



**Operation and Maintenance Manual for the
MBT450® Digital Soldering/Desoldering Rework System
For power source 7008-0336 or 7008-0337 and accessories**

**Manual 5050-0619
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General Information

Introduction

Thank you for purchasing the PACE model MBT450 All-In-One Solder, Desolder, and Rework System. This manual provides essential information for the proper setup, operation, and customization of your equipment. Please review it thoroughly before use.

The MBT450 supports continuous operation of three conventional handpieces via the front power ports, as well as an industrial forced-air convection handpiece at the rear connection port. This versatile system brings together the high heat output and rapid thermal recovery of PACE's AccuDrive® technology, the proven stability and reliability of our SensaTemp® heating technology, and the advanced performance of the TF-Ultra™ Hot Air Rework Tool-all in a compact, bench-top footprint.

AccuDrive® technology delivers exceptional thermal response, enabling the system to keep pace with fast-moving, high-volume production environments. PACE's renowned SensaTemp® technology provides outstanding temperature stability and performance during demanding, high-thermal-mass applications. The TF-Ultra™ tool offers a powerful solution for challenging boards and components that do not respond well to conventional heating methods.

The MBT450 unit is available in 120 VAC or 230 VAC versions.

Safety Guidelines

The following are safety precautions that personnel must understand and follow when using or servicing this product. The MBT450 is intended for professional electronic assembly, rework, and repair in controlled indoor laboratory environments by trained personnel.

1. Do not leave equipment unattended while it is on.
2. **WARNING - EXPLOSION / FIRE HAZARD.** Do not operate near combustible vapors.
3. After powering down the system, be sure to let everything cool off before touching.
4. **WARNING - ELECTRIC SHOCK HAZARD** - Repair procedures on PACE products should be performed by qualified service personnel. Line voltage parts may be exposed when the equipment is disassembled. Service personnel must avoid contact with these parts when troubleshooting the product.
5. **WARNING - Burn Hazard.** Tip-Heater Cartridges, tips, and heater elements are hot when the handpiece is powered on and will remain so for some time after being powered off. **DO NOT** touch the heater or the tip. Severe burns may result.
6. **WARNING - BURN AND FIRE HAZARD.** The handpiece must be placed into the Tip & Tool Stand (aka cubby) when not in use. PACE Tip & Tool Stands are designed specifically for use with the associated handpiece and houses it in a manner that protects the user from accidental burns.
7. Always use PACE systems in a well-ventilated area. Fume extraction systems, such as those available from PACE, are highly recommended to help protect personnel from solder flux fumes.

8. Exercise proper precautions when using chemicals (e.g., solder paste or flux). Refer to the Material Safety Data Sheet (MSDS) supplied with each chemical and adhere to all safety precautions recommended by the manufacturer.
9. **WARNING - ELECTRICAL SAFETY.** To reduce the risk of electric shock, connect to properly grounded outlets only, use only power cord provided and disconnect from power supply before servicing.
10. **WARNING - SUPERVISION REQUIRED.** This equipment 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.

Intended Use and Foreseeable Misuse

Intended Use

The MBT450 Digital Soldering/Desoldering Rework System is intended for professional electronic assembly, rework, and repair operations. It is designed to be used by trained personnel in controlled indoor laboratories or production environments.

The system is intended to operate exclusively with PACE AccuDrive®, SensaTemp®, and TF-Ultra™ handpieces, accessories, and consumables, as specified in this manual. The MBT450 is designed for continuous bench-top operation within the electrical, environmental, and temperature limits defined in the Specifications section.

Limitations of Use

The MBT450 is not intended for:

- Outdoor use or operation in wet environments
- Explosive, or corrosive atmospheres
- Use in residential or consumer environments
- Operation by untrained or unsupervised users
- Use with handpieces, tip-heater cartridges, or accessories not specified by PACE
- Applications requiring life-critical, medical, or safety-critical process control

Use outside of intended conditions may result in equipment damage, unsafe operation, or personal injury.

Foreseeable Misuse

The following actions are reasonably foreseeable misuse and are prohibited:

- Connecting non-PACE or incompatible handpieces or tip-heater cartridges
- Operating the TF-Ultra hot-air tool without airflow or with blocked air paths
- Connecting tools simultaneously to both the Auto Snap-Vac port and the Controllable Air Pressure port
- Bypassing, defeating, or ignoring SetBack, Auto-Off, or cubby safety features
- Touching heated tips, nozzles, or heater elements during or immediately after operation

- Using the system near combustible vapors or flammable materials
- Performing service or repair procedures while the unit is connected to mains power
- Operating the system outside the specified voltage, temperature, or humidity ranges

Failure to observe these limitations may result in burn injury, electric shock, fire hazard, or equipment damage.

Specifications

Power Requirements

MBT450 - 7008-0336 Operating 108-132 VAC, 50/60 Hz. 400 Watts.

MBT450- 7008-0337 Operating 208-252 VAC, 50 Hz. 400 Watts.

EOS/ESD Specifications

Tip-To-Ground Resistance: Less than 2 ohms

AC Leak Voltage: Less than 20 millivolts RMS

AC Leak Current: Less than 10 milliamps.

Temperature Specifications

Tip Temperature Range: 25-482 °C (77-900 °F) SensaTemp, 25-454 °C (77-850 °F) AccuDrive

Digital Readout Resolution: ±1°

Tip Temperature Stability: ±1.1°C (2°F) at Idle from Set Tip Temperature.

Temperature Accuracy: Meets or exceeds ANSI JSTD 001

Physical Parameters

Size: 15.24 cm H x 17.78 cm W x 28.26 cm D (6"H x 7"W x 11.125"D)

Weight: 6.7 Kg. (14.75 Lbs.)

Vacuum Rise Time: Less than 200 milliseconds to pull 254mm/Hg (10 in/Hg) vacuum on a 33 cubic centimeter (2 cubic inch) reservoir.

Vacuum at Snap-Vac Port: 237mbar (7 in. Hg.) Nominal

Controllable Air Pressure Port: 28 KPa (4 P.S.I.) Nominal

Environmental Requirements

Ambient Operating Temperature: 0°C to 40°C (32°F to 104°F)

Storage Temperature: -40°C to 100°C (-40°F to 212°F)

Indoor/Outdoor Use: Indoor use only

Altitude: Sea Level to 2000 meters.

Relative Humidity: Maximum 80% RH up to 31°C, decreasing linearly to 50% RH at 40°C.

Pollution Degree: Pollution Degree 2

Over Voltage Category: Category 2

NOTE: Minimum and Maximum Operating Tip Temperatures measured at the tip may vary depending upon handpiece & tip selection.

Capabilities

The MBT 450 integrates several temperature management and control systems. All capabilities are dependent on the use of appropriate handpieces and accessories. A manual is available for each handpiece with further details of recommended procedures for that tool.

The MBT450 offers flexibility in use with accommodation for two AccuDrive tools and one SensaTemp tool to be ready to use. The dual-purpose vacuum & pressure pumping system, featuring PACE's patented SNAP-VAC Technology, provides quick and powerful vacuum for

desoldering applications. The adjustable air pressure can be used to operate a hot-air pencil with the precise adjustment needed for working with the smallest components.

The TF-Ultra hot air rework tool can be useful during installation or removal of surface mount components as well as land preparation or any other task that might benefit from a convective heating solution.

