Induction heating speed back to temperature

Intelligent Lead-free Soldering Station

INSTRUCTION MANUAL

900H

English

Thank you for choosing this smart lead-free soldering station, this product is specially designed for lead-free rework, please read this carefully before using. after reading, please keep it for future reference.

Warning!!!

Use the machine, the following basic measures should to abide, avoid electric shock or cause injury or damage caused by fires.

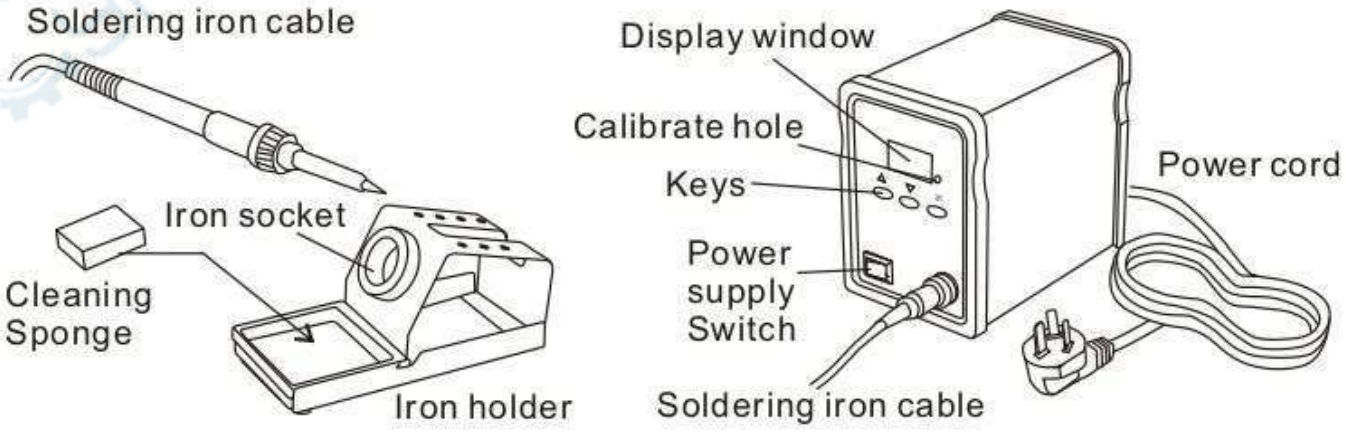
1. To ensure personal safety, after the machine completed work, or long time no use, please unplug the power cord.
2. To ensure personal safety, you must use the original approval or recommendation of the parts, otherwise it will lead to serious consequences.
3. Machine failure must be by professionals or the company designated personnel for repair.
4. This product is grounded three-wire plug,must be inserted within the three-ehole grounded outlet, do not change the plugs or use ungrounded three adapter made it bad grounded.
5. Soldering station is open, its temperature are likely to reach 400 degrees. Do not use it near flammable gas, objects. Tube and the heat emitted very hot, can burn the body, do not touch the hot pipe and direct injection to heat the human body.
6. Soldering station is turned on, do not leave the jobs site.
7. After using, remember to cooling down body,the handle should be released into the handle frame, after shut down the machine to sleep.
8. Do not use a soldering iron to weld other thing upon welding work; Do not iron percussion table to clear the residual flux, this could seriously damage the iron.
9. The machine welding will take smoke, please do proper ventilation.

1. If the supply cord is damaged, it must be replaced by a special cord or assemble available from the manufacturer or its service agent.
2. WARNING: This tool must be placed on its stand when not in use.
3. --Be careful when using the appliance in places where there are combustible materials;
   --Do not apply to the same place for a long time.
4. --Be aware that heat may be conducted to combustible materials that are out of sight;
   --Do not leave the appliance unattended when it is switched on.
5. --This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge. Unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
   --Children should be supervised to ensure that they do not play with the appliance.

I. Specification

Output power	≤90W
Output voltage	30V, 400KHz
Temperature range	As per work mode set
Temperature stability	±2℃(stillness air, no load
Appearance case material	Aluminum
Size	L150xW98xH134mm ±5mm
Weight	3.0kg
Work Environment	0~40℃
Storage Environment	-20~℃80℃
Storage humidity	35%~45%
Soldering iron tips	
Tips to ground resistance	Lower than 2 ohms
Tips to ground voltage	Lower than 2mV
Heating elements	Electromagnetic
Handle wire length	≤1.2m

II. Parts name



III. Installation and use of soldering station

Note: The sponge is a object that is squeezed up, moisture is swollen, when you use sponge , you should wet sponge firstly, then give the wet sponge a squeeze, otherwise it will damage the tips.

