

## Pre-heater, Hot Air Rework, Soldering Station Multi-Station

Statement: The company reserves the right to improve & upgrade products, product specifications and design are subject to change without notice.

# OPERATION INSTRUCTION

English



Made in China

Thank you for purchasing this product. Please read the manual carefully before operating and keep this manual for future reference.

## I. APPLICATIONS

1. This unit is suitable for desoldering and soldering components including BGA, SOIC, CHIP, QFP, PLCC and more. It is especially suitable for desoldering BGA modules, computer CPU sockets, mobile phone circuit boards, all-types of SMD ICs, LED lights and more.
2. It can also be used for heat shrinking, drying, paint stripping, adhesive removal, defrosting, pre-heating, glue soldering, etc.

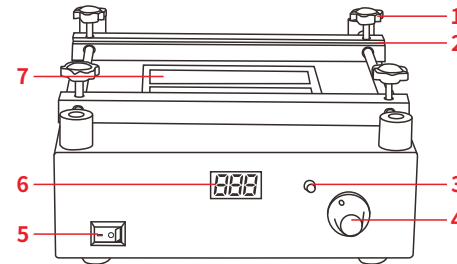
## SPECIFICATION

Model	853A	853AA	853AAA
Control Unit Dimensions	L250xW220xH90mm ±5mm	L320xW220xH100mm ±5mm	
Operating Ambient Temperature	0°C~40°C/32°F~104°F		
Pre-heater			
Temperature Range	50°C~400°C/122°F~752°F		
Display	LED		
Heating Surface Area	120x120mm		
Hot Air Rework Station			
Air Delivery	NO	Brushless Blower with Smooth Air Delivery	
Air Volume	NO	≤120L/min	
Temperature Range	NO	100°C~480°C/212°F~896°F	
Display	NO	LED	
Soldering Station			
Temperature Range	NO		200°C~480°C/392°F~896°F
Display	NO		LED
Tip to Ground Resistance	NO		<2 Ohms

## I. APPLICATIONS

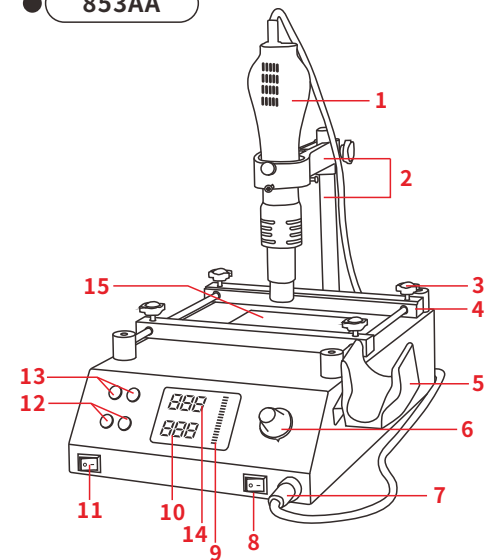
## II. CONTROL PANEL GUIDE

### 853A



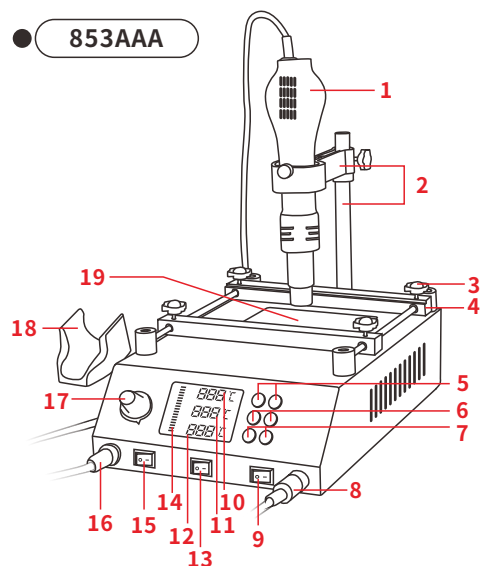
1. Locking Nut (with knob)
2. Holder (Slider)
3. Set Temp. / Actual Temp. Display Selector
4. Temperature Adjustment Knob
5. Power Switch
6. Temperature Display
7. Heating Surface

