

TS80 Smart Soldering Iron

User Manual v1.1

Please read this manual before using this device.
This user manual is based on APP1.06.

Contents



1. Safety Statement	.....	P1
2. Overview	.....	P3
3. Power Adaptor Selection	.....	P5
4. Operation	.....	P6
5. Soldering Iron Tip	.....	P15
6. Trouble Shooting Guide	.....	P17
7. Service	.....	P19
8. Legal Statements	.....	P21

1

Safety Statement

1.1 General Safety



- Use only certified power source/adaptors from your region. (please refer to 3.0 for specifications)
- Do not operate in humid environment.
- Do not operate in inflammable/explosive environment.
- Keep the surface of the product clean and dry.

1.2 Warnings



When using TS80,
Turn the power off when not in use, or left unattended.
When power is ON, tip temperatures will between 100°C~400°C (212°F~752°F), please be careful.
Please don't operate TS80 when it's wet or operate it with wet hands, which will cause an electric shock.

1.3 Cautions



The handle is constructed with precision, dropping shall be avoided.
After continuous use at 350°C up to 40 minutes, the handle surface temperature will reach 50°C~60°C.
For the first time using, TS80 may generate a light smoke due to the heating of heating elements, which is a normal phenomenon.

1.4 Liability Statement

Any damage of the product, or losses related to the product damage, if it's man-caused, or assumed to be man-caused, the liability will belong to the user.

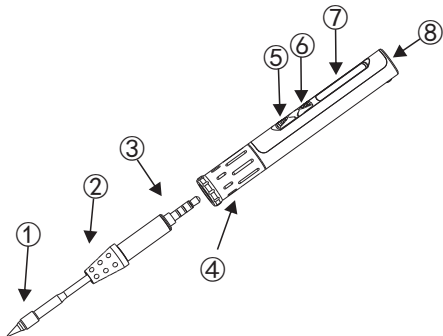
1.5 Working condition

	Operating Conditions		Non-Operating Conditions
Temperature	+0°C ~50°C		-20°C ~+60°C
Relative Humidity	High Temperature	40°C ~50°C 0%~60%RH	40°C ~60°C 5%~60%RH
	Low Temperature	0°C ~40°C 10%~90%RH	0°C ~40°C 5%~90%RH

2

Overview

2.1 Buttons and Interface



1. Tip heating area
2. Heat dispersion protector
3. Tip insert end
4. Fastener
5. Button A
6. Button B
7. OLED screen
8. USB Type-C port

2.2 Specifications

Screen		OLED
USB port		USB Type-C
Power port		USB Type-C
Dimensions	Operation unit	Length:96mm
	Heating unit	Length:100mm
Weight		36.5g (power adaptor not included)

2.3 Operation Specifications

Power	18W
Temperature range	100°C~400°C (max)
Temperature stability	±3%
Operation temperature under heat	40°C
Soldering tip resistance to the ground	< 2 Ω

3

Power Adaptor Selection

Please select power adapters certified by Qualcomm and marked with QC3.0 (9V 2A). It is required to check if the power adapter is marked to support QC3.0 (9V 2A) output before connecting the power adapter.

Note: TS80 will not work normally if the power adapter is not a standard QC3.0 power adapter or does not support a 9V 2A output.

TS80 does not support power adapters conforming to PD quick charge.

Working Voltage	Power	The minimum time needed to raise the temperature from 30°C to 300°C
9V	18W	22s

4

Operation

4.1 Installation



- 1) Insert soldering tip into the soldering controller;
- 2) Connect TS80 and power source with a USB Type-C cable, turn on the power and follow the instruction.

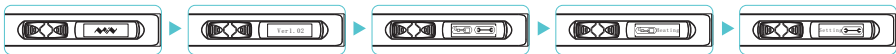
 **Note:** If “Sen-Err” appears on TS80 after power is on, it means the soldering tip is not installed securely, please install again.

4.2 Default Settings

Default temperature unit	°C
Default temperature	300°C (Default)
Sleep mode temperature	200°C (Default)
Adjustable temperature range	100°C~400°C (Max)

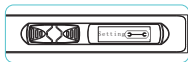
4.3 Basic operation

4.3.1 Screen interface



After power is on, TS80 will show personalized icon and firmware revision number, then shows standby mode in loops.

4.3.2 Parameter setting



- Short press “B” key in standby mode to enter setting mode; Short press “A/B” key in setting mode to select the set item needs to be modified and long press “A” key to enter modification mode; after entering modification mode, press “A/B” key to select the appropriate set value; and wait for 5s to return to setting mode after selecting set value.
- Long press “B” key to save the modification and return to standby mode after the setting is completed.

