

## SHENZHEN ATTEN TECHNOLOGY CO.,LTD.

- Soldering Iron
- Soldering Station
- Hot Air Rework Station
- Multi-function Rework System
- Switching DC Power Supply
- Regulated DC Power Supply
- Solder smoke purify machine
- Programmable Power Supply

# ATTEN



## GT-1028 Hot Air Desoldering Station User Manual

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MADE IN CHINA  
CBN035435(A)

SHENZHEN ATTEN TECHNOLOGY CO.,LTD.

## Copyright

- The design of this product (including software) and its accessories are under tutelage of laws. Any action to violate relevant right of our product will be penalized by the law. Please consciously observe relevant local laws in the use of this product.
- **Thank you for purchasing this hot air de-soldering station. Please read this manual carefully and pay attention to warnings and precautions mentioned herein before using this product.**

 Warning you against the risk of electric shock.

 Warning you against the risk of physical injury.

## Assumption for user

- We assume that user have common sense and basic relevant electrical operation knowledge before using this product. Children shall not play with the appliance without supervision.

ATTENTION: To avoid damaging to unit and keep operation safe, please read the instruction manual ahead and keep it accessible for any operator.

## Safety

- To avoid electric shock, injury to user or causing fire, please comply with the following items.
- To ensure your safety and avoid damage to the unit, please use parts and accessories that have been approved or recommended by our factory.

### Warning

- When using this product, the temperature of the hot air gun nozzle can reach 100-500°C. In view of the unreasonable application may cause burns or fire, the following items should be strictly observed during use:
- Keep this product away from flammable materials.
- Keep this product out of children's reach.
- Do not use this product if you are inexperienced or have no sufficient necessary knowledge without the guidance of related personnel.
- Do not use this product under wet environment or with wet hands to prevent electric shock.
- Do not modify this product or its accessories without authorization.
- Please turn off the power when replacing parts, and do not resume the use until the equipment is completely cooled down.
- Please use the accessories from the original factory when replacing the product parts.
- Make sure to turn off the power switch when the equipment is temporarily stopped or out of use.

### Caution

- To ensure the normal operation of this product's ESD function, only three-core power cord shall be used as the host connecting line.
- Do not play or do other similar dangerous actions when using this equipment, because it can easily lead to injury to others or yourself.
- Do not use this product for purposes other than de-soldering.
- Do not modify this product and its accessories, otherwise the original warranty will be invalidated or damage may occur to the product.
- When plugging and unplugging the power cord and handle plug, please hold the plug body and do not pull the cord.
- Do not hit the product or its accessories too hard during the operation; otherwise damage may occur to the product.

## Disclaimer

- We will take no responsibility for any personal injury or property damage caused by reasons other than the product quality problem, which may include force majeure (natural disasters, etc.) or personal behavior during the operation of this product.
- This manual is organized, compiled and released by SHENZHEN ATTEN TECHNOLOGY CO., LTD. According to the latest product features. We will not be responsible for further notice of the subsequent improvement of the product and this manual.

## After-sales contact

- If the machine fails, or cannot work normally due to unknown reasons, please contact the local dealer or manufacturer for consultation.
- After-sales service department Tel: (+86) 0755-8602 1266

### Product warranty card

This product is guaranteed for two years from the date of purchase.  
If any quality problem is found within the guarantee period, we will response for the maintenance free of charge on presentation of this card and the receipt.

Note: This warranty card must be attached when this product is returned to the factory for maintenance, otherwise free maintenance will not be accepted.

Thank you for your cooperation!