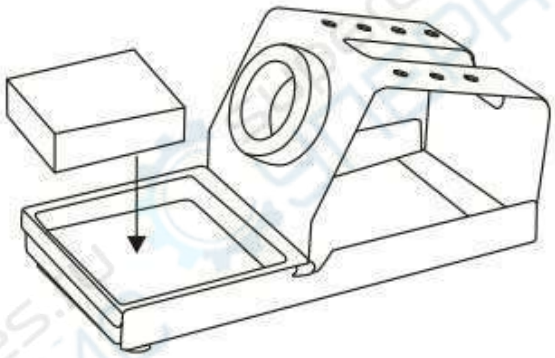
Iron holder

1. Small cleaning sponge
   Firstly you should get small piece of sponge wet and squeeze to dry, it must put it into the base cavity of iron holder.
2. Put water into the iron frame, the iron receptacle can not exceed the middle of extruding parts. After the small piece of sponge is absorbing water, so that large sponge remains wet.

*Large sponge can also be used alone, (Eliminating small sponge and adding water.)

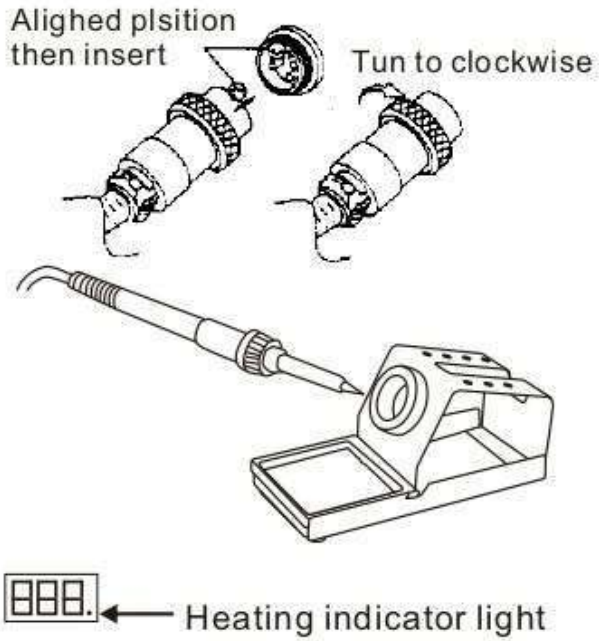
3. Getting large cleaning sponge wet, then you should put it in the bottom of the iron receptacle.

Note: When connecting or screw out the welding station a, you must turn off the power supply to avoid damage the electrical soldering station.



Connection

1. Soldering iron cable should connect with the socket of soldering station.
2. Put the soldering iron handle on the iron holder.
3. Insert the plug into a power socket. It is make sure it is to the grounding.
4. Turn ON the power switch. Factory preset temperature is 300°C. When the temperature rising stably, heater indicator light will flash quickly.



IV. Temperature setting

During working, if it need set temperature quickly in the situation of heating constantly keeping power, you should choose this method.

Rise temperature: Do not press the button "*", directly press button "▲",to set the temperature risen to 1 degree, display window displaying setting temperature, release button "▲",display window is delay within 2 seconds, then press key "▲", then setting temperature displays risen to 1 degree again; if press key "▲" to hold at least one second, then set the temperature is rising rapidly, until when the desired set temperature are come out, then release button"▲".

Drop down temperature: Do not press the key "*", directly press button "▼", set the temperature is dropped 1 degree, display window shows the set the temperature is dropped 1 degree, display window shows the set temperature, the release the button "▼", the display window shows that setting temperature delay for about 2 seconds, if you press key "▼" within delaying 2 seconds again, so setting temperature are dropped for 1 degree, if the press key "▼", and holding at least 1 second, then setting the temperature are rapidly decline, until when the desired set temperature are come out, then release button "▼"

Iron sleep time setting

Overview of sleep time setting: Press "*" key,and until entering into sleep mode, and sleep time function display are flashing. Press "▲" , in order to change sleep time, the time can be set for 2 minutes,5 minutes,10 minutes,20 minutes or cancel sleep time function (factory prepare set 5 minutes). Long press key "*", sleep time is set.

