HAKKO

SOLDERING IRON UNIT

HF-600

Instruction Manual

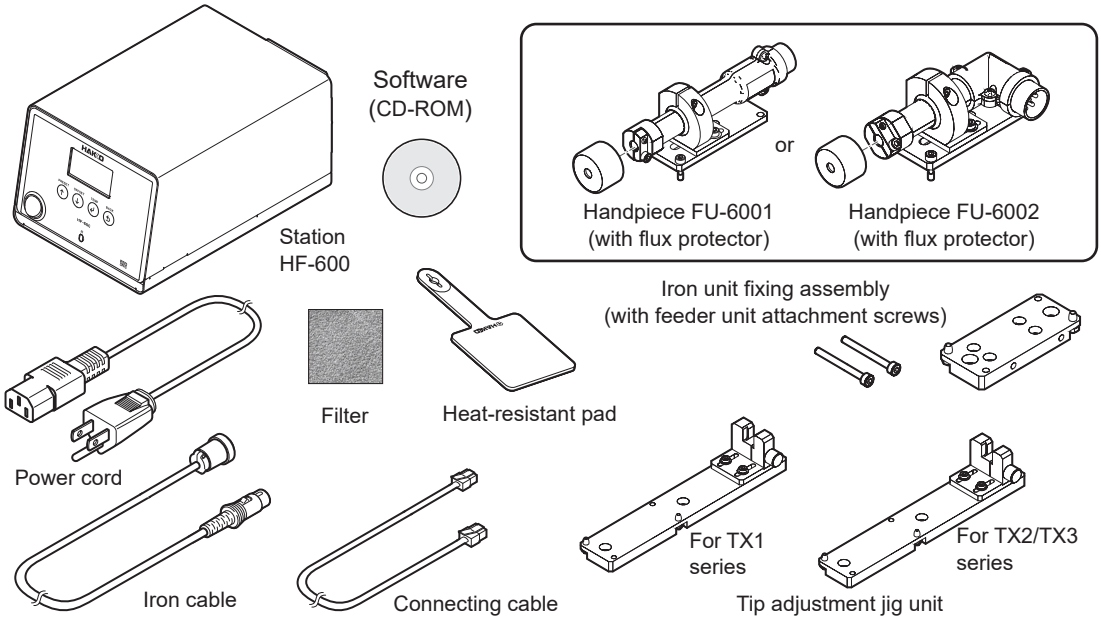
Thank you for purchasing a HAKKO product.
This product is soldering iron unit for automatic machines.
Make sure to read this manual before using the product, and keep it in a safe place for future reference.

Table of contents

1. Set contents

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

Station HF-600 1
Handpiece FU-6001 / FU-6002
(with flux protector) 1
Iron unit fixing assembly
(with feeder unit attachment screws)..... 1
Tip adjustment jig unit (for TX1 series)..... 1
Tip adjustment jig unit (for TX2/TX3 series) 1
Iron cable (5m)..... 1
Connecting cable..... 1
Power cord..... 1
Heat-resistant pad 1
Filter..... 1
Instruction manual 1
*Software(CD-ROM)..... 1



*Tip is optionally available.

See the web page for the product information such as replacement parts/options.
https://www.hakko.com/doc_hf600-e

2. Specifications

Power consumption	460 W
Temperature range	50 to 500ºC (120 to 940ºF)
Temperature stability	±5ºC (9ºF)(At idle temperature)

Station

Output	AC 30 V
Dimensions	140(W)×111(H)×212(D)mm (5.5×4.4×8.5 in)
Weight	4 kg (8.8 lb)

Handpiece

Power consumption	390 W(29 V)
Tip to ground resistance	< 2 Ω
Tip to ground potential	< 2 mV
Cord length	5 m(16.4 ft)
Total length*1*2	197mm(7.8 in) {171mm(6.7 in)*3}
Weight*1	133g(4.7 oz) {135g(4.8 oz)*3}
	172g(6.1 oz){174g(6.1 oz)*3} (With iron unit fixing assembly)

*1 With TX3-XD4 tip
*2 The dimension can be adjusted in range of ±5 mm
*3 This is the value for handpiece FU-6002.

●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.

2. Specifications (cont'd)

⚠ 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.

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.
- 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 the power switch off and disconnect the plug from the power outlet.
- Turn off the power supply when suspending or terminating use, or when leaving the site.

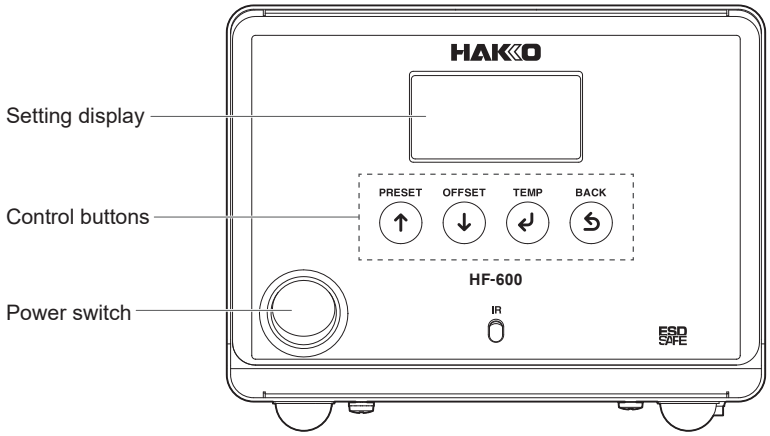
Failure to observe the following precautions to ensure safety might result in electric shock, malfunction or other trouble.

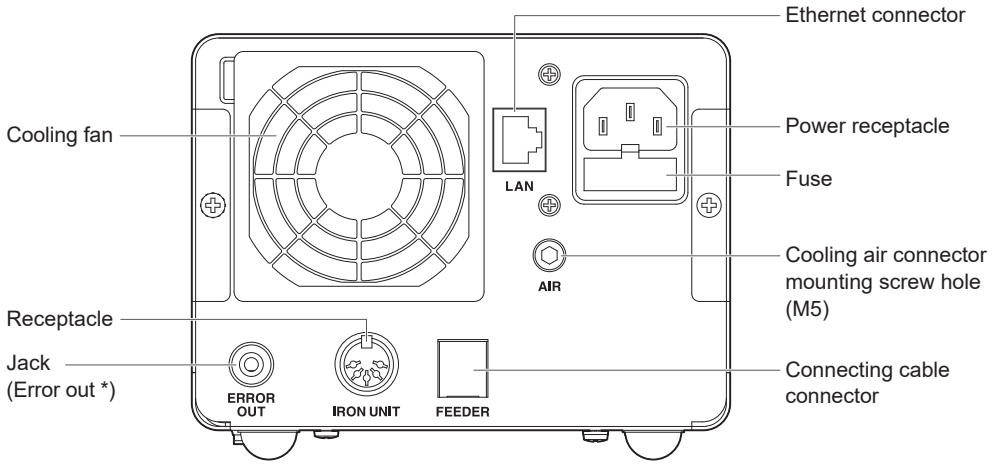
⚠ CAUTION

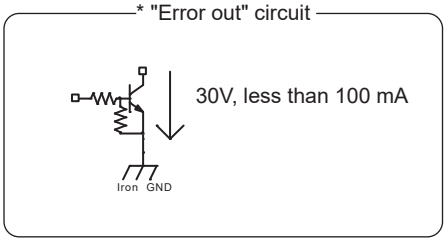
- Before using this product, fully read all descriptions in this document.
- Only use the product for soldering.
- Do not subject the soldering iron to strong impact.
- Soldering produces smoke, so make sure to work in a well-ventilated area.
- Do not block the station air inlet or outlet.
- Turn the station off before connecting or disconnecting the handpiece to prevent damage to the P.W.B.
- 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 plug, hold the plug body.
- 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. Names of parts

