AGITADOR DIGITAL VORTEX MULTITUBO
DIGITAL VORTEX MULTI-TUBE MIXER
AGITATEUR MULTITUBULAIRE DIGITAL VORTEX

REFERENCIA - CODE - RÉFÉRENCE LGB004

Este manual es parte inseparable del aparato por lo que debe estar disponible a todos los usuarios del equipo. Le recomendamos leer atentamente el presente manual y seguir rigurosamente los procedimientos de uso para obtener las máximas prestaciones y una mayor duración del mismo.

This manual should be available for all users of these equipments. To get the best results and a higher duration of this equipment it is advisable to read carefully this manual and follow the processes of use.

Ce manuel est une partie indissociable de l'appareil et doit être mis à la disposition de tous les utilisateurs de l'équipement. Nous vous recommandons de lire attentivement ce manuel et de suivre scrupuleusement les procédures d'utilisation afin d'obtenir des performances maximales et une plus longue durée de vie de l'appareil.

LANGUAGE INDEX

FOREWORD

Some chapters of these operating instructions may be copied by the operator of the equipment, but only for internal use, e.g. for user guidance.
How to act in an emergency. The contents of these chapters are clearly indicated in the table of contents of the manual.

AUXILAB SL is not liable for damage to the device caused by the user's failure to declare the "environment in which the device is used" in accordance with the manual.

AUXILAB SL reserves the right to change the contents of the operating instructions at any time without prior notice.

ENVIRONMENT OF USE OF THE INSTRUMENTS

To ensure the continued safety of the equipment, the following factors may damage the instrument:

- Chemical effects;
- Environmental impact, including natural ultraviolet radiation;
- Corrosion and wear of protective cover parts and other safety parts.
- Indoor use;
- Altitude: ≤2000 m;
- The applicable ambient temperature range of the instrument is + 5 ºC ~ + 40 ºC;
- The applicable relative temperature range of the instrument is ≤80%;
- Scope of application of the working power supply product model of the instrument and its main features technical parameters;
- Adequate ventilation must be installed inside;
- There are no vibrations or draughts to affect performance;
- There is no conductive dust, explosive gas or corrosive gas in the surrounding air;

SAFETY WARNING

- If you are using this equipment for the first time, please read this manual carefully.
- The equipment may only be operated by trained and authorised personnel;
- The equipment may only be serviced by our company or its authorised agents;
- The following materials are strictly prohibited in the equipment:
  - Flammable and explosive materials;
  - Chemically highly active materials;
  - Toxic or radioactive substances, pathogenic micro-organisms, etc.
- Only qualified maintenance personnel should use the appropriate tools to repair.
- If the operator encounters a situation not mentioned in this manual, contact for information on the correct method of treatment.
- Try to use the accessories provided, if the user wishes to use other accessories, AUXILAB SL shall not be liable for any adverse consequences. Nevertheless, users can contact AUXILAB SL to check whether the accessories meet the requirements.
- Equipment should be inspected and maintained at regular intervals.

DESCRIPTION OF THE SAFETY WARNING SIGN

Note: Read the instruction manual carefully before using the apparater!

Note: Danger of high voltage! Danger of electric shock!

MEANING OF SAFETY INSTRUCTIONS

To avoid injury to persons or damage to surrounding objects and the environment, you must follow all safety instructions in this user manual.

Except for accident prevention, environmental protection and recognised professional safety and occupational standards, including the laws and regulations of the country where the user and the installation of this instrument are located, must be carefully followed.

CONSEQUENCES OF NON-COMPLIANCE WITH SECURITY OPERATING PROCEDURES

Any action that ignores safe operating procedures, laws and regulations and various standards will result in damage to people, objects and the environment.

SAFETY PRECAUTIONS

- Never plug or unplug the power plug or activate the power button with the liquid in your hands.
- Never plug or unplug the power plug when the equipment is live.
- It is strictly forbidden to carry out maintenance and cleaning work on the equipment with the power supply connected.
- It is strictly forbidden to carry out the shaking operation when the sample capacity exceeds 70 % of the capacity of the test tube.
- The container must be covered.
- It is strictly forbidden to install the equipment on an uneven, shaky and agitated work surface.
- When installing the gasket or fitting, make sure it is in place to prevent the gasket and fitting from being thrown out during the work!
- Do not swing above the maximum load of the appliance.