V. Function setting

Soldering station has the following parameters, parameters can be adjusted.

Set Password

The memory of the original soldering station password is: " 000 ", in this state, the soldering station temperature is setting, if you need to set the restrict temperature you must revise the password.

Enter password modify mode

1. Power switch, press simultaneously "▲" and "▼" then open the power switch.
2. Pressing key "▲" and "▼", hold all the time, until display "C".
3. When the window shows the "C",the soldering station enter into the parameter setting mode.

Input the original password

4. Pressing key "*", the window will display"---", the left side hundred digital is flashing, this indicated the soldering station entered the password setting mode, hundred digit can be adjusted,using the "▲" key and "▼" key will change the display value, the method of password value set is as the same as "conventional temperature setting" method. Pressing "*"after select the three figure password.

Input wrong password

5. If the display window shows current setting after 2 seconds, soldering station will enter into normal work state, that means input wrong password, the temperature set will not be able to carry on.

Input correct password

6. If display window shows 0-0 it is indicate input correct password,about 4 seconds later, soldering station will enter into normal work state, the temperature set will be permitted.
7. When display window is display 0-0, pressing "*" key, and shows "---", this is indicate soldering station will enter the new password input state. Presses "▲" or "▼" key, it will change the display value. Refers to "conventional temperature setting".

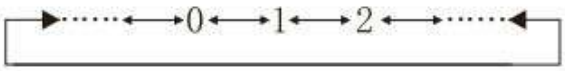
Re-enter the new password

8. When three figure are selected, pressing "*" key, display window shows "---", at this time you must input the new passport again. And then you can do it again according to above step.
9. If final twice input's new password is the same,pressing"*"key,the the revision password is successful, the new password will store in the machine.
10. If the input the password is different at last twice, pressing "*" key, then window shows "---" that means soldering station must input new password again(to see above 8-9 steps) until input password value will be same at last twice value, the revision password succeed.
    ***Note:** The password value's character is 0-9 digit, if not, input password is invalid.

Work mode setting

As display window shows 0-0, at this time you should press both "▲" and"▼", it is shows 0X ,this indicate that soldering station is entering into working mode setti-

ng, then you press both "▲" or "▼", it will change display value, the order of digital change as follows:



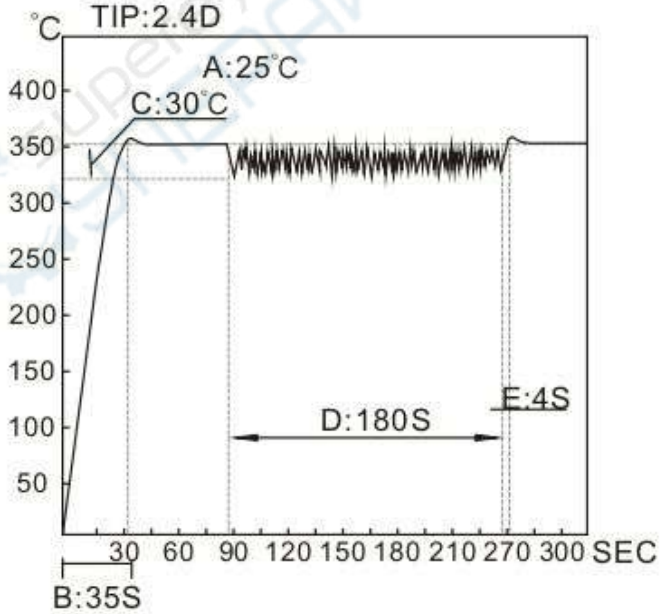
After work pattern type are decided, pressing "*" key, then designated working pattern should store in the memory. It will display that the digital digital significance for details as "the working pattern" instruction table.

Note: "X" represents the original working pattern digit.

Warning: When you use high-temperature operation, it will caused heating element and the soldering iron tip are serious oxidizing, injuring, reducing service life, therefore you should prudently choose, you can use at the low temperature work condition as possible.

