

WB-4MS

Stirred water bath



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1. About this edition of user instructions

The current edition of the user instructions applies to the following versions of the stirred water bath:

- **WB-4MS** versions V.4AD, V.4AE, V.4A13

2. Safety precautions



Caution! Make sure you have fully read and understood the present instructions before using the equipment. Please pay special attention to sections marked by this symbol.



Caution! Hot surface! Platform surface becomes very hot during use. Always use protective cotton gloves to install or remove samples when the temperature is set higher than 60°C.



Caution! Magnetism! Effects of a strong magnetic field on the biological systems have to be taken in to account. Magnetic fields can affect heart pacemakers, data carriers, etc.



Caution! Do not use as heat transfer medium any other liquids except distilled water.

2.1. General safety

- Save the unit from shocks and falling.
- Store and transport the unit at ambient temperatures between -20°C and +60°C and maximum relative humidity of 80%.
- After transportation or storage and before connecting it to the electric circuit, keep the unit under room temperature for 2-3 hrs.
- 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.
- If water steams away from the bath and the heating element is higher than 100°C, the thermostat automatically powers off. Add water to the bath only after cooling of the heating element.

2.2. Electrical safety

- Connect only to the mains corresponding to that on the serial number label.
- Do not plug the unit into an ungrounded power socket, and do not use an ungrounded extension lead.
- 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.

- 2.3. During operation
- Do not operate in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possibility of the operation 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 check the temperature by touch. Use a thermometer.
- 2.4. Biological safety
- The user is responsible to carry out appropriate decontamination if hazardous material spills on or penetrates into the equipment.

3. General information

Water bath-thermostat **WB-4MS** is designed for chemical, pharmaceutical, medical and biological laboratory research that require maintaining a constant temperature from +25 °C to +100 °C.

WB-4MS provides increased temperature stabilization accuracy (up to 0.1°C) due to built-in magnetic stirrer (stirring speed is regulated in 250 to 1000 rpm range).

Ease of setup and maintenance, high temperature maintenance accuracy, compact size and innovative design of the water bath-thermostat meet the requirements of a modern laboratory.

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:

- **WB-4MS**, Stirred water bath 1 pce.
- BP-1 platform 1 pce.
- Spare fuse (inside fuse holder) 1 pce.
- Power cable 1 pce.
- Magnetic stirring element¹ 1 pce.
- Operating manual, declaration of conformity 1 copy

4.2.2. Optional accessories:

- TR-5/30, test tube rack for 5 of \varnothing 30 mm tubes on request
- TR-16/19, test tube rack for 16 of \varnothing 16–19 mm tubes on request
- TR-30/13, test tube rack for 30 of \varnothing 10–13 mm tubes on request
- TR-44/11, test tube rack for 44 of 1.5 and 2 ml microtubes on request



BP-1



TR-5/30



TR-16/19



TR-30/13



TR-44/11

¹ Cylindrical (6x25 mm) and encapsulated in PTFE

4.3. Setup.

- Place the unit upon even horizontal stable non-flammable surface 30 cm away from any flammable materials, and clear 20 cm around the device on all sides for ventilation.
- Connect the power cable to the socket on the rear side of the unit, and position it with easy access to the power switch and plug.
- Remove the protective film from the display.
- Place the magnetic stirring element at the bottom of the bath.



Caution! Magnetic stirring element is made for stirring distilled water for uniformity of the temperature.

- Place the **BP-1** platform at the bottom of the bath over the heating element.
- If necessary, place optional tube racks on the **BP-1** platform. Do not place more than 2 tube racks at once.
- Fill the water bath with distilled water to cover heating element (2-3 L).



Caution! Turning the unit on when the heating element is not covered with water is strictly prohibited.



Caution! If the protection from the overheating is activated, switch off the unit and have unit checked by a repair and maintenance technician in accordance with the procedure specified in the Maintenance section.

