PCT-1000

PCT-1000 User Guide

METCAL

ELECTRONICS BENCH TOOL SOLUTIONS

7000-2421_B

INTRODUCTION

The programmable Preheater, PCT-1000, features digital controls, four time-programmable heating zones and one cooling zone that utilize a built-in thermocouple (TC) for accurate feedback control. The PCT-1000 can also be used to provide a single continuous source of constant heat. The external TC i/p function can be used as a feedback control mechanism for accurate profiling of your circuit boards. Additionally, this unit may be connected to the HCT-1000 as part of the Modular Rework System (MRS). The MRS comprises the PCT-1000 Programmable Preheater, HCT-1000 Programmable Hot Air Tool, BH-2000 Board holder and, ATH-1100A Adjustable Tool Holder.

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1. PCT-1000 SPECIFICATIONS

Size	330mm X 203mm X 76mm (13" X 8" X 3")
Weight	3.4kg (7.5lbs)
Input Voltage	100-230VAC
Rated Power	1200W
Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-10°C to 60°C (14°F to 140°F)
Temperature Range	25°C to 400°C (77°F to 752°F)
Max. Relative Humidity	80% for temperature up to 31°C (87.8°F) Decreasing linearly to 50% relative humidity at 40°C (104°F)
Airflow	19 cfm
Modes	Run, Setup: Manual, Setup: Teach
Display	LCD 20 X 4 display segments
Number of Programs	50 memory locations
Number of Zones	5 (4 Heat Zones, 1 Cool Down Zone)

2. SYMBOL DEFINITIONS (Figure 1.0)

⊖ Power On/Off ~ Timer/Temperature Adjust Down
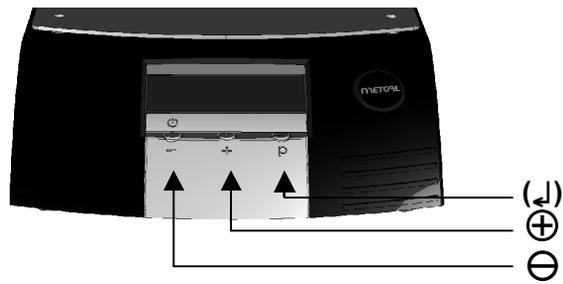⊕ Timer/Temperature Adjust Up
(↵) Enter/Step-Thru Mode
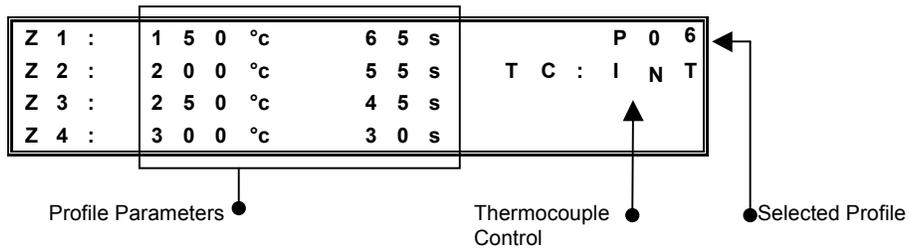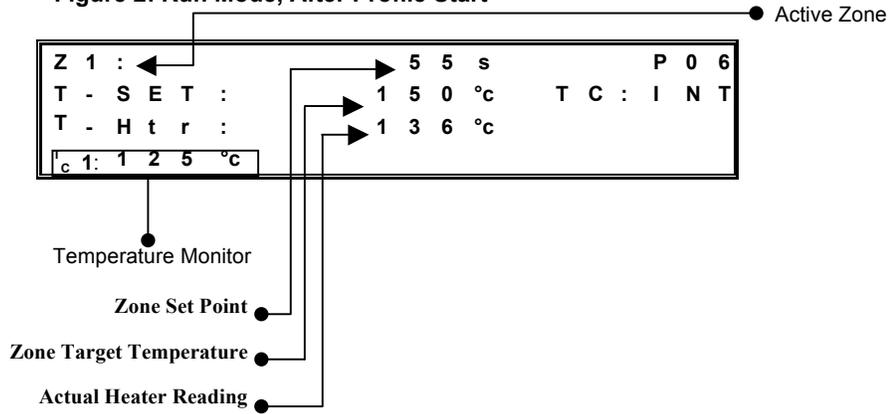