MBT450 Compatible Handpieces

TF-Ultra

The TF-Ultra is a precision hot-air rework tool designed for demanding electronics applications where control, repeatability, and operator confidence are essential. Integrated seamlessly with the MBT450 system, the TF-Ultra combines responsive touchscreen control, customizable presets, and real-time temperature monitoring to deliver consistent, accurate performance across a wide range of tasks. With support for interchangeable nozzles, K-type thermocouples, and intelligent features such as automatic cubby shutoff, the TF-Ultra is engineered to enhance workflow efficiency while maintaining the highest standards of process control and safety.

AccuDrive

TD-200 Tip-Heater Cartridge Iron - The most responsive soldering iron available. Uses tip-heater cartridges. TD-200 Kit P/N 6993-0316-P1 Handpiece only P/N 6010-0166-P1

MT-200 Mini-Tweez - Tweezer style soldering iron using AccuDrive tip-heater cartridges for SMD removal. MT-200 Kit P/N 6993-0323-P1 Handpiece only P/N 6010-0169-P1

CAUTION - Only use PACE handpieces from the AccuDrive, SensaTemp, or TF-Ultra product families with the MBT450. Only use tip-heater cartridges from the AccuDrive Blue Series. Tip-heater cartridges or handpieces from other PACE product families are not compatible with this system.

SensaTemp

PS-90 Soldering Iron- Provides a wide range of installation and removal capabilities along with unsurpassed thermal performance on heavy, multilayer thru-hole assemblies at safe, lower working temperatures. A wide variety of 3/16" shank, quick change thru-hole and SMD tips (for chip components, SOTs, SOICs and other components) are available. PS-90 Kit P/N 6993-0199-P1 Handpiece only P/N 6010-0131-P1

SX-100 Sodr-X-Tractor - The ideal vacuum hand piece for desoldering thru-hole or surface mount components from high-mass multilayer boards. SX-100 Kit P/N 6993-0213-P1 Handpiece only P/N 6010-0106-P1

TP-65 ThermoPik - Uses conductive heating and vacuum to remove various Flat Pack surface mount devices including QFP and PQFP. TP-65 Kit P/N 6993-0205-P1 Handpiece only P/N 7024-0001-P1

TT-65 ThermoTweez - Performs removal of PLCC (J Leaded), LCCC (leadless) and other surface mount devices. TT-65 Kit P/N 6993-0207-P1 Handpiece only P/N 7025-0001-P1

TJ-70 ThermoJet - Finger switch activated precision hot-air pencil for the installation or removal of SMDs. TJ-70 Kit P/N 6993-0206-P1 Handpiece only P/N 7023-0002-P1

Glossary

Please familiarize yourself with the following terms and definitions.

Auto-Off: A safety feature that automatically powers down the irons after the system has been in Temperature Setback for a defined period. The timer is user-configurable from 1 to 90 minutes in 1-minute increments.

Auto Snap-Vac: When the vacuum pump is activated, it will automatically begin the cycle with a brief burst of elevated vacuum performance to snap up the solder. When activated, the pump runs continuously for just over one second, even if the button or switch is immediately released, and it will continue running for as long as the button remains pressed.

Automatic SetBack: After a pre-set period of inactivity has passed, the system will “set back” the temperature of the iron to a lower value. The SetBack temperature and timing are both customizable by the user.

CAUTION: Indicates a potentially hazardous situation that may cause equipment damage or minor injury.

Cubby: Another term for the Tip and Tool Stand, that holds hand tools and their corresponding tips.

Home Screen: The primary interface screen for most operations of the system, which displays the operating tip temperatures for the irons as well as quick-access icons for higher-level controls and settings within the MBT450.

Instant SetBack: A feature that works with an Instant SetBack Cubby to immediately initiate the SetBack routine for a tool as soon as it is placed in the cubby.

NOTE: Important information, tips, or clarification that does not relate to personal injury or equipment damage.

Password: A security feature used to restrict unauthorized changes to stored system settings. When enabled, a closed-lock icon appears in the top-right corner of the display.

Set Temperature: The desired temperature, selected by the operator and stored in the system memory.

Tip Temperature Offset: An adjustment that corrects differences between the set temperature and the actual tip temperature. Variations may occur due to tip geometry and resulting heat loss. For high-precision applications, a Tip Temperature Offset may be used to fine-tune accuracy.

WARNING: Indicates a potentially hazardous situation that could cause serious injury or death.

System Features



The following are descriptions of the MBT450 identifying features.

1. **Touch Screen Display** - Capacitive touch Liquid Crystal Display with intuitive controls and full color reporting of operational status for all connected tools.
2. **Power Button** - Short press powers ON (up to ~30 seconds to boot). Press and hold ~2 seconds to power OFF.
3. **Controllable Air Pressure Port** - Adjustable air output with a quick-connect fitting for ThermoJet handpieces (TJ70, TJ85). Pump runs for a minimum of 1.2 seconds per activation and continues while the switch or foot pedal is held.
4. **Auto Snap-Vac Port with Replaceable VisiFilter** - Provides a quick-rise vacuum for Sodr X-Tractor® and ThermoPik™ handpieces, activating for a minimum of 1.2 seconds and continuing to run while the switch or foot pedal is held. A replaceable VisiFilter shields the pump from particulates and flux fumes.

CAUTION - Connect only one air hose at a time, to either the Snap-Vac or Controllable Pressure port; using both will reduce performance.

5. **CH 1 Power Port** - AccuDrive connection providing power, ESD grounding, and communication.
CH 2 Power Port - Second AccuDrive connection providing power, ESD grounding, and communication.
CH 3 Power Port - SensaTemp connection for power, grounding, and control communication.
6. **I/O panel** - Includes four standard USB ports for local data transfer. These are used for software updates and loading videos into the MBT450. Network connectivity is not required for normal operation.



7. **TF-Ultra connector** - For power and control of a TF-Ultra hot-air rework handpiece.
8. **Foot Pedal Receptacle** - 6-pin DIN for optional foot pedal to activate vacuum/pressure; requires SensaTemp Power Port to be On.
9. **Instant SetBack Stand Ports** - Connects Instant Setback Cubby for handpieces on Power Ports 1 and 2.
10. **Fuses** - Protects against overloads/short circuits by cutting power; configured for the unit's input rating.

120V - 7008-0336

- F1 - 5A 1159-0285
- F2 - 8A 1159-0280-02

230V - 7008-0337

- F1 - 2.5A 1159-0286
- F2 - 5A 1159-0285

11. **AC Power Receptacle** - C14 style receptacle for entry of AC power to the system.
12. **Earth Ground Receptacle** - Banana jack socket that provides a hard earth ground point. A ground cable can be connected from here to the work piece or work surface as part of a static control program.

CAUTION - ESD CONTROL. When implementing ESD protection.

- Use a 1MΩ resistor in-line with wrist-strap grounding cords.
- Use a direct (hard) ground for work-surface grounding cords.

Improper grounding may compromise ESD protection or operator safety.

13. **External Thermocouple** - Provisioning for two individual k-type thermocouple sensors, adding valuable information about the reflow/rework process while using the TF-Ultra hot-air tool.

Initial Set-Up

Setting up the MBT450 system is quick and easy.

