PT4-4000 Preheater

PT4-8000 Preheater

User Manual

CONTENTS

1.   Safety and Usage Precautions

Thank you for using our product. Before using this preheater, please carefully read this manual and take note of the warnings and precautions mentioned. Keep it in a safe place for future reference.

This product (including internal software) and its accessories are protected by relevant national laws.   Any infringement on our rights will be subject to legal penalties. Users should voluntarily adhere to the relevant national laws while using this product.

⚠ WARNING: READ ALL THE INFORMATION IN THIS DOCUMENT BEFORE USE.
IMPROPER USE MAY RESULT IN DAMAGE TO OBJECTS, SERIOUS INJURY, OR DEATH.

USER WARNINGS

- Metcal requires users to have a basic understanding of everyday life and basic knowledge of electrical operations before using this product. For underage users, please use this product under the guidance of a professional or guardian.
- This preheater is not intended for use by people (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the equipment by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- Cleaning and user maintenance shall not be performed by children without supervision.
- Do not use this preheater without guidance, especially if you lack the necessary experience or knowledge.

SETUP & USE

⚠ CAUTION: TO PREVENT INJURY, MAINTAIN A SAFE OPERATING ENVIRONMENT

When using this equipment, the following basic points must be adhered to in order to prevent electrical shocks, injuries to individuals, or potential hazards such as fires.

- Before connecting to power, ensure the voltage matches your local applicable voltage to avoid permanent damage to the equipment.
- This equipment is grounded. To ensure functionality, make sure the power connection is properly grounded.
- Use this equipment in a well-ventilated area.
- Keep the unit away from flammable materials. When using the unit, please inform other people in the area near the preheater. Please do not touch the unit, due to the possibility of high temperatures.
- Do not wet this equipment or use it in a damp environment or with wet hands to avoid electric shock.
- Do not engage in play or any dangerous activities while using the equipment, as this may lead to harm to yourself or others.

- Avoid using this product for purposes other than its intended function to prevent damage or injury.
- When plugging or unplugging the power cord, grip the plug body and avoid pulling or tugging the cord.
- Do not strike this product and its accessories with force during use, as it may damage the product.
- Do not apply heat to the same area for an extended period.
- Be aware that heat may be conducted to combustible materials that are out of sight.
- When using this equipment, the temperature of the preheater area can reach 0~250 °C/122~484 °F. Misuse may result in burns or fires.
- This product should be used away from places with magnetic field interference, and it should not be installed on vibrating surfaces or areas susceptible to impact, as this could damage the equipment.
- When not in use, turn off the power and unplug the power cord.
- Do not leave the preheater unattended when it is switched on.
- Power off the unit when not in use or unattended.

MAINTENANCE & REPAIR

- To ensure personal safety, only use genuine or recommended Metcal parts and accessories otherwise, serious consequences may occur.
- If the power cord is damaged, it must be replaced by the manufacturer, its service agent, or similarly qualified persons in order to avoid a hazard.
- When replacing parts, turn off the power, unplug the unit, and allow it to cool to room temperature.
- Use only original Metcal parts when replacing product components.
- Do not modify this product or its accessories, as doing so will void the warranty and damage the product.

DISCLAIMERS

- Metcal/OK International is not responsible for any personal injury or property damage resulting from non-compliance with these instructions, natural disasters, or personal misuse not attributable to product quality.
- Based on the latest product features. Metcal reserves the right to update the product and manual without further notice.

Waste Electrical and Electronic Equipment Directive - WEEE (2002/96/EC)
When this PT4 Preheater is no longer required, if it cannot be re-used, we ask our customers not to dispose of it as unsorted municipal waste but to appropriately recycle the PT4 Preheater. In Europe, please contact your Metcal distributor who can advise you on the recycling options available (www.metcal.com/distributors).
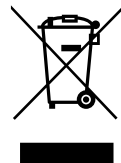
2.   Packaging List

Main Preheater Unit

K-Type Thermocouple
Test Sensor (x4)

Grounding Wire
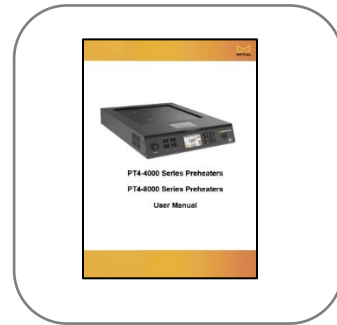
User Manual

Power Cord (115 V)
(PT4-4000-11 only)

Power Cord (230 V)
(PT4-4000-21 only)

A power cord is not included with the PT4-8000. See Section 4.

3.   Exterior Components

3.1.   Exterior Components: Front
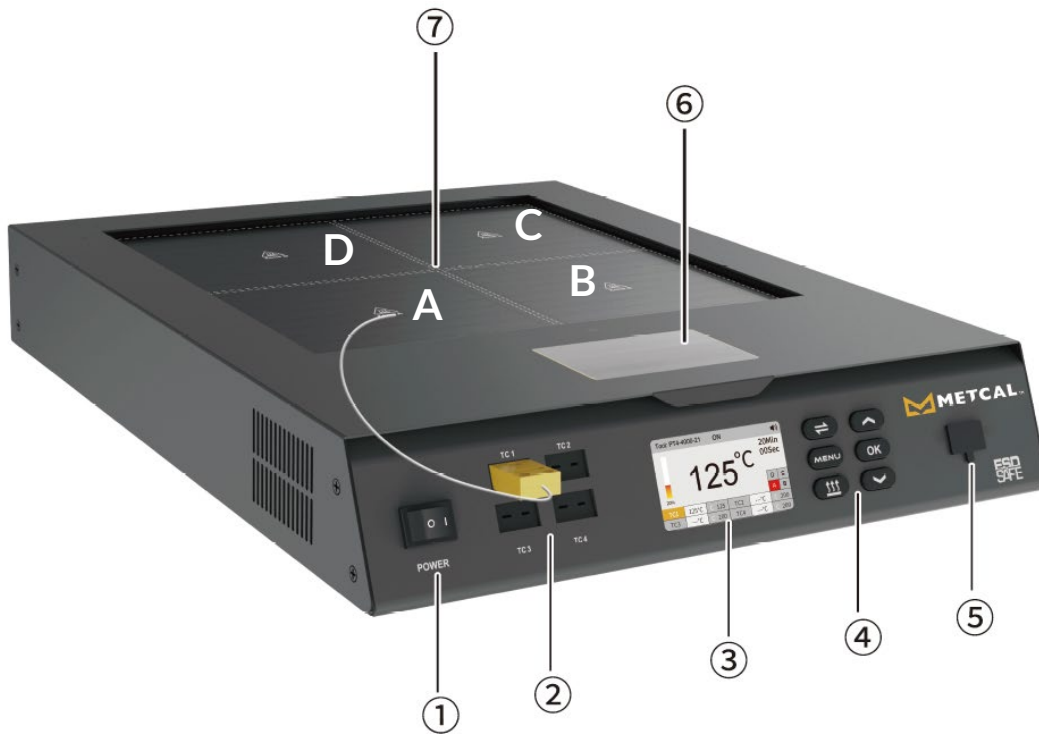
	Component Description
1	Power Switch
2	K-Type Thermocouple Connectors x4 (TC1 must be connected for device operation)
3	Screen Display
4	Buttons
5	USB Interface
6	Component Cooling Area (Place heated components in this area to dissipate heat)
7	Heating Areas (Zones A – D)

3.2.   Exterior Components: Back

PT4-4000-11 & PT4-4000-21

	Component Description
1	Grounding Wire Interface
2	Power Interface

PT4-8000-11 & PT4-8000-21:
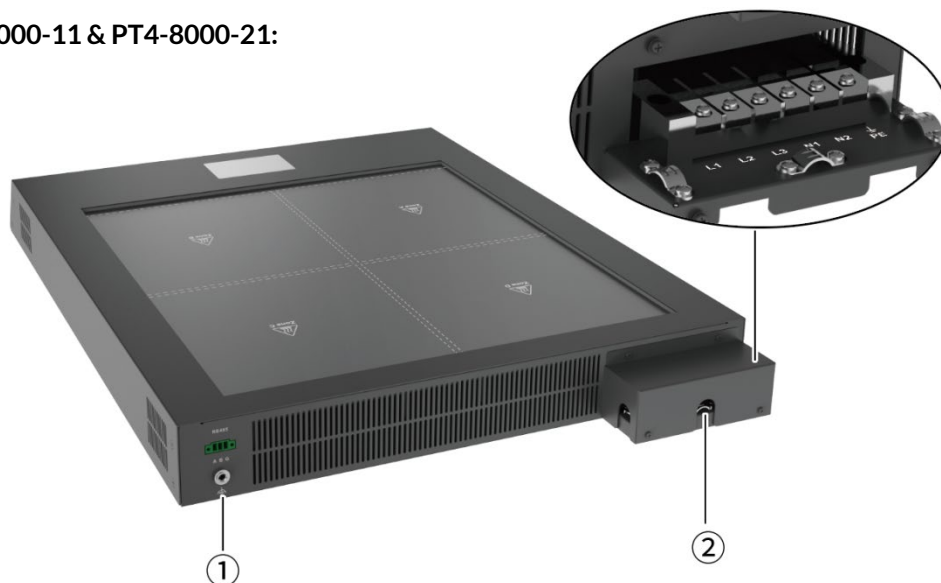
	Component Description
1	Grounding Wire Interface
2	Power Terminal (L1: Live Wire, L2: Live Wire, L3: Live Wire, N1: Neutral Wire, N2: Neutral Wire, PE: Ground Wire). See Section 4.

4.   Set Up

⚠ CAUTION: The equipment should not be used for any purpose other than PCB preheating.   Improper use may cause personal injury or pose a fire hazard. During full-power operation, individual heating plates may enter protection mode (The heating wire of the plate may dim). This is a normal phenomenon.

4.1.   PT4-8000 Wiring Diagram

Connect the power cord to the corresponding interface on the main unit.

Single-phase souce:

L N   PE

Three-phase four-wire:

L1 L2 L3 N   PE

Anti-static wire interface

PT4-8000-11 & PT4-8000-21
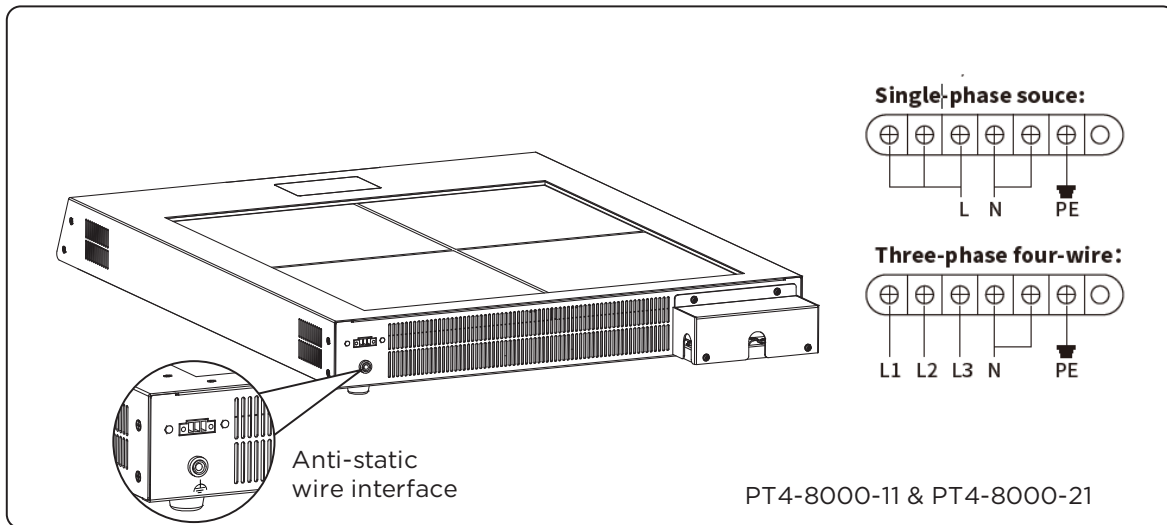
NOTE: PT4-8000-11 and PT4-8000-21 Preheaters require an external power cord (not included). The power cord must be wired in compliance with local regulations .

