Operation and Maintenance Manual for the SODRTEK®
ST 600 Digital Paste Dispensing System

P/N 5050-0538

TITLE **PAGE**

General Information

Introduction

Thank you for purchasing the PACE SODRTEK® model ST 600 Digital Paste Dispensing System. This manual will provide you with the information necessary to properly set up, operate and maintain your new system. This ST 600 is a microprocessor controlled, automatic liquid dispensing system. The pressure is fully adjustable for each individual application and the dispensing cycle time allows for precise dispensing of liquids such as glues, greases, and solder pastes.

The ST 600 system is available in either 115 VAC or 230 VAC versions. The 230 VAC version system bears the CE Conformity Marking, which assures the user that it conforms to EMC 89/336/EEC.

The 115 VAC version systems conform to FCC Emission Control Standard, Title 47, Subpart B, Class A. This standard is designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

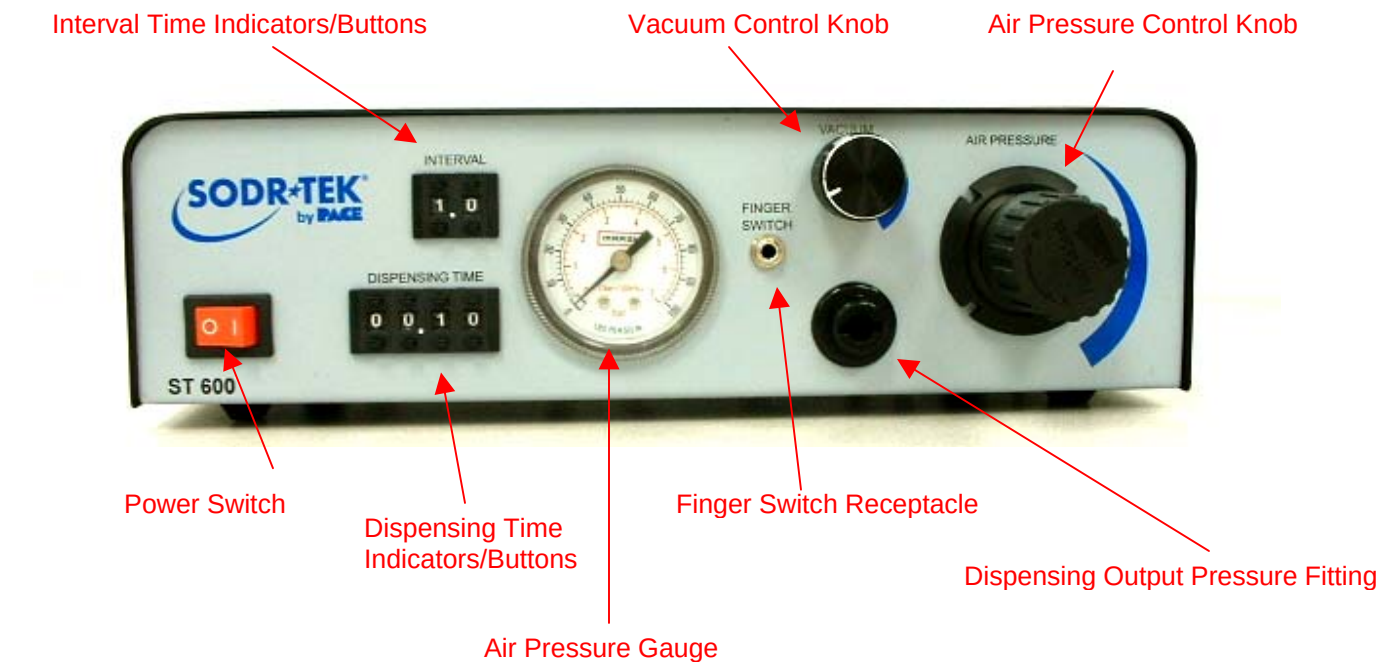
Specifications

