SHAKING WATERBATH



User's Manual

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WATHERBATH WITH SHAKING

1 Warranty

Thank you for purchasing this instrument. Under normal use it is guaranteed for a period of 24 months from the date of purchase.

The guarantee is only valid if the purchased product remains original. It does not apply to any product or parts thereof that have been damaged due to incorrect installation, improper connections, misuse, accident or abnormal operating conditions.

The manufacturer accepts no liability for damage caused use not in accordance with instructions, lack of maintenance and any unauthorised modifications.

2 Package Contents

The instrument will be delivered complete with the following parts:

1. Stainless steel spring basket
2. Emptying kit (hose plus quick coupling)
3. Power cable
4. User's Manual

3 First Installation

3.1 Preliminary Operations

The instrument must be installed under the following conditions:

1. Stable work surface with a flat, horizontal, dry and clean surface
2. Minimum 30 cm spaces around the instrument
3. Ambient temperature between 5 °C and 40 °C and relative humidity not 85%.
4. Grounded power socket
5. Power supply 220-240 V - 50 Hz

3.2 Filling the tank

Fill the tank with deionised water. **water level must always be at a level that does not leave the heating element (located at the bottom of the tank below the basket) uncovered and not higher than the motor shaft of the basket (see Figure 1)**.

***IMPORTANT*: The natural evaporation of water must always be taken into account when filling the tank. A sufficient water level must therefore always be maintained, see Figure 1**.



Figure 1

***IMPORTANT*:**	**The instrument is designed to be used <u>exclusively with NON-flammable liquids</u>**
⚠ ***WARNING!***	**<u>The tank must never be filled with any liquid other water</u>!**
⚠ ***WARNING!***	**<u>Never use the instrument without first water inside the tank</u>!**

3.3 Instrument parts

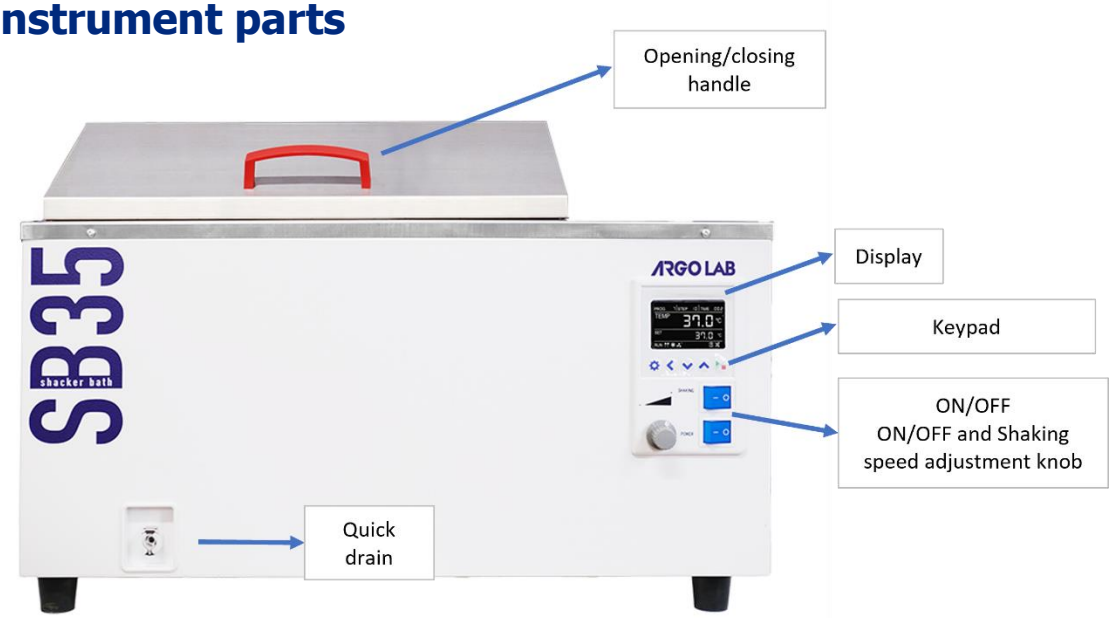
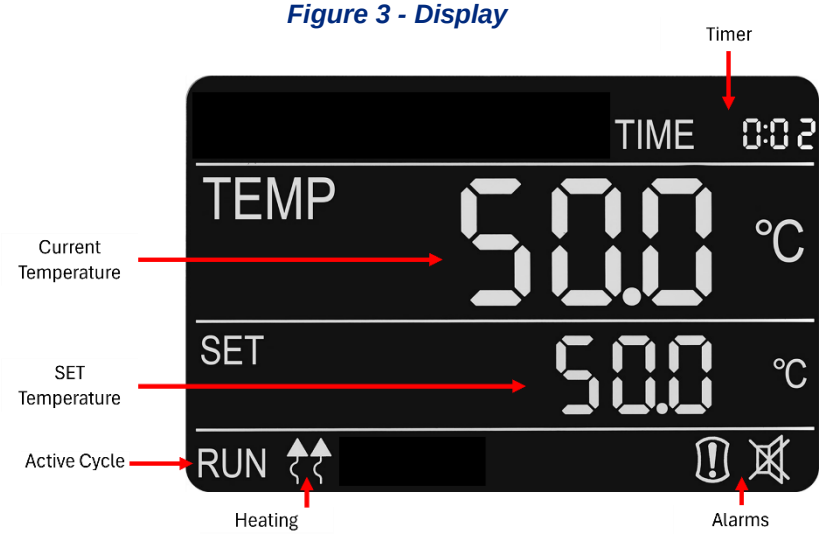
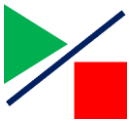


