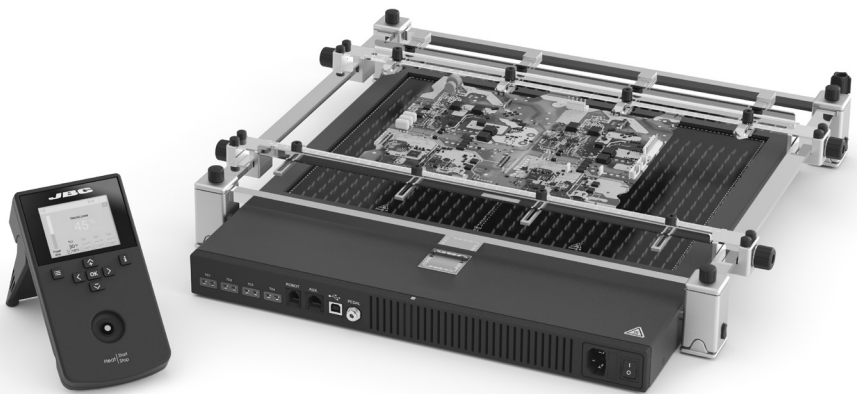# JBC

www.jbctools.com

INSTRUCTION MANUAL

PHBEK
Preheater Set
for PCBs up to 36x28cm/14x11"

This manual corresponds to the following references:

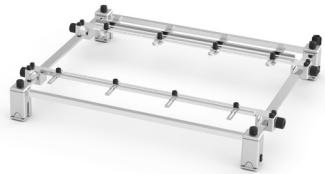**PHBE-9KA** (100V)
PHBE-1KA (120V)
PHBE-2KA (230V)

Packing List

The following items are included:

PHBE Preheater Unit.............................. 1 unit

PHBS Support .... 1 unit
Ref. PHB-SA

Console .... 1 unit
Ref. ACE-A

RJ45 Cable .... 1 unit
Ref. 0019914

Power Cord ....1 unit
Ref. 0024092 (100V)
      0023715 (120V)
      0023714 (230V)

Kapton Tape .... 1 unit
Ref. PH217

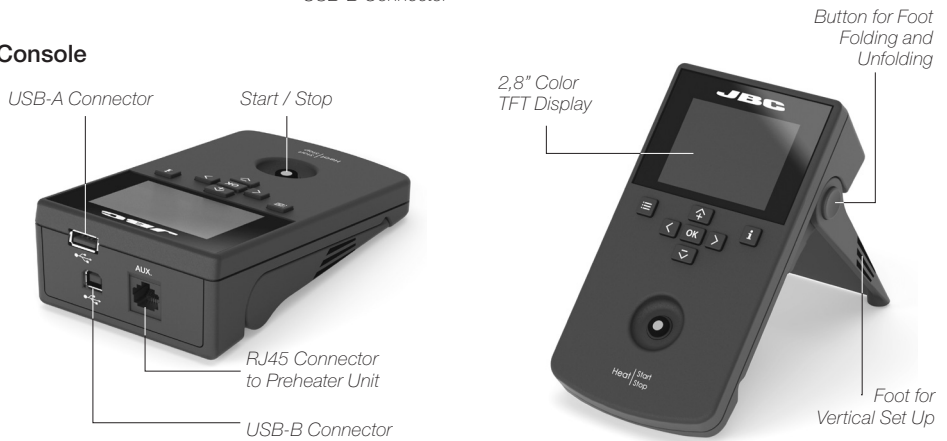**Thermocouple** .... 2 unit
Ref. PH218

Manual .... 1 unit
Ref. 0026987

Features and Connections

Preheater Unit

Heating Areas

Fixing Brackets
for PHBS Support

Zone A

Zone B

Thermocouple
Connectors x4
(Type K)

RJ12 Connector
to Robot

RJ45 Connector
to Console

USB-B Connector

Pedal Connector

Main Switch

Power Socket

Console

USB-A Connector

Start / Stop

2,8" Color
TFT Display

Button for Foot
Folding and
Unfolding

RJ45 Connector
to Preheater Unit

USB-B Connector

Foot for
Vertical Set Up

Support

Max. PCB Dimension (between clamps):
36x28 cm / 14x11 in, Thickness 6 mm / 0.236 in

