



TS101

Miniware Smart Soldering Iron
User Manual



Read the entire manual carefully before first use, especially the safety statements in Chapter 1. The tip heats up to 400°C. Keep this manual for future reference.

Importer: Rotorama, s.r.o. · www.rotorama.com

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1. Safety Statements

Please read this user manual carefully before using the product. The user manual contains information on safe use; please keep it for future reference.

1.1 General Safety

- Please only use a power adapter/source specially designed for this product or certified by your country/region (see Chapter 3 for detailed power source requirements).
- Do not operate in a humid environment.
- Do not operate in a flammable and explosive environment.
- Please keep the product surface clean and dry.

1.2 Warnings

When using TS101:

- Please turn off the power when not in use or left unattended to prevent fire.
- After the power is turned on, the temperature of the soldering tip in operation will reach **50°C to 400°C** (122°F to 752°F), so be careful to prevent burns.
- Do not soak TS101 in water or use it with wet hands to prevent electric shock.
- Do not use the DC and USB-C interface at the same time.

1.3 Safe Working Practice

- The tip stays hot for some time after switching off. Let it cool down before storing the iron or replacing the tip.
- Only put the switched-on iron down on a non-flammable surface or in a stand. The anti-slip cap only acts as a simple rest that stops the iron from rolling.
- Do not touch power cables, plastic objects or other flammable materials with the tip.
- Work in a well-ventilated area and do not inhale flux fumes.
- Wear safety glasses when soldering. Wash your hands after work, especially when using lead-containing solder; do not eat or drink while soldering.
- Disconnect the power source when you have finished working.

1.4 Precautions

- The TS101 controller is composed of precision components; dropping shall be avoided.
- After 5 minutes of continuous operation at full power above 350°C, or 40 minutes of continuous use, the controller temperature will reach above 50°C.
- When using for the first time, the soldering tip may generate a light smoke due to the heating of the heating element, which is a normal phenomenon.

1.5 Liability Statements

Any special, indirect, incidental or subsequent damage or loss caused by the operation of the product that does not follow the contents of this manual (including but not limited to the operating conditions, warnings, precautions, instructions, etc.) is the responsibility of the user.

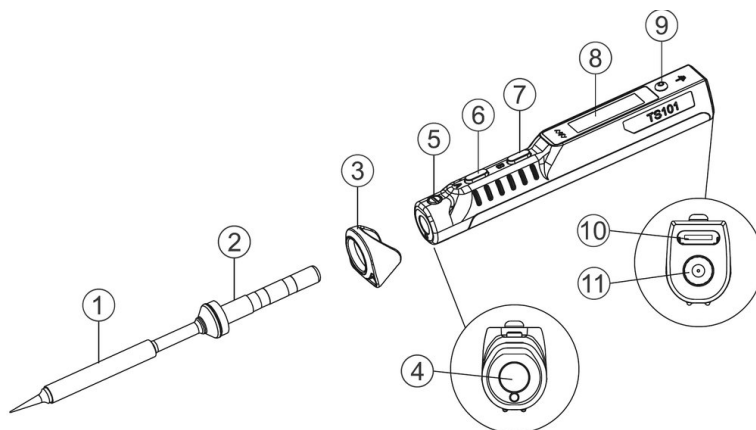
The user is responsible for any damage or loss caused by disassembling or modifying the product without permission. Please keep this product in a safe place to prevent children from using it without supervision.

