HOZAN

INSTRUCTION MANUAL

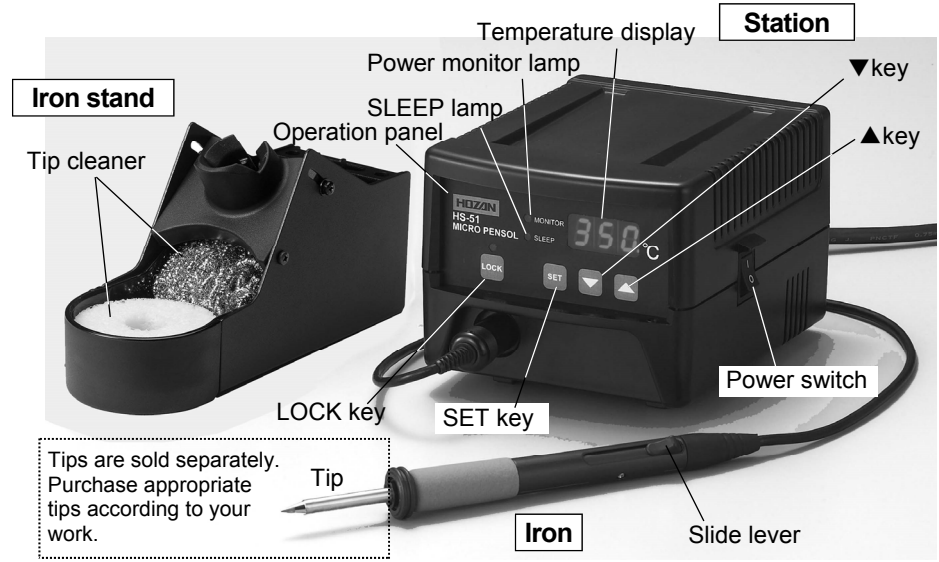
HS-51-220

EPA
ESD対策品

SOLDERING STATION

Thank you for purchasing the HOZAN HS-51-220 SOLDERING STATION. With proper care and handling, this fine instrument will provide years of trouble-free operation. Please read this entire instruction manual carefully before attempting to place this instrument in service. Please keep this instruction manual available for reference.

Identification of parts and contents



Specifications

Rated voltage / frequency	220V AC ±10%, 50/60Hz
Power Consumption	80W (soldering iron 72W)
Heater	Nichrome heater with sensor
Setting temperature	50-450℃
Standard tip	Tip (with build-in heater) is sold separately.
External dimensions	Station 115(W)X98(H)X146(D)mm Soldering iron Length 158mm x grip outer dia. 16mm

Weight	Station 1.8kg Soldering iron 28g (not including the cord)
ESD standard *Refer to p18	Ground resistance $Rg<1x10^{12}\Omega$
Power cord	1.2m

Warning and caution symbols

These symbols are used throughout the instruction manual to alert the user to potential safety hazards as follows :

⚠**Warning** ··· Notice when incorrect handling could cause the user's death or serious injury.

⚠**Caution** ··· Notice when incorrect handling could cause injury to the user or material damage.

Even if the instructions do not have ⚠**Caution** mark, there are some possibilities for a

Precautions

⚠ Warning

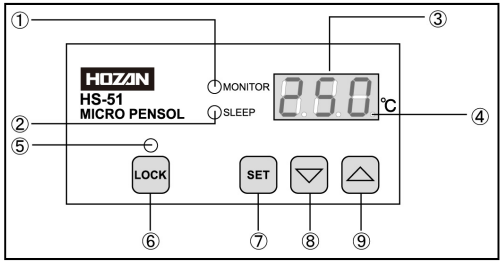
1. Use with the voltage described in the specifications of this instruction manual.
   Otherwise, this could cause a fire or malfunction.
2. Use only under combination of these station and iron.
3. Always connect to grounded line. Otherwise, this could cause not only incomplete electrostatic discharging measures but also irregular temperature control to the tip.
4. Do not handle energized components. This could cause a shock since the grip of the iron is made of conductive material.
5. Do not modify this product.
6. The tip becomes extremely hot. Never make the following things come closer to the hot area.
   - Human bodies such as hand, face and so on.
   - Highly volatile chemicals, such as alcohol and paint.

