

Grant-bio

Orbital shaker PSU-10i

Operating instructions



Contents

1	Safety	3
2	General Information	5
3	Getting Started	6
4	Operation of PSU-10i	7
5	Specifications	8
6	Guarantee and service	10

1. Safety

1.1 Caution symbol












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

1.2 Safety features










The PSU-10i is constructed so as to meet the requirements of international safety standard IEC61010-2-51:2003 safety requirements for electrical equipment for measurements, control and laboratory use – part 2: particular requirements for laboratory equipment for mixing and stirring.

A copy of the Declaration of Conformity with CE requirements is included at the back of this manual.

1.3 Before first operating the Shaker

-  Read the whole of these instructions, paying particular attention to sections marked with the Caution symbol. Safety may be impaired if these instructions are not followed.
-  If the product has been transported or stored in cold or humid conditions, condensation may form inside it. If that could have happened, allow time for the condensation to evaporate before using the product.
-  Safety may be impaired if the product is switched on before the condensation has evaporated.
-  Connect the product to a power supply with the correct voltage and frequency, as marked on the serial number label.
-  Only use the power supply unit provided with this product.
-  Make sure that the mains switch and power supply plug are easily accessible during use.
-  Do not place a load exceeding 3 kg on PSU-10i.
-  As the unit is producing shaking or rotational movement, be aware of the surface that the unit will be placed upon.
-  The unit must be stored and transported only in a horizontal position (see marking on the package).

1.4 Precautions during and after operation

-  Do not use the product in an area where there are aggressive or explosive chemical mixtures.
-  If liquid is spilled inside the product, disconnect it from the power supply and have it checked by a competent person.
-  Clean the product with a damp cloth, using water only. Do not use chemical cleaning agents. Before using any other cleaning or decontamination method, check with the manufacturer or supplier to make sure that the proposed method will not damage the equipment.
-  It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilled on or inside the equipment.
-  Before moving, disconnect at the power supply socket.
-  Do not stop the platform by hand during operation.
-  Do not operate the unit outside the laboratory premises.
-  If the unit is dropped, examine it carefully before using it again to see that it has not been damaged.
-  When power is restored after interruption the unit turns on automatically and resumes operation (the timer is restarted).

2. General Information

PSU-10i is the new orbital shakers in multi-functional mixing device range. New design, Direct drive system, Brushless motor (service life up to 35000 hours), Automatic loading balancing system makes the new series even more reliable especially for the long non-stop operation and expands the product specifications in the both high and low value ends.

Safe and energy efficient - powered by external 12V AC/DC power supply.

Easy to use and setup - two-line LCD display shows both actual and set parameter values while microprocessor control allows making corrections in the program without stopping operation.

These very quiet and reliable shakers can provide stable continuous mixing up to 7 daynights.

PSU-10i with its wide speed range, loading up to 3 kg and extensive choice of platforms is applicable in different laboratories in microbiology, chemistry, immunology, biochemistry and molecular biology.

3. Getting started

3.1 Unpacking

Remove packing materials carefully, and retain for future shipment or storage of the unit.

3.2 The PSU-10i set includes:

- Orbital shaker PSU-10i (no platform)1 piece
- External power supply unit1 piece
- Specifications; Operating Manual; CE Certificate1 copy

3.3 Place the Shaker on the horizontal even working surface.

3.4 Plug the external power supply unit into the 12 V socket at the rear side of the Shaker.

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.