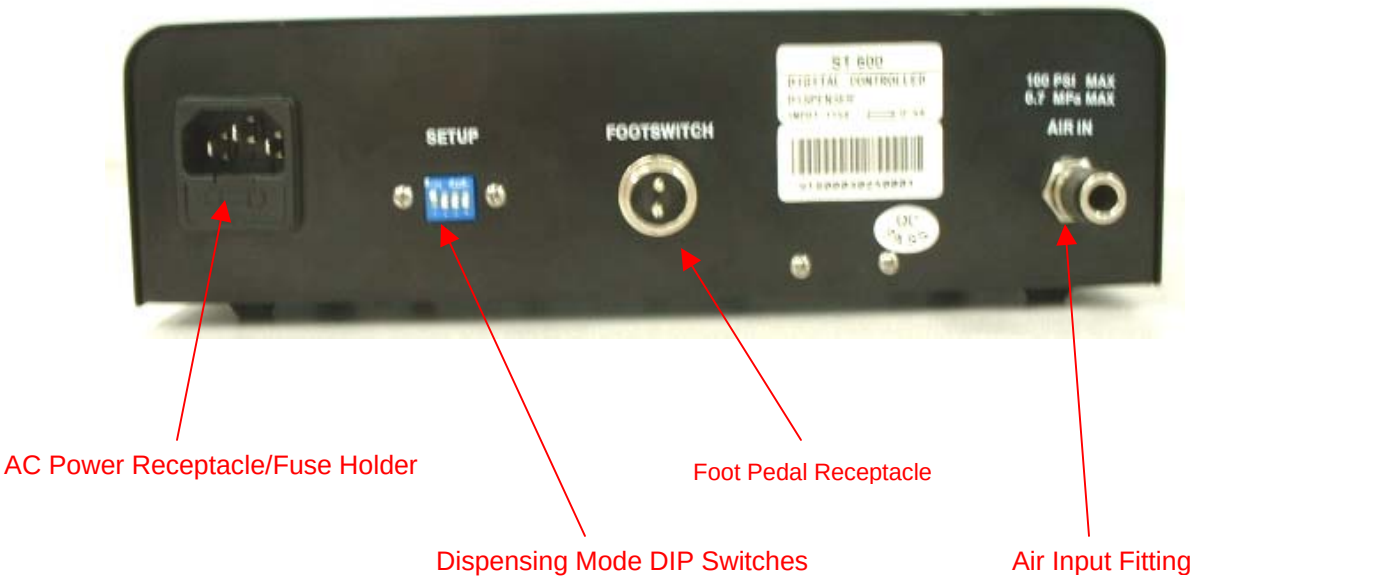
System Power Source Power Requirements

ST 600	Operates on 97-127 VAC, 50/60Hz, 90 Watts maximum at 115 VAC, 60Hz
ST 600E	Operates on 197-253 VAC 50/60Hz, 80 Watts maximum at 230 VAC, 50Hz

Dispensing Time	0.01-99.99Seconds Adjustable
Timing Intervals	0.1-9.9Seconds Adjustable
Repeat Tolerance	±0.05%
Size	23.8 cm x 15.0 cm x 6.0 cm (9.37” x 5.9” x 2.36”)
Weight	1.7Kg (3.75 Lbs)
Internal Voltage	24V DC
Air Input	35-100 PSI (0.25-0.7MPa)
Air Output	1-100 PSI (0.01-0.7Mpa)

Parts Identification





Safety

Safety Guidelines

The following are safety precautions that personnel must understand and follow when using or servicing this product. These precautions may or may not be included elsewhere in this manual.

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 exceed 7 Bar (100 PSI), otherwise damage to equipment, materials, and the operator could occur.

6. Personnel who handle dispensing materials should wash their hands and face thoroughly before eating, smoking or using rest room facilities.

