

CLIMATIC CHAMBERS

User Manual



Open-ventilated **climatic chambers** with temperature and humidity controllers for short, medium and long-term tests in the medical, food or industrial sectors

Model	Description	Temperature range (with humidity)	Working range %RH
CH 150	Climate chamber 150 l (useful volume)	+10 °C to + 70 °C with humidity 0 °C to + 85 °C without humidity	From +45 to +95 %RH
CH 250	Climatic chamber 250 l (useful volume)	+10 °C to + 70 °C with humidity 0 °C to + 85 °C without humidity	From +45 to +95 %RH

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1. Security Information

Definitions of warning words and symbols

The safety information in this manual is essential in order to avoid personal injury, damage to the instrument, malfunctions or incorrect results resulting from not following the instructions. It is essential to read the entire manual carefully and become familiar with the instrument before using it. The manual should be kept close to the instrument so that the operator can easily consult it if necessary. Safety warnings are expressed through warning terms or symbols.

Reporting deadlines

WARNING /WARNING/DANGER for a hazardous situation that could lead to minor or moderate injury, serious injury or death if not avoided.

NOTICE for important product information.

NOTES useful information.

Warning symbols

DANGER

This symbol indicates an **imminently hazardous** situation which, if not avoided, may result in death or serious (irreversible) injury.



WARNING

This symbol indicates a potentially dangerous situation which, if not avoided, may result in death or serious (irreversible) injury.



ATTENTION

This symbol indicates a potentially dangerous situation which, if not avoided, may result in minor or moderate (reversible) injury.



NOTICE

This symbol draws attention to possible damage to the instrument or instrumental parts.



NOTES

This symbol identifies useful product information.



Pictograms

Within this manual there are different symbols identifying dangers, prohibitions and obligations as illustrated below.

Danger Symbols

	Danger of electric shock
	Danger of explosion
	Fire hazard
	Danger of poisoning
	Danger of overheating surfaces
	Danger of damage to health caused by toxic substances
	Risk of injury from tipping objects
	Risk of injury from lifting heavy objects
	Danger of environmental damage
	Danger of corrosion

Prohibition symbols

	Do not wet with water
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Symbols of obligation

	Disconnect the instrument from the power supply by pulling the plug
	Eye protection must be used

2. General safety instructions

The installation, commissioning, cleaning, adjustment or calibration of the climate chamber, if performed incorrectly, can lead to malfunctioning risks, resulting in physical injury to persons and material damage to the instrument and samples. For this reason, all these operations must only be carried out by qualified personnel.

 DANGER	
  	<p>Danger of electric shock and Danger of death</p> <ul style="list-style-type: none"> ⊘ Do not get the instrument wet during installation, commissioning or maintenance. ⊘ Do not connect the instrument to the power supply if the rear panel is dented or damaged. ➤ Before opening the rear panel, remove the plug from the power supply. ➤ If the power cable or the rear panel of the instrument is damaged, stop using it immediately, unplug it from the power supply and contact your dealer for the necessary repairs. ➤ All work on the electrical components of the instrument must only be carried out by qualified personnel.
	<p>Danger of explosion</p> <ul style="list-style-type: none"> ➤ Only install the instrument where there is no risk of explosion. ⊘ Do not keep air/solvent mixtures or explosive dusts nearby. ⊘ Never introduce materials into the instrument that are explosive or flammable at the selected operating temperature. ⊘ Never introduce materials containing flammable or explosive solvents into the instrument. ⊘ Never introduce materials into the instrument which, by sublimation or pyrolysis, give rise to the formation of flammable materials at working temperature selected.
 	<p>Danger of Poisoning and Danger of Death</p> <ul style="list-style-type: none"> ⊘ Never introduce materials into the instrument whose disintegration could result in the formation of poisonous gases at the selected operating temperatures.

 WARNING	
	<p>Fire hazard</p> <ul style="list-style-type: none"> ⊘ Climate chambers must not be used if the class2 safety thermostat is not passed. ➤ If the safety thermostat check fails, stop using the stove/incubator immediately, unplug it from the power supply and contact your dealer for the necessary repairs. ➤ Always place the instrument on a work surface that is resistant up to a temperature of 100 °C. ⊘ Do not put anything under the instrument (paper, plastic film, etc.). ➤ Always connect the instrument only to a fused power supply of at least 10A. Follow the recommendations of your local power supply company electrical.