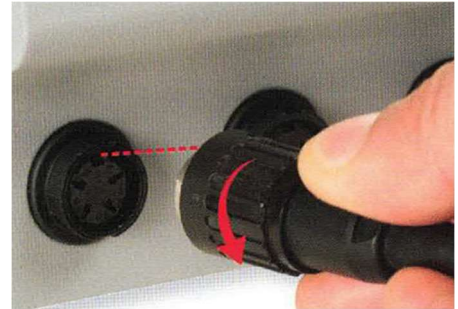
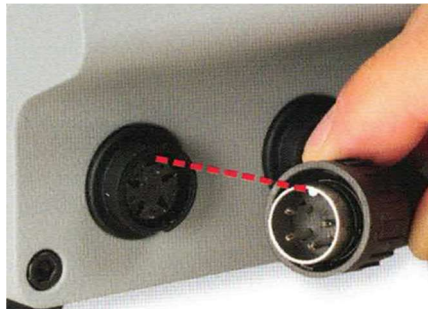
1. Remove equipment from the shipping container and place it on a workbench that will have adequate ventilation for the adventures in soldering and rework that lie ahead.
2. Inspect all components, checking for any shipping damage and ensuring all purchased components (standard or optional) are present.
3. Assemble Tip & Tool Stands as necessary. Assembly Instructions are included.

Handpiece Connection

The MBT450 supports AccuDrive and SensaTemp handpieces using the three Power Ports on the front panel, Two that work with AccuDrive handpieces and one for SensaTemp tools. The TF-Ultra hot-air rework tool connects at the rear of the unit.

CAUTION - Use only AccuDrive, SensaTemp, or TF-Ultra handpieces with the MBT450, and only AccuDrive Blue Series tip-heater cartridges. Handpieces or cartridges from other PACE product families are not compatible.

1. Connect the AccuDrive 4-pin handpiece connector to either the first or second Power Port. SensaTemp handpieces, which have a 6-pin connector, go to the third Power Port.
 - a) With the male end of the plug facing the power source, turn the Locking Ring fully counterclockwise.
 - b) Orient the plug so the key in the male plug is at the top and aligns with the keyway of the power Port.
 - c) Insert connector into power Port.
 - d) Turn Locking Ring fully clockwise to lock in place.
2. To help reduce confusion among handpieces, PACE recommends the use of colored cable markers (Cable Marker Kit P/N 6993-0136-P1) for quick and easy visual identification of each handpiece and its plug. Attach any two like colored markers, one at each end



of the power cable or air hose for each handpiece. Select and use a different colored pair of markers for each handpiece.

3. If you have received an optional foot pedal, insert the connector plug into the Pedal Receptacle on the rear panel of the power source.
4. Connect the TF-Ultra in similar fashion as the other handpiece connectors, using the 12-pin connector at the back of the unit.



Instant SetBack Tool Stand Connection (Optional)

If an Instant SetBack Tool Stand (ISB cubby) has been included with your system, following the steps below will have it set-up and ready in no time.



1. Connect the cable from the ISB cubby to the receptacle on the rear panel of the power supply, being mindful of which Power Port each stand is being connected to.
2. Place the tool stand in the desired location on the workbench, within easy reach of the operator.
3. Place hand tool into the tool stand. Don't forget to install the tip-heater cartridges!

NOTE: When the handpiece is placed in the ISB cubby, Temperature Setback Mode activates after a brief delay (90 seconds by factory default). This delay can be adjusted or disabled in the settings. When the handpiece is removed, the connected Power Port exits Setback and returns the tool to the channel's set temperature.

System Power



1. Insert the female end of the power cord into the AC Power Receptacle on the rear panel of the power source.
2. Plug the prong end (male end) of the power cord into an appropriate 3 wire grounded AC supply receptacle.

Basic Operation

General Start-Up

Ensure the equipment has been fully set-up. Check the following:

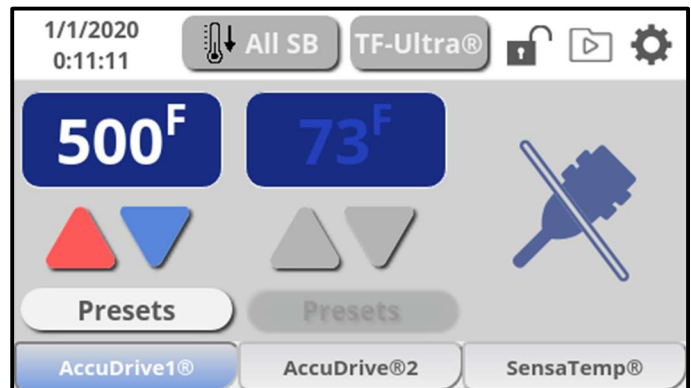
- The necessary hand tools are connected to the correct ports or receptacles on the power source.
- The tools have appropriate tips, heaters or nozzles installed as required, and they are stowed in a safe place in preparation of them getting hot.
- The power cord and accessories, such as Instant Set-Back stands, K-type thermocouples, foot pedal, and ESD grounding are connected properly at the back of the unit.

Turn the unit on by pressing and releasing the Power Switch. The Switch will illuminate blue. After a few moments, the PACE logo will appear followed by the Home Screen.

Conductive Iron Operation (TD200, MT200, SX100)

The unit automatically recalls the last-used temperature for each Power Port. When powered on, all connected tools will be in the Off state. If a tool is not plugged in or cannot be detected, the Home Screen will display an indicator showing this status.

- **Active (On):** The Power Port appears in full color. The temperature value may fluctuate slightly while the tool warms up and stabilizes.
- **Inactive (Off):** The controls appear greyed out and the temperature is dimmed.
- **No Tool Detected:** An illustration of a plug with a slash through it is shown when nothing is connected to the Power Port, or if a connected tool has a fault, such as a missing or failed heater element or tip-heater cartridge.



Each Power Port can be turned On or Off by tapping its corresponding tab at the bottom of the Home Screen.

To adjust the temperature for an active Power Port, press the Up (▲) or Down (▼) keys. Temperature changes occur in 1° increments at first, then 10° increments while the key is held down. Release the key once the desired temperature is displayed; the tool will then heat or cool to match the new setting.

NOTE: The Set Temperature can only be adjusted within the upper and lower temperature limits. Temperature limits may be adjusted within the Settings menu. Refer to the section Advanced Operation for more information.

Hot-Air Tool Operation (TF-Ultra)

CAUTION - Do not operate the TF-Ultra without airflow or with blocked air paths. This may damage the heater or create unsafe temperatures.

The TF-Ultra can be activated by pressing the button on the handle or by tapping the TF-Ultra button at the top of the Home Screen.

TF-Ultra®

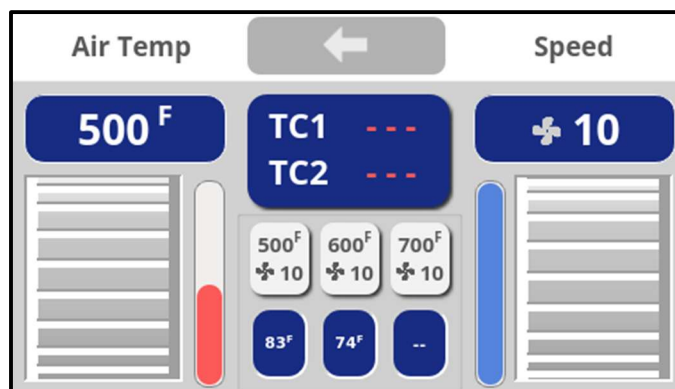
To turn the TF-Ultra off, press the button on the tool or exit the TF-Ultra screen by tapping the left-facing arrow to return to the Home Screen.

NOTE: The TF-Ultra's accelerometers allow the MBT450 to detect when it is in its stand or dropped and automatically power it off.

