

**Grant bio**

# Microplate shaker PMS-1000i

*Operating instructions*





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# 1. Safety

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The following symbols mean:



**Caution!** Read these operating instructions fully before use and pay particular attention to sections containing this symbol.

## GENERAL SAFETY

- ☞ Use only as specified in the operating instructions provided.
- ☞ The unit should not be used if dropped or damaged.
- ☞ The unit must be stored and transported in a horizontal position (see package label).
- ☞ After transport or storage in humid conditions allow the unit to dry out (2-3 hrs) before connecting to the supply voltage.
- ☞ Before using any cleaning or decontamination method except those recommended by the manufacturer, check with the manufacturer that the proposed method will not damage the equipment.
- ☞ Do not attempt to modify the unit.

## ELECTRICAL SAFETY

- ☞ Connect only to a power supply with a voltage corresponding to that on the serial number label.
- ☞ Use only the external power supply unit provided with this product.
- ☞ Ensure that the power switch and external power supply connector are easily accessible during use.
- ☞ Before moving the unit, disconnect it from the mains.
- ☞ To turn off the unit, disconnect the external power supply from the power outlet.
- ☞ If liquid is spilled inside the unit, disconnect it from the mains and have it checked by a competent person.

## DURING OPERATION

- ☞ Do not impede the platform motion.
- ☞ Do not operate the unit in environments with aggressive or explosive chemical mixtures.
- ☞ Do not operate the unit if it is faulty or been incorrectly installed.
- ☞ For indoor use only.
- ☞ Do not use outside laboratory rooms.
- ☞ Do not place a load exceeding maximum loading mentioned in Specifications.

## BIOLOGICAL SAFETY

- ☞ It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or inside the equipment.

## 2. General Information

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The new upgraded PMS-1000i version is designed for reliable continuous, long-term operation. Use of direct drive and brushless motor allows continuous mixing during up to 7 days and guarantees reliable operation for more than 2 years.

The Microplate shaker PMS-1000i is designed to regulate shaking for 2 or 4, 96-well microplates. Compact with a low profile and small footprint for personal use, applications include, immuno-diagnostics, mixing of biological liquids as well as incubation and cultivation in microplates according to the program set by the operator.

The unit can also be used for mixing any biological and chemical components, in all areas of medicine, biotechnology and microbiology laboratory research.

The principle of the PMS-1000i operation is based on the creation of the rotational movement of the shaker platform with smooth, constant amplitude. The rotational speed is controlled from the front panel.

- Gentle shaking of samples
- Smooth regulation and stabilization of the rotational speed
- Even shaking amplitude throughout the shaker platform
- Setting and indication of the necessary working time
- Automatic stop of platform movement after the time expires
- Indication of the current operation time

# 3. Getting started

## 3.1 Unpacking

Remove packaging carefully and retain for future shipment or storage of the unit. Examine the unit carefully for any damage incurred during transit. The warranty does not cover in-transit damage.

## 3.2 The PMS-1000i set includes:

- Microplate shaker PMS-1000i .....1 piece
- Platform for 2 plates **1** .....1 piece
- Operating instructions; Declaration of Conformity .....1 copy
- External power supply .....1 piece

## 3.3 Optional extras

Platform MPP4 for 4 microtest plates **2**

## 3.4 Set up:

- place the unit on an even horizontal working surface;
- plug the external power supply unit into the 12 V socket at the rear side of the unit.

## 3.5 Platform installation

Install the platform by inserting the pins on the underside of the platform into the holes on the supporting platform on the shaker.