### 853AA



1. Hot Air Gun
2. Bracket (Hot Air Gun)
3. Locking Nut (with Knob)
4. Holder (Slider)
5. Holder (Hot Air Gun)
6. Air Volume Adjustment Knob
7. Receptacle (Hot Air Gun)
8. Power Switch (Hot Air Gun)
9. Simulated Air Volume Value
10. Temperature Display (Pre-heater)
11. Power Switch (Pre-heater)
12. Temperature Adjustment Buttons (Pre-heater)
13. Temperature Adjustment Knob (Hot Air Rework Station)
14. Temperature Display (Hot Air Rework Station)
15. Heating Surface

## 853AAA



1. Hot Air Gun
2. Bracket (Hot Air Gun)
3. Locking Nut (with Nut)
4. Holder (Slider)
5. Temperature Adjustment Buttons (Hot Air Gun)
6. Temperature Adjustment Buttons (Pre-heater)
7. Temperature Adjustment Buttons (Soldering Station)
8. Receptacle (Soldering Iron)
9. Power Switch (Soldering Station)
10. Temperature Display (Hot Air Rework Station)
11. Temperature Display (Pre-heater)
12. Temperature Display (Soldering Station)
13. Power Switch (Pre-heater)
14. Simulated Air Volume Value
15. Power Switch (Hot Air Rework Station)
16. Receptacle (Hot Air Gun)
17. Air Volume Adjustment Knob
18. Holder (Hot Air Gun)
19. Heating Surface

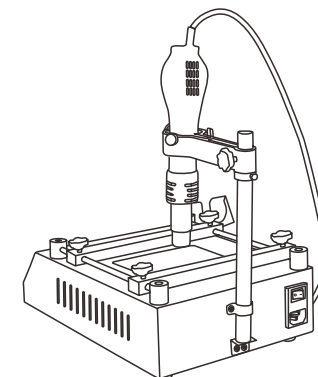
## III. COMPARISON

Model	853A	853AA	853AAA
Key Functions	Pre-heater	Pre-heater + Hot Air Rework Station	Pre-heater + Hot Air Rework Station + Soldering Station
Display	LED Nixie Tube	YES	YES
°F/°C Conversion	NO	YES	YES
Digital Temperature Calibration	NO	YES	YES
Temperature Control	Digital PID Program		
Manual / Automatic Hot Air Mode	NO	NO	YES

## IV. OPERATION

### Hot Air Rework Station

1. Set the station appropriately. Install the hot air gun holder onto the left side of the station. Install the required nozzle( Use of nozzles in larger diameters is recommended). Install the hot air gun bracket onto the rear of the station, then secure the hot air gun onto the bracket, and adjust the bracket's position to your desired position.
2. Connect the station's power cord to an electrical outlet.
3. Turn ON the master power switch located at the rear of the station, then turn ON the hot air rework station's power switch. The hot air gun will begin heating up. Press the temperature adjustment buttons to set the desired temperature. Adjust the air volume adjustment knob to set the desired air volume. Begin your work once the hot air temperature stabilizes.



The hot air rework station's operation indicator light (the dot located at the bottom-right of its temperature display) will stay ON constantly when the hot air gun is heating up, blink rapidly when the temperature is stabilized, and be turned OFF when the hot air gun is cooling. Begin operation once the temperature has stabilized. Once the temperature is stabilized, such a status is clearly indicated with the rapidly flashing operation indicator. The precision PID program is tracking and compensating the hot air gun's temperature every millisecond, the hot air gun's temperature is now in stable, and precise thermostatic state.

300.

Indicator for program tracking temp. at high speed and making temp. compensation.

4. When the operation is complete, turn OFF the hot air rework station's power switch. The heating power to the hot air gun will be turned OFF automatically. The hot air gun will only put out air without heating up, and the hot air gun's heating element will begin cooling. When the temperature drops below 100°C (212°F), the hot air rework station's temperature display and the blower will turn OFF. If the station is not in use for an extended period, turn OFF the master power switch located at the rear of the station.