### Product Certification

Product Model: \_\_\_\_\_ Product NO.: \_\_\_\_\_

Inspector: \_\_\_\_\_ EX-Factory date: \_\_\_\_\_

Salesperson: \_\_\_\_\_ Sold Date: \_\_\_\_\_

**This product test result is qualified and met the technical standard.**

## Common communication protocols

- 02 06 00 01 FF 00 CRC            Restore factory
  
- 02 06 00 02 FF 00 CRC            Turn on air gun  
02 06 00 02 00 00 CRC            Turn off air gun  
02 03 00 02 00 01 CRC            Query the air gun, switch status 1 on 0 off
  
- 02 03 00 11 00 03 CRC            Read the running temperature, air volume, and time  
Read the return of the running temperature, air volume, and time command: 02 03 04 01 2C 00 32 00 12 CRC  
Temperature: 0x012c=300°C        Air volume: 0x0032=50%            Time: 0012=18s
  
- 02 06 00 21 00 38 CRC            Set air volume: 0x38=56%,    Value: 1~99  
02 03 00 21 00 01 CRC            Query the set air volume
  
- 02 06 00 22 01 41 CRC            Set the temperature: 0x141=321°C,    Value: 100~500  
02 03 00 22 00 01 CRC            Query the temperature  
02 06 00 23 00 11 CRC            Set timing set working time (off <10)  
02 06 00 23 00 01 CRC            View the timing work time

● For more communication protocol commands, please contact the manufacturer.

## The Troubleshoot Guide

Fault code or fault description	Likely causes of the faults
E2: Open circuit of heating core	1. The heating core is damaged; replace the heating core. 2. The sensor lead is in open circuit; inspect the soldering pencil lead.
E3: Sensor Error	Poor contact of air gun connector or handle.
E4: No zero-cross signal	The zero-cross sensor is damaged or the mains frequency is wrong.
E5: SCR Damage	SCR breakdown
E6: Over-temperature protection	The short circuit occurs to the temperature sensor in the heating core; pleas replace the heating core.
Screen display fault	In case the problem occurs, you can try to adopt the following measures to solve it. if the problem still cannot be solved, please return the equipment to the original factory for inspection. 1. Check if the socket switch is on. 2. Check if there is voltage on the socket. 3. Check if the plug with the power line is loose. 4. Check if the fuse is damaged (if so, please replace the fuse according to the specifications)
Inaccurate temperature	1. Use user temperature compensation function to correct the temperature. 2. Replace the heating core with one produced and sent by the original factory.
Display of messy code	1. In case there is strong interference source from the outside environment, please change the application environment or evacuate from the interference area. 2. In case the internal circuit is abnormal, please send the equipment to the designated after-sales outlet for maintenance.

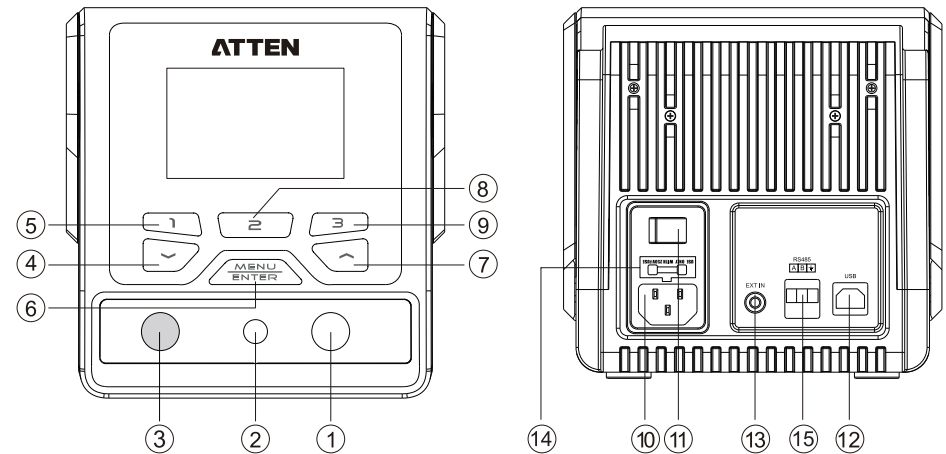
## Packing list and description of each component

### ● Packing list

S/N	Name	Quantity
1	GT-1028 host	*1PCS
2	Power cord	*1PCS
3	Hot air gun handle	*1PCS
4	Hot air gun nozzle	*3PCS
5	Hot air gun holder	*1PCS
6	USB cable (A to B)	*1PCS
7	User manual	*1PCS