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1. SUMMARY AND CHARACTERISTICS

Summary: This equipment adopts user-friendly programming design with the advantage of being able to mix and process 54 samples at a time saving time and effort. It is equipped with three kinds of sponge racks to meet user's different needs, making the equipment more convenient and efficient. It is mainly applicable to the inspection of pesticide residues, veterinary drug residues, food additives, drug analysis, drug development and other scientific fields in food safety.

Characteristics:

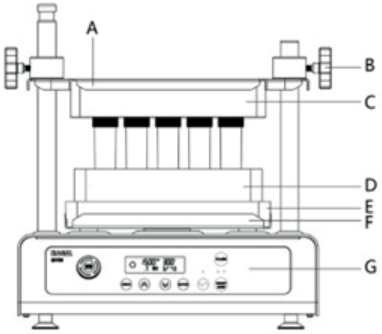
- Equipped with an emergency stop button, to immediately stop operation of the equipment in case of need.
- The optimised body structure design provides a stable and quiet working platform.
- Smooth start with uniform acceleration
- It incorporates 10 storage programmes.
- It incorporates the 'Pulse' function, which allows you to select the operating and stop time. It also has the option of setting the number of cycle repetitions.
- 3-inch LCD display, with online settings and clear operating parameters.
- It incorporates an acoustic warning at the end of the cycle.
- Graduated rods with a scale from 0 to 15 cm for correct alignment.
- Made of metal, with four suction cup rubber feet.
- Built-in accessories: 1 sponge racks for 54 x 1.5/2 mL tubes, 1 sponge racks for 54 x 15 mL tubes, 1 sponge racks for 20 x 50 mL tubes

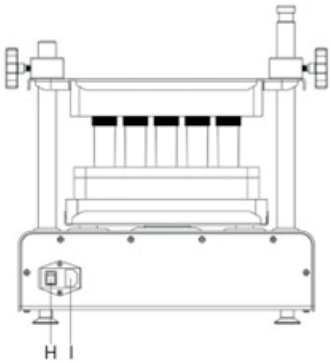
2. TECHNICAL PARAMETERS

Reference	LGB004
Speed range	200 - 2500 rpm
Speed accuracy	±15 rpm
Time range	1-59 s / 1-999 min
Oscillation mode	Circumference
Circumferential diameter	3.6 mm
Display	Backlit LCD
Programmes	0-9
Security protection	Emergency stop button
Maximum load	5 kg
Time to maximum speed	15 s
Braking time	13 s
Input power supply	100/240 V; 50/60 Hz
Power	90 W
Level of protection	IP20
Permissible ambient temperature/ Relative humidity	5-40 ºC/ 80%.
Standard interference suppression	EN 61010-1, EN 61010-2-020,EN 61326-1,EN 61010-3-2/A2
Weight	24 Kg
Dimensions (W x D x H)	425x300x445 mm

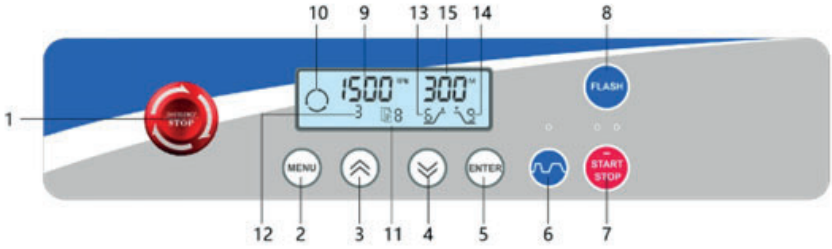
/ a23 ºC ambient temperature

3. INTRODUCTION TO APPEARANCE AND FUNCTIONS





A. Pressure plate for test tubes
B. Locknut
C. Top pad for test tubes
D. Sponge tube rack
E. Bottom pad for test tubes
F. Fixing plate
G. Control panel
H. Power switch
I. Power cable plug



1. EMERGENCY/STOP emergency stop button.
2. MENU: The menu key is used to toggle the time/ speed keys and to program the parameter selection.
3. Up button: button to increase the value of the selected parameter.
4. Down button: button to decrease the value of the selected parameter.
5. Confirmation button: button for confirmation
6. Button for 'Pulse' mode: for intermittent operation.
7. START/STOP button.
8. FLASH button: for momentary operation.
9. Speed display area, rpm unit.
10. Dynamic symbol of operation.
11. Display area of the storage procedure 0~9.
12. In 'Pulse' mode indicates the number of cycle repetitions.
13. In 'Pulse' mode indicates the operating time parameter (parameters 1 to 9, where 1=5s and 9=120s).
14. In 'Pulse' mode indicates the stop time parameter (parameters 1 to 9, where 1=10s and 9=90s).