Rubber Caps

Clamp Knobs

Sliding
Guides

Allen Key

Guide Knobs

Slot Clamps

Height Adjusting
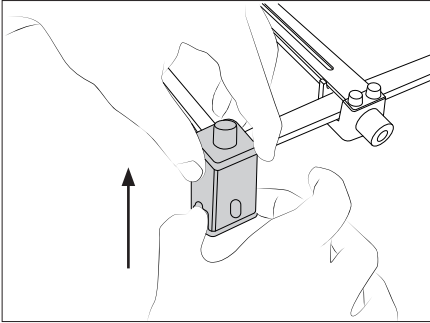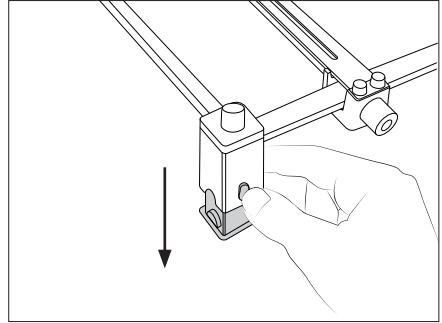System

Height Adjustment

PHBS support allows changing the height between the PCB and the preheater heating area. It can be chosen between 3 positions for the working height adjustment: To change the height, do as follows:
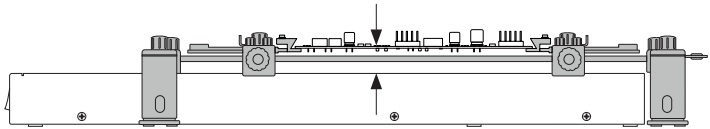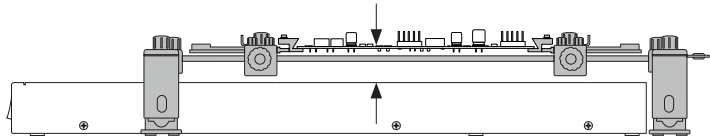

To raise the support, hold the base and pull up.
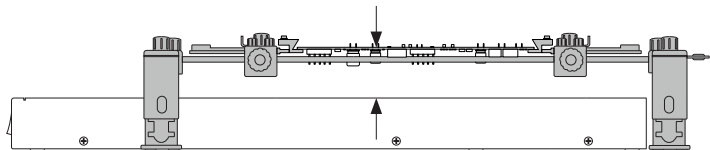

To lower the support, press the button and push down.

Low level
28 mm

Medium level
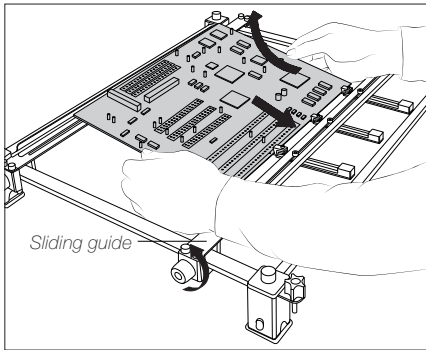38 mm

High level
48 mm

Fast PCB Replacement

PHBS support lets you replace PCBs of the same batch fast and easily. Use the sliding guides to change the PCBs.

Removing the PCB
Loosen one sliding guide, pull back and lift out the PCB.

Sliding guide

Placing another PCB
Position it and tighten the sliding guide knobs.

Sliding guide knobs
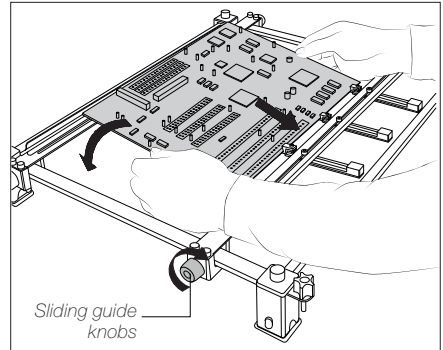
Adjustable slot clamps for PCB fixation.
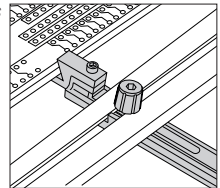
Reworking large PCBs

Use the 4 rubber caps to place PCBs larger than the support or thicker than 3mm.

