

3D, Multi Bio 3D Mini-shakers



If you have any feedback on our products or services, we would like to hear from you.
Please send all feedback to:

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1. About this edition of the instructions

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

Model	Version
3D, sunflower mini-shaker	V.4AW
Multi Bio 3D, programmable mini-shaker	V.3AW

1.1.1. Revision number: 3.-4.03

1.1.2. Release date: July of 2026.

1.2. Symbols used in this IFU:

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

1.3. Revision changelog

Edition	Date	Changes
3.-4.01	02/2022	Model version change
3.-4.02	05/2024	Contact information update
3.-4.03	07/2026	Logo, key, IFU design update

2. Safety precautions

2.1. General warnings:



Caution! Make sure you have fully read and understood the present user 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 12.1
	WEEE directive marking, see 12.1
	Polarity of the power connector
	Equipment uses direct current

2.3. General safety

- The protection provided can be ineffective if the operation of the appliance does not comply with the manufacturer's requirements.
- Save the unit from shocks and falling.
- Store and transport the unit as described in the 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 section **Specifications**.

2.5. During operation

- Do not impede the platform motion.
- Do not place a load exceeding the maximum load value mentioned in the section **Specifications**.
- 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.

2.6. Biological safety

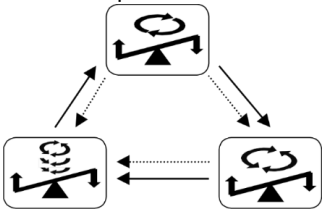
- The user is responsible to carry out appropriate decontamination if hazardous material spills on or penetrates into the equipment.

3. General information

3.1. Intended use. 3D Mini-shakers are used for hybridisation reactions, cell culture, gel development and washing, mixing blood samples in test tubes, and the gentle extraction and homogenisation of biological components in solutions.

3.2. Applications. Suitable for laboratories working with cells, gels, blood samples and biological components in solutions.

3.3. Features. Direct drive and a brushless motor ensure continuous mixing for up to 7 days and reliable operation for over 2 years. A PDM mat can be fitted to the platforms to secure test tubes. The 3D model provides adjustable, gentle rotation in three planes. The Multi Bio 3D model provides 3D orbital mixing (1–100 rpm, 7° angle), 3D rocking (0–360°, 30° increments, 7° angle) and 3D vibration (0–5°, 1° increments, 7° angle). The modes can be used individually, in pairs or within a single cycle; a pause can be selected instead of rocking and vibration. The cycle can be repeated up to 125 times or run continuously.



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:

- **3D / Multi Bio 3D**, 3D mini-shakers..... 1 pce.
- Bio PP-4S platform with non-slip silicone mat 1 pce.
- External power supply 1 pce.
- Instructions for use, declaration of conformity 1 copy

4.2.2. Optional accessory, on request:

- PDM optional dimpled mat..... 1 pce.



**Non-slip silicone mat
on Bio PP-4S platform**



**Dimpled mat for tubes PDM on
Bio PP-4S platform**

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 and position the unit for an easy access to the external power supply and the power switch.

4.3.1. 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 – model 3D

- 5.1. Connect the external power supply to the electric circuit.
- 5.2. Place samples on the unit platform.
- 5.3. Switch on the **Power** switch (fig. 1/1).
- 5.4. Use the speed control knob (fig. 1/2) to adjust the shaking speed to the required setting.

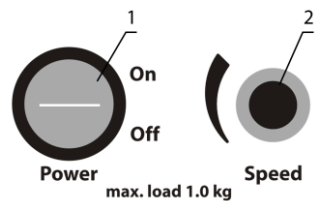


Figure 1. Model 3D, control panel

- 5.5. After finishing the operation, set the shaking speed to a minimum by turning the regulator knob anticlockwise to the limit. Switch off the **Power** switch. Disconnect the external power supply from electric circuit.

6. Operation – model Multi Bio 3D.

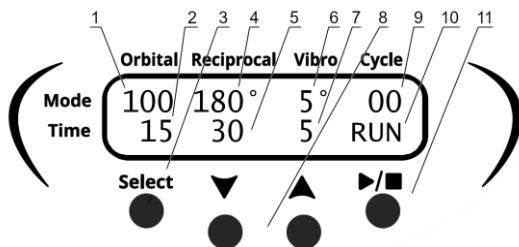


Figure 2. Model Multi Bio 3D, control panel

- 6.1. Connect the external power supply to the mains.
- 6.2. Place samples on the unit platform.
- 6.3. **Program setup** – set the required program and number of cycle repetitions.
 - 6.3.1. The program of the unit consists of cycles. Each cycle includes three different types of platform motion (3D orbital, 3D reciprocating and 3D vibro), set one after another with the duration from 0 to 250 seconds for 3D orbital and 3D reciprocal motion types and from 0 to 5 seconds for 3D vibro motion. The set cycle can be repeated from 1 to 125 times or non-stop.
 - 6.3.2. Table 1 shows different possible cycle options.