### Soldering Station

1. Connect the soldering iron to the station, and place the iron into its holder.

- Turn ON the station's master power switch located at the rear of the station, and then turn ON the soldering station's power switch. The soldering station's heating element will begin heating, and its operation indicator light (the dot located at the bottom-right corner of the soldering station display) will turn ON. The operation indicator light will stay constantly ON when the soldering iron is heating up, blink rapidly when the temperature stabilizes, and be turned OFF when the soldering iron is cooling. Begin your operation once the soldering station's indicator is blinking rapidly to indicate the temperature's stabilization.

**300** Indicator for program tracking temp. at high speed and making temp. compensation.

**CAUTION:** Upon the first use of the soldering iron tip, set the temperature to 250°C/482°F. When the iron is just hot enough to melt the solder, coat the tip with a layer of solder (the use of rosin core solder is recommended), then set the temperature to your desired value.

- When the operation is complete, use a wet sponge or metal wool ball to clean the soldering iron tip. Tin the tip with a new layer of solder, then put the soldering iron back to its holder and turn OFF the power switch. If the station is not in use for an extended period, turn OFF the station's master power switch located at the rear of the station and DISCONNECT the power cord.

### Pre-heater

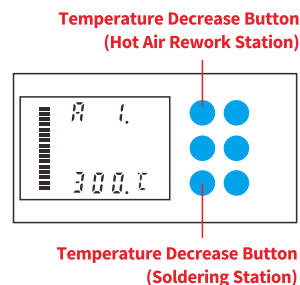
- Set the pre-heater appropriately, and connect the station's power cord to an electrical outlet.
- Adjust the position of the holder (slider), then, place the component that requires preheating on the heating surface. Tighten the 4 locking nut on the holder (slider), to secure the component that requires preheating.
- Turn ON the pre-heater's power switch, and the pre-heater will begin heating up. Set the desired temperature, and begin operation once the temperature has stabilized.

### Automatic/Manual Hot Air Modes (853AAA)

**Automatic Mode:** When the hot air gun is returned to the holder, the station will turn OFF the heating power to the heating element. The hot air gun will go into standby mode when the hot air rework station's temperature display shows "---".

**Manual Mode:** When the hot air gun is returned to the holder, the station will continue operating with uninterrupted heating power.

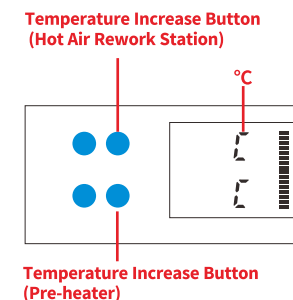
- Turn ON both the hot air rework station and the soldering station's power switches.
- Press and hold both the hot air rework station's temperature decrease and the soldering station's temperature decrease buttons for approximately 2 seconds. The display will show value "A1" to indicate the station in the automatic mode. (A0 for manual mode)



- Press the hot air rework station's temperature decrease button to select the manual mode, or press the hot air rework station's temperature increase button to select the automatic mode. Once done setting, stop operating for approximately 3 seconds to exit the setting interface – setting complete.

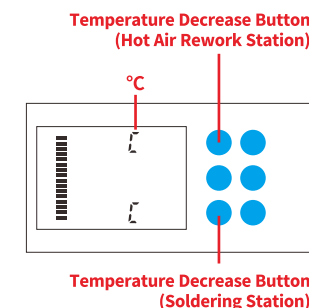
### °F/°C Display (853AA)

- Turn ON only the hot air rework station's power switch, then press and hold both the hot air rework station and pre-heater temperature increase buttons for approximately 3 seconds. The display will show either "C" or "F".
- Press the hot air rework station's temperature increase button to select the Fahrenheit display mode, or press the pre-heater temperature increase button to select the Celsius display mode. Once done setting, stop operating for approximately 4 seconds to exit the setting interface – setting complete.



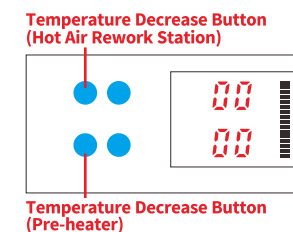
### °F/°C Display (853AAA)

- Turn ON both the hot air rework station and soldering station power switches.
- Press and hold both the hot air temperature decrease, and the soldering station temperature decrease buttons for approximately 2 seconds. The display will show value "A1".
- Press the soldering station temperature increase or decrease button, and the display will show either "C" or "F". Press the hot air rework station's temperature decrease button to select the Fahrenheit display mode or press the hot air rework station's temperature increase button to select the Celsius display mode. Once done setting, stop operating for approximately 3 seconds to exit the setting interface – setting complete.