1.6 Operating Environment

		Working state	Non-working state
Temperature		+0°C to +50°C	–20°C to +60°C
Humidity	High temperature	40–50°C, 0–60% RH	40–60°C, 5–60% RH
	Low temperature	0–40°C, 10–90% RH	0–40°C, 5–90% RH

2. Product Overview

2.1 Interface and Buttons



Parts of the TS101 soldering iron

- ① Soldering tip heating end
- ② Soldering tip connection end
- ③ Anti-slip cap
- ④ Soldering tip insertion end
- ⑤ Ball screw
- ⑥ Button A (heating, temperature adjustment)
- ⑦ Button B (setting, temperature adjustment)
- ⑧ OLED screen
- ⑨ Ground screw
- ⑩ USB Type-C interface
- (11) DC5525 interface

2.2 Product Parameters

Parameter	Value
Screen	OLED (128 × 32 pixels)
USB interface	USB Type-C (for power source and firmware upgrade)
DC interface	DC5525
Controller size	L 98 mm, ϕ 13-16.5 mm
Soldering tip size	ϕ 5.5 mm, L about 105 mm (different types of soldering tips are slightly different)

Parameter	Value
Controller weight	20 g
Working voltage and power	DC 9–24 V 65 W MAX / PD 45 W MAX
Temperature control range	50–400°C
Temperature stability	±3%
Soldering tip resistance to ground	< 2 Ω

2.3 Package Contents

- 1× TS101 soldering iron
- 1× TS-B2 soldering tip
- 1× USB Type-C cable
- 1× anti-slip cap

※ A power source (power adapter, PD charger), a cable with an XT60 connector and a ground wire are not included.

3. Power Source Selection

Smart Soldering Iron TS101 supports two power inputs: a DC power source with the **DC5525 (9–24 V)** interface (including power adapter, power supply or battery pack, etc.) and a PD power source with the **USB Type-C (9 V and above)** interface (including charger, power bank, etc.).

► DC power source

Please check that the power source meets the following requirements:

Working voltage	Working current	Power	Fastest time to heat up from 30°C to 300°C
9 V	≥ 1.0 A	9 W	95 s
12 V	≥ 1.3 A	16 W	43 s
16 V	≥ 1.8 A	30 W	22 s
19 V	≥ 2.2 A	40 W	15 s
24 V	≥ 2.8 A	65 W	9 s

► PD power source

Please select a standard PD power supply that supports more than 9 V with the following parameters:

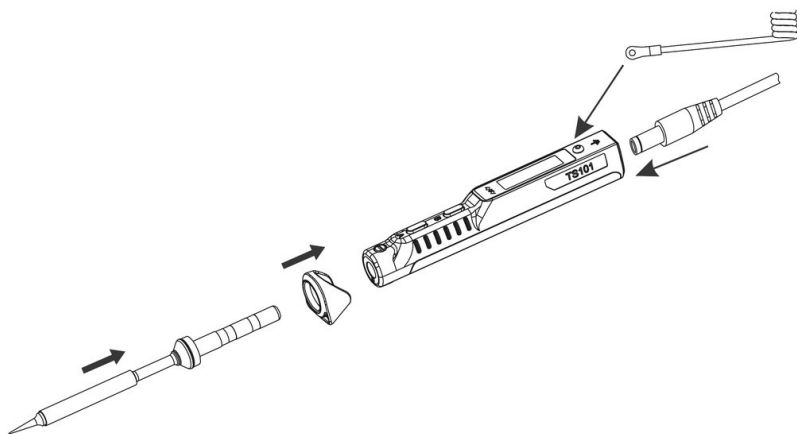
Working voltage	Working current	Power	Fastest time to heat up from 30°C to 300°C
9 V	≥ 1.0 A	9 W	95 s
12 V	≥ 1.4 A	16 W	43 s
15 V	≥ 1.7 A	25 W	25 s
20 V	≥ 2.3 A	45 W	15 s

Do not use the DC5525 and USB-C power inputs at the same time.

4. How to Use

4.1 Install

- ① Put the anti-slip cap onto the front end of the controller, and then insert the soldering tip into the controller.
- ② Fix the ground wire with the ground screw.
- ③ Use a USB Type-C power cable or a DC power cable to connect the power source to TS101 (the two power supply methods cannot be used at the same time), turn on the power, and follow the instructions on the screen.



