

SOLDERING STATION

FX-971

Instruction Manual

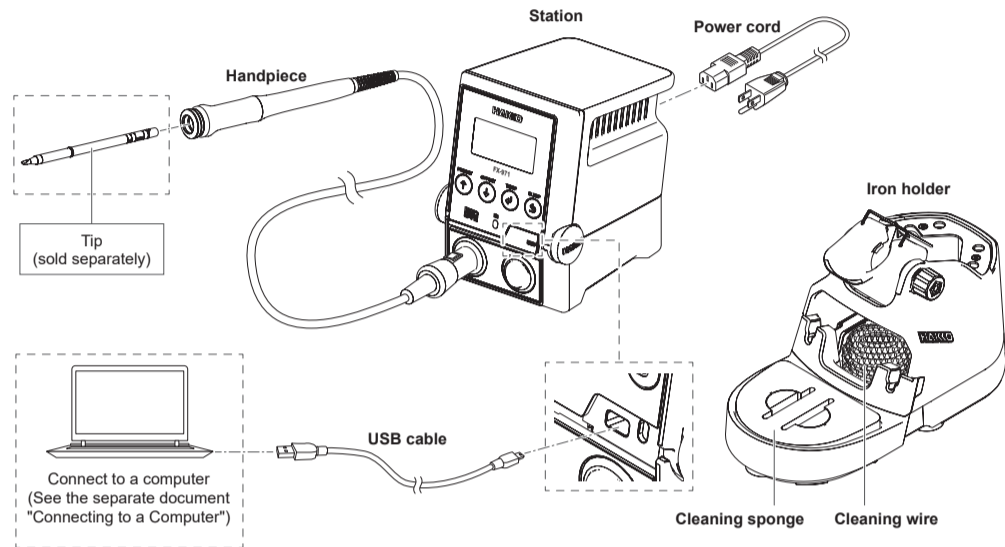
Thank you for purchasing a HAKKO product.
This product is a soldering iron station.

Make sure to read this manual before using the product, and keep it in a safe place for future reference.

1. Set contents and assembly

Confirm the contents before use.
*This product may differ from the following:

Station FX-971.....	1	USB cable.....	1
Handpiece FX-9701.....	1	Power cord.....	1
Iron holder FH-215.....	1	Instruction manual (this document).....	1
Cleaning sponge.....	1	Instruction manual	
Cleaning wire.....	1	(Quick Parameter Settings/Connecting to a Computer).....	1



2. Specifications

Power consumption	100 W
Temperature range	50 to 450°C (120 to 850°F)
Temperature stability	At idle temperature: ± 3°C (5°F)

Station	
Output	AC 24 V
Dimensions	When angled: 93 (W) × 126 (H) × 133 (D) mm (3.7 × 5 × 5.2 in)
	When not angled: 93 (W) × 126 (H) × 123 (D) mm (3.7 × 5 × 4.8 in)
Weight	1.2 kg (2.6 lb)

Handpiece	
Power consumption	95 W (24 V)
Tip to ground resistance	< 2 Ω
Leak voltage	< 2 mV
Heating element	Composite heater
Cord length	1.2 m (3.9 ft)
Total length	206 mm (8.1 in) (with T39-D24 tip)
Weight	31 g (1.1 oz) (with T39-D24 tip)

- The total length and weight excludes the cord.
- This product is applied with electrostatic countermeasures.
- Please note that specifications and appearance are subject to change without notice in the interest of product improvement.

CAUTION

■ Handling precautions for ESD Safe products

This product contains electrostatic countermeasures, so please use the following precautions:

1. Not all plastic parts are insulators, they may be conductive. Be careful not to expose live electrical parts or damage insulating materials when performing repairs or replacing parts.
2. Be sure the product is grounded before use.



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3. Warnings, Cautions, and Notes

Warnings, cautions, and notes are placed at critical points in this manual to direct your attention to significant items. They are defined as follows:

WARNING: Failure to comply with a WARNING may result in serious injury or death.

CAUTION: Failure to comply with a CAUTION may result in injury to the operator, or damage to the items involved.

NOTE: This indicates procedures or information that are important in a process described in this document.

Be sure to observe the following precautions to ensure safety.