(↵)
⊕
⊖

Figure 1: Run Mode, Before Profile Start

Z 1 :	1 5 0 °c	6 5 s		P 0 6
Z 2 :	2 0 0 °c	5 5 s	T C : I N T	
Z 3 :	2 5 0 °c	4 5 s		
Z 4 :	3 0 0 °c	3 0 s		

Profile Parameters   Thermocouple   Selected Profile
                            Control

Figure 2: Run Mode, After Profile Start

Active Zone

Z 1 :	5 5 s		P 0 6
T - S E T :	1 5 0 °c	T C : I N T	
T - H t r :	1 3 6 °c		
ᵗc 1: 1 2 5 °c			

Temperature Monitor

Zone Set Point

Zone Target Temperature

Actual Heater Reading

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3. Connecting The Unit & Quick-start Guide

1. Basic unit setup
1. Plug the power cord into a grounded wall socket of the rated input line voltage.
2. Connect the footswitch to the unit.
3. Turn On the unit by pressing the Power button ⊖ momentarily.
4. Select the desired profile.
5. To start the profile, depress the footswitch.
6. Turn Off the unit by pressing the Power button ⊖ for 2 seconds. Note ~ you must be out of set-up mode in order to do this. I.e. no flashing numbers on the display.
7. To Abort a Profile (to the Cool-Down zone) press and hold the footswitch down while in Run Mode.

4. Operating Instructions

The PCT-1000 has four operational modes. The operational modes are Setup, Run, Manual and Active Setup. The Setup mode is for modifying system or profile parameters. The Run mode is for operating the unit with a profile that uses four zones of heating. The Manual mode is for operating the unit with a single zone of heat and no time limit. The Active Setup mode allows for the changing of parameters within a running profile.

1. Setup Mode
1. Press the Mode button **(↵)** once to start "P:" flashing
2. Use the ⊕ / ⊖ buttons to scroll through the profiles
3. Press **(↵)** to select the desired profile
4. Press and hold **(↵)** for 3 seconds to activate program mode (first temperature in zone 1 will flash).
5. **Run Mode setup; proceed to step 4.1.6.1; Manual Mode setup proceed to step 4.1.7.1.**
6. **Run Mode**
   1. Use the ⊕ / ⊖ buttons to change the temperature to the desired value. (**Note**: continually pressing either the ⊕ or ⊖ buttons for 5 seconds will change the count up/down in an accelerated mode)
   2. When the value is set, press **(↵)** to move to the next parameter.
   3. Repeat steps 4.1.6.1 & 4.1.6.2 until profile is programmed. **Note**: In the Cool-Down Zone you can only modify the Time parameter
   4. Proceed to step 4.1.8.

7. **Manual Mode setup**
   5. Use the ⊕ / ⊖ buttons to change the temperature to the desired value. (Note: continually pressing either the ⊕ or ⊖ buttons for 5 seconds will change the count up/down in an accelerated mode)
   6. Set the Time for Zone 1 to a value greater than 300 seconds. The display will now show the word MANUAL and Z2, Z3, Z4 will no longer be shown on the display. Note: Manual mode profiles do not have a time requirement and once activated will run until the profile is stopped. However, during the cool zone, the profile can be restarted at any time by pressing ⊕

8. Press (↵) to move to the next parameter. This is the Internal or External TC option. Use ⊕ or ⊖ to switch between Int or ~~Ext~~ TC1 or press (↵) to skip. Note: When ~~Ext~~ TC1 is selected, TC1 becomes the master thermocouple and provides feedback to the power supply.

9. Press **(↵)** to move to the next parameter. This is the Security Lockout function. PCT-1000 systems are supplied with a lockout feature to

prevent operators from editing profiles etc. To activate this function, a 4 digit number must be entered within a program setup as explained below.If the pass code is set at 0000 the programs are not protected. When C: 0000 appears on the screen, you can select a 4 digit pass code.