4. Operation of PSU-10i

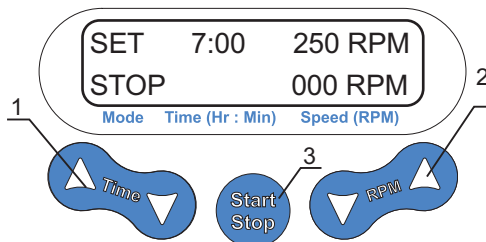


Fig.1 Control panel

- 4.1 Connect the external power supply unit to the mains socket.
- 4.2 Place laboratory glassware on the Shaker platform and secure with the holders.
- 4.3 With the help of “▲” and “▼” **TIME** keys (Fig. 1/1) set the required working time interval in hours and minutes (increment - 1 min). If the key is pressed for longer time the increment becomes bigger. The set time is displayed in the first line of the display.
- 4.4 With the help of “▲” and “▼” **RPM** keys (Fig. 1/2) set the required shaking intensity in revolutions per minute (increment 10 RPM). If the key is pressed for longer time the increment becomes bigger. The set speed is displayed in the first line of the display.
- 4.5 Press the **StartStop** key (Fig. 1/3). The platform will start rotation and the timer indicator will start counting up the time interval in the lower line of the display.
- 4.6 At the end of the program (after the set time elapses) the platform motion stops and in the lower line of the display shows the flashing reading “STOP” accompanied by the repetitive sound signal until the **StartStop** key is pressed.
Note! When power is restored after interruption the unit turns on automatically and resumes operation (the timer is restarted).
- 4.7 If the working time is not set (or deleted) and the display shows 00:00, pressing the **StartStop** key will cause the unit to operate continuously until the **STOP** key is pressed.
- 4.8 The platform motion can be stopped at any time by pressing the **StartStop** key. In this case the program realisation and the platform motion stops and timer is set back to zero switching into the stop mode.
- 4.9 At the end of operation disconnect the external power supply unit from the mains socket.

5. Specifications

The unit is designed for operation indoors in a laboratory at altitudes up to 2000m, with ambient temperature from +5°C to +40°C and maximum relative humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C.

Installation category I (transient voltages). Pollution degree 2 in accordance with IEC 664.

- **Revolution regulation range** 50 - 450 r.p.m.
(max. speed depends on the shaking load and flask shape *)
- **Speed adjustment step** 10 r.p.m.
- **Amplitude of rotational shift** 10 mm
- **Maximal load** 3 kg
- **Continuous operation time of Shaker**96 hrs (max)
- **Timer range** 1 minute to 96 hours
- **Acceleration time up to 450 RPM**5-7 sec
- **Input current/power consumption**12V, 800 mA / 10W
- **External power supply** input AC 100-240 V 50/60Hz, output DC 12V
- **Dimensions** 220x205x90 mm
- **Weight, with power supply w/out platform, not more** 4,0 kg.
- **Interchangeable platform specification:**

UP-12 Universal platform with adjustable bars for different types of flasks, bottles and beakers (w/d 270x195 mm);

*Maximim loading up to 3 kg, Max speed 450-300 RPM depending on loading. Recommended speed 150-300 RPM.

PP-4 Bio Flat platform with non-slip rubber mat for Petri dishes, culture flasks, agglutinin cards (w/d 255x255 mm, working area 230x230 mm);

*Maximim loading up to 1,5 kg, Max speed 450-300 RPM depending on loading. Recommended speed 50-150 RPM.

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- P-12/100** Platform with clamps for flasks, 100-150 ml (12 places) (w/d 250x190 mm);
*Maximim loading up to 1,5 kg, Max speed 450-300 RPM depending on loading. Recommended speed 150-300 RPM.
- P-6/250** Platform with clamps for flasks, 250-300 ml (6 places) (w/d 250x190 mm).
*Maximim loading up to 1,5 kg, Max speed 450-300 RPM depending on loading. Recommended speed 150-300 RPM.

To improve the design manufacturer reserves the right to make changes in specification without prior notice.

6. Guarantee and Service

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**

For service, return for repair to our Service Department in the UK or, in other countries, to our distributor.

Declaration of Conformity

Manufacturer:	BIOSAN LTD. Ratsupites 7, build.2, Riga, LV-1067, Latvia
Equipment name/type number:	PSU-10i
Description of Equipment:	Orbital shaker
Directives:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC

Applied Standards	
Harmonized Standards:	<u>EN61326-1:2006</u> Electrical equipment for measurement, Control and laboratory use - EMC requirements <u>Part 1: General requirements</u> <u>EN 61010:</u> Safety requirements for electrical equipment for measurement, control and laboratory use. <u>EN 61010-2-051:2003</u> Particular requirements for laboratory equipment for mixing and stirring

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


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Svetlana Bankovska
Executive Director
Biosan Ltd.

Dated 07.09.2010

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