Figure 2 - Front of the waterbath

4 Display and controls

Figure 3 - Display



COMMANDS	DESCRIPTION
	The SET/PROG button is used to set the operating parameters. In combination with the SHIFT key, it allows access to menus with passwords (see section).
	The SHIFT key allows you to quickly change the digit (decimal, unit, ten, etc.) of the parameter value you are editing. In combination with the SET/PROG button, it allows access to menus with passwords.
	The adjustment keys allow you to increase and decrease the value of the parameter being changed.
	The button START/STOP button allows to start/stop a operating cycle.
	The ON/OFF button 'SHAKE' is used to activate or deactivate shaking.
	The ON/OFF 'POWER' button is used to switch the instrument on and off.
	The shaking adjustment knob allows you to adjust the speed at which the basket moves.

5 Operation

5.1 Switching on the instrument

Before connecting power cable to a power socket, the tank must be filled with water (see section 3.2).

Switch the instrument on via the ON/OFF button. The button and the display light up.

The display shows the initialisation sequence and then the instrument is ready for use.

5.2 Shaking on/off

Basket shaking can be switched on or off at any time by pressing the ON/OFF button 'SHAKE'. It can only be switched on when the main ON/OFF switch is in the ON position.

5.2.1 Shaking speed adjustment

After shaking by means of the ON/OFF button 'SHAKER', adjust the shaking speed by means of the knob.

The speed is not shown on the display but is an analogue setting.

NOTE: Adjust the shaking speed so as not to generate excessive vibrations and/or movements that are dangerous to persons and property.

5.3 Setting Parameters

5.3.1 Operating temperature

When the instrument is switched on, by pressing the SET/PROG button once, the set temperature value starts flashing.
Set the desired temperature value (in degrees centigrade) by pressing the adjustment keys. You can move quickly between digits using the SHIFT key .
Confirm the value by pressing SET/PROG again,

5.3.2 Operating time

After confirming the temperature value, the last set time value (timer) starts flashing.
Set the desired value (hh:mm) by pressing the adjustment buttons. You can move quickly between digits using the SHIFT key .
Confirm the value by pressing SET/PROG again,

NOTE: The value **"00:00"** indicates the "continuous" operating mode, i.e. once the operating cycle has been started using the START/STOP button, it continues maintaining the set temperature until it is manually stopped (START/STOP button).

If, on the other hand, a defined time value has been set, e.g. 1 hour, the instrument will reach the set temperature and maintain it for one hour.

5.4 Heating cycle start/stop

Once the operating parameters have been set, pressing the START/STOP button for a long time (4-5 seconds) starts the heating cycle for the time defined in hh:mm or continuously (00:00).

The word 'end' at the top right of the display disappears, the word RUN appears at the bottom left and display simultaneously shows: timer, set temperature and temperature measured inside the tank (see **Error. Reference source not found.**).

At any time it is always possible to manually stop the cycle by pressing the START/STOP button for a long time (4-5 seconds).

After the set time has elapsed or after a manual stop, the instrument emits an intermittent beep, the visual alarm icon and **'end'** appear on the display. By pressing any button, the audible signal can be muted and the icon appears on the display.

