

# **CIRCUIT-TEST** ELECTRONICS

## **INSTRUCTION MANUAL**

**SX-910**

**DIGITAL  
TEMPERATURE CONTROLLED  
SOLDERING STATION**

## **SAFETY INFORMATION**

Please read this instruction manual prior to operating your new soldering station.

**WARNING: KEEP OUT OF THE REACH OF CHILDREN. DO NOT INHALE SOLDER FUMES. KEEP TIP AND HEATING ELEMENT AWAY FROM THE BODY, CLOTHES AND FLAMMABLE MATERIAL WHEN IN OPERATION.**

**WARNING: THIS PRODUCT, WHEN USED FOR SOLDERING AND SIMILAR APPLICATION, PRODUCES CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.**

### **CAUTION:**

- Always place the soldering iron in the holder when not being used.
- Do not touch the tip or heating element while the unit is on or cooling. Please allow sufficient time for it to cool before changing tips or servicing the unit.
- Do not work on live circuits. Before working on any mains powered equipment, make sure that it is turned off, and the mains is unplugged.
- Do not use if damaged. If the power cable becomes damaged or the soldering station becomes faulty, discontinue use immediately. To comply with the safety standards, power cable must be replaced by authorized technicians. Use only original replacement parts.

## **SX-910 SOLDERING STATION**

The SX-910 Electronic Temperature Controlled Soldering Station was developed to meet the present and future needs of the electronic production industry in service, repair and production line soldering operations.

Temperature Lock allows the temperature setting to be locked with password and prevent unwanted temperature adjustments by the operator. The tip temperature is electronically maintained within  $\pm 6^{\circ}\text{F}$  ( $\pm 3^{\circ}\text{C}$ ) of any setting from 392-842 $^{\circ}\text{F}$  (200 to 450  $^{\circ}\text{C}$ ) by an electronic circuit which has a temperature sensor located at the end of the heating element. The 100W power allows rapid heat-up and super-fast recovery. The slim ergonomic soldering iron is attached to a heat resistant, non-burning, flexible cable.

The power unit is isolated from AC line by a high efficiency 32VAC transformer for user safety and to prevent unwanted high voltage leakage that may damage current sensitive components. Zero-voltage switching circuit protects the voltage and current sensitive components from damage by transient voltage spikes. ESD grounding jack on the back panel allows for connecting to an antistatic wrist strap.

In the event of heater or sensor circuit failure "H--E" or "S--E" error is displayed.

## SPECIFICATIONS

Model	SX-910
Input	120VAC, 60Hz
Output	32VAC / 100W
Fuse	T 2A (Slow Blow)
Temperature Range	392 - 842 °F (200 - 450 °C )
Temperature Correction Range	+178 ~-178 °F / +99 ~-99 °C
Default Setting	392 °F / 200 °C
	Temperature Correction Value "00"
Dimensions (W x H x D)	4.3 x 6.2 x 5.4" (111 x 158 x 137mm)
Weight	5.5Lbs (2.5kg)

## WORKING TEMPERATURE

The most common solder alloy used in the electronic industry is leaded solder like 63/37 or 60/40 and for ROHS compliancy, Lead Free Solder is required. The tip working temperature of the solder is detailed below and can vary from manufacturer to manufacturer.

Listed below are a few common reference temperatures:

### SOLDERING

Melting point (63/37 Leaded Solder)	362°F (183°C)
Melting point (60/40 Leaded Solder)	419°F (215°C)
Melting point (Lead Free Solder)	423-430°F (217-221°C)

### DESOLDERING

Desoldering operation for smaller joint:	608-680°F (320-360°C)
Desoldering operation for larger joint:	698-752°F (370-400°C)

**Note:** Using a temperature above 770°F (410°C) is not recommended for normal soldering functions, but can be used for short periods of time when high temperatures are required. Please note that the lead free solder alloys require a higher soldering temperature which shortens tip life.