Table 1. Possible combinations

Orbital	Reciprocal	Vibro
ON	ON	ON
ON	OFF	ON
ON	Pause	ON
ON	OFF	OFF
ON	Pause	OFF
ON	OFF	Pause
ON	Pause	Pause

Orbital	Reciprocal	Vibro
ON	ON	OFF
ON	ON	Pause
OFF	ON	ON
OFF	Pause	ON
OFF	ON	Pause
OFF	OFF	ON
OFF	ON	OFF

6.3.3. Press the **Select** key (fig. 2/3) to choose the parameter to change (the active parameter is blinking).

6.3.4. Use the **▼** and **▲** keys (fig. 2/8) to set the necessary value. Pressing the key down for more than 2 s will make the values change quickly.

6.3.5. The program can be changed during operation: the latest changes are saved as the working program when the new cycle begins.

6.3.6. Set the speed (fig. 2/1), turning angle (fig. 2/4, fig. 2/6), time for each motion type (fig. 2/2, 2/5 and 2/7) and number of cycle repetitions (fig. 2/9).

6.3.7. If the time for a motion is set to zero, this type of motion will be skipped in the cycle.

6.3.8. Set a pause instead of 3D reciprocal (0–250 s) or 3D vibro (0–5 s) motion by setting its turning angle to zero and specifying the motion time as pause duration. During operation, the platform will not move, but time will count down.

6.3.9. Further examples illustrate program setting for four different cycles.

- **3D orbital** (figure 3). Most popular kind of motion. Set the speed (**A**, 1–100 rpm) and time (**B**, 1–250 s) of 3D orbital motion. Turn off 3D reciprocal and vibro motion by setting time of 3D reciprocal and vibro motion to zero (**C** and **D**, OFF). Figure 4 shows 3D orbital motion run in cycles.

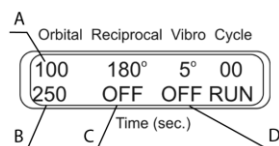


Figure 4



Figure 5

- **3D orbital + 3D reciprocal + 3D vibro** (figure 6). Set the speed (**A**, 1–100 rpm) and time (**B**, 1–250 s) of 3D orbital motion. Set the angle (**C**, 0–360°) and time (**D**, 1–250 s) for 3D reciprocal motion. It is performed at the same speed as the orbital motion. Set the turning angle (**E**, 0–5°) and time (**F**, 1–5 s) for 3D vibro type motion. Figure 7 shows 3D orbital, 3D reciprocal and 3D vibro motions run one after another in cycles.

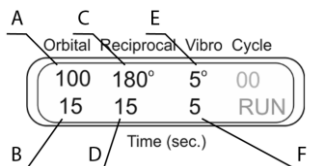


Figure 6

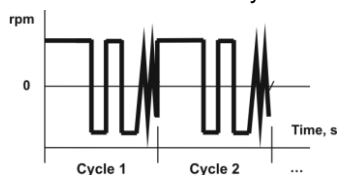


Figure 7

- **3D orbital + 3D reciprocal + pause** (figure 8). Set the speed (**A**, 1–100 rpm) and time (**B**, 1–250 s) of 3D orbital motion. Set the turning angle (**C**, 0–360°) and time (**D**, 1–250 s) for 3D reciprocal motion. Set the angle of (**E**) 3D vibro type motion to zero. Set the time for 3D vibro motion (**F**, 1–5 s), this is the duration of the pause. Figure 9 shows 3D orbital and 3D reciprocal motions and pause run one after another in cycles.

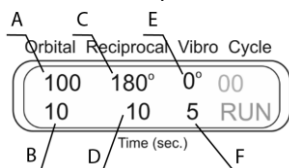


Figure 8

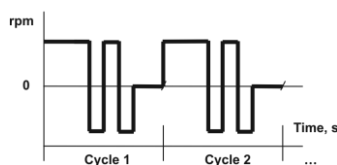


Figure 9

- **3D vibro + pause** (fig. 10). Turn off 3D orbital motion by setting time of 3D orbital motion to zero (**A**, OFF). Set the angle of 3D reciprocal type motion to zero (**B**). Set the time for 3D reciprocal motion (**C**, 1–250 s), this is the duration of the pause. Set the turning angle (**D**, 0–5°) and time (**E**, 1–5 s) for 3D vibro type motion. Figure 11 shows 3D vibro motion and pause run one after another in cycles. Figure 11 shows 3D vibro motion and pause run one after another in cycles.