 ATTENTION	
	<p>Danger of burns</p> <ul style="list-style-type: none"> ➤ The air intake cover on the back of the instrument gets hot and must not be touched during operation of the stove.
 	<p>Risk of injury and Danger of breakage</p> <ul style="list-style-type: none"> ➤ Always place the instrument only on surfaces that can support its weight.
	<p>Tipping hazard and Risk of injury</p> <ul style="list-style-type: none"> ⊘ Never stack more than 2 stoves/incubators on top of each other. ➤ Always secure the 2 stacked stoves with the fixing plates supplied.
  	<p>Risk of injury, Risk of slipping or tipping the instrument and Risk of damage to the instrument</p> <ul style="list-style-type: none"> ➤ The instrument must be lifted by 2 persons. ➤ The instrument must only be transported in its original packaging. ➤ The instrument must always be lifted from below with mechanical tools (e.g. forklift truck) together with the supporting pallet. ⊘ The instrument must not be lifted directly from below with mechanical tools without supporting pallets (e.g. forklift truck). ⊘ The instrument must not be lifted or dragged by pulling the door.

3. CE marking data

Our instruments bear the CE mark. The EU Declaration of Conformity (CE certificate) is available for download from our website. Argolab instruments are manufactured in accordance with Directive 2006/42/EC and the relevant EU Directives applicable at the time of placing on the market; compliance with the applicable harmonised standards demonstrates conformity with the essential health and safety requirements.

4. Equipment

The instrument will be delivered complete with the following parts:

- 3 stainless steel gridded shelves.
- 6 shelf supports.
- 1 protective grille for the internal humidity tray.
- 1 supply water tank, complete with cable and hoses.
- 1 cap for Ø 50 mm side hole (probe passage).
- Spare fuses.
- Instruction manual.
- Replacement roll for the integrated printer.
- USB stick for downloading data

5. Transport

 ATTENTION	
  	<p>Risk of injury, Risk of slipping or tipping the instrument and Risk of damage to the instrument</p> <ul style="list-style-type: none">➤ The instrument must be lifted by 2 persons.➤ The instrument must only be transported in its original packaging.➤ The instrument must always be lifted from below with mechanical tools (e.g. forklift truck) together with the supporting pallet.⊘ The instrument must not be lifted directly from below with mechanical tools (e.g. forklift truck) without the supporting pallet.⊘ The instrument must not be lifted or dragged by pulling the door.

Transport of a climate chamber already in use



- Switch off the Argolab climate chamber using the main switch.
- Disconnect the power cable from the socket.
- Remove the shelves.
- Clean the Argolab climate chamber and shelves thoroughly (see Chapter 13 on p. 18).
- Dry the inside of the Argolab climate chamber and the shelves.
- Wrap the shelves in bubble wrap.
- Place the shelves in their original packaging and then place them inside the Argolab stove/incubator.
- Pack the entire Argolab climate chamber in its original packaging.
- Make sure that the Argolab climate chamber does not come into contact with water during transport.
- Maintain the permissible ambient temperature during transport (-10 °C to 60 °C).

6. Conservation

- Store the Argolab climate chamber only in closed, dry rooms.
- The permissible storage temperature is 10 °C to 60 °C, and the maximum permissible storage humidity is 85% RH in the absence of condensation.



7. First Installation

Positioning the instrument and preliminary operations

- **Support surface:** Ensure that the instrument is placed on a stable work surface that is **level**, heat-resistant, dry and clean.
- **Minimum distances:** Maintain a clearance of at least 100 cm from the sides of the instrument. Do not place anything on top of the instrument.
- **Environmental conditions:** The surroundings should have a temperature between 15°C and 30°C and a relative humidity not exceeding 85%.
- **Ventilation:** Ensure that the environment is well ventilated, free of strong magnetic fields, vibrations or flammable materials.
- **Power supply:** Connect the instrument to a grounded socket compatible with a 220/240 V - 50 Hz power supply.