4.2.   Connect the External K-type Thermocouple.

The end temperature measuring wire of the K-type thermocouple, when fixed in contact with the product, will measure the actual temperature of the current area

The Type K thermocouple connectors are connected to the TC1, TC2, TC3, and TC4 interfaces of the device

NOTE:
When the TC1 thermocouple connector is not inserted, the system will prompt "TC1 not connected"

6
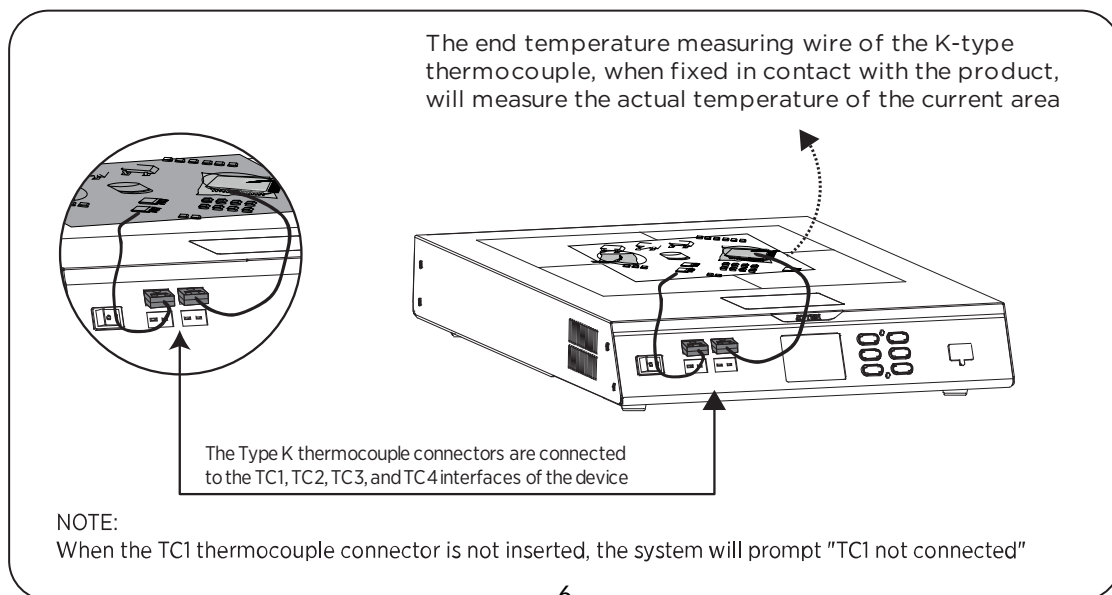
5.   Main Interface
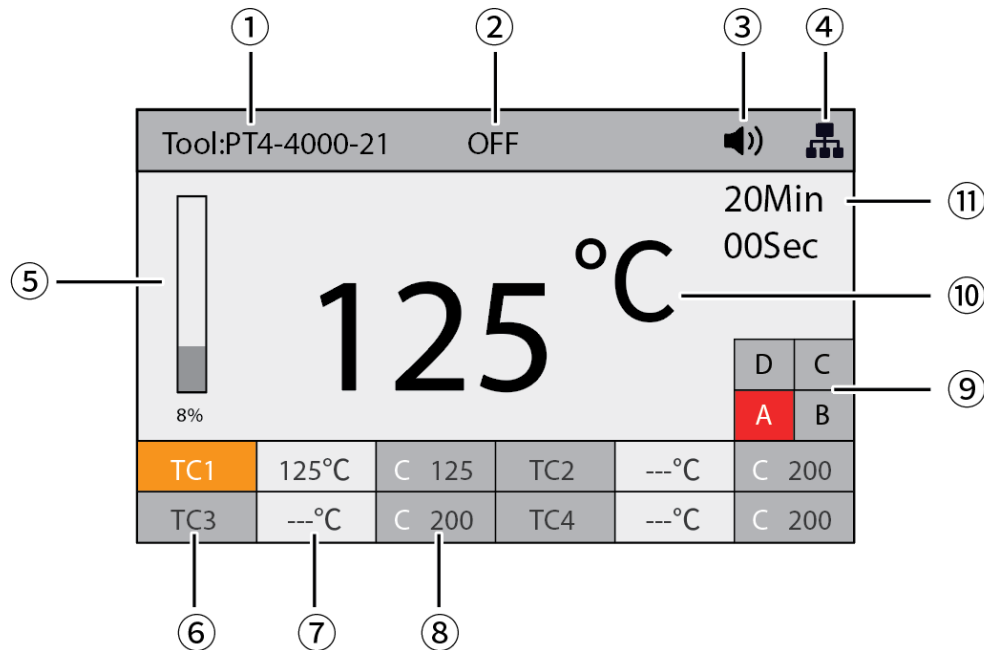
1	Preheater model number
2	**ON**: Heating enabled / **OFF**: Heating disabled
3	Icon: Sound On
4	N/A
5	Power Meter: Displays the current heating power output
6	1. TC1, TC2, TC3, and TC4 correspond to the thermocouple ports 2. Press ⇆ to switch between TC1/TC2/TC3/TC4
7	1. Displays the temperature value when the thermocouple is connected. If no K-type thermocouple is inserted, it shows "---" 2. TC1 must be inserted for the unit to heat and function properly. If the thermocouple is not inserted, the system will display a message indicating TC1 is not connected.
8	Press ⌄ or ⌃ to set the temperature value (in the default temperature mode of the device, the minimum temperature value in TC1, TC2, TC3 and TC4 is taken as the heating upper limit temperature)
9	Heating Zone On/Off Status. Press 🔥 to turn the heating zone on or off. 1. Red = On, Gray = Off (NOTE: The heating zone switch is only effective when it is turned on. For detailed settings, please refer to Section 6.3.3)
10	After connecting the K-type thermocouple, the current region measured temperature data will be displayed
11	Stop Time: Pre-set auto-off timer (See Section 6.5.7)

5.1. Button Functions
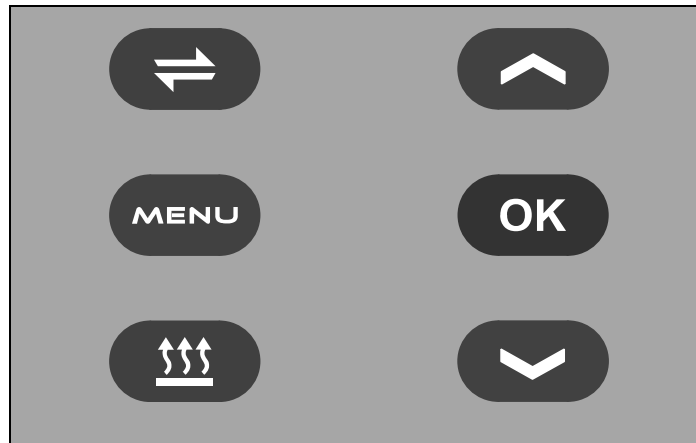
Button Layout

⇄	• Main Interface: Press to switch between TC1, TC2, TC3, and TC4.
MENU	• Main Interface: Press to display the Menu Settings Navigation Bar • Menu Settings: Press to return • Parameter Settings: Press to return
♨	• Main Interface: Press to turn heating on/off (Note: This is only effective when the Heating Zone Switch is enabled. For detailed settings, please refer to Section 6.3.3)
OK	• Menu Settings Navigation Bar: Press to enter the Menu Settings • Menu Settings page: Press to enter the Parameter Settings page • Parameter Settings page: Press to confirm and save parameters
⋀	• Main Interface & Parameter Settings: Press to increase the value • Navigation Bar & Menu Settings: Press to scroll up through the options
⋁	• Main Interface & Parameter Settings: Press to decrease the value • Navigation Bar & Menu Settings: Press to scroll down through the options

6. **Initial Zone Setup**

MENU > Tool Settings > Zone A/B/C/D On/Off

◆ Turn the power switch to the ON position.

◆ Enter the Tool Settings screen (Figure 1-1), and select the Heating Zone to be turned on.
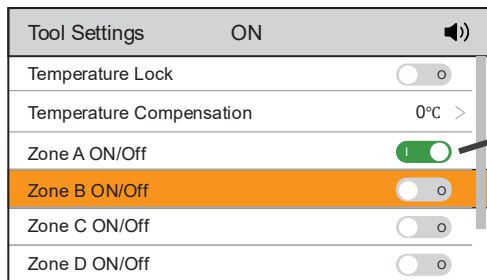
Heating Zone On/Off

Figure 1-1   *Figure 1-2*

◆ Press on the Main Interface (Figure 1-2) to turn the heating zone on and off

NOTE: A thermocouple must be attached to input TC1, or the preheater will present an error message.

NOTE: When not using the unit for an extended period, please turn off the power and unplug the power cord.

7.   Main Interface, Menu Settings & Functions

Press the "MENU" button to access the side bar Menu. The selectable functions include:

- ◆ Real-Time Curve (6.1)
- ◆ Tool Settings (6.2)
- ◆ File Settings (6.3)
- ◆ System Settings (6.4)
- ◆ Factory Reset (6.5)
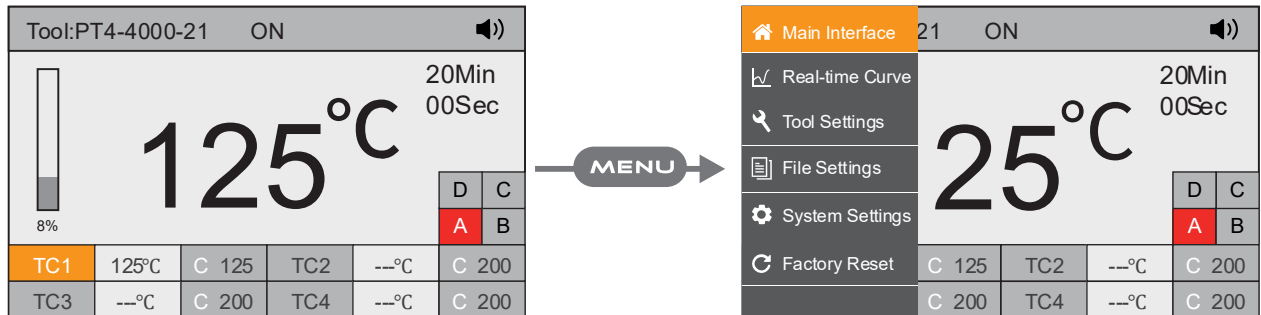
The Real-time Curve interface displays the temperature and power curves of the current heating zone.

