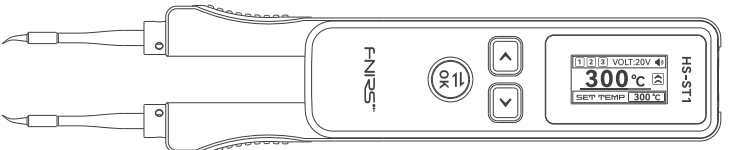
FNIRSI

HS-ST1

MINI Smart Tweezers Soldering Iron User Manual V1.1



※Please read this instruction manual carefully before using the product and keep it properly.

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1.Safety Requirement

Please read this user manual carefully before using the product. This manual contains important safety information. Keep it in a safe place for future reference. Please visit our website for the latest version of this manual.

1.1 User Notice

- Thank you for purchasing this product. To ensure proper operation, please follow the instructions provided in this manual.
- This manual contains detailed information on product operation, precautions, and maintenance. Please read it carefully before use to achieve optimal performance.
- Do not use the device in flammable or explosive environments.

1.2 Safety Precautions

- Always wear appropriate personal protective equipment (PPE), such as safety glasses, when soldering.

- Ensure that the work area is well ventilated to avoid inhaling soldering fumes.
- Do not touch the soldering tips or heating elements while the device is operating or cooling down, as they can reach extremely high temperatures.
- Ensure that the power supply meets the device requirements (9V–28V, up to 140W).
- Disconnect the device from the power source before maintenance or when not in use.
- Do not operate the device if it is damaged or malfunctioning.

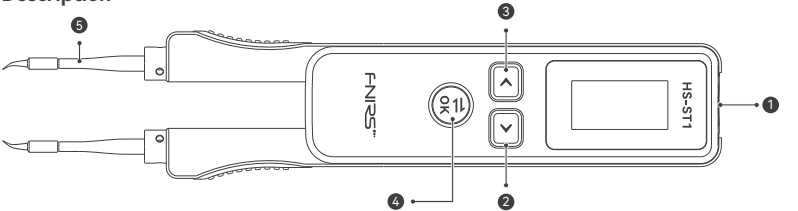
2.Product Overview

2.1 Product Introduction

The HS-ST1 is an innovative 2-in-1 portable soldering tool designed for precision soldering, SMT (Surface Mount Technology), and micro-soldering applications. It functions as both a single-sided heating soldering iron and a double-sided heating hot tweezer, offering

flexibility and portability without the need for a bulky separate workstation. Equipped with rapid heating, intelligent temperature control, and multiple power input options, the HS-ST1 is a highly efficient tool for various electronic repair tasks.

2.2 Product Description



① DC Input / USB Type-C Power Port

② Main Screen:Short Press - Increase temperature manually，Long Press - Rapid temperature increase

Settings Menu:Short Press - Switch options / Adjust parameters

③ Main Screen:Short Press - Decrease temperature manually，Long Press - Rapid temperature decrease

Settings Menu:Short Press - Switch options / Adjust parameters

④ Short Press - Confirm / Switch options，Long Press - Return

Long Press on Ready Screen - Enter Settings Menu

⑤ Soldering Tip

3.Technical Specifications

Model	HS-ST1	Power Supply	DC/Type-C
Operating Voltage	9-28V	Power	140W（Maximum ）
Temperature Range	100℃-450℃ (212℉-842℉)	Soldering Tip	C210
Charging Protocol	PD3.1 / QC3.0	Screen	0.96-inch IPS HD Color Display

4.Operating Instructions

4.1 Main Screen Overview

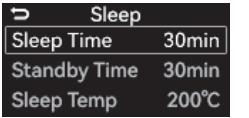
① Preset Temperature
② Input Voltage
③ Sound ON/OFF
④ Tip Temperature
⑤ Heating Status
⑥ Set Temperature



4.2 Settings Menu Description

4.2.1 Sleep Settings

Sleep Time: In the Sleep Settings menu, short press the ∧ / ∨ buttons to select "Sleep Time", then short press the ⇄ OK button to enter. Short press ⇄ OK again to toggle between ON/OFF. When set to ON, use long or short presses of the ∧ / ∨ buttons to adjust the desired time (range: 0-30 minutes). Default is 30 minutes. Long press ⇄ OK to return to the Sleep Settings menu.