S/N	Name	Quantity
8	Vacuum pen (included tool box)	*1PCS
9	Bent suction nozzle	*2PCS
10	Straight suction nozzle	*2PCS
11	4.5mm suction disc *3 6.5mm suction disc *3 9.5mm suction disc *3 13mm suction disc *3	*12PCS
12	Certificate	*1PCS

### ● Outline drawing



- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>① Hot air gun handle interface</li> <li>② Vacuum pen interface</li> <li>③ Infrared receiver</li> <li>④ “~”Key</li> <li>⑤ “1”Key</li> <li>⑥ Confirm/Menu key</li> <li>⑦ “^”Key</li> <li>⑧ “2”Key</li> <li>⑨ “3”Key</li> </ul> | <ul style="list-style-type: none"> <li>⑩ Power plug, connected to rated AC power</li> <li>⑪ Power master switch</li> <li>⑫ USB</li> <li>⑬ External switch interface</li> <li>⑭ Power fuse</li> <li>⑮ Communication interface</li> </ul> |
|---|---|

## Technical parameters

Model	GT-1028
Rated operating voltage	AC 230V ±10% 50Hz / ( 110V±10% 60Hz)
Rated power	1200W
Max Power	1300W
Heater Power	1300W
Power fuse	T8A (AC 250V) / T12A (AC 125V)
Temperature range	100°C~500°C / 212°F-932°F
Air volume range	1%~100%
Timing time	10~900s (Can be turn off)
Temperature unit	°C/°F, °C by default
Air flow	120L / Min (Max)
Multiple alarm and protection functions	Heater open circuit alarm, sensor fault alarm, zero crossing signal alarm, SCR damage alarm, over-temperature protection alarm
Password protection function	Available (Off by default)
Alarm function	Available (On by default)
User temperature compensation	±50°C / ±90°F
Multiple language for user interface	Support Chinese / English interface
Heating power display	5 dynamic power bars
Temperature adjustment step	Long press for 10 units adjustment, short press for 1 unit adjustment
Air volume adjustment step	Long press for 2 units adjustment, short press for 1 unit adjustment
Vacuum pressure	-80Kpa
Rapid temperature / air volume / time	3 groups of temperature/air volume/time, can be called quickly
Working conditions	Temperature 0°C~40°C Relative humidity<85%RH
Dimension	315 (L) x 252 (W) x 127 (H) mm
Weight (N.W.)	Approx. 4.78Kg


## Boot-up screen

- After the station has been switched on, the display will turn on and show the system version number for 2 seconds.(Its version will be different according with version updated, such as Ver: xx, xx stands for any number)



(Means Ver: 0.1 version)

## Manual temp compensation

In the common setting interface select  temp compensation function, press “^” “v” key to manually adjust the temperature parameters to complete the temperature calibration. (Temperature compensation range ±50°C / ±90°F)

**Note:** User can calibrate temperature by this function if the displayed temperature is much different from actual-measured temperature after changed a new heater or handle. Its calibration method can be referred as below:

- Set the this handle required temp to a suitable temperature like 350°C/662°F.
- After this setting temperature is stable, use temperature tester to measure the actual temperature.
- For example, its actual-measured temperature is 365°C/689°F, we can get conclusion that the actual measured temperature compared to the setting temperature is 15°C/27°F higher.
- Then set the calibrate temperature to -15°C/-27°F to compensate the error of output temperature.

## Communication description

- 1. This protocol applies to RS 232, RS 485, RS 422 and other serial communication interface between devices.**

Work in a half-duplex mode. Data transmission is initiated by the host, and transmits data back to the host after receiving data from the host. The slave should not actively transmit data to the host at any time, and there cannot be two data transmitted on the bus at the same time.