 **Note:** the functions of A and B keys are interchangeable in left hand mode (LH).

Option picture and corresponding parameters

Parameter Image	Parameter Name	Definition	Factory Defaults	Adjustable Range
WkTemp 300	Working Temperature	Working temperature	300	0-400°C
StbTemp 200	Sleep Temperature	Standby temperature when entering sleep mode	200	0-400°C
SlpTime 180	Sleep Time	The time needed to enter sleep mode from working mode when there is no operation	180	60-999s
Power 18	Power Setting	Operating power ^①	18	16-24W
TempStp 10	Temperature Step size	The step size for temperature increase or decrease when the temperature is set.	10	1-25
OffVolt 10.0	Protection Voltage	Protection voltage when working, if the input voltage exceeds the protection voltage, TS80 will stop heating and prompt it.	13.0	10.0-13.0V
Temp °C	Temperature Display unit	Temperature display unit, in Celsius degree (°C) or Fahrenheit degree(°F)	°C	°C/°F

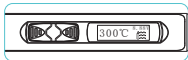
Parameter Image	Parameter Name	Definition	Factory Defaults	Adjustable Range
Hand RH	Left/right hand mode	Left/right hand use mode, screen display directions are reverse and key functions are interchangeable in different modes.	RH (right hand)	RH(right hand)/LH(left hand)
8.75V 26°C②	Solder tip calibration	Calibrate the solder tip currently in use ③		Long press "A" key for direct execution
Restore DFLT	Restore factory defaults	Restore factory defaults		Long press "A" key for direct execution

- ① The power adapter used shall support the power shown on set value. If the set value exceeds the maximum output power of power adapter, TS80 and power adapter may be damaged.
- ② Screen display temperature is not current room temperature and possibly there is a difference between them or the display value is "--°C" prior to calibration. After calibration, the display value may be close to room temperature.
- ③ Insert soldering tip into TS80 control end and let it stand for 10 minutes before solder tip calibration to ensure TS80 and soldering tip decrease are cooled to room temperature, and then turn on power for calibration; "Completed" will display after calibration; and "Retry later" will prompt if it fails to meet calibration conditions.

4.3.3 Heating operation

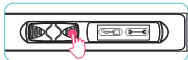


Short press “A” key in standby mode to enter working mode.



If the temperature rises to preset working temperature, you can start soldering, and TS80 will constantly remain in preset working temperature;

 **Note:** the number at the top right of the temperature indicates the current working voltage.



Long press “B” key to return to standby mode in working mode;

The temperature mode is shown in the figure below:



Arrows up-heating

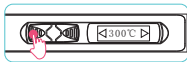


Arrows down-cooling

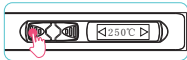


Horizontal lines- temperature stabilizing

4.3.4 Temperature regulation operation



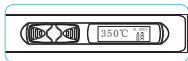
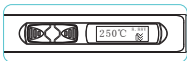
In working mode, long press “A” key to adjust temperature;



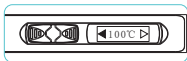
Lower the temperature: press “A” key;



Raise the temperature: press “B” key;

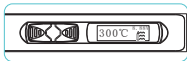


Wait for 5s after setting and then it will return to working mode automatically, the set working temperature will not be saved when power off.



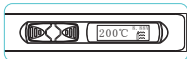
 **Note:** When screen displays solid arrow pointing to left or right (◀ or ▶) it means the adjustment has already reached its min/max temperature, settings will not be saved when power off.

Remark: Maximum temperature: 400°C.
Minimum temperature: 100°C.

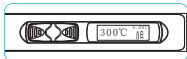


When TS80 reaches your set temperature, it will enter the automatic temperature compensation mode.

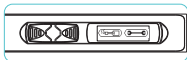
4.3.5 Standby mode



TS80 will enter sleep mode if it stands for 180s (factory defaults) in working mode and will cool down to sleep temperature (if the sleep temperature is higher than working temperature, it will keep at preset working temperature) ;



and TS80, when moving, will return to working mode automatically and will raise the temperature to working temperature (factory setting is 300°C);



TS80 will return to standby mode if it stands for 180s (factory defaults) in sleep mode.

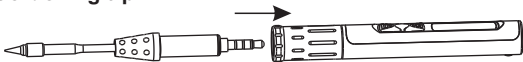
4.4 Configuration file

- 1) Connect soldering iron to computer with USB Type-C cable. A virtual disk will appear on computer, and now it enters setting mode;
- 2) Open config.txt file in virtual disk to set parameters.