Rubber Cap *Guide*

PCB

1. Remove both guides by untightening the 8 screws.
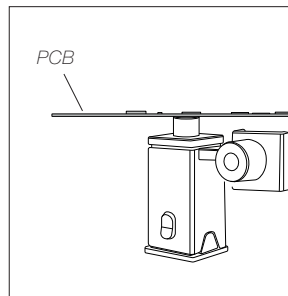
2. Place the PCB on the 4 rubber caps.
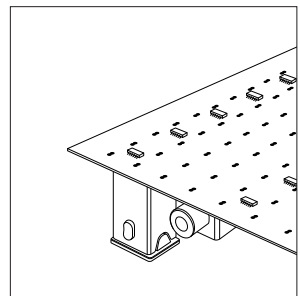
3. The PCB is ready to work.

Work Display

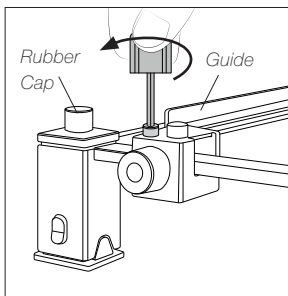The console offers an intuitive user interface, which provides quick access to station parameters.

Status Bar

Instant Power Supplied to Heater

Thermocouple Current Temp.

Status Indicator

Max. Heating Rate

TC1 Current and Selected Temperature

Thermocouple Selected Temp. and Mode
· Control **C**
· Protection **P**
· Info

Menu Options

Station Information

*Original PIN: 0105
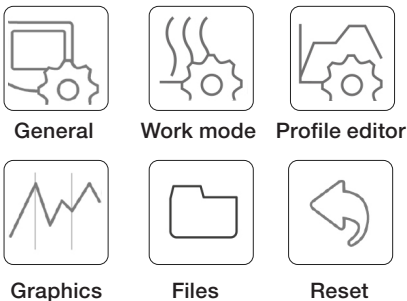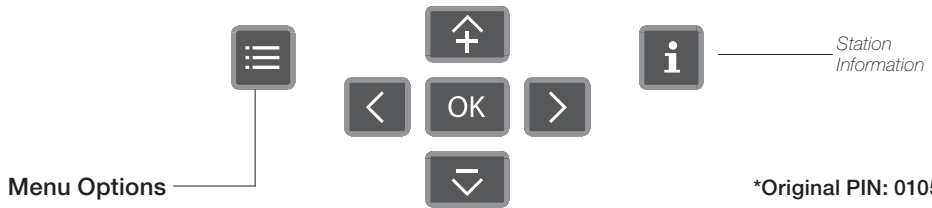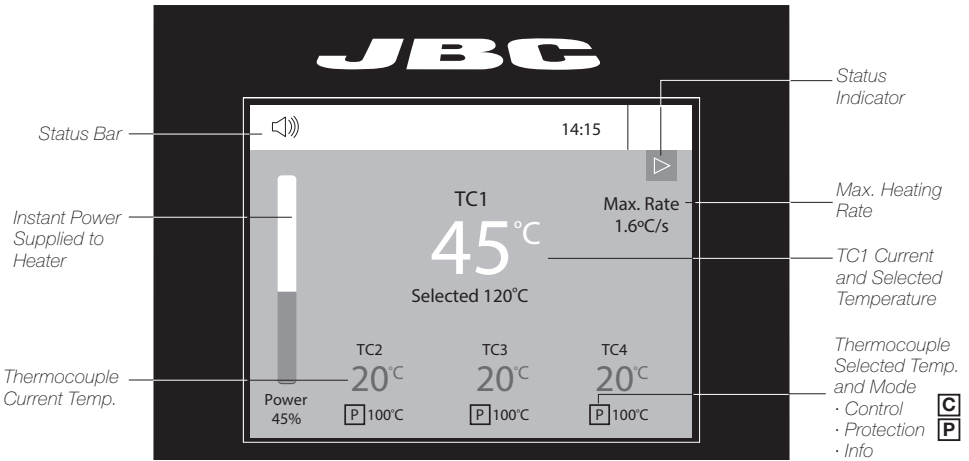
System Notifications (Status Bar)

| General | Work mode | Profile editor |

| Graphics | Files | Reset |

Available languages: English, Spanish, German, French, Italian, Portuguese, Japanese, Chinese, Russian and Korean.