4. INSTRUCTIONS FOR USE

Caution: Before using the equipment, make sure that it has not been damaged during transport.

- Before receiving the equipment, check for scratches, screws falling out and other phenomena that may have occurred during transport.
- Do not press hard on the probe pad for a long period of time with the equipment inoperative.
- It is strictly forbidden to install the equipment. It is strictly forbidden to install the equipment on uneven, shaking or vibrating work surfaces.
- Stirring operations are strictly prohibited when the sample capacity exceeds 70 per cent of the capacity of the test tube. To avoid liquid overflow, the container containing the sample must be covered.
- The locknuts on the left and right sides of the specimen clamping pressure plate must be tightened.
- When installing the fixed pressure plate and sponge pad, it is necessary to confirm that they are installed in place to prevent them from flying off during operation.
- If an emergency occurs during use, immediately press the emergency stop button.
- After using the instrument, please turn off the power.

Place the equipment in a suitable working area, plug it in, make sure it is switched off and select the desired test tube pad.

Installation of the equipment:

- First loosen the lock nuts on both sides, remove the pressure plate from the top cover.
- Place the lower pad of the test tube flat on the fixing plate.
- Select the desired sponge tube rack and place it flat and centred on the lower test tube pad.
- Select a test tube or a container with a lid and place it in the test tube.

evenly on the test tube pad.

- Place the top pad of the test tube evenly above the test tube or container in a centred manner (note: the thickness of the top pad of the test tube is 50 mm, and the thickness of the bottom pad of the test tube is 35 mm, please do not place it incorrectly).
- Install the two holes of the top cover pressure plate horizontally on the smooth rods protruding on both sides of the machine, press the top cover pressure plate firmly and tighten the lock nuts on both sides (note: be sure to press the top cover pressure plate firmly and tighten the lock nuts on both sides to prevent the test tube pad and test tube from flying off at high speed).
- Switch on the power supply and turn on the switch for operation.

Operation of the equipment:

■ Switch on the power supply and the power switch, the device is in standby mode.

■ Press the Menu button and the speed display will flash. Select the desired speed with the up/down adjustment keys. Always refer to the maximum speed of the accessories (see accessory list).

■ Press the Menu button and the minute display will flash. Select the desired minutes with the up/down adjustment keys.

■ Press the Menu button and the seconds display will flash. Select the desired seconds with the up/down adjustment keys.

■ After setting the speed, minutes and seconds, press the Enter key to confirm the desired parameters. Then press the Start/Stop key. The equipment will run at the set speed and time, counting down the time. When the preset time is reached, the equipment will stop automatically. The display will show 'End' and emit a stop sound.

■ Operation in 'Pulse' mode:

- Press the 'Pulse' button. A yellow indicator light will illuminate, and the number of cycle repeats will flash. Press the up/down adjustment keys to adjust this parameter to the desired requirements.

- Press the Menu key and use the up/down keys to set the operating time parameter (see parameter tables).

- Press the Menu button and use the up/down buttons to set the stop parameter (see parameter tables).

- Press the Enter key to confirm the above parameters. Then press the Start/Stop key. The equipment will run with the countdown time. When it reaches the preset time and cycles, the machine will stop automatically. The display will show 'End' and emit a stop sound.

- Parameter tables: The running time and stop time are determined by parameters 1 to 9 respectively, and the time corresponding to each parameter is as follows:

Operation	
Parameter	**Time (s)**
1	5
2	10
3	15
4	20
5	25
6	40
7	60
8	90
9	120

Stop	
Parameter	**Time (s)**
1	10
2	15
3	20
4	25
5	30
6	40
7	60
8	70
9	90

■ To run the equipment momentarily without setting parameters. Press and hold the FLASH key, the time will start counting in positive and the speed will increase from 200 rpm to 2500 rpm in increments of 10 rpm.