### Temperature Calibration (853AA)

- When the station is turned ON, press and hold both the hot air rework station and pre-heater temperature decrease buttons for approximately 3 seconds. Both the hot air rework station and pre-heater temperature displays will show value "00".



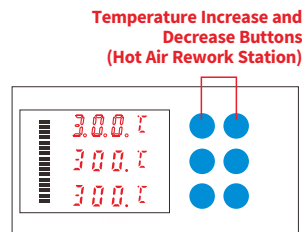
2. Enter the temperature correction value with the temperature buttons in the respective fields. The available correction value ranges from -50°C to +50°C/-58°F to +122°F. Once done setting, stop operating for approximately 4 seconds, then, the system will automatically save the data and exit the setting interface.

### ● Temperature Calibration(853AAA)

1. Once the hot air rework station (soldering station or pre-heater) temperature has stabilized, press and hold both the hot air rework station (soldering station or pre-heater) temperature increase and decrease buttons for approximately 2 seconds. The display will show both the setting temperature and 3 digit-dots.

2. Press the hot air rework station (soldering station or pre-heater) temperature increase or decrease button to enter the measured temperature value.

3. Press both the hot air rework station (soldering station or pre-heater) temperature increase and decrease buttons to confirm entry, and exit the calibration interface.



### ● Zero-Air Protection (853AAA)

If the hot air gun stops putting out air abnormally during an operation, the system will cut the power to the heating element. This prevents damages to the hot air gun due to accumulated heat and further improves the safety factor of this product.

## ● V. MAINTENANCE & PRECAUTIONS

### ● Hot Air Rework Station

1. Keep the air outlet clear and free of blockages at all times.
2. The installation of the hot air gun nozzles MUST be carried out ONLY when the steel pipe and nozzle have cooled. Install the nozzle correctly, DO NOT install the nozzle with brute force, pull the edge of the nozzle with tweezers, or over-tighten the screws.
3. Select the appropriate nozzle based on your operation requirement (temperature may vary when you use nozzles in different diameters). When using nozzles smaller than the standard machine nozzles, you MUST use the maximum air volume with a relatively lower temperature setting. Complete this operation in the shortest possible duration to avoid damaging the hot air gun.

4. Keep a minimum distance of 2mm between the object and the hot air gun's air outlet.
5. DO NOT allow the hot air to come in direct contact with facial parts, and beware of the danger of burn injuries. Upon the first use, the hot air gun may emit white fumes, and the white fume will dissipate in a short while.

#### NOTE:

*The station's hot air gun and soldering iron handles use high-strength stainless steel tubes. The station goes through 4 times or more testing, inspection, and calibration procedures before rolling off the assembly line. The steel tube may exhibit light bronze color as a result of our quality control efforts. It is normal to have a slightly bronzed steel tube when you use a brand-new station, rest assured for regular usage.*

### ● Soldering Station

1. If a layer of oxidization forms on the surface of the soldering iron tip, a misconception can be created that the soldering tip cannot heat up properly to melt the solder and do the tinning. However, the actual temperatures of both the heating element and soldering tip are high. In such an instance, please do not increase the temperature value confusedly but use a metal wool ball to remove the oxidization following the steps below:

**A. Set the temperature to 300°C (572°F).**

**B. Once the temperature has stabilized, gently rub the soldering iron tip inside the metal wool ball.**

**C. When the oxidization is partially removed, continue applying solder onto the tip while rubbing it until the solder completely adheres to soldering iron tip. If the tip is too severely oxidized beyond cleaning, replace the tip with a new one.**

2. DO NOT use metal files to remove the oxidization on the soldering iron tip. If the soldering iron tip deforms or rusts, replace it with a new tip.
3. DO NOT apply excessive force on the soldering tip when soldering. Doing so will not only damage the iron tip but also not improve the heat transfer.
4. When placing the soldering iron back in its holder to idle after a high-temperature operation, adjust the temperature to 250°C (482°F) or below for idling. Failure to do so, and leaving the soldering iron tip to idle on a high-temperature setting will cause the accelerated aging of the heating element, and shorten the lifespan of the heating element and soldering iron tip.
5. After every operation, always clean the soldering iron tip, then coat it with a new layer of solder to prevent its oxidization.