5. Operation

5.1. Recommendations during operation.

- The water level in the bath should cover heating element. A user is responsible for monitoring of the water level in the bath.
- If water has steamed away from the bath, the unit should be switched off. Water may be added to the bath only after cooling of the heating element.
- We recommend covering the water bath with a lid if the temperature exceeds 50°C.
- Do not fill glassware over the level they are immersed in the water to ensure best temperature uniformity of the samples.



Caution! Turning the unit on when the heating element is not covered with water is strictly prohibited.

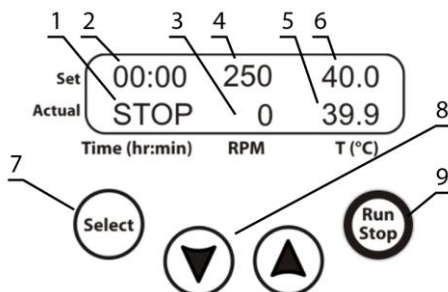


Figure 1. Control panel

- 5.2. Connect the power cord to a grounded power socket. Switch **ON** the **Power** switch situated on the front right lower side of the unit.
- 5.3. The unit will turn on and the following readouts appears on the display:
 - Previously set time (fig. 1/2), set speed of magnetic stirring element (fig. 1/4) and set temperature of water (fig. 1/6) in the upper line (**Set**);
 - Time indication (STOP, fig. 1/1), current speed of magnetic stirring element (fig. 1/3) and current temperature of water (fig. 1/5) in the lower line (**Actual**).
- 5.4. **Settings.** Press the **Select** key (fig. 1/7) to choose the parameter to change. Each pressing of the **Select** key consecutively activates the parameters. The active parameter is flashing. Use the **▼** and **▲** keys (fig. 1/4) to set required value. Pressing the key for more than 2 s will increase the increment.
- 5.5. **Temperature setting.** Activate and set the temperature (**T(°C)**, fig. 1/6). Heating starts. The actual temperature value appears in the lower line of the display (fig. 1/5).
- 5.6. **Magnetic stirring element rotation speed setting.** Activate and set the rotation speed in rpm (**RPM**, fig. 1/4). The actual speed value appears in the lower line of the display (fig. 1/3).
- 5.7. **Time setting.** Activate and set the desired time in hours and minutes (**Time (hr:min)**, fig. 1/2).

- 5.8. Press the **Run/Stop** key (fig. 1/9) to start the timer. The elapsed time interval appears in the lower line of the display (fig. 1/1).
- 5.9. After the set time interval elapses, the timer gives a sound signal and the flashing STOP indication will be shown on the display. Press the **Run/Stop** key once to stop the sound signal.



Caution! Stopping the timer does not stop the heating/temperature maintenance process. The heating can be stopped by reducing the temperature below 25°C using the ▼ key (fig. 1/4) until the OFF indication appears on the display.

- 5.10. If the working time is set to 00:00, unit operates continuously.
- 5.11. To stop the timer before the set time interval elapses, if required, press the **Run/Stop** key. Press the **Run/Stop** key again, the timer starts counting previously set time.
- 5.12. After the thermal stabilisation of the unit, e.g. when the set and current temperature readings become equal, open the water bath lid, place samples into the bath and close the lid.
- 5.13. After finishing the operation, switch **OFF** the power switch. Disconnect the power cord from electric circuit.

6. Specifications

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

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

6.1. Temperature specifications

Chamber material	Stainless Steel
Setting range	+25 ... +100 °C
Control range	5°C above ambient ... 100 °C
Setting increment	0.1 °C
Stability	±0.1 °C
Uniformity at 37°C	±0.1 °C

6.2. General specifications

Digital time setting range	1 min – 96 hrs or non-stop
Digital time setting increment	1 min
Stirring speed regulation range	250–1000 rpm
Display	LCD, 2x16 ch.
Water volume	4 L
Accessible dimensions	235x135x110 mm
Maximum number of TR test tube racks	2
Overall dimensions	340x270x250 mm
Input voltage and frequency ¹	100/120/230 V~, 50/60 Hz (see 7.1 below)
Input current	2.6/5.6/6.0 A (see 7.1 below)
Power consumption	600/670 W (see 7.1 below)
Weight ²	3.4 kg