- 2. This protocol is transmitted in a standard Modbus RTU communication format, and can conduct one-to-one or one-to-many communication.**

- 3. Fixed Baud rate of 38400.**

- 4. Serial Port Bytes**

Data length: 1 start 8 data bit 1 stop

Start	b0	b1	b2	b3	b4	b5	b6	b7	Stop
-------	----	----	----	----	----	----	----	----	------

- 5. Message frame in RTU mode**

Start position (4 char)	Device address	Function code	Data	CRC verification	final character (4 char)
T1-T2-T3-T4	8Bit	8Bit	n*8Bit	16Bit	T1-T2-T3-T4

## Data register parsing

- Instruction example parsing**

Machine with an address of 2.

The register starting address uses an absolute address.

Read the air volume command, read the current air volume register address is 0x11, and the air volume value is 0x32=50.

TX:	02	03	00	11	00	01	D4	3C
	Slave address	Function code	Register address	Number of registers	CRC16			
RX:	02	03	02	00	32	7D	91	
	Slave address	Function code	Bytes	Number of registers	CRC16			

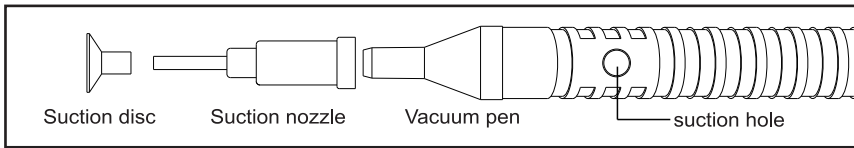
- Set temperature command:**

The value of the register for setting temperature is 0x22, and the temperature value is 0x0141=321 °C

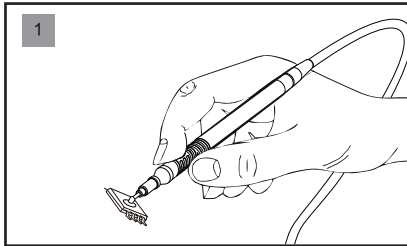
TX:	02	06	00	22	01	41	E8	53
	Slave address	Function code	Register address	Number of registers	CRC16			
RX:	02	06	00	22	01	41	E8	53
	Slave address	Function code	Register address	Number of registers	CRC16			

## Use method of vacuum pen

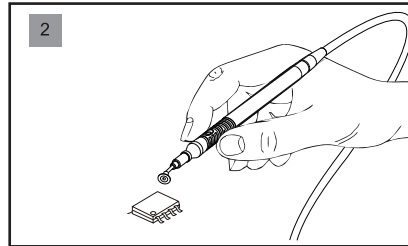
- In the text working interface, press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” + “2” key to turn on/off the vacuum pen.



Insert the head of the suction nozzle into the hole of the suction disc, and insert the vacuum pen to the end of the nozzle to complete the assembly.



When the vacuum pen function is enabled, the vacuum pen can be operated. Block the air hole of vacuum pen with the finger, and the SMD components can be sucked in.



Loosen the air hole, and put down the components.

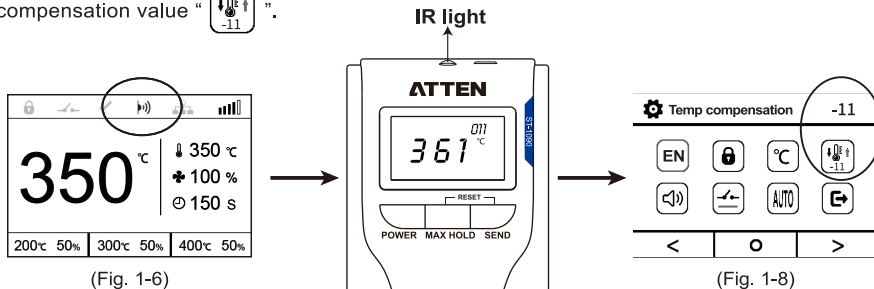
## IR temperature calibration function

- In the text working interface, press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” + “3” key to turn on/off the IR temperature calibration function.

(Fig. 1-6) Means: IR function is turn on ( text working interface display  $\text{|||}$  icon).