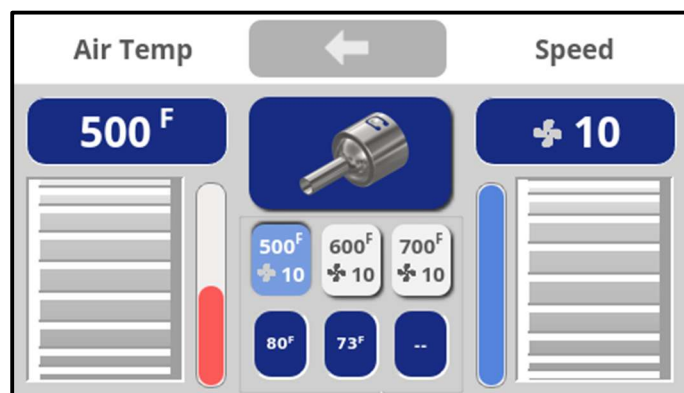
With this feature enabled, powering on the TF-Ultra in the stand shows "TFU stowed in cubby" and then turns it off.

Upon activation, the Touch-Screen Display automatically switches to show the TF-Ultra's temperature and airflow settings. While the TF-Ultra is running, the air temperature and speed can be altered using a few different ways.

- **Touch control** - Slide your finger up or down on the corresponding slider on the Touch-Panel Display.
- **Manual data entry** - Tap the blue value field for the setting you want to change, then use the on-screen keyboard to enter the exact number.



- **Preset** - Select one of the three presets at the bottom-center of the display. Each preset can include an optional nozzle image. If a nozzle image is assigned, it will appear when that preset is selected as long as no thermocouples are attached.



When K-type thermocouples are connected to either of the ports on the back of the MBT450, their readings will appear in the center of the TF-Ultra screen-even if the selected preset includes a nozzle image.



Available TF-Ultra Nozzles



For reference, images of the nozzles are shown here along with brief descriptions and part numbers for each.

The TF-Ultra tool stand includes some unique features to assist with management of nozzles.



- Nozzle Storage Post - The TF-Ultra tool stand includes an aluminum post with a tapered peg. The peg fits securely into any of the storage holes on the rear of the stand, providing a convenient spot to store nozzles.



- Nozzle Bootjack/holder - Located at the front of the TF-Ultra stand, the nozzle bootjack provides secure storage and enables quick “hot-swap” nozzle changes.

To remove a nozzle, insert the heated TF-Ultra into either opening, press down gently, and pull the handpiece away, leaving the nozzle in the rack. Reversing this process allows operators to put nozzles onto the TF-Ultra as well.



Nozzles can be changed quickly and safely, even at full operating temperature.



WARNING - HOT NOZZLE HANDLING. TF-Ultra nozzles may be changed while hot using the integrated boot-jack feature or hot grip pad. Do not handle nozzles directly with bare hands. Serious burns may occur.

Other Features

We've already covered the TF-Ultra controls. Along the top of the Home Screen, you'll find several additional features to review before moving on to the next section, *Advanced Operation*. The remaining items in the top menu bar include:



In the top-left corner, the MBT450 displays the current time and date. These can be set manually. Clock settings are available in the Settings menu which will be discussed in the next section.



Touching All SB places all active tools into SetBack mode. In SetBack, the set temperature is reduced to a user-defined value (350°F by default) to extend the life of heater elements and tips while keeping the system ready to quickly return to working temperature.

When a Power Port enters SetBack, a timer begins (default setting of 10 minutes). Once the timer expires, that Power Port will automatically turn off.

The SetBack temperature, SetBack timer, and Auto-Off timer are all adjustable in the Settings menu, unless the unit has been locked.



A lock icon appears on the top menu bar and may be either open or closed. When the lock is closed, the Settings menu is inaccessible.

To change the lock status, tap the lock icon and enter the password when prompted. The password is required to lock or unlock the settings.

If the password is lost or forgotten, please contact PACE Support for assistance.



The icon depicting a folder with play button represents the MBT450 video library. The MBT450 can play videos in full color with sound.

A few videos are pre-installed, which can be played by simply tapping the desired selection on screen.



Tap anywhere on the screen during playback to display controls at the bottom. These controls let you exit the video, pause or resume, scrub to a different point, and adjust volume.

Videos start at the unit's preset volume, which can be adjusted using the speaker icons. If the MBT450's main sound control is turned off, videos will be muted and the volume playback controls will not work.

The MBT450 video library can be managed using the wrench icon, which brings up the screen seen at right.

To upload a video, first insert a USB drive containing the video in .avi format, then tap Upload. The next screen will display the .avi files contained on the USB drive. If the files do not appear, or you've connected the wrong USB drive, you can use the refresh button at the top right to check the drive again or to refresh the listing after connecting another drive. To remove a video from the library, simply select the video and tap Remove. The unit will ask for confirmation before removing the video permanently.



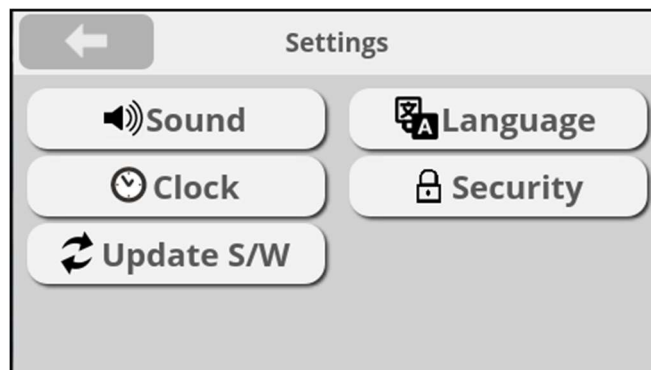
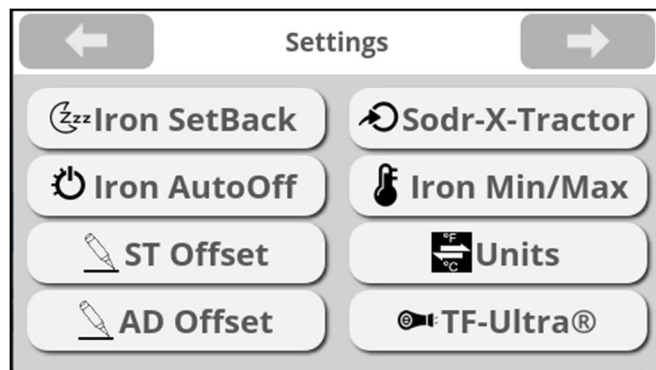
Advanced Operation

Customizing Your System

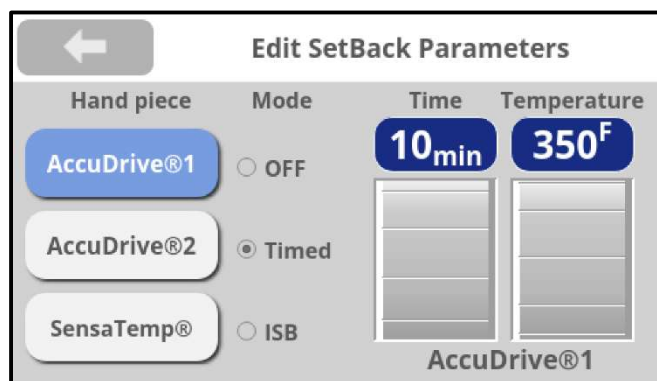


Interacting with the widely recognized gear icon at top right corner of the Home Screen will bring up the settings options for the MBT450.

NOTE: When the MBT450 is locked, settings cannot be accessed.



Iron SetBack - This controls how the SetBack feature for each of the Power Ports on the front of the MBT450 will behave. The Temperature setting here dictates what the associated Power Port will change to during SetBack. The mode of activation, either the Instant SetBack Stand (ISB) or the built-in timer, can be set or turned off completely for each Power Port separately.