[TC1] Red, [TC2] Green, [TC3] Purple, [TC4] Cyan, [Power] Blue.
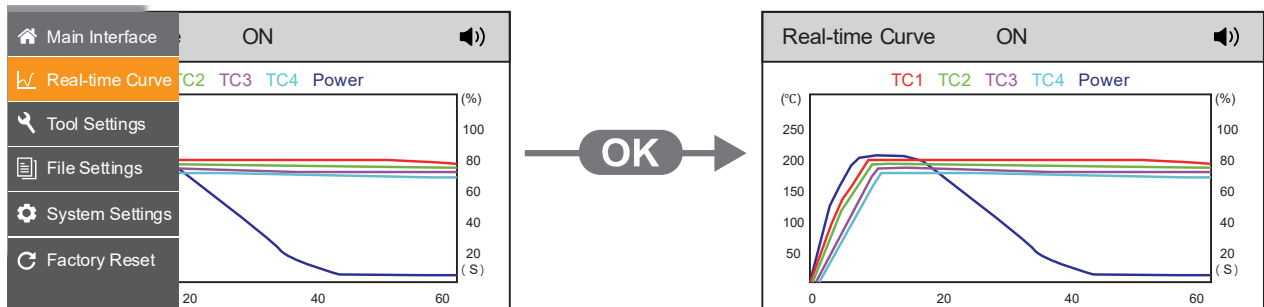
7.2.   Tool Settings

MENU > Tool Settings

Tool Settings allow configuration of:

- ◆ Temperature Lock (6.2.1)
- ◆ Temperature Compensation (6.2.2)
- ◆ Heating Zone Switch (6.2.3)
- ◆ Thermocouple Mode (6.2.4)
- ◆ Counter (6.2.5)
- ◆ Parameter Reset functions (6.2.6)

7.2.1.   Temperature Lock

MENU > Tool Settings > Temperature Lock

Tool Settings	ON	
Temperature Lock		◉ → On/Off
Temperature Compensation	0℃ >	
Zone A ON/Off		◉
Zone B ON/Off		o
Zone C ON/Off		o
Zone D ON/Off		o

Tool:PT4-4000-21 ON		
	Temperature Locked	20Min 00Sec
8%	125°C	
		D C
		A B
TC1	125℃	C 125	TC2	---℃	C 200
TC3	---℃	C 200	TC4	---℃	C 200
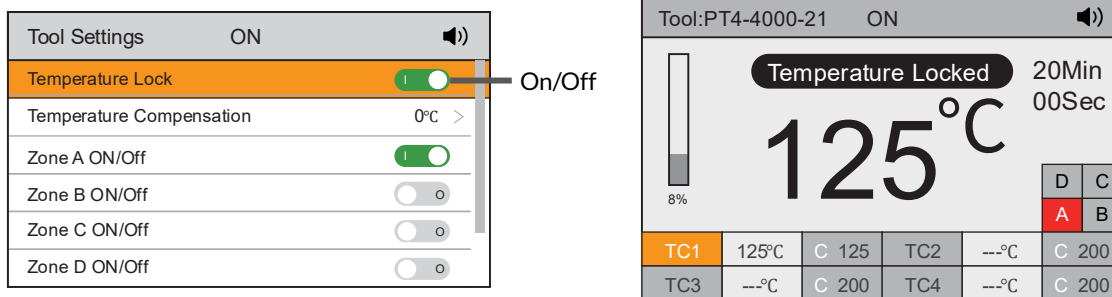
The temperature setting is now locked.

7.2.2.   Temperature Compensation

MENU > Tool Settings > Temperature Compensation

Temperature compensation can be set within the range of ±50 °C / ±122 °F.

Tool Settings	ON	
Temperature Lock		o
Temperature Compensation	0℃ >	
Zone A ON/Off		◉
Zone B ON/Off		o
Zone C ON/Off		o
Zone D ON/Off		o

OK →

Tool Settings	ON	
Tempera		o
Temperature Compensation		0℃ >
Min:-50 °C Max:50 °C		
Zone A	1 0 °C	◉
Zone B		o
Zone C	Cancel (M) Apply (O)	o
Zone D ON/Off		o

Tool Settings	ON	
Temperature Lock		o
Temperature Compensation	10℃ >	
Zone A ON/Off		◉
Zone B ON/Off		o
Zone C ON/Off		o
Zone D ON/Off		o

MENU →

Tool:PT4-4000-21 ON		
		20Min 00Sec
8%	125°C	
		D C
		A B
TC1	125℃	C 125	TC2	---℃	C 200
TC3	---℃	C 200	TC4	---℃	C 200

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7.2.3.   Heating Zone Enable/Disable

MENU > Tool Settings > Zone A/B/C/D

Enable or disable heating zones.

Tool Settings	ON	🔊
Temperature Lock		⚪o
Temperature Compensation	0℃	>
Zone A ON/Off		🟢I
Zone B ON/Off		⚪o
Zone C ON/Off		⚪o
Zone D ON/Off		⚪o

OK →

Tool Settings	ON	🔊
Temperature Lock		⚪o
Temperature Compensation	0℃	>
Zone A ON/Off		🟢I
Zone B ON/Off		🟢I
Zone C ON/Off		⚪o
Zone D ON/Off		⚪o
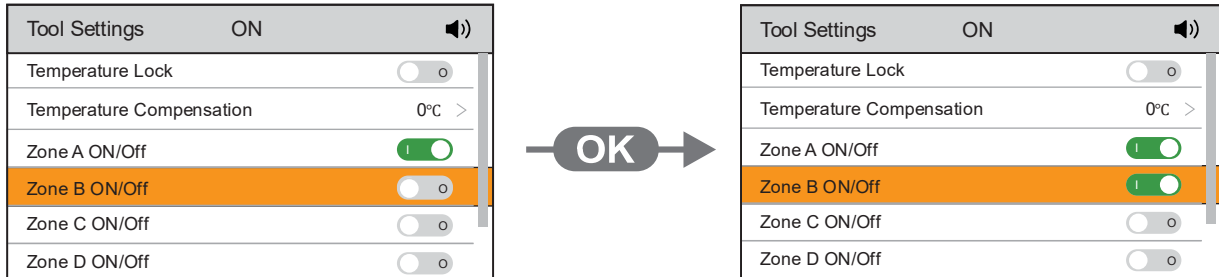
Example: Heating Zones A and B are in the enabled state.

Press the [🔥] button to turn On/Off heating in Zone A and B.

Tool:PT4-4000-21	ON	🔊

20Min 00Sec

125°C

8%

	D	C
	A	B

TC1	125℃	C 125	TC2	---℃	C 200
TC3	---℃	C 200	TC4	---℃	C 200
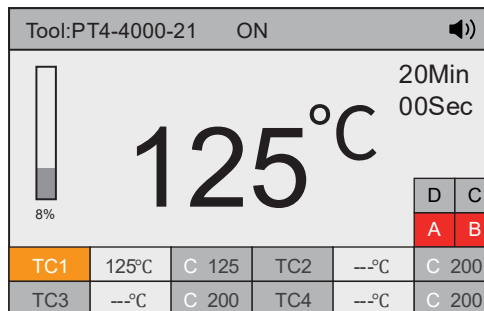
Red indicates the current heating zone is on

7.2.4.   Thermocouple Mode

MENU > Tool Settings > Thermocouple Mode

Control, Protect, or Disable the Sensor Modes for TC2, TC3, and TC4.

NOTE: TC1 is always in Control mode.

- **Control Mode (C)**: Heating area reaches and maintains the target temperature.
- **Protect Mode (P)**: Monitoring temperature point. When exceeded, will trigger a Stop Command.
- **Disable mode (D)**: Monitor only.

Thermocouple	ON	🔊
TC1 Mode	Control(C)	>
TC2 Mode	Control(C)	>
TC3 Mode	Control(C)	>
TC4 Mode	Control(C)	>

OK →

Thermocouple	ON	🔊
TC1 Mode		rol(C) >
TC2 Mode		ect(C) >
TC3 Mode		rol(C) >
TC4 Mode		rol(C) >

TC2 Mode

Control (C)

Protect (P)

Disable (D)

Cancel (M)	Apply (O)
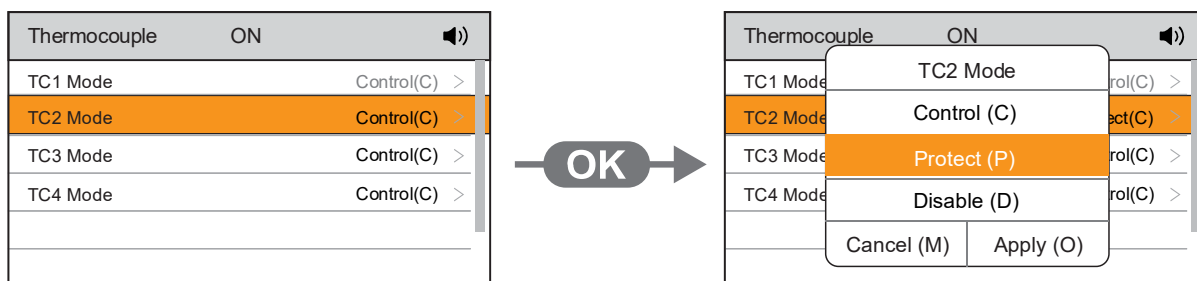
Example: TC2 is in (P) Protection Mode. When the specified temperature is reached, heating stops.
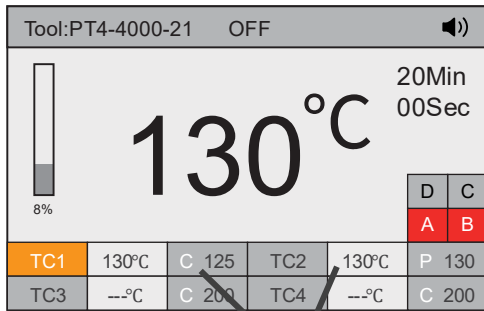
Tool:PT4-4000-21 OFF

130°C 20Min 00Sec 8%

| D | C |
| A | B |

| TC1 | 130°C | C | 125 | TC2 | 130°C | P | 130 |
| TC3 | ---°C | C | 200 | TC4 | ---°C | C | 200 |

The lowest temperature value in TC1, TC2, TC3, and TC4 is the Heating Upper Limit Temperature

Tool:PT4-4000-21 OFF

Tip

TC2
Abnormal temperature, please check if the thermocouple is securely fastened.

Press the heat button to heat, press other to exit
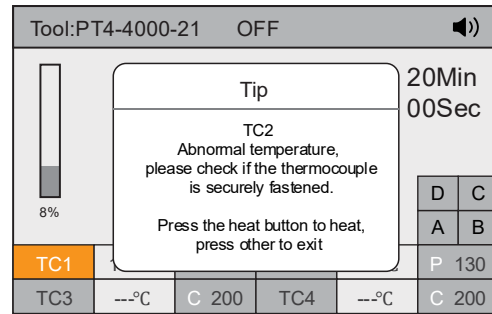
In Protection Mode, when the current temperature of TC2 is higher than the specified temperature, Temperature Protection is triggered and heating stops.

