DSS 25-A Lead Free Soldering Station

INSTRUCTION MANUAL

Thank you for purchasing the unit. It is designed for lead free soldering. Please read this manual before operating the unit. Store this manual in a safe, easily accessible place for future reference.

TABLE CONTENT

I . Safety Instruction	1
Π. Specification	3
Ⅲ. Characteristic	3
IV. Connection & Operation the Soldering Iron	4
4.1 Iron Holder and Sponge	4
4.2 Connection	4
4.3 Operation Instruction	5
4.3.1 Temperature Setting	5
4.3.2 Temperature Calibration	5
V . Select a correct tip	6
VI. Use and Maintenance of the Tip	6
6.1 Use of the Tip	6
6.2 Maintenance of the Tip	7
VII. Check and Replace the Parts of Soldering Iron	9
7.1 Check the Soldering Iron	9
7.2 Disassembly the Soldering Iron Handle	10
7.3 Measure the Resistance before Replacing	10
7.4 Measure the Resistance after Replacing	10

/Ⅲ .	Tips1	12

I . Safety Instruction

△WARNING

In this instruction manual," Warning" Caution and Note are defined as followings:

△WARNING: Misuse may potentially cause death of, or serious injury to the user.

NOTE: A Note indicates a procedure or point that is important to the process being described.

ACAUTION

When the power is on, the tip temperature is very high. Since mishandling may lead to burn or fire, be sure to comply with the following precautions:

- Please avoid abuse of the equipment, and use the appliance only in the described manner.
- Do not touch the metallic parts near the tip.
- Do not use the product near flammable items.

- Advise other people in the work area that the unit can reach a very high temperature and should be considered potentially dangerous.
- While replace parts or install tips, turn the power off and allow the unit to cool to room temperature.

To prevent damage to the unit and ensure a safe working environment, be sure to comply with the following precautions:

- Appliance shall only be used with rated voltage and frequency. (Refer to the trademark back of equipment.)
- Don't use the appliance if it is damaged, especially the supply cord.

Page 1

- This machine is equipped with a 3-wires grounding plug and must be plugged into a 3-terminal grounded socket. Do not modify plug or use an ungrounded power socket. If an extension cord is necessary, use only a 3-wire extension cord that provides grounding.
- Do not use the unit for other applications except soldering.
- Do not rap soldering iron against the workbench to shake off residual solder, otherwise the iron will be damaged by shocks.
- Do not modify the unit by yourselves.
- Use only genuine replacement parts.
- Do not wet the unit. When your hands are wet, don't use and disconnect the unit, or to pull the supply cord.
- The soldering process will produce smoke, so make sure the area is well ventilated.
- While using the unit, don't do anything which may cause bodily harm or physical damage.
- Children cannot recognize the danger of electrical appliances. Therefore use or keep the appliance only under supervision of adults and out of the reach from children.

Ⅲ. Characteristic

- 1. Recovery of the temperature and calefactive is rapid and exactly. Especially it is suitable to the lead free soldering.
- Ceramic heater with long lifetime.
- Various types of tips are available and replace tips conveniently.
- 4. Soldering iron is portable and comfortable to use.

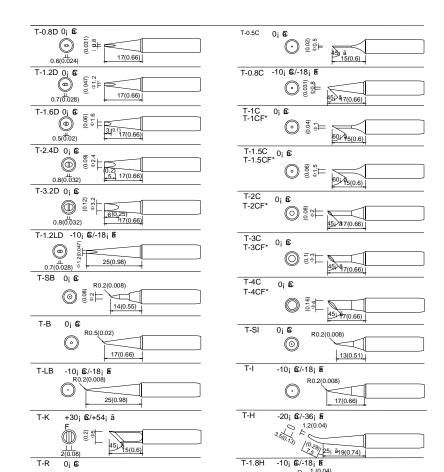
Chacification

II. Specification				
Model of Soldering Station	DSS 25-A			
Input Voltage	230VAC			
Power	90W			
Temperature Range	200°C~450°C			
Highest Ambient Temperature	40℃			
Temperature Stability	± 2°C/Without air flow and no load			
Tip to Ground Potential	<2mV			
Tip to Ground Potential	<2mv (True RMS)			
Heating Element	Electromagnetic heater			
Handle Power Cord	1.2m (The length can be decided by users)			
Dimension	83(W)×140(L)×125(H) mm			
Weight (not including handle length)	1.38Kg			
Model of Soldering Iron Handle	DSP25			

^{*} The tip's temperature is measured by 191/192 thermometer.