⚠ Caution

1. Place the station and iron stand on a level and stable surface without vibration.
2. Store in dry surroundings after use.
3. Do not stretch or tightly fold the internal cord or the power cord so as to avoid damaging these cords. This could cause a short circuit and a fire.
4. Scrub the oxides of the solder, flux on the tip with the sponge of the iron stand. If you remove the solder by swinging the iron around or by striking it on the edge of a desk or something, the heater breaks and your body get injured.
   Always water the sponge of the iron stand during use.

Explanation for the operating panel

Identification of the parts on the operating panel and functions are follows.



①Power monitor lamp

Illuminates when the power is supplied.

②Sleep lamp

Blinks when set sleep.
Blinks frequently 30 seconds before entering in sleep mode, and illuminates when in sleep mode.

③Display

Displays temperature, various letters when setting something.

④Alarm lamp

Blinks when out of upper and lower limit temperature.
Illuminates when auto-power-off function.

⑤Lock lamp

Illuminates when key locked.
Blinks when operating key lock setting.

⑥Lock key

Use when setting and releasing key lock.

⑦Set key

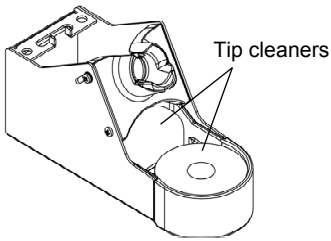
Use when setting all kinds of function.

⑧▲key, ⑨▲key

Use when setting for up and down the value.

Preparation

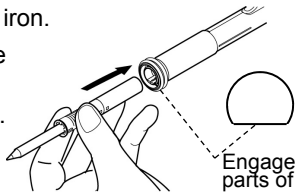
1 Put the tip cleaners, the wrapping of which must be removed, into the pit of the iron stand.

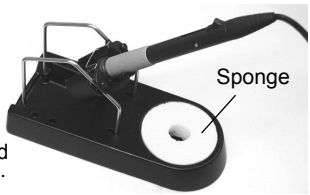


2 Attach a tip to the iron.

Put the iron on the iron stand.

Water the sponge.





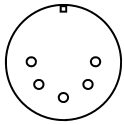
⚠ Caution

- The station must be revised according to the tip to be used. See page 5.
- Use the exclusive iron stand provided. Other than this could melt the iron.

Preparation

3 Connect the plug of the iron to the receptacle of the station.

The contact pins are fixed as the illustration. Engage the projection at the zenith with the zenith of the receptacle.



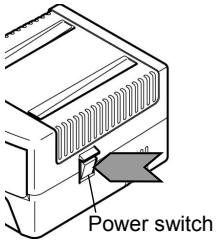
4 Be sure that the power switch is turned off, then connect the power plug to the wall outlet.

⚠ Caution

Always ground when use. This is important to prevent operator's electric shock and to protect the temperature control circuit from outer noises.

5 Prior to using a new tip, perform tinning (applying solder to the tip). Put solder to the tip and wait until solder melts.

Tinning is finished by that the surface is well covered.



⚠ Caution

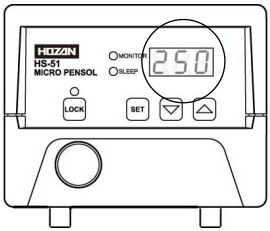
- If solder balls up and does not stick to the tip, this is too hot or an oxidation film has soiled the surface. Clean the tip, allow to cool, and begin again.
- The tip surface is apt to be oxidized if the iron is heated without load. Set less than 300℃. Previously put solder against the area to be soldered and wait until melts.

Operation

1 Turn the power switch on.

The temperature display will rise to 250 in an instant.

The station is set in 250℃ when shipping. Can be set from 50℃ to 450℃, but does not drop under the surrounding temperature.



Changing the set of using temperature

[Example] Changing the using temperature from 250 ℃ to 340℃.

Press the SET key.

Displayed

Press the ▲key to display 340.
When hold pressing, the display changes quickly. If pass the aim number, collect by clicks of the ▲key and the ▼key.

Press the SET key. Setting is completed.
If nothing is pressed for 30 seconds, the temperature automatically returns to the temperature setting before it was changed. The tip temperature will remain unchanged.

- Setting the temperature over 50℃ higher than the sleep temperature, which is explained on page 6, is necessary.

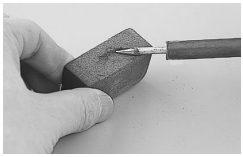
2 When finishing work, return the iron back to the iron stand.
Store in a safety place after turning the power switch off and pull the power plug from the outlet.

