



Operation and Maintenance Manual for the  
SODRTEK<sup>®</sup> ST 450  
Convective Pre-Heating System  
P/N 5050-0541



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## Introduction

Thank you for purchasing the PACE SODRTEK® model ST 450 Convective Pre-Heating System. This manual will provide you with the information necessary to properly set up, operate and maintain the ST 450.

The ST 450 unit is available in either the 115 VAC or 230 VAC version. The 115 VAC version system bears the FCC Conformity Marking which assures the user that it conforms to all the requirements of FCC Emission Control Standard, Title 47, Subpart B, Class A. The 230 VAC version system bears the CE Conformity Marking which assures the user that it conforms to all the requirements of (EU) directive EMC 89/336/EEC & 73/23/EEC.

## Specifications

### **Specifications**

ST 450 - Operates on 97-127 VAC, 60 Hz (115 VAC version)  
575 Watts maximum at 120 VAC, 60 Hz

ST 450E - Operates on 197-264 VAC, 50 Hz (230 VAC version)  
575 Watts maximum at 230 VAC, 50 Hz

Heater Type: Radiant, 400 Watt (200 W x 2), closed loop, thermo-couple control

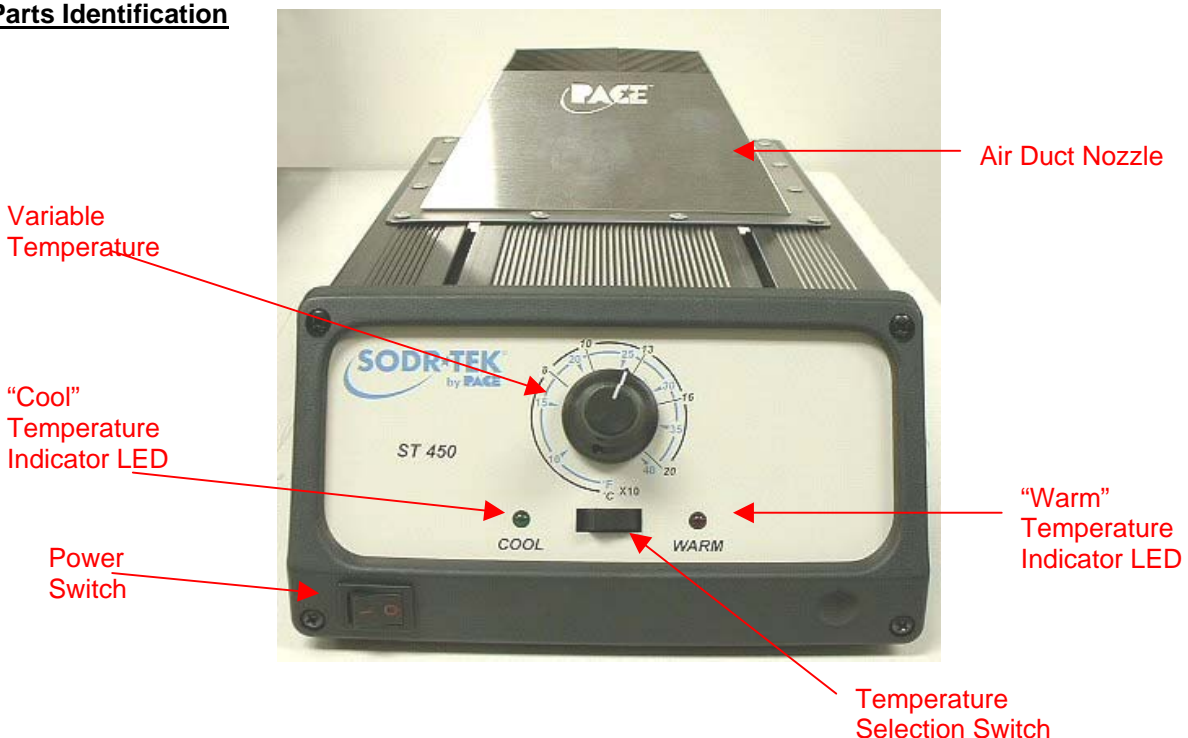
Temperature: 100 °F (37.78 °C) – 400 °F (204.44 °C) Range

### **Physical Parameters**

Dimensions: 7" (17.78 cm) W x 4.1" (10.41 cm) H x 12.5" (31.75 cm) D

Unit Weight: 5.3 pounds (2.4 kg)

## Parts Identification



## Safety

### **Safety Guidelines**

The following are safety precautions that personnel must understand and follow when using or servicing this product.

