



# **INSTRUCTION MANUAL**

**FOR**


**LF-3500**

**High Frequency**

**Soldering Station**

## INTRODUCTION

Thank you for purchasing Xytronic's high heat capacity soldering station – the best solution for your soldering equipment needs especially for lead free applications! We believe that you will be more than satisfied with many features and the versatility of your new soldering station. **Please carefully** read the instruction manual prior to operate 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. Failure to observe the safety regulation will result in a risk to life and limb. The manufacturer shall not be liable for damage resulting from misuse of the unit or unauthorized alterations.

 **CAUTION:**

**When power is ON, tip temperatures will be between 100-480°C. To avoid injury or damage to personnel and items in the work area, read the below carefully:**

- ◆ Do not touch the tip ,heating element or the metal parts near the tip.
- ◆ Do not allow the tip to come close to ,or touch,flammabe materials.
- ◆ Inform others in the area that the unit is hot and should not be touched.
- ◆ Turn the power off when not in use,or left unattended.
- ◆ Turn the power off when changing parts or storing the LF-3500.
- ◆ Always place the soldering iron in its original holder when not being used.
- ◆ For your health, do not inhale solder fumes.
- ◆ You must not undertake work on live parts. Only the technician is permitted to undertake repairs. Use the original replacement part only.

**NOTE: The station can be set the temperature between 100-480°C/. With the high power and great recovery, the station should set in the very high temperature, we do not recommend set the temperature over the 480°C to extend the tip's life.**

## KEY FEATURES

- ◆ **HEATER/SENSOR FAILED DETECTION:** If sensor circuit failed that the display read “S--E” and cut off the heater power. If heater circuit failed the display read “H--E” and cut off the heater power.
- ◆ **TEMPERATUE “LOCK-OUT” FEATURE:** The temperature can be locked by “password” code that is convenient for production line management.
- ◆ **HIGH POWER ,GREAT RECOVERY:** With the 150W high power, great thermal recovery improves the soldering environment, It can shorten the soldering

working time, which minimize concern about the influence of heat on components and tip life

- ◆ **ENERGY SAVER:** If the station is set to the auto sleep function setting mode , after the station has been idle for more than 20 minutes, this new feature will automatically knick in. the energy saver feature has engaged, decreases tip temperature and extends tip life.
- ◆ **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 36Vac to drive the heating element. Solder wand runs from 36 Volts for safety and with 150W high power PTC heater for a super-fast heat-up and quick temperature recovery. The solder wand is attached with heat resistant, non-burning, flexible 6-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.
- ◆ **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.
- ◆ **EARTH JACK:** With a grounding connector, there is the possibility for a grounding of the wire strap if required.

## **PRODUCT DESCRIPTION**

LF-3500 electronically high frequency soldering station with specially intelligent chip microcomputer control designs was developed to meet the present and future Lead-free soldering needs of the electronic production industry and suitable for work on professional SMD electronics. An ergonomic handle with shorter distance between heating element and tip gets very fast heat up time and quick heat compensation. A high-quality sensor and heat transfer technology ensure precise temperature regulation is essential for making consistent, reliable soldered connections. The aluminum housing has the advantages of strong structure, good heat sink and effectively resistant of electro-magnetic interference. 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-3500 incorporates electronic circuitry which enables the user to alter tip temperature from 100 to 480°C without changing tips or heating elements. Also, with digital display readout and pressing keys on the front panel get clear vision and comfortable setting. The temperature is maintained within  $\pm 3^{\circ}\text{C}$  of its operating temperature by a thermocouple sensor placed in the head of the heating element, allowing the tip to rest against the sensor. The 150W 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 36Vac to drive the heating element. The temperature “Lock-out” feature by “password” is convenient for production management. 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.