⟵⟶ USB flash drive is connected.

Station is controlled by a PC.

Station is controlled by a robot.

Station software update.
Press INFO to start the process.

⚠ Warning.
Press INFO for failure description.

✖ Error. Press INFO for failure description, the type of error and how to proceed.

Troubleshooting
Station troubleshooting is available on the product page at www.jbctools.com

Setting Thermocouples Function

Select *Thermocouples* from the *Work mode* menu to set them up.
The thermocouples (TC) can work in three different ways depending on what is needed.

[C] · Control: the unit maintains the selected temperature.
[P] · Protection: the Heater Unit stops if the TC reaches the selected temperature.
　· Info: the TC temperature is shown on the work display.

The TC1 is always working in Control mode for the *Temperature* mode as well as for *Profiles* mode.
The temperature of each TC can also be selected from the work display.

Recommended Guidelines

1. Place the control thermocouple as near as possible to the component being worked on.

2. If there are any sensitive components, use a thermocouple as protection.
You can select the protection temperature in the *thermocouples* menu. If the selected temperature is reached, the Heater Unit will stop the process and a warning message will be shown.

Fix with Kapton Tape

Control Thermocouple

Protection Thermocouple
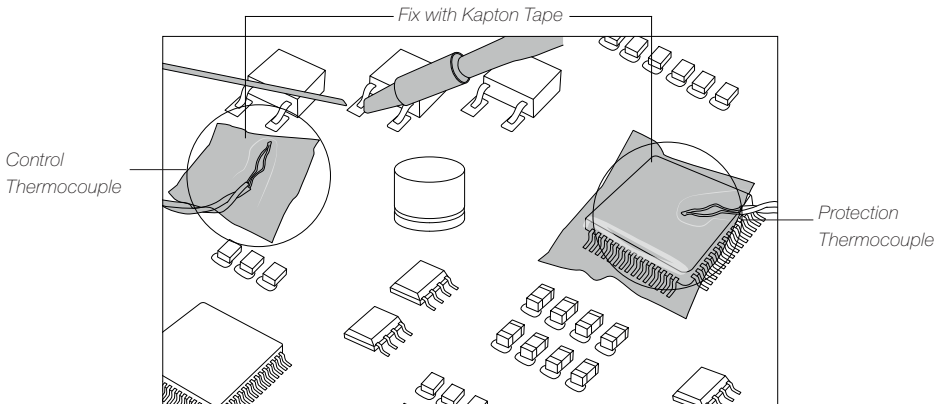
3. We don't recommend exceeding ramp-up rates over 3 - 4 °C / sec (5 - 7 °F / sec) so as to reduce the risk of thermal stress on the PCB.

Work Mode

Temperature Mode:

Select *Temp. mode* from the *Work mode* menu. In this mode, the heater unit maintains the selected temperature for the TC1 thermocouple as long as the other TC's do not reach the control/protection temperature limit.

Status Bar

Instant Power Supplied to Heater

Thermocouple Current Temp.