● Station



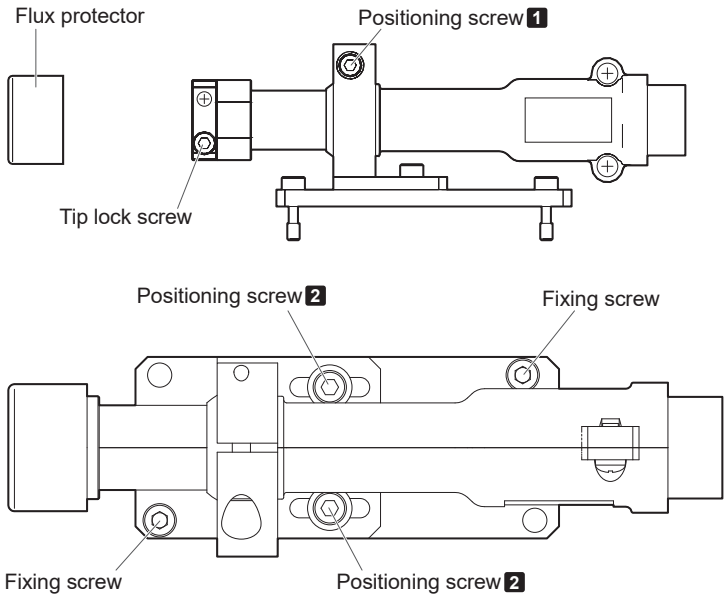




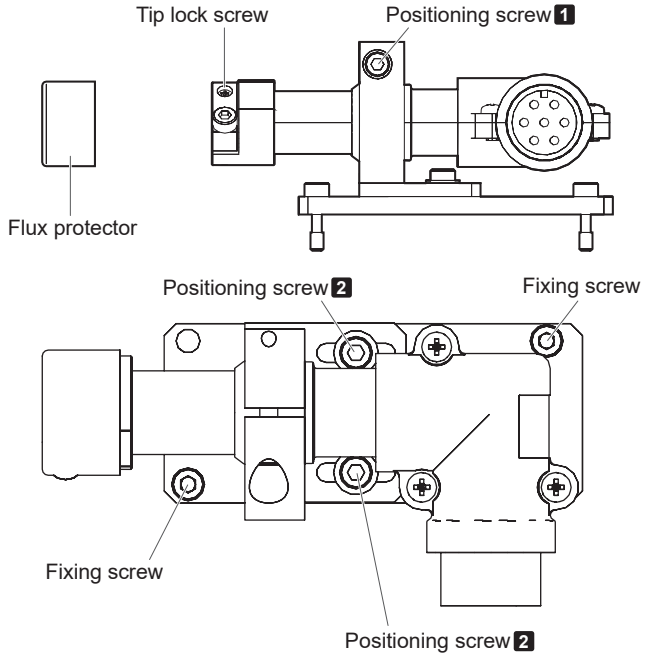
4. Names of parts (cont'd)

● Handpiece

FU-6001



FU-6002



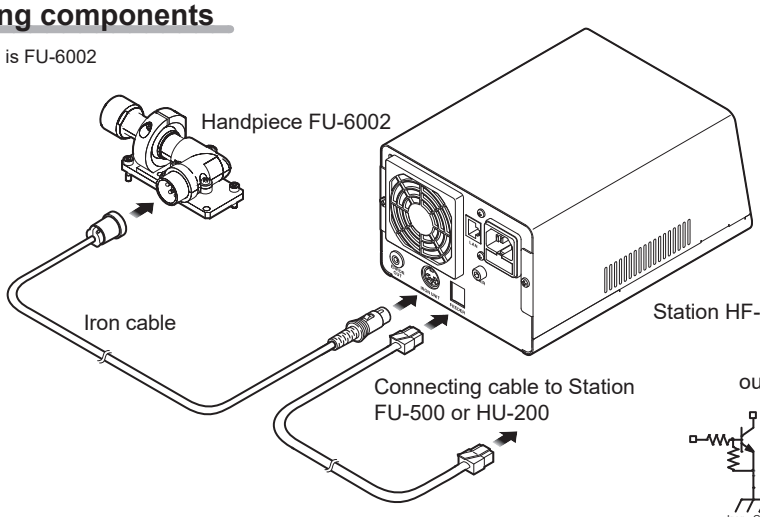
⚠ CAUTION

Do not touch any screws than the hexagon socket head cap screws described in this manual. Also, be careful not to overtighten the screws.

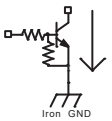
5. Initial setup

Connecting components

* The illustration is FU-6002



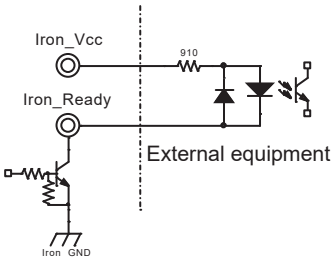
Iron_Ready signal
output equivalent circuit



Connecting cable (6-pole 6-core modular cable)

Pin No.	Signal name	I/O	Function
1	TxD	Out	Sending data
2	RxD	In	Receiving data
3	Iron_Ready	Out	Station ready signal
4	Iron_GND		Station GND
5	Iron_GND		
6	Iron_Vcc	Out	Station Vcc (5V)

Recommended "Iron_Ready" signal
connection diagram



■External air cooling method

When using external air for cooling the HF-600, please turn the fan off. (Refer to "8. Parameter Settings")
Remove the AIR screw at the back of the HF-600 and install a proper air line fitting with M5 threading.
Use a flow control to ensure the input flow rate is at least 20L/min or higher.

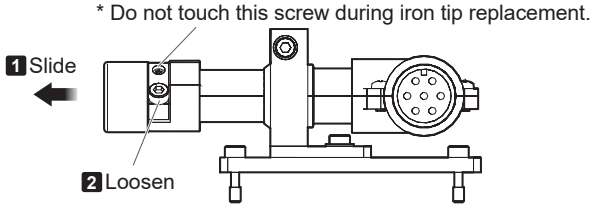
NOTE Air must be clean and dry. Be sure to remove all dust, moisture, and oil from the supply.