Work pattern table			
Work pattern	Common air gun type	Adjustable temperature range	Power
0	Electromagnetic iron	200-480℃	90W
1	Electromagnetic iron	100-450℃	90W
2	Electromagnetic iron	50-420℃	90W

VI. The restore curve of temperature and heating



The restore cure of temperature and heating:

Test condition

The circuit wafer: Phenol aldenhyde Copper plate

Soldering spot: 1.6 x5mm

Cycle: you should stroke welding once per 3 seconds

Instruction

A: Room temperature

B: The time of elevating temperature

C: The temperature is dropped

D: Operating time

E: The restore time of heating

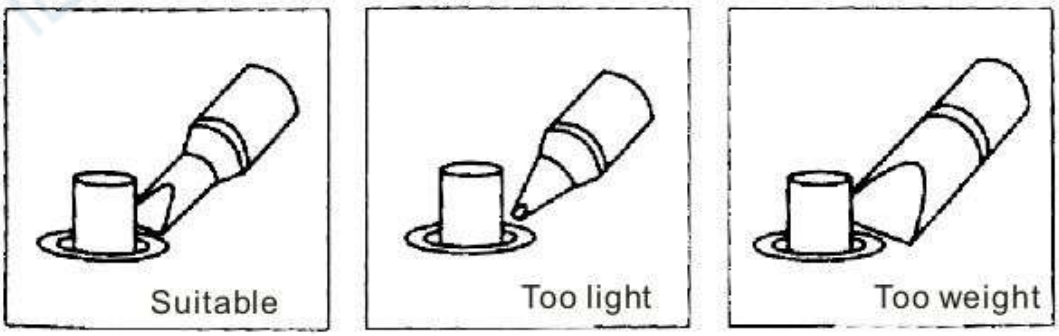
VII. Dormancy

If the dormancy and the working pattern had designated, that the sleeping time of soldering iron are at the appointed,the soldering station power source will reduce, and display 200/SLP, this state is called as the dormancy, when the soldering station is work in dormancy pattern, the soldering iron tip temperature will drop to 200 (if setting operating temperature 200°C or 50°C) if operating temperature 200°C (and maintains this temperature nutil soldering station resumes working. Three ways of awake the dormancy:

1. Turns off the soldering station power switch, then open the power switch again.
2. Press any key.
3. Take up soldering iron handle and waggle it.

VIII. Choose the appropriate soldering iron tip as welding requirement

1. Choose a tip and the biggest contacted area soldering iron tip of spot, biggest contacted area can give birth to the most effective heat transmission, it will enable the operators who can weld higher quality the welding spot quickly.
2. You should choose a good way which it is can transmit heating to tip of the spot, the shorter tip can be control by precise, but the welding of assemble crowded circuit board, it is need to select a long or a certain angle tip.



IX. Soldering iron temperature calibration

Whenever you replace a soldering iron, soldering iron heating element, then the soldering iron temperature should be re-calibrated. Soldering iron temperature recalibration is use the tip thermometer calibration. This method is more accurate.

1. Manual calibrate temperature function, as per tip thermometer calibration.
   A. Set temperature is 350°C.
   B. When the temperature is stable, take out meter calibration CAL circular stopper.
   C. When the temperature is stable, use of (-)shape screwdriver of small prefix (+) prefix screwdriver adjustment screw(soldering units are marked with the words CAL)until the tip thermometer showed 350°C. Turn to clockwise rotation is warm temperature, anti-clockwise rotation is reduce temperature . (The plugged meter calibration CAL circular stopper).

*Our company recommend using the 191/192 thermometer to measure the tip temperature.

X. Tip use

Tip temperature

High soldering temperature can degrade the tip. Use the lowest possible soldering temperature. The excellent thermal recovery characteristics ensure efficient and effective soldering even at low temperatures. This also protects the sensitive components from thermal damage.

Cleaning

Clean the tip regularly with a cleaning sponge. As oxides and carbides form the solder and flux can form impurities on the tip. These impurities can result in defective joints or reduce the tips heat conductivity. When using the soldering iron continuously, be sure to loosen the tip and remove all odides at least once a week. This helps prevent seizure and reduction of the tip temperature.

When not in use

Never leave the soldering iron sitting at high temperature for long periods of time, as the tip's solder plating will become covered with oxide, which can greatly reduce the tip's heat conductivity.

After use

Wipe the tip clean and coat the tip with fresh solder. This helps prevent tip oxidation.

XI. Tip maintenance

Check and clean tip

1. Set the temperature 250 Celsius.
2. The temperature is stable, use clean sponge clean-up candle iron and check the tip condition.
3. If the tip of the tin oxide with black parts, can a new tin plating, then use cleaning sponge clean up the tip. Repeat clean up until it was completely wipe off the oxide and then coated with a new tin layer.

Note: Do not use files to scrap the oxide.