7. Proper training should be given to personnel handling these materials.

8. The use of Safety Glasses is recommended when loading the barrels.

System Set-Up

Hose/Barrel Connection

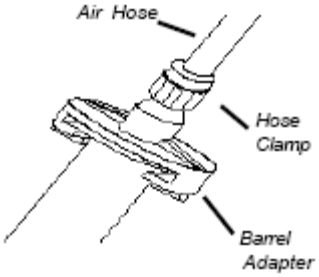
1. Connect the shop air supply to the unit's air input plug.

2. Attach the ridged end of the male quick connect hose mount Fitting to the Air Hose.

3. Insert the male hose mount fitting (attached to Air Hose) into the female Dispensing Output Pressure Fitting.

4. Slide the Hose Clamp over the free end of the Air Hose. Push clamp back 1 inch from the end of the Air Hose.

5. Attach the free end of the Air Hose to the nipple on the Barrel Adapter (10 cc adapter is supplied).



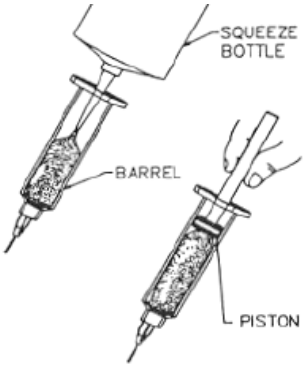
6. Secure the Air Hose to the Barrel Adapter by sliding the Hose Clamp down over the Air Hose/Barrel Adapter connection and screwing clamp down to secure in position.

7. Attach the Barrel Adapter to a preloaded barrel (not supplied). Place the barrel in the Dispenser Cubby.

10. Insure that the foot pedal is connected to the **FOOT PEDAL** Receptacle on the rear panel.

Material Loading

PACE recommends the use of preloaded barrels whenever practical to minimize any handling or safety precaution requirements. When loading is required, adhere to all precautions recommended by the material manufacturer. Refer to the Material Safety Data Sheet supplied with each material for information on important safety procedures and a listing of any toxic chemical elements.



Loading of low viscosity materials are easily accomplished by placing an empty Barrel (with barrel tip cap installed) into the Pik & Paste. Pour the material slowly into the barrel using a Squeeze Bottle or small funnel.

Caution: Fill the Barrel to a level of no more than 2/3 or the Barrel capacity. Dispensed amount variations will be avoided and the material will be prevented from getting on the Barrel adapter. Do not allow the Barrel to tip upside down or lay flat. Damage may occur to the motor pump if fluid leaks back into the system through the air hose.

System Power Up

Plug the prong end (male end) of the power cord into an appropriate 3 wire grounded AC supply receptacle.

NOTE: Make sure the power supply socket is properly grounded with the corresponding voltage.

Operation

1. Turn the unit “on” by switching the red power button to the on position.

2. Pull the air pressure regulator knob outward and turn clockwise to increase the air pressure until the desired pressure is indicated.

   NOTE: The air pressure output should generally be used between 0.1-2.7bar (1-40Psi).

3. Set the mode switch to proper position, referring to the adjustment of dispensing time and interval time.

4. Adjust the dispensing time via the buttons on the front panel. To adjust, press the “+” button to increase the time and press the “-“ button to decrease the time. There are four digits in all; with the range from 0.01 second to 99.99 seconds, and the resolution is 0.01 second.

5. Adjust the Interval Time via the buttons on the front panel. To adjust, press the “+” button to increase the time and press the “-“ button to decrease the time. There are two digits in all; with the range from 0.1 second to 9.9 seconds, and the resolution is 0.1 second.

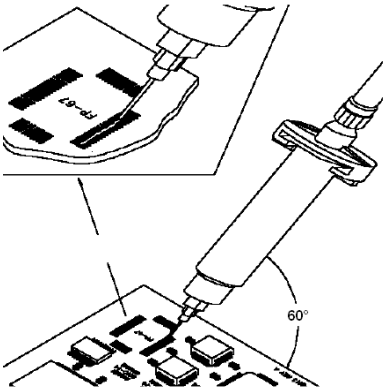
6. Adjust the vacuum via the Vacuum Control Knob, which is located on the front panel. Turn clockwise to increase the vacuum and turn the Vacuum Control Knob counterclockwise to decrease the vacuum. The vacuum should be adjusted during the dispensing cycle. This function is used to prevent the material from oozing after the material has been dispensed.