NOTE: Once the instrument is correctly positioned, **lock the front wheels using the appropriate brake.**

 NOTICE	
	Risk of overheating - Damage to the appliance Ø DO NOT install appliances in unventilated places. Make sure there is sufficient ventilation to disperse heat.

 ATTENTION	
	Danger of overturning the upper appliance - Appliance damage ➤ When stacking two devices, place rubber pads under the four feet of the upper unit. 

 DANGER	
	Risk of explosion and danger to life. Ø DO NOT operate the device in potentially explosive areas. Ø DO NOT use explosive dust or air-soluble mixtures in the environment.

Filling and connecting the external supply tank

- **Positioning:** Place the feed tank near the right side of the machine (front view), close to the feed quick coupling.
- **Drain hose connection:** if it is not already inserted, connect the drain hose (the shorter one) to the blue quick coupling inside the tank, making sure that the hose reaches the bottom of the tank.
- **Filling:** Fill the feed tank with deionised, demineralised or distilled water to the minimum level (at least 25 cm).
- **Supply pipe connection:** Connect the supply pipe (the longer one) between the climatic chamber and the tank using the blue quick couplings on the right side of the instrument and on the upper side of the supply tank.
- **Float cable connection:** Connect the red tank float cable to the connector on the right side of the machine (front view).

IMPORTANT: Be sure to fill the feed tank only with **deionised, demineralised or distilled water**. **Do not use water from other sources.**

The water level must always be above the float detecting the minimum level.

It is also recommended to periodically clean the inside of the supply tank.

Positioning the rear collection tank

At the rear of the instrument are two outlets, under which a **collection tank (not included in the package)** must be placed. The two outlets are divided as follows:

- **Overflow water** (right): This pipe is for draining excess condensate and must remain open at all times to ensure proper drainage. **Do not obstruct it or place it against a slope.**
- **Water drainage** (left): This pipe is connected to the internal humidification tray and is fitted with a **tap**, which is used for completely emptying the tray, e.g. during cleaning operations. The tap must remain closed during normal operation and should only be opened when necessary.

IMPORTANT: It is recommended that the inner tank be emptied via this tap whenever the chamber is not in use. This is to prevent the formation of external agents such as algae and the like.

IMPORTANT: Ensure that the tap remains closed at all times during machine operation and is only opened to empty the humidification tray. Operating the machine with the tray deprived of water could cause serious damage to the heating element inside.

If there is a fixed, wall or floor drain at the installation site, you can connect the machine's drain hoses directly to this system. To do this, you must replace the supplied rubber hoses with longer ones, paying particular attention to the **correct inclination** to ensure efficient drainage flow.

IMPORTANT: The user is responsible for regularly emptying the drain pan behind the machine or for correctly connecting the drains to a fixed drainage system. Any spillage or flooding is not the fault of the instrument.

Filling the internal humidification tank

During the initial installation of the instrument and each time the internal humidification tank is emptied, e.g. during routine maintenance, it must be refilled.

To fill the inner tank and ensure the correct water level, follow these steps:

- **Check the positioning and connection of the supply tank:** Ensure that the external supply tank is correctly positioned, connected and filled as described in the instructions above.
- **Check the drainage pipe tap:** Check that the 'Water drainage' drainage pipe tap (left) is closed.
- **Switch the instrument on:** Switch the instrument on using the ON/OFF button on the side control panel, but do not start the work cycle yet.
- **Switching on the humidity function:** When first installed, or after each switch-off, activate the humidity switch on the side control panel. Activation allows the internal humidification tank to be filled (if the switch is already on, bypass this step).
- **Wait for filling:** Wait until the water level in the internal humidification tank is sufficient to cover the heating element. This procedure will take about 30 seconds.
- **Start the work cycle:** Once a sufficient level of water has been reached in the internal humidification tank, the work cycle can be started (see *Operation* section). The float level regulation system will automatically maintain the correct water level inside the tank.