■How to attach the tip

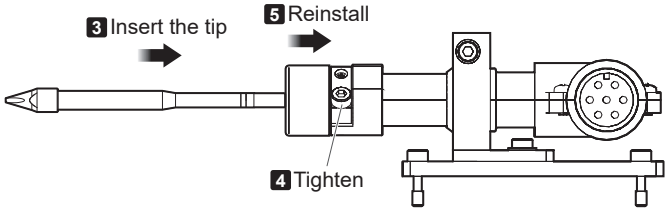
⚠ CAUTION

Replace the iron tip when it is cold.
If you need to replace the hot iron tip, always use a heat-resistant pad.

(1) Slide off the flux protector and loosen the tip lock screw.



(2) Insert a tip.
Tighten the tip lock screw and reinstall the flux protector.



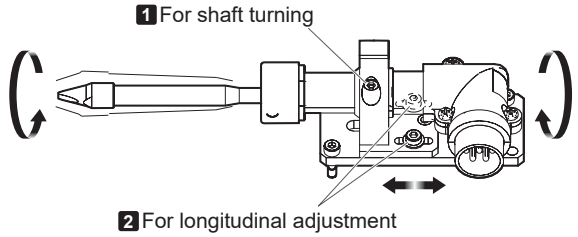
⚠ CAUTION

Make sure that there is no clearance between the tip and the hole of the flux protector.

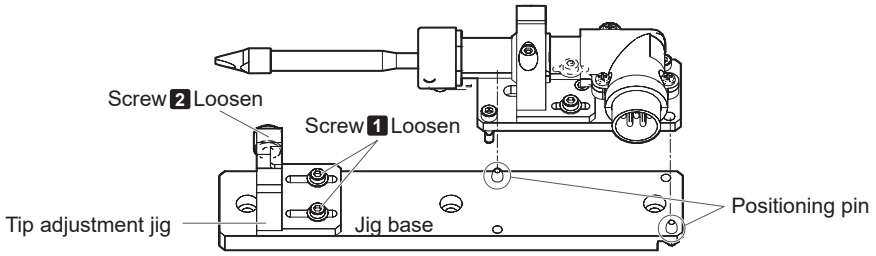
5. Initial setup (cont'd)

■How to position the tip

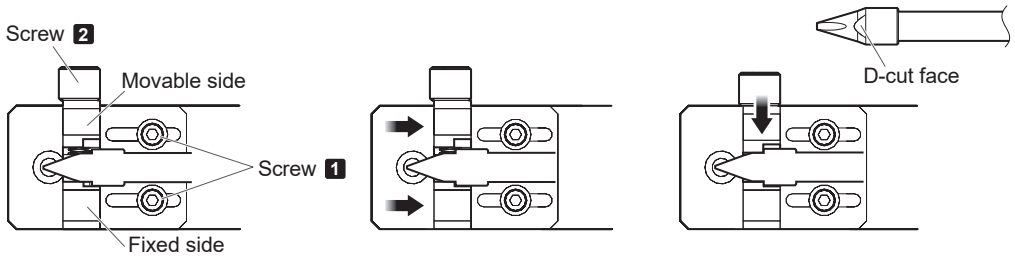
(1) To turn the shaft of the tip, loosen the positioning screw **1**. To move the soldering iron in the longitudinal direction, loosen the positioning screw **2**. Tighten the screws after determining the tip position balancing with your work object.



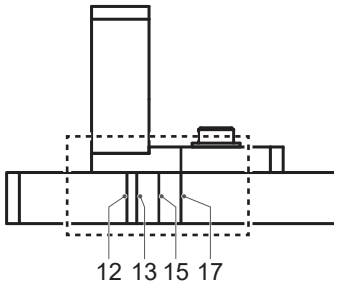
(2) Loosen screws **1** and **2** and place the FU-6001/FU-6002 on the tip adjustment jig with the positioning pins aligned.

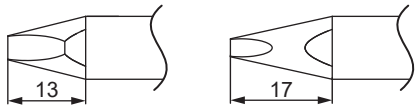


(3) Align the D-cut face of the tip with the pocket in the fixed side.
Move the tip adjustment jig until the tip is fully inserted as shown in the following figure.
This position will be the reference point. Retighten the two screws **1**.
To prevent the upward movement and misalignment of the tip, tighten the screw **2** while pressing the tip from the top. Do not move the jig except for the one on the movable side and except for the time when the type of workpiece is changed. After the reference point has been set, remove the FU-6001/FU-6002 from the tip adjustment jig.



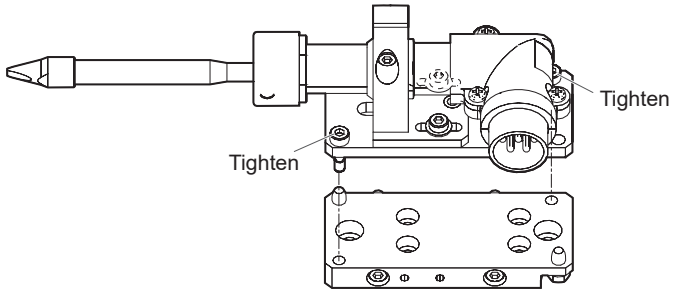
*Reference markings are along the side of the tip adjustment jig. These reference the tip length dimensions of 12 mm, 13 mm, 15 mm, and 17 mm. Use these reference markings as guides when adjusting the position of the jig.





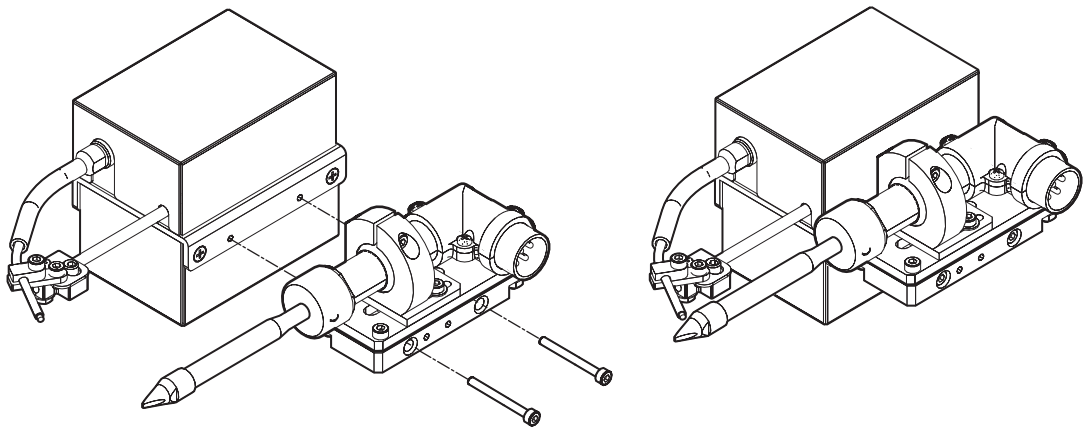
12 mm : TX1 series
13 mm : TX2-XD4,TX2-XD6,TX3-XD4,TX3-XD6 etc.
15 mm : TX3-XD3,TX3-XBCR3 etc.
17 mm : TX2-XD3,TX2-XBCR3 etc.