   NOTE: The barrel material will not drip or ooze unless it has a low viscosity level. I dripping or oozing does not occur, leave the Vacuum Control Knob set the fully counterclockwise position. To high of a vacuum setting could case the material to be sucked back into the system thus possibly damaging the station.

7. Insure that the proper material (in barrel) and tip have been installed.

8. Wipe any material residue from the end of tip.

9. Hold the barrel at approximately 60° (+ or -20°) angle, rest the tip on a piece of paper and dispense a small amount of material. This initial dispensing will fill the tip with material.



10. Depress the foot pedal to dispense material.

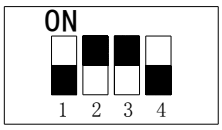
11. Place barrel in Dispenser Cubby when dispensing operation is complete.

NOTE: Condensation may occur in the air hose after extended use. This is a normal occurrence. To remove the condensation, disconnect the air hose from the barrel adapter and actuate the dispense pump. The air pressure will blow the condensation from the air hose.

Adjustment of Dispensing Modes

The Mode Switch is located on the rear panel of the unit. Please refer to the table below for the settings.

NOTE: Dispensing at controlled time means dispensing according to set dispensing and interval times.



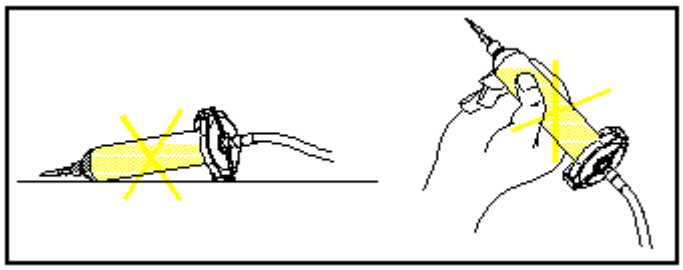
Item No.	Mode Switch Status				Function
	S1	S2	S3	S4	
1	OFF	OFF	OFF	OFF	With pedal switch pressed, dispense continuously, otherwise it will stop dispensing.
2	ON	OFF	OFF	OFF	Be triggered once, dispense at controlled time once.
3	OFF	ON	OFF	OFF	Be triggered once, dispense at controlled time twice.
4	ON	ON	OFF	OFF	Be triggered once, dispense at controlled time three times.
5	OFF	OFF	ON	OFF	Be triggered once, dispense at controlled time four times.
6	ON	OFF	ON	OFF	Be triggered once, dispense at controlled time five times.
7	OFF	ON	ON	OFF	Be triggered once, dispense at controlled time six times.
8	ON	ON	ON	OFF	Be triggered once, dispense at controlled time seven times.
9	OFF	OFF	OFF	ON	Be triggered once, dispense at controlled time eight times.
10	ON	OFF	OFF	ON	Be triggered once, dispense at controlled time nine times.
11	OFF	ON	OFF	ON	Be triggered once, dispense at controlled time ten times.
12	ON	ON	OFF	ON	Be triggered once, dispense at controlled time eleven times.
13	OFF	OFF	ON	ON	Be triggered once, dispense at controlled time twelve times.

14	ON	OFF	ON	ON	Be triggered once, dispense at controlled time continually, the next trigger will stop the dispensing.
15	OFF	ON	ON	ON	With pedal switch pressed, dispense at controlled time continually, or it will stop dispensing.
16	ON	ON	ON	ON	Dispense at controlled time continually and automatically.

Helpful Hints for Proper Dispensing

PACE recommends that the operator become familiar with the operation of the dispenser by first applying the material to a piece of paper or scrap PC board. Use this method to obtain the desired results for each dispensing material and application.