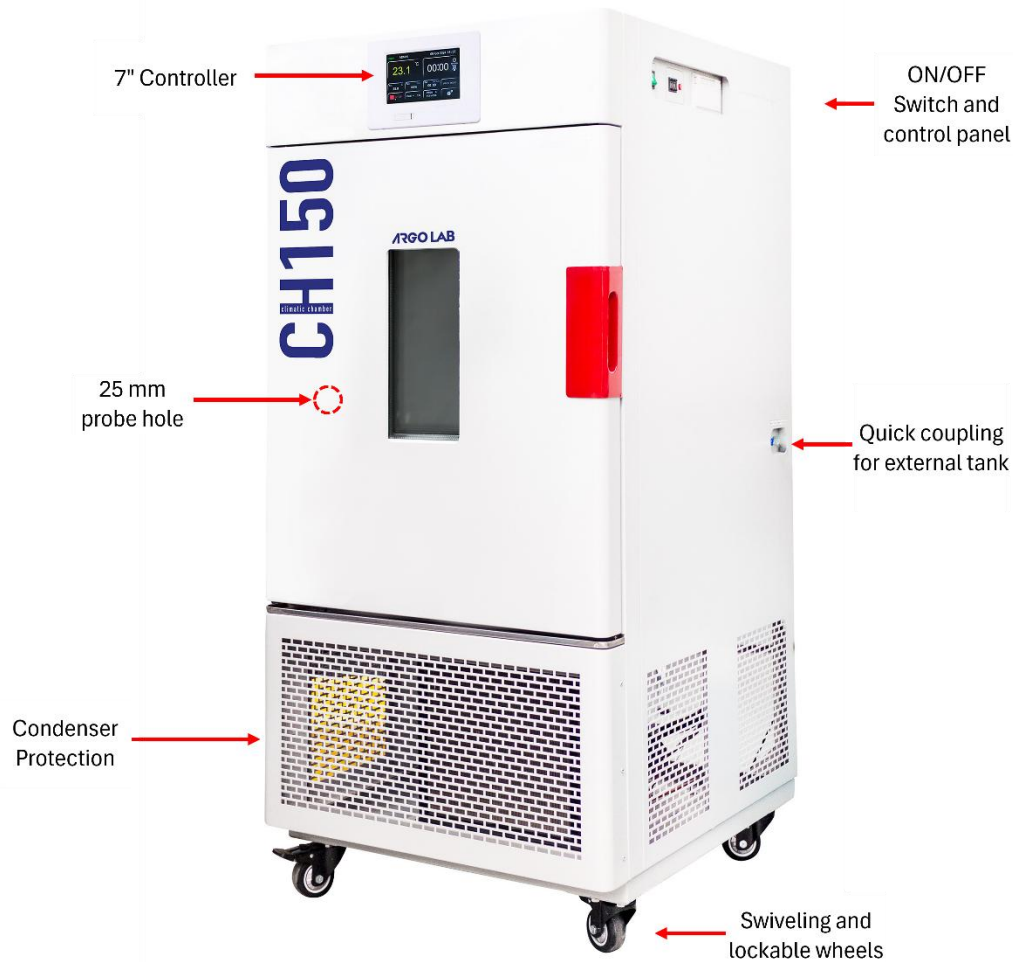
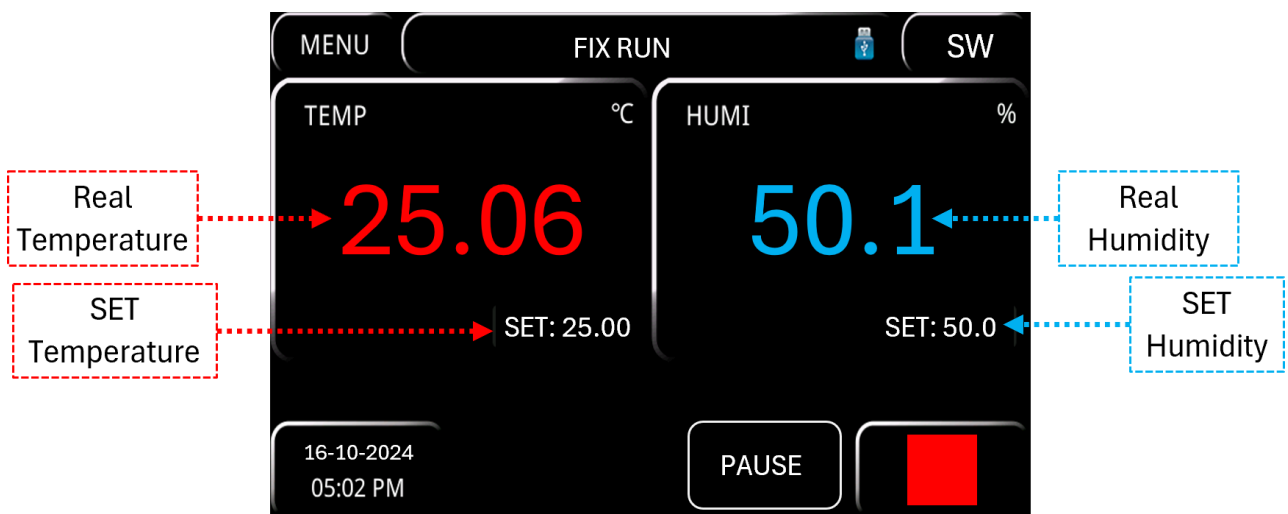
Instrument Non-Use Period

