



# **OPERATING MANUAL**

**FOR**

**LF-861D**

## **SMD REWORK STATION**

Thank you for choosing XYTRONIC LF-861D SMD Rework Station. This tool is specially designed for soldering, desoldering Surface Mount Devices with temperature controlled hot air. When used in conjunction with our IR610 Preheat system, the LF-861D will achieve marked improvements in quality and efficiency of your rework tasks.

Please read the operating manual carefully to maximize the advantages of using your new LF-861D Hot Air rework station and keep this manual readily accessible for future reference.

**CAUTION: Read the instructions before using the machine**

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## INTRODUCTION

Children should be supervised to ensure that they do not play with appliance. Failure to observe the safety regulation will result in a risk of life and limb. The manufacturer shall not be liable for damage resulting from misuse of the unit or unauthorized alterations.



Warning and Caution are positioned at critical points in the manual to draw the user's attention to significant safety concerns. Be sure to comply with the following warnings and cautions for your safety.

1. Ensure the voltage rating of the unit and your power supply are identical prior to use.
2. Check carefully of any damage during transportation.
3. Put the product on a safe and stable working table. Table surface should be consisted of fire and heat resistant material due to the unit can reach very high temperature and potentially dangerous.
4. During the operation, the heater is extremely hot, and will cause serious burns if contacted exposed skin. Use gloves and/or any heat resistant tools to pick up the PCB assembly to eliminate the possibility of burns.
5. Do not use the product near combustible gases or flammable materials.
6. Turn the power switch OFF and allow the heater to cool before checking or replacing heater and other parts, or prior to storing the unit.
7. Keep the appliance clean. This may be used with a damp cloth using small amount of liquid detergent. Never submerge the unit in liquid or allow any liquid to enter the station. Never use any solvent to clean the case.

8. This unit is designed for SMD rework and should not be used for any other purpose without first consulting the manufacturer or its authorized agent.
9. Keep the unit out of the reach of children. Young children should be supervised to ensure that they do not play with the appliance.
10. Please unscrew the 4 screws under the bottom enclosure when the unit is used at the first time. *(See the procedure on page6 )*

**To prevent electrical shock, be sure to take the following precautions:**

1. Make sure the unit is grounded. Always connect power to a grounded receptacle.
2. Do not pressure the AC power cord. Be sure the work area is well ventilated.
3. Do not bump, hit, pour water/liquids or otherwise subject the heating surface to physical shock. This may damage the heater.
4. To isolate the equipment from the mains before commencing repairs or making any maintenance to avoid electric shock. This may result in Death or serious injury.
5. Do not expose the unit to moisture nor use the unit with wet hands.
6. Turn the power switch off and remove the AC power cord by pulling the plug (not

the cable) when the unit will remain unused for a longer period of time.

7. Do not modify the unit.



### Warning

- **To last the life of the heating element, not recommend continuously using at low air flow and high temperature.** Let the heating element be cooler after using a maximum 20 minutes. Ensure that it is placed back on its cooling stand to cool down between rework operations. Also, do not switch the hand tool on while it is in the cooling stand. **Fail to comply with the instructions may result in damage to the hand tool.**
- **Do not aim the hot air at your eyes.** Do not allow the hot air from the hand tool to aim the eyes as serious eye damage may occur.
- **The hot air pencil can produce a lot of heat.** Do not allow the heater and the nozzle to contact exposed skin as burning may occur. To eliminate the possibility of burns, allow time for the equipment to cool before commencing maintenance.
- **Death or serious injury may result from electric shock.** It is therefore essential to isolate the equipment from the mains before commencing repairs.
- **Keep the hot air away from the body, clothes and flammable material when in operation.** The nozzle metal is in a high temperature status, do not touch the nozzle! Always replace the hand tool to its original holder when not being use. The nozzle and the heating element are still remaining hot after being switched off. Ensure that you do not touch them.
- **Do not block the air outlet in full area of the nozzle, or it may cause the heat reflection and damage the heating element.**
- **Do not leave when the machine is on operating:** Stare at the nozzle when the rework station is on operating, so as not to burn your body or other objects. Turn off the machine and unplug the power cord when you are leaving and put the hot air handle to the holder in one side of the machine. The nozzle is still remaining hot after being switch off on some time. Ensure that you do not touch the nozzle.
- **Do not use if damaged:** If the pump doesn't work or the rework station becomes faulty, discontinue using immediately. To comply with safety standards, the pump or other part must only be replaced by authorized technicians as special purpose tools are required. Only the technician is permitted undertake repairs. Use the original replacement part only.
- **Remember unplug in the power cord:** The station must be switched off and the power cord must be unplug-in before replacing the fuse in AC socket in rear side of the machine.