- Off - SetBack will not activate.
- Timed - SetBack will activate if the unit has not sensed a temperature load within the time shown. Timing can be set from 10 minutes up to 90 minutes, in 10 minute increments.
- ISB - The tool will go into SetBack after it has been set into a connected ISB stand and the amount of time shown has passed. Timing for the ISB can be 0 seconds, for instant SetBack activation, or as long as 240 seconds.

NOTE: ISB stand are not available for the SensaTemp tools. The ISB Mode does not appear when SensaTemp has been selected.



Iron AutoOff - The amount of time that each Power Port will wait after engaging SetBack before turning the associated iron off completely. Using the slider wheels, each Power Port can be adjusted in 10 minute increments from Off (meaning the tool will never AutoOff) up to 90 minutes.

As a reminder, to turn an iron on, press the button at the bottom of the Home Screen corresponding to the tool you wish to turn back on.

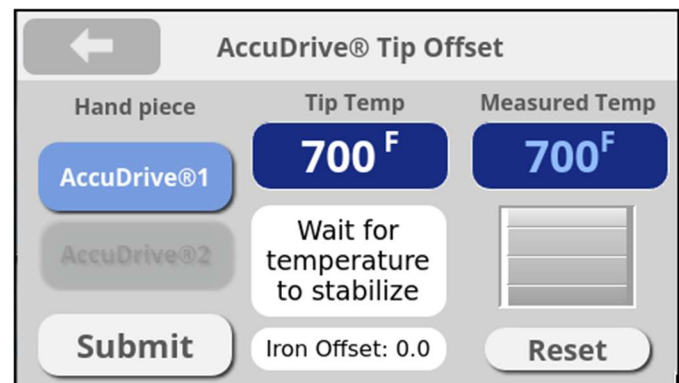
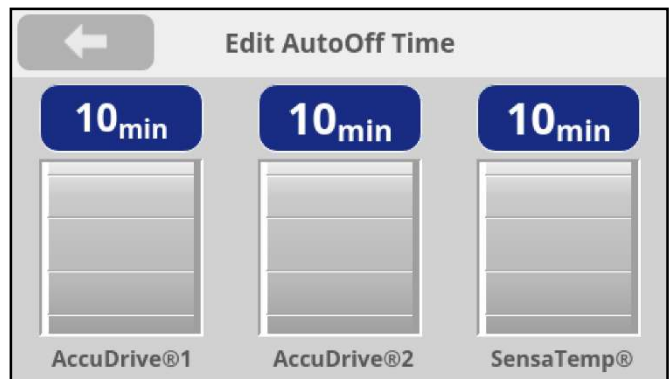


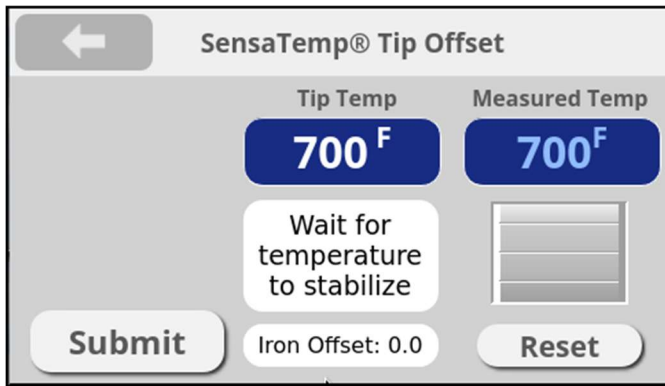
AD Offset - AccuDrive heating offers fast, reliable temperature performance however, some scenarios may require more precise tip temperatures. To follow this procedure, you will need a way of measuring the actual tip temperature, like the 8001-0087-P1 Tip Temperature Monitor available from PACE.

Select the AccuDrive port you wish to modify, bringing up the screen seen at right. Here, the tool will begin heating and we can see whether there is currently an Offset in place. To remove any existing Offset, simply tap Reset.

1. Allow the tool to stabilize on 700°F or 371°C. Provide ample time for heat to soak through the entire tip for an accurate temperature reading during the next step.
2. Once the tool has stabilized, apply a small amount of fresh solder to the iron's tip, gently hold the tip against your temperature measurement device and take note of the output reading.
3. Input the measured reading to the MBT450 using the scroll wheel or tapping the numerical field for Measured Temp and using the onscreen keyboard.
4. Click Submit to save the new Tip Temperature Offset. Using the back arrow, disconnecting the hand tool, or powering down the unit before hitting submit will lose the setting.

After pressing Submit, the unit returns to the prior screen where the user is again presented with the option of selecting either of the two available AccuDrive channels for further modifications or using the back arrow to return to the main Settings menu. Any submitted offset will remain until a new value is submitted, or it has been reset.





ST Offset - A temperature offset for SensaTemp tools can be set here. To set the temperature offset correctly, you'll need a way of measuring the actual tip temperature, like the 8001-0087-P1 Tip Temperature Monitor from PACE.

Configuring the SensaTemp Tip Offset can be done using the following steps.

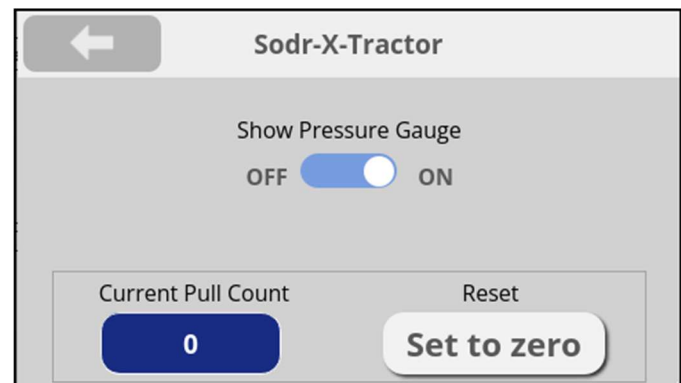
1. Allow the tool to reach, and stabilize, on 700°F or 371°C. Allow ample time for the heat to soak the entire tip. Even though the displayed temperature may have stabilized, the outer portions of the tip may need more time to soak the heat fully for an accurate temperature reading in the next step.
2. Once the tool has reached temperature, apply a small amount of fresh solder to the iron's tip, then gently hold the tip against your temperature measurement device and note the output reading.
3. Input the measured reading to the MBT450 using the scroll wheel or tapping the numerical field for Measured Temp and using the onscreen keyboard.
4. Click Submit to save the new Tip Temperature Offset. Using the back arrow, disconnecting the hand tool, or powering down the unit before hitting submit will lose the setting.

After submitting the desired offset, the unit will return to the Settings menu. Going back into the ST Offset screen will now show the amount of offset, and it will remember this setting until a new value is submitted or it has been reset. Pressing the Reset button will immediately forget the current Tip Temperature Offset.

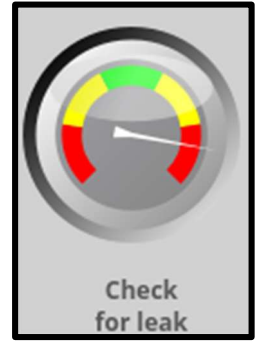
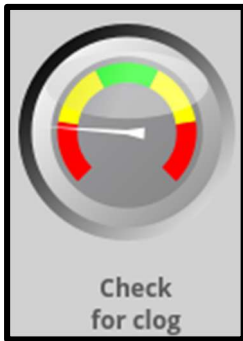


Sodr-X-Tractor - The MBT450 offers an optional pressure gauge and pull counter to help monitor performance of the solder extractor.