1. Do not permit the liquid to flow back into the controller as shown.



2. Increase or decrease the size of the dots by either, increasing or decreasing the time,

   Or

   Increasing or decreasing the pressure,

   Or

   Increasing or decreasing the size of the tip.

3. Make certain that the air supply is clean and dry.

4. The output air pressure should be regulated at 0.1-0.27 Mpa (15-40 PSI).

5. When dispensing different dot sizes, select a tip/time combination, which dispenses small dots. These small dots may be dispensed in multiples to provide the deposition amount required. Use of the feature in this manner can eliminate frequent tip changes and dispense cycle time adjustments.

6. In situations where the metal tip may scratch or damage the work, install a short section of heat shrinkable tubing or sleeving. The tubing (or sleeving) should extend 1.5 mm (1/16") past the tip end.

7. Keep all dispenser components clean to prevent clogging and/or irregular deposition.

8. Avoid turning barrels upside down or laying barrel, so that material may run through the vacuum line to the internal components.

9. Do not allow the barrel assemblies to contact hot or sharp objects.

10. Avoid exposing the liquid dispenser to excessive moisture or solvent situations.

NOTE: Dispose of all tips and barrels after use. Always use new tips and barrels to prevent contamination, insure cleanliness and provide consistent, repeatable material deposition.

Tip Selection

Selection of the proper tip for the application is essential to obtain the optimum deposition rate and amount. Check the specifications of the material manufacturer for recommended tip sizing. The tip size and duration of the dispense cycle determine amount of material deposition (dot or bead size). Dispense several dots (or beads) onto a piece of paper or scrap PC board to check for desired results.

Corrective Maintenance

Most malfunctions are simple and easy to correct.

Symptom	Probable Cause	Solution
No power to system	Blown Fuse	Replace fuse.
	Bad internal connection	Unplug from wall, remove top cover, and visually inspect for any loose or shorted connection.
	No voltage from wall outlet	Check the facility breaker/wiring.
Power, but no light	Power Switch	Replace power switch.
Has power and light but does not operate	Bad connection	Check foot switch (or finger switch) connection. Unplug from wall, remove top cover and check for loose connection.
Has power and light but does not dispense	Reduced or no airflow	Check air supply and pressure gauge. Reset the regulator if necessary, remove barrel from adapter. Depress foot switch (or finger switch) to check airflow. Clean or replace solenoid as necessary.
Solenoid buzzes	Voltage is low	Verify AC receptacle voltage.
	Air is insufficient	Check air supply and pressure gauge.
	Solenoid is not clean	Clean or replace solenoid as necessary.
Blowing fuse	Incorrect rated fuse	Verify the rating of the fuse.
	Internal short	Unplug power input, remove cover, and check internal wiring for loose connection.

Inconsistent dots	Clogged tip	Check needles, barrel, adapter, and material for possible clogging.
	Aerated material	Check bubbles in the material.
	Pressure variation	Check air gauge for air pressure variation.
Dispensing ok, but no vacuum in dispense circuit	Incorrect vacuum adjustment	Check vacuum adjustment setting.
	Incorrect air pressure setting	Check air pressure setting (must be 30-40 Psi, 0.2-0.27 Mpa).

Packing List

Item #	Description	Part Number	ST 600 Only	ST 600 E Only
1	System Power Supply	8007-0439	1	0
2	System Power Supply (Export)	8007-0440	0	1
3	Power cable (Domestic)		1	0
4	Power cable (Export)		0	1
5	Foot Pedal		1	1
6	Barrel rack		1	1
7	Air-input tube (3m)		1	1
8	10cc Barrel Adapter		1	1
9	Finger Switch Assembly	6008-0143-P1	1	1
10	Fuse (120V, 0.25A)		1	0
11	Fuse (230V, 0.5A)		0	1
12	Operations Manual CD	CD5050-0459	1	1