NOTE: The acoustic signal will not end until it is muted by the operator, but the heating cycle has ended so the samples inside the instrument will remain exposed to the temperature inside the tank.

5.5 Functions with password access

5.5.1 Access to sub-menus with password

By pressing the SET/PROG and SHIFT buttons simultaneously for a few seconds, it is possible to access some password-protected functions and parameters.
In order to access these submenus and avoid mistakenly entering the operating parameter settings, it is recommended to first press the SHIFT button and then, while holding it down, also press the SET/PROG button for a few seconds.

Once this is done, on the display in the top right-hand corner, instead of the word TIME, the word '**Lk**' (lock) appears and next to it the digits '**0000**' (password).
Below are the passwords and the access sequence to the different parameters/functions.

PASSWORD	FUNCTION/ PARAMETER	DESCRIPTION
0000	**dy**	**Delayed start heating cycle**
0003	**tm**	**Temperature limit for sample protection**
	Po	**Restart mode after power failure**
	AL	**Temperature limit for over-temperature alarm**
	Pb	**Temperature offset at one point**
	PK	**Temperature offset over the entire ramp**
	PA	**Temperature offset on room temperature sensor**

5.5.2 Delayed start function

A delay (in hours and minutes) to the start of the operating cycle can be set.
Follow the instructions under **Error. The reference source was not found.** and confirm the password '**0000**' by briefly pressing the SET/PROG button once.

The display in the top right-hand corner shows the parameter '**dy**' (delay) and the value **00:00**.
Set the desired start delay value (hh:mm) by pressing the adjustment buttons. You can move quickly between the digits using the SHIFT key . Confirm the value by pressing SET/PROG again, display returns to the standby screen (see **Error. Reference source not found.**). By pressing the START/STOP button for a long time (4-5 seconds) the instrument starts the work cycle, but does not immediately start heating up: the word 'end' in the top right-hand corner of the display and the delay time flash alternately, marking the wait from the set delay value until the actual start.
Once the set delay time has elapsed, the instrument starts warming up and the regular timer appears on the display.

5.5.3 Temperature limit for sample protection

The instrument provides the option of limiting the maximum working temperature to protect samples from incorrectly set heating cycle temperatures.
Follow the instructions under **Error. The reference source was not found.** and use the buttons to set the password 0003. You can move quickly between the digits using the SHIFT key . Confirm the value by pressing SET/PROG again,
The display in the top right-hand corner shows the parameter '**tm**' (max. temperature) and the maximum value for that type of instrument.

Set the maximum temperature value that you do not want the instrument to exceed during operation by pressing the adjustment keys. You can move quickly between the digits using the SHIFT key . Confirm the value by pressing SET/PROG again,

Application example

If the set temperature for the heating cycle is 100 °C and a limit temperature (tm) of 70 °C is set, the instrument will attempt to reach the temperature set during parameter setting (100 °C), even if it is higher than the limit temperature set in this submenu (tm).

When 70 °C is reached, the instrument goes into alarm by emitting an intermittent acoustic signal (can be silenced by pressing any key) and the heating element is no longer powered until the temperature falls below the limit.

NOTE: The device will always attempt to reach the set temperature for the heating cycle and as long as it above the limit, the device will go into an over-temperature alarm as explained in the previous paragraph.

5.5.4 Restart mode after power failure

The mode in which the instrument resumes operation after a power failure can be set:

Po VALUE	DESCRIPTION
0	When power supply returns, the instrument does not automatically resume the heating cycle but must be restarted manually
1	When power supply returns, the instrument automatically operation from the beginning of the interrupted heating cycle
2	When power supply returns, the instrument automatically operation from the precise point in the heating cycle where it was interrupted

Follow the instructions under **Error. The reference source was not found.** and use the adjustment keys to set the password 0003. You can move quickly between the digits using the SHIFT key . Confirm the value by pressing SET/PROG again,

The display in the top right-hand corner shows the parameter '**tm**' (max. temperature), switch to the next parameter '**Po**' (Power) by pressing SET/PROG again,
Set the desired value (0, 1, 2) by pressing the adjustment keys. Confirm the value by pressing SET/PROG again,

5.5.5 Temperature limit for over-temperature alarm

The instrument provides the possibility for the user to set the temperature value above which the instrument goes into over-temperature alarm.