- When Show Pressure Gauge is turned On, a gauge will appear briefly on the Home Screen each time the air pump is activated. The gauge provides feedback to the user on whether the vacuum pressure during solder extraction was in the expected range, or whether there might be leaks or clogs in the lines.
- Current Pull Count displays the number of pump activations since the last reset. This information is useful for developing customized maintenance schedules, such as determining when to replace the VisiFilter element or when to service the air pump gaskets.



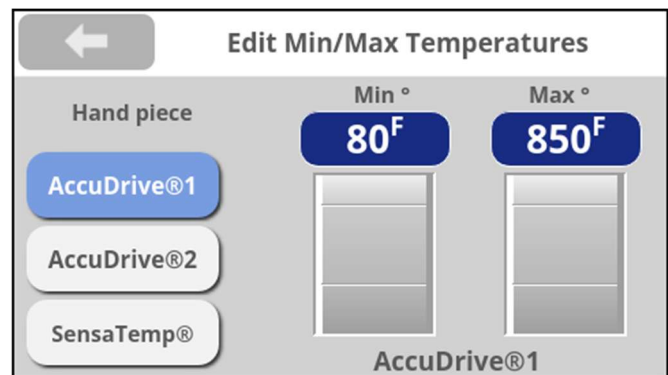
NOTE: When Show Pressure Gauge is On, the gauge will appear each time the air pump is activated, even if no suction tool is connected to the unit. When the system is being used for positive air pressure rather than vacuum (such as when operating a TJ70 ThermoJet), the pressure gauge reading does not apply. In these cases, disregard the gauge or turn Show Pressure Gauge Off.



Iron Min/Max - Defines the allowable temperature range for tools connected to any of the three front Power Ports.

Select a Power Port, then adjust the minimum and maximum values using the scroll wheels or by tapping the displayed value to enter a number manually.

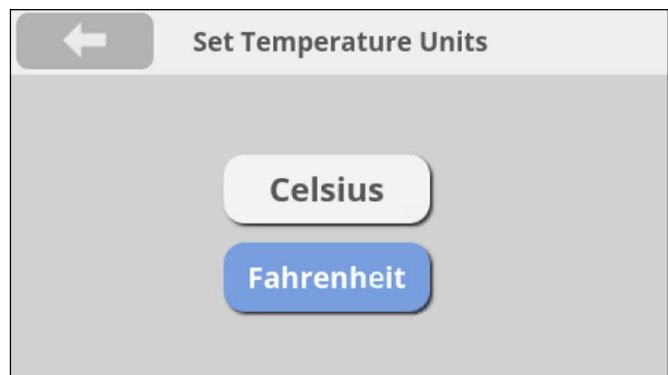
The system prevents setting the maximum below the minimum and automatically increases the maximum if the minimum is raised beyond it.



- **AccuDrive operating range:** 80°F to 850°F (25°C to 455°C)
- **SensaTemp operating range:** 80°F to 900°F (25°C to 480°C)



Units - Offers a choice for the MBT450 to display temperature in Fahrenheit or Celsius.





TF-Ultra - The TF-Ultra has a few user customizable features.

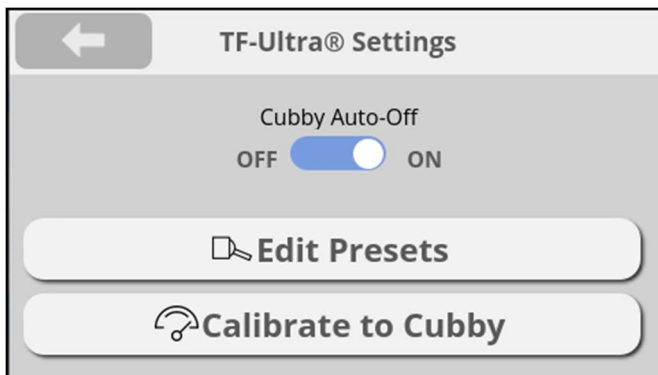
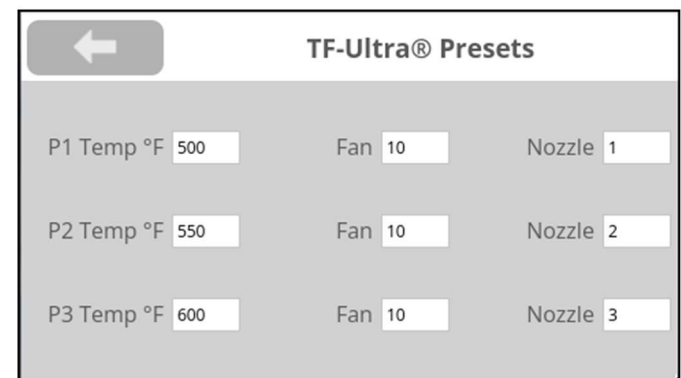
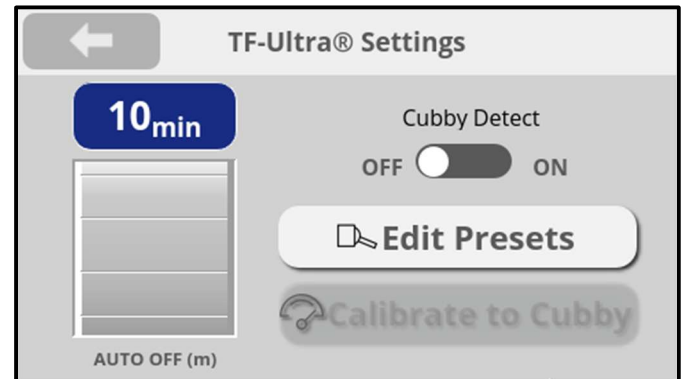
- **Auto Off** - The TF-Ultra includes a built-in safety feature that automatically turns the hand tool off after a set period. The factory setting is 10 minutes.

Moving the slider below 10 minutes disables this feature. Moving the slider above 10 minutes increases the run time in 10-minute increments, up to a maximum of 90 minutes.

- **Edit Presets** - Values for the Preset air flow and temperature settings of the TF-Ultra are configured here.

The factory settings for each preset are shown in the image at right, please customize to your liking.

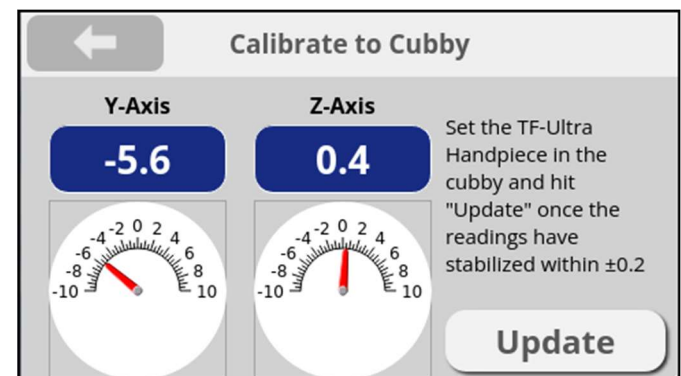
Each field can be altered by tapping on the entry you'd like to change and inputting the desired value with the onscreen keyboard that appears.



- The TF-Ultra uses onboard position monitoring that can automatically turn off the handpiece when placed in the cubby.