WII. TIPS

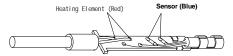
Page 3



^{*} Specifications and design subject above may be changed without notice.

NOTE: The tips with "*" mark are tinned only at the level.

2. Measure the resistance "a", "b" and "c" to confirm that the leads are not twisted and that the grounding wire is properly connected.



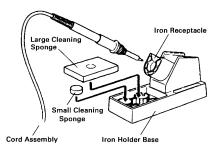
IV. Connection & Operation the Soldering Iron

CAUTION: Before operation, please 1check whether the voltage accords with the rated voltage on the unit's nameplate.

4.1 Iron Holder and Sponge

△CAUTION:

- The sponge is compressed. It will swell when moistened with water. Before using the unit, moisten the sponge with the water and squeeze it dry. Failure to do so may result in damage to the soldering tip.
- If the sponge becomes dry during working, add appropriate water.
- 1. Dampen the small cleaning sponge with water and then squeeze it dry.
- 2. Place the small sponge in groove of the iron holder base.
- 3. Add a little water to iron holder. The small sponge will absorb water to keep the large sponge around it wet at all times.
- 4. Dampen the large cleaning sponge and place it on the iron holder base.



4.2 Connection

△CAUTION: Be sure to turn off the power switch before connecting or disconnecting the unit. Failure to do so may damage it.

- 1. Connect the connector of the iron handle cord to the socket on the front of the unit. Take notice of the inserting position about the connector.
- 2. Place the soldering iron into the iron holder.
- 3. Insert power plug into grounded power socket.
- 4. Turn on the power switch on the right side of the unit.

4.3 Operation of the Soldering Station

△CAUTION: If the power supply is cut off when setting temperature, the setting value cannot be stored into the unit.

4.3.1 Temperature Setting

- 1. Set the temperature by revolving the temperature-controlling knob.
- When the temperature raises up to the set temperature, the hint light will flicker, which means the temperature is stable and it can come to do the soldering.

NOTE: When not using the iron handle, it needs to put the handle on the iron holder.

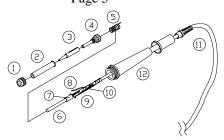
4.3.2 Temperature Calibration

The soldering iron should be calibrated after changing the iron, replacing the heating element or tip every time.

Method of recalibrating temperature: Use the thermometer to calibrate it, and it is precise comparatively.

- 1. Set the temperature to a certain value (such as: 350° C).
- 2. When the temperature stabilizes, take out the stopple in the CAL hole and measure the tip's temperature with the thermometer, and write down the value.
- 3. When the temperature stabilizes, adjust the screw in the CAL hole with a straight-edge "-" or "+" type screwdriver until the thermometer showing the setting temperature (350°C) of the soldering station. Turn the screw clockwise to increase the temperature and counter-clockwise to reduce the temperature.

7.2 Disassembling the Iron Handle



- 1. Turn the $nut \ 1$ counterclockwise and remove out the tip enclosure $\ 2$ and the tip $\ 3$.
- 2. Turn the nipple counterclockwise and remove it from the iron.
- 3. Pull both the heating element (6) and the cord assembly (11) out of the handle (12) (Towards the tip of the iron).

NOTE: Do not use metal tools such as pliers to remove tip or Tip enclosure from the handle.

7.3 Measure the Resistance before Replacing

a.	Between pins 4&5 (Heating Element)	3~ 4 Ω (Normal)	3
b.	Between pins 1&2 (Sensor)	43~ 58 Ω (Normal)	4 0 0 2
c.	Between pins 3& Tip	Under 2 Ω	5

NOT E: Measu re the

resistance value when the heating element is at room temperature.

- 1. Resistance value of heating element (Red) is $3\sim4 \Omega$ (Ceramic heater).
- 2. Resistance value of sensor (Blue) is $43\sim58\,\Omega$ (Ceramic heater).
- 3. If the resistance value is not normal, replace the heating element or sensor element. Refer to the instructions included with the replacement part.