(4) Place the FU-6001/FU-6002 on the iron unit fixing assembly and tighten the two screws.



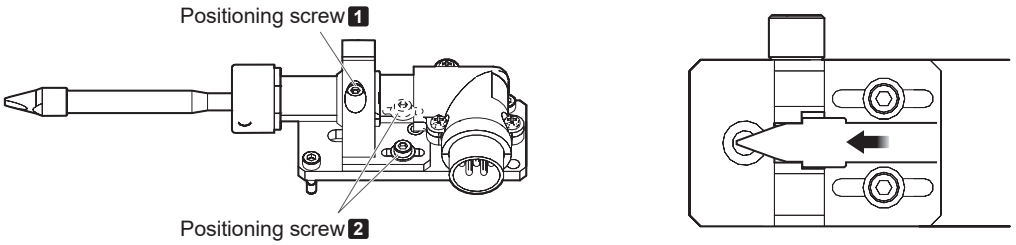
■Installing the iron to the feeder unit

Attach the FU-6001/FU-6002 to the feeder unit using the feeder unit attachment screws as shown in the figure below.



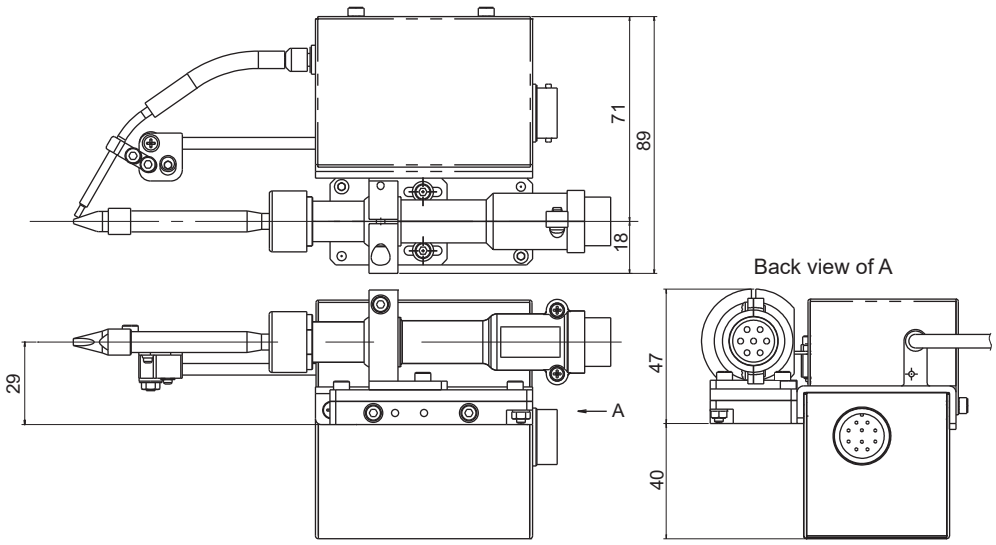
■How to position the tip after replacement

After replacement, you need to position the tip. Loosen the positioning screw and align the tip with the reference point set in the previous page.
To prevent the upward movement and misalignment of the tip, tighten the screws while pressing the tip from the top.

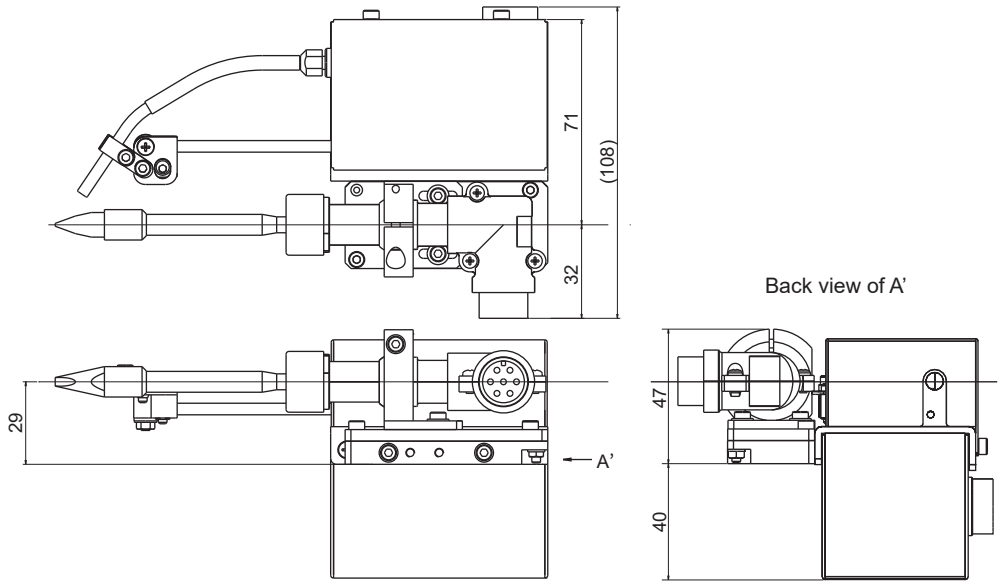


■Dimensional outline drawing

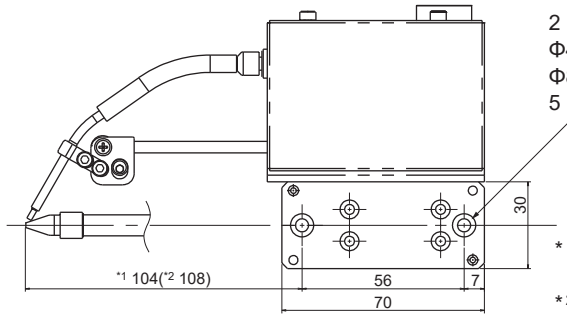
FU-6001
Connected to the feeder unit



FU-6002
Connected to the feeder unit



Disconnected

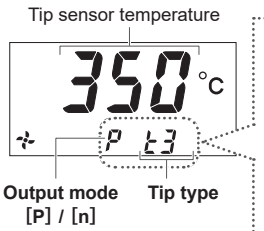


*1 The dimension can be adjusted in range of ±5mm.
*2 When the tip using a long.

6. Operation

6-1. Station

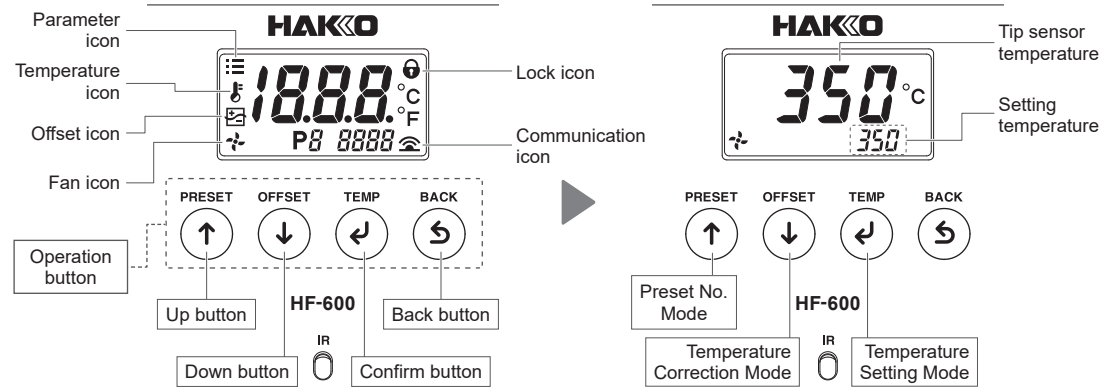
With the tip installed into the handpiece and plugged into the station turn on the power switch. Below shows the display indication types.