NOTE: Although modifiable by the operator, this value is already set at the factory and is specifically calibrated to the type of instrument in question, natural/forced stove, incubator or water bath.

It is therefore advisable not to change this value unless strictly necessary, as fluctuations in temperature above or below the set value, especially in natural convection models, are quite normal, and therefore reducing the AL value too much would risk causing the instrument to go into alarm frequently and unnecessarily.

Follow the instructions under **Error. The reference source was not found.** and use the adjustment keys to set the password 0003. You can move quickly between the digits using the SHIFT key . Confirm the value by pressing SET/PROG again,

The display in the top right-hand corner shows the parameter '**tm**' (max. temperature), briefly press the SET/PROG button to switch to the next parameter.

When you reach parameter AL (alarm), set the minimum temperature value above which you want the instrument to go into an over-temperature alarm by pressing the adjustment keys. You can move quickly between the digits using the SHIFT key . Confirm the value by pressing SET/PROG again,

5.5.6 Temperature offset on one point, over the entire ramp, of the ambient sensor

The instrument provides the possibility for the user to set offset values, i.e. calibration, on a temperature point, on the entire temperature ramp and on the ambient temperature ramp.

NOTE: Although they can be changed by the operator, these values are already factory-set and perfectly calibrated with Accredia-certified and traceable measuring instruments.

It is therefore advisable not to change these values unless strictly necessary, e.g. if a check with a digital and certified thermometer reveals inconsistencies between the temperature readings of the instrument and those taken by the thermometer itself.

Follow the instructions under **Error. The reference source was not found.** and use the adjustment keys to set the password 0003. You can move quickly between the digits using the SHIFT key . Confirm the value by pressing SET/PROG again,

The display in the top right-hand corner shows the parameter '**tm**' (max. temperature), briefly press the SET/PROG button to switch to the next parameters until the desired one is reached.

PARAMETER	DESCRIPTION
Pb	By modifying this parameter, it is possible to correct the reading of the PT100 temperature sensor inside the instrument to only one temperature point. The correction will therefore be referable to only one specific point.
PK	By modifying this parameter, it is possible to correct the reading of the instrument's internal PT100 temperature sensor over the entire temperature ramp, i.e. the slope of the sensor's reading ramp is changed.
PA	By modifying this parameter, it is possible to correct the reading of the PT100 room temperature sensor installed on the instrument (refrigerated versions only) to a single temperature point. The correction will therefore be referable to only one specific point.

6 Emptying the tank

WARNING!	**When you want to empty the instrument tank is essential that the heating element is no longer energised and has first been allowed to cool down.**

It is therefore necessary, before draining the waterbath, to stop heating cycle and wait until the water has cooled down.

WARNING!	**Wait it has cooled down sufficiently before proceeding with the water removal operations!**

Once cooled, emptying can be carried out using the quick-connect valve and the supplied kit (hose + nozzle) in Figure 4.



Figure 4 - Drain kit and quick-acting valve

To drain the liquid, simply insert the nozzle connected to the tube into the quick-acting valve. It opens and lets the liquid flow through.

To stop unloading, press the valve tab (Figure 4) to release the nozzle.

NOTE: When disconnecting the nozzle, a small amount of liquid may escape.

7 Troubleshooting

Below is a list of the most common issues that may occur during the use of ArgoLab waterbaths, along with possible causes and related solutions. If the problem persists after performing the recommended checks, contact your instrument dealer for technical support.

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1. The instrument does not turn on (the display does not work)

If the instrument does not turn on and the display remains off, the issue may be due to a power failure or a blown fuse.

Solutions:

- Check that the power cable is properly connected to both the power outlet and the rear of the instrument.
- Verify that the power outlet is functional by plugging in another electrical device.
- Check the fuse located in the rear compartment of the instrument. If it is blown, replace it with the supplied fuse.
- If the problem persists, contact your dealer.

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2. The instrument does not heat

If the instrument does not reach the set temperature, the issue may be related to the work cycle settings or safety parameters.

Solutions:

1. **Check the set temperature**: Ensure that it is at least 5°C higher than the ambient temperature. If not, increase the set point.
2. **Verify that the heating cycle is running**:
    - Ensure that the display shows "RUN" in the bottom left corner.
    - If not, press and hold the Start/Stop button for 4 seconds to start the cycle.
3. **Check the sample protection parameter (TM)**:
    - Press and hold the SET + SHIFT buttons for 4 seconds, enter the password 0003, and verify the TM parameter.
    - If this value is set below the working temperature, increase it by at least 3°C for incubators and 5°C for ovens.
4. If the problem persists, contact your dealer.