(Fig. 1-7) Means: Used with ATTEN temperature tester (ST-1090), the temperature tester infrared light should be aligned with the infrared receiver of the station, the distance should not exceed 10cm, turn on the hot air gun, align the air outlet with the thermometer temperature sensing point, after the temperature on thermometer screen is stable, press the thermometer "SEND" key, at this time The “ $\text{|||}$ ” in the text working interface turns gray indicates the temperature calibration completed.

(Fig. 1-8) Means: Entering the common setting interface, you can check the current temperature compensation value “ $\frac{\text{10}}{\text{-11}}$ ”.



(Fig. 1-6)

Temperature tester (Fig. 1-7)

(Fig. 1-8)

## Working status

- Working normally

(Fig. 1-1) Means: Real temperature is 350°C, air volume is 100%, timing work time is 150s.

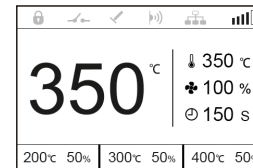
- Standby mode

(Fig. 1-2) Means: When hot air gun putting on the holder, the hot air gun does not blowing air. It will recover to normal work when taking this handle up.

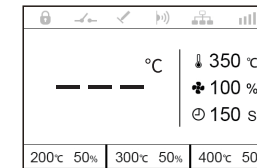
- Sleeping mode

(Fig. 1-3) Means: The hot air gun under sleeping mode, it can not work by taking up the handle. It needs to recover to work by pressing power button on hot air gun.

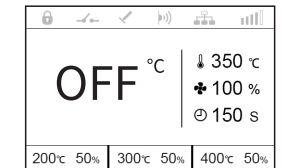
(Note: The default sleep time is 30 minutes. Turn on the station power switch again and the hot air gun will automatically enter the sleep mode)



(Fig. 1-1)



(Fig. 1-2)



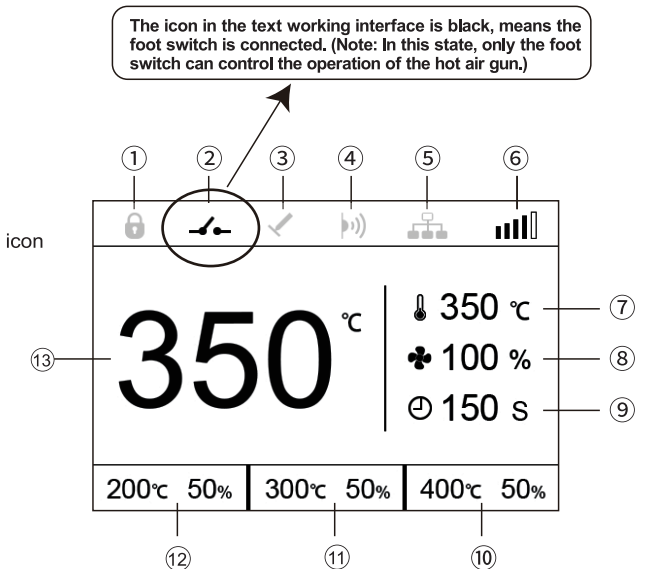
(Fig. 1-3)

## Text working interface icon definition

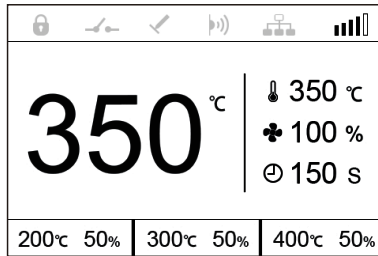
- The gray icon on the top of the interface indicates that this function is not turned on.
- The black icon on the top of the interface indicates that this function is turned on.

- Icon definition

- ① Lock icon
- ② Foot switch icon
- ③ Vacuum pen icon
- ④ Infrared receiver icon
- ⑤ Net master-slave device icon
- ⑥ Power bars
- ⑦ Set temperature
- ⑧ Set air volume
- ⑨ Set timing work time
- ⑩ Rapid parameter 3
- ⑪ Rapid parameter 2
- ⑫ Rapid parameter 1
- ⑬ Real-time temperature



## Text working interface



(When the countdown reaches 10s, the buzzer will ring)

### ● Short press “ $\sim$ ” “ $\wedge$ ” key

(Temperature, air volume, timing work time) parameters are reduced or increased in one unit.