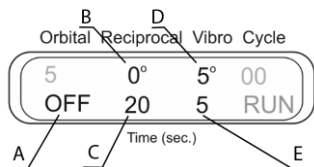


Figure 10

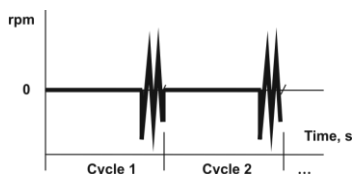


Figure 11

- 6.4. **Starting the operation.** Press the ►/■ key (fig. 3/11) to start the program.
- 6.5. The platform motion begins, and the corresponding indications are shown on the display: operation mode - RUN (fig. 3/10), cycle countdown (fig. 3/9) and the time countdown of current cycle (fig. 3/2, 3/5 or 3/7).
- 6.6. The unit stops after performing the set number of cycles (flashing indication STOP on the display) and give a sound signal about the end of operation. Press the **Run/Stop** key to stop the signal.
- 6.7. Press the ►/■ key again to repeat the pre-set program.
- 6.8. The unit can be stopped at any time during operation before the set number of cycles is performed, if necessary, by pressing the ►/■ key. Pressing the ►/■ key again will start the program from the beginning and cycle countdown will be restarted.
- 6.9. If the number of cycles is not set (i.e., cycle number indicator, fig. 3/9 shows zero), pressing the ►/■ key starts continuous operation of the unit until the ►/■ key is pressed again.
- 6.10. Unplug the external power supply from the mains to turn off the unit.

7. Specifications

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

7.2. Shaking specifications – model 3D

Speed control range, orbital motion.....5–60 rpm
Increment step.....Linear

7.3. Shaking specifications – model Multi Bio 3D

Speed control range, orbital and reciprocating motion1–100 rpm
Increment step..... 1 rpm
Turning angle, reciprocating motion 0–360°
Increment step..... 30°
Turning angle, vibrating motion 0–5°
Increment step..... 1°

7.4. Timer specifications

Model	Timer	Increment step	Maximum continuous operation time
3D	Non-stop	–	168 h
Multi Bio 3D	Non-stop or up to 125 cycles of 0–250 s orbital + 0–250 s reciprocating + 0–5 s vibro motion	1 s	168 h

7.5. General specifications

Model	3D	Multi Bio 3D
Fixed tilt angle	7°	
Orbit	–	22 mm
Maximum load	1 kg	
Platform working area	215x215 mm	
Unit dimensions (with platform)	235x235x140 mm	
Weight, accurate within ±10%	1.2 kg	1.8 kg
Operating voltage, current, power	12 V=, 260 mA, 3.1 W	12 V=, 380 mA, 4.6 W
External power supply	input 100–240 V~, 50–60 Hz, output 12 V=	

7.6. Workroom requirements.

Workroom description	Cold rooms, incubators (not 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

8. Ordering information

8.1. Models and versions available:

Model	Version	Catalogue number
3D, sunflower mini-shaker	V.4AW	BS-010151-AAG
Multi Bio 3D, programmable mini-shaker	V.3AW	BS-010125-AAG

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

8.2.1. Optional accessories:

Optional accessories	Catalogue number
PDM, dimpled mat for fixation of differently sized test tubes	PDM

8.2.2. Replacement parts:

Replacement parts	Catalogue number
Bio PP-4S, detachable platform with heat-resistant silicone mat	BS-010125-AK
Heat-resistant silicone mat	BS-010125-S14

9. Care and maintenance

9.1. Service.

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

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

9.1.3. Operating integrity check. If the unit follow the procedure described in sections **Operation**, then no additional checks are required.

9.2. Cleaning and disinfection.

9.2.1. 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.

9.2.2. To disinfect the exterior plastic parts, use 75% ethanol or DNA/RNA removing solution (e.g., Biosan **PDS-250**). After disinfecting it is necessary to wipe the surfaces dry.

9.2.3. The platform and mats are autoclavable, 15 min at 121 °C. The unit itself is not autoclavable.

9.3. **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.

10. Storage and transportation

10.1. 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%.

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

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

11. Warranty. Production date.

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

11.2. The warranted service life of the unit from the date of its delivery to the Customer is 24 months. For extended warranty, see **11.5**.

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

11.4. 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.

11.5. Extended warranty.

- For **Multi Bio 3D**, the *Premium* class model, one year of extended warranty is available free of charge after registration, during 6 months from the date of sale. Online registration form can be found in section **Warranty registration** on our website at the link below.

- For **3D**, the *Basic Plus* class model, extended warranty is a paid service. Contact your local Biosan representative or our service department through the **Technical support** section on our website at the link below.

11.6. 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

Registration



biosan.lv/register-en

Product class description



biosan.lv/classes-en

11.7. 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
3D, Multi Bio 3D, Mini-Shakers		

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

12. EU Declaration of conformity

12.1. Mini-shakers **3D & Multi Bio 3D** are in 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 61326-1:2021 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.

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



[3D](#)



[Multi Bio 3D](#)



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