Spare Parts and Accessories

Item #	Description	PACE Part Number
1	Finger Switch Assembly	6008-0143-P1
2	Threaded hub, 14GA, 0.5"	1125-0001-P10
3	Threaded hub, 14GA, 0.5"	1125-0001-P50
4	Threaded hub, 15GA, 0.5"	1125-0002-P10
5	Threaded hub, 15GA, 0.5"	1125-0002-P50
6	Threaded hub, 16GA, 0.5"	1125-0003-P10
7	Threaded hub, 16GA, 0.5"	1125-0003-P50
8	Threaded hub, 17GA, 0.5"	1125-0004-P10
9	Threaded hub, 17GA, 0.5"	1125-0004-P50
10	Threaded hub, 18GA, 0.5"	1125-0005-P10
11	Threaded hub, 18GA, 0.5"	1125-0005-P50
12	Threaded hub, 19GA, 0.5"	1125-0006-P10
13	Threaded hub, 19GA, 0.5"	1125-0006-P50
14	Threaded hub, 20GA, 0.5"	1125-0007-P10
15	Threaded hub, 20GA, 0.5"	1125-0007-P50
16	Threaded hub, 21GA, 0.5"	1125-0008-P10
17	Threaded hub, 21GA, 0.5"	1125-0008-P50
18	Threaded hub, 22GA, 0.5"	1125-0009-P10
19	Threaded hub, 22GA, 0.5"	1125-0009-P50
20	Threaded hub, 23GA, 0.5"	1125-0010-P10
21	Threaded hub, 23GA, 0.5"	1125-0010-P50
22	Threaded hub, 24GA, 0.5"	1125-0011-P10
23	Threaded hub, 24GA, 0.5"	1125-0011-P50
24	Threaded hub, 25GA, 0.5"	1125-0012-P10
25	Threaded hub, 25GA, 0.5"	1125-0012-P50
26	Threaded hub, 26GA, 0.5"	1125-0013-P10
27	Threaded hub, 26GA, 0.5"	1125-0013-P50
28	Threaded hub, 27GA, 0.5"	1125-0014-P10
29	Threaded hub, 27GA, 0.5"	1125-0014-P50
30	Threaded hub, 30GA, 0.5"	1125-0015-P10
31	Threaded hub, 30GA, 0.5"	1125-0015-P50
32	Threaded hub, 14GA, 0.1"	1125-0016-P10
33	Threaded hub, 14GA, 0.1"	1125-0016-P50
34	Threaded hub, 15GA, 0.1"	1125-0017-P10
35	Threaded hub, 15GA, 0.1"	1125-0017-P50
36	Threaded hub, 16GA, 0.1"	1125-0018-P10
37	Threaded hub, 16GA, 0.1"	1125-0018-P50
38	Threaded hub, 17GA, 0.1"	1125-0019-P10
39	Threaded hub, 17GA, 0.1"	1125-0019-P50
40	Threaded hub, 18GA, 0.1"	1125-0020-P10
41	Threaded hub, 18GA, 0.1"	1125-0020-P50
42	Threaded hub, 19GA, 0.1"	1125-0041-P10
43	Threaded hub, 20GA, 0.1"	1125-0021-P10
44	Threaded hub, 19GA, 0.1"	1125-0021-P50
45	Threaded hub, 20GA, 0.1"	1125-0041-P50
46	Threaded hub, 21GA, 0.1"	1125-0022-P10
47	Threaded hub, 21GA, 0.1"	1125-0022-P50
48	Threaded hub, 22GA, 0.1"	1125-0023-P10
49	Threaded hub, 22GA, 0.1"	1125-0023-P50
50	Threaded hub, 23GA, 0.1"	1125-0024-P10