7.4 Measure the Resistance after Replacing

After replacing the heating element:

- 1. Measure the resistance between pins 4 & 1 or 2, pins 5 & 1 or 2. If it is not ∞ , the heating element and sensor are touching. This will damage the P.W.B.
 - (6) Extend tip life by switch the system off when not in use.
 - (7) Don't apply pressure to the <u>fip.</u> More pressure does not equal more heat. To improve heat transfer, use solder to form a thermal bridge between the tip and the solder joint.

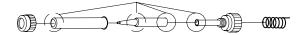
VII. Check and Replace the Soldering Iron

When there is something wrong with the soldering iron, you can check and test it. If it is broken, replace the broken element.

7.1 Check the Soldering Iron

1. Pull out the plug and measure the resistance value between the pins of the connecting plug when the heating element cooling down to the room

- temperature.
- 2. If the values of 'a' and 'b' are different from the values in the following table, replace the heating element or sensor or cord assembly. Refer to the following steps.
- 3. If the value of 'c' is over the below value, remove lightly the oxidation in the joint part of the tip and the heat element with sandpaper or steel wool.



- 4. If the temperature still has deflection, you can repeat calibration in accordance with above steps. Page 9
- 5. After calibration successful, put the stopple to the CAL hole again.

NOTE: Recommend using the tip thermometer for measuring the tip's temperature.

V. Select a Correct Tip

- 1. Select a tip that maximizes contact area between the tip and solder joint. Maximizing contact area gives the most efficient heat transfer, allowing operators to produce high quality solder joints quickly.
- 2. Select a tip that allows good access to the solder joint. Shorter tip lengths allow more precise control. Longer or angled may be needed for soldering

densely populated boards.







VI. Use and Maintenance of the Tip

6.1 Use of the Tip

1. Tip temperature

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

2. Cleaning

Clean the tip regularly with a cleaning sponge, as oxides and carbides from the solder and flux can form impurities on the tip. These impurities can result in defective joints or reduce the tip's heat conductivity.

When using the soldering iron continuously, be sure to loosen the tip and remove all oxides least once a week.

This helps prevent reduction of the tip temperature.

3. 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 be covered with oxide, which can greatly reduce the tip's heat conductivity.

4. After use

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

6.2 Maintenance of the Tip

1. Inspect and Clean the Tip

△CAUTION: Never remove the oxide by filing the tip.

- (1) Set the temperature to 250° C.
- (2) When the temperature stabilizes, clean the tip with the cleaning sponge and check the condition of the tip.
- (3) If there is black oxide on the solder-plated portion of the tip, apply new solder (containing flux) and wipe the tip on the cleaning sponge. Repeat until the oxide is completely removed. Coat with new solder. The solder protects the tip from oxidation and prolongs the life of the tip.
- (4) If the tip is deformed or heavily eroded, replace it with a new one.

2. Why a "de-tinned" tip failseto work?

A de-tinned tip is one which cannot wet with solder. This exposes the plating to oxidation and degrades the heat transfer efficiency of the tip.

The de-tinning is caused by:

- (1) Failure to keep the tip covered with fresh solder while not in use.
- (2) High tip temperatures.
- (3) Insufficient melting in soldering operations.

- (4) Wiping the tip on dirty or dry sponges and rags. (Always use a clean, wet, industrial grade, sulfur-free sponge.)
- (5) Impurities in the solder, iron plating, or on the surfaces to be soldered.

3. To restore a de-tinned tip

- (1) Remove the tip form the solder handle and allow the tip to cool down.
- (2) Remove scale and oxides from the timed area of the tip with 80-grit abrasive polyurethane foam stock or a 100-grit emery cloth.
- (3) Wrap rosin core solder (ϕ 0.8mm diameter or larger) around the newly exposed iron surface, insert the tip into the handle, and turn on the power switch.

NOTE: the de-tinned tips are preventable by proper daily care!

4. Extending tip life

- (1) Tin the tip before and after each use. This protects the tip from oxidizing, and prolongs tip life.
- (2) Do the job at the lowest temperature. Lower temperatures decrease tip oxidation and are easier on the components being joined.
- (3) Use fine point tips only when necessary. The plating on fine precision tips is less durable than the plating on blunter tips.
- (4) Do not use the tip as a prying tool. Bending the tip can cause the plating to crack, shortening tip life.
- (5) Use the minimum activation flux necessary to do the job. Higher activation flux is more corrosive to the tip plating.