⚠ Caution

The tip has a precise temperature sensor which reacts to methodically soldering load and keeps temperature near the setting in close cooperation with the station. Therefore, never set to unnecessary high temperature foreseeing temperature dropping. Please set to temperature minimum to melt solder. This avoids damaging electro components.

Periodical inspection for the tip

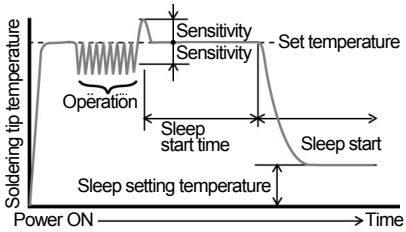
Temperature can not be properly managed if the tip surface is covered with carbide or oxide film. Periodical inspection and cleaning are recommended. Polish with such as the K-142 Polishing pad. Do not use a coarse file or coarse paper.



Sleep function

The sleep start timer function automatically lowers the temperature of the tip after a preset period of inactivity. This function reduces power consumption and helps extending soldering tip life. This sleep function can be used with the auto power off function (see page 8) together.

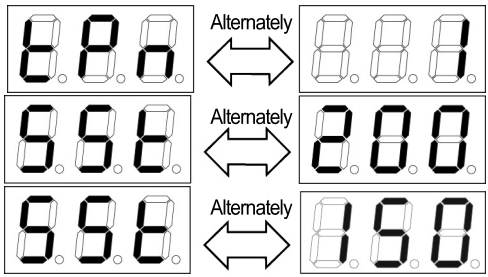
Explanation for sleep function



Setting the sleep temperature

[Example] Changing the sleep temperature from 200℃ to 150℃.

Displayed

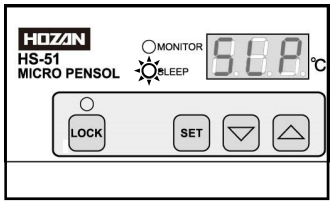


SET Press and hold the SET key until the display turns to “tPn” after temperature blinks.

SET Press the SET key to display “SSt”.

Press the ▲key until the display changes to 150.

SET Press and hold the SET key until the set using temperature is displayed. Setting is completed. The tip will keeps 150℃ when the unit becomes in sleep function.

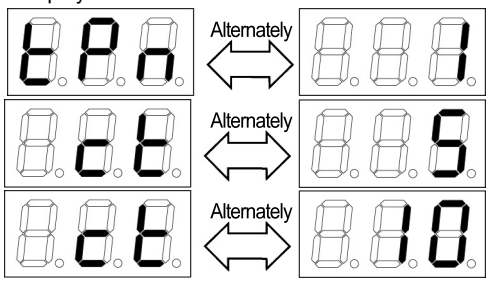


- While setting the sleep function, the SLEEP lamp will blink.
- The blinking of the SLEEP lamp will increase 30 seconds before entering sleep mode. When the soldering station has entered sleep mode, the SLEEP lamp will change from blinking to continuously lit, and the display will alternate between “SLP” and the temperature.
- The dot under and right of the temperature display will illuminate when the tip temperature is in the sleep sensitivity and turn off when out of the sleep sensitivity.
- Sleep temperature must be set over 50℃ lower than using temperature setting.

Setting the sleep start time

[Example] Changing the sleep start time from 5 minutes to 10 minutes.

Displayed



SET Press and hold the SET key until the display turns to “tPn” after temperature blinks.

SET Press the SET key to display “ct”.

Press the ▲key until the display changes from 5 to 10.

SET Press and hold the SET key until the set using temperature is displayed. Setting is completed. The unit will sleep if there is no work over 10 minutes.

Sleep function

Canceling the sleep function

If set the sleep start time to 0.00, the sleep function will be turned off and the sleep lamp will go out.

Returning from the sleep function

To return from the sleep function, do one of the procedures below.