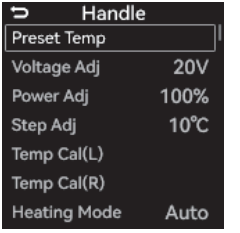
Standby Time: In the Sleep Settings menu, short press the ∧ / ∨ buttons to select "Standby Time", then short press the OK button to enter. Short press OK again to toggle between ON/OFF. When set to ON, use long or short presses of the ∧ / ∨ buttons to adjust the desired time (range: 0-30 minutes). Default is 30 minutes. Long press OK to return to the Sleep Settings menu.

Sleep Temperature: In the Sleep Settings menu, short press the ∧ / ∨ buttons to select "Sleep Temp", then short press the OK button to enter. Use long or short presses of the ∧ / ∨ buttons to set the temperature (range: 100-200℃). During sleep mode, the temperature will adjust to this set point. Long press OK to return to the Sleep Settings menu.

4.2.2 Handle Settings

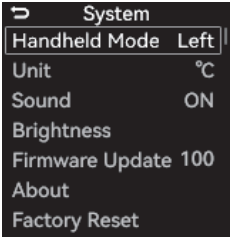
Setting Item	Function	Parameters Options
Preset Temp	Supports three preset temperatures for quick switching between commonly used settings	100℃~450℃
Voltage Adjust (PD)	Adjusts the supply voltage of the heating element to match different heater cores	9V/12V/15V/20 V/28V

Setting Item	Function	Parameters Options
Power Adjust	Limit the maximum output power/current to protect the heating core and control circuit.	10 ~ 100% (Stepped adjustment)
Step Adjust	Set the temperature increment/decrement step value when pressing the buttons	1~50
Temp Calibration (Left)	Calibrate the actual temperature vs. displayed temperature for the left handle	150℃/250℃/350℃
Temp Calibration (Right)	Calibrate the actual temperature vs. displayed temperature for the right handle	150℃/250℃/350℃
Heating Mode	Select the heating control logic for the handles	Auto / Dual / Left / Right



4.2.3 System Settings

Setting Item	Function	Parameters/Options
Handheld Mode	Adapt to left or right-hand operation preference	Left, Right
Unit	Change the temperature display unit	℃, ℉
Sound	Turn the system sound on or off	ON, OFF
Screen Brightness	Adjust screen brightness	10% – 100%
Firmware Update	Enter firmware update mode	Enter BOOT
About	View system information	View Model & Version



Setting Item	Function	Parameters/Options
Factory Reset	Reset all settings to factory defaults	Confirm

5.Quick Start

5.1 Operating Workflow

5.1.1 First-Time Startup (New Device)



When powering on the device for the first time, complete the following setup steps in sequence:Select Hand Preference,Select Temperature Unit and Select Power Supply Voltage.After completing these three settings, the device will enter the standby screen.

5.1.2 Daily Startup Procedure



Startup Logo **Standby** **Main Interface** **Sleep**

The HS-ST1 portable tweezer soldering iron workflow is shown in the diagram above. After power-on, the device displays the startup logo. Once the logo disappears, it enters Standby Mode. From the Main Interface, you can start heating.Once in the Main Interface, the soldering iron is in normal operating state, which includes the following four modes:

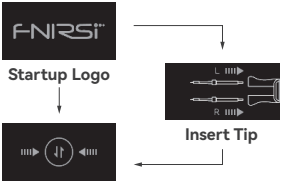
- **Working State:** In this state, the soldering iron is either actively heating or has reached the set temperature.
- **Sleep State:** When the soldering iron is in the heating/working state, if the Sleep function is enabled and the device remains idle (not moved or used) for longer than the set Sleep Time, it will enter Sleep State. Shake the handle or press any button to wake it up.
- **Standby State:** Standby State: The device automatically enters Standby Mode when powered on. Additionally, if the soldering iron is in Sleep State and the Standby function is activated, it will transition to Standby State after remaining idle (no movement or button presses) beyond the configured Standby Time.To resume Working State from Standby State, simply press the OK button briefly.
- **Power-Off Mode:** Disconnect the power supply to turn off the device.

※**Note:** Do not touch any high-temperature parts while the soldering iron is heating or has reached operating temperature.

5.2 Basic Settings

- **Power On:** Connect the power source. The screen will show the startup logo and then automatically navigate to the Standby Interface. At this point, the device will prompt you to insert the soldering tip (accompanied by a buzzer alert). The interface will advance to the Standby page automatically once the tip is properly installed.