Parameter Image	Parameter Name	Factory Defaults	Adjustable Range
StbTemp	Sleep Temperature	200	100°C ~ 400°C 212°F ~ 752°F (Temp=1)
WkTemp	Working Temperature	300	100°C ~ 400°C 212°F ~ 752°F (Temp=1)
SlpTime	Sleep Time	180	60~9999s
TempStp	Temperature Step size	10	1-25
OffVolt	Protection Voltage	130	100-130 (Unit 0.1V)
Temp	Temperature Display unit	0	0:°C, 1:°F
Hand	Left/right Hand mode	0	0:RH, 1:LH
ZeroP_Ad	Temperature Calibration		Automatic adjustment, not modifiable

 Note: See page to details of parameter definition; Config parameter setting will be updated to TS80 after saved.

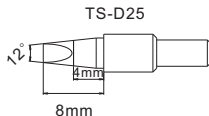
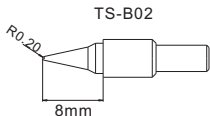
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Soldering Iron Tip**5.1 How to replace soldering tip**

- 1) Cut off power before replacing the soldering tip;
- 2) Pull out the old soldering tip and then insert the new one;
- 3) Turn on power. If "Sen-Err" appears on TS80 after power is on, it means the soldering tip is not installed securely and therefore shall be installed once again.

5.2 Choosing Soldering Iron Tips

 **Note:** Choosing the right tips will help you work more efficiently.



5.3 Soldering Tip Maintenance

- (1) Before switching off, wipe the tip's soldering side with some solder.
- (2) Do not leave the tip in high temperature for long time, which may cause it burn out.
- (3) Do not push too hard while soldering, which will damage the tip.
- (4) Do not use rough material or files to clean the tip.
- (5) If the tip surface is oxidized and makes it hard to apply solder on it, you may use 600~800 grit sandpaper to wipe the tip with Ethanol or Isopropyl alcohol, heat up to 200°C and apply solder immediately to avoid it oxidizing again.
- (6) Do not use Flux that contains high chlorine or acid, use only resin based flux.

Problem 1: No Display

Check 1: If the power supply or cable is broken

Check 2: Connect TS80 to computer, see if the computer has a USB connection or TS80 enters DEU mode

Problem 2: The temperature status display random numbers

Check 1: Means the machine is checking status, which is normal

Check 2: Is the soldering iron installed properly?

Check 3: Is the power cable in loose or defective contact?

Problem 3: Soldering iron restarts automatically

Check 1: Is it properly plugged into the power source?

Check 2: Is the voltage too low? (need to be set up in the config file)

Problem 4: OLED displays “Sen-Err”

Check 1: Is the soldering iron installed properly?

Check 2: If check 1 passes, then replace the soldering tip

Problem 5: The tip doesn't stick to the solder

Check if: 1. Tip temperature is over 400°C

2. The soldering side of the tip is not applied with solder properly
3. Lack of flux during operation
4. Rub the tip against dry or high sulfur sponge or fabric
5. Tip touched organic material like plastic, silicone oil or other chemicals
6. Using impure solder or solder that contains low proportion of tin

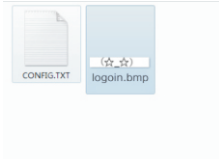
7.1 Standard Service

One year of free warranty will be provided, if the damage was not caused by false manipulation by the user. Please contact your seller for warranty details.

Tips are consumables products, once it's used, no replacement will be provided.

7.2 Changing Boot Up Screen

- 1) Create your own 96*16 pixel image save as BMP in single color bitmap, file name as "login.bmp";
- 2) Connect TS80 with computer, and enter the virtual disk;
- 3) Copy the bmp file to the root directory of the virtual disk, remove the connection to complete.



7.3 Firmware Update



1. Visit www.minidso.com and download the suitable TS80 firmware to your PC.
2. Hold TS80's "A" key, and connect TS80 to your PC with USB Type-C cable, to enter DFU mode. A display of "DFU3.45" will appear on the screen;
3. Copy the .hex firmware to the root directory of that disk. When the extension of the firmware changes from ".hex" to ".rdy", disconnect USB and the firmware is upgraded.

8.1 Disposal



Do not dispose this product with domestic waste

- This device complies with the WEEE Directive (this additional product label indicates that this electronic product must not be disposed of in household waste).
- Handling and recycle: Disposal of the product shall be manipulated according to laws and regulations in your area.

8.2 Statement of Fulfilling FCC Standard



This device fulfills part 15 of the FCC regulations Device must fulfill below 2 conditions:

- (1) Device must not generate interference;
- (2) Device must be able to resist any interferences on it, including interferences that could cause dangerous manipulation.

8.3 Statement of Fulfilling CE Standard



This product with CE logo on it fulfills related Euro Union laws and regulations.