### ● Long press “ $\sim$ ” “ $\wedge$ ” key

(Temperature, air volume, timing work time) parameters rapidly reduce or increase.

### ● Rapid parameter retrieve:

Short press “1”, “2”, and “3” keys to quickly retrieve the parameters (temperature, air volume, timing work time).

### ● Quick storage of parameters:

Long press “1”, “2”, and “3” keys to store the current (temperature, air volume timing work time) parameter in the corresponding shortcut key.

### Text working interface “MENU” key definition

#### ● Short press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key

The cursor can be switched back and forth in the settings of temperature, air volume and timing work time.

#### ● Long press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key

Enter into the main setting menu interface.

#### ● Press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key + “1” key

Switch between text working interface and curve working interface

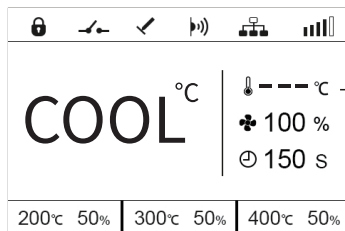
#### ● Press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key + “2” key

Turn on or off vacuum pen. (Please refer to page 11 for the usage of this function)

#### ● Press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key + “3” key

Turn on or off infrared temperature calibration function.

## Cool air function



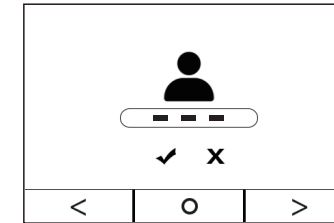
Real-time temperature is lower than 100°C

(Fig.1-4)

- The hot air gun enter into cool air mode when the setting temperature value is under 100°C, and the cool air mode display COOL (Fig. 1-4) and the heater does not heat, the hot air gun blows cool air then the heater quickly cool down.

## Password setting interface

- select  Press “2” key or “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key to enter the password setting interface.



### ● Cursor switch:

Short press “1” or “3”key, the cursor can be switched back and forth in the Password setting interface.

### ● Password setting:

Press “ $\wedge$ ” “ $\sim$ ” key to set the password.

“ $\checkmark$ ” Confirmed password setting

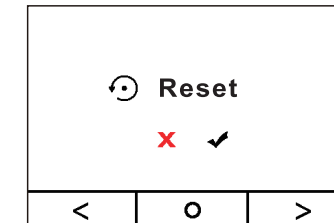
“ $\times$ ” Cancel password setting

Password value can be set between 1-999

“ - - - ” Indicates no password

## Factory reset

- select  Press “2” key or “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key to enter the factory reset interface.



### ● Function switch:

Short press “1” or “3”key, to select “ $\checkmark$ ” to confirm factory reset or “ $\times$ ” to cancel factory reset, and then press “2” or “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key to confirm the selection.

## Key operation instructions

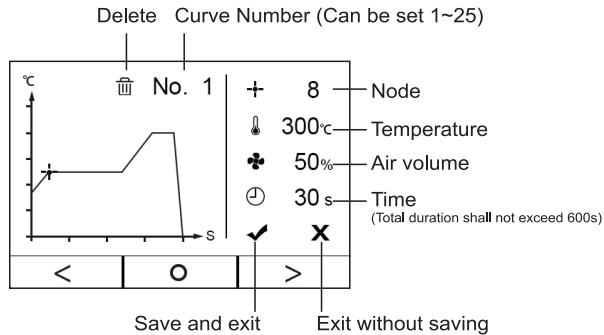
- select  Press “2” key or “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key to enter the key operation interface, in this interface press any key can exit.

### Key instructions




- “MENU” key + “1” key:  
Switch between text & curve interface.
- “MENU” key + “2” key:  
Turn vacuum pen on/off.
- “MENU” key + “3” key:  
Turn the infrared function on/off.
- Long press “1,2,3” key:  
Save shortcut parameters. **Press any key to exit**

## Curve-editing interface

- select  Press “2” key or “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key to curve-editing interface.