¹ Depending on the version, see 7.1

² Accurate within ±10%

7. Ordering information

7.1. Models and versions available:

Model	Version	Voltage	Frequency	Current	Power consumption	Cable plug	Catalogue number
WB-4MS	V.4AD	230 V~	50 Hz	2.6 A	600 W	EU (type F)	BS-010406-AAA
						UK (type G)	BS-010406-AAB
						AU (type I)	BS-010406-AA3
	V.4AE	120 V~	60 Hz	5.6 A	670 W	US (type B)	BS-010406-AA7
	V.4A13	100 V~	50/60 Hz	6.0 A	600 W	JP (type B)	BS-010406-AAC

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

7.2.1. Optional accessories:

Optional accessory	Catalogue number
TR-5/30, test tube rack for 5 of \varnothing 30 mm tubes	BS-010406-KK
TR-16/19, test tube rack for 16 of \varnothing 16–19 mm tubes	BS-010406-FK
TR-30/13, test tube rack for 30 of \varnothing 10–13 mm tubes	BS-010406-IK
TR-44/11, test tube rack for 44 of 1.5 or 2 ml microtubes	BS-010406-JK

7.2.2. Replacement parts:

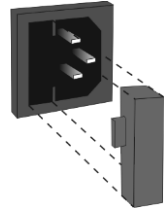
Replacement part	Catalogue number
BP-1 standard base platform	BS-010406-AK
Cylindrical magnetic stirrer (6x25 mm), PTFE encapsulated	BS-010302-S12

8. Care and maintenance

- 8.1. If the unit requires maintenance, disconnect the unit from the mains and contact Biosan or your local Biosan representative.
- 8.2. All maintenance and repair operations must be performed only by qualified and specially trained personnel.
- 8.3. Standard ethanol (75%) or other cleaning agents recommended for cleaning of laboratory equipment can be used for cleaning and decontamination of the unit.
- 8.3.1. Empty the bath, clean with a neutral pH cleaning solution, rinse and dry before a planned extended downtime.
- 8.4. **Fuse replacement.** Disconnect the unit from the mains. Disconnect power plug from power socket. Open fuse holder. Check and replace, if necessary, with a correct one:

Version	Voltage, frequency	Fuse
V.4AD	230 V, 50 Hz	M 4 A
V.4AE, V.4A13	100-120 V, 50/60 Hz	M 8 A

Fuse type **M** - time lag: **Medium**.



9. Warranty

- 9.1. The Manufacturer guarantees the compliance of the unit with the requirements of Specifications, provided the Customer follows the operation, storage and transportation instructions.
- 9.2. The warranted service life of the unit from the date of its delivery to the Customer is 24 months. For extended warranty, see **9.5**.
- 9.3. Warranty covers only the units transported in the original package.
- 9.4. 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** on our website at link below.
- 9.5. Extended warranty. For **WB-4MS**, 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.
- 9.6. 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

Product class description



biosan.lv/classes-en

- 9.7. 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
WB-4MS , Stirred water bath		

10. EU Declaration of conformity

EU Declaration of Conformity

Unit type Water bath
Models **WB-4MS**
Serial number 14 digits styled XXXXXXYYMMZZZZ, where XXXXXX is model code, YY and MM – year and month of production, ZZZZ – unit number.
Manufacturer SIA BIOSAN
Latvia, LV-1067, Riga, Ratsupites 7 k-2

The objects of the declaration described above is in conformity with the following relevant Union harmonization legislations:

LVD 2014/35/EU	LVS EN 61010-1:2011 Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements. LVS EN 61010-2-010:2015 Particular requirements for laboratory equipment for the heating of materials.
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.

I declare that the Declaration of Conformity is issued under sole responsibility of the manufacturer and belongs to the above-mentioned objects of the declaration.

Svetlana Bankovska
Managing director



Signature

07.02.2020.

Date

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Edition 4.02 – January of 2021