1. Press any key on the control panel.
2. Let the tip contact to the watered sponge.

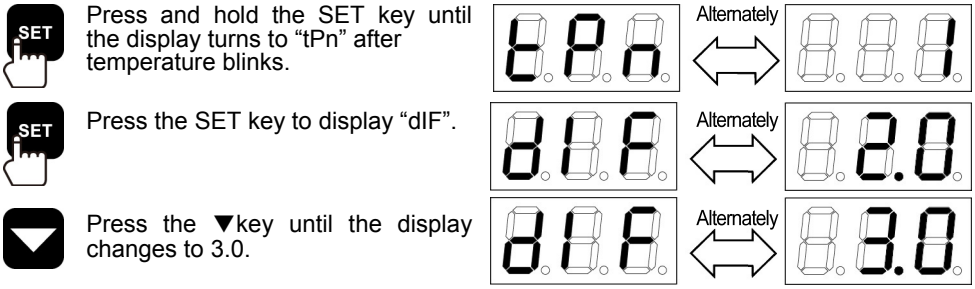
If setting the sleep temperature to less than 100℃, only the procedure 1. is effective.

Setting the sleep sensitivity

The set sleep sensitivity, as the standard for considering that there is no work, is changeable. The unit is set to 5℃ when sipping, and will be in the sleep mode if the condition that the tip temperature does not rise or drop over 5℃ continues over the set sleep start time.

[Example] Changing the sleep sensitivity from 5℃ to 3℃

Displayed



- Sleep sensitivity value can be set anywhere between 0℃ and 100℃.
  If it is set too high, there is a possibility that the sleep function will be activated even during soldering. If this happens, reduce the sleep sensitivity value.

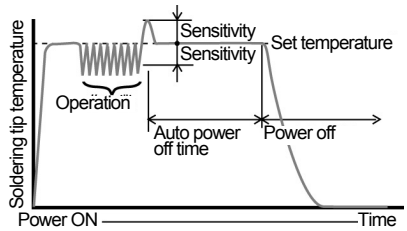
Information

- To use sleep function manually during the operation, press and hold the ▼key for one second continuously. This function is very useful for such as leaving the work booth temporarily.
- Only for the first time after power on, the longer value of twice of the set time or 10 minutes is applied.

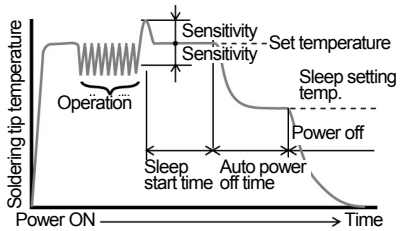
Auto power off function

When the unit is not operated during the preset time, the unit is automatically turned power off. Even if the use forgets to turn off the unit, this auto power off function works to keep the unit inactive, and prevent accidents such as fire.

Explanation for auto power off



Auto power off and sleep function jointly

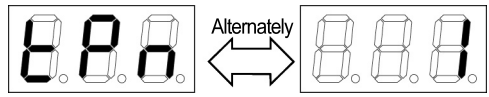


Setting the auto power off start time

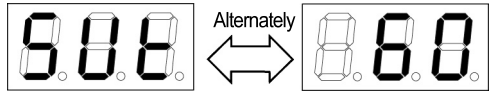
[Example] Changing the auto power off start time from 60 minutes to 30 minutes.

Displayed

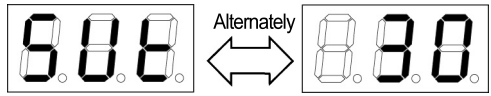
Press and hold the SET key until the display turns to “tPn” after temperature blinks.



Press the SET key to display “SUt”.



Press the ▲key until the display changes to 30.



Press and hold the SET key until the set temperature is displayed.
Setting is completed. Power will be turned off if there is no work for 30 minutes.

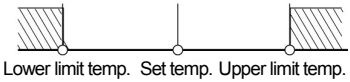
- When auto power off time value is set to 0, the auto power off function is off.
- “Sdn” and the temperature are displayed alternately while the unit is in the auto power off mode and the LED under the one digit on the temperature window alone lights when the temperature becomes lower than 50℃.
- To use the unit again after auto power off, turn the power off and then on again.

Setting the temperature range for the alarm

This is the function that informs the temperature condition detecting the difference of set temperature and the actual tip’s temperature.

When the tip’s temperature becomes out of set temperature, the buzzer will sound continuously and the alarm lamp will blink.

Explanation for alarm function



Each limit of upper and lower temperature is able to set to 3℃ to 100℃. If set to a small value than 3, the alarm is canceled and [- - -] is displayed.

The upper and lower limits are set to 50℃ initially by the manufacturer.

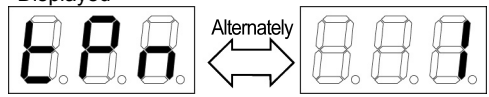
Setting the temperature range for the alarm

Setting the range of alarm temperature

The upper and lower limit values are set to 50℃ when shipping.