Installing the tip and cap, connecting the power source

After the power is turned on, if TS101 shows "No tip!", the soldering tip is not firmly installed. Please re-install the soldering tip.

► Usage of the anti-slip cap

- ① When using the soldering iron, the anti-slip cap prevents fingers from slipping.
- ② It acts as a simple stand that prevents the controller from rolling when the iron is put down.
- ③ Hold the anti-slip cap and push it forward to help remove the soldering tip.

4.2 Factory Settings

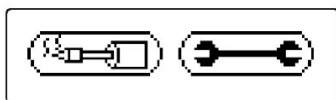
Item		Value
Preset temperature unit		°C
	T1 Temp	300°C
Preset temperature	T2 Temp	330°C
	T3 Temp	350°C
Sleep temperature		250°C
Sleep time		180 s

4.3 Basic Operations

► 4.3.1 Screen display

After the power is turned on, TS101 will first display the brand icon, the personalized icon, the product model and firmware version, then it enters standby state and displays the standby menu. If the temperature of the soldering tip exceeds the safety temperature (40°C) in standby state, the screen will display the temperature as a warning to prevent burns.

Display	Meaning
MINIWARE logo	Brand icon, not modifiable.
Personalized icon	Modifiable (Chapter 7.1); the brand icon is displayed by default if not modified.
TS101 V1.xx	Product model and firmware version.
Heating / Setting	Heating icon and setting icon (standby menu).
▲ with a number	Warning icon of high soldering tip temperature; the number indicates the current soldering tip temperature.

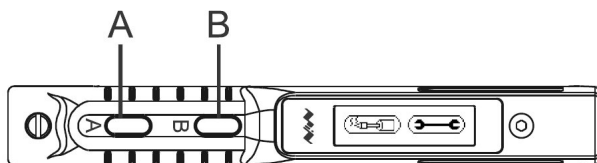


Standby menu – heating and setting icons



High tip temperature warning (100°C shown)

► 4.3.2 Parameter settings



Buttons A and B

- ① In standby mode, press B to enter setting mode.
- ② In setting mode, press A/B to select the setting item to be modified, and long press A to enter the modification state. Press A/B to select the appropriate value and wait 5 seconds; the parameter is modified and the iron automatically returns to setting mode. Other settings can be modified in the same way.

- ③ After the setting is completed, long press B to save the modification and return to standby mode.
 - ④ In standby state, long press A and the TS101 screen will display the current internal resistance of the soldering tip as "Tip R:xx".
 - ⑤ In standby state, long press B and the TS101 screen will display the current firmware version as "Ver:V1.xx".
- ※ In standby state, TS101 will enter the off-screen state if it stays still for a long time. You can wake it up into standby state by shaking the controller.

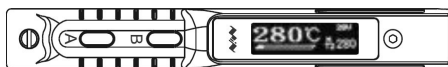
► Parameter definitions

Parameter	Name and definition	Default	Range
T1 Temp	Preset temperature 1	300	°C: 50-400 °F: 122-752
T2 Temp	Preset temperature 2	330	°C: 50-400 °F: 122-752
T3 Temp	Preset temperature 3	350	°C: 50-400 °F: 122-752
Temp Step	Temperature step – the stepping of each button press when adjusting temperature	10	1-25
Sleep Temp	Sleep temperature – standby temperature in sleep mode; it is recommended not to set it higher than the working temperature	250	°C: 50-400 °F: 122-752
Sleep Time	Sleep time – 1. time needed to enter sleep mode from working mode when the controller stays still; 2. time needed to enter the off-screen state from standby mode	180	60-999 s
Idle Time	Idle time – time left still in sleep mode before returning to standby mode (see 4.3.5)	240	60-999 s
Backlight	Screen brightness	3	1-10 (higher = brighter)
TempUnit	Temperature display unit	°C	°C: Celsius °F: Fahrenheit
DisplayDir	Display direction – the screen is reversed, the button functions remain unchanged	Right	Right: right hand Left: left hand
BoostTemp	Boost temperature – preset working temperature for boost mode (by holding button A in working mode)	380	°C: 50-400 °F: 122-752