## ● VI. TROUBLESHOOTING

1. "S-E" – This is an indication that the soldering station's or hot air gun's sensor module is faulty. You need to replace the heating element (the heating element and the sensor modules). Or, the handle is not connected (Turn OFF the station, connect the handle and turn ON the station).
2. When replacing the heating element, take note of the original connecting order and colors of the wires which MUST NOT be connected incorrectly.
3. "F-1/F-2" – This is an indication that the station is in the "zero-air protection" mode, check the hot air gun's motor and the hot air gun's power circuitry.

## For reference: compatible parts

### Nozzle style (specifications and sizes)

The nozzles sizes match with their corresponding IC sizes.

<p>0.8 (0.03)</p> <p>1.8 (0.07)</p> <p>Airflow</p>	<p>QFB</p>	<p>SOP</p>	<p>PLCC</p>	<p>SOJ</p>	<p>BGA(CSP)</p>	<p><b>A1325</b> Single-tube φ1.5x5.10 (0.06x0.02-0.39) Pin distance adjustable</p> <p>5(0.2) 15(0.59)</p> <p>Pin distance adjustable</p> <p>5-10mm</p> <p>10(0.39)</p> <p>Front nozzle φ1.5(1D) (0.06)</p>
<p><b>A1125</b> QFP 10x10 (0.39x0.39)</p> <p>10(0.39)</p> <p>A:10.2(0.4) B:10.2(0.4)</p>	<p><b>A1126</b> QFP 14x14 (0.55x0.55)</p> <p>15(0.59)</p> <p>A:15.2(0.6) B:15.2(0.6)</p>	<p><b>A1127</b> QFP 17.5x17.5 (0.68x0.68)</p> <p>19(0.75)</p> <p>A:19.2(0.76) B:19.2(0.76)</p>	<p><b>A1128</b> QFP 14x20 (0.55x0.78)</p> <p>21(0.83)</p> <p>A:15.2(0.6) B:21.2(0.83)</p>	<p><b>A1129</b> QFP 28x28 (1.1x1.1)</p> <p>29(1.14)</p> <p>A:29.7(1.17) B:29.7(1.17)</p>		
<p><b>A1135</b> PLCC 17.5x17.5 (0.68x0.68) (44pins)</p> <p>15(0.59)</p> <p>A:18.5(0.73) B:18.5(0.73)</p>	<p><b>A1136</b> PLCC 20x20 (0.78x0.78) (52pins)</p> <p>19(0.75)</p> <p>A:21(0.83) B:21(0.83)</p>	<p><b>A1137</b> PLCC 25x25 (0.98x0.98) (68pins)</p> <p>24(0.94)</p> <p>A:26(1.02) B:26(1.02)</p>	<p><b>A1138</b> PLCC 30x30 (1.18x1.18) (84pins)</p> <p>29(1.14)</p> <p>A:26(1.02) B:26(1.02)</p>	<p><b>A1139</b> PLCC 12.5x7.3 (0.49x0.49) (18pins)</p> <p>6.9(0.27)</p>		
<p><b>A1140</b> PLCC 11.5x11.5 (0.45x0.45) (28pins)</p> <p>10(0.39)</p> <p>A:13(0.51) B:13(0.51)</p>	<p><b>A1141</b> PLCC 11.5x14 (0.45x0.55) (28pins)</p> <p>10(0.39)</p> <p>A:15(0.59) B:13(0.51)</p>	<p><b>A1182</b> BOFP 24x24 (0.94x0.94)</p> <p>21(0.83)</p> <p>A:24.2(0.95) B:24.2(0.95)</p>	<p><b>A1187</b> TSOL 18.5x8 (0.73x0.31)</p> <p>18.5(0.73)</p> <p>10(0.39)</p>	<p><b>A1257</b> SOP 11x21 (0.43x0.83)</p> <p>11.7(0.46)</p> <p>21(0.83)</p>		
<p><b>A1258</b></p> <p>8.2(0.32)</p> <p>11.7(0.83)</p>	<p><b>A1259</b> SOP 13x28 (0.51x1.1)</p> <p>13.5(0.53)</p> <p>29(1.14)</p>	<p><b>A1260</b> SOP 8.6x18 (0.34x0.71)</p> <p>8.7(0.34)</p> <p>19(0.75)</p>	<p><b>A1261</b> QFP 20x20 (0.78x0.78)</p> <p>21(0.83)</p> <p>21(0.83)</p>	<p><b>A1262</b> QFP 12x12 (0.47x0.47)</p> <p>12(0.47)</p> <p>12(0.47)</p>		
<p><b>A1263</b> QFP 28x40 (1.1x1.57)</p> <p>39(1.54)</p> <p>A:27.2(1.09) B:39.7(1.56)</p>	<p><b>A1264</b> QFP 40x40 (1.57x1.57)</p> <p>39(1.54)</p> <p>A:40.2(1.58) B:40.2(1.58)</p>	<p><b>A1265</b> QFP 32x32 (1.26x1.26)</p> <p>31(1.22)</p> <p>A:32.2(1.27) B:32.2(1.27)</p>	<p><b>A1124</b> Single-tube φ2.5 (1.1x1.57)</p> <p>φ2.5(1D) (0.09)</p>	<p><b>A1130</b> Single-tube φ4.4 (0.17)</p> <p>φ4.4(1D) (0.17)</p>		
<p><b>A1131</b> SOP 4.4x10 (0.17x0.39)</p> <p>4.8(0.19)</p> <p>15(0.39)</p>	<p><b>A1132</b> SOP 5.6x13 (0.22x0.51)</p> <p>5.7(0.22)</p> <p>15(0.39)</p>	<p><b>A1133</b> SOP 7.5x15 (0.3x0.59)</p> <p>7.2(0.29)</p> <p>16(0.63)</p>	<p><b>A1134</b> SOP 7.5x18 (0.3x0.7)</p> <p>7.2(0.28)</p> <p>19(0.75)</p>	<p><b>A1142</b> Curved single tube 1.5x3 (0.06x0.12)</p> <p>1.5(1D) (0.12)(1D)</p> <p>45°</p>		

