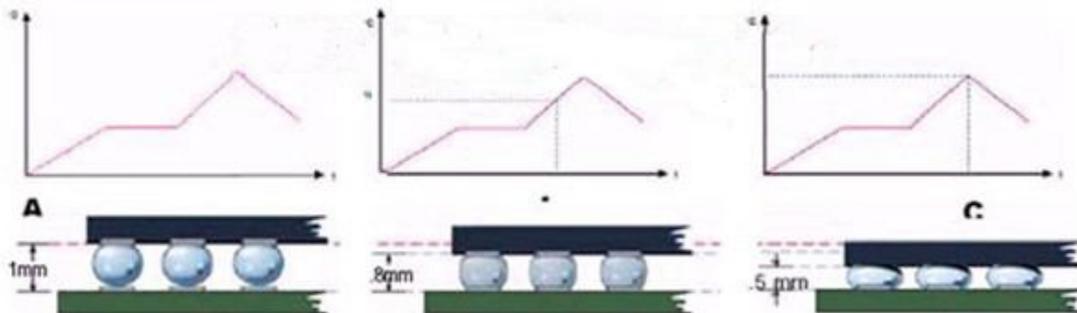
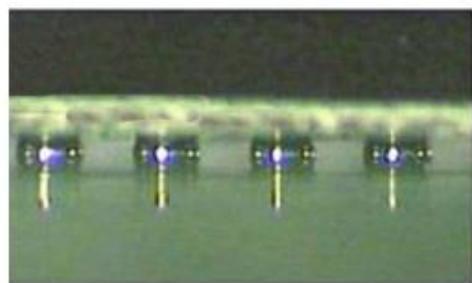
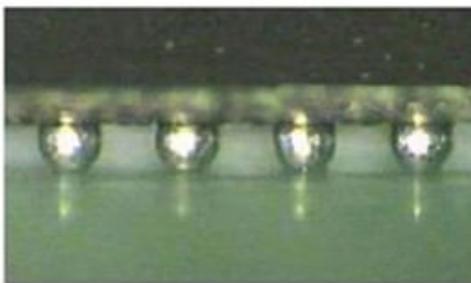


2、Start heating

- Select the appropriate temperature program segment,
- then press the start switch. In the operation can press the Emergency stop switch,

stop operating!

- 3、 After the program runs, automatic Alarm (18 SECONDS) , and automatically cut off the heating power, this time you can check the following solder ball is completely liquefied, BGA chips should be subject to settlement, floating state .



3、 Heating completed

1、 Moving Heating head and Sensor , open the Upper fan and Cooling Fan Switch 2、 Remove motherboard , (Clear insulating tape! 3、 BGA Rework Station Cooled , Then close Total Power!

Warning:

If BGA Rework Station NO Cooling , . do not close the Power!

when the temperature is not cooled, do not touch heating module!

Prompt

1. Installed the equipment in stable work platform to use where the air mobility should be small as possible . Avoid it closing to air conditioners, fans and the other outlet.
2. IR-PRO-SC Rework Station sensor direct contact with motherboard. So Temperature display is Actual temperature.
3. In order to avoid damage to the motherboard capacitor. so use insulation tape please . Maintenance completed, then Removal of insulation tape. So as to avoid short-circuit.
4. After removal of BGA chip . PCB Bonding Pad Need to clean up . Avoid cold solder joint See BGA chip tin completely liquefied, then to move the BGA chip. So as to avoid bonding Pad Damage.
5. BGA chips should be subject to settlement, floating state Prohibited in all solder ball did not fully liquefied, by force if removal of chips, so as to avoid pad off, chip or motherboard scrap!
6. To improve success rate of rework, PCB and chips need drying and processing in principle PCB board or chip moist heat process will occur in the burst phenomenon, the Rework process may hear the blasting sound of a minor. According to actual situation , Please self-control.
7. PCB board heating time is too long or repeated several times the surface heating will lead to discoloration.
8. Users from modifying temperature parameters. Please use scrap PCB tested. Heating whole time about 10 seconds before the end of solder balls should be fully liquefied. The liquefaction advanced or delayed, Should be regulating up/down the temperature setting. So as to avoid heat damage to chips or low-temperature sealing-off
9. The factory equipped with two sets of programmable temperature control table used parameters: PTN-1: Lead Rework