Parameter	Name and definition	Default	Range
PowerSrc	Type of DC power source	DC	DC: power adapter 3S-6S: battery pack
MinVolt	Minimum working voltage per cell when powered by a series battery pack	3500	3300-4000 mV
LowCurrent	Low current wakeup – keeps the power bank active in standby mode	OFF	OFF, ON
PDPwMax	PD power limit – maximum power when using a PD power source	OFF	0: OFF 18-45 W
MsenUnit	Sensitivity of the internal sensor – the higher the value, the more sensitive	3	1-5
TempCalib	Temperature calibration – let the soldering tip cool to room temperature before calibrating	-	-
Restore	Reset to factory settings	-	-

- **LowCurrent** is only valid when connected to a PD power source (such as a PD power bank). After the function is turned on, the soldering tip may be warm in standby mode, so beware of burns.
- **Sleep Time** controls not only the time from working mode to sleep state, but also the time from standby mode to off-screen state.
- **Restore** also restores the temperature calibration parameters of the soldering iron to the default values.

► 4.3.3 Heating operation

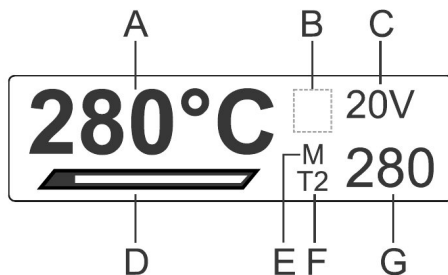


Working mode – heating

- **Heating operation:** in standby state, press A. TS101 will enter heating working mode; after the tip is heated to the preset working temperature, TS101 will automatically maintain a constant temperature.
- **Boost operation:** in heating working state, hold A. TS101 will enter boost heating mode and the soldering tip will rise to the boost temperature and maintain it. When button A is released, the temperature will drop back to the preset working temperature.
- Long press B in heating mode to return to standby mode.

If the power source voltage is too low, the screen will show "Low volt!". Please replace the power source (see Chapter 3 for power source requirements).

► Interface icon description



Screen areas A-G

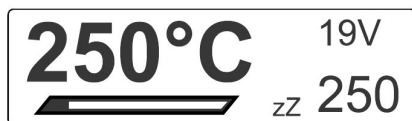
Area	Display content	Definition
A	Current temperature value and unit	Current temperature of the soldering tip
B	Boost symbol	TS101 is in boost mode
	No display	TS101 is in normal working state
C	Voltage value and unit	Current power source voltage
D	Solid line	Instant working power bar - the length of the bar indicates the ratio of the current instant power to the maximum power
E	M	TS101 is moving
	No display	TS101 is still
F	T1/T2/T3	Preset temperature T1-T3
	zZ	TS101 is in sleep mode
G	Numerical value	Current preset temperature

► 4.3.4 Temperature adjustment

TS101 has two temperature adjustment methods: select a preset temperature or adjust the temperature directly.

- ① **Select preset temperature:** in standby state, press A to select preset temperature T1/T2/T3. After selection, TS101 will heat up to the selected preset temperature and maintain it.
- ② **Direct temperature adjustment:** in heating state, press B to enter the "Work Temp" menu and press A/B to adjust the temperature (long press A/B for quick adjustment). After 5 seconds of no operation, the setting is saved automatically, the iron returns to heating mode, heats to the set temperature and keeps it (this setting is valid one time only and will not be saved after power off).

► 4.3.5 Sleep and standby mode



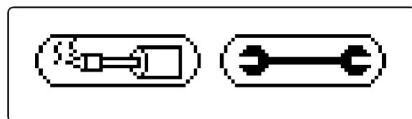
Sleep mode (zZ symbol)

In working mode, if TS101 stays still for 180 seconds (factory default, can be modified by "Sleep Time"), it will enter sleep mode, the "zZ" symbol will appear on the screen, and the soldering tip will cool down to the sleep temperature (can be adjusted by "Sleep Temp").