WARNING

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- When this product is not used, place the handpiece on the iron holder.
- The tip reaches high temperatures when the power source is turned on. You may risk getting burned or causing a fire if mishandled.
- Do not touch the metal parts near the tip.
- Do not place anything that easily burns or ignites near the product.
- Make sure that people nearby are aware of the "high temperature danger."
- When the product is not in use, being repair, or being cleaned, turn off the power switch and disconnect the plug from the power outlet.

Failure to observe the following precautions to ensure safety might result in electric shock, malfunction or other trouble.

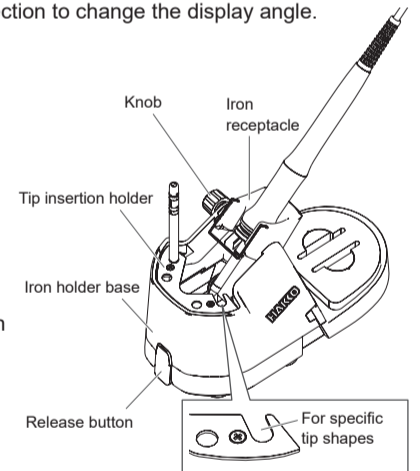
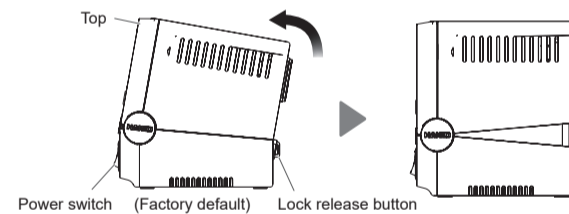
CAUTION

- Before using this product, fully read all descriptions in this document.
- Only use the product for soldering.
- Do not hit the handpiece against a workbench or subject it to strong shocks to remove solder residue.
- Soldering produces smoke, so make sure to work in a well-ventilated area.
- Use genuine HAKKO parts for included parts/replacement parts/options.
- Do not modify this product.
- Do not use damaged cords or plugs. Doing so can result in malfunction or injury.
- Do not use the product if it has been dropped or shows signs of damage.
- When inserting and removing the cord, hold the plug body and do not pull the cord.
- Do not allow this product to get wet. Also, do not handle it with wet hands.
- Do not perform any other actions that may be considered to be dangerous.

4. Operation

4-1. Station

Press and hold the lock release button while pulling up the top section to change the display angle.

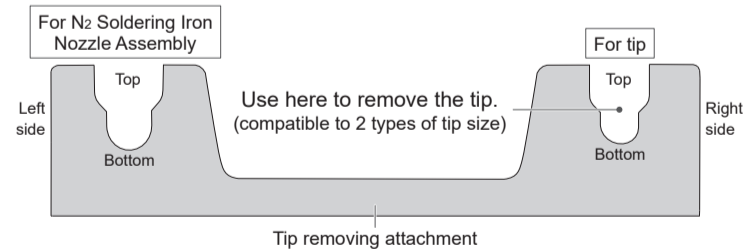


4-2. Iron holder

- The iron receptacle angle can be changed 45 ± 10 degrees with the knob.
- Make sure to wet the cleaning sponge before using it.
- The iron holder base can be removed by pressing the release button.
- The tip can be stored in the tip insertion holder.
- You can quickly and safely replace the tip using the iron holder.

Replacing the tip

Use the "left/right or top/bottom grooves" of the tip removing attachment to replace the tip.



(1) Insert the tip until the handpiece contacts the "right side groove." (Figure 1)

(2) Pull the handpiece straight out. (Figure 2)

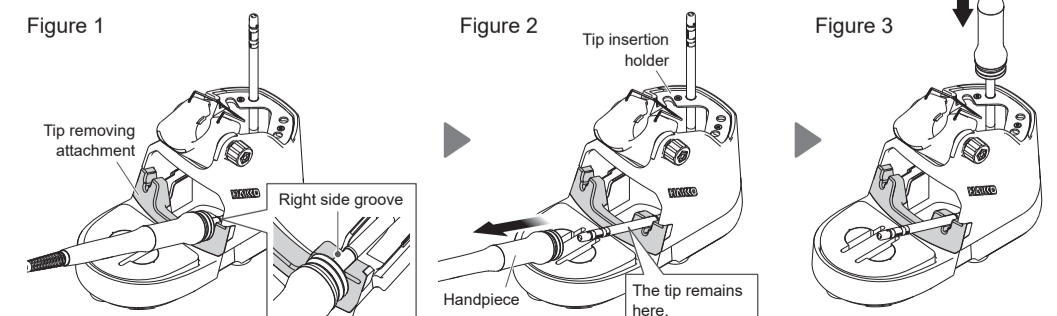
NOTE Cool the tip in the tip removing attachment, and then rotate it to pull it out.

