

# WB-4MS

## Stirred water bath



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 the user instructions applies to the following models:

Model and name	Version
WB-4MS, stirred water bath	V.4AD, V.4AE, V.4A13

1.2 Edition 4.03 – February of 2023

## 2. Safety precautions

### 2.1 Symbols used in these instructions:



**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 thermal protective gloves to install or remove samples when the temperature is set higher than 60°C.

### 2.2 Icons used on the unit and packaging:

	CE marking, manufacturer affirms conformity with European health, safety, and environmental protection standards, see <b>11.1</b>
	WEEE directive marking, see <b>11.1</b>

### 2.3 General safety



**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.

- Save the unit from shocks and 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 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.

- 2.5 During operation
- Do not operate in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possibility of the operation in specific atmospheres.
  - Magnetic stirring element is made for stirring distilled water in the bath for the uniformity of temperature, and not for stirring the sample.
  - 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.
  - 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.
- 2.6 Biological safety
- The user is responsible to carry out appropriate decontamination if hazardous material spills on or penetrates into the equipment.

### 3. General information

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 element, cylindrical (6x25 mm), encapsulated in PTFE ..... 1 pce.
- User instructions, declaration of conformity ..... 1 copy

4.2.2 Optional accessories, on request:

- TR-5/30, test tube rack for 5 of  $\varnothing$ 30 mm tubes ..... 1 pce.
- TR-16/19, test tube rack for 16 of  $\varnothing$ 16–19 mm tubes ..... 1 pce.
- TR-30/13, test tube rack for 30 of  $\varnothing$ 10–13 mm tubes ..... 1 pce.
- TR-44/11, test tube rack for 44 of 1.5 and 2 ml microtubes ..... 1 pce.



BP-1



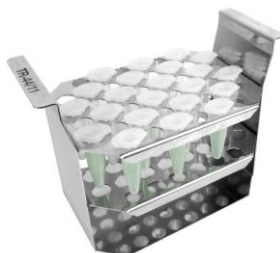
TR-5/30



TR-16/19



TR-30/13



TR-44/11

#### 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.



**Note.** Magnetic stirring element is made for stirring distilled water in the bath for the uniformity of temperature, and not for stirring the sample.

- 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 the 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.

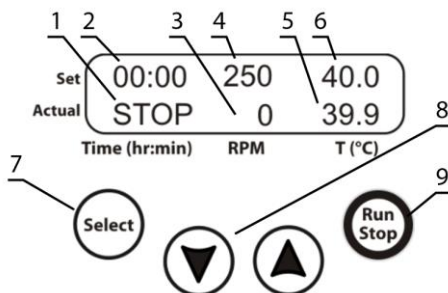


Figure 1. Control panel

- 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).



**Note.** Magnetic stirring element is made for stirring distilled water in the bath for the uniformity of temperature, and not for stirring the sample.

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

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 Temperature specifications

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

6.3 General specifications

Chamber material .....	stainless steel
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 characters
Water volume .....	4 L
Accessible dimensions.....	235x135x110 mm
Maximum number of TR test tube racks.....	2
Overall dimensions .....	340x270x250 mm
Weight, accurate within ±10%.....	3.4 kg

6.4 Electrical specifications (depending on the version)

Version	Voltage	Frequency	Current	Power consumption
V.4AD	230 V~	50 Hz	2.6 A	600 W
V.4AE	120 V~	60 Hz	5.6 A	670 W
V.4A13	100 V~	50/60 Hz	6.0 A	600 W

6.5 Workroom requirements.

Workroom description	Cold rooms, incubators (except CO <sub>2</sub> 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

## 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 ø30 mm tubes	BS-010406-KK
TR-16/19, test tube rack for 16 of ø16–19 mm tubes	BS-010406-FK
TR-30/13, test tube rack for 30 of ø10–13 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
<b>BP-1</b> standard base platform	BS-010406-AK
Cylindrical magnetic stirrer (6x25 mm), PTFE encapsulated	BS-010302-S12

## 8. Maintenance

### 8.1 Service.

8.1.1 If the unit is disabled (e.g., no water stirring or heating, 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.

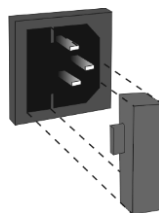
8.2.2 To disinfect the plastic and metal parts, use 75% ethanol or DNA/RNA removing solution (e.g., Biosan PDS-250). After disinfecting, wipe the surfaces dry.

8.2.3 Empty the bath, clean with a neutral pH cleaning solution, rinse and dry before a planned extended downtime.

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

8.3 **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**.

8.4 **Disposal.** Disposal of the appliance requires special precautions and must be carried out at an appropriate disposal site, separate from normal household waste. To prevent pollution of the environment, all waste resulting from the disposal of the product must be collected and disposed of in the country of use, in accordance with the applicable requirements for the handling of electronic waste.

## **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, empty the bath, clean with a neutral pH cleaning solution, rinse and dry. No additional special procedures are required.

# 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, see **10.5**.
- 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** on our website at link below.
- 10.5 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.
- 10.6 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](https://biosan.lv/en/support)

Product class description



[biosan.lv/classes-en](https://biosan.lv/classes-en)

- 10.7 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
<b>WB-4MS</b> , Stirred water bath		

- 10.8 **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.

# 11. EU Declaration of conformity

11.1 Stirred water bath **WB-4MS** is in conformity with the following relevant Union legislations:

<b>LVD 2014/35/EU</b>	<b>LVS EN 61010-1:2011</b> Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements. <b>LVS EN 61010-2-010:2015</b> Particular requirements for laboratory equipment for the heating of materials.
<b>EMC 2014/30/EU</b>	<b>LVS EN 61326-1:2013</b> Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements.
<b>RoHS3 2015/863/EU</b>	Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
<b>WEEE 2012/19/EU</b>	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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