If the tip deformation or the occurrence of heavy erosion, to replace the new one. Why is a "
ono-tin" the tip can not be used? It is means solder tin can not wet soldering iron tip,the exposed coating of the tip is easy oxidized,and make the tip head's the heat transmission failure, "non-tin" the tip of the following causes:

A. When the tip is idle, the tip haven't covered with fresh solder.
B. Iron at high temperature.
C. During the welding work is not fully melted.
D. In dry or unclean sponge or cloth to scrub the tip (should use clean, wet industrial grade non-sulfur sponge).
E. Solder material or iron plating is impure, of welding surface is not clean.

Restore a non-tin on the tips

1. After the tips cooling, removed the soldering iron tip from handle.
2. By 80# polyurethane grinding foam block or 100# emery paper to remove surface dirt and tin oxide of tips.
3. To put the tip into the handle,using of the solder wire containing rosin(φ0.8mm or more) package of new and exposed of tip tin surface, open the soldering station power.

Note: The appropriate routine maintenance will effectively prevent the tip no-tin.

To extend tip life

1. After use it each time, soaked in fresh solder, which can avoid the iron oxidation iron and extended life.
2. In the case of work to make use of low temperature, low temperature can reduced oxidation of iron head, but also easy to weld electronic components.
3. Only must use fine tip situation use fine tip, otherwise DO NOT use fine tip, because fine tip coating is not durable than thick tip coating.
4. Do not use soldering iron tip as a detection tool, tip curved make coating will break and shorten life.
5. Try to use less active rosin flux, because the high activity of rosin will accelerate corrosion of the tip coating.
6. In the case of using the soldering iron, turn off the power to extend the service life as possible.
7. Do not apply large pressure for tip, because the greater pressure is not equal to the heat faster,improve heat transfer,must make solder melting,make betw-

een the tip head and the solder point has a heat transfer rate for the formation a solder bridge.

XII. Error mark

When the soldering station has problem, will display a variety of error symbols, if displayed the following symbols, please refer to troubleshooting guide.

1. **S-E Sensor failure:**
   If the sensor or sensor circuit of any part of failure, "S-E" mark is displayed the power delivered to the soldering iron would be cut off.
2. **Temperature display flashes to attract attention:**
   If the power delivered to the soldering iron, and the tip temperature is lower than 80 degrees, indicating the temperature will be flashing, the user should be attention.
3. **H-E Heating elements failure:**
   If soldering station can't be delivery power, the window displays the "H-E", which indicates heater may be broken.

XIII. Troubleshooting

Warning!!!

Turn off the power before maintenance, otherwise electric shock accident may occur. If the power supply is damaged,should be let manufacturer of service agent or similar qualified person repair, in order to avoid bodily harm or damage to the soldering station.

Fault 1: Soldering station can not operate.
Check way 1: Please check whether the fuse is OK ro burned?
Confirm the reason, change new fuse:
A. Whether the short circuit within the soldering iron?
B. Ground wire is touching the heating element?
C. Heating element wire is kinked or short:
Check way 2: Wire is broken? If yes, please replace new wire.

Fault 2: The tips does not heating up, the sensor or heater failure display.
Check way 1: Check wire and / or connectors are loose or broken? Re-connect or see if assemble wire breakage.
Check way 2: Check the sensor? Refer "heating and sensor elements damaged inspection way."

Fault 3: The tips temperature is too lower.
Check way 1: Check soldering iron whether has oxides. Please refer to " how to check and clear the tips"
Check way 2: Check the soldering iron is right. Reset proofreading accurate.

Fault 4: Heater device damaged, the H-E display.
Check way 1: Check iron line is broken? Please refer "how to check the assembly of wire breakage" way.
Check way 2: Check solder whether refer "How to check heater and sensor broken breakage."

Fault 5: Temperature display flashes.
Check way 1: Check welding wire is broken? Refer "how to check the soldering iron assembly of wire breakage".
Check way 2: Check welding power is too large? Use a higher power and continued use the welding station.
Check way 3: If the password lock of the panel buttons? Enter the password value (unlocked).

Input the setting password unlock
If you have forgotten your password? Soldering station apart the front panel (see soldering station parts list), plug the power cord, turn on the power switch, press the internal circuit board "D-S" button (see parts list)to set the password will return to the initial value "000". Reinstall in reverse order of the welding station.