7.2.5.   Counter

MENU > Tool Settings > Counter

In the Tool Settings, selecting the Counter allows access to the current tool information.

Tool Settings	ON
Zone B ON/Off	○
Zone C ON/Off	○
Zone D ON/Off	○
Thermocouple Mode	>
Counter	>
Reset	>

OK →

Counter	ON	
Name	This Session	Total
Working Time	00:00	00:00
Error Count	0	0
Reset		>
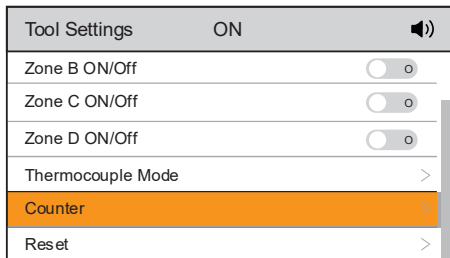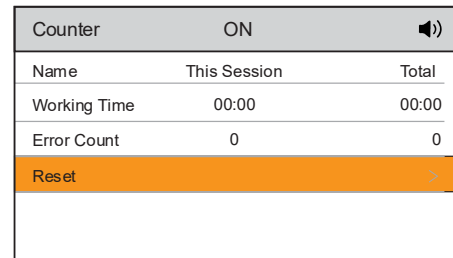
NOTE: The Counter Reset function requires the correct password for resetting.

The factory default password is "000".
To set a new password, refer to Section 6.13.

OK

Counter	ON	
Name	Verify Password	Total
Working T		00:00
Error Cou	* * *	0
Reset		>
	Cancel (M) Apply (O)	

13
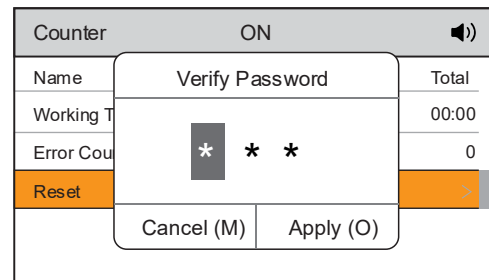
7.2.6. Tool Settings Reset

MENU > Tool Settings > Reset

For the Tool Settings Reset, select the Reset Function under the Tool Settings and enter the unit's password.
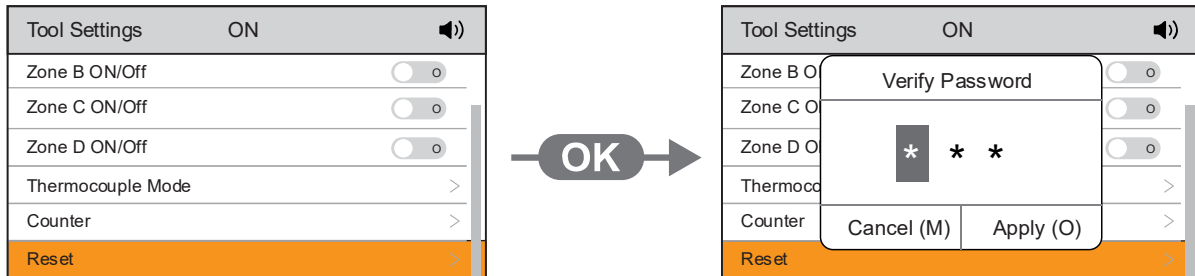
7.3. File Settings

MENU > File Settings

File Settings allow you to set:

- Profile Learning (6.3.1)
- Set Profile File (6.3.2)
- Create New Profile (6.3.3)
- Import Profile (6.3.4)

- Export Profile (6.3.5)
- Export Real-time Curve Files (6.3.6)
- Reset Function (6.3.7)

7.3.1. Profile Learning

MENU > File Settings > Profile Learning

The Profile Learning function can only be used when the Work Mode is set to Profile Mode.

(Please refer to Section 6.6 for Work Mode Settings)

When Profile Learning is turned on, the Learning icon appears

File Settings	ON	🎓 ◀))
Profile file learning		⬤
Set Profile file		>
Create new profile file		>
Import profile file		>
Export profile file		>
Export real-time curve file		>

Learning On/Off

MENU

Back to Main Screen
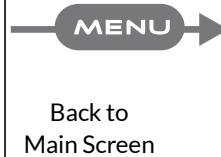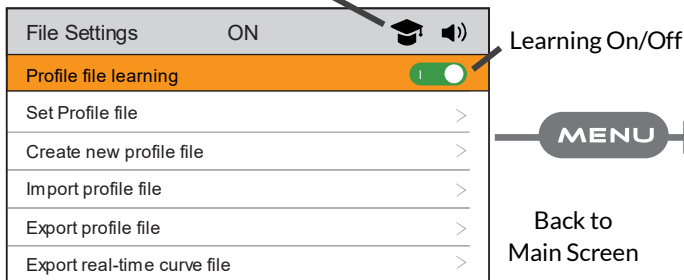
Heating is in the "ON" state, and the learning icon turns yellow, indicating the device begins learning the current profile.

Tool:PT4-4000-21   ON   🎓 ◀))
1/4   default-1   13Min00Sec
250 °C   (%)
200   100
150   80
100   60
50   40
                                          20
0   156   312   468   780   (S)
TC1:30C   TC2:30C   TC3:30   TC4:30C

Enter Profile Settings to enable Profile Learning.

Return to the main interface, press ▲ or ▼ to select the profile to learn, then press 〰 to start learning the current profile (Note: Interrupting the learning process will result in an incomplete learning).

Learning Complete. The current learned profile becomes a learning profile.

Tool:PT4-4000-21   OFF   🎓 ◀))
4/4 🎓   default-1   13Min00Sec
250 °C   (%)
200   100
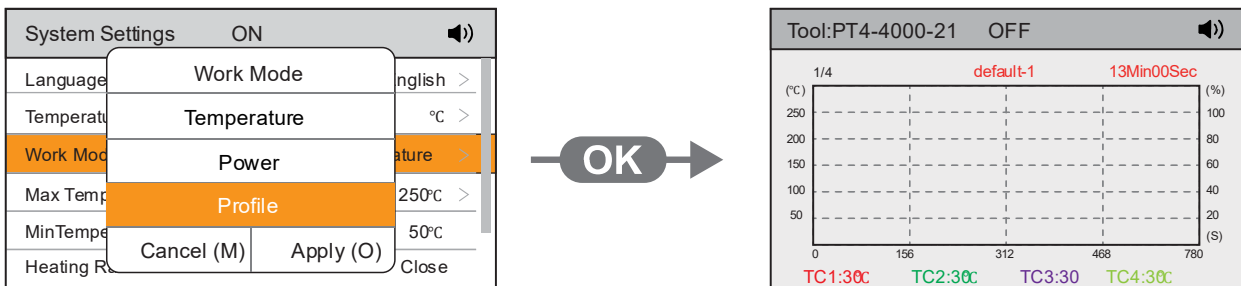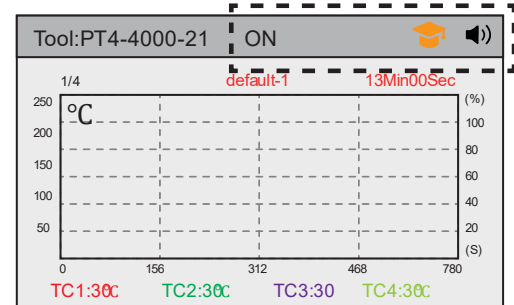150   80
100   60
50   40
                                          20
0   156   312   468   780   (S)
TC1:30C   TC2:30C   TC3:30   TC4:30C

〰

Tool:PT4-4000-21   OFF
4/4 🎓
250 °C
200   Run
150   Profile
100   Learning Data
50
           Cancel (M)   Apply (O)
0   780
TC1:30C

4000-21   ON
1/4 🎓   default-1   12
°C
200
150
100
156   312   468
TC2:30C   TC3:30
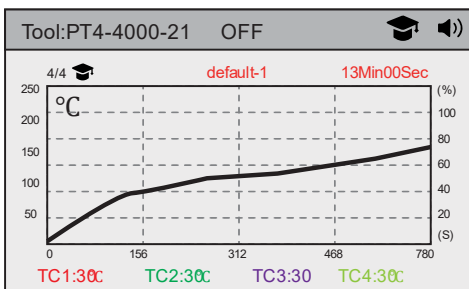
The 🎓 icon in the suffix of the profile number indicates that the current profile is a learned profile.

Press 〰 to select **Run Profile** to run the current profile. **Run Learning Data** can also run without inserting the K-type thermocouple connector.
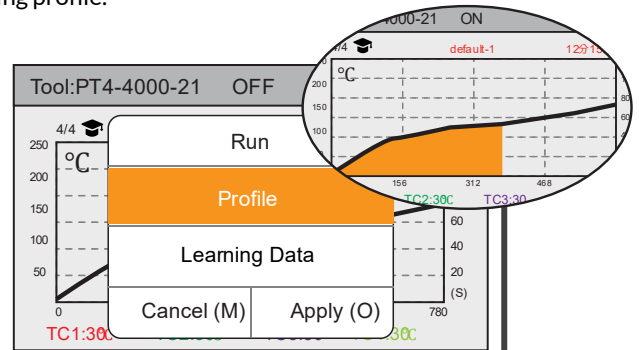
When running learning data without inserting the K-type thermocouple connector, the interface shows a yellow progress bar.

7.3.2.   Set Profile file

MENU > File Settings > Set Profile file

Set Profile allows you to edit, copy, and delete profiles. (Note: Default-1 through Default-3 are default profiles and can be copied, but cannot be edited or deleted)

File Settings	ON	◀))
Profile file learning		⬤
Set Profile file		>
Create new profile file		>
Import profile file		>
Export profile file		>
Export real-time curve file		>

OK

Set profile file   ON   ◀))
1/4   Tip   n0Sec
250
200
150   Cannot edit or delete
100   default profile 1~3.
50
0   800
       Apply (O)
0
Edit   Copy   Delete
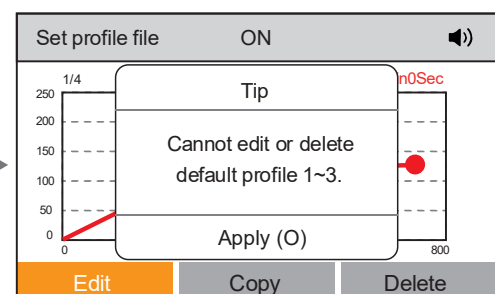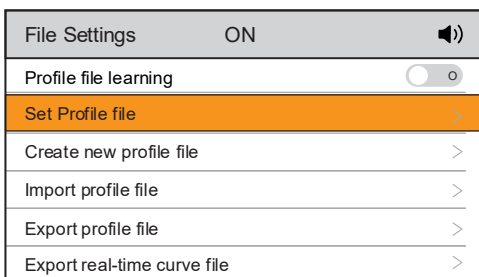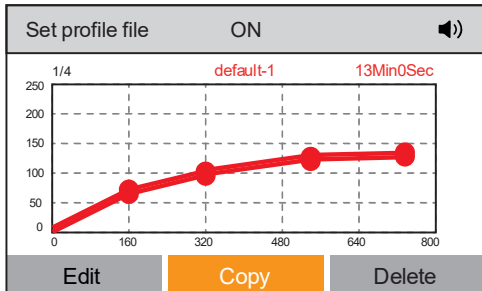
Copy profile