51	Threaded hub, 23GA, 0.1"	1125-0024-P50
52	Threaded hub, 24GA, 0.1"	1125-0025-P10
53	Threaded hub, 24GA, 0.1"	1125-0025-P50
54	Threaded hub, 25GA, 0.1"	1125-0026-P10
55	Threaded hub, 25GA, 0.1"	1125-0026-P50
56	Threaded hub, 26GA, 0.1"	1125-0027-P10
57	Threaded hub, 26GA, 0.1"	1125-0027-P50
58	Threaded hub, 27GA, 0.1"	1125-0028-P10
59	Threaded hub, 27GA, 0.1"	1125-0028-P50
60	Threaded hub, 30GA, 0.1"	1125-0029-P10
61	Threaded hub, 30GA, 0.1"	1125-0029-P50
62	Tip, Plastic, Taper, 14GA	1125-0030-P10
63	Tip, Plastic, Taper, 14GA	1125-0030-P50
64	Tip, Plastic, Taper, 16GA	1125-0031-P10
65	Tip, Plastic, Taper, 16GA	1125-0031-P50
66	Tip, Plastic, Taper, 18GA	1125-0032-P10
67	Tip, Plastic, Taper, 18GA	1125-0032-P50
68	Tip, Plastic, Taper, 20GA	1125-0033-P10
69	Tip, Plastic, Taper, 20GA	1125-0033-P50
70	Tip, Plastic, Taper, 22GA	1125-0034-P10
71	Tip, Plastic, Taper, 22GA	1125-0034-P50
72	Adapter, syringe, 5cc	1125-0035-P1
73	Adapter, syringe, 10cc	1125-0036-P1
74	Adapter, syringe, 30cc	1125-0037-P1
75	Barrel/Stopper, 5cc, 40 bag	1125-0038-P1
76	Barrel/Stopper, 5cc, 40 bag	1125-0038-P5
77	Barrel/Stopper, 10cc, 40 bag	1125-0039-P1
78	Barrel/Stopper, 10cc, 40 bag	1125-0039-P5
79	Barrel/Stopper, 30cc, 40 bag	1125-0040-P1
80	Barrel/Stopper, 30cc, 40 bag	1125-0040-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.

For PACE USA Customers:

PACE, INCORPORATED
9030 Junction Drive
Annapolis Junction, Maryland 20701
Tel. 301-317-3588
FAX. 301-498-3252

For PACE EUROPE Customers:

PACE EUROPE LIMITED
Sherbourne House, Sherbourne Drive,
Tilbrook, Milton Keynes
MK7 8HX
United Kingdom
Tel. (44) 1908 277666
WARRANTY SERVICE FAX: (44) 1908 277 777

All other Customers:

Local Authorized PACE Distributor

PACE Incorporated retains the right to make changes to specifications contained herein at any time, without notice. Contact your local authorized PACE Distributor or PACE Incorporated to obtain the latest specifications.

The following are trademarks and/or service marks of PACE, Incorporated, MD, USA:

INSTACAL™, FUMEFLO™, HEATWISE™, PACEWORLDWIDE™, PERMAGROUND™, POWERPORT™, POWERMODULE™, TEMPWISE™, TIP-BRITE™, AUTO-OFF™, and TEKLINK™.

The following are registered trademarks and/or service marks of PACE Incorporated, Annapolis Junction Maryland U.S.A.

ARM-EVAC®, FLO-D-SODR®, MINIWAVE®, PACE®, SENSATEMP®, SNAP-VAC®, SODRTEK®, SODR-X-TRACTOR®, THERMOFLO®, THERMOJET®, THERMOTWEEZ®, VISIFILTER®, THERMO-DRIVE®, and TOOLNET®.

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.

www.paceworldwide.com

PACE USA
9030 Junction Drive
Annapolis Junction, MD 20701
USA

Tel: (301) 490-9860

Fax: (301) 498-3252

PACE Europe
Sherbourne House
Sherbourne Drive
Tilbrook, Milton Keynes
MK7 8HX
United Kingdom

(44) 01908-277666

(44) 01908-277777