During periods of prolonged inactivity, it is important to follow certain steps to preserve the efficiency of the climatic chamber and prolong the life of its components, especially the humidity sensor. Proceed as follows:

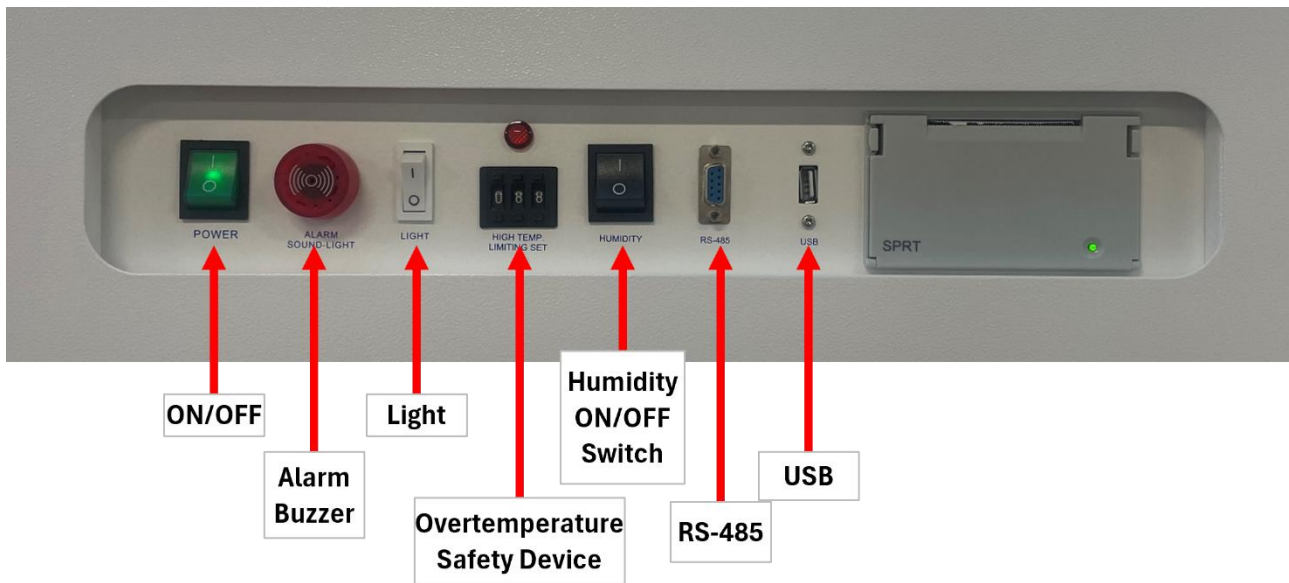
- **Emptying the Internal Humidification Tank:** Use the drain cock on the back of the instrument to completely empty the internal tank. This prevents water stagnation and prevents the growth of bacteria, algae and other contaminants.
- **Complete Room Drying:** After emptying the tub, thoroughly dry the inside of the room using a clean, lint-free cloth. This helps prevent the formation of mould and bad odours inside the chamber.
- **Leave the Door Open:** Keep the chamber door slightly open to ensure good ventilation. This practice also helps avoid residual condensation and preserves the humidity sensor, reducing the risk of corrosion or sensor degradation.
- **Disconnecting the Supply Tank:** If the external supply tank remains connected, make sure it is empty and dry or, alternatively, disconnect it to avoid any water stagnation in the connecting pipes.
- **Protection of the Moisture Sensor:** In case of prolonged non-use, ensure that the moisture sensor is exposed to dry conditions. This will help preserve its accuracy and durability.

