



# **INSTRUCTION MANUAL**

**HI-POWER  
SOLDERING STATION**

**(For Lead Free Application)**

## PRODUCT DESCRIPTION

Thank you for purchasing Xytronic's high power electronic soldering station - the best solution for your soldering equipment needs! We believe you will be more than satisfied with many features and the versatility of your new soldering station.

**Please carefully** read the instruction manual to maximize the advantages of using your new soldering station.

**WARNING:** This appliance is not intended for use by children or other persons without assistance or supervision if their physical, sensory or mental capabilities prevent them from using it safely. Children should be supervised to ensure that they do not play with the appliance.

### KEY FEATURES

- ◆ **ENERGY SAVER:** If the station has been idle for more than 15 minutes, it will automatically kick in. When the "Pause" LED is lit, the energy saver feature has engaged, decreasing tip temperature by 1/2 which cuts power consumption and extends tip life (note that lead free solder alloys require a higher soldering temperature which shortens tip life). Activating the solder wand will disengage the power saving feature and the unit will immediately ramp up to the preset temperature.
- ◆ **DIGITAL DISPLAY:** This new feature was incorporated into the LF-1000 to provide timely and accurate temperature readings. Once the desired temperature is reached, the Set/Read button can be flipped to the "READ" position, insuring a constant temperature.
- ◆ **CELSIUS/FAHRENHEIT SWITCH:** To address the global market place, a convenient switch has been incorporated to easily convert from one common measure to another.
- ◆ **ISOLATED IRON HOLDER WITH TIP CLEANER:** Made of low abrasive brass shavings instead of conventional sponges to meet RoHS requirement, cleans better and no water is necessary.
- ◆ **LOW VOLTAGE OUTPUT WITH SAFETY OPERATION:** The power unit is isolated from the A.C. line by a transformer and allows 32Vac to drive the heating element. Soldering pencil operates on 32 Volts for safety reasons yet incorporates a 100 W high power element for a super-fast heat-up and quick temperature recovery. The solder wand is attached with a heat resistant, non-burning, flexible 7-wire cord.
- ◆ **ESD SAFE AND SPIKE FREE CIRCUITRY:** The "Zero Voltage" electronic switching design also protects voltage and current sensitive components (CMOS devices, etc.) against damaging current and transient voltage spikes commonly produced by less efficient, mechanically switched stations.

- ◆ **EXTERNAL CALIBRATION PORT:** for quick, convenient and precise temperature adjustments.
- ◆ **DETACHABLE AC POWER CORD WITH PLUG:** Engineered AC outlet for alternating AC power cord with plug and connector specially designed for individual CE countries requirements.
- ◆ **OPTIONAL SMD TWEEZERS AND/OR FUME EXTRACTOR:** The additional feature is specially designed for SMD chips, SOT, Flat pack ICs' etc. reworking. TWZ100 Tweezers is equipped with 32V/50W\* 2 heaters which can be interchangeable with solder wand as an option. Be sure before proceeding this operation, the main switch must be " OFF " to avoid any damage to the unit.  
Also the additional use of a tip fume extractor kits can be engineered on the solder wand in conjunction with production line fume extraction systems.

## **PRODUCTION DESCRIPTION**

The LF series high power electronically temperature controlled soldering station were specially designed and developed to meet the present and future Lead-free soldering needs of the electronic production industry. A temperature regulated soldering iron is essential for marking consistent, reliable soldered connections. It provides all the benefits of temperature regulation and connects via a highly flexible burn-resistant lead, and can be easily adjusted in temperature.

The LF series incorporates electronic circuitry which enables the user to alter tip temperature from 200 to 450°C (392-842°F) without changing tips or heating elements. Also, with the simple flip of a switch on the front panel, the temperature readout is changed from Celsius to Fahrenheit easily. The temperature is maintained within  $\pm 3^{\circ}\text{C}$  ( $\pm 6^{\circ}\text{C}$ ) of its operating temperature by a thermocouple sensor placed in the heating element, allowing the tip to rest against the sensor. The high power results in both a rapid heat-up and super fast recovery.