Select √ and press OK to confirm the file name and enter the profile editing page
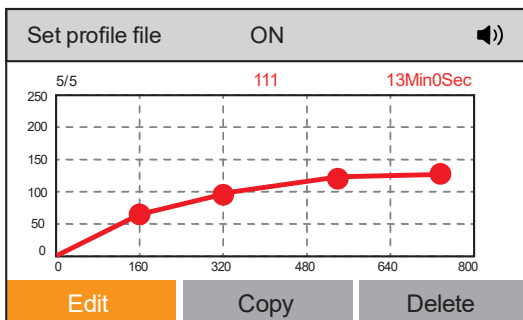
Press ⇌ to switch the cursor and select **Edit** to edit the current profile.
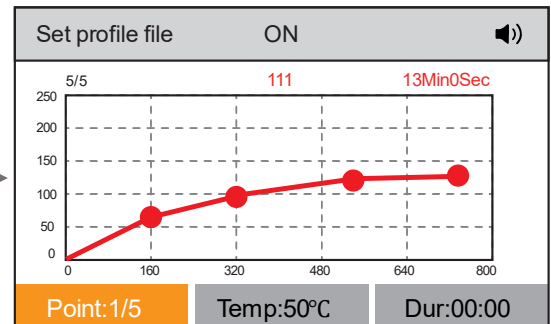
Press "OK" to select **Add Nodes** or **Delete Nodes** (Maximum 16 nodes can be added)
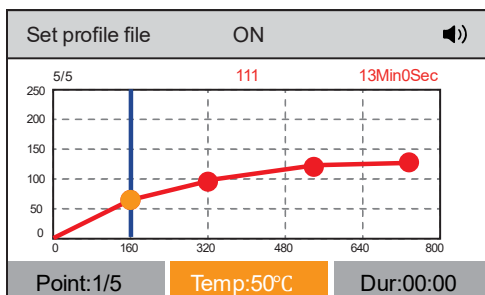
Press ⇌ to switch the cursor and set the temperature and duration for "Point 1".

If the profile has been modified and not saved, a prompt will appear asking if you want to save it.

Press **OK** to select **Save Profile** to save the current profile. If the profile is already saved, exit directly by selecting **Exit Editing**. If the profile has been modified but not saved, you will be prompted whether to save.

7.3.3. Create New Profile File

Input File name

File Settings	ON	🔊
Profile file learning		⦿ o
Set Profile file		>
Create new profile file		>
Import profile file		>
Export profile file		>
Export real-time curve file		>

OK →

File Settings	ON	🔊
Profile file learning		⦿ o

Input File name:111

1	2	3	4	5	6	7	8	9	0
q	w	e	r	t	y	u	i	o	p
a	s	d	f	g	h	j	k	l	◁X
ABC	z	x	c	v	b	n	m	.	√

Set profile file   ON   🔊

5/5   111   0Min0Sec

Point:0/0   Temp:0°C   Dur:00:00

Press **OK** to save the new name

ABC   Toggle the letter case

◁ X   Delete

7.3.4. Import Profile File

Insert the USB drive into the USB interface on the front of the preheater, and the curve file in the USB drive can be imported to the unit.

The USB drive icon appears after the USB drive is inserted

File Settings	ON	🔌 🔊
Profile file learning		⦿ o
Set Profile file		>
Create new profile file		>
Import profile file		>
Export profile file		>
Export real-time curve file		>

OK →

Import profile file	OFF	🔌 🔊
1111111.csv		>
2222222.csv		>
3333333.csv		>
4444444.csv		>
5555555.csv		>

Press **OK** to select the profile to import.

Import profile file	OFF	
1111111.cs		>
2222222.c	**Imports Closure**	>
3333333.c	√	>
4444444.c		>
5555555.c		>
	Apply (O)	

Tool:PT4-4000-21	OFF	

5/5   5555555   13Min00Sec
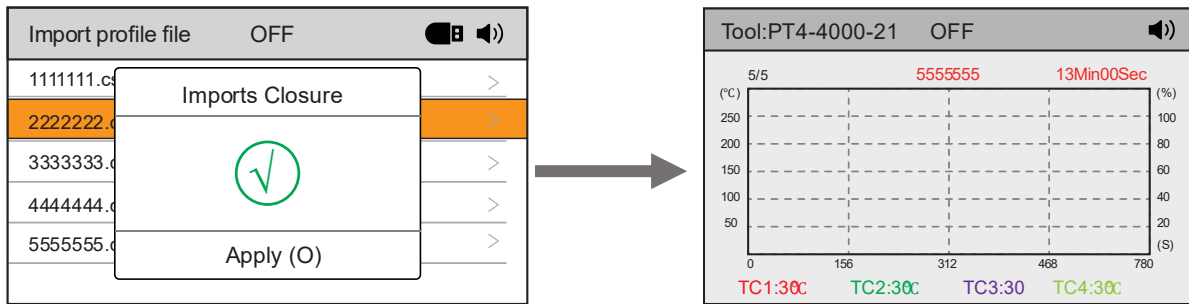
You can edit the profile using the Profile Settings feature, detailed in Section 6.4.6.

7.3.5. Export Profile File

MENU > File Settings > Export profile file

Insert the USB drive into the USB interface on the front of the preheater, and the curve archive files in the device can be exported to the USB drive.

The USB icon appears after the USB drive is inserted

Press "OK" to confirm the export curve, and the export completion indicates that the export is successful.

File Settings	ON	
Profile file learning		o
Set Profile file		>
Create new profile file		>
Import profile file		>
Export profile file		>
Export real-time curve file		>

OK

Export profile file	OFF	
default-1		>
default-2		>
default-3		>
1111111		>
2222222		>
3333333		>

7.3.6. Export Real-time Curve File

MENU > File Settings > Export real-time curve file

Insert the USB drive into the USB interface of the preheater, and the real-time curve information of the unit can be exported to the USB drive.

The USB icon appears after the USB drive is inserted

Press "OK" to confirm the export curve, and the export completion indicates that the export is successful.

File Settings	ON	
Profile file learning		o
Set Profile file		>
Create new profile file		>
Import profile file		>
Export profile file		>
Export real-time curve file		>

OK

Export Real-Time	OFF	
1.CSV	56515	>
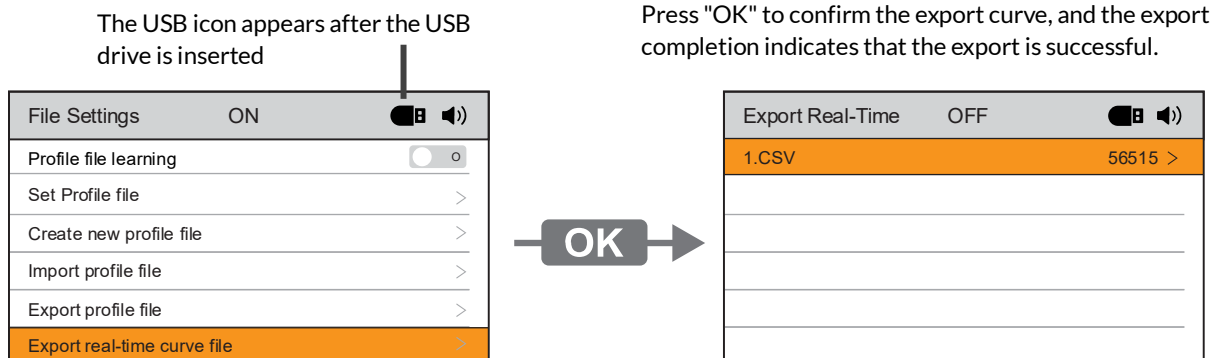
7.3.7. Profile Settings Reset

MENU > File Settings > Reset

For the profile settings Reset, select the reset function under Profile Settings and enter the unit password. (Note: Clear All Curves - default curves are not cleared)

File Settings	ON	🔊
Set Profile file		>
Create new profile file		>
Import profile file		>
Export profile file		>
Export real-time curve file		>
Reset		

OK

File Settings	ON	🔊
Set Profile		>
Create ne	Verify Password	>
Import pro		>
Export pro	* * *	>
Export rea	Cancel (M) Apply (O)	>
Reset		
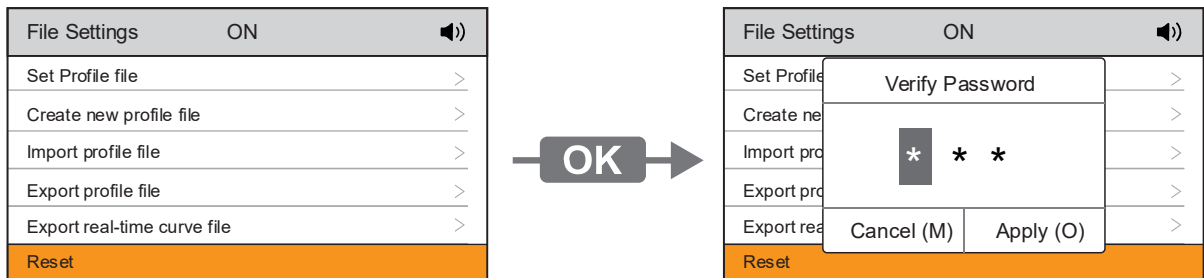
7.4. System Settings

MENU > System Settings

System settings can set:

- Language (6.4.1)
- Temperature Units (6.4.2)
- Work Mode (6.4.3)
- Temperature Limits (6.4.4)
- Max/Min Power (6.4.5)

- Heating rate (6.4.6)
- Stop Time (6.4.7)
- Sound (6.4.8)
- Password (6.4.9)
- Change Password (6.4.10)

- Communication Parameter (6.4.11)
- Information (6.4.12)
- Reset function (6.4.13)

7.4.1. Language

MENU > System Settings > Language

Choose the language function under system settings to set the machine's language.

7.4.2. Temperature Units

MENU > System Settings > Temperature unit

Choose the Temperature Unit function under System Settings to set the temperature units.