### Tip style (specifications and sizes)

900M Series Tip Out Diam Φ 6.5mm

<b>900M-T-K</b> 30°C/54°F 15mm 5.0mm	<b>900M-T-R</b> 0°C 17mm 3.2mm 5.0mm	<b>900M-T-RT</b> 0°C 17mm 2.0mm 4.2mm	<b>900M-T-SI</b> 0°C 13mm 2r	<b>900M-T-I</b> -10°C/-18°F 17mm 2r	<b>900M-T-H</b> -20°C/-36°F 19mm 3.5mm 1.5mm 25°	<b>900M-T-1.8H</b> -10°C/-18°F 14mm 1.8mm 1.5mm 25°	<b>900M-T-S4</b> 0°C 15mm 25r Φ2.0mm
<b>900M-T-LB</b> -10°C/-18°F 25mm 2r Φ0.5mm	<b>900M-T-0.5C</b> 0°C 15mm 45° Φ0.8mm	<b>900M-T-0.8C</b> 0°C 17mm 45° Φ1.0mm	<b>900M-T-1C</b> 0°C 15mm 45° Φ1.5mm	<b>900M-T-1.5CF</b> 0°C 15mm 60° Φ2.0mm	<b>900M-T-2C</b> 0°C 17mm 45° Φ3.0mm	<b>900M-T-3C</b> 0°C 17mm 45° Φ4.0mm	<b>900M-T-4C</b> 0°C 17mm 45° Φ4.0mm
<b>900M-T-0.8D</b> 0°C 17mm Φ0.8mm	<b>900M-T-1.2D</b> 0°C 17mm Φ1.2mm	<b>900M-T-1.6D</b> 0°C 17mm Φ1.6mm	<b>900M-T-2.4D</b> 0°C 17mm Φ2.4mm	<b>900M-T-3.2D</b> 0°C 17mm Φ3.2mm	<b>900M-T-1.2LD</b> -10°C/-18°F 25mm Φ1.2mm	<b>900M-T-SB</b> 0°C 14mm 2r Φ2mm	<b>900M-T-B</b> 0°C 17mm 3r