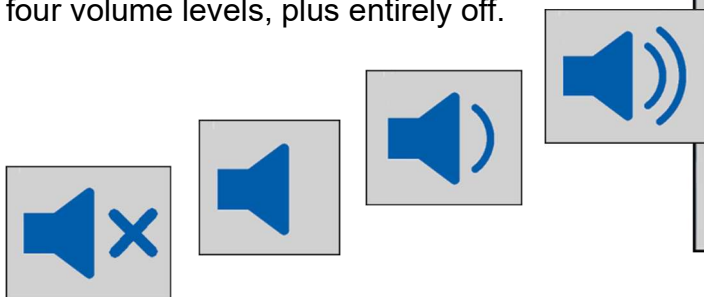
Enable this feature by turning on the Cubby Auto-Off slider, which reveals the Calibrate to Cubby option. Recalibrate whenever the unit is moved or the tool is stored in a different orientation.

NOTE: Take notice of how the TF-Ultra is placed into the cubby during the calibration, particularly which direction the finger switch is pointing. Setting the tool down with the switch oriented differently than it was during the calibration will prevent the Auto-Off from activating.





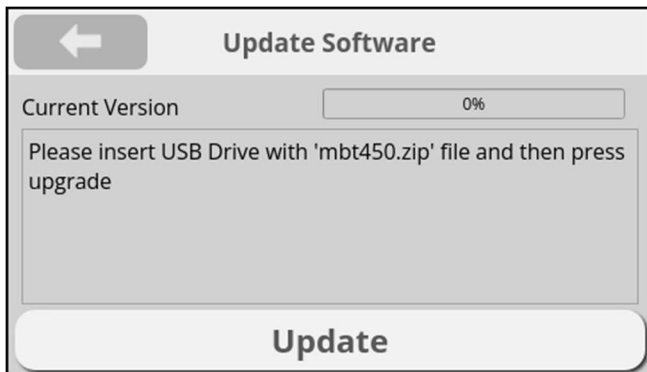
Sound - Opens a slider to adjust the system volume. The MBT450 offers four volume levels, plus entirely off.



NOTE: Turning the volume off in this setting will completely mute the video player as well.



Clock - Configure the system's time and date. Update the current time, change the date, or select a date format (MM/DD/YYYY or DD/MM/YYYY).



Update S/W - Software updates for the MBT450 can be installed here using a USB drive connected to one of the unit's side ports.



Language - Option to change the language for the MBT450 buttons and features.

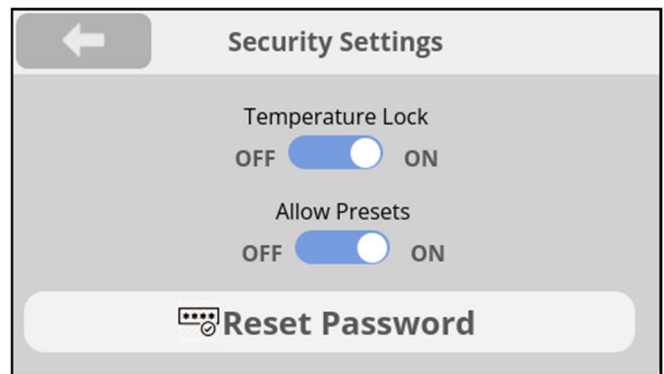
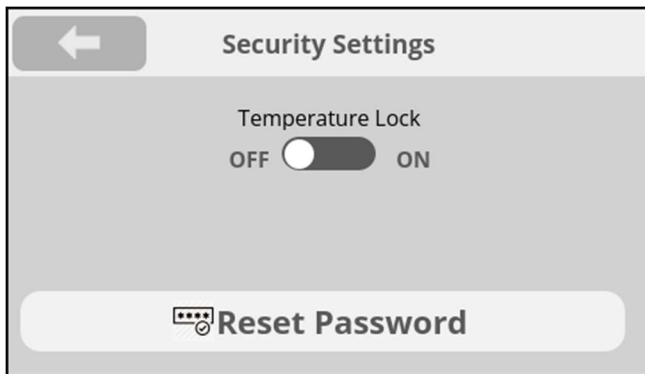




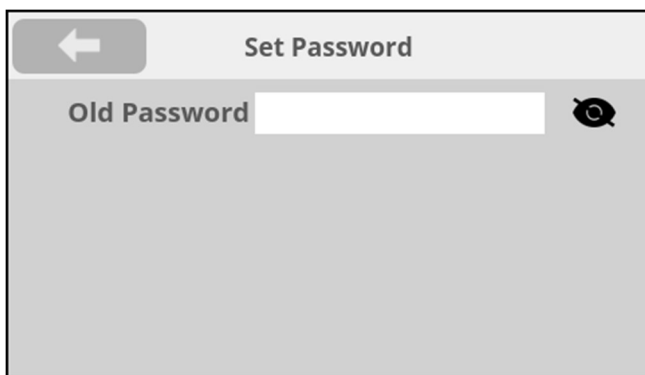
Security - The MBT450 offers a couple of different ways for limiting access to temperature adjustments. These settings do not apply to the TF-Ultra.

Enabling Temperature Lock prevents users from changing the set temperature of any of the three Power Ports. Be sure the desired temperatures are set before enabling the lock.

When Temperature Lock is active, you can also choose whether users are allowed to access preset temperature selections on the Home Screen.



If using the Reset Password function. From the factory, the password has been left blank. When first creating the password, leave the field for Old Password blank and hit enter to be presented with the fields to create the new password in, and also confirm the new password.



If the password is forgotten or lost, access to protected settings can only be restored through an authorized recovery process. Contact your local PACE authorized representative or PACE technical support for assistance.

Corrective Maintenance

Power Source

Common malfunctions are typically simple to diagnose and correct. See the table below.

Symptom	Probable Cause	Solution
No power to system	Blown Fuse	Inspect and replace the F1 fuse on the power source rear panel
	Line cord unplugged	Plug line cord into the appropriate AC outlet
Heater Assembly does not heat	Open Heater	Replace heating element.
Little or no vacuum	Worn vacuum pump	Rebuild or replace vacuum pump. Contact PACE for assistance.

TF-Ultra

Symptom or Message	Probable Cause	Solution
TF-Ultra entered freefall	Tool was dropped.	Inspect tool for damage, return to stand.
Failed to heat	Faulty heating element.	Replace heating element.
	F2 fuse blown.	Replace F2.
Stowed in cubby	The TF-Ultra is either set in its stand or being held very still at a specific angle.	Disengage "Cubby Detect" in TFU settings and/or confirm tool is calibrated to the stand.
Fan rotor locked	Something impeding free rotation of blower fan.	Replace fan assembly.
Failed to connect	Connection issue between heater element and TF-Ultra handle.	Verify heating element is plugged into the handle properly.
Shorted T/C detected	Thermocouple in heating element is short circuiting to something.	Replace heating element.
Open T/C detected	Thermocouple of heating element has opened up.	Replace heating element.

MBT450 Spare Parts

Description	PACE Part
5A Time Lag Fuse	1159-0285-P5
2.5A Time Lag Fuse	1159-0286-P5
8A Time Lag Fuse	1159-0280-02-P5
MBT Motor/Pump Assembly	1336-0098-P1
Motor/Pump Rebuild Kit	6993-0260-P1
Replacement Pressure Knob Assy.	1222-0081-P1
Lithium Coin Battery CR1220 3V	1193-0002
MBT450 VisiFilter Element	1309-0060

TF-Ultra Spare Parts

Description	PACE Part
Fan/Harness Assy.	3008-0425-P1
120V TF-Ultra Heater Assy	6010-0171
230V TF-Ultra Heater Assy	6010-0173
Heat Shield	1313-0128-P1
TF-Ultra Tool Stand Assy.	6019-0092-P1

Optional AccuDrive® Blue Series Tip-Heater Cartridges

For optimum thermal performance, always select the shortest, widest tip with the maximum contact surface area with which you can safely access the work.