The revolutionary "Zero Voltage" electronic switching design also protects voltage and current sensitive components (CMOS devices, etc.) against damaging current and transient voltage spikes commonly produced by less efficient, mechanically switched stations. The power unit is isolated from the A. C. line by a transformer and allows only 32Vac to drive the heating element. An external calibration port on the face of the unit for quick and convenient precision temperature adjustments. The many features of the product make it the ideal tool for service and repair technicians as well as production line soldering operations. This unit is developed to meet the present and future lead-free soldering needs of the electronic production industry and is ideal for use at any AC outlet.

## WORKING TEMPERATURE

To meet RoHS requirements, the 60/40 lead solder alloys are not allowed in the production process. Lead free solder alloys require a working temperature of 30 °C (54 °F) higher than previous generation electrical soldering. The working temperature of solder is detailed below and can vary from manufacture to manufacture.

|                           |                          |
|---------------------------|--------------------------|
| Melting point             | 220 °C (428 °F )         |
| Normal operation          | 300-360 °C (572-680 °F ) |
| Production line operation | 360-410 °C (680-770 °F ) |

When the iron's working temperature is set within the parameters suitable for the type of solder being used, a good joint is assured. Too low of a 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 (P.C.B.) and may also shorten tip life.

**IMPORTANT:** The temperature above 410 °C (770 °F) is not recommended for normal soldering functions, but can be used for short periods of time when high temperature are required.

## OPERATING INSTRUCTIONS

- Ensure that the working voltage matches your power supply before beginning use.
- Check carefully for any damage during transportation.
- This unit contains:
  1. Solder wand.
  2. Iron holder with brass tip cleaner.
  3. AC power cord with plug.
- Optional parts:
  1. Tweezers (can be interchangeable with solder wand.)
  2. Fume extraction kit.

### OPERATING PROCEDURES

1. Ensure that the base unit power switch is in the "OFF" position.
2. Plug in Solder wand and connect AC power cord to mains "In-let".
3. Set the temperature control knobs to "MIN" then flip the slide switch under the digital display to "SET" position and choosing the desired readout temperature by slide switch to °C or °F position and then turn "Mains power switch" to "ON".
4. Set temperature control knob to 250°C (482°F). Then tin the surface of the tip by applying a new covering of solder to protect it.
5. Set temperature control knob to the desired temperature 3 minutes after being warmed to 250°C (482°F) to extend tip life.
6. Flip the slide switch to "READ" position once it reached the preset temperature. The unit now is ready for use.

**Energy Saver Feature:** Please note if the soldering iron idles for more than 15 minutes, energy saving feature will automatically engage (evident by the "PAUSE" indicator light), reducing the idle temperature by 1/2 and extending your tip life.

Using the soldering pencil will deactivate the energy saver feature and the unit will immediately ramp up to the preset temperature.

**Precision Calibration:** There is a calibration port under the digital display on the front panel. This calibration is to be used in conjunction with an external thermometer.

Place the tip on the thermometer and if the actual tip temperature reads higher or lower than the display on the thermometer then use a 2mm precision screwdriver to calibrate the temperature. Turning clockwise will lower the temperature (-). Counter clockwise will increase the tip temperature (+).

**Caution:** Soldering irons operate at high temperatures and can easily burn people or objects. Do not touch the tip and heater at any time and keep it a safe distance from flammable materials while the unit is on or while it's cooling.

Please allow a sufficient time for it to cool before changing tips or servicing the unit !

### **COMMON CAUSES OF TIP UNWETTING**

1. Tip temperature higher than 410°C (770°F).
2. The tip working surfaces are not tinned while the iron idles.
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 or other chemicals.
6. Impurities in solder and/or low tin content.

### **CARE OF TIPS**

**Caution:** The soldering 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.

#### **IMPORTANT**

Remove the tip and clean after moderate to heavy use or at least daily for light usage. 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 should maintain optimum operational life.

1. Always tin the tip before returning it to the holder, turning off the station, or storing it for long periods of time. Wipe the tip on a brass cleaner (XY459) prior to use.
2. Keeping the iron set at high temperatures (more than 400°C or 750°F ) will shorten tip life.
3. Do not use excessive pressure to the tip or rup 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

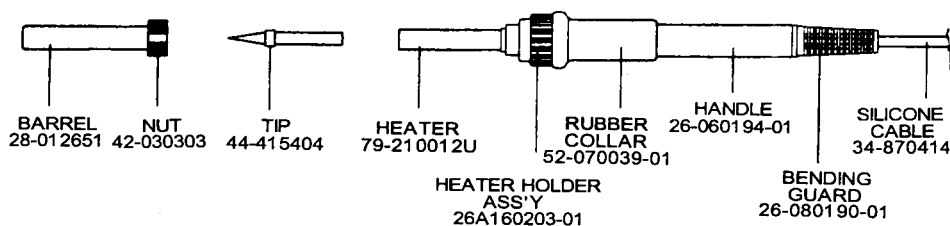
Applying the following steps will lead to optimum life.