■ Emergency stop button: if a test tube breaks or the lock nut of the test tube pressure plate is not tightened and the test tube pad flies off during operation, immediately press the emergency stop button and the instrument will stop operating immediately. (Note: when the malfunction is resolved, turn off the emergency stop button before restarting the instrument).

5. MAINTENANCE

- Do not attempt to clean the equipment when the power cord is plugged in, or the power switch is on.
- If the equipment or accessories are contaminated by pathogenic, toxic or radioactive substances, it is the responsibility of the user to carry out appropriate purification.
- If you intend to return the equipment or accessories to us or request their repair, you must ensure that the equipment or accessories are clean and do not cause harm to human health.
- During the cleaning process, liquids, especially organic solvents, must not meet the motor shaft and bearing balls.
- Do not use sharp objects to collide with the fixture. During transportation and disassembly, it is necessary to avoid collisions, and to avoid cracks in the fixture and host during use due to scratches or external injuries.
- Regularly inspect the fixture components (especially the plastic brackets) for corrosion spots, scoring and small cracks. If any of these conditions are detected, discontinue use and contact the production department.
- When cleaning the equipment, use neutral detergent to moisten the sponge or cotton cloth, and then use distilled water to wipe off the detergent. Do not spray or spray the rotor with water, as the liquid may be washed away and cause corrosion. Allow to dry upside down after cleaning.
- Carefully wipe the surface of the equipment with a soft cloth dampened with neutral detergent and then wipe off the detergent with a clean, damp cloth.
- If there are major problems with the equipment, such as inability to operate under normal power supply, burning smell inside the machine, broken accessories and strong shaking during operation, contact the manufacturer in time. Repairs are not permitted without the guidance of professional maintenance personnel.

6. LIST OF ACCESSORIES

Model	Use for	Photo
1 Max.2500rpm	It is used to place test tubes and small containers with a diameter of not more than 10 mm, with 54 holes	
2 Max.2500rpm	It is used to place test tubes and small containers with a diameter not exceeding 15 mm, with 54 holes.	
3 Max.2500rpm	It is used to place test tubes and small containers with a diameter not exceeding 27 mm, with 20 holes.	

7. FAULT INFORMATION

The following table lists the alarm information and related failure causes and handling methods issued by the equipment. If the user cannot solve the problem after trying to solve the problem or the alarm message sent is not listed below, the user should immediately contact the technical team.

When a fault occurs, the power supply must first be switched off and then switched on again after the fault has been resolved.

Table 1: Fault alarm information

Failure codes	Definition of the code	Troubleshooting
E2	Overspeed	Speed too high. Downshift.
E3	Emergency stop switch	Emergency shutdown of the system.
E4	Hall Failure	Check for an open circuit at both ends of the output cable of the emergency stop switch detection switch (the knob must be turned).
E5	Braking overpressure	Hall detection of the engine is incorrect;
E7	No speed measurement	Check if the Hall plug of the motor is properly connected;
E8	Communication error	Check whether the braking resistor is connected correctly or whether the braking resistor is burnt out;
E9	Braking overpressure	Reduce the DEC value;

Table 2: Symptoms of failure, causes and methods of troubleshooting

Failure Phenomenon	Causes of failures and troubleshooting methods
The equipment does not oscillate	1. Check if the socket and wiring are in good condition, and if the socket is charged. 2. Check if the ignition switch is in bad contact. 3. If this cannot be ruled out, contact the manufacturer.
Sudden stop during operation of the equipment	1. Check if the electrical connection is in good condition. 2. Does the instrument give off a burning smell? If so, unplug it immediately and contact the manufacturer. 3. The voltage range may be too large. Check whether the voltage of food meets the requirements
The equipment exhibits high vibration and noise	1. Check if the instrument is placed on a horizontal surface. 2. Check whether the pressure plate of the measuring cylinder is tightened properly. 3. Check that the lock nuts on both sides are tight. 4. Check the fixed plate of the test tube and turn it by hand. If it cannot turn smoothly, there may be a problem with the drive shaft or motor.
After turning on the power switch, the display does not turn on.	1. Power supply is not connected, check power distribution. 2. Is the button indicator light on the panel lit? If not, contact the manufacturer.
Panel buttons	Contact the manufacturer.
No response	Contact the manufacturer.