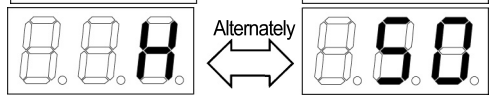
Displayed

Press and hold the SET key until the display turns to “tPn” after temperature blinks.

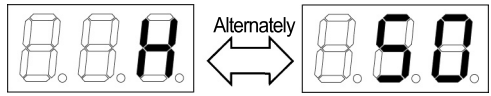


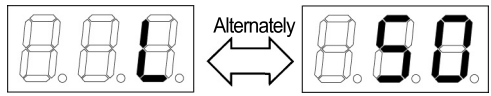
Press the SET key to display “H” or “L”.

“H” means upper temperature limit.
“L” means lower temperature limit.



Change the setting using the▲and ▼keys.





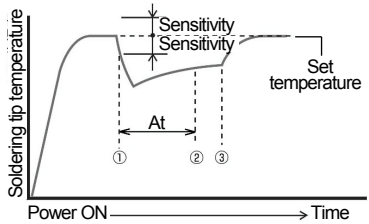
Press and hold the SET key until the set temperature is displayed.
Setting is completed.

Setting the soldering time for the alarm

This is the function that informs when the tip is applied to the object beyond the set time sounding the buzzer to prevent breaking objectives.

The alarm range can be set to 0.3 to 30 seconds. If set to a small value than 0.3, the alarm is canceled and [- - -] is displayed.

Explanation for soldering time



①The tip temperature becomes to out of the sensitivity and starts the soldering temperature (At).

②The soldering time passes and the buzzer sounds (the display flushes two times.

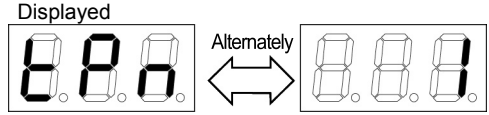
③The operator separates the soldering iron from the object.

Setting the range of soldering time

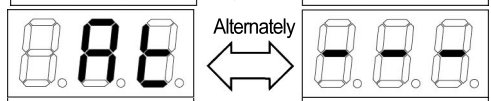
[Example] Setting the soldering time for alarm to 1.5 seconds.

Displayed

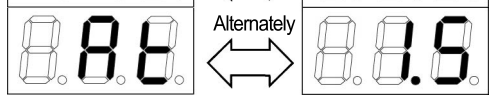
Press and hold the SET key until the display turns to “tPn” after temperature blinks.



Press the SET key to display “At”.



Press the ▲key to change [- - -] to 1.5.

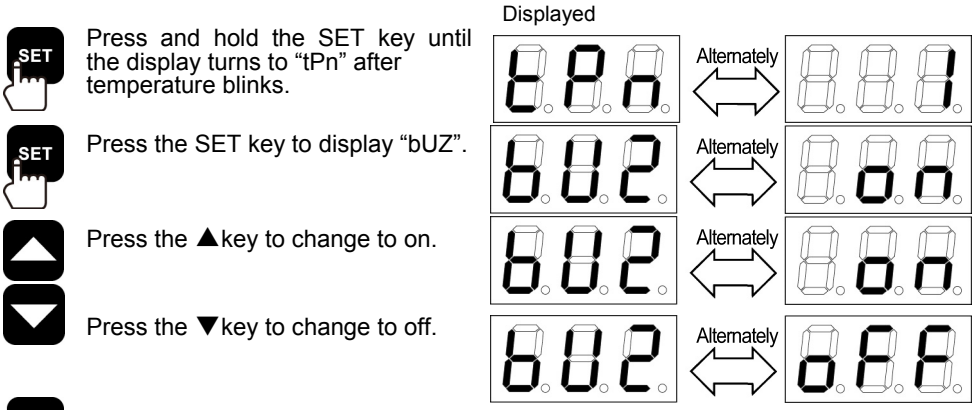


Press and hold the SET key until the set temperature is displayed.
Setting is completed.

Setting the buzzer sound

This setting switches the buzzer on and off. The initial setting is on (the buzzer sounds). Set to off for mute (no sound).