XIV. How to check the heater and sensor components and assembly wire breakage

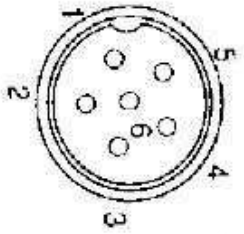
Pull out the plug, test the connection plug between the feet of resistance are as if " A " and "B" the resistance value are different with the follow resistance values, should be need for replacing heating elements (sensors) and / or wires. Please refer procedures 1 and 2. If "C" resistance values larger than the below state resistance value, need to use sandpaper or steel pilers gently erase parts of the oxide under the shown.

Fever and parts breakage sensor

A. Between 4 pin and 5 pin (heating element)
<1 ohm (normal)

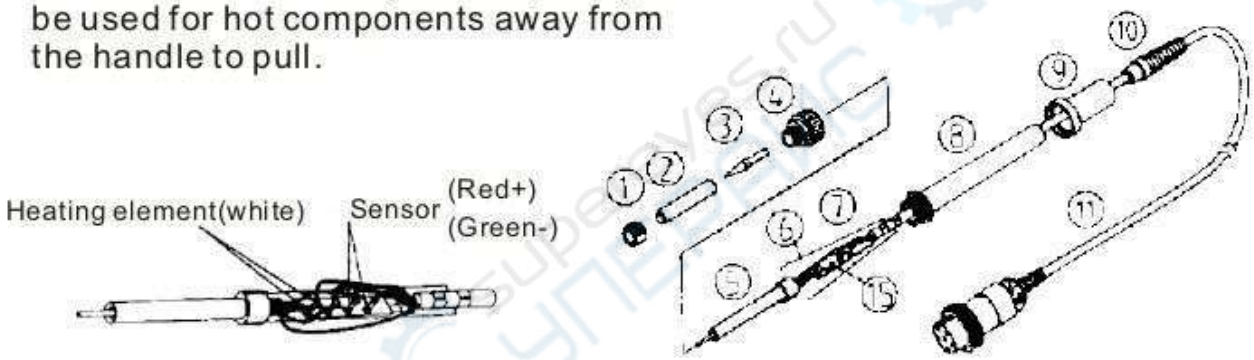
B. Between the 1 pin and the 2 pin (sensor)
<10 ohms (normal)

C. Between 3 pin soldering iron tip<2ohms



How to take down a soldering iron

A. Anti-clockwise turn on the nut, remove the tip and the tip sheath.
B. Turn to anti-clockwise open the iron hedging, take out the iron hedging from the soldering iron head.
C. Remove the heating element from the handle and wire (11) (direction toward the tip out).
D. Don't use metal tools (such as pliers), and should be used for hot components away from the handle to pull.



When the heating element back to the room temperature measurements:

A. Heating elements resistance (white) <1 ohm.
B. Sensor resistance values (red and green) <10 ohms.
If the resistance is abnormal, replace the heating element or sensor.
About procedure replacement , refer to the manual replacement parts.

After replace heating elements, please check the following things:

A. Measuring between the fourth foot and first foot or second foot, between the fifth foot and first foot or second foot, between sixth foot and first foot or second, between sixth foot and fourth foot or fifth foot, all these resistance. If the resistance is not infinite, it is the heating element switches ans sensors or vibration welding error, which may damage the printed circuit board.
B. Measurement "A" "B" "C" resistance to ensure the lead cable don't distorted, and the grounding line is also connected properly.
C. Turn on the soldering iron power, temperature set is the highest. Soldering iron wire in different parts of each side (including the elastic part) shaking or weaving, if the heater LED indicator light flashes, replace the cord.