## PRODUCT FEATURES

- ◆ With specially intelligent chip microcomputer control design, double LCD display operate by pressing keys, make it convenient and comfortable operation.
- ◆ Temperature and air blow by digital display readout, easy to read.
- ◆ With the high power heating element, heat up quickly, the momentary power can reach 1300W.
- ◆ Temperature adjustable, suits for removing QFP, SOP, PLCC or SOJ chips etc., especially the built in static free circuit design is safety for the sensitive elements like CMOS ICs.
- ◆ Auto-cooling design: When the heat gun is placed on the stand power switch off, the cooling system will begin to work automatically, the temperature falls down to to protect the heating element from burning .



- ◆ Heating element auto-protecting function: When heating element reaching a high temperature which can be protected automatically, to lasting the life of heating element.

## PRODUCT DESCRIPTION

The temperature controlled Hot-Air LF-861D SMD rework station built in an intelligent microcomputer chip which is specially designed for the present lead free SMD chips such as SOIC, CHIP, QFP, PLCC, BGA etc reworks to meet RoHS requirement. This appliance equipped with a high power heating element and gets very fast heat up time. A high-quality sensor and heat transfer technology ensure precise temperature regulation is essential for making consistent, reliable. The aluminum housing has the advantages of strong structure, good heat sink and effectively resistant of electro-magnetic interference.

## Product Specification

Model	LF-861D
Power Voltage	100-120Vac 60Hz/ 220-240Vac 50Hz
Power Consumption (Max)	1300W
Pump	Diaphragm 115V / 220V
Temperature range	100°C-500°C / 212°F -932°F
Dimensions	
Fuse (Fast type)	Fast Type 10A

## Front Panel



No.	FUNCTION	DESCRIPTION
1	Heating	When lit, it shows that the element is heating up, temperature increase. When it flashes, it shows that the temperature is being maintained at the set temperature.
2	Cooling	When it appears on screen, it shows that they element is cooling down, decreasing temperature.
3	Standby	When it appears on screen it shows that they element is in standby mode, and the heat gun is at or near room temperature. Press White button – temperature will rapidly increase to resume soldering.
4	Set Temperature	Use the arrow buttons to set the temperature to a desired level, which is displayed here. CH0 is the default operating mode, 100 – 500 °C
5	Channel Preset	CH1, CH2, CH3 preset temperature setting accessed by pressing the white button beside the touchscreen. CH0 is default operating mode.
6	Adjust Temperature/Air Flow	Press Up arrow ▲ to increase set temperature/Air Flow , down arrow ▼ to decrease.
7	Display Temperature	When Desoldering, this temperature may vary slightly from the set temperature. Display Temperature.
8	‘Cal’ - Correction Value	Used to calibrate the heating element. The ‘Cal’ function is accessed from the SET button. This requires a soldering iron thermometer. ^
9	Set & Enter	Press SET to activate Channel presets, and activate Cal function, and press ENTER to confirm the temperature once set.
10	Channel Preset Select	Press the white button to select which CH you wish to use or adjust. Button scrolls through the Channels CH1 – CH3 in a loop.