Setting the buzzer sound ON/OFF

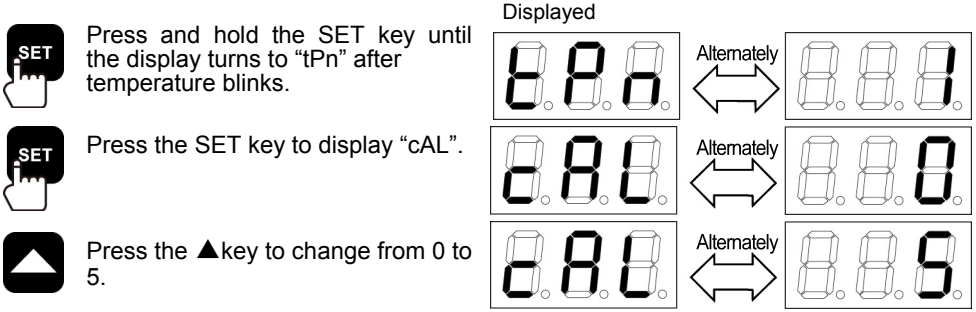


Calibration function

The unit displays certain temperature since the iron has a precise inner temperature sensor. However, in some cases it is slightly different than values actually measured by a thermometer.
If you give priority to the results measured by a thermometer over this unit’s display, please calibrate the unit as follows.

How to calibrate the temperature

[Example] When the set temperature is 300℃, thermometer value is 295℃, and the calibration value to be input is 5.



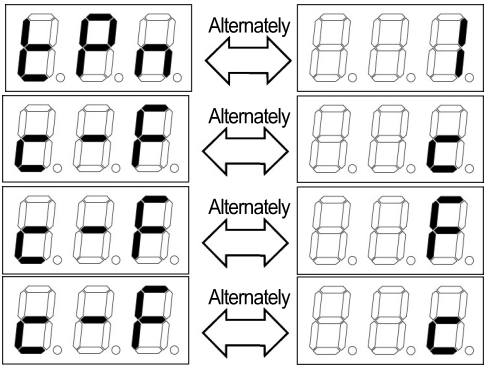
- This calibration should be carried out while being revised according to tip type explained on page 5.

Changing the scale

Temperature is displayed by Celsius scale. This can be changed to Fahrenheit scale if desired.

Setting the scale to Fahrenheit scale

Displayed



SET Press and hold the SET key until the display turns to “tPn” after temperature blinks.

SET Press the SET key to display “c - F” “ c”.

▲ Press the ▲key to change to “c - F” “ F”.

▼ If change to Celsius scale from Fahrenheit scale, use the ▼key.

SET Press and hold the SET key until the set using temperature is displayed. The scale was changed to Fahrenheit scale. Hide the “℃” stamped on the panel.

Parameters

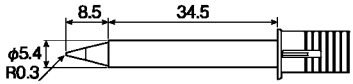
Term (display panel letters)	Display panel	Range	Unit	Shipping default setting
Set using temperature		(SSt+50) —450	℃	250
Revise No. (tPn)	tPn	0—4	—	1
Temperature calibration (cAL)	cAL	-50—50	℃	0
Sleep temperature (SSt)	SSt	0—(Pt-50)	℃	200
Sleep start time (ct)	ct	0.00—999	minute	5
Sleep sensitivity (dIF)	dIF	0—20.0	℃	2.0
Auto power off start time (SUt)	SUt	0—999	minute	60
Soldering time (At)	At	- - -, 0.3—30	second	- - -
Upper limit (H)	H	- - -, 3—100	℃	50
Lower limit (L)	L	- - -, 3—100	℃	50
Buzzer (bUZ)	bUZ	on/off	—	on
Changing the scale	c-F	c/F		c

Options

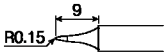
Tips

Purchase appropriate tips according to your work.