IMPORTANT: Before re-using the climatic chamber after a long period of inactivity, it is recommended to carry out a complete inspection, including filling the inner tank and checking the functioning of the main components, such as the humidification system and sensors.

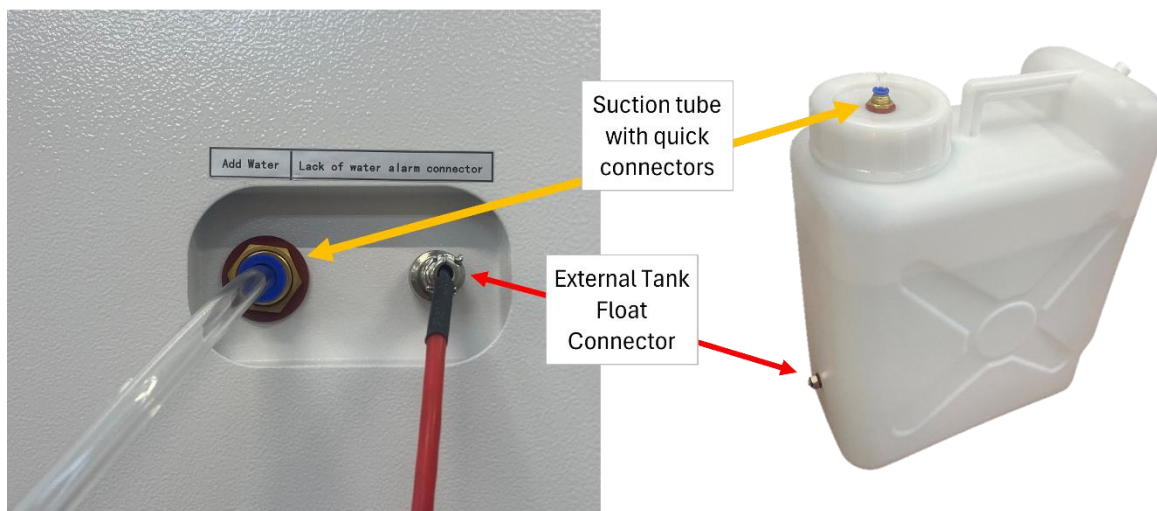
8. Instrument parts



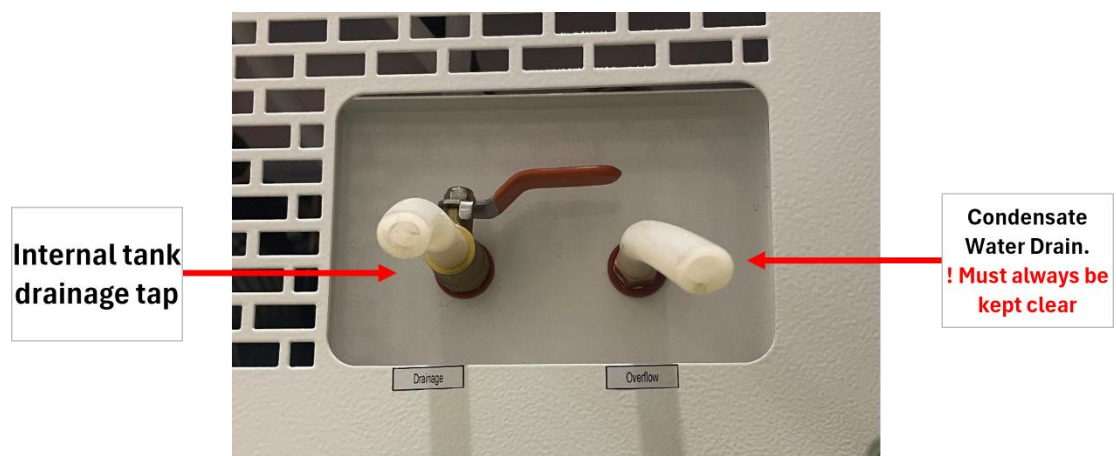
Control Side Panel



External Tank Connection



Climatic Chamber Water Drains



9. Technical Specifications

	CH 150	CH 250
Useful volume	150 litres	250 litres
Temperature resolution	0,01°C	0,01°C
Humidity resolution	0,1%	0,1%
Working range Temperature/ Resolution No humidity	0...+85°C	0...+85°C
Working range Temperature/ Resolution With humidity	+10...+70°C	+10...+70°C
Working range %RH / Resolution	+45...+95 %RH	+45...+95 %RH
Timer	99:59 hh:min and ∞	99:59 hh:min and ∞
Programming	120 programmes	120 programmes
Security class	3.1	3.1
Power supply/power	230 V / 2200 W	230 V / 2200 W
Inside dimensions (W*H*D)	550 x 670 x 405 mm	600 x 830 x 500 mm
Number of shelves (standard/max)	3/9	3/12
Minimum distance between shelves	45 mm	45 mm
Maximum shelf load	10 Kg	15 Kg
External dimensions (W*H*D)	690 x 1520 x 790 mm	740 x 1680 x 885 mm
Weight	145 Kg	185 Kg

10. Introduction of samples into the climate chamber

 DANGER	
	Danger of explosion and Danger of death <ul style="list-style-type: none"> ⊙ Never introduce materials into the instrument that are explosive or flammable at the selected operating temperature. ⊙ Never introduce materials containing flammable or explosive solvents into the instrument. ⊙ Never introduce materials into the instrument which by sublimation or pyrolysis result in the formation of flammable materials at the selected operating temperature.
	Danger of Poisoning and Danger of Death <ul style="list-style-type: none"> ⊙ Never introduce materials into the instrument whose combustion could result in the formation of poisonous gases. ⊙ Never introduce materials into the instrument that can react with moisture and form explosive gases.

