Jerome®
DOSIMETER
POCKET PUMP
OPERATOR'S MANUAL

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Notice: This operating instruction may not address all safety concerns (if any) associated with this product and its use. The user is responsible for determining and following the appropriate safety and health practices and regulatory limitations (if any) before using the product. The information contained in this document should not be construed as legal advice, opinion, or as a final authority on legal or regulatory procedures.

1. INTRODUCTION

Your new pump [AZI P/N 990-0177] is an advanced low flow sample pump combining lightweight and compact design with computer-compatible circuitry. When used with an AZI personal dosimeter kit [AZI P/N Y990-0175 or Y990-0176], it forms an efficient and accurate means of determining the amount of exposure to mercury vapors.

The dosimeter pocket pump is RFI/EMI-shielded, CE-approved and UL- and CUL-listed.

2. SPECIFICATIONS

- Flow Rate: AZI Factory Calibrated to 5 ml/min
- Run-time: up to 14 hours in typical dosimeter sampling applications
- Constant flow compensation: Flow rate controlled to ±5% of flow setting with compensation for back pressure up to 20 inches water column
- Battery charge level indicator: displays at full, mid, and low charge
- Temperature range:
  - Operating: 20 to 110 ºF (-7 to 43 ºC)
  - Charging: 40 to 100 ºF (5 to 38 ºC)
- Timer shows sampling time from 1 to 999 minutes to within 1%.
- Flow fault: pump stops and holds historical data when flow is restricted. Auto-restart attempted every 5 min.
- Battery pack: Built-in, rechargeable (NiMH), 2.4 V x 1.0 Ah. (AZI P/N: 420-0003)

Warning: Intrinsic safety and other approvals may be void if SKC pumps are opened by unauthorized repair centers. Call AZI Customer Service at 800-528-7411, 602-470-1414, or e-mail to support@azic.com for assistance with any operational problem.

3. OPERATING TERMS AND DISPLAYS

- FLOW: Flow rate in milliliters per minute (mL/min).
- VOLUME: Total volume of air in milliliters (mL) or liters (L) since reset.
- PRESSURE: Pump back pressure measured in inches (ins) of water or millimeters (mm) Hg.
- TEMP: Temperature of incoming air in ºC or ºF.
- RUN-TIME: Time in minutes (min) since reset.

Interpreting the LCD

- PROG: Available only to programming software.
- HOLD: Active when the Pocket Pump is in the HOLD state.
- ADJ: Active when the Pocket Pump is being flow-calibrated.
- FLOW: Active when the LCD shows the flow rate.
- VOL: Active when the LCD shows the volume of air pumped.
- SET: Flashes when setting the flow rate of the Pocket Pump.
- Flow Fault: Icon, (), flashes during flow fault
- Battery: Icon shows battery condition

Display Units

- °C Temperature is displayed in Celsius.
- °F Temperature is displayed in Fahrenheit.
- ins Inches. Pump back pressure is displayed in inches water.
- mm Pump back pressure is displayed in millimeters of mercury.
- mL/min Flow rate is displayed in milliliters per minute.
- min Run time in minutes. This is the total run time since the timer was cleared.

Pocket Pump Operation Control Switches

The Pocket Pump operation is controlled by pressing one or more of the switches located beneath the sliding cover.

- To turn the Pocket Pump ON: Press any keypad button. The LCD will show the pump's serial number for two seconds followed by an internal software revision number.
- Press any button to activate the display and control switches.
- Pressing both the up and down arrow buttons simultaneously places a running pump in HOLD or a holding pump in RUN.
- The Star Button Scrolls through running data displayed on the LCD.

4. PUMP OPERATING STATES

SLEEP

- The display is off and the electronic circuitry are in a minimum power use state.
- The pump automatically enters SLEEP mode after five minutes in HOLD unless the battery charger is plugged in or a keypad button is pressed.
- To change the pump from SLEEP to HOLD press any button

HOLD

- The pump is off and run-time data is stored.
- Temperature and back pressure readings are still active and shown on the LCD.
- To change the pump from HOLD to RUN, press the up and down arrow switches at the same time.

RUN

- The pump is running and run-time data is updated continuously in memory.
- To change the pump from RUN to HOLD, press the up and down arrow switches at the same time.