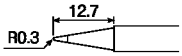
HS-51B03



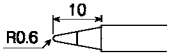
HS-51B01



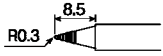
HS-51B02



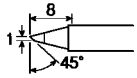
HS-51B04



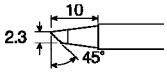
HS-51B09



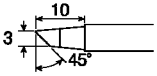
HS-51BC01



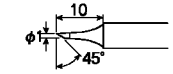
HS-51BC02



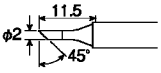
HS-51BC03



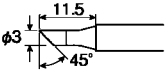
HS-51C01



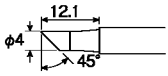
HS-51C02



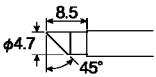
HS-51C03



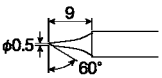
HS-51C04



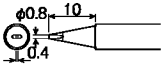
HS-51C05



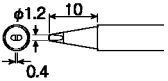
HS-51C06



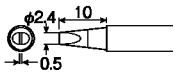
HS-51D01



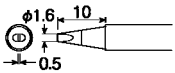
HS-51D02



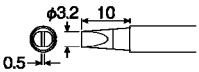
HS-51D03



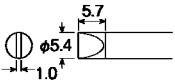
HS-51D04



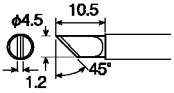
HS-51D05



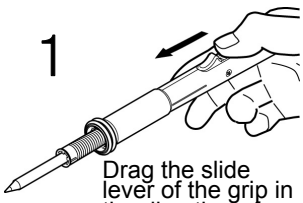
HS-51D06

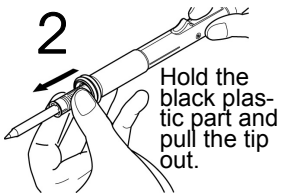


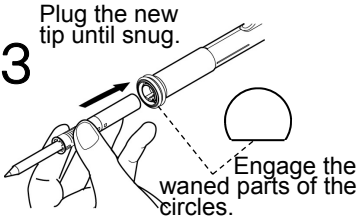
HS-51K02



How to change the tip







⚠ Caution

- Insert the tip securely until snug. Otherwise, the tip does not function properly.
- Before replacing the tip, disconnect the power plug from the wall outlet and allow the soldering iron to cool to room temperature.

Store the removed tips on the iron stand.

Temperature revision when changing the tip

When changing the tip to different type of tip, revision of the tip temperature is required before starting soldering work.
Please reset as follows according to the number with a circle stamped near the root on the tip.
If change to a tip which has the same revise number, revision is unnecessary.

Revision according to the tip type

[Example] Set revise No. from ① to ②.

Displayed

Press and hold the SET key until the display turns to “tPn” after temperature blinks.

Press the ▲key to display “2”.

Press and hold the SET key until the set using temperature is displayed.

Replacement parts

HS-51-1 Tip cleaner (sponge)

HS-51-2 Iron stand

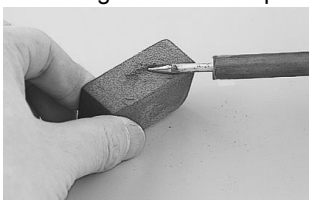
HS-51-3 Iron, complete

HS-51-4 Tip cleaner (wire)

Relational product

K-142 Polishing pad

Polishing the oxidized tip



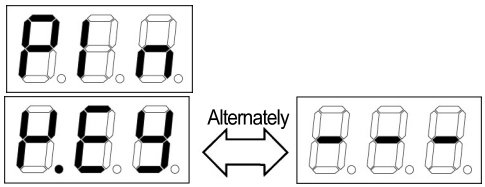
Key lock function

The key lock function locks the temperature and parameter settings. Therefore, the temperature and parameters cannot be changed by any unauthorized personnel. Authorized personnel may use a code number to set, or release the key lock function. The unit is not locked when shipping.

Setting the cord number

[Example] Setting the cord number 123.

Displayed



LOCK Press the LOCK key.

▲ ▼ Press the ▲and ▼key to display 123.

LOCK Press the LOCK key.
Number 123 blinks 5 times.
The unit is locked.

- Only one cord number can be registered.

How to release/lock

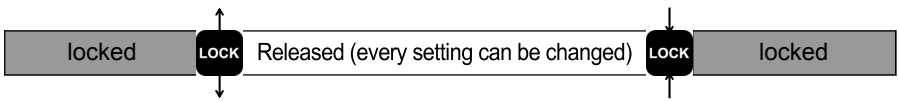
Each setting can be changed when locking is released.
It is locked when this operation is done under the lock released state.
It is release when this operation is done under the locked state.

LOCK Press the LOCK key.

▲ ▼ Press the ▲and ▼key to display the registered cord number.

LOCK Press the LOCK key.
Number 123 blinks 5 times.
The unit is released (locked.)

- Each settings explained on pages 4-10 when the unit is locked.
- If leave under lock released state, everyone can change every setting.
- If an incorrect code number is input, the display will show “nG”, and return to the initial display.



