Grant bio

Rotator
PTR-60

Operating instructions

For version V.2GY

Contents

1. Safety

The following symbols mean:

Caution! Make sure you have fully read and understood the present Operating instructions before using the equipment. Please pay special attention to sections marked by 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 an horizontal position (see package label).
- ☞ After transportation or storage keep the unit under room temperature for 2–3 hrs before connecting it to the electric circuit.
- ☞ Use only cleaning and decontamination methods recommended by the manufacturer.
- ☞ Do not make modifications to the design of the unit.

ELECTRICAL SAFETY

- ☞ Connect only to a power supply with voltage corresponding to that on the serial number label.
- ☞ Use only the external power supply unit provided with this product.
- ☞ Ensure that the external power supply connector is easily accessible during use.
- ☞ Disconnect the unit from the electric circuit before moving.
- ☞ Turn off the unit by disconnecting the external power supply from the power socket.
- ☞ If liquid penetrates into the unit, disconnect it from the external power supply unit and have it checked by a repair and maintenance technician.

DURING OPERATION

- ☞ Do not operate the unit in environments with aggressive or explosive chemical mixtures.
- ☞ Do not operate the unit if it is faulty or has been installed incorrectly.
- ☞ Do not use outside laboratory rooms.
- ☞ Do not place a load exceeding the maximum load value mentioned in the specifications section of these operating instructions.

BIOLOGICAL SAFETY

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

2. General Information

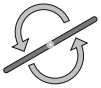
Rotator PTR-60 provides:

- Orbital rotational motion,
- Reciprocal motion,
- Vortexing motion of the platform in different planes, according to the microprocessor protocol.

The protocol allows to set a program for realisation of not only separate mixing motions but also for the consecutive realisation of different motion types on the cyclical principle.

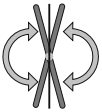
There are options for setting:

Orbital rotational motion



speed and time of ordinary orbital rotational motion (360º) of the platform for a time period 0–250 sec, or non-stop with the speed of 1–100 rpm.

Reciprocal motion

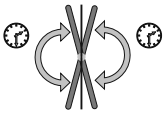


segment of reciprocal motion when the direction of the platform orbital rotational motion from the vertical plane is changing in turns within the limits of the set segment (turning angle 1–90º for a time period 0–250 sec, or non-stop) at the preset speed of orbital rotational motion;

Vibro motion

segment and time of vibro motion of the platform (turning angle 0–5º for a time period 1–5 sec) run at the end of each reciprocal motion segment. It is available only when the reciprocal motion is ON;

Pause



pause duration for temporary platform motion stops (1–5 sec) when the vibro motion is off (the turning angle of vibro motion is set to zero) run at the end of each reciprocal motion segment. It is available only when the reciprocal motion is ON;

Working period from 1 min to 24 hours, or non-stop.

Apart from the unique operation modes, the Rotator PTR-60 has an attractive design with a very small footprint, saving bench space, it offers a user-friendly interface, which provides options not only for changing the program during the operation, but also for simultaneous control over different steps of a mixing protocol.

Rotator PTR-60 will undoubtedly provide increased methods to researchers working in the field of modern molecular and cell biology and the developing biodiagnostics technology based on the use of magnetic particles, where rotating, mixing and shaking for maximum suspension of particles in the reactants are essential.

Rotator PTR-60 is designed for mixing biological solutions, cell suspensions, magnetic particles conjugated with specific antibodies as well as incubation and cultivation of biological liquids according to the operator's set program.

The unit is applicable in all areas of laboratory research in biotechnology, microbiology, chemistry, and medicine.

3. Getting Started

3.1 Unpacking

Remove packing materials carefully, and retain them 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 Rotator PTR-60 set includes:

Standard set

- Rotator PTR-60 .....1 piece
- PRS-48 platform ❶ .....1 piece
- External power supply unit.....1 piece
- Operating Instructions; Declaration of Conformity .....1 copy

Optional accessories

- PRS-8-22 platform ❷ .....on request
- PRS-14 platform ❸.....on request

❶

❷

❸

3.3 Set up

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

3.4 Platform replacement

Unscrew the two fixing screws on the platform. Replace the platform and install the new platform securing it with the screws. Fix the screws tightly.

4. Operation of PTR-60

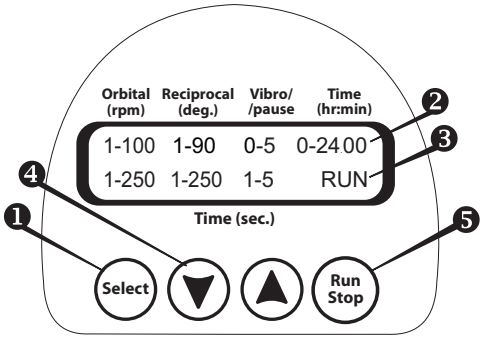


Fig.1 Control panel

Recommendation during operation

Arrange the tubes symmetrically to the rotation axis when loading.