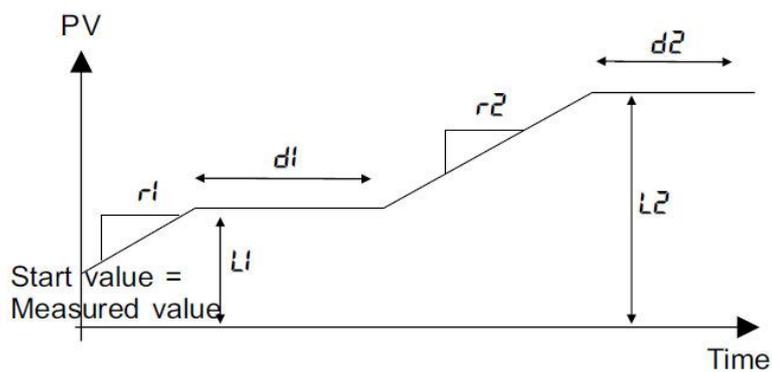
PTN-2: Lead-Free Rework

Rework temperature curve to set examples					
Lead : Sn63Pb37 PTN-1					
r1	1	L1	85	d1	80
r2	1	L2	150	d2	55
r3	1	L3	185	d3	45
r4	END				
Lead-Free: Sn96.5Ag3Cu0.5 PTN-2					
r1	1	L1	85	d1	60
r2	1	L2	140	d2	45
r3	1	L3	170	d3	35
r4	1	L4	220	d4	40
r5	END				

1/ The meaning of “Hb” :

“Hb” means the max heating temperature of the upper heating. We set the max temperature at 230° C according to the max temperature of lead-free rework and other technical reasons. The data needn't to be changed. 2/The meaning of “r1” “L1” “d1” “r2” “L2” “d2” “r3” “L3” “d3”

Please pay attention to The following pictures and tables:



S. N.	Mnemonic	Parameter	Adjustable Range
1	r1	Ramp Rate 1	1
2	L1	Target Set point 1	0~230 End

3	d1	Dwell Time 1	0~9999sec
4	r2	Ramp Rate 2	1
5	L2	Target Set point 2	0~230 End
6	d2	Dwell Time 2	0~9999sec
7	r3	Ramp Rate 2	1
8	L3	Target Set point 2	0~230 End
9	d3	Dwell Time 2	0~9999sec
...
	Hb		230

Rework temperature curve to set examples					
Lead Sn63Pb37 PTN-1					
r1	1	L1	85	d1	70
r2	1	L2	150	d2	35
r3	1	L3	185	d3	50
r4	END	Hb	230		
Lead-Free Sn96.5Ag3Cu0.5 PTN-2					
r1	1	L1	85	d1	60
r2	1	L2	140	d2	45
r3	1	L3	170	d3	25
r4	1	L4	220	d4	50
r5	END	Hb	230		

3/ Please check Rework station surrounding environment, as far as possible away from the air outlet and other sources.

4/ Do not open upper fan in the welding process,

5/ Just remember that:

The max temperature of lead rework is approximately 183 °C

Reflow temp: 185°C

190°C, Reflow time: 10 Sec

that of lead free is approximately 217°C.

Reflow temp: 220°C– 225°C Reflow time: 15 Sec)

6/ No matter you click "Run" in the IRSOFT or Push the "start switch" on the control board , Rework station will be autorun current program segment in the Temperature Controller! So you must Select the appropriate temperature program segment in the

"PTN windows, or you can downloaded IRSOFT' data to the controller, covered, then run.

五. Operation caution

1, Open BGA rework station control box power switch, first check upper heating zone, bottom two heating zone of the hot breeze spray whether the mouth has cold breeze to blow, if the calm blows and strictly forbids point to move to start a switch, otherwise it will burn down first area heating apparatus and second area heating apparatus; At the same time, should check third the area control machine enactment whether temperature is correct, then can welding and soldering.

2, Maintain different BGA, the programmable temperature controller needs the temperature curve of setting the dissimilarity and replaces spraying of different nozzles, each actual temperature can not more than 260°C ;Adopt lead-free solder ball to curve the temperature.

3, While carrying on BGA and dismantling and unloading will cool off a fan switch first enactment at 0, be one area heating apparatus, two area heating apparatus two main heating apparatus temperature when the curve circulate be over the buzzer automatically reports to the police and absorb a pen and quickly make BGA absorbing and leave with the vacuum at this time the PCB plank vacuum switch moves in the hand, then makes cold fan beating and moves in the hand and carries on cooling to the PCB, after cooling off and completing close vacuum and cool off fan, needing the PCB can be by hand and directly got in touch with again give from PCB up take away.