\*\*From any preset CH setting, just tap the adjust temperature arrows and the CH0 default activates and remains the default channel for temperature control unless a channel preset is again activated by pressing the white button.

### **Operating Procedures:**

1. Ensure that the base unit power switch is in the “OFF” position.
2. Plug in solder handle and connect AC power cord.
3. Turn mains power switch to “ON” position. The LCD touchscreen will illuminate many icons, most of which are non-functioning indicators. Those described in the table are the symbols for functions that are enabled on this model. Other icons may be relevant for future models. *[BEN - insert photo of start screen with all icons]*
4. Press the ▲ key up until the temperature reaches 250° with CH0 displayed as the default channel. Then tin the surface of the tip by applying a new covering of solder after being warmed to protect tip and extend its life. (CH0 is NOT a preset channel and has no memory storage.)
5. When the Display temperature reaches the desired Set temperature, the heating indicator light / symbols (sunlight icon) will flicker and flash and maintain the set temperature. The unit is now ready for normal operation.

### **TEMPERATURE CHANNELS STORAGE**

This touchscreen model has a memory channels for three pre-set temperature levels – CH1, CH2, CH3. These channels are accessed by pressing the white button on the right side of the screen. Each time you press this button, the screen will scroll to the next CH number in sequence, and eventually loops back to CH1. If you leave the channel memory on a certain number, the set temperature will change to that level, and the display temperature will begin to adjust to match the set temperature.

To set the value for any channel memory, follow these steps in order:

1. Press and hold the ‘SET’ button on the touchscreen for 3 second, regardless of which CH is currently allocated. When the SET button is released, the CH0 number will be flashing.
2. Press the SET button again. The CAL icon will be flashing. (Temperature adjust buttons to set CAL temperature correction value! ^)
3. Press SET again to move to CH1, and again for CH2, CH3. Choose any one you wish to set. (The SET order progression through the channels is: CH0 > CAL > CH1 > CH2 > CH3 >...in a loop.)
4. Adjust the temperature using the arrow buttons on the touchscreen to a desired value.
5. Press ENTER to confirm the temperature for that CH number. The CH number will stop flashing to indicate that it has been stored in memory.
6. Repeat the process for the other channels as required.



7. If you press any temperature adjust button while using a preset channel memory, the unit will cancel that pre-set and revert to the default CH0. To return to a channel memory of your preference, just press the white button and scroll to that CH number.

^ **NOTE:** To set the CAL temperature correction value, follow steps 1 and 2 first, and then step 4 to adjust the value in degrees Celsius, ending with step 5 to ENTER the determined value, whether it be positive or negative. The CAL range is -99 to zero to +99 and once set for a correct value, it applies to all preset channels and CH0 i.e. always on.

NB: This function requires a special soldering iron thermometer to work correctly. This thermometer is not currently one of the optional accessories for this model.

### **TEMPORARY POWER DOWN MODE**

Press the white button on the right side of the touchscreen for at least 3 seconds. The screen will look like this:



In this state the heating element is manually disengaged and cooling begins, as indicated by the presence of the 'snowflake' icon on the left of the screen. As the iron cools down, once it reaches below 100°C, the icon will change to this [BEN - half moon icon for sleep screen photo 3] and the station will be idling. It will remain in this temporary power down state indefinitely, until the user presses the white button or any other arrow button, at which point the heater will reactivate and return to the previous temperature setting.

**CAUTION: REMEMBER, THE TIP IS HOT.** The tip and barrel of the solder handle will cause serious burns if they are allowed to contact the skin. Always return the solder handle to the safety holder after each use. 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 the unit to cool before changing tips or handles!

**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.

## **Program Settings:**

### **CH1 to CH3 three sets of program settings**

Set as follows:

While holding down the SET button on the screen and the handle on the white button for two seconds, let go after the blue 00 numbers start flashing. The figure is used to calibrate the temperature. Without adjustment, CH1 and the temperature will start to flash when you press the SET button. You can use the ↑ and ↓ symbols below the CH to adjust the desired temperature. The adjustable temperature is 100°C-500°C.