4.1. Connect the external power supply unit to the electric circuit.

4.2. Place samples on the platform: microtubes – up to full; vacutainers and tubes with caps – up to half full.

4.3. Set the appropriate program and operation time (see the Program Setting Section of these Operating instructions) according to the methodical prescriptions.

4.4. Press the **Run/Stop** key (Fig.1/❺) to start the program.

4.5. The platform motion will begin and the corresponding indication (RUN (Fig.1/❸) and the changing time values) will be shown on the display.

4.6. If the operation time is not set and the timer indicator (Fig.1/❷) shows 0:00, pressing the **Run\Stop** key will cause continuous operation of the rotator until the **Run\Stop** key is pressed again.

4.7. If the operation time is set the platform movement will stop after its expiring (flashing indication STOP will be shown on the display) and will start giving a sound signal about the end of operation (press the **Run\Stop** key to stop the signal).

4.8. Press the **Run/Stop** key to repeat the set program.

4.9. The rotator can be stopped at any time during operation before the set time expires if necessary by pressing the **Run/Stop** key. In this case the platform motion stops when the platform achieves horizontal position. Pressing the **Run/Stop** key again will start the program from the beginning (countdown timer will be restarted).

Note: A step motor is used in this model. Stopping the platform with hand briefly is allowed and will not damage the mechanical parts of the device. If the platform is stopped with hand during operation, the program does not stop and the platform motion is automatically resumed after the platform is released.

4.10. Disconnect the external power supply unit from electric circuit to turn off the unit.

5. Program Setting

When setting program parameters please mind that the unit may be unable to operate properly in reciprocal and vibration modes with maximum load.

5.1. Press the **Select** key (Fig.1/❶) to choose the parameter to change (pressing the key down for longer time will increase the increment). The active parameter is flashing.

5.2. Use the ▲ and ▼ keys (Fig.1/❹) to set the necessary value (when the key is pressed down for longer time the increment becomes bigger).

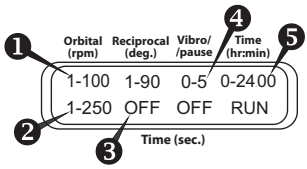
5.3. Saving the program doesn`t require additional operations: the microprocessor saves the last parameter changes as the working program automatically.

5.4. The countdown timer is used to control the operation time. The timer can be set for the period from 1 min to 24 hours.

5.5. The examples below show separate motion types and their available combinations in cycles. The data to the right show the possible parameter values for each type.

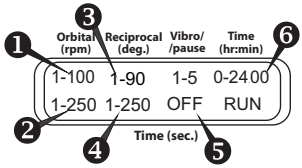
5.5.1. Orbital

Set the speed of Orbital rotation (❶ 1–100 rpm), time of Orbital rotation (❷ 1–250 sec) and time for Reciprocal motion to zero (❸ OFF). Switch off the Vibro motion (set the time of Vibro motion to 0 (❹ OFF)). Set the general timer (❺ 0:00 time set cause continuous operating).



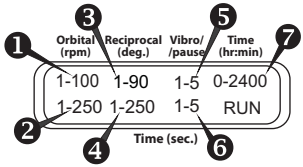
5.5.2. Orbital + Reciprocal

Set the speed (❶ 1–100 rpm) and time (❷ 1–250 sec) of Orbital rotation. Set the turning angle (❸ 1–90º from the vertical plane) and time (❹ 1–250 sec) for Reciprocal motion. Switch off the Vibro motion (set the time of Vibro motion to 0 (❺ OFF)). Set the general timer (❻ 0:00 time set cause continuous operating).



5.5.3. Orbital + Reciprocal + Vibro

Set the speed (❶ 1–100 rpm) and time (❷ 1–250 sec) of Orbital rotation. Set the angle (❸ 1–90º from the vertical plane) and time (❹ 1–250 sec) for Reciprocal motion. Set the turning angle (❺ 0–5º) and time (❻ 1–5 sec) for Vibro motion. Note that if

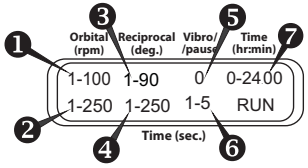


the set time of Reciprocal motion is shorter or equal to the set time of Vibro motion then the Reciprocal motion will be omitted (Orbital + Vibro). Set the general timer (❼ 0:00 time set cause continuous operating).

5.5.4. Orbital + Reciprocal + Pause

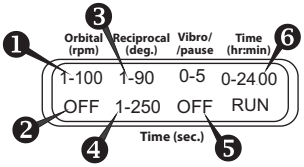
Set the speed (❶ 1–100 rpm) and time (❷ 1–250 sec) of Orbital rotation. Set the turning angle (❸ 1–90º from the vertical plane) and time (❹ 1–250 sec) for Reciprocal motion. Set the angle of Vibro type motion to zero (❺). Set the time for Vibro/pause mode (❻ 1–5 sec) – this is the time of pause duration. Set the general timer (❼ 0:00 time set cause continuous operating).