When the iron's working temperature is set within the parameters suitable for the type of solder being used, a good joint is assured. Very low temperature will slow the rate of solder flow while a high temperature setting might burn the flux in the solder and emit a heavy, white smoke resulting in a dry joint or permanent damage to the printed circuit board and may also shorten the tip life.

## OPERATING INSTRUCTIONS

### FIRST TIME OPERATION:

1. Ensure that the base unit power switch is in “OFF” position. Connect the soldering iron to the base unit.
2. Plug the station to correct AC power source and power “ON” the base unit.
3. Press “▲” key until the temperature reaches 482 °F (250 °C). Tin the surface of the tip by applying a new layer of solder to protect the tip.
4. When the station reaches the desired temperature, the heating indicator light will flash to maintain the set temperature. The unit now is ready for use.

**CAUTION: SOLDERING IRONS OPERATE AT HIGH TEMPERATURES AND CAN EASILY CAUSE BURNS. DO NOT TOUCH THE TIP AND HEATER AT ANY TIME WHILE THE UNIT IS ON AND KEEP IT AT A SAFE DISTANCE FROM INFLAMMABLE MATERIALS. PLEASE ALLOW SUFFICIENT TIME FOR IT TO COOL BEFORE CHANGING TIPS OR SERVICING THE UNIT!**

### TEMPERATURE SETTING: (No password set)

1. Increase temperature: Pressing “▲” key once, will increase the temperature by 1°. If “▲” key is pressed over 2 seconds the digits on the display will increase continuously; release the key when desired temperature appears on the display.
2. Decrease temperature: Press “▼” key and repeat the same procedure as above.

### PARAMETER SETTING:

1. Press and hold the “SET” key until the display flashes “— — —”. Enter “010” (default) to start the parameter settings. If no entry is made the unit will exit the parameter setting mode.
2. After the unit enters the selection mode, the display will start flashing “F-0”. Press “▲” or “▼” key to select the modes.

For example: F-0 → F-1 → F-2 → F-3



Note: If “▲” or “▼” key is not pressed within 15 seconds (or “SET” key one time) then the unit will exit parameter setting.

3. Password Setting (F-1):

When the display flashes “F-1”, press “SET” once and the unit enters password setting mode and displays the pre-set value. “000” (default) indicates no password mode whereas “100” means password protected mode. Press “▲” or “▼” key to change or set the password. Press “SET” key once to finish password setting.

4. Temperature Correction Setting (F-2):

When the display flashes “F-2”, press “SET” once and the unit enters the temperature correction mode and displays the preset correction value. Press “▲” or “▼” key to change

the temperature correction value. When the numbers are flashing, it means minus value (actual temperature is down), when the numbers are not flashing, it means plus value (actual temperature is up). Press “SET” key once to finish the temperature correction.

Example for temperature correction: The current set temperature value is 400°F; however the actual temperature is only 390°F. So it needs to correct by +10°F. Correction method: if the current correction value is 00 or -00; then change it to 10. If the current correction value is -20, then change it to -10. If the current correction value is 20, then change it to 30.

#### 5. Sleep Mode Set (F-3):

When the display flashes “F-3” press “SET” key once and the unit enters sleep mode setting. The LED will display the pre-set value. “100” means sleep mode status and “000” means the unit is not set in sleep mode. Press “▲” or “▼” key to change the set value. Press “SET” key once to finish the sleep mode setting.

**Note:** Factory default setting is without sleep Mode.

If the unit is set in sleep mode function, after 20mins of inactivity, the system will go into sleep mode and the temperature will drop down to 392°F.

After 40 minutes of inactivity the station will go into energy save mode and will turn off. The unit can then be restarted by the main power switch.

## SMD TWEEZERS OPERATION

For optional SMD Tweezers operations:

1. Ensure that the base unit power switch is in “OFF” position. Disconnect the soldering iron and replace with the tweezers.
2. Use only the appropriate tips to avoid component damage.
3. Gently pick up and remove components while ensuring that a vertical pick up and pull out motion is maintained.
4. Use the same procedure to re-connect the soldering iron back to the station.