NOTE Note that using too much downward force can damage the tip or handpiece.

NOTE For safety purposes and to prevent damage to the product, make sure to press the iron holder with your hand.

(3) Insert the tip that has been placed in the tip insertion holder into the handpiece. (Figure 3)

NOTE By using the tip insertion holder, tip can be inserted firmly to the end.



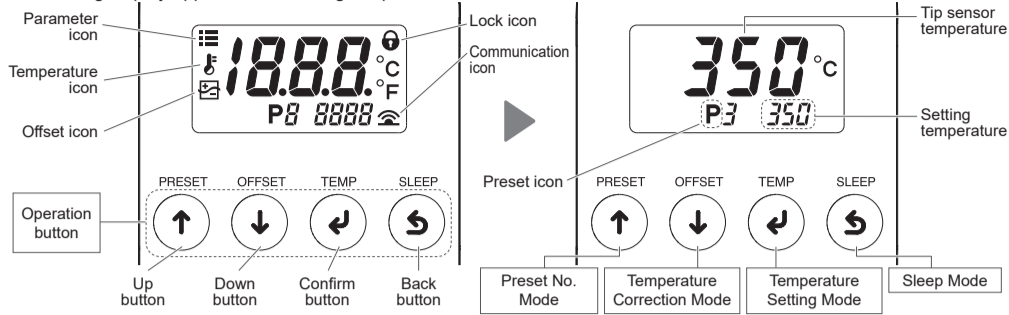
4. Operation (cont'd)

4-3. Operation

CAUTION

Place the handpiece into the iron holder and then turn on the power.

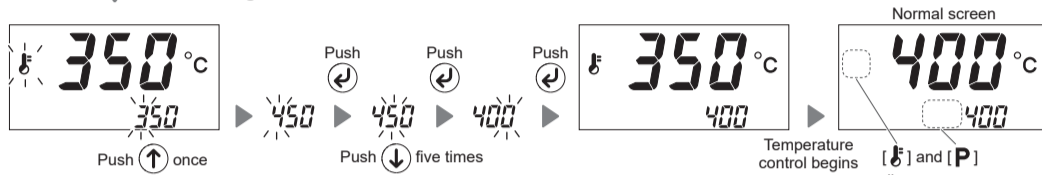
The following display appears after turning the power on.



Changing the temperature setting

Push this button once to display [f] and transition to "temperature setting mode." This mode is used when changing the set temperature.

To change to 400°C



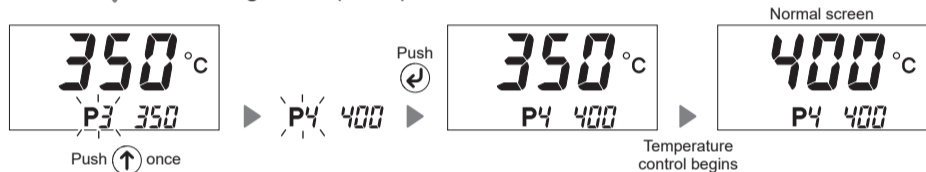
Once the normal screen appears, push the [↑] button to transition to preset No. mode.

Changing the preset No.

You can register up to five frequently used setting temperatures on the product, and then select the registration No. to change the setting temperature.

Push this button once to transition to "preset No. mode." Select one of the five temperatures registered in this mode. (Factory default temperature settings: P1 250°C (600°F), P2 300°C (700°F), P3 350°C (750°F), P4 400°C (800°F), P5 450°C (850°F))

To change to P4 (400°C)



NOTE The registered temperature of each preset No. can be changed in "parameter No. 23." (See the separate document "Quick Parameter Settings")

NOTE If you want to limit setting temperature changes, change the setting in "parameter No. 14." (See the separate document "Quick Parameter Settings")

5. Parameter Settings

You can change the parameter settings to suit different work environments. See the separate document "Quick Parameter Settings."