Display	Details
P T3 (P T3)	**Tip type** The inserted tip type is automatically recognized and displayed. T1 : TX1 Series tip T2 : TX2 Series tip T3 : TX3 Series tip
	Output mode Power [P] is set as a factory default. Power [P] is useful for workpieces that require a large amount of heat. Normal [n] is useful for temperature-sensitive workpieces (See " Parameter No. 12")
350 (350)	**Setting temperature** (See "6-2. Operation")

6-2. Operation

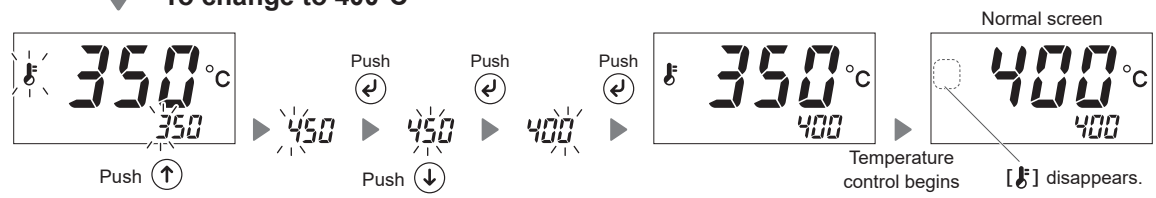
The following display appears after turning the power on.



■Changing the temperature setting

Push TEMP (↵)	Push this button once to display [🌡] and transition to "temperature setting mode." This mode is used when changing the set temperature.

To change to 400ºC



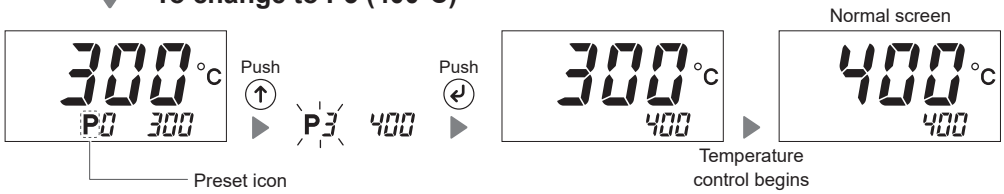
Once the normal screen appears, push the (↑) button to transition to preset No. mode.

■Changing the preset No.

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

Push PRESET ↑	Push this button once to transition to "preset No. mode." Select one of the six temperatures registered in this mode. (Factory default temperature settings: P0 300ºC (570ºF) ,P1 350ºC (670ºF) , P2 375ºC (710ºF) ,P3 400ºC (750ºF) , P4 450ºC (850ºF) ,P5 500ºC (930ºF))

To change to P3 (400ºC)



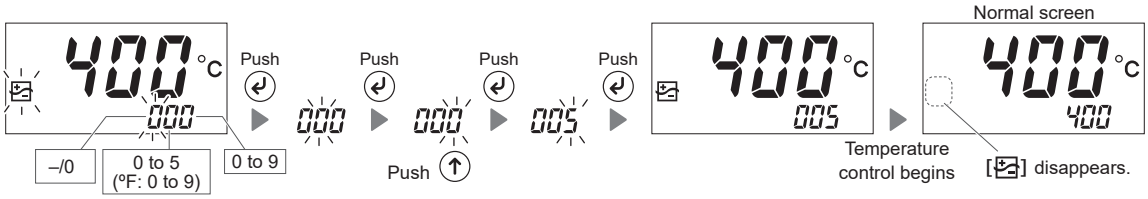
NOTE The registered temperature of each preset No. can be changed in "parameter No. 23." (See "8. Parameter settings")

NOTE If you want to limit setting temperature changes, change the setting in "parameter No. 14." (See "8. Parameter settings")

■Tip temperature correction (offset)

Push OFFSET ↓	Push this button once to display [⊡] 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: ± 50ºC/ ± 90ºF)

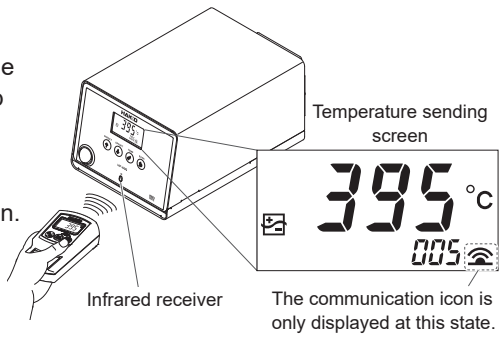
To correct a temperature by 5ºC for a setting of 400ºC (to correct actual tip measurement reading 395ºC when set to 400ºC)



*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.

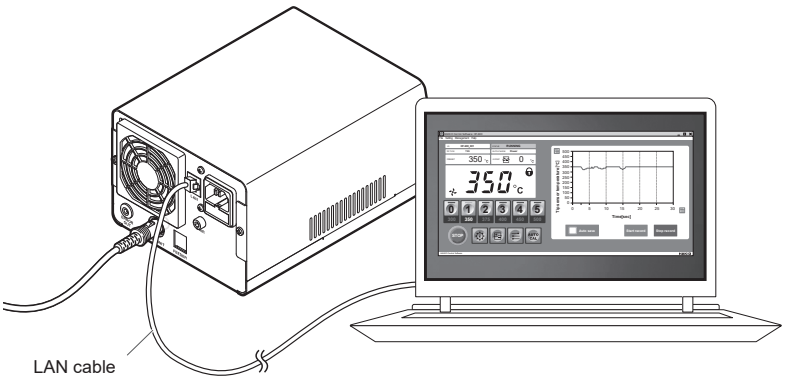
You can automatically change the offset value using a HAKKO thermometer with a temperature sending function. Transmit the measured value of the thermometer after transitioning to "temperature correction mode".
(See the figure on the right)



7. Connecting to a computer

The following will become available when the software is installed.

- Change the parameter setting value from the PC
- Save the parameter settings as a CSV file
- Copy the saved parameter settings on another unit
- Save the automatic calibration results as a CSV file
- Search the saved automatic calibration results by"Date" or "Number of recent histories," and display the results in a graph
- Monitor the tip temperature and save its history as a CSV file
- Turn off the power to the heating element



7-1. Operating environment

Supported OS	Windows 10, Windows 11 (Excluding ARM-based Windows)
CPU	1GHz or faster processor or SoC (Excluding ARM processors)

Supported operating systems are based on information as of March 2025 and are subject to change.
The lastest information is available on the HAKKO website.