Note that if the set time of Reciprocal motion shorter or equal to the set time of Vibro/pause mode, the Reciprocal motion will be omitted (Orbital + Pause).



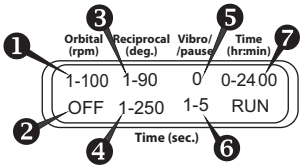
5.5.5. Reciprocal

Set the speed (❶ 1–100 rpm) for Orbital rotation. Set time for Orbital rotation to zero (❷ OFF). Set the turning angle (❸ 1–90º from the vertical plane) and time (❹ 1–250 sec) of Reciprocal motion. Set the time for Vibro motion to zero (❺ OFF). Set the general timer (❻ 0:00 time set cause continuous operating).



5.5.6. Reciprocal + Pause

Set the speed (❶ 1–100 rpm) of Orbital rotation. Set time of Orbital rotation to zero (❷ OFF). Set the angle (❸ 1–90º from the vertical plane) and time (❹ 1–250 sec) of Reciprocal motion. Set the angle of Vibro type motion to zero (❺). Set the time for vibro motion type (❻ 1–5 sec) – this is the time of pause duration. Set the general timer (❼ 0:00 time set cause continuous operating).

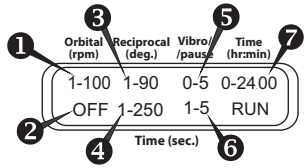


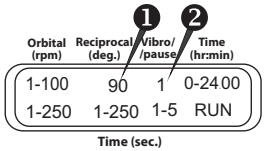
5.5.7. Vibro + Reciprocal

Set the speed (❶ 1–100 rpm) of Orbital rotation. Set the time of Orbital rotation to zero (❷ OFF). Set the angle (❸ 1–90º) and time (❹ 1–250 sec) of Reciprocal motion. Set the angle (❺ 0–5º) and time (❻ 1–5 sec) of Vibro type motion.

Note that normally rotator performs soft vibration (Vibro motion). However there is a mode for hard vibration. Set the general timer (❼ 0:00 time set cause continuous operating).

To perform hard vibration set the turning angle of Reciprocal motion to 90º (❶) and the angle of Vibro type motion to 1º (❷ Hard Vibro).





When working with the unit in vibro motion mode for long period nonstop and using the platform with rubber clamps, choose the tubes not longer than 7 cm from cap till bottom.

6. Specifications

The unit is designed for operation in cold rooms, incubators and closed laboratory rooms at ambient temperature from +4°C to +40°C and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

Orbital rotational motion mode

- Speed control range .....1–100 rpm
- Vertical rotation movement.....overhead, 360º
- Time setting range .....0–250 sec

Reciprocal motion mode

- Tilt angle range.....1º–90° (increment 1º)
- Time setting range .....0–250 sec

Vibro/pause mode

- Tilt angle range .....0º–5°(increment 1º)
- Time setting range.....0–5 sec

General

- Digital time setting .....1 min – 24 hours, or non-stop
- Maximum load .....0.8 kg
- Dimensions .....430x230x230 mm
- Input current/power consumption .....24 V, 750 mA / 18 W
- External power supply unit ..... input AC 100–240 V 50/60 Hz, output DC 24 V
- Weight* .....3.8 kg

*Accurate within ±10%.

Optional accessories	Capacity	Tube volume	Tube diameter
PRS-8-22 platform	8 / 22	max. 50 / 2-15 ml	20–30/10–16 mm
PRS-14 platform	14	50 ml	20–30 mm

Replacement parts	Capacity	Tube volume	Tube diameter
PRS-48 platform	48	from 2 to 15 ml	10–16 mm

Grant is committed to a continuous programme of improvement, specifications may be changed without notice.

7. Guarantee and Service

7.1 Guarantee

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

7.2 Service

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

7.3 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:	PTR-60
Description of Equipment:	Rotator
Directive:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC

Applied Standards Harmonized Standards:	EN 61326-1: Electrical equipment for measurement, Control and laboratory use - EMC requirements Part 1: General requirements EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements EN 61010-2-051 Particular requirements for laboratory equipment for mixing and stirring

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

..... Dated 06.09.2011

Svetlana Bankovska
Executive Director
Biosan Ltd.

Grant bio

Grant Instruments
(Cambridge) Ltd
Shepreth
Cambridgeshire
SG8 6GB
UK
Tel: +44 (0) 1763 260811
Fax: +44 (0) 1763 262410
Email: scientificsales@grantinstruments.com
www.grantinstruments.com

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