System Settings	ON	🔊
Language	English	>
Temperature unit	℃	>
Work Mode	Temperature	>
Max Temperature	250℃	>
MinTemperature	50℃	
Heating Rate	Close	

OK

System Settings	ON	🔊
Language		nglish >
Temperatu	Temperature Unit	℃ >
Work Mod	℃	ature >
Max Temp	°F	250℃ >
MinTempe		50℃
Heating R	Cancel (M) Apply (O)	Close

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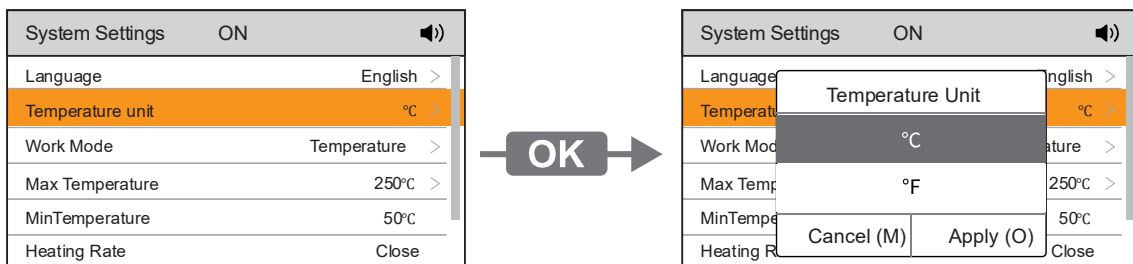
7.4.3.　Work Mode

MENU > System Settings > Work Mode

There are several Work Modes to choose from:

◆ Temperature (6.4.3.1)　　◆ Power (6.4.3.2)　　　　◆ Profile (6.4.3.3)

7.4.3.1.　Temperature Mode

MENU > System Settings > Work Mode > Temperature

In Temperature Mode, the main interface displays temperature values. In this mode, the lowest temperature value in TC1, TC2, TC3, and TC4 is the heating upper-limit temperature (the default operating mode of the system is Temperature Mode).
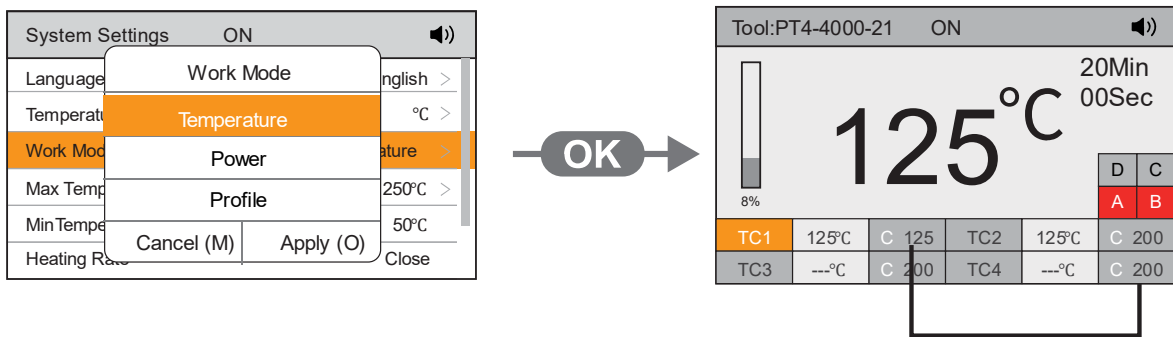
The lowest temperature value in TC1, TC2, TC3, and TC4 is the heating upper limit temperature.

7.4.3.2.　Power Mode

MENU > System Settings > Work Mode > Power

In Power Mode, the main interface will display the power percentage value. (The higher the power, the higher the temperature of the heating area; the lower the power, the lower the temperature)

The displayed power corresponds to the heating simulation bar power

7.4.3.3. Profile Mode

MENU > System Settings > Work Mode > Profile

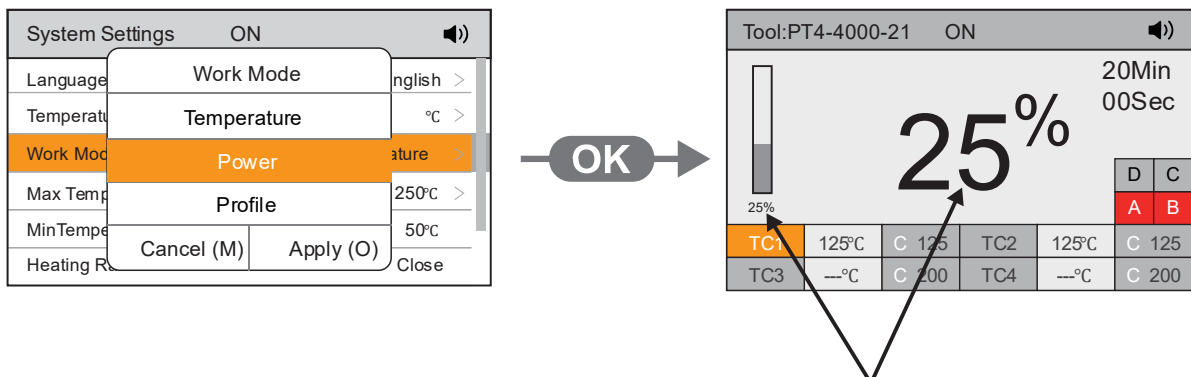In Profile Mode, the device can retrieve the curve data stored by the user, and the Main Interface will be displayed as a curve (Default-1 to Default-3 are system default curves).
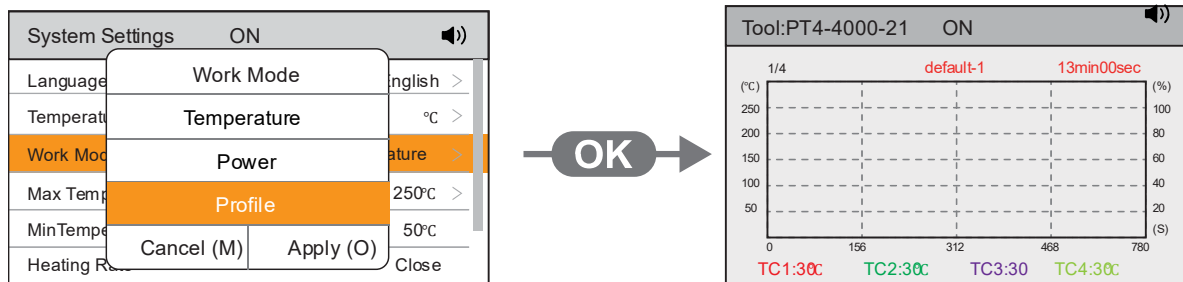
Press ▼ or ▼ to switch the curve in the Main Screen. The curve cannot be switched while it is running.
Press to Run or Stop the Current Curve (see page 15 for Curve Settings).

7.4.4. Temperature Limits

MENU > System Settings > Max Temperature/Min Temperature

When the system is set to Temperature Mode, selecting the temperature upper or lower limit function enables setting temperature warning parameters.
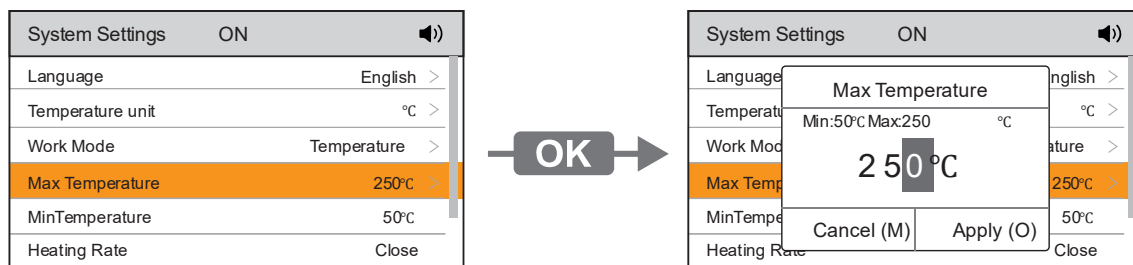
Note: Temperature upper and lower limits can restrict the maximum and minimum ranges of the unit's temperature settings. The factory default temperature upper limit is 250 ℃/482 °F. The default temperature lower limit is 50 ℃ /122 °F. The adjustable range is 80℃ to 50℃ ~250℃ /122 °F ~482 °F.

7.4.5. Maximum/Minimum Power

MENU > System Settings > Max Power/Min Power

When the Work Mode is set to Power Mode, select the Max/Min Power function under the System Settings, and the Max/Min Power parameters can be set.

System Settings	ON	🔊
Language	English >	
Temperature unit	℃ >	
Work Mode	Power >	
Max Power	250℃ >	
Min Power	50℃	
Heating Rate	Close	

OK →

System Settings	ON	🔊
Language		nglish >
Max Power		
Min:0%	Max:100%	℃ >
Work Mod		ature >
8 **0** %		
Max Powe		250℃ >
Min Powe		50℃
Cancel (M)	Apply (O)	
Heating Rate		Close

Tool:PT4-4000-21	ON	🔊

Min: 0%	Max: 80%	20Min 00Sec

80%

80%

	D	C
	A	B

TC1	125℃	C 125	TC2	125℃	C 125
TC3	---℃	C 200	TC4	---℃	C 200

Press **MENU**.
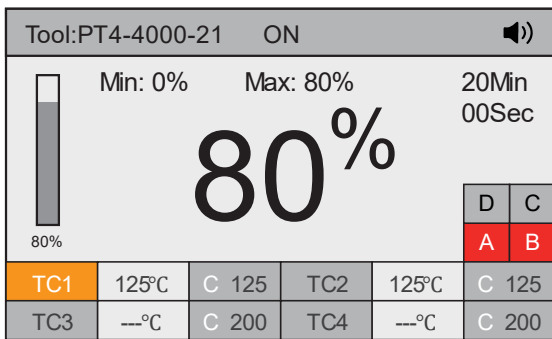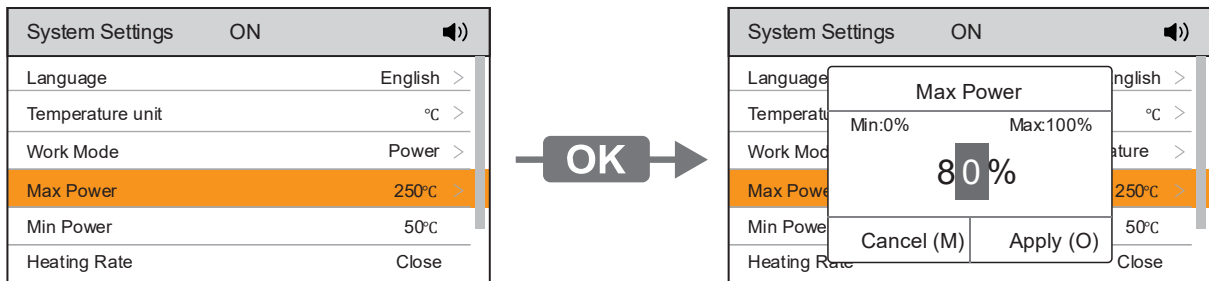
Note: The Max Power and Min Power can limit the max and min value of power adjustment. The higher the power, the higher the temperature of the heating area, and the lower the power, the lower. The factory default Min Power is 0%, Max Power default is 100%.

7.4.6. Heating Rate

MENU > System Settings > Heating Rate

By adjusting the Heating Rate, you can customize the machine's heating rate per second. Factory default is Off, with a range of 0.1 ℃ /s to 2.0 ℃ /s.). Heating Rate can only be used when the Working Mode is set to Temperature.

