

PSU-2T

Mini-shaker for immunology



If you have any feedback on our products or services, we would like to hear from you.
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1. About this edition of the instructions

1.1. The current edition of the user instructions applies to the following models:

Model and name	Version
PSU-2T, mini-shaker for immunology	V.2AW

1.1.1. Revision number: 2.08

1.1.2. Release date: June of 2026.

1.2. Symbols used in this IFU:

 **Caution!** Please pay special attention to sections marked by this symbol.

2. Safety precautions

2.1. General warnings:



Caution! Make sure you have fully read and understood the present instructions before using the equipment.

2.2. Icons used on the unit and packaging:

	CE marking, manufacturer affirms conformity with European health, safety, and environmental protection standards, see 11.1
	WEEE directive marking, see 11.1
	Polarity of the power connector
	Equipment uses direct current

2.3. General safety

- Protection offered by this unit can be insufficient if the unit is not used as intended by the manufacturer.
- Save the unit from shocks or falling.
- Store and transport the unit as described in section **Storage and transportation**.
- Before using any cleaning or decontamination methods except those recommended by the manufacturer, check with the manufacturer that the proposed method will not damage the equipment.
- Do not make modifications in design of the unit.

2.4. Electrical safety

- Connect only to the mains with voltage corresponding to that on the serial number label.
- Use only the external power supply provided with this product.
- Ensure that the power plug is easily accessible during use.
- Disconnect the unit from the mains before moving.
- If liquid penetrates into the unit, disconnect it from the mains and have it checked by a repair and maintenance technician.
- Do not operate the unit in premises where condensation can form. Operating conditions of the unit are defined in the **Specifications** section.

2.5. During operation

- Do not operate the unit in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possible operation of the unit in specific atmospheres.
- Do not operate the unit if it is faulty or has been installed incorrectly.
- Do not use outside laboratory rooms.
- Do not leave the operating unit unattended.
- Do not impede the platform motion.

2.6. Biological safety

- The user is responsible to carry out appropriate decontamination if hazardous material spills on or penetrates into the equipment.

3. General information

Mini-Shaker PSU-2T is designed for immunoassays. The device provides adjustable mixing of reagents in microplates and ensures smooth movement of the platform even at low speeds.

Shaker is a compact and user-friendly device. It takes up little space on a desk and is ideal for personal use. The use of direct drive and brushless motor allows continuous mixing up to 7 days and ensures reliable, trouble-free operation for more than 2 years. Display of the device switches between time and speed values.

Shaker can be used in cold rooms or incubators, operating at ambient temperature range +4°C to +40°C.

4. Getting started

4.1. **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. Warranty covers only the units transported in the original package.

4.2. **Complete set.** Package contents:

4.2.1. Standard set:

- **PSU-2T**, mini-shaker for immunology 1 pce
- **IPP-2**, platform for 2 microplates 1 pce
- External power supply 1 pce
- Instructions for use, declaration of conformity 1 copy

4.2.2. Optional accessories:

- **IPP-4**, platform for 4 microplates 1 pce



IPP-2



IPP-4

4.3. **Setup.** Place the unit on horizontal even working surface. Remove the protective film from the display. Connect the external power supply unit into the socket at the rear side of the unit. Position the unit for an easy access to the external power supply and the power switch.

4.4. **Platform installation.** Install the platform to the movable base by inserting the pins on the underside of the platform into the holes on the supporting platform on the movable base.

5. Operation

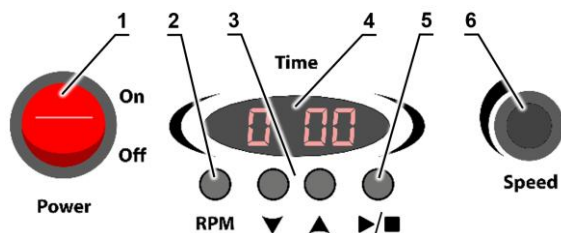


Figure 1. Control panel

- 5.1. Connect the external power supply to a grounded socket.
- 5.2. Place microtest plates on the platform and fix with two screws. For IPP-4, secure plates with the special holder using two screws.
- 5.3. Turn **Power** switch (fig. 1/1) **On**. The switch and display (fig. 1/4) light up; standby shows set time or speed when RPM is pressed.
- 5.4. Set operation time with ▼/▲ keys (fig. 1/3). Time is displayed in hours and minutes.
- 5.5. Set shaking speed with **Speed** knob (fig. 1/6). Speed appears while turning.
- 5.6. Press ►/■ (fig. 1/5) to start shaking and timer.
- 5.7. Display shows actual time, mm:ss under 1 h, hh:mm after 1 h. Hold RPM during shaking to show actual speed.
- 5.8. When set time expires, shaking stops, set time appears, and a sound signal sounds.
- 5.9. To stop early, press ►/■. Display shows elapsed time for 2 s, then set time.
- 5.10. If timer is 0:00, pressing ►/■ starts continuous operation and count-up until stopped. Timer counts to 99 h 59 min, then restarts from 0:00.
- 5.11. After operation, switch **Power Off** and disconnect the external power supply.