7.   When the first digit flashes, use the ⊖ or ⊕ buttons to select the preferred number.
8.   Press (↵) and repeat step 7 for all digits.
9.   Press-and-hold (↵) to quit code entry.
10.   From this point on you can only edit profiles after entering the correct code

Security Lockout Notes:
- You can 'turn off' the pass-code protection by first going into Program mode, entering the current code then setting the new code to '0000' – All users now have full access to all program functions.
- One code protects all profiles, not individual profiles.
- If the Pass-code is lost or forgotten then the Master Reset function will restore the factory defaults **including erasing the pass-code**

10.   Press **(↵)** to move to the next parameter. Turbo mode (**TM**) is for regions with <120VAC. Use ⊕ or ⊖ to switch between **YES** or **NO** or press **(↵)** to skip
11.   Once required changes have been made, press and hold (↵) for 3 seconds until the LCD tops flashing, to set the profile to memory and exit setup mode.

Master Reset.
To reset the unit it to factory settings, the following procedure can be used.
- Press and hold ⊕ and (↵)
- Whilst keeping ⊕ and (↵) depressed, switch the unit on using ⊖

PLEASE NOTE: Use of the master reset will erase all stored programs.

2.   Active Setup Mode
1.   Select Profile to be modified as per steps 4.1.1 to 4.1.4
2.   Once the temperature in Z1 has started to flash, Activate Setup Mode by depressing the footswitch
3.   Profile will start to run and 'SETUP' will be displayed on LCD.
4.   To modify the current zone set-temperature use the ⊕ / ⊖ buttons.
5.   To *increase* the time of the current zone press and hold the **(↵)** button <u>as the zone ends.</u> Instead of stepping onto the next zone the current zone time-setting will increment the original setting for as long as you keep the **(↵)** button depressed. Releasing the button will allow the profile to progress onto the next Zone.*
6.   **Note:** Steps 4 & 5 can be carried out simultaneously.
7.   To *decrease* the zone time, press the footswitch at the desired time. This will set the time to memory and advance the profile into the next zone.*
8.   Once required changes have been made to zone 1-4, allow the profile to finish the end of the cool down zone. Press and hold **(↵)**, until the LCD tops flashing, to set the profile to memory and exit setup mode.
     *Note: feature not available in Cool-Down Zone

5. Additional Features

1. Temperature Monitoring

1. While using the PCT-1000 with the internal thermocouple (INT see Figure. 2 above), the two external thermocouples may be used to monitor temperature.
2. Attach a thermocouple to TC1 and/or TC2 and attach to the area to be monitored. When attached, the appropriate thermocouple will be displayed (see Figure 3 above).

6. Troubleshooting

1. Unit does not power ON
   11. Check the power cord
   12. Check to see that you have mains voltage
2. **OH** displayed on the LED screen
   1. Unit has exceeded the internal safety cut-off
   2. Allow unit to cool
   3. Check placement of thermocouple (if used)
   4. Reset the unit by cycling the power
   5. Review program, consult Advanced Users Guide.
3. **TCFAULT** displayed on LED screen
   1. Check location of thermocouple
   2. Ensure the thermocouple is firmly inserted into the correct TC connector
   3. Replace thermocouple if problem persists
4. Flashing zone and temperature parameters while in Run Mode.
   1. Indicates the unit cannot meet the programmed time and temperature as set.
   2. Review program, consult Advanced User Guide.

If you cannot resolve the problem after conformation of the above, please contact your local OK International representative.

7. Warranty

OK International warrants the PCT-1000 programmable Preheater 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, OK International will repair or replace it free of charge at its sole option. The 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.

8. Safety

⚠ WARNING

With power applied, the tip temperature can be > 300°C. Failure to observe the following precautions may lead to injury to users or damage the equipment:

- Do not touch any metallic parts
- Do not use near flammable items
- Do not use unit for any function other than described in this manual
- Use in a well ventilated area
- Do not use the equipment with wet hands
- Connect only to properly grounded outlets to prevent risk of electric shock.

Although the systems offer superior EOS (Electrical Overstress) protection, periodic checks of the instrument cord should be incorporated into standard operator maintenance procedures.

Waste Electrical and Electronic Equipment Directive - WEEE (2002/96/EC).

When this product 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 product. In Europe, please contact your OK International distributor who can advise the recycling options available.

Intended Use:
WARNING: Use of this equipment in ways other than those described in this User Guide may result in injury to persons or damage to property. Use this equipment only as described in this User Guide.
OK International cannot be responsible for injuries or damages resulting from unintended applications of its equipment. Unintended uses may result form taking the following actions:

• Making changes to equipment that has not been recommended in the User Guide
• Using incompatible or damaged replacement parts
• Using unapproved accessories or auxiliary equipment