**Note!** When using MPP4 platform do not set speed higher than 800 rpm.

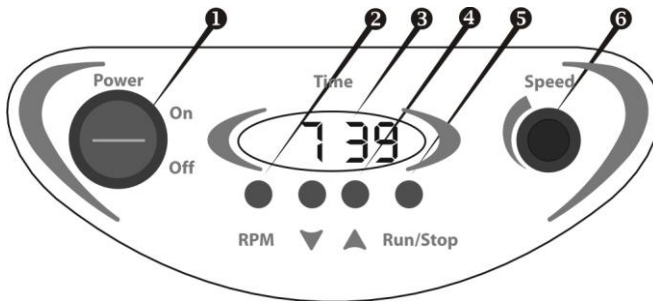


**1** 2 plate standard platform



**2** 4 plate option MPP4

## 4. Operation of PMS-1000i



**Fig.1 Control panel**

- 4.1. Connect external power supply to the mains.
- 4.2. Place the microtest plates on the platform and fix them with the 2 screws. Using MPP4 platform fix the microtest plates with the special holder by pressing it against the microtest plates with two screws.
- 4.3. Switch ON the Power switch (Fig.1/1), located on the front panel of the shaker (the timer indicator will be light up (Fig.1/3), in standby mode the display shows set time or set speed (when **RPM** key is pressed). In run mode the display shows operation time or actual speed (when **RPM** key is pressed)
- 4.4. Using the ▲ and ▼ buttons (Fig.1/4) set the working time with the help of the timer display. The set time is displayed in hours and minutes (hh:mm).
- 4.5. Set the shaking speed with the **Speed** dial (Fig. 1/6) using set speed readings on the display. Speed readings are indicated on the display while the **Speed** knob is being turned.

- 4.6. Press the **Run/Stop** key (Fig. 1/5). The platform begins shaking and the timer indicator starts counting up the set time interval. The timer displays the actual time: up to 1 hour - in minutes and seconds (min:sec), after 1 hour - in hours and minutes (hh:mm). Press and hold the **RPM** key (Fig. 1/2) while the platform is shaking to display the actual speed of the platform motion on the display.
- 4.7. After the set time has expired, the platform shaking stops and the set working time is shown on the timer display.
- 4.8. To repeat the operation with the same working time and speed press the **Run/Stop** key.
- 4.9. If necessary the shaker can be stopped before the set time elapses by pressing the **Run/Stop** key (Fig. 1/5). For 2 s the display will be showing the time the shaker has worked, after that, the set time.
- 4.10. If the working time is not set (or is deleted) and the display shows 00:00, pressing the **Run/Stop** key will start continuous shaking until the **Run/Stop** key is pressed again. The timer will count up until 99hrs and 59 min and then restart from 00:00.
- 4.11. At the end of operation turn the **Power** switch into position OFF.
- 4.12. Disconnect external power supply from the mains.



# 5. Specifications

The PMS-1000i is designed for operation indoors in a laboratory, cold room or incubator, with an ambient temperature from +4°C to +40°C and maximum relative humidity of 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C. It can be used at altitudes up to 2000m.

- Speed control range .....150-1200 rpm  
(150-800 rpm using the platform MPP-4)
- Orbit .....2 mm
- Digital time setting .....1 min - 24 hr / non-stop
- Maximum continuous operation time .....168 hrs
- Maximum loading .....0.3 kg
- Dimensions .....220x205x90 mm
- Input current/power consumption .....12V, 280 mA / 3.4 W
- External power supply ..... Input AC 100-240 V 50/60Hz, output DC 12V
- Weight, not more than.....2.0 kg

Optional accessories	Description
MPP-4	platform 4 microtest plates

Replacement parts	Description
MPP-2	platform 2 microtest plates

Grant is committed to a continuous program of improvement; specifications may be changed without notice.

# 6. Guarantee and Service

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## 6.1 Guarantee

When used in laboratory conditions and according to these working instructions, this product is guaranteed for TWO YEARS against faulty materials or workmanship.

## 6.2 Service

There are no user-serviceable parts inside the unit. For all maintenance and repairs return to our service department in the UK or in other countries, our distributor.

## 6.3 Cleaning & Disinfection

Standard ethanol (75%) or other cleaning agents recommended for cleaning of laboratory equipment can be used for cleaning and disinfection of the unit

# Declaration of Conformity

Manufacturer:	BIOSAN LTD. Ratsupites 7, build.2, Riga, LV-1067, Latvia
Equipment name/type number:	PMS_1000
Description of Equipment:	Microplate Shaker
Directives:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC

Applied Standards	EN 61326-1: Electrical equipment for measurement, control and laboratory use - EMC requirements General requirements
Harmonized Standards:	EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements

I declare that this apparatus conforms to the requirements of the above Directive(s)

  
.....  
Svetlana Bankovska  
Executive Director  
Biosan Ltd.

Dated 14.02.2011.....

# Grant bio

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