**NOTE:** The tweezers temperature will be about 120°F (50°C) lower than that of the soldering iron.

## MAINTENANCE

### GENERAL CLEANING

The outer cover of the iron and station may be cleaned with a damp cloth using small amounts of liquid detergent. Never submerge the unit in liquid or allow any liquid to enter the case of the station. Never use any solvent to clean the case.

### CARE OF TIPS

**CAUTION: THE SOLDER IRON CAN REACH VERY HIGH TEMPERATURES. BE SURE TO TURN THE UNIT OFF PRIOR TO CARRYING OUT ANY MAINTENANCE OR TROUBLE SHOOTING STEPS LISTED BELOW!**

Remove the tip and clean after moderate to heavy use or at least daily if on the production line. Remove any loose build up in the tip retaining assembly to prevent tip freezing.

The solder tips supplied are iron clad copper and if used properly, they should maintain optimum life.

1. Always tin the tip before returning it to the holder, turning off the station, or storing it for long periods of time. Brush the tip through the brass tip cleaner prior to use.
2. Keeping the iron set continuously at high temperatures (more than 750°F or 400°C) will shorten tip life.
3. Do not use excessive pressure on the tip or rub the joint with the tip while soldering; it does not improve the heat transfer and may damage the tip.
4. Apply solder to the joint, not the tip when soldering. The flux is naturally caustic and thus will eat away the tip.
5. Never clean the tip with a file or abrasive materials.
6. Do not use fluxes which contain chloride or acid. Use only rosin or resin activated fluxes.
7. If an oxide film forms on the tip, it can be removed by careful buffing with a 600-800 grit emery cloth, isopropyl alcohol or equivalent and then wrapping rosin core solder around the newly exposed surfaces. Coat the tinned areas with rosin core solder after the resin core has melted.

### NEW TIPS

Applying the following steps will lead to optimum life.

1. Set temperature to min. then turn the main power switch to the "ON" position.
2. Coat the tinned surfaces with rosin-core solder after reaching 482 °F (250 °C).
3. Set to desired temperature after allowing the unit to idle at 482 °F for 3 minutes.
4. The iron will be ready for use once it reaches the preset temperature.

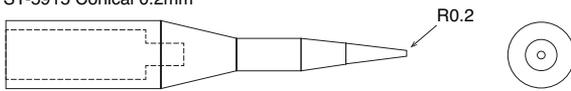
**IMPORTANT:** Remove and clean the tip daily. If a new tip is installed, remove any loose build-up in the barrel assembly, otherwise the tip may fuse the heating element or retaining barrel.

## COMMON CAUSES OF TIP UNWETTING

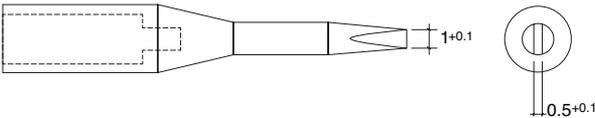
1. Tip temperature higher than 770°F (410°C) when used with lead solder.
2. The tip working surfaces are not tinned while the iron is idling.
3. Lack of flux in soldering, wicking, repairing, and touch-up operations.
4. Wiping the tip on a high sulfur content, dirty or dry sponges and rags.
5. Touching with organic substances such as plastic, resin, silicone, grease and other chemicals.
6. Impurities in solder and/or low tin content.

## INTERCHANGEABLE TIPS FOR SX-910

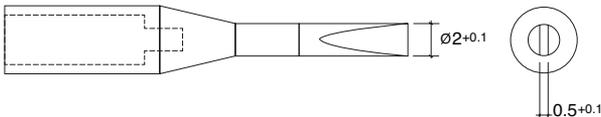
ST-5915 Conical 0.2mm



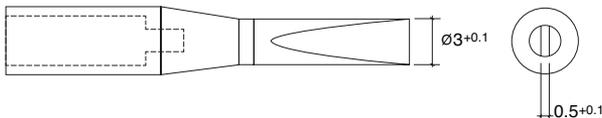
ST-5912 Screwdriver 1mm



ST-5913 Screwdriver 2mm



ST-5914 Screwdriver 3mm



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