Return to working mode

When movement is detected, TS101 will exit sleep mode and automatically return to working mode, and the soldering tip will heat up to the working temperature used before sleep mode.



Standby mode

When left still in sleep mode for 240 seconds (factory default, can be modified by "Idle Time"), TS101 will return to standby mode. After another 180 seconds in standby mode (factory default, can be modified by "Sleep Time"), the screen of TS101 will turn off.

4.4 Configuration File

- ① Use a USB Type-C data cable to connect TS101 to the computer; a virtual disk will appear on the computer, and TS101 will enter USB mode and display "CONFIG" on the screen.
- ② Open the CONFIG.TXT file on the virtual disk and modify the setting parameters (the values must be within the adjustable range).
- ③ After the setting parameters are saved, they will be updated to TS101 immediately.

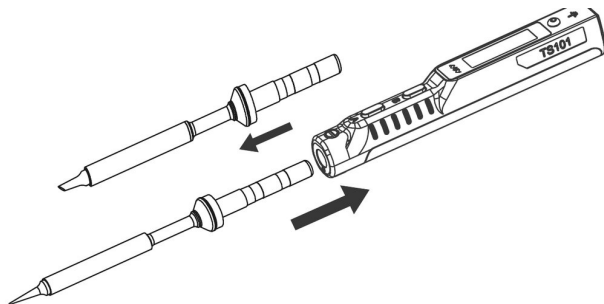
► Parameter setting ranges

Parameter	Name	Range	Default
T1_Temp	Preset working temperature 1	°C: 50-400, °F: 122-752	300
T2_Temp	Preset working temperature 2	°C: 50-400, °F: 122-752	330
T3_Temp	Preset working temperature 3	°C: 50-400, °F: 122-752	350
SlpTemp	Sleep temperature	°C: 50-400, °F: 122-752	250
BoostTemp	Boost temperature	°C: 50-400, °F: 122-752	380
SlpTime	Sleep time	60-999 (unit: second)	180
IdleTime	Idle time	60-999 (unit: second)	240
Backlight	Screen brightness	1-10	3
TempUnit	Temperature unit	0: Celsius, 1: Fahrenheit	0
DisplayDir	Display direction	1: right hand mode, 2: left hand mode	1
TempStep	Temperature step	1-25	10
PowerSrc	Type of DC power source	0: DC power adapter, 3-6: 3S-6S series battery pack	0
MinVolt	Unit minimum voltage	3300-4000 (unit: millivolt)	3500
LowCurrent	Low current wakeup	0: OFF, 1: ON	0
PDPwMax	PD power limit	0: OFF, 18-45: 18-45 (unit: watt)	0
MsenUnit	Sensitivity	1-5, the higher the value, the more sensitive	3

5. Soldering Tips

5.1 Replacing a Soldering Tip

- ① Please replace the soldering tip after power off (and after the tip has cooled down).
- ② Pull out the original soldering tip and insert another soldering tip.
- ③ Power on again. If TS101 shows "No tip!", the soldering tip is not firmly installed; please re-insert the soldering tip.



Replacing the soldering tip

※ The soldering tip insertion end of the TS101 controller uses a ball screw to fix the soldering tip; the tightness of the screw has been adjusted before leaving the factory. If necessary, users can adjust it by themselves.

5.2 Choosing a Soldering Tip

TS101 uses the same soldering tips as the TS100 Mini Soldering Iron. Choosing the right soldering tip can make your job more efficient. The **TS-B2** tip is included in the package.