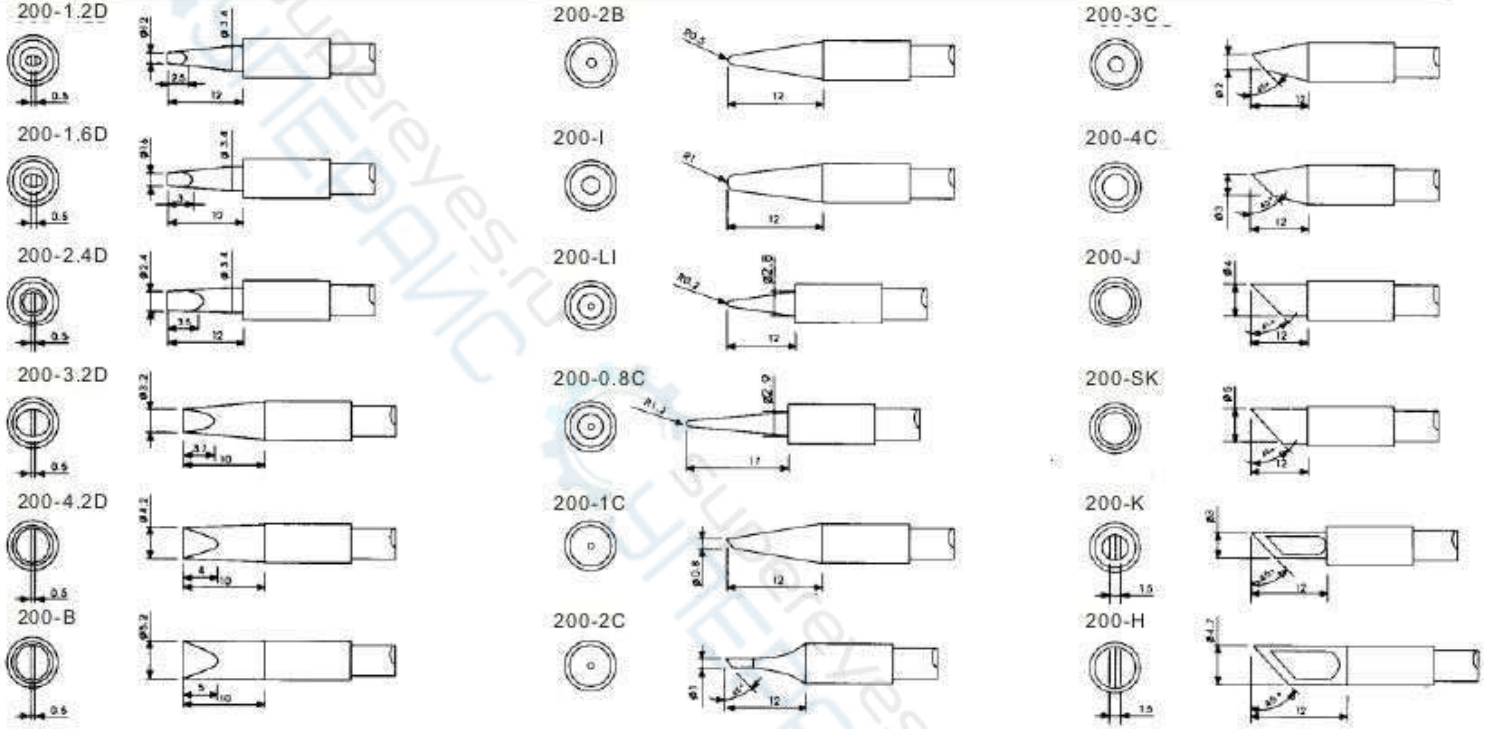
Soldering iron cable broken

Test soldering iron cable has two methods, as follows:
Note: Although the soldering iron wire normally, when the temperature will quickly raise to the maximum temperature of Celsius,the heating device LED indicator will light flash.
Test soldering iron plug pin all the terminal plate wires' resistance, Pin 1-Blue, Pin 2-Red, Pin3-Foot screen line, Pin4-White, Pin5-Black, Pin 6-Green, the resistance value should be 0 ohms, if the resistance large than 0 ohms, should be replace the cable.

Replace fuse

1. Take out fuse from insurance block.
2. Get out broken insurance block.
3. Replace new insurance block.
4. Put the fuse install insurance block.

Tip



Spare parts
Lead-free soldering emergent issues

Lead-free solder wire components of the relative increase of its melting point is about 35°C,so the same volume of solder wire melts, the demand for energy more, common temperature-control lead-free welding station in operation, prone to the following questions

- Welded joints is difficult to achieve the desired weld shape — Tips heat not enough supply
- Weld, solder joints prone to glitches, pull tip — High temperature solder is easy thermal evaporation
- Delicate original device vulnerable to thermal shock and damage — Soldering station set temperature is too high
- Solder splash — Soldering station set temperature is too high
- Welding interval increased longevity — Heating compensation inadequate, the temperature can not recover quickly
- Tip, heater, life is short, consumption of fast — Set temperature is too high, lead-free solder at a high temper erosion of strengthening

Our company lead-free soldering station series not only can raise the set temperature but also achieve the perfect welding effect.