6. Specifications

6.1. Biosan is committed to a continuous programme of improvement and reserves the right to alter design and specifications of the equipment without additional notice.

6.2. Shaking specifications

Speed setting range, accurate within $\pm 10\%$

Platform IPP-2.....250–1200 rpm

Platform IPP-4.....150–1000 rpm

Orbit.....2 mm

Digital time setting range 1 min–24 hrs / non-stop (increment 1 min)

Maximum continuous operation time168 h

Maximum load0.3 kg

6.3. General specifications

Display.....LED

Dimensions.....255x255x100 mm

Weight, accurate within $\pm 10\%$ 2 kg

Operating voltage 12 V=

Operating current 280 mA

Power consumption 3.4 W

External power supply input 100–240 V~, 50–60 Hz, output 12 V=

6.4. Workroom requirements.

Workroom description	Cold rooms, incubators (except CO ₂ incubators) and closed laboratory rooms
Temperature range	+4 °C ... +40 °C
Humidity requirements	Maximum of 80% RH at 31 °C, decreasing linearly to 50% RH at 40 °C. Non-condensing atmosphere.
Operating height, maximum	2000 m ASL
Overvoltage category	I
Pollution degree	2

7. Ordering information

7.1. Models and versions available:

Model	Version	Catalogue number
PSU-2T, Mini-shaker for immunology	V.2AW	BS-010155-AAG

7.2. To inquire about or order the optional accessories or the replacement parts, contact Biosan or your local Biosan representative.

7.2.1. Optional accessories:

Description	Catalogue number
IPP-4, optional platform for 4 microplates, 266x170 mm	BS-010155-AK

7.2.2. Replacement parts:

Description	Catalogue number
IPP-2, replacement platform for 2 microplates, 184x132 mm	BS-010155-BK

8. Maintenance

8.1. Service.

8.1.1. If the unit is disabled (e.g., no platform movement, no reaction to key presses, etc.) or requires maintenance, disconnect the unit from the mains and contact Biosan or your local Biosan representative.

8.1.2. All maintenance and repair operations (except listed below) must be performed only by qualified and specially trained personnel.

8.1.3. Operating integrity check. If the unit follows the procedure described in section **Operation**, then no additional checks are required.

8.2. Cleaning and disinfection.

8.2.1. Use mild soap and water with a soft cloth or sponge for cleaning the exterior. Rinse remaining washing solution with distilled water. Wipe dry the excess water with clean, soft cloth or sponge.

8.2.2. To disinfect the plastic and metal parts, use 75% ethanol or DNA/RNA removing solution (e.g., Biosan PDS-250). After disinfecting, wipe the surfaces dry.

8.2.3. Platforms are autoclavable, at 121°C, for 15 min, the unit itself is not autoclavable.

8.3. **Disposal of the unit.** The user is responsible for decontaminating the unit when it is taken out of service. Dispose of the unit as electronic equipment in accordance with the relevant national laws.

9. Storage and transportation

9.1. Store and transport the unit in a horizontal position (see package label) at ambient temperatures between -20°C and +60°C and maximum relative humidity of 80%.

9.2. After transportation or storage and before connecting it to the electric circuit, keep the unit under room temperature for 2-3 hrs.

9.3. For extended storage, the unit does not require special procedures.

10. Warranty

10.1. The Manufacturer guarantees the compliance of the unit with the requirements of Specifications, provided the Customer follows the operation, storage and transportation instructions.

10.2. The warranted service life of the unit from the date of its delivery to the Customer is 24 months. For extended warranty, contact Biosan or your local Biosan representative.

10.3. Warranty covers only the units transported in the original package.

10.4. If any manufacturing defects are discovered by the Customer, an unsatisfactory equipment report shall be compiled, certified and sent to the local distributor address. To obtain the claim form, visit **Technical support** page on our website at link below.

10.5. Description of the classes of our products is available in the **Product class description** section on our website at the link below.

Technical support



biosan.lv/en/support

Product class description



biosan.lv/classes-en

10.6. The following information will be required in the event that warranty or post-warranty service comes necessary. Complete the table below and retain for your records.

Model	Serial number	Date of sale
PSU-2T, Mini-shaker for immunology		

10.7. **Production date.** Production date is placed in the serial number, on the label of the unit. Serial number consists of 14 digits styled XXXXXXYYMMZZZZ, where XXXXXX is model code, YY and MM – year and month of production, ZZZZ – unit number.

11. EU Declaration of conformity

11.1. Mini-shaker for immunology **PSU-2T** is conformity with the following relevant Union legislations:

LVD 2014/35/EU	LVS EN 61010-1:2011 + A1:2019 Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements. LVS EN 61010-2-051:2021 + A11:2019 Particular requirements for laboratory equipment for mixing and stirring.
EMC 2014/30/EU	LVS EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements.
RoHS3 2015/863/EU	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
WEEE 2012/19/EU	Directive on waste electrical and electronic equipment.

11.2. Declaration of Conformity is available for download on the page for the relevant model on our website by links below, in the **Downloads** section:



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