FLOW FAULT ( )

- The pump operation is interrupted due to blocked or restricted flow.
- The flow fault icon will flash and the pump goes into HOLD mode (flow fault icon is steady and HOLD flashes on LCD).
- The pump will restart operation in five minutes and try to continue sampling.
- If flow remains restricted, the pump goes back to HOLD mode (HOLD flashes on LCD) and attempts to restart every five minutes or until the restricted flow is corrected.
- The time the pump is running in Flow Fault mode is not added to the displayed runtime or cumulative volume display.

5. OPERATION

NOTES:

- Buttons shown in parentheses must be pressed simultaneously. For example, (▲▼) indicates to press the up and down arrows at the same time.
- When entering a sequence of commands, each subsequent command must be entered within ten seconds of completing the previous command. If the subsequent command is not entered within ten seconds, it will be necessary to restart the sequence.
- The sequence ❋▲▼❋ is a security code that prevents unauthorized changes to the pump's sampling program. It is used in some of the operations steps below.

To determine the battery charge:

- The pump will operate up to 14 hours in a typical dosimeter sampling application.
- The LCD shows the current battery charge level. The icons appear as follows:
  - Three bars indicate a full charge and appear for approximately the first three hours of operation.
  - Two bars indicate main running time and display for approximately eight hours.
  - One bar indicates that there is approximately one hour of run-time remaining.
  - When all bars are clear and the outline is flashing, the pump goes into HOLD mode, then to SLEEP mode in approximately one minute.

To obtain run-time data:

- Press the ❋ button.
- After displaying the data, the pump will return to SLEEP mode in ten seconds. This sequence can be repeated.

To reset the data display to zero:

- With the pump running, press: (▲▼) at the same time to place the pump in HOLD mode, enter the security code ❋▲▼❋, then within 10 seconds press ❋❋ to zero the display.
  - The LCD will briefly show the pump serial number, software version number, and time at 0 min. This will clear all data except the flow setting.
  - If you do not want to clear the run-time data after entering the security code, stop and wait 10 seconds to break the sequence. The LCD will stop flashing after ten seconds.

To ensure the pump is operating in constant flow mode:

- Look at the LCD and if necessary, use the ❋ button to scroll through the displays. One of the displays should show "FLOW" followed by a number and the rate "mL/min."
- If this display cannot be found, find the display with a "P," a number and the

letters “ins” or “mm.”

- Place the pump in HOLD mode; if necessary press (▲▼) until the word “HOLD” appears, press the security code ❋▲▼❋, then press ❋▼▲❋.
- The display should now show the FLOW mode.
- If desired, repeat this sequence to switch back to PRESSURE mode.

NOTE: The pump must be in FLOW mode to operate the dosimeters properly.

The display may be placed in Standard or Enhanced mode. In standard mode, the display features are: Flow, Volume, and Run Time. The Enhanced mode will also display Back Pressure caused by a flow restriction and Temperature of the air drawn through the pump.

To switch from Standard to Enhanced Display mode:

- Press (▲▼) until the word “HOLD” appears, press the security code ❋▲▼❋ and then press ❋▲▲❋.

To switch from Enhanced to Standard Display mode:

- Press (▲▼) until the word “HOLD” appears, press the security code ❋▲▼❋ and then press ❋▼▼❋.

To select the temperature scale display:

- In enhanced display, the temperature of incoming air can be shown in either Celsius (ºC) or Fahrenheit (ºF) scale. Use the ❋ button to scroll to the temperature display.

To change temperature from Celsius (ºC) to Fahrenheit (ºF) or Fahrenheit (ºF) to Celsius (ºC):

- Press (▲▼) until the word “HOLD” appears, press the security code ❋▲▼❋ and then press (❋▼) and the scale will change.

To select pressure units:

- In enhanced display, back pressure can be shown in either inches (ins) of water or millimeters (mm) of Mercury. Use the ❋ button to scroll to the back pressure display.

To change back pressure units from Inches (ins) to Millimeters of Mercury (mm) or from Millimeters of Mercury (mm) to Inches (ins):

- Press (▲▼) until the word “HOLD” appears, press the security code ❋▲▼❋ and then press (▲❋) and the scale will change.

6. CARE AND MAINTENANCE

The Pocket Pump has been carefully designed, manufactured, and tested to give excellent performance. Proper care and maintenance include:

- Avoid dropping the pump or subjecting it to strong impacts.
- Keep the pump dry.
- Do not clean the pump with harsh cleaning solvents or detergents.
- Store the pump in a cool, dry, dust-free location.
- Discharge and recharge the battery pack once a month to maximize battery life.