TS series soldering tip shapes (dimensions in mm)

5.3 Maintenance of Soldering Tips

- ① When not in use for a long time, it is recommended to tin the soldering tip properly to prevent oxidation.
- ② Do not let the soldering tip be heated at a high temperature for a long time to avoid dry burning.
- ③ When soldering, do not apply too much pressure on the tip or rub the solder joints with it, to avoid damage to the soldering tip.
- ④ Never use rough materials or files to clean the soldering tip.
- ⑤ If the surface of the soldering tip has been oxidized and does not take solder, carefully rub it with 600–800 mesh emery cloth and clean it with ethyl propanol or an equivalent solution as needed, then heat to 200°C and tin immediately to prevent oxidation.
- ⑥ Do not use chlorine- or acid-rich flux; only use synthetic resin or activated resin flux.

6. FAQ

Question	Checking
No display on TS101 screen after power on	1. Check the power source and cable. 2. Check if TS101 can enter DFU mode after connecting to the computer and read the virtual disk.
The displayed temperature jumps around the preset temperature	1. Is the soldering tip used for the first time or stored in a humid environment? When the tip is fully heated, the temperature can be maintained. 2. Has the soldering tip been installed correctly? 3. Is the power cable in poor contact?
Soldering iron restarts automatically or the screen displays "Low Volt!"	1. Is the power supply plugged in and powered on normally? 2. Do the power parameters meet the requirements in Chapter 3?
The screen displays "No tip!"	1. Has the soldering tip been installed correctly? 2. Is the soldering tip in poor contact? 3. Long press A to check the internal resistance of the soldering tip.
Soldering tip does not take solder	1. Does the temperature of the soldering tip exceed 400°C? 2. Is the soldering tip properly tinned? 3. Is there a lack of flux, or are you using solder with low purity or low tin content? 4. Have you wiped the soldering tip with a dry sponge or a material with high sulfur content? 5. Has the tip come into contact with organic substances such as plastics, silicone grease or other chemicals?
When powered by a power bank, TS101 heats normally but shuts down after maintaining a constant temperature	Set the "LowCurrent" menu option to "ON" (Chapter 4.3.2).

7. Customization and Firmware Update

7.1 Customize the Personalized Icon

- ① Prepare a 128 × 32 pixel monochrome BMP image and name the file **login.bmp**.
- ② Use a USB Type-C data cable to connect the controller to the computer and open the virtual disk.
- ③ Copy the prepared image to the root directory of the virtual disk and disconnect to complete the update.

7.2 Firmware Update

- ① Visit www.miniware.com.cn and download the applicable soldering iron firmware to the computer.
- ② Hold button A of TS101 and connect it to the computer via a USB Type-C data cable. TS101 enters DFU mode, the screen displays "DFU" with the bootloader version number, and a virtual disk appears on the computer.
- ③ Copy the prepared .hex firmware to the root directory of the disk. When the file suffix changes from .hex to .rdy, disconnect to complete the firmware upgrade.



The .hex file changes to .rdy after the upload

8. Information for the EU and Czech Market

The information in Chapters 8 and 9 is based on the laws of the Czech Republic. If you use the product in another country, the regulations of the country in which it is operated apply.

8.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorاما.cz
Phone	+420 252 252 098
Website	www.rotorاما.com

8.2 Product conformity



- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorاما.cz.
- **Product identification:** the type designation (TS101) is marked on the body of the soldering iron; the firmware version is displayed by a long press of button B in standby mode.

8.3 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste.**
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also <https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu>.

9. Warranty and rights arising from defective performance

9.1 Rights of the buyer under Czech law

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection. The manufacturer's warranty terms set out below (Chapter 9.2) **do not in any way limit** the buyer's rights arising from these regulations.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 8.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.

9.2 Manufacturer's warranty terms

✱ **The following text is the manufacturer's original warranty statement.**

The soldering iron controller has a one-year free warranty service in the case of non-artificial damage. Please contact the dealer for warranty service.

Exclusion:

- Soldering tips are consumables; if there is no quality problem, once used they will not be returned.