1. **POTENTIAL SHOCK HAZARD** - Repair procedures on PACE products should be performed by Qualified Service Personnel only. Line voltage parts may be exposed when the equipment is disassembled. Service personnel must avoid contact with these parts when troubleshooting the product.
2. To prevent personnel injury, adhere to safety guidelines in accordance with OSHA and other applicable safety standards.
3. Always use PACE systems in a well ventilated area. A fume extraction system such as those available from PACE are highly recommended to help protect personnel from solder flux fumes.
4. Exercise proper precautions when using chemicals (e.g., solder paste). Refer to the Material Safety Data Sheet (MSDS) supplied with each chemical and adhere to all safety precautions recommended by the manufacturer.
5. Do not contact the Heater or its peripheral parts during operation.
6. Once turned off, let the unit cool completely before contacting.
7. After use, verify that the amber indicator LED is off.
8. When using Fluxes, use fume extraction equipment or use in a well-ventilated area to minimize operator exposure to fumes.

### **Preheating Basics**

Preheating of a printed circuit assembly is normally required in the repair process whenever any one or more of the following situations exist.

1. Epoxy glass substrate with 4 or more layers.
2. Substrate with large ground planes.
3. Substrate of ceramic, polyimide or other high heat dissipative material.
4. Printed circuit assembly with large metal heat sinks.

Preheating of assemblies such as those listed above will accomplish the following objectives.

1. Minimize thermal shock by elevating the assembly temperature to a level closer to solder melt temperature.
2. Minimize the heat cycle reflow time.

3. Overcome the heat dissipation characteristics of the assembly.
4. Minimize adjacent melts on densely populated assemblies.

The assembly undergoing repair must be heated for a length of time sufficient to saturate at the preheat temperature required. The PCB preheat temperature normally used is 100°C (212°F) for epoxy glass substrates and 120°C (248°F) for ceramics and polyimides.

### **System Power Up**

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.

**CAUTION:** To insure operator and ESD/EOS safety, the AC power supply receptacle must be checked for proper grounding before initial operation.

3. Turn on the Power Switch.
4. Set Temperature knob to desired setting. Use of a thermo-couple may be required to verify actual PCB temperatures.

**NOTE:** The indicated temperature represents the actual temperature 1 ½" away from the top surface of the ST 450 system.

### **Operation**

The PACE ST 450 unit is easy to operate and can be quickly set up for operation. The following steps provide basic guidelines for rework using the PACE ST 450.

1. Turn on the Power Switch.
  - a. The Green Power LED will illuminate
  - b. If the LED does not illuminate, refer to the Corrective Maintenance Section of this manual.
2. Position the ST 400 under your PACE board holding fixture. The ST 450 can be placed under any ST 525 and ST 550 system. Be sure to follow the board installation steps which are detailed in the ST 500 Series Manual.
3. Install the appropriate Air Duct Nozzle on the top of the ST 450.
4. Set Temperature knob to desired setting. The use of a thermo-couple is recommended to verify actual PCB temperatures.

### **Remote Operation of the ST 450**

The ST 450 can be connected to either the ST 325 or the ST 350 with the use of the interface cable P/N 1332-0187 for remote operation. Simply set the desired temperature on the ST 450 and connect it to the ST 325 / ST 350. Refer to the ST 325 / ST 350 Operations Manual for further operation.

**NOTE:** The fan in the ST 450 will remain on 100% of the time providing that the system is turned on.

## **General Maintenance**

The ST 450 should be kept clean. If flux is spilled on the heaters, the ST 450 should be allowed to cool to room temperature and the heater panels can be wiped off with an appropriate flux cleaner. Always unplug the ST 450 before removing the cover to clean the Heater Panels.

## **Packing List**

<b>Item #</b>	<b>Description</b>	<b>Part Number</b>	<b>ST 450</b>	<b>ST 450 E</b>
1	System Power Supply	8007-0433	1	0
2	System Power Supply (Export)	8007-0434	0	1
3	Power Cord, 115 VAC	1332-0094	1	0
4	Power Cord, 230 VAC	1332-0093	0	1
5	Nozzle Air Duct, 4.5" (11.43 cm) Square	4058-0003-01	1	1
6	Interface Cable	1332-0187	1	1
7	Operations Manual CD	CD5050-0459	1	1

## **Spare Parts**

<b>Item #</b>	<b>Description</b>	<b>PACE Part Number</b>
1	Fuse, 1.0 Amp Time Lag (ST 450)	1159-0246-P5
	Fuse, 0.5 Amp Time Lag (ST 450E)	1159-0213-P5

## **Service**

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

**“SODRTEK by PACE” LIMITED WARRANTY STATEMENT**

**Limited Warranty**

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. 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 location 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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FAX. 301-498-3252

For PACE EUROPE Customers:

PACE EUROPE LIMITED  
13 Tanners Drive, Blakelands  
Milton Keynes  
MK1 45BU  
United Kingdom  
Tel. (44) 1908 277666  
WARRANTY SERVICE FAX: (44) 1908 277 777

All other Customers:

Local Authorized PACE Distributor

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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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