Status Indicator

Max. Heating Rate

TC1 Current and Selected Temperature

Thermocouple Selected Temp. and Mode
· Control C
· Protection P
· Info
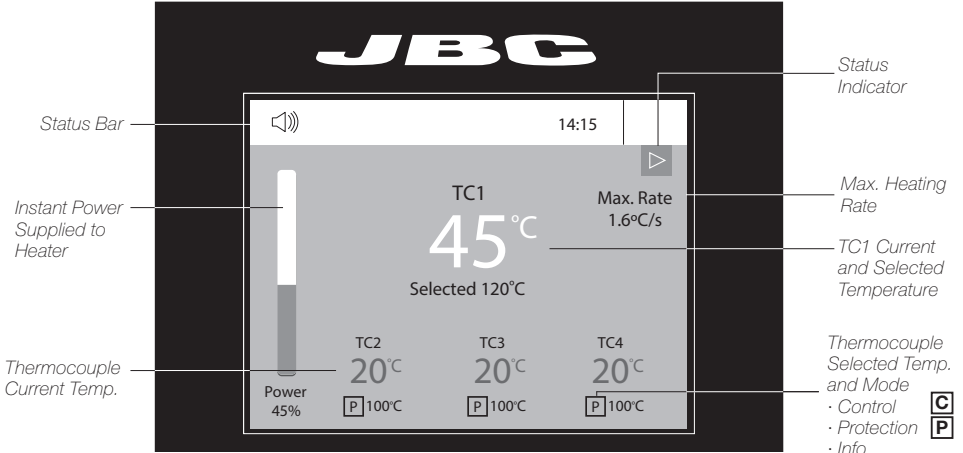
Working within the Temperature Mode the maximum heating rate value (*Max Rate*) can be defined (1).
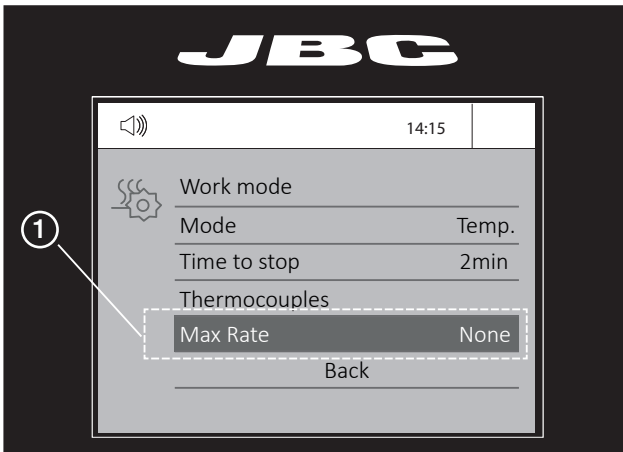
This function allows you to set a maximum value for the temperature increase per second when heating.

The maximum heating rate value can be set between 0.1ºC/s and 2.0ºC/s (2) or "None" if this function is not desired.
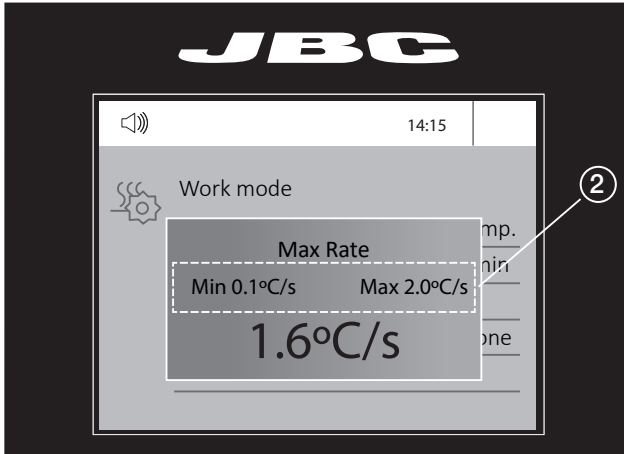
Power Mode:

Select *Power mode* from the *Work mode* menu. In this mode, the heater unit maintains the selected power as long as the thermocouples do not reach the control/protection temperature limit.

Profile Modes

Select *Profile Mode* from the *Work Mode* Menu. In this mode the heater unit regulates the temperature of the TC1 thermocouple according to the selected profile as long as the other TCs do not reach the control/protection temperature limit.