## BRIEF INTRODUCTION OF PANEL FUNCTIONS:

### Front panel



① Temperature display readout

② Heat indicating light

③ “SET”: Function key

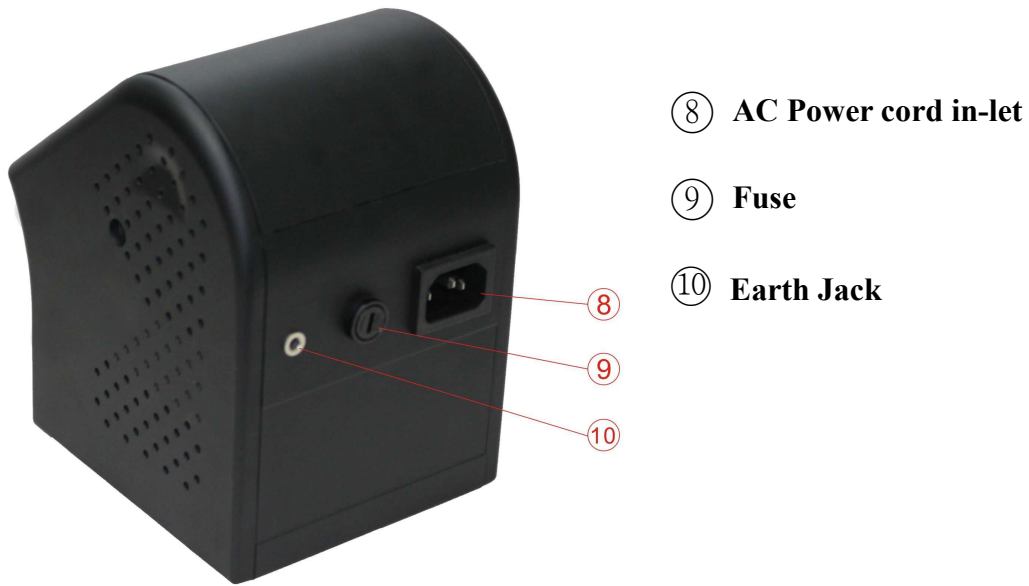
④ “▼”: Down key

⑤ “▲”: Up key

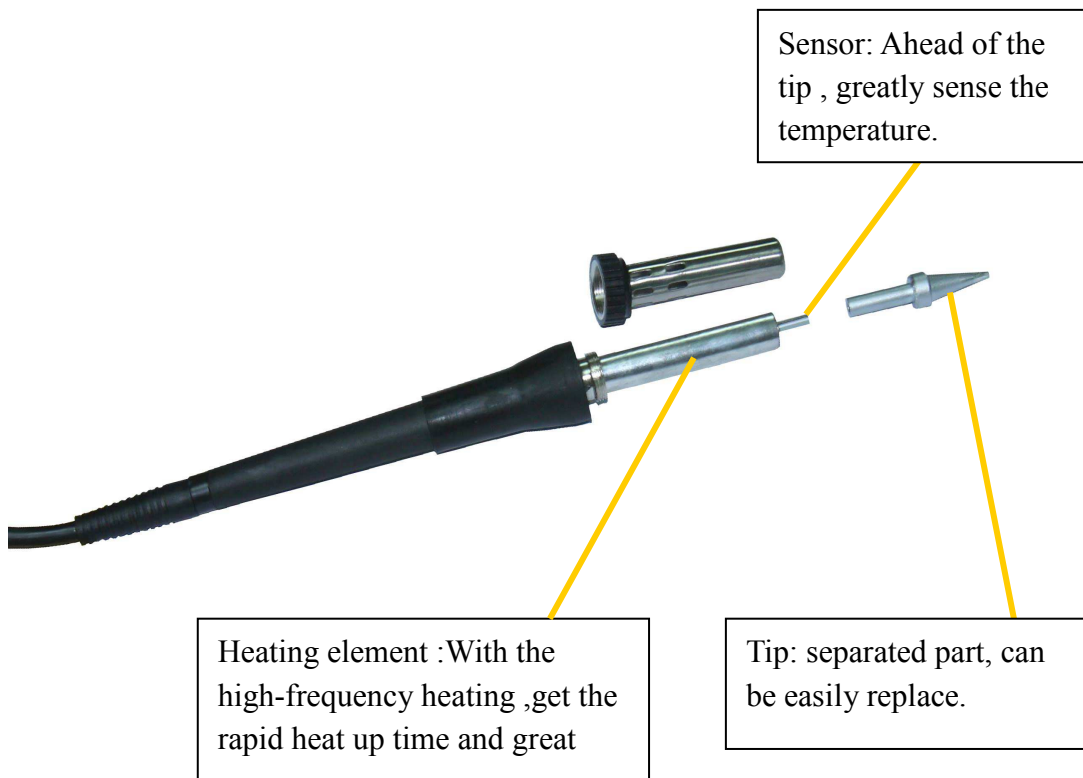
⑥ Solder wand socket

⑦ Main power switch

## Rear side



**Fig. 1 Soldering iron introduction**



## SPECIFICATIONS:

Model	LF-3500	
Input	220-240Vac 50Hz	100-120Vac 60Hz
Output	36Vac/150W	
Fuse (Slow type)	T2A	T5A
Temperature Range	100°C ~480°C	
Temperature Correction Range	+99°C ~-99°C	
Default Set	100°C	
	No Password	
	Temperature correction value“00”	
	Degrees Centigrade	
Figure Dimension	111x158x137mm(W x H x D)	
Weight (Unit only)	2.21kg	

### WORKING TEMPERATURE

To meet RoHS requirements, the 60/40 solder alloys are not allowed in the production process. The lead free solder alloys require a working temperature of 30°C 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
Normal operation	300-360°C
Production line operation	360-410°C

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 the tip life.