7-2. Downloading the software (Online)

(1) Go to the HAKKO website and visit [Customer support\Support & service\Login/Signup].

https://www.hakko.com/doc_support-e

(2) Follow the on-screen instructions to complete user registration.
Once user registration is complete, you can use My Page.

(3) Click **[My page (Product registration from here)]** to register the product.

NOTE You can only download the software after registering the product.

(4) Click **[Download of product data]** from the menu at the top right of the page.

(5) Select **[SOFTWARE]** in the document search area.

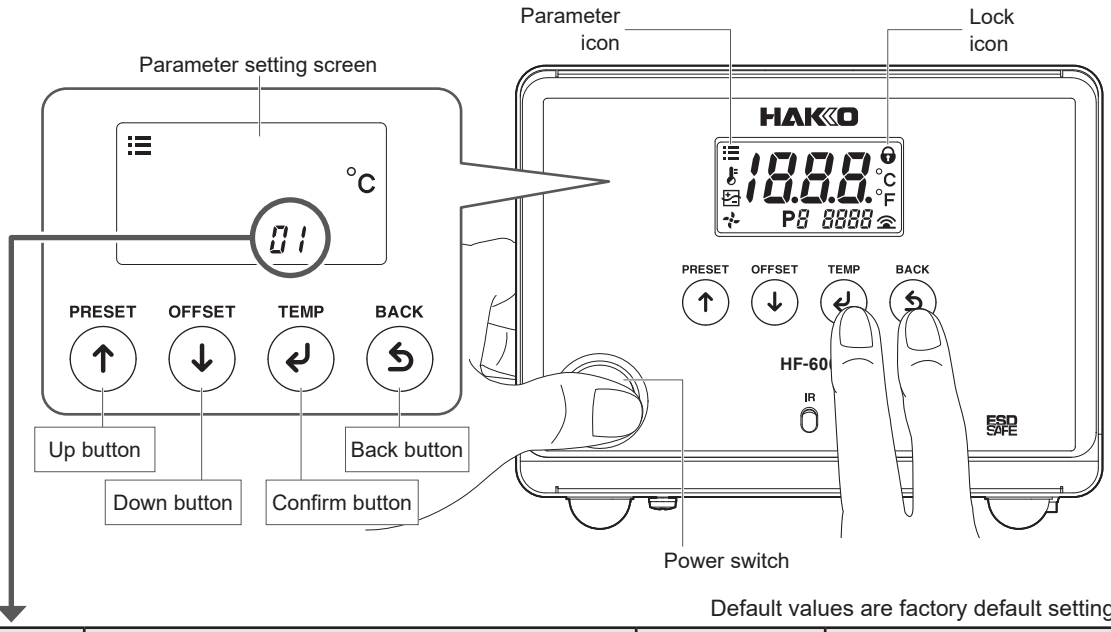
(6) Enter the product name as a keyword.

(7) Select a language, and then click **[Search by Condition]**.

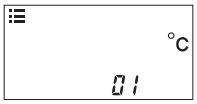
(8) Click **[Download]** in the search results.

Please refer to the manual included in the download data for instructions on installing the software and operation.

8. Parameter settings



Default values are factory default settings.

Parameter No.	Parameter name/summary	Setting value	Default value/ Procedure Value when implementing No. 25.
01	**Display temperature unit** Select from ºC or ºF. ●All set values are converted to the changed display temperature unit.	ºC/ºF	 (For USA: ºF)
03	**Low temp alarm** Set the temperature range to notify via buzzer if the tip temperature drops while soldering. ●The buzzer sound cannot be turned off.	30 to 300ºC 50 to 540ºF	 (ºF: 540)
05	**Error alarm set: [On]/[OFF] setting** A buzzer sound notifies of soldering iron error **[C - E]** or sensor error **[S - E]**. Select **[OFF]** if you do not wish to use this function.	On/OFF	
06	**Ready alarm: [On]/[OFF] setting** A buzzer sound notifies that the tip has reached the setting temperature. Select **[OFF]** if you do not wish to use this function.	On/OFF	
12	**Output mode: Power [P]/normal [n] setting** Power **[P]** is useful for workpieces that require a large amount of heat. Normal **[n]** is useful for temperature-sensitive workpieces.	P/n	

(1) Turn on the power while pressing the ↵ and ↩.

(2) Select the parameter number using the ↑ or the ↓.

(3) Push the ↵.

(4) Change the setting using the ↑ or the ↓.

(5) Push the ↵.

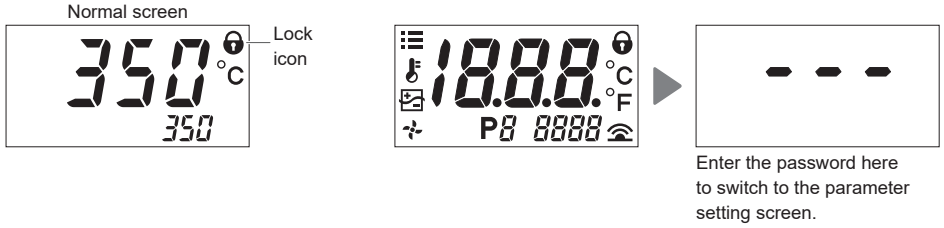
(6) Push the ↩.

(7) The normal screen reappears.

Note

- If the power is turned off while configuring settings, the changes may be lost.
- If you set the password in No. 14, the lock icon appears on the normal screen and a password prompt appears before transitioning to the parameter setting screen.
  Contact us if you do not know the password.

  E-mail: support@hakko.com



This function is convenient for when you want to work within a specified temperature range.

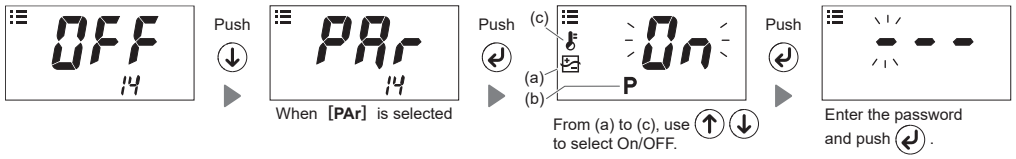
To solder between 320 and 350ºC at a setting temperature of 350ºC, change the setting value to **[30]** in No. 03 before beginning soldering. The buzzer will sound, notifying you when the tip sensor temperature is lower than 320ºC while soldering. The upper limit is restricted by the setting temperature.