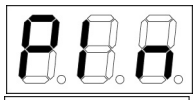
Key lock function

Changing the cord number

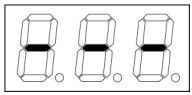
[Example] Changing the cord number from 123 to 234.

Displayed

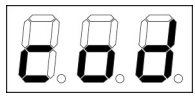
LOCK Press the LOCK key.



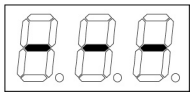
Alternately



LOCK Press and hold the LOCK key until the display turns to display as bottom of the right illustration, after turned to “cod”.



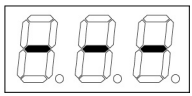
Alternately



using the ▲and▼ keys, display the usual cord number 123.

LOCK Press the LOCK key.

Alternately



using the ▲and▼ keys, display the new cord number 234.

LOCK Press the LOCK key.
Number 234 blinks 5 times.
The cord number is changed to 234.

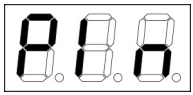
Key lock function

Resetting the personal identification number

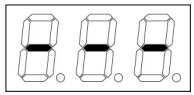
This procedure releases the key lock function which means that unauthorized personnel can change temperature and/or parameter settings. Please tear and keep this page separately with authorized personnel.

Displayed

LOCK Press the LOCK key.

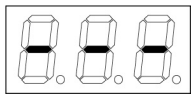


Alternately

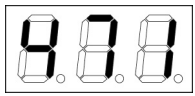


SET ▲ Press and hold the LOCK key and the ▲key simultaneously until the display turns to “dEc”.

Alternately



▲ ▼ using the ▲and▼ keys, display 471.



LOCK Press the LOCK key.
Number 471 blinks 5 times.
The personal identification number is reset.

Memo

Recording the registered number is recommended.

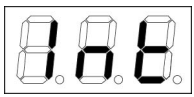
The whole initialization

Treating this procedure makes all the settings except the personal identification number are reset to the initial state from the manufacturer.

Initializing all the setting

SET ▲ ▼ Press and hold the ▲ and ▼keys while the setting temperature is displayed.

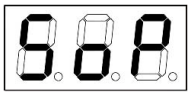
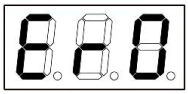
After “Int” blinks 5 times,
The temperature is displayed.



All the settings are initialized.

Trouble shooting

Following cases are not serious conditions. Check carefully with guide and take suitable steps.

Error message	Cause	Countermeasure
	The tip is set loosely. The sensor or circuit in the tip is down.	Check the tip setting. If set loosely, insert it Securely. Replace the tip or the iron with a new one. This message is also displayed when changing the tip. Please press any keys on the panel to reset.
	Memory error.	The password and/or parameter are in the initial condition. Setting again will provide trouble-free operation. If occurs frequently, ask to repair.
	Sensor error, heater error.	The sensor in the tip and/or the heater may be damaged. Replace the tip with a new one. Turn the unit OFF and turn it ON again.
	Sensor error.	There is a problem with the sensor. Replace the tip. Turn OFF the unit, and then turn the power switch ON again after changing the tip.

Antistatic standards

HOZAN's ESD-safe products are controlled with reference to the Japanese standard (RCJS-5-1*) which is based on the international standard (IEC61340-5-1).

Products which bear the "  " mark are products to which the standard values (see table below) apply. The "ESD Standard" listed on each of the product pages denote the HOZAN standard for the product.

ESD-safe item requirements (Excerpted from RCJS-5-1:2014)

【Item-specific requirements】

	EPA ground resistance or resistance Rg (Ω) of groundable point	Charge decay *2
Tool	$Rg < 1 \times 10^{12}$ *1	

【System requirements】

Tool system		Less than 2 secs. from initial value (Max. 1,000 V) to 10 %

*1. . . There is no prescribed "minimum resistance" value for protecting an ESDS device. However, such a minimum resistance is required in some cases to ensure safety. For details, refer to the following standards:IEC61010-1, IEC60536, IEC60364.

*2. . . A charge decay is required in case where the surface resistance, point to point resistance, or the groundable point resistance exceeds 1 X 10^{00} Ω and in case where the material is not homogeneous, and/or has insulated portion.

* Reliability Center for Electronic Components of Japan (RCJ).
"Protection of Electronic Devices from Electrostatic Phenomena-General Requirements" (RCJS-5-1)

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