### ● Curve setting steps:

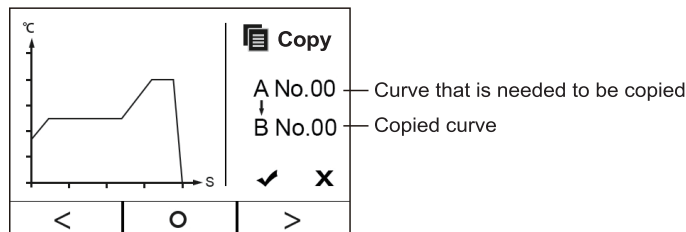
Select curve code (  curve code can be deleted), and then select node to set temperature, air volume and time. Select  save settings and exit .(select  exit without saving).

**Note: Add a node: adjust the node serial number, and then set the corresponding temperature, air volume, and time.**

**Delete a node: just select the corresponding temperature, air volume and time, press “ $\wedge$ ” “ $\smile$ ” to adjust, and set them to “—”.**

## Curve copy interface

- select  Press “2” key or “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key to copy curve interface.



### ● Cursor switch:

Short press “1” or “3”key, the cursor can be switched back and forth in the curve copy interface.

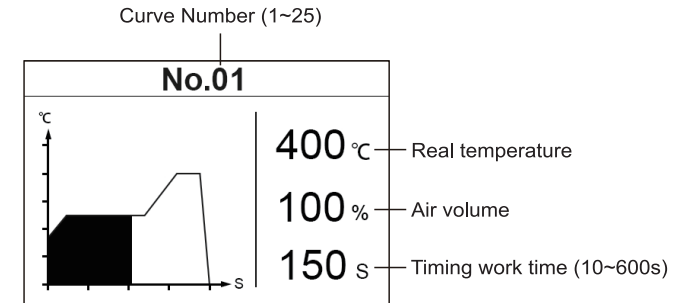
### ● Curve code setting:

Short press “ $\wedge$ ” “ $\smile$ ” key, to set the A curve / B curve code. (Can be set 1~25)

### ● Curve copy:

After selected the A and B curves, select “” to confirm copy (“”Cancel copy).

## Curve working interface



(When the curve is at the highest point, the buzzer will ring)

### ● Rapid curve retrieve:

Under the curve working interface, short press “1”, “2” and “3” key to quickly retrieve the corresponding curvenumber.(Curve editing method is available on page 9)

### ● Short press “ $\smile$ ” “ $\wedge$ ” key

Curve numbers is reduced or increased in one unit.

### ● Long press “ $\smile$ ” “ $\wedge$ ” key

Curve numbering rapidly decreases or increases.

### ● Start hot air gun:

In the curve work interface hot air gun can't work when you pick up hot air gun directly, it needs to press the button on the handle or short press “MENU+3” key to resume work.

### Curve working interface “MENU” key definition

- Long press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key  
Enter into the main setting menu interface.
- Press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key + “1” key  
Switch between text working interface and curve working interface
- Press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key + “2” key  
Turn on or off vacuum pen. (Please refer to page 11 for the usage of this function)
- Press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key + “3” key  
Pick up the hot air gun and short press these combination keys, the hot air gun begins to work, and short press the hot air gun again to stop working.

## Menu setting interface

### ● Function switch:

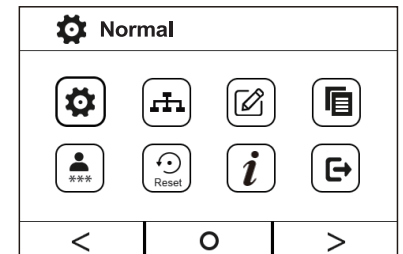
Short press “1” key and “3” key, to switch the cursor back and forth in the menu settings interface .