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3. The pump does not work (only for "pump" models)

If the instrument's pump does not activate, the issue may be due to an inactive work cycle or a clogged supply/return tube.

Solutions:

- Verify that the cycle is active as described in the previous section.
- Ensure that the supply and return tubes are clear.
- If the pump does not activate even when the cycle is running, contact your dealer.

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4. The display shows four squares [□□□□] instead of the temperature

This issue indicates that the temperature probe is not being detected by the instrument.

Solution:

- Contact your dealer for assistance.

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5. The temperature fluctuates abnormally

If the instrument's temperature does not stabilize and fluctuates significantly, the most common causes include excessive or unevenly distributed load, frequent lid openings, or improper installation location.

Solutions:

1. **Check the sample arrangement**:
    - Samples should be evenly distributed, leaving enough space for liquid circulation.
    - Do not overload the instrument or place samples directly on the heating element. Always use the bottom tray.
2. **Verify the instrument installation**:
    - It should be positioned at least 30 cm away from walls, windows, heat sources, and ventilation systems.
3. **Perform an empty test**:
    - Completely drain the internal tank.
    - Set the temperature to 37°C.
    - Run the instrument for 2 hours with the lid closed and monitor the temperature during the last hour.
4. If the problem persists, contact your dealer.

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6. Over-temperature or under-temperature alarm is active

If an alarm activates near the set temperature, the **AL parameter** may be incorrectly configured.

Solutions:

- Access the menu via SET + SHIFT, enter the password 0003, and check the **AL value**. If too low, increase it (**3.0** for incubators and **10.0** for ovens).
- Ensure that the instrument is not exposed to temperature fluctuations and that **only deionized or double-distilled water** is used. **Note:** Change the water periodically.

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7. After a power outage, the instrument does not resume its work cycle

If the instrument does not automatically resume the preset program after a power failure, the **blackout restart parameter** may be set to manual stop.

Solutions:

Access the service menu using SET + SHIFT, enter the password 0003, and check the **Po parameter**:

- **Po = 0** → Manual restart required.
- **Po = 1** → Restarts from the beginning of the cycle.
- **Po = 2** → Resumes from the exact point where it stopped.

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8. The display does not respond to commands

If the display is unresponsive or the buttons do not function properly, the issue may be due to a temporary software lock.

Solution:

- Turn off the instrument and unplug it from the power source for **30 seconds**.
- Reconnect the power and turn the instrument back on.
- If the problem persists, contact your dealer.

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9. The waterbath is leaking

If the waterbath is leaking from the **drain valve**, the issue may be caused by sediment buildup or foreign objects such as small labels, sample residues, or limescale.

Solution:

- Turn off the instrument, unplug it from the power source, and completely **drain** the internal tank.
- Using a thin object (e.g., a pen), apply **gentle pressure from the outside to the inside** on the center of the valve membrane.
    - This will help the membrane return to its correct closed position.
- If visible residues are present, **remove them with tweezers**.
- If the problem persists, contact your dealer.

8 Cleaning and Maintenance

Proper maintenance and cleaning of the instrument ensures its good condition.

The internal tank of the instrument is made of stainless steel, so it can be cleaned with any detergent as long as it is not aggressive and/or corrosive.

We recommend cleaning the interior and exterior surfaces with a normal all-purpose cleaner sprayed on a soft, dampened cloth.

Before proceeding with cleaning or decontamination, user must ensure that the method adopted does not damage the instrument.

⚠ ***WARNING!***	**<u>If blotting paper is used, take extreme care that no trace of it remains inside the tank</u>.** **<u>Any paper blocks could clog the drain.</u>**

***IMPORTANT*:** If the instrument is to be sent for , must be properly cleaned and, if necessary, decontaminated from pathogens.

It is also recommended to return the instrument in its original packaging to the repair service.

9 Disposal of electronic equipment



Electrical and electronic equipment bearing this symbol may not be disposed of in public landfills.

In accordance with EU Directive 2012/19/EU, European users of electrical and electronic equipment have the option of returning used equipment to the distributor or manufacturer when purchasing new equipment.

Illegal disposal of electrical and electronic equipment is punishable by an administrative fine.