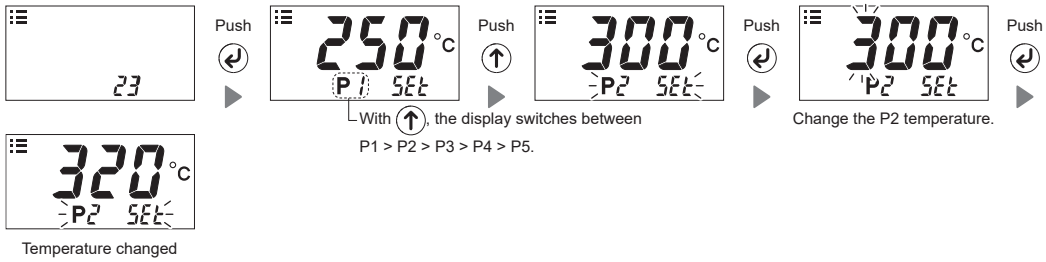
8. Parameter settings (cont'd)

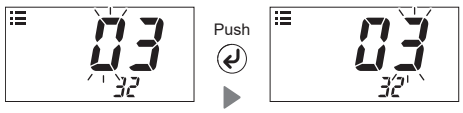
Parameter No.	Parameter name/summary	Setting value	
14	**Password lock: [On]/[OFF] setting** Limit the scope of change using a combination of six characters AbCdEF and three digits. ・Select **[OFF]** .....None are locked ・Select **[On]** .....Locks all ・Select **[PAr]** → [⚖] Locks changes to offset temperature ・Select **[PAr]** → [**P**] Locks preset temperature selection ・Select **[PAr]** → [🌡] Locks temperature changes via the **[TEMP]** button	OFF On* PAr* *When selected,a lock icon **[🔒]** appears on the right side of the normal screen.	
23	**Preset temperature: Changing registered temperatures** You can register up to six frequently used setting temperatures. This function saves time when changing the setting temperature. ・Default value: P0 300ºC (570ºF) ,P1 350ºC (670ºF) ,P2 375ºC (710ºF) , P3 400ºC (750ºF) ,P4 450ºC (850ºF) ,P5 500ºC (930ºF)	50 to 500ºC 120 to 940ºF (Same as the station's temperature range)	
32	**Ready signal / delay time** Set the delay time from when the station is ready (the tip temperature has reached the setting temperature) until the Iron Ready signal is turned on.	0-60 seconds	
33	**Cable length setting** In addition to the standard 5m iron cable, there are 3m/8m specifications. Select the length of the iron cable to be used.	3m/5m/8m	
34	**Fan cooling: [On]/[OFF] setting** Stop the fan when air cooling is in use. Select **[OFF]** if you do not wish to use this function.	On/OFF	
35	**Network setting 1** This is the network setting when connecting to a Computer. Set the IP address, subnet mask, and gateway address. * Please consult with your net administrator when configuring.	IP address Subnet mask Default gateway	
36	**Network setting 2** This is the network setting when connecting to a Computer. Set the DNS server address. * Please consult with your net administrator when configuring.	DNS server address	

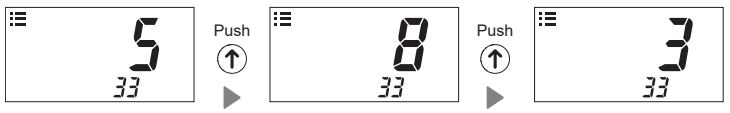
Default value/ Procedure

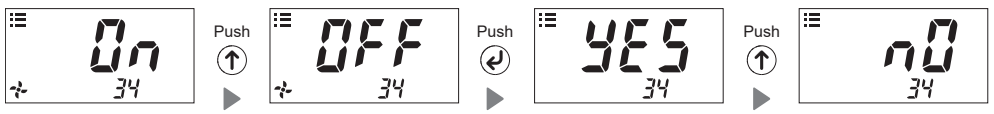
Process when [PAr] is selected

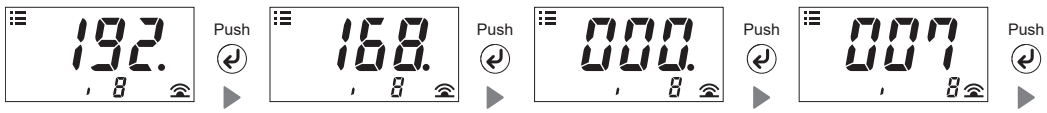


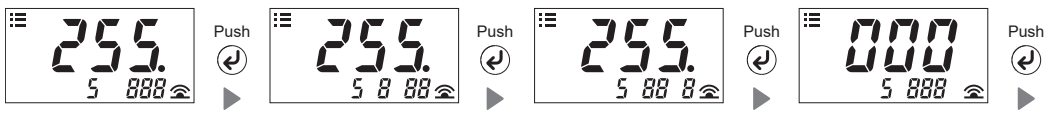


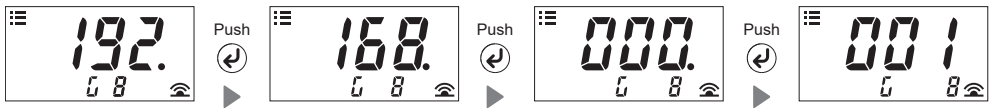


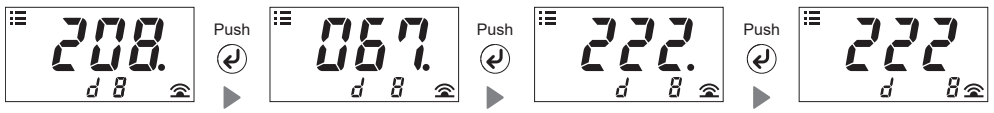






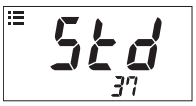
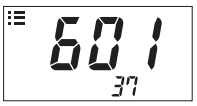
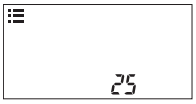
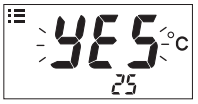






8. Parameter settings (cont'd)

Parameter No.	Parameter name/summary	Setting value	
37	**Communication protocol settings** Set the communication method. Usually use with **[Std]**. **[601]** is the setting for the FU-601 specifications with external output.	Std/601	
40	**Heater Power-off: [On]/[OFF] setting** Enable **[On]** or disable **[OFF]** the function to turn off the power to the heating element through the HU-200 or application. Select **[OFF]** if you do not wish to use this function.	On/OFF	
25	**Initial reset** Reset the product to factory default settings.	ºC/ºF	

	Default value/ Procedure
	 Push 
	
	 Push  When ºC is selected Push  Push  

9. Maintenance

⚠ WARNING

Since the soldering iron can reach a very high temperature, please work carefully. Except where indicated, always turn the power switch OFF and disconnect the power plug before performing any maintenance procedure.

⚠ CAUTION

- Turn the power off and unplug the power cord before replacing any internal components.
- Do not remove oxidation adhering to the tip with a file. Speed up the tip lifespan.
- Never use thinner or other solvent as it may melt the resin part.

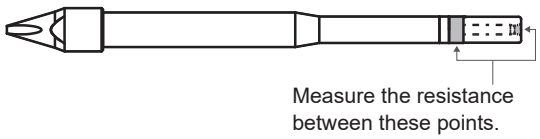
Conducting maintenance will help keep the product in good condition and prolong the usage of the unit.