6. Maintenance

CAUTION

Do not file oxidation attached on the tip. This will shorten the tip lifespan.

Conducting maintenance will help keep the product in good condition and prolong the usage of the unit.

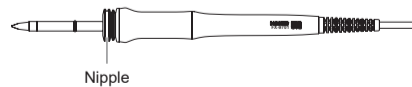
Daily maintenance

Setting temperature	Using the product at a temperature that is higher than necessary can accelerate tip deterioration and damage parts that are susceptible to heat. Use the lowest temperature whenever possible.
Before beginning work	Perform a visual check of the tip. Replace it if it is bent or considerably worn. Use the cleaning sponge to wipe off any oxidation or old solder from the tip. Impurities on a circuit board can result in poor soldering.
When pausing work	Use sleep mode instead of leaving the handpiece set to a high temperature for a long period of time. This prevents tip oxidation which helps to maintain workability, which can extend the tip lifetime. Turn off the power switch when not using the product for a long period of time. (See "Pausing work (sleep mode)" in "4-3. Operation")
After finishing work	Thoroughly clean the tip with the cleaning sponge and then coat it with new solder. Doing so can prevent oxidation of the tip.

Periodic maintenance

- Tip
 - Wear and tear on the tip will vary due to the operating temperature as well as the quality and amount of solder/flux used. Maintenance should be performed based on what suits your usage.
 - (1) Turn the power ON.
 - (2) Set the temperature to 250°C (482°F).
 - (3) Once the temperature is stable, use the cleaning sponge to wipe the tip.
 - (4) If there is any black oxidation on the solder plating, apply new solder containing flux and then wipe it off with the cleaning sponge. Repeat this process until the oxidation is removed. Afterward, coat it with new solder.
 - (5) Turn the power off and remove the tip once it has cooled.
 - If you find flux, debris, and other particulates on anything other than the end of the tip, wipe it off with industrial alcohol.

- Handpiece
 - Remove flux, debris, and other particulates adhering to the nipple.
 - It may cause contact failure inside the handpiece.

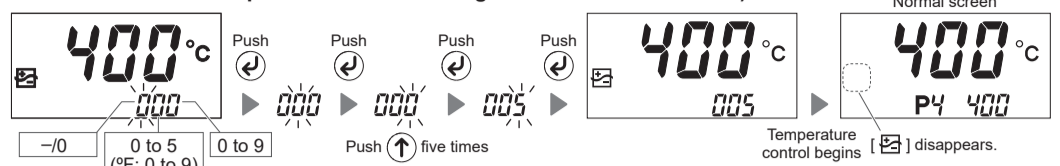


- Iron holder
 - Press down the release button and remove the iron holder base, then clean the collected solder waste from the iron holder.
 - Rotate the cleaning wire as need to a clean side where solder is not accumulated.

Tip temperature correction (offset)

Push this button once to display [E] and transition to "temperature correction mode." If the setting temperature and the measured value of the tip temperature differ in this mode, you can correct the temperature. (Correction range: ± 50°C / ± 90°F)

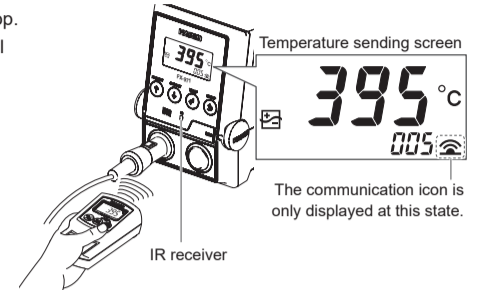
To correct a temperature by 5°C for a setting of 400°C (to correct actual tip measurement reading 395°C when set to 400°C)



*Note that temperatures that exceed the correction range cannot be entered.