1. Set temperature to min. then turn the main power switch to the " ON " position.
2. Set temperature to 250°C (482°F).
3. Coat the tinned surfaces with rosin-core solder after reaching 250°C (482°F).
4. Set to desired temperature after allowing the unit to idle at 250°C for 3 minutes.
5. 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 to the heating element or retaining barrel.

| SPECIFICATIONS FOR SOLDER WAND |                         |
|--------------------------------|-------------------------|
| Model                          | LF-1000                 |
| Solder wand                    | 210ESD                  |
| Heater output                  | 32Vac                   |
| Heater power                   | 100W                    |
| Temperature range              | 200-450 °C (392-842 °F) |
| Standard tip                   | 44-415404               |

### SOLDERING IRON ASSEMBLY 210ESD

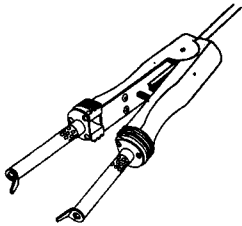


## SMD TWEEZERS OPERATION

For Optional TWZ100 SMD Tweezers Operation:

1. Disconnect the soldering iron and change to TWZ100 Tweezers. Be sure the solder controlling switch is "OFF" before proceeding this operation to avoid any damage.
2. Throw the solder switch to "ON" position once the TWZ100 is connected properly. Tweezers is ready for use.
  - Note: The Tweezers temperature will be lower about 50 °C than the typical soldering iron temperature.
3. Use only the appropriately designed tips for the job to avoid unnecessary component damage.
4. Gently pick up and remove components while ensuring that a vertical pick up and pull out motion is maintained.
5. Use the same procedure when reconnecting the solder wand.

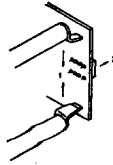
### TWZ100-SMD TWEEZERS



|                          |      |              |
|--------------------------|------|--------------|
| Heater type              |      | Nichrome     |
| Heater operation voltage | V.ac | 32Vac        |
| Heater power consumption | Watt | 100W(50Wx 2) |
| Tweezer (with tip)       |      | TWZ100       |
| Temperature range        | °C   | 150-430°C    |
|                          | °F   | 300-800°F    |
| Standard tip             | ★    | 46-060102    |

### SMD TIPS FOR TWZ100

| TIP TYPES        | SUITABLE COMPONENTS         |
|------------------|-----------------------------|
| 46-060102 (2mm)  | * Chip resistors            |
| 46-060103 (3mm)  | * Chip capacitors           |
| 46-060105 (5mm)  | * SOT                       |
| 46-060110 (10mm) | * Flat pack IC's            |
| 46-060115 (15mm) | * Small outlet 8-24 pins    |
| 46-060120 (20mm) | * Flat package tunnel types |
| 46-060130 (30mm) | * Dip IC's                  |



# MAINTENANCE

## TIP MAINTENANCE AND DRESSING

Tips can be changed or replaced simply by unscrewing the knurled nut barrel assembly. The station must be switched off and allowed to cool before this operation as damage may result if the system is left on without the tip in place !

After removing the tip, blow out any oxide dust that may have formed in the tip retaining area of the barrel. Be careful to avoid getting this dust in your eyes. Replace the tip and screw back the knurled nut barrel assembly using only firm hand pressure to tighten. Pliers should only be used to tighten the nut to avoid burning your fingers, but care should be taken not to over-tighten as this could damage the element.

## 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.

## SERVICE

If the iron or station should become faulty or, for some reason not operate normally, the system should be returned to the service department of your authorized dealer or service agent or similarly qualified person in order insure proper repairs and to avoid any hazards from developing.

**WARNING:** This iron must be returned to its stand when not in use.

**WARNING:** Keep out of the reach of children.

**WARNING:** Do not inhale solder fumes.

**WARNING:** Keep tip and heating element away from the body, clothes and flammable material when in operation.

## INTERCHANGEABLE TIPS