Standard Tips



For delicate micro-soldering to challenging, high thermal mass applications

Tip	Description	Part Number	Tip	Description	Part Number
	1/32" Conical Sharp Extended (0.80mm)	P/N 1130-0001-P1		1/16" 30° Chisel (1.59mm)	P/N 1130-0019-P1
	1/64" Conical Sharp (0.40mm)	P/N 1130-0002-P1		1/8" 90° Chisel (3.18mm)	P/N 1130-0020-P1
	1/64" Conical Sharp Bent 30° (0.40mm)	P/N 1130-0003-P1		1/16" 30° Bent Chisel (1.59mm)	P/N 1130-0026-P1
	1/64" Conical Sharp Extended (0.40mm)	P/N 1130-0004-P1		MiniWave® (3.05mm)	P/N 1130-0032-P1
	3/64" 30° Chisel (1.20mm)	P/N 1130-0008-P1		Angled MiniWave® (3.05mm)	P/N 1130-0033-P1
	13/64" Extra Large Chisel (5.15mm)	P/N 1130-0010-P1		Angled MiniWave® (2.11mm)	P/N 1130-0035-P1
	1/64" 60° Bevel (0.40mm)	P/N 1130-0011-P1		1/128" Conical (0.20mm)	P/N 1130-0036-P1
	1/32" 30° Chisel (0.80mm)	P/N 1130-0012-P1		1/4" Flat Blade (6.35mm)	P/N 1130-0037-P1
	3/32" 30° Chisel (2.38mm)	P/N 1130-0013-P1		1/128" Conical, Special (0.20mm)	P/N 1130-0050-P1
	3/64" 30° Bent Chisel (1.20mm)	P/N 1130-0016-P1		1/8" 30° Chisel (3.18mm)	P/N 1130-0051-P1

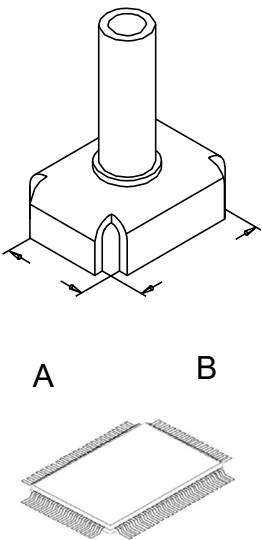


Ultra-Performance Tips

Optimized tip geometries and increased thermal pipeline deliver maximum heat throughput

Tip	Description	Part Number	Tip	Description	Part Number
	1/32" Conical Sharp Ext. (0.80mm)	P/N 1131-0001-P1		1/8" 30° Chisel (3.18mm)	P/N 1131-0051-P1
	1/64" Conical Sharp (0.40mm)	P/N 1131-0002-P1		1/16" Chisel (1.59mm)	P/N 1131-0052-P1
	1/64" Conical Sharp Bent 30° (0.40mm)	P/N 1131-0003-P1		1/8" Chisel (3.18mm)	P/N 1131-0053-P1
	3/64" 30° Chisel (1.20mm)	P/N 1131-0008-P1		3/16" Chisel (4.78mm)	P/N 1131-0054-P1
	13/64" Chisel (5.15mm)	P/N 1131-0010-P1		1/4" Chisel (6.35mm)	P/N 1131-0055-P1
	1/32" 30° Chisel (0.80mm)	P/N 1131-0012-P1		9/32" Chisel (7.14mm)	P/N 1131-0056-P1
	3/32" 30° Chisel (2.38mm)	P/N 1131-0013-P1		5/16" Chisel (7.95mm)	P/N 1131-0057-P1
	1/16" 30° Chisel (1.59mm)	P/N 1131-0019-P1			
	MiniWave® (3.05mm)	P/N 1131-0032-P1			
	1/4" Knife Blade (6.35mm)	P/N 1131-0037-P1			

Optional SensaTemp® TP65 Flat Pack Removal Tips

Tip	Description	Tip Size A x B	Part Number
	FlatPack Tip	15.5 x 21.6mm (0.61 x 0.85")	1121-0322-001-P1
	FlatPack Tip	16.8 x 22.9mm (0.66 x 0.90")	1121-0322-002-P1
	PQFP-68 Tip (bumper pack)	15.7 x 15.7mm (0.62 x 0.62")	1121-0323-P1
	PQFP-64/80 Tip (non-bumper pack)	15.7 x 15.7mm (0.62 x 0.62")	1121-0484-P1
	PQFP-84 Tip	18.3 x 18.3mm (0.72 x 0.72")	1121-0324-P1
	PQFP-100 Tip	20.8 x 20.8mm (0.82 x 0.82")	1121-0325-P1
	PQFP-132 Tip	25.9 x 25.9mm (1.02 x 1.02")	1121-0326-P1
	PQFP-144	29.2 x 29.2mm (1.15 x 1.15")	1121-0456-P1
	PQFP-208	30.0 x 30.0mm (1.18 x 1.18")	1121-0544-P1
	PQFP-160	31.0 x 31.0mm (1.22 x 1.22")	1121-0351-P1
	PQFP-196	36.3 x 36.3mm (1.43 x 1.43")	1121-0483-P1
NOTE: All dimensions are nominal, inside diameters.			

Service

Please contact PACE or your local distributor for service and repair.

PACE LIMITED WARRANTY STATEMENT

Seller warrants to the first user that products manufactured by it and supplied hereunder are free of defects in materials and workmanship for a period of one (1) year from the date of receipt by such user. This Warranty as applied to blowers, motor pumps, x-ray tubes, lenses, optical/lighting probes and cameras is limited to a period of six (6) months. Monitors, computers, and other brand equipment supplied but not manufactured by PACE are covered under their respective manufacturer's warranty in lieu of this Warranty.

This warranty does not cover wear and tear under normal use, repair or replacement required as a result of misuse, improper application, mishandling or improper storage. Consumable items such as tips, heaters, filters, etc. which wear out under normal use are excluded. Failure to perform recommended routine maintenance, alterations or repairs made other than in accordance with Seller's directions, or removal or alteration of identification markings in any way will void this warranty. This warranty is available only to the first user, but the exclusions and limitations herein apply to all persons and entities.

SELLER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Seller will, at its option, repair or replace any defective products at its facility or other locations approved by it at no charge to user, or provide parts without charge for installation by the user in the field at user's expense and risk. User will be responsible for all costs of shipping equipment to Seller or other location for warranty service.

EXCEPT FOR THE REMEDY ABOVE DESCRIBED, UNLESS OTHERWISE REQUIRED BY APPLICABLE LAW, SELLER WILL HAVE NO OTHER OBLIGATION WITH REGARD TO ANY BREACH OF WARRANTY OR OTHER CLAIM WITH RESPECT TO THE PRODUCTS, OR LIABILITY FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL LOSS OR DAMAGE CAUSED BY OR OCCURRING IN CONNECTION WITH ANY OF THE PRODUCTS.

Warranty service may be obtained by contacting the appropriate PACE Company or local Authorized PACE distributor as set forth below to determine if return of any item is required, or if repairs can be made by the user in the field. Any warranty or other claim with respect to the products must be made with sufficient evidence of purchase and date of receipt, otherwise user's rights under this warranty shall be deemed waived.

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PACE products meet or exceed all applicable military and civilian EOS/ESD, temperature stability and other specifications including MIL STD 2000, ANSI/JSTD 001, IPC7711, and IPC A-610.



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