Teach Profile

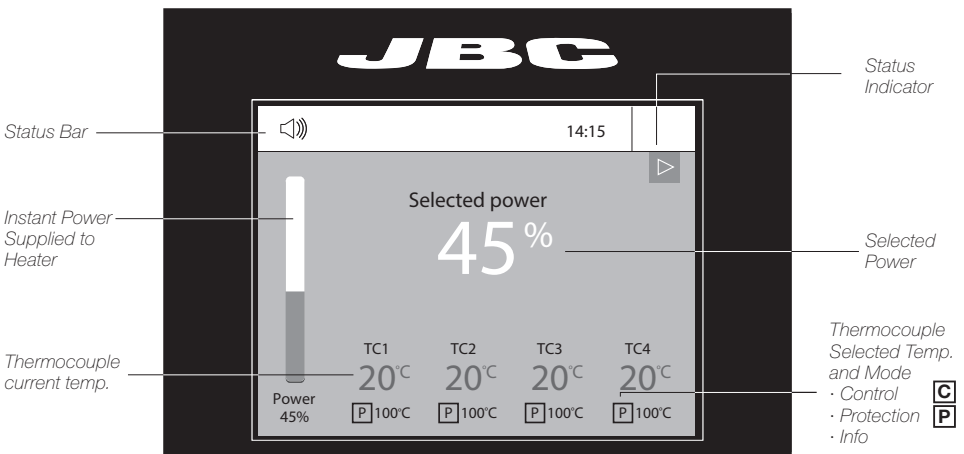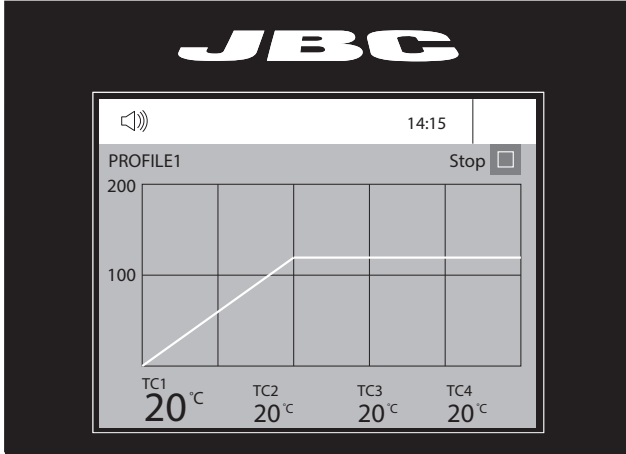For repetitive jobs it is also possible to run customized profiles without the thermocouple (TC). In order to do so, the *Teach profile* mode has to be executed before running any profile. It can be executed from the *Work mode* menu if the *Profiles* mode is selected. The first time, the thermocouple must be connected. Once the profile has been run to the end, the system has all the process data which you can save.

Once it is saved, you can run this profile without connecting the thermocouple (TC). The heating process will be the same as long as the same working conditions are respected.

The profiles which already have the data from the *Teach profile* are marked with this symbol

These profiles can be run either with or without the Thermocouples. It can be chosen from the *Profiles* mode work screen:

Profile Editor

Profile Editor

The *Profile editor* can be opened from the main menu or from the *Profiles* mode work screen by pressing the 'OK' button.

In this mode, you can **edit** as many as 25 profiles of temperature.

Profile Name

Data for these Points

◁))		14:15
PROFILE1		5m 00s

200
100
0   60   120   180   240   300

Point 2/3   Temp **120**℃   Time 2m 00s

Menu Options
· Add Point
· Delete Point
· Load Profile
· Save Profile
· Exit

JBC Set Profiles

There are 3 profiles predefined by JBC: A, B and C. The difference between them is the number of steps: 2, 3 or 4. The thicker your PCB is and the more layers it contains, the more steps are needed to obtain gradual warming.

These profiles are not modifiable but can be used as a template to create your own profiles.

JBC-A
2 steps

120℃
20℃
5'   8'

JBC-B
3 steps

120℃
80℃
20℃
3'30" 5'30"   8'

JBC-C
4 steps

120℃
100℃
80℃
20℃
5'   5'   8'   8'

PCB Reference Specifications:

FR4 1,6mm thick and 2 layers.

FR4 1,6mm thick and 6 layers.

FR4 2,2mm thick and 6 layers.
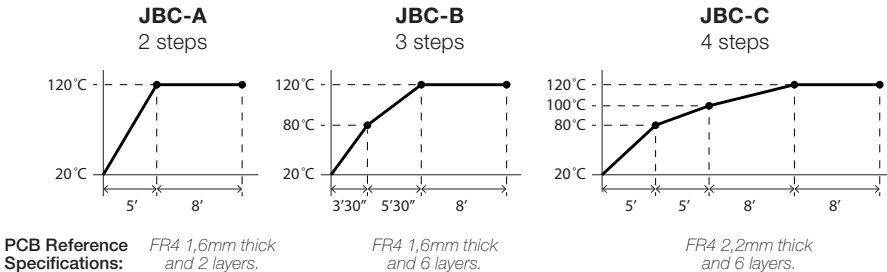
Process Analysis