### ● Function selection:


Short press “2” key or “ $\frac{\text{MENU}}{\text{ENTER}}$ ” key, to confirm the selected function in menu setting interface.

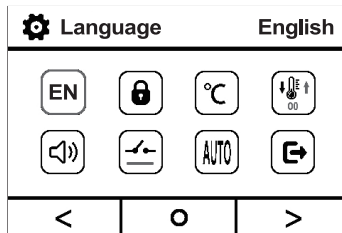
### ● Quick exit:

Long press “ $\frac{\text{MENU}}{\text{ENTER}}$ ” to save no parameters, and quickly exit the current Interface.



## Common setting interface


- Select  press “2” key or “MENU ENTER” key to enter the common setting interface.



- **Function switch:**

Short press “1”, “2”, “3”, and “MENU ENTER” key, the cursor can switch back and forth in the common setting interface.

- **Language Setting:**

Select , press “ $\vee$ ” “ $\wedge$ ” key to switch between Chinese and English.

- **Parameter lock:**


Select , press “ $\vee$ ” “ $\wedge$ ” key to switch (unlock, locked 1, locked 2) parameter.

 Unlock     Level 1 locked (locked all parameters)     Level 2 locked (except shortcut key unlock, other parameters locked)


- **Temperature unit:**

Select , press “ $\vee$ ” “ $\wedge$ ” key to switch between °C / °F temperature units.

- **Temperature compensation:**

Select , short press “ $\vee$ ” “ $\wedge$ ” key to reduce or increase parameter in one unit, long press “ $\vee$ ” “ $\wedge$ ” key to rapidly reduce or increase parameter.

- **Buzzer:**

Select , press “ $\vee$ ” “ $\wedge$ ” key to open or close the buzzer.

Text work interface this icon is black, means that the foot switch is connected

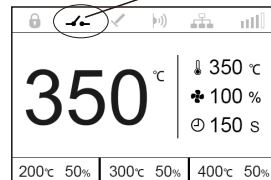
- **Foot switch mode:**

Select , press “ $\vee$ ” “ $\wedge$ ” key to switch between foot switch jog and continue mode.


**In jog mode:** Auto-heating mode is invalid.

**In continue mode:** Timing setting is invalid.

**(Note: When using an external foot switch, only the foot switch can control the heat gun to work)**



- **Heating mode:**

Select , press “ $\vee$ ” “ $\wedge$ ” key to switch between automatically and manually heating mode. (Only valid in the text interface, and it's automatically by default)

**In automatically mode:** When the hot air gun is placed on the handle bracket, the hot air gun does not blow air, and pick up the hot air gun again, it will resume to work.

**In manually mode:** Control the hot air gun to start/stop operation by the button on the hot air gun handle.

## Common setting interface

- **Return**

select  Press “2” key or “MENU ENTER” key to return.

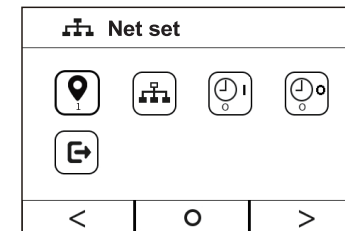
**Note:** Confirmed return, the save setting prompt will pop up (Figure 1-5), select “ $\checkmark$ ” the station will save the parameters set in the current page, and select “X” the current parameter will not be saved).



(Fig.1-5)

## Net setting interface


- select  Press “2” key or “MENU ENTER” key to enter the Net setting interface.



- **Function switch:**

Short press “1” “2” “3” “MENU ENTER” key, the cursor can be switched back and forth in the network setting setup interface.



- **Net address:**

Select  Press “ $\vee$ ” “ $\wedge$ ” to switch over the net address parameters. (The default is 1; 0-255 swappable.)

- **Net mode:**

Select  Press “ $\vee$ ” “ $\wedge$ ” to switch between master and slave mode.

- **Power-on / shutdown delay:**

Select   Press “ $\vee$ ” “ $\wedge$ ” to set the startup / shutdown delay for 0 to 900s. (Only valid in master mode, need to be used with ATTEN smoke purify machine )