Adjust to the desired temperature and then press the SET button at this time the number starts flashing Adjustable air volume from 0-200, Press the SET key again to adjust the temperature of CH2. Then press SET to adjust the flow of CH2. Press SET to temperature of CH3. Press SET again to adjust the flow of CH3. Press SET again to adjust the conversion between °C and °F. All programs are adjusted and then press ENTER to complete all program settings.

NOTE: The amount of unhealthy air volume adjusted to zero, the higher the temperature the air volume should be maintained at a high state to protect the life of the heater.

## OPERATING PRECAUTIONS

1. Make sure both heater and nozzle are cool before attaching the nozzle.
2. **Caution High Temperature Operation**  
Do not use the LF- 861D near ignitable gases, or other inflammable materials. Both nozzle and hot air are extremely hot and can cause burns. Never touch the nozzle and heater assembly or allow the hot air to blow against your skin. Initially, the iron may emit white smoke, but this will soon dissipate.
3. Be sure to cool the unit after using. While the power switch off, the unit will automatically blow cooling air through the pipe for a short period of time. Do not disconnect the plug during this cooling process.
4. Do not disassemble the pump.  
If the pump or other critical internal components become faulty, discontinue its use immediately. Please return to your vendor or its authorized repairers for proper servicing.
5. Disconnect the plug while the unit is not in use.  
When the power cord is connected into the power supply, the unit has a little flow of electricity; even the Power Switch is in off position. So when you don't use the unit for a longer period of time, disconnect the plug.

### Operation Setup

1. Select the Nozzle that matches the size of the IC. Attach the nozzle when both the heating element and the nozzle are cool and the unit is turned off and unplugged.
2. Loosen the screw on the nozzle. Attach nozzle.

**IMPORTANT:** Do not force the nozzle or pull on the edge of the nozzle with pliers. Also, do not tighten the set-screw too tightly.

**Suitable for desoldering of SMD components such as SOIC, CHIP, QFP, PLCC, BGA etc.**

### QFP De-soldering

1. **Melt the solder:** Hold the iron so that the nozzle is located directly over, but not touching the IC and allow the hot air to melt the solder. Be careful not to touch the leads of the IC with the nozzle.
2. **Remove the IC:** Once the solder has melted, remove the IC by lifting the pliers.
3. **Turn the power switch off:** After the power switch is off, an automatic blowing function begins sending cool air through the pipe in order to cool both the heating element and the handle. So do not disconnect the plug during this cooling process.
4. In case you don't use the unit for a long time, disconnect the plug.

**Note:** After the power switch off about one minute later, the temperature will fall down to 75°C (167°F) and power automatically shut off.

5. **Remove any remaining solder:** After removing the IC, cleaning the remaining solder chips with a wick or desoldering tool.

**Note:** For SOP, PLCC etc. would recommend by using tweezers iron to desolder.

## QFP Soldering

1. **Apply the solder paste:** Apply the proper quantity of solder paste and flux (preferably no-clean) and place install the SMD on the PCB.
2. **Preheat SMD.**
3. **Soldering:** Heat the lead frame evenly.
4. **Washing:** When soldering is completed, wash the area with a defluxer.

**Note:** While there are many advantages of hot air SMD rework, it is also possible to have defects for soldering BGA. Will recommend to inspect all soldering joints closely.

### Information on the disposal for Waste Electrical & Electronic Equipment (WEEE)

This symbol on the products and accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper disposal for treatment, recovery and recycling, please take these products to designated collection points where they will be accepted on a free of charge basis. In some countries you may be able to return your products to your local retailer upon the purchase of a new product.

Disposing of this product correctly will help you save valuable resources and prevent any possible effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Please contact your local authority for further details of your nearest collection point for WEEE.