Graphics

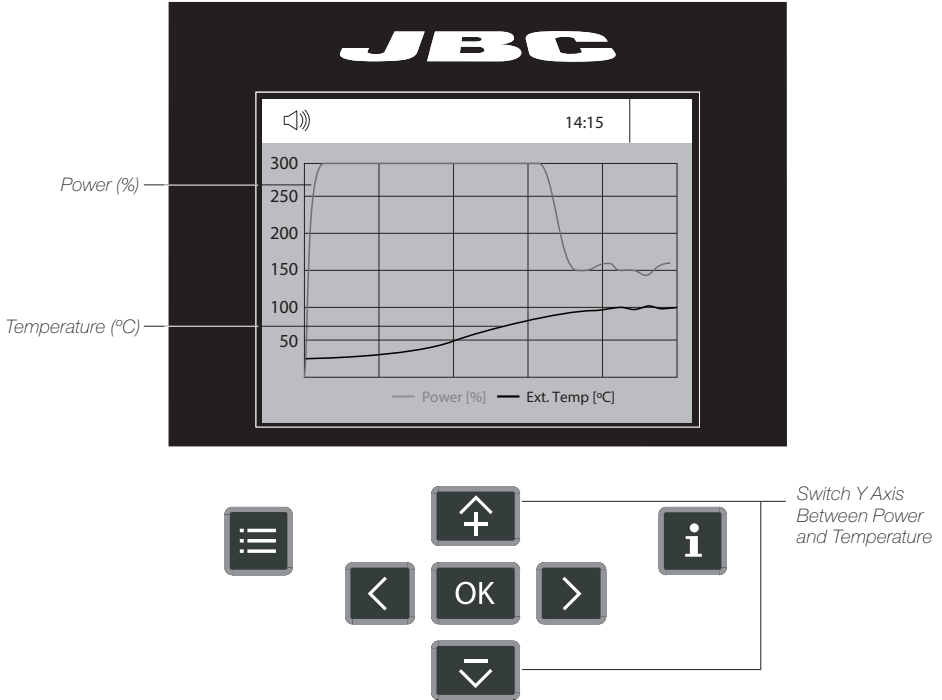By pressing **Graphics** in the main MENU, the temperature of TC1 thermocouple and power figures in real time are displayed.

Power (%)

Temperature (ºC)

300
250
200
150
100
50

14:15

— Power [%] — Ext. Temp [ºC]

Switch Y Axis Between Power and Temperature

OK

System Notifications

The following icons will be displayed on the screen's status bar.

USB flash drive is connected.

Station is controlled by a PC.

Station is controlled by a robot.

Station software update.
Press INFO to start the process.

Warning.
Press INFO for failure description.

Error.
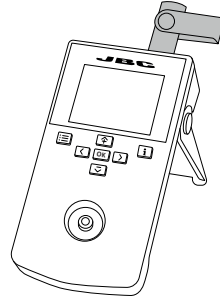Press INFO for failure description, the type of error and how to proceed.

Files

Export Graphics
Insert a USB flash drive into the USB-A connector to save your soldering process in CSV format.

Files

Export / Import Profiles
Insert a USB flash drive into the USB-A connector to export/import profiles.

Update the Station Software

1. Download the JBC Update File from **www.jbctools.com/software.html** and save it on a USB flash drive. (Preferably one with no other files).

JBC
Update File

2. Insert the USB flash drive into the console. The icon ⟳ is displayed while updating.
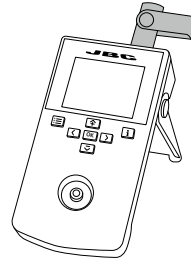
Working with Pedal

Press the pedal to start heating and press again to stop as if it were the button on the console. Once the Work Mode is set, the Heater Unit can work without the console using the pedal.

Pedal
Ref. P-405
(not included)

PHBE Preheater Unit

Maintanance

Before carrying out maintenance or storage, always allow the equipment and the support to cool down.
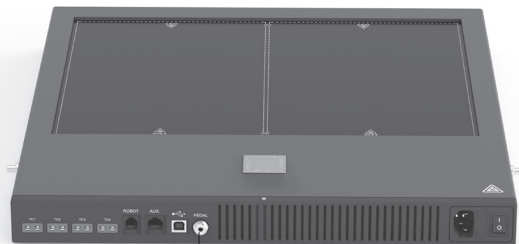
- Check periodically that the Pre Heater and the Support are clean.