System Settings	ON	🔊
Heating Rate	Close >	
Stop Time	20Min >	
Sound	🟩 >	
Password	⚪ o >	
Change password	***	
Communication Parameter	1,38400,8,None,1	

OK →

System Settings	ON	🔊
Heating R		Close >
Heating Rate		
Stop Time		20Min >
Min:0.1 ℃/s	Max:2.0 ℃/s	
Sound		🟩 >
0 . **1** ℃ / s		
Password		⚪ o >
Change p		***
Cancel (M)	Apply (O)	
Communication Parameter	1,38400,8,None,1	
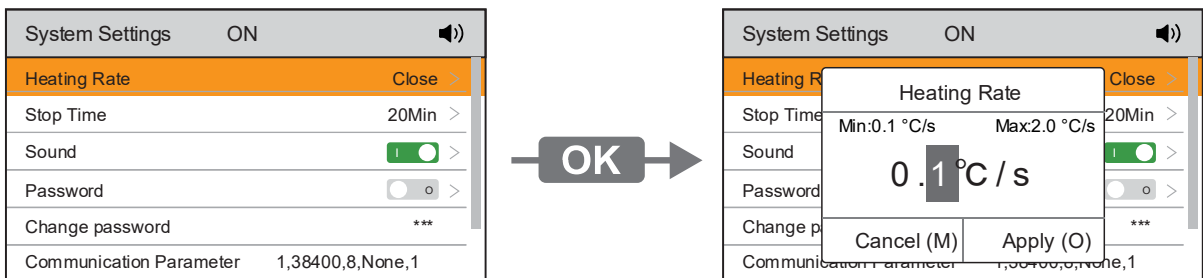
The current heating rate is set to 0.1 ℃ /s. When the device is heated, it will heat up by 0.1 ℃ per second

7.4.7. Stop Time

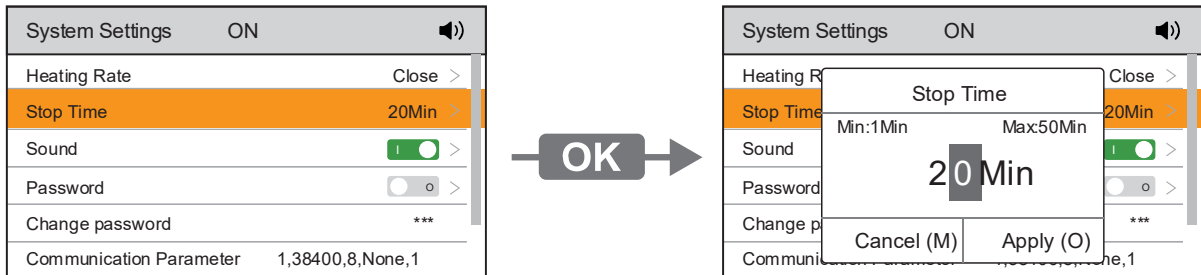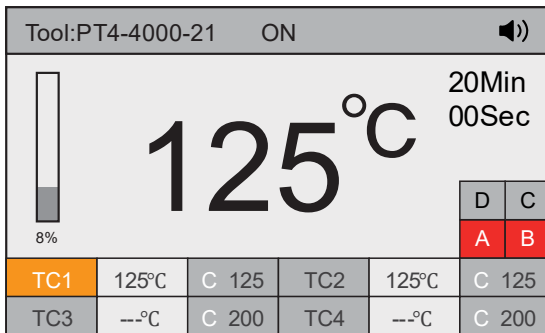MENU > System Settings > Stop Time

The heating time of each heating area can be controlled by adjusting the Stop Time.
The factory default is 20 minutes.

System Settings	ON	🔊
Heating Rate	Close >	
Stop Time	20Min >	
Sound	▮⚪ >	
Password	⚪○ >	
Change password	***	
Communication Parameter	1,38400,8,None,1	

OK →

System Settings	ON	🔊
Heating R	Close >	
Stop Time		20Min >
Sound		▮⚪ >
Password		⚪○ >
Change p	***	
Communic	ne,1	

Stop Time
Min:1Min   Max:50Min
20 Min
Cancel (M)   Apply (O)

Press **OK** to set.

Tool:PT4-4000-21	ON	🔊

125°C   20Min 00Sec

8%

		D	C
		A	B
TC1	125°C	C 125	TC2	125°C	C 125
TC3	--°C	C 200	TC4	--°C	C 200

The Stop Heating Time is 20 minutes. Press 🔥 on the Main Interface to start heating and display a countdown of 20 minutes and 0 seconds.   After the end of the timer, the device will automatically turn off the heater.   Press 🔥 again to restart the heating and countdown.

7.4.8. Sound

MENU > System Settings > Sound

In the System Settings, select the Sound function and press "OK" to turn the unit's sound on or off.

System Settings	ON	🔊
Heating Rate	Close >	
Stop Time	20Min >	
Sound	▮⚪	
Password	⚪○ >	
Change password	***	
Communication Parameter	1,38400,8,None,1	

Displaying this icon indicates that the sound is enabled

Sound On/Off
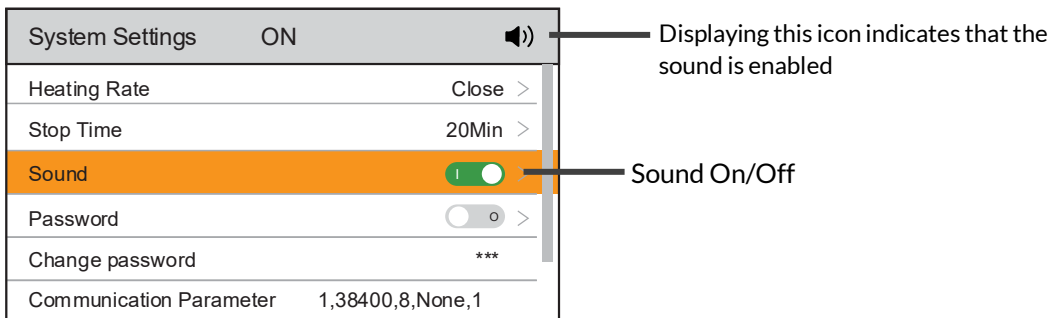
7.4.9. Password

In the System Settings page, select the Password Switch function and press "OK" to turn the Password On/Off.

Password On/Off
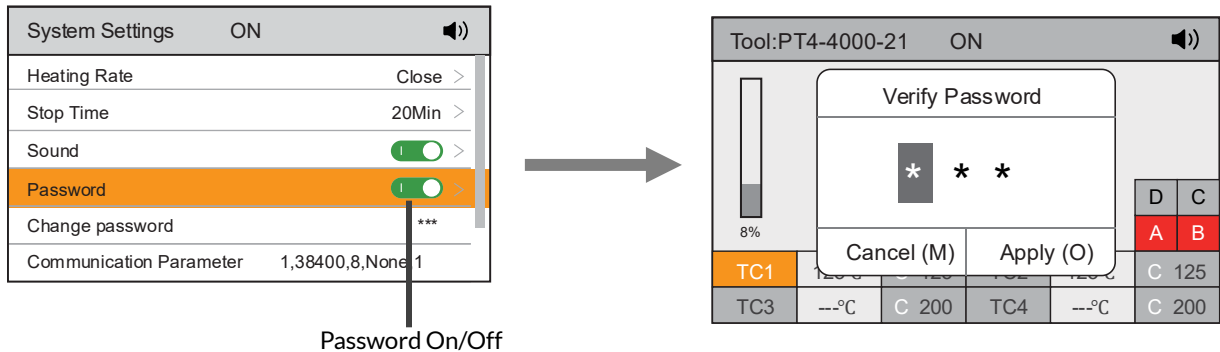
When the password function is enabled, entering the menu interface requires inputting the unit password. For setting the unit's password, please refer to the "Change Password" section below.

7.4.10. Change the Password

In the System Settings page, select "Change password," then press "OK" to set a new password after validating the old password (Initial password is 000).
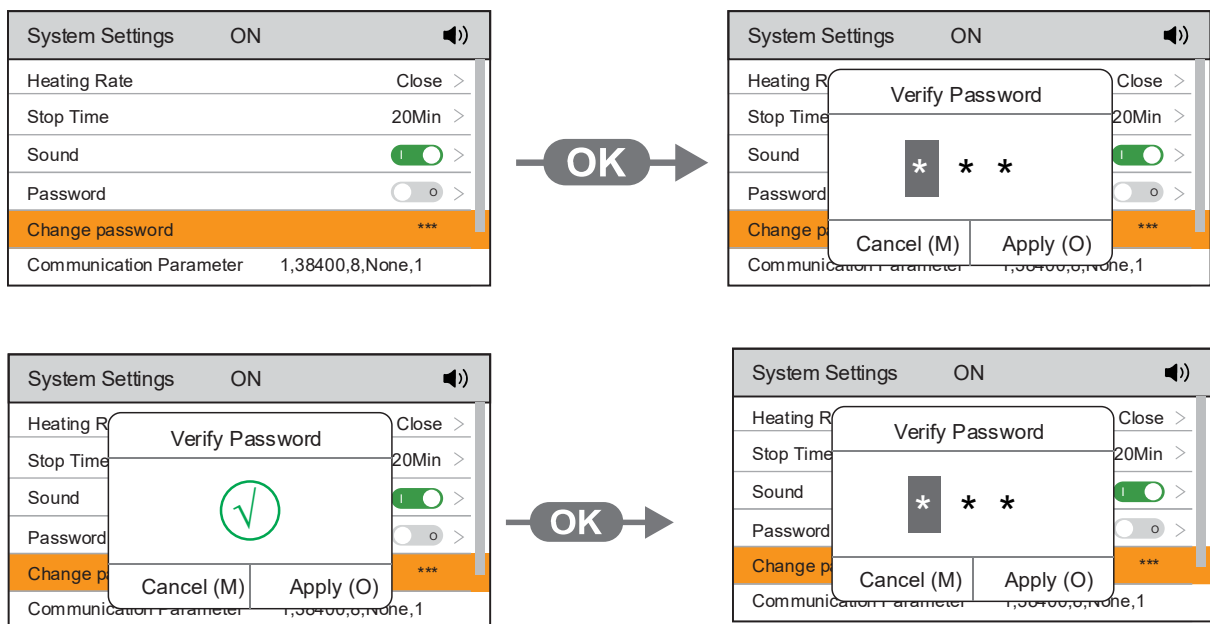
Old password validation is correct

Enter the new password

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7.4.11. Communication Parameter

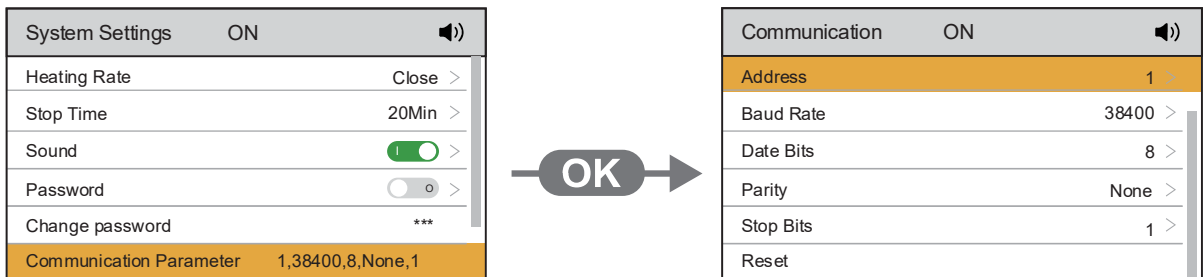Choose the Communication Parameter function under System Settings to set the Communication Parameters.

Select the Communication Parameter Reset function and enter the password to reset the parameter.
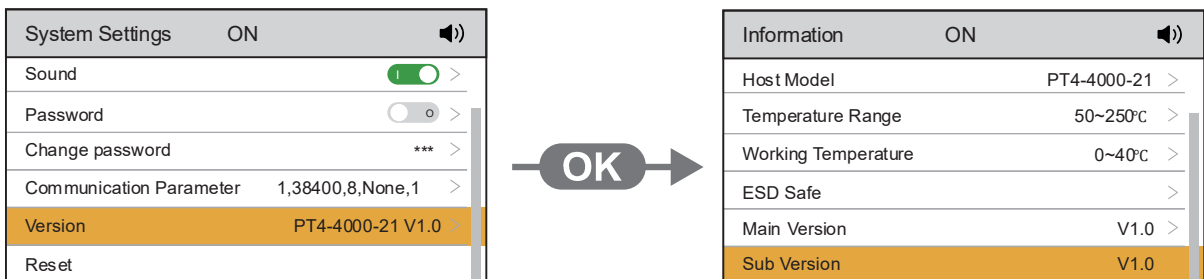
Address: with a range of 1 to 255.