- **Heating:** While in Standby Mode, short press the ⇄ OK button to access the Heating page and begin heating the tip.
- **Temperature Setting:** In Working State, short press the ∧ button to raise the set temperature by one step, or short press the ∨ button to lower it by one step. The temperature can be set within the range of 100℃ to 450℃.



5.3 Firmware Upgrade

There are two methods:

①Power off the device. Press and hold the ⇄ OK button, then connect the device to your computer via USB Type-C cable to power it on. This will enter the Bootloader interface for firmware upgrade.

②Select "Firmware Update" in the System Settings menu to enter the Bootloader interface. In the Bootloader interface, briefly press the ⇄ OK button to manually exit and restart the device.

6.Troubleshooting

Problem	Possible Cause	Solution
Device does not power on	No power connected, incompatible power supply, or damaged cable	Ensure a compatible power source is connected (9V–28V, up to 140W). Check whether the Type-C cable or DC5525 cable is damaged
Tip is not heating	Tip is not inserted properly, device is in Sleep/Standby mode, or insufficient power.	Re-insert the tip. Wake the device from Sleep/Standby by pressing a button or moving it. Ensure the power supply can provide sufficient wattage.
Temperature is unstable or inaccurate	Tip is dirty, oxidized, or needs calibration.	Clean and re-tin the tip. Perform temperature calibration following the user manual or official documentation.

Problem	Possible Cause	Solution
Difficulty picking up components with tweezers	Incorrect tip shape for the component, or improper technique.	Ensure you are using the correct tip shape for the component. Practice proper tweezer operation and component alignment.
Device enters Sleep mode too quickly	Sleep time setting is too short.	Adjust the "Sleep Time" setting in the device menu.

7.Maintenance

- Tip Cleaning: Clean the soldering tip regularly using a damp sponge or brass wool. This practice helps prevent oxidation and maintains efficient heat transfer.
- Tinning: After each cleaning session and prior to storage, be sure to coat the tip with a thin layer of fresh solder. This protective layer prevents the tip from oxidizing during storage.

- Storage: When not in use, place the HS-ST1 in its carrying case and store it in a dry, dust-free environment.
- Device Cleaning: Wipe the device body gently with a soft, dry cloth. Avoid using abrasive cleaners or harsh solvents, as they may damage the surface.
- Temperature Calibration: The device features temperature calibration and compensation functionality to ensure long-term accuracy. For detailed calibration instructions, please consult the device menu or refer to the official documentation.

8.Contact Us

Product Name: MINI Smart Tweezers Soldering Iron

Model: HS-ST1

Manufacturer: Shenzhen FNIRSI Technology Co.,Ltd.

Address: 8th Floor, West Side, Building C, Weihua Da Industrial Park, Dalang Street, Longhua District, Shenzhen, Guangdong, China

Tel: 0755-28020752

Service Email: support@fnirsi.com

Business Email: business@fnirsi.com

Website: www.fnirsi.com

Standard Implemented: GB/T 7157-2019

9.Warranty Instructions

※This page is the basic warranty card. Please keep it.

Thank you for choosing our product. This product is entitled to warranty service starting from the date of purchase. During the warranty period, if the product is installed, operated, and used in accordance with the requirements of the user manual, and under normal operating environments and conditions, and if a fault occurs due to defects in materials or manufacturing workmanship, our company will provide free repair service in accordance with the terms of this warranty. Please keep this warranty card properly and present it as proof of warranty when requesting repair. If the warranty card is lost, it will not be reissued.

The following situations will incur paid repair services:

- Unable to present the original valid warranty card.
- Damage caused by improper installation not meeting product requirements, standards, or relevant regulations.
- Damage caused by accessories in the installation environment not meeting product requirements, standards, or relevant specifications.
- Damage caused by improper use, improper storage, unauthorized disassembly, or unauthorized repairs by the user.
- Expiration of the warranty period.

Warranty Card

Product Model	**HS-ST1**	**Qty.**		**Distributor Name** (Where to buy)	
Contact		**Invoice Number** (Order Number)		**Distributor Address**	
Purchase Date	**Day**	**Month**	**Year**		

User Name:	**Address:**	**Contact:**	**Fault Description:**



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