4, Close control panel first while carrying on BGA and welding the top cool off a fan switch, when the temperature curve circulates be over the buzzer

automatically reports to the police and open and cool off at the same time the fan beginning carries on cooling to the PCB plank, at this time upper part one the area heating apparatus rise and make hot the breeze spray mouth bottom and be apart from the surface 8~10 mms of BGA, and keep and cool off 15~20, or treat and start a switch light after putting out and move and open upper part first area heating apparatus, again give PCB plank to plank and up take away from PCB.

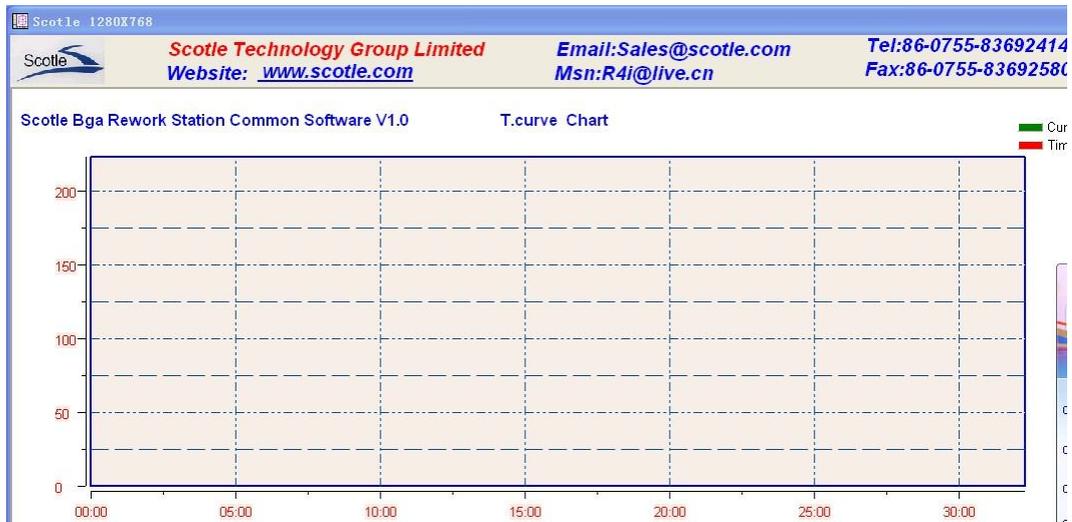
5, All need to check temperature while replacing a product or replacing a different model number to spray a mouth each time; Upper part one the area heating apparatus replace hot breeze to spray a mouth application measure to correct form to re-measure the actual temperature (will measure to stretch forward to press at hot the breeze spray a mouth inner part) of spraying the mouth inner part, again reset temperature curve; Lower part two area heating apparatus enactment like bottom temperature controller temperature curve after, used to the PCB plank that a cake of discard the examination is used a plank fixed position on the fixed position, again upper part one the area heating apparatus push in the behind, it doesn't influence under heat area of PCB heating, then order to start a switch, when a work circulation be over when the buzzer automatically report to the police should lie between 150 °C ~170°C (did not pack BGA at this time) on temperature of Han dish in the position center of the BGA place PCB plank at this time, if is produce an unleaded product, the PCB plank bottom should attain an of 200°C ~230°C ;Need to be regulated the enactment temperature of the temperature controller otherwise under curve, again examine 3~4 times. (each time the examination musts use normal temperature under of the PCB plank carry on)

6, Before BGA installs, have to pursue whether a slice of check PCB plank Han dish and BGA tin bead is good; BGA is after welding need pursue the slice carry on an external appearance check, such as detection abnormality, should stop installing BGA to combine to examine temperature, treating to adjust normal rear can carry on welding, otherwise may damage BGA or PCB plank.

7, The machine surface needs to in fixed time sweep and especially wants to keep heat glass and infrared ray to have fever sweeping of plank noodles, keeps filth from accumulating staying in the top but influences a normal calories to shoot and causes to weld quality badly or the heat glass is broken, and obviously shorten the service life that the red outside has fever a body.

8, haven't yet the operation personnel of the training of our company can not at will change each enactment parameter.

六、 control by computer



七、 operate list