System Settings	ON	◀»
Heating Rate		Close >
Stop Time		20Min >
Sound		⬤ >
Password		◯ >
Change password		***
Communication Parameter	1,38400,8,None,1	

OK →

Communication	ON	◀»
Address		1 >
Baud Rate		38400 >
Date Bits		8 >
Parity		None >
Stop Bits		1 >
Reset		

7.4.12. Firmware Version

Select the Version function under System Settings page to view device information.

System Settings	ON	◀»
Sound		⬤ >
Password		◯ >
Change password		*** >
Communication Parameter	1,38400,8,None,1	>
Version	PT4-4000-21 V1.0	>
Reset		

OK →

Information	ON	◀»
Host Model		PT4-4000-21 >
Temperature Range		50~250℃ >
Working Temperature		0~40℃ >
ESD Safe		>
Main Version		V1.0 >
Sub Version		V1.0

7.4.13. Reset (System Settings)

Select the Reset function under the System Settings page and enter the password to reset the System Settings parameters.

System Settings	ON	◀»
Sound		⬤ >
Password		◯ >
Change password		*** >
Communication Parameter	1,38400,8,None,1	>
Version	PT4-4000-21 V1.0	>
Reset		

OK →

System Settings	ON	◀»
Sound		⬤ >
Password		◯ >
Change p		*** >
Communi		ne,1 >
Version		1 V1.0 >
Reset		

Verify Password

* * *

Cancel (M) Apply (O)
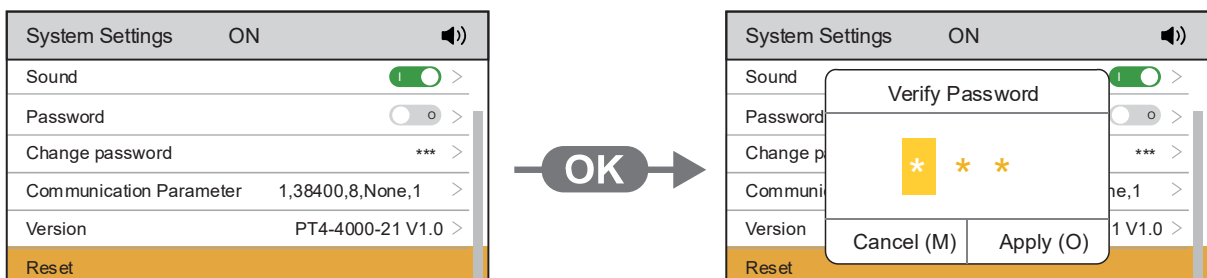
7.5. Factory Reset

MENU > Factory Reset

To restore factory settings, a password must be entered. After entering the correct password, the unit will automatically restart and restore the factory settings (Note: Language remains set).

Main Interface	ON	🔊
Real-time Curve		
Tool Settings	Press the OK key,	
File Settings	he password and verify it,	
System Settings	settings and restart the welding	
Factory Reset	station.	

OK →

Reset	ON	🔊
	Verify Password	
	* * *	y it,
restore		he welding
	Cancel (M)	Apply (O)	
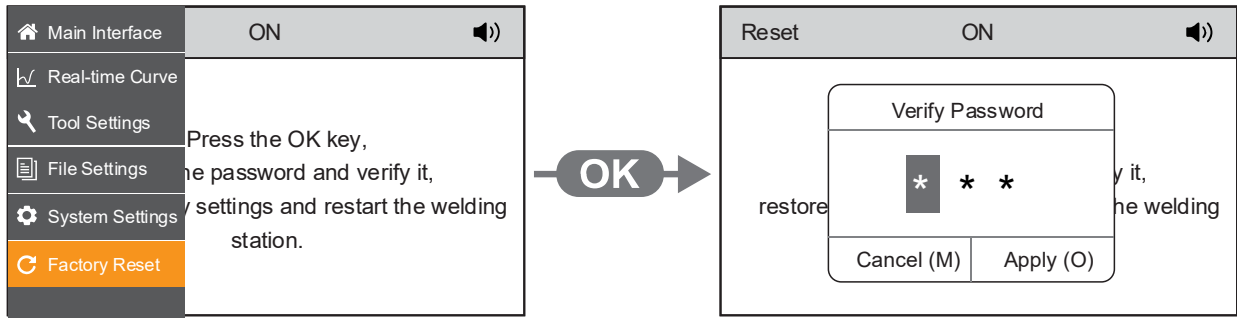
8. Software Update

To update the firmware of your PT4-4000 or PT4-800 Preheater, follow these steps:

1. Please visit **metcal.com/software-updates/** to download the latest firmware update.
2. Copy the upgrade software to a USB drive.
3. With the preheater in the Power Off state, press and hold ⌄⇄⌃ and turn on the Power Switch.   You will enter the Software Update prompt interface (Figure 1-3).
4. Insert the USB drive connector into the preheater's USB port, and the unit will be upgraded and updated automatically (Figure 1-4).
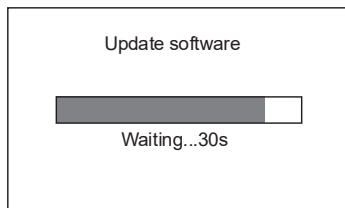5. The unit will restart automatically after the update (Figure 1-5).

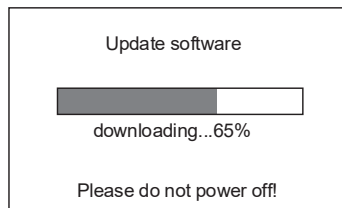| Update software	Update software	
Waiting...30s	downloading...65%	METCAL™
	Please do not power off!	

Figure 1-3   *Figure 1-4*   *Figure 1-5*

Note: During software update, all buttons are disabled. Do not disconnect the power or turn off the unit, as it may cause damage to the unit.

9.　　　　Troubleshooting

⚠️ **WARNING:** Before carrying out any cleaning or maintenance work, always make sure the unit is disconnected from the mains power supply by unplugging the power cord from the socket-outlet. Wait for the preheater to cool down to room temperature.

Issue	Possible Causes	Steps to Resolve
Can not power on	Fuse is not installed or has burnt out.	Check if the wiring is correct, confirm if the fuse is installed or shorted, and replace it with an original fuse as needed
	Poor contact of the power cord.	Check if the power cord is damaged or deformed. If there is an issue, please contact your local dealer
	Main board is damaged.	Please contact your local dealer

Temperature Anomaly
Steps to Resolve:
Abnormal temperature, please check if the thermocouple is securely fastened. Press the heat button to heat, press other to exit.

Tool:PT4-4000-21　　OFF　　🔊

Tip

TC1
Abnormal temperature, please check if the thermocouple is securely fastened.

Press the heat button to heat, press other to exit

	D	C
0%	A	B
TC1		C 200
TC3	---°C	C 200	TC4	---°C	C 200
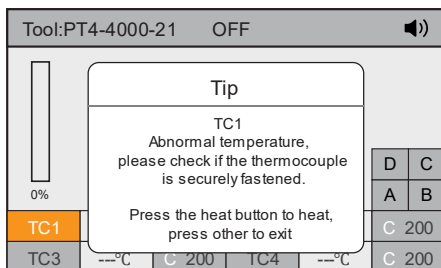
Temperature Anomaly
Steps to Resolve:
TC1 is disconnected, please check if TC1 is connected properly. If there is an issue, please contact your local dealer.

Tool:PT4-4000-21　　OFF　　🔊

Tip

TC1 is disconnected, please check if TC1 is connected properly.

	D	C
0%	A	B
TC1	Apply(O)	C 200
TC3	---°C	C 200	TC4	---°C	C 200
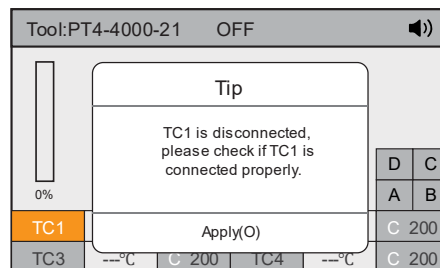
10. Specifications

	PT4-4000-11	PT4-4000-21	PT4-8000-11	PT4-8000-21
Input Voltage	115 V~ 60 Hz	230 V~ 50 Hz	208 V~ 60 Hz 3Φ-4W 115 V~ 60 Hz 1Φ	380 V~ 50 Hz 3Φ-4W 230 V~ 50 Hz 1Φ
Power	1500 W	2800 W	4800 W	4600 W
Controllable Temp. Range	122 °F ~ 482 °F 50 °C ~ 250 °C			
Surface Temp. Range	77 °F ~ 1112 °F 25 °C ~ 600 °C			
Number of Heating Areas	4			
Heating Area (per zone)	5.7" x 5.7" 120 mm x 120 mm		7.1" x 7.9" 180 mm x 200 mm	
Total Heating Area	12.6" x 16" 320 x 406 mm		24.1" x 18.1" 612 x 459 mm	
Temperature Sensors	4 K-Type			
Temperature Units	°F / °C			
Heating Power Display	0%~100%			
Temperature Compensation	±122 °F ±50 °C			
Real-time Display	Temperature & Power			
Zone Heating Control	On/Off			
Profile Management	Learning/Import/Export			
Number of Profiles	20			
Heating Mode	Temperature/Power/Profile			
Password Protection	Yes			
Sound Function	On/Off			
Temperature Lock	On/Off			
Language	English / Chinese			
USB	Profile Import/Export Functionality			
Display	2.3" / 58 mm Color			
Operating Environment	32° ~ 104°F / 0° ~ 40°C, < 85% RH			
Safety Compliance	UL & CSA, UKCA, KC, PSE, NOM, CE (ISO-14644), TUV			
Dimensions (LxWxH)	12.6" x 16" x 2.9" 320 mm x 406 mm x 73 mm		24.1" x 17.7" x 2.9" 612 mm x 450 mm x 73 mm	
Weight (Main Unit)	≈ 10.8 lbs 4.9 Kg		≈ 20.2 lbs 9.1 Kg	

11. Warranty

Please visit Metcal.com where you will find information on systems, accessories, technical notes, and more. You may also contact your local representative for pricing and availability.

Metcal warrants PT4-4000 and PT4-8000 Series Preheaters against any defects in materials or workmanship for one (1) year from the date of purchase by the original owner. This Warranty excludes normal maintenance and shall not apply to any opened, misused, abused, altered, or damaged items. If the product should become defective within the warranty period, Metcal will repair or replace it free of charge at its sole option. The repaired or replacement item(s) will be shipped, freight prepaid, to the original purchaser. The warranty period will start from the date of purchase. If the date of purchase cannot be substantiated, the date of manufacture will be used as the start of the warranty period.

For the repair or return of a unit, a Return Material Authorization Number (RMA #) needs to be obtained from Metcal.

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