- Use a damp cloth when cleaning. Alcohol can only be used to clean the metal parts.

- Only if it is absolutely necessary and if cleaning with isopropyl alcohol (IPA) is not enough, it is recommended to use a scraper to remove dirt in the glass area.

- Replace any defective or damaged parts. Use original JBC spare parts only.

- Repairs should only be performed by a JBC authorized technical service.

Safety

> ⚠ **It is imperative to follow safety guidelines to prevent electric shock, injury, fire or explosion.**

- Do not use the units for any purpose other than PCB preheating. Incorrect use may cause a fire.

- The mains cable must be plugged into approved bases. Make sure that it is properly grounded before use. When unplugging it, hold the plug, not the wire.

- The temperature of accessible surfaces may remain high after the unit is turned off. Handle with care.

- Do not leave the appliance unattended when it is on.

- Do not cover the ventilation grills. Heat can cause inflammable products to ignite.

- Heat can cause inflammable products to ignite even when out of sight.

- Be careful with the remains of liquid tin. In contact with the skin, it can cause burns.

- Avoid flux coming into contact with skin or eyes to prevent irritation.

- Be careful with the smoke produced when soldering.

- Keep your workplace clean and tidy. Wear appropriate protection glasses and gloves when working to avoid personal harm.

- This appliance can be used by children over the age of eight as well as persons with reduced physical, sensory or mental capabilities or lacking experience provided that they have been given adequate supervision or instruction concerning the use of the appliance and understand the hazards involved. Children must not play with the appliance.

- Maintenance must not be carried out by children unless supervised.

Specifications

PHBEK
Preheater Set for PCBs up to 36x28 cm / 14x11"
Ref.: **PHBE-9KA** 100V. Input 100V 50/60Hz.   Fuse 20A
Ref.: **PHBE-1KA** 120V. Input 120V 50/60Hz.   Fuse 20A
Ref.: **PHBE-2KA** 230V. Input 230V 50/60Hz.   Fuse 10A

- Total Net Weight: 9.7 kg / 21.6 lb
- Total Package Dimensions / Weight: 595 x 520 x 235 mm / 12.6 kg
  (L x W x H)   23.03 x 20.5 x 9.25 in / 27.8 lb

Preheater Unit
- Maximum Power: 1800W / 1800W / 1400W
- Heating Area: 180 x 277 mm / 7.1 x 10.9 in - 1 zone
                                             360 x 277 mm / 4.2 x 10.9 in - 2 zones
- Ambient Operating Temperature: 10 - 40 ºC / 50 - 104 ºF
- Temperature Range: 50 - 250 ºC / 120 - 482 ºF
- Temperature Measurement: Thermocouple type K
- Temperature Measurement Accuracy: ± 5 ºC / ± 10 ºF
- JBCset Temperature Profiles: 3 profiles (2, 3 or 4 steps)
- User Profiles: 22 (up to 6 steps for each)
- Maximum Work Time: 600 min or indefinite
- Dimensions / Weight: 426 x 444 x 41 mm / 6,9 kg
  (L x W x H)   6.8 x 17.5 x 1.6 in / 15.4 lb

PCB Support
- Weight: 2.8 kg / 6.2 lb
- Dimensions (Low Position):   432 x 514 x 78 mm
  (L x W x H)   17 x 20.2 x 3.1 in
- Dimensions (High Position):   432 x 514 x 98 mm
  (L x W x H)   17 x 20.2 x 3.9 in
- Maximum PCB Thickness: 6 mm / 0.24 in

Complies with CE standards.
ESD safe.

JBC

Warranty

JBC's 2 year warranty covers this equipment against all manufacturing defects, including the replacement of defective parts and labour.
Warranty does not cover product wear or misuse.
In order for the warranty to be valid, equipment must be returned, postage paid, to the dealer where it was purchased.

This product should not be thrown in the garbage.
In accordance with the European directive 2012/19/EU, electronic equipment at the end of its life must be collected and returned to an authorized recycling facility.

CE EAC

www.jbctools.com