Uploading Samples

To ensure optimal air circulation inside the ArgoLab climate chamber, it is recommended to leave empty spaces between the samples. For proper convection, it is important not to place samples in contact with the walls of the chamber. **Under no circumstances place any samples on the bottom of the chamber inside the instrument or in front of the fan.** This could impair operation and cause the samples or the instrument to overheat.

11. Operation

Switching on the instrument

Connect the power cable to a grounded power outlet. Switch on the instrument using the **ON/OFF** button **on** the top right. The button and the display will light up, and the display will show the initialization sequence.

IMPORTANT:

Once switched on, the display will perform the initialization sequence.

At the end of start-up, the instrument will enter **logout mode**: **user authentication will be required for any type of operation**.

This will happen every time the power is switched on and off.

The tool supports 5 **access levels** with different authorizations:

1. **SUPER USER**
2. **ADMIN**
3. **OPER (PROG)**
4. **OPER (FIX)**
5. **GUEST**

Before you can configure and use the tool, you will need to **enter the correct user credentials** (see section 'Login Procedure and Access to Operational Functions').

The users (8 in total) are subdivided as follows (at first use, we recommend **user2**, shown in the table below):

User	Level
admin	SUPER ADMIN
user2	ADMIN
user3	OPER(PROG)
user4	OPER(FIX)

User	Level
user5	GUEST
user6	GUEST
user7	GUEST
user8	GUEST

(see section 'Multi-User Management - Change User / Password' for more details).

The factory passwords for the users listed above are shown in the table below, while the password for the **SUPER ADMIN** user is reserved for the technical service.