■Inspection

● Inspection of the tip

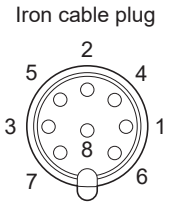
Measure the resistance between the heating element and sensor, and if the measured value is abnormal, replace the tip.

The normal resistance values are as follows:TX1: 4.0Ω±10% (at room temperature)
TX2: 3.4Ω±10% (at room temperature)
TX3: 2.0Ω±10% (at room temperature)



● Ground line inspection

Unplug the iron cable from the station.
Measure the resistance between FU-6001/FU-6002 and the iron cable.
Between pin2 and tip
The normal resistance is <2 Ω (at room temperature).
In case of the abnormality, perform the maintenance of the tip.
If the problem persists, check for broken iron cable.



● Inspection of the iron cable

Measure the resistance between the pins of the connector.
The resistance between Pin 1 and Pin 3 is 3.0 to 3.8 Ω (at room temperature).
If the resistance is abnormal, the iron cable must be replaced.
Please contact the distributor where the product was purchased.

■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. If there is any oxidation or old solder on the tip, clean it. Impurities on a circuit board can result in poor soldering.
During the work	If the handpiece is left at a high temperature for an extended period of time, the tip will oxidize.Turn off the power switch when not using the product for a long period of time.
After finishing work	Clean the tip and cover the end with fresh solder.Doing so can prevent oxidation of the tip.

■Regular 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 250ºC (482ºF).

(3) Clean once the temperature has stabilized.

(4) If there is any black oxidation on the solder plating, apply new solder containing flux and clean it. Repeat this process until the oxidation is removed. Afterward, coat it with new solder.

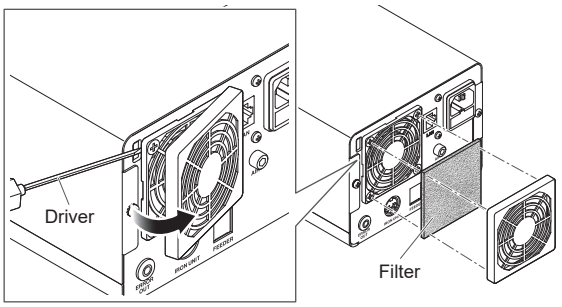
(5) Turn the power off and remove the tip once it has cooled. If you find flux, debris, and other particulates on anything other than the end of the tip, wipe it off with industrial alcohol.

● Filter for air inlet

Check if the filter of the air inlet is clogged.
If clogging occurs, the temperature inside the station will rise, causing malfunction.

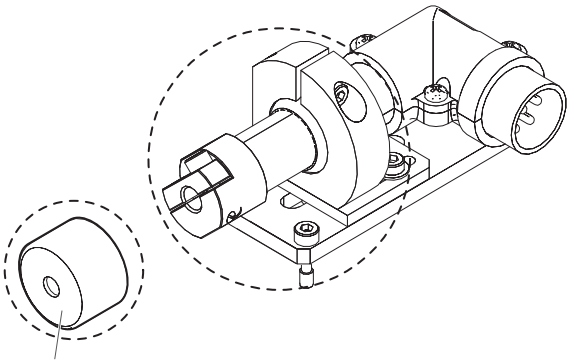
⚠ CAUTION

When replacing the filter, turn the power switch off and unplug the plug from the power outlet.



● Handpiece

Remove flux, debris, and other particulates adhering to the area near the hole in the flux protector. It may cause contact failure inside the handpiece. Use high concentration isopropyl alcohol to clean the flux protector regularly. Replace the flux protector it is difficult to clean or is deformed.

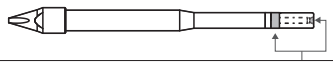


Flux protector
Part No. BX1027

10. Troubleshooting

⚠ CAUTION

Turn the power off and unplug the power cord before inspecting or replacing any internal components.

No operation even if power switch is turned ON.	Has the power cord or connection plug been removed?	▶ Connect the power cord or connection plug to the station.
	Is the fuse broken?	▶ Replace the fuse. If the fuse is blown again, send the main unit (including handpiece, power cord) back for service
[AHE] is displayed.	Abnormalities are occurring in the temperature rise of the tip.	▶ Turn off the power switch, cool the tip sufficiently, and turn on the power switch again. If the problem persists, replace the tip.
[C - E] is displayed.	Is an incompatible soldering iron connected? Or is the handpiece plug removed?	▶ Turn off the power switch, reconnect the handpiece, and turn the power switch back on.
[H - E] is displayed.	Is the tip too small for the workpiece?	▶ Use a tip with a larger heat capacity.
	Is the set value for the low temp alarm too low?	▶ Increase the set value.
[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.
[S - E] is displayed.	Is the tip fully inserted?	▶ Insert tip firmly into the handpiece. (Do not use excessive force)
	Is the iron cable damaged?	▶ Measure the resistance between pin 1 and pin 3 of the Connector. The normal resistance value is 3.0 to 3.8 Ω (at room temperature). If abnormal, replace the iron cable
	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. TX1 : 4.0Ω±10%(at room temperature) TX2 : 3.4Ω±10%(at room temperature) TX3 : 2.0Ω±10%(at room temperature)  Measure the resistance between these points.

[t - E] is displayed.	Is the applicable tip for this product being used?	▶	Replace the tip with the appropriate TX1 / TX2 / TX3 Series tip.
[- - -] is displayed.	The station is out of order.	▶	Please contact the distributor where you purchased the product.
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 "9. Maintenance")
The tip temperature is too high.	Is the iron cable damaged?	▶	If the resistance is abnormal, replace it. (See "9. Maintenance")
	Is the offset value entered correct?	▶	Measure and adjust the value. (See"■ Tip temperature correction (offset)" in "6-2. Operation")
The tip temperature is too low.	Is there any oxidation on the tip?	▶	Remove the oxidation. (See "9. Maintenance")

If you cannot find a solution in this manual, or if another problem occurs, please contact the distributors where you purchased the product.

HAKKO

HAKKO CORPORATION

HEAD OFFICE
4-5, Shiokusa 2-chome, Naniwa-ku, Osaka 556-0024 JAPAN
TEL: +81-6-6561-3225 FAX: +81-6-6561-8466
https://www.hakko.com E-mail: sales@hakko.com

OVERSEAS AFFILIATES

U.S.A.: AMERICAN HAKKO PRODUCTS, INC.
TEL: (661) 294-0090 FAX: (661) 294-0096
Toll Free (800) 88-HAKKO
https://www.HakkoUSA.com E-mail: Support@HakkoUSA.com

CHINA: HAKKO DEVELOPMENT CO., LTD.
TEL: (020) 8135-0112, 8135-0113, 8135-1086 FAX: (020) 8135-0181
https://www.hakko.com.cn E-mail: sales@hakko.gz.cn

SINGAPORE: HAKKO PRODUCTS PTE., LTD.
TEL: 6748-2277 FAX: 6744-0033
https://www.hakko.com.sg E-mail: sales@hakko.com.sg

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