**IMPORTANT:** The temperature above 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.

### 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.

#### **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. Turn “Mains power switch” to “ON” position.
4. Press the “▲” key up until the temperature to 250°C . Then tin the surface of the tip by applying a new covering of solder after being warmed to protect tip and extend its life.
5. When the temperature reaches to the desired temperature that the heating indicator light will be flashed on and off to maintain the set temperature. The unit now is ready for use.



#### **CAUTIONS:**

##### **REMEMBER, THE TIP IS HOT!**

- The tip and barrel of the solder wand will cause serious burns if they are allowed to contact skin. Always return the solder wand to the safety holder after each use.

##### **DO NOT WORK ON LIVE CIRCUITS**

- Before working on any mains powered equipment, make sure that it is turned off, and the mains plug is removed from the power point.

##### **DO NOT USE IF DAMAGED**

- If the power lead becomes damaged or the soldering station becomes faulty, discontinue use immediately. To comply with safety standards, the power lead must only be replaced by authorized technicians as special purpose tools are required.

DO NOT MODIFY THE LF-3500.

**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!**

## **FUNCTION INTRODUCTION**

**TEMPERATURE SETTING:** (No password set)

1. Increase temperature: By pressing “▲” key one time, the digital will be increase “1” numeral. If pressing “▲” key over 2 seconds then the digital numerals will be forwarded counting continuously till the temperature up to what you desire to set.
2. Decrease temperature: By pressing “▼” key, the same procedure as above.

**PARAMETER SETTING:**

1. Press “SET” key and hold for at least 4 seconds until display shown “— — —” sign then release the “SET” key. The sign “— — —” starts to flash and reminding





current set mode.

Please note the manufacturer original design will keep in “Free” status without setting “Sleep” mode.

#### 6. Wake-up method

① Temperature Down Suspend: If the unit is set in Sleep mode function, after 20min idleness, the system will enter the sleep mode automatically, the temperature will go down to 100°C and the LED displays at “ 100” and flashes. Activating the solder wand will disengage the suspend status and the unit will immediately ramp up to the preset temperature. There are three methods of wake-up the Temperature Down Suspend.


- a. Pick up the solder wand and shake it gently.
- b. Press any key of the unit.
- c. Turn off the main switch and restart.

② Power off Suspend: If the unit enters the Sleep mode over 40min without wake-up, the unit will enter automatically the power off suspend status. It means the heater power will be cut off and the LED displays “— — —” and flashes, you have to turn off the main switch restart the station when you reuse the iron.

#### COMMON CAUSES OF TIP UNWETTING

1. Tip temperature higher than 410°C
2. The tip working surfaces are not tinned while the iron 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 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 cooper 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. Wipe the tip on a brass cleaner prior to use.
2. Keeping the iron set at high temperatures (more than 400°C ) will shorten tip life.
3. Does not use excessive pressure to 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 250°C.
3. Set to desired temperature after allowing the unit to idle at 250°C 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 to the heating element or retaining barrel.

### **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**

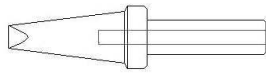
The outer cover of the iron and station may be cleaned with a damp cloth using small amounts of liquid detergent. Never submerge the unit in liquid or allow any liquid to enter the case of the station. Never use any solvent to clean the case.

#### **SERVICE**

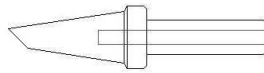
If the iron or station should become faulty or, for some reason not operate normally, the

system should be returned to the service department of your authorized dealer or service agent. Or a similarly qualified person in order to avoid a hazard.

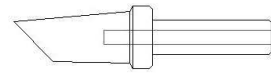
### INTERCHANGEABLE TIPS



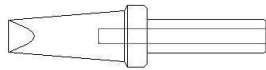
500-3.5D



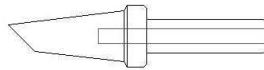
500-3C



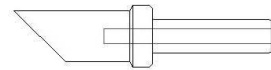
500-6C



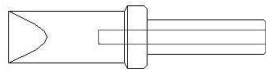
500-5D



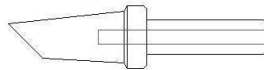
500-4C



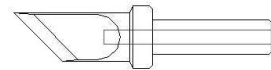
500-8C



500-8D



500-5C



500-K