User	Password
user2	0002
user3	0003
user4	0004
user5	0005

User	Password
user6	0006
user7	0007
user8	0008

Once the appropriate credentials have been entered, the instrument will be ready for configuration and use (see section 'Login Procedure and Access to Operational Functions').

NOTE: To change passwords or to change users, please refer to the section 'Multi-User Management - Change User / Password'.

Login Procedure and Access to Operational Functions

When switched on, the instrument starts in **Logout mode**.

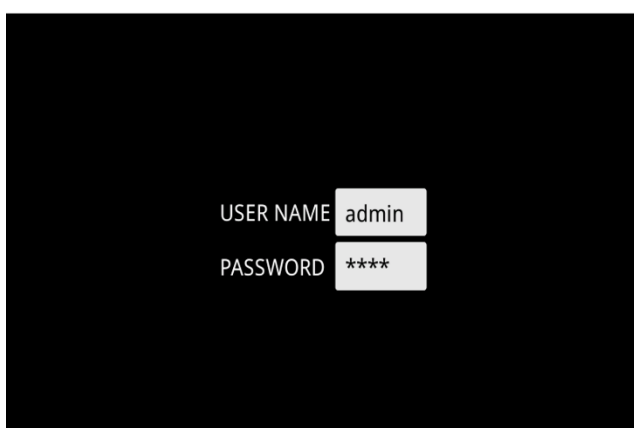
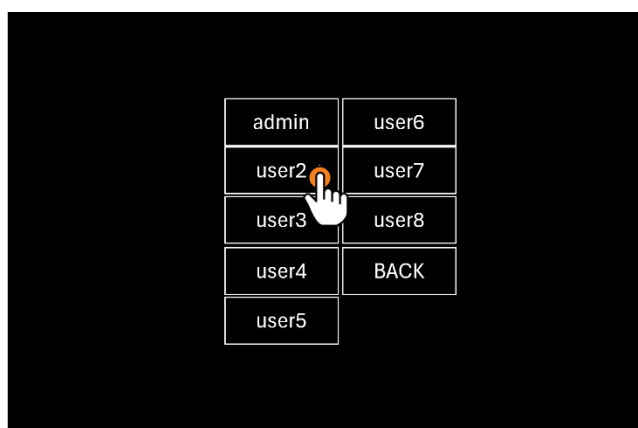
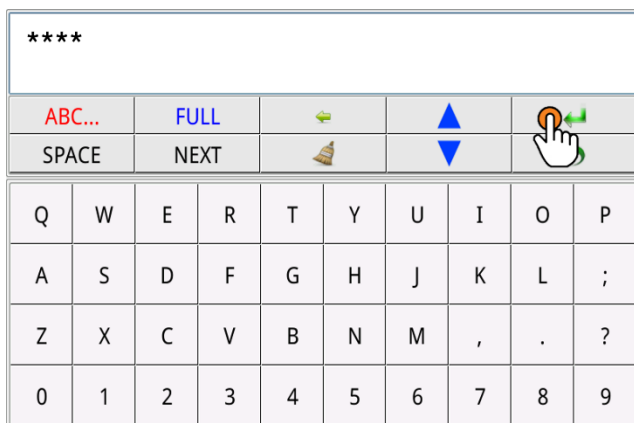
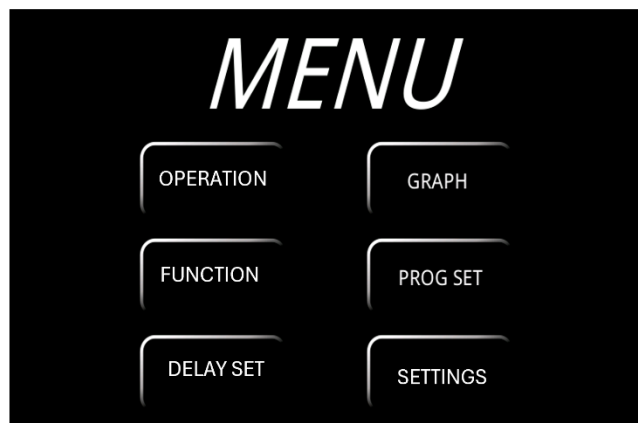
