Laboratory Shaker
PN 4821, 115 Volt
PN 4822, 230 Volt

Description
- Easily detachable arms equipped with 8 cork-lined clamps.
- Process up to 8 Envirochek® sampling capsules at one time.
- Programmable digital speed and timer.
1. Handle the parcel with care. Unpack and check that the contents coincide with the packing list. If any part is damaged or missing, please advise the distributor immediately.

2. Do not install or use the equipment without first reading the Product Information Insert.

3. The manual should be made available for all users.

4. If you have any inquiries, please contact your supplier or Pall Life Sciences technical service.

5. Do not use the apparatus with liquids which can give off vapors capable of making explosive mixtures.

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**Packing List**

The standard equipment consists of the following components:

<table>
<thead>
<tr>
<th>Piece</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory Shaker (115 or 230 Volt)</td>
<td>1</td>
</tr>
<tr>
<td>Arms</td>
<td>2</td>
</tr>
<tr>
<td>Clamps</td>
<td>8</td>
</tr>
<tr>
<td>Power Cord</td>
<td>1</td>
</tr>
<tr>
<td>Product Information Insert</td>
<td>1</td>
</tr>
<tr>
<td>Allen Wrench 3 mm</td>
<td>1</td>
</tr>
</tbody>
</table>
**CAUTION!!!! IMPORTANT FOR YOUR SAFETY**

Be sure that the voltage supply is the same as the one indicated on the characteristics plate.
Do not use the apparatus to shake products capable of making an explosive mixture.
Do not use the apparatus if it is not grounded.
If you change the plug, bear in mind the following:
- Blue cable: Neutral
- Brown cable: Phase
- Yellow/green cable: Ground

**Specifications**

Voltage supply 115 V, 50/60 Hz, or 230 V, 50/60 Hz on the characteristics plate.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>4821</th>
<th>4822</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>35 cm (13.8 in.)</td>
<td>35 cm (13.8 in.)</td>
</tr>
<tr>
<td>Length</td>
<td>77 cm (30.3 in.)</td>
<td>77 cm (30.3 in.)</td>
</tr>
<tr>
<td>Width</td>
<td>27 cm (10.6 in.)</td>
<td>27 cm (10.6 in.)</td>
</tr>
<tr>
<td>Maximum capacity</td>
<td>4 kg (8.8 lb)</td>
<td>4 kg (8.8 lb)</td>
</tr>
<tr>
<td>Oscillations/min.</td>
<td>100–750 rpm</td>
<td>100–920 rpm</td>
</tr>
<tr>
<td>Power consumption</td>
<td>80 w</td>
<td>80 w</td>
</tr>
<tr>
<td>Weight</td>
<td>11 kg (24.2 lb)</td>
<td>11 kg (24.2 lb)</td>
</tr>
<tr>
<td>Voltage</td>
<td>115 V</td>
<td>230 V</td>
</tr>
</tbody>
</table>

**Installation**

**Laboratory Shaker:**
- Place the apparatus on a level horizontal surface with sufficient stability to resist its own vibrations.
- Fit the arms with clamps at the shaker side shaft so that the screws tighten against the flat side of the shaft.
- If the shaker moves during operation, this can be alleviated by putting a piece of cushioned rubber between the table and the shaker.

**Instructions for Use**

**Control Panel:**
1. Power Switch
2. Display – Time, Speed
3. Timer Mode Lamp (5)
4. Speed Mode Lamp (U/min.)
5. Program Button
6. Timer Selector and Decrease Button
7. Speed Selector and Increase Button
8. Start/Stop Button

**Control Panel Layout**
Instructions for Use (continued)

Starting Up:
1. Plug shaker into 115V 50/60 Hz or 230 V 50/60 Hz line as indicated on the characteristics plate located on the back of the instrument.
2. Turn on the main rocker switch located on the back of the instrument. Follow steps outlined below for Continuous Operation or Timed Operation.

Continuous Operation Example:
To run shaker in continuous (non-timed) operation, the timer must be set to "000" minutes.
If, for example, the desired shaking speed is 200 undulations (cycles) per minute (U/min.) for an undefined interval, follow the steps outlined below:
1. Press the Speed Selector button. The Speed Mode Lamp will light and the display will read "000".
2. Press and hold the Program button to display the current speed setting. Adjust speed using the Increase or Decrease buttons while simultaneously holding the Program button until 200 is reached. Release buttons. Speed is now adjusted to desired setting.

Instructions for Use (continued)

3. Press the Timer Selector button. The Timer Mode Lamp will light and the display will read "000".
4. Press and hold the Program button to display the current Timer setting. Decrease time (minutes) using the Decrease button while simultaneously holding the Program button until "000" minute is reached. Release buttons. Timer is now adjusted for continuous operation.
5. Press Start/Stop button to start shaking continually. Press Start/Stop button to stop shaking once samples are thoroughly agitated.
Timed Operation Example:

If the desired shaking speed is 450 undulations (cycles) per minute (U/min.) for an interval of 60 minutes, follow the steps outlined below:

1. Press the Speed Selector button to access the speed mode. The Speed Mode Lamp will light and the display will read “000”.

2. Press and hold the Program button to display the current speed setting. Adjust speed using the Increase or Decrease buttons while simultaneously holding the Program button until 450 is reached. Release buttons. Speed is now adjusted to desired setting.

3. Press the Timer Selector button to access the timer mode. The Timer Mode Lamp will light and the display will read “000”.

4. Press and hold the Program button to display the current timer setting. Adjust time (minutes) using the Increase or Decrease buttons while simultaneously holding the Program button until “060” minutes is reached. Release buttons. Timer is now programmed for 60 minute interval operation.

5. Press Start/Stop button to run shaker program. Shaker will shut off automatically after time has expired.

Display:

During operation the display lamp will flash.
- To view the current speed during operation press Speed Selector button.
- To view time remaining during a timed operation press Timer Selector button.

NOTE: If power is turned off using the Power Switch during operation (in both continuous and timed modes), the shaker will run immediately after power up. Use Start/Stop button to end a timed program or to stop shaking in continuous mode.
Maintenance
Before removing the casing, always be sure the shaker is unplugged.
The manipulation of the internal electronic circuits of the apparatus by unauthorized personnel can cause irreparable damage to the apparatus.

Cleaning:
Cleaning of plastic: alcohol with cotton cloth
Painted metal case: damp cloth and mild soap

Replacement Parts
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>89051</td>
<td>Clamp with extension collar</td>
</tr>
</tbody>
</table>

WARNING
Employment of the products in applications not specified, or failure to follow all instructions contained in this product information insert, may result in improper functioning of the product, personal injury, or damage to property or the product. See Statement of Warranty in our most recent catalog.

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