Battery Pack Charging System

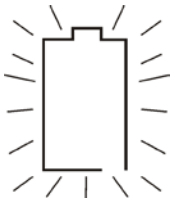
- The SKC Pocket Pump features the innovative NiMH PowerFlex® Charging Battery System, with the following features:
  - It allows the battery pack to regulate the charge it receives by reducing its fast charge rate to a trickle charge rate when the battery is at maximum capacity thus preventing damage to the battery.
  - It is also designed to prevent harm to the battery by charging only if the battery is within its acceptable charging temperature range of 40 to 100 ºF (5 to 38 ºC). Outside of this range, the battery will only accept the low output trickle charge.

Continuous Operation using Charger

- Continuous pump operation is possible in **non-hazardous environments** using the pump with battery charger plugged into a wall outlet.
- It is important to note that the battery will discharge during a continuous run operation, however, when its charge drops by 50%, the fast charge feature is initiated until the battery receives a full charge. This cycle repeats every several hours during the operation.

7. CHARGING THE BATTERY PACK

- When the battery loses all of its charge, the battery icon displays as a flashing outline with no bars.



- To charge the battery, plug the charger's power cube into a standard wall outlet. Insert the plug at the end of the charger cord into the jack on the bottom of the pump. The fast charging function of the battery pack will completely recharge the battery in approximately 6 hours or less.

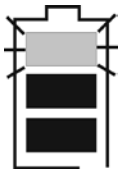
- During 'fast-charging", the battery icon displays a solid outline with three flashing bars.

- During "trickle-charge" and upon receiving a full charge, the battery icon is a solid outline with three solid bars.

- NOTE: The PowerFlex® LED will remain red throughout the entire charging process.

- If charging is interrupted, the battery icon displays two bars and battery will not be at full charge.

- When the top bar is flashing and the bottom two bars are solid, a charging fault has occurred. This may be caused by changing ambient temperatures or by a defective battery pack. Unplug the charger, allow the pump to equilibrate to the ambient temperature, and retry. If the icon display persists, call AZI Customer Service at 800-528-7411 or 602-470-1414 for assistance.

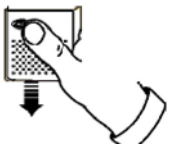


- Unplug the charging plug from the Pocket Pump battery port when finished charging the battery pack. If the charger is unplugged from a wall outlet and the charging plug is left in place, the battery charge will deplete.

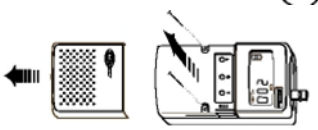
Ensure that the computer interface port is covered before and during charging.
Do not charge in hazardous environments.

8. REPLACING THE BATTERY PACK

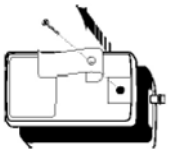
- Press down on the sliding keypad cover near the SKC logo with your thumb, and push the keypad cover down and away from the display until it is free from the pump.



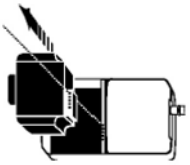
- Lay the pump on a flat surface with the LCD facing upwards. Remove the two screws on the front panel of the pump.



- Turn the pump over so that the LCD faces down. Remove the belt clip by unscrewing the single locking screw, and remove the battery compartment cover.

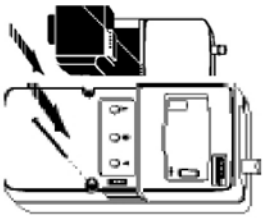


- Unplug the old battery pack by carefully lifting it upwards, and remove it from the pump.



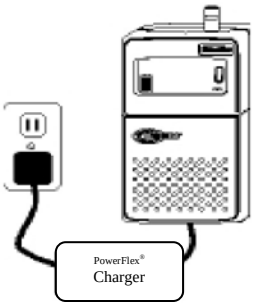
- Do not charge or operate pump with charger in hazardous atmospheres! Use only AZI approved charger and battery pack designated for the Pocket Pump.

- Plug in the replacement battery pack, AZI Part Number 420-0003. Replace the battery compartment cover and belt clip.



- Turn the pump over so that the LCD faces upwards. Replace the two screws on the front panel of the pump (do not over-tighten the screws) and replace the keypad cover.

- Charge the new battery pack. (See page 9)



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