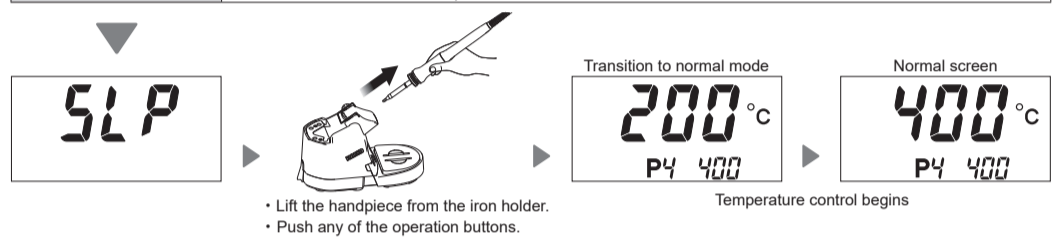
- Once a tip degrades from wear, the tip temperature tends to drop. The tip temperature changes if you replace the tip, the offset will need to be readjusted. Make sure to change the offset value as needed while monitoring the actual tip temperature.

- You can automatically change the offset value using a HAKKO thermometer with a temperature sending function. Push the [↓] button before sending the measured value. (See the figure on the right)



Pausing work (sleep mode)

Push this button once to immediately transition to "sleep mode (state where the tip temperature has dropped to the set activation temperature)." Use this function occasionally to prevent tip oxidation. (Factory default setting: Parameter No. 07 setting is enabled and the activation temperature in Parameter No. 13 is 200°C)



- The product will not transition to sleep mode in the following cases:

- When the setting temperature is lower than 300°C (570°F)
- When the parameter No. 07 setting is disabled

- Approximately six minutes after placing the handpiece on the iron holder, the product automatically transitions to sleep mode. Change parameter No. 02 and 13 settings as necessary for your work. (See the separate document "Quick Parameter Settings")

- To further prevent tip oxidation, set auto shut-off.

- Enable the parameter No. 08 setting.
- Set the time until the product is automatically shut-off in parameter No. 18. The shorter the set time, the more effective it is. If you disable the parameter No. 08 setting, the product will not automatically shut-off even when the set time has elapsed.

7. Troubleshooting

CAUTION

Before performing an inspection or replacing parts, make sure to disconnect the power plug from the outlet.

No operation even if power switch is turned ON.	Has the power cord or connection plug been removed? ▶ Plug unit into outlet.
	Is the fuse blown? ▶ Replace the fuse. If the fuse is blown again, send the main unit (including handpiece, power cord) back for service.
[C - E] is displayed.	Is an incompatible soldering iron connected? ▶ Connect the compatible handpiece.
	Has the handpiece plug been removed? ▶ Turn off the power switch, reconnect the handpiece, and turn the power switch back on again.
[H - E] is displayed.	Is the heat capacity of the tip too small for the object to be soldered? ▶ Use a tip with a larger heat capacity.
	Is the set value for the low temp alarm too small? ▶ Increase the set value. (See the separate document "Parameter No. 03" in "Quick Parameter Settings")
[H S E] is displayed.	Is the tip an applicable genuine tip? ▶ Turn off the power switch, insert an applicable genuine tip, and turn on the power switch again. If the problem persists, replace the tip.
	Is the tip fully inserted? ▶ Insert tip firmly into the handpiece. (Do not use excessive force)
[S - E] is displayed.	Is the heating element/sensor disconnected? ▶ Measure the resistance between the heating element and sensor, and if the measured value is abnormal, replace the tip. The normal resistance values are as follows: T39: 5.7 Ω ± 10% (at room temperature) T50: 8.0 Ω ± 10% (at room temperature)
	Measure the resistance between these points. (See diagrams for T39 and T50)
[- -] is displayed.	Is there a strong noise source around the soldering iron? ▶ Move the soldering iron away from the noise source, or use other circuit for the power.
Cannot get solder on the tip.	Is the tip setting temperature too high or too low? ▶ Set an appropriate temperature.
	Is there any oxidation on the tip? ▶ Remove the oxidation. (See "6. Maintenance")
The tip temperature is too high/low.	Is the offset value entered correct? ▶ Measure and adjust the value. (See "Tip temperature correction (offset)" in "4-3. Operation")
The auto shut-off function does not work.	Is parameter No. 08 [OFF]? ▶ Change it to [On] to enable feature.



Visit the website for more support information including information for replacement parts/options. If you cannot find a solution in this manual or on the website, or if another problem occurs, please contact the retailer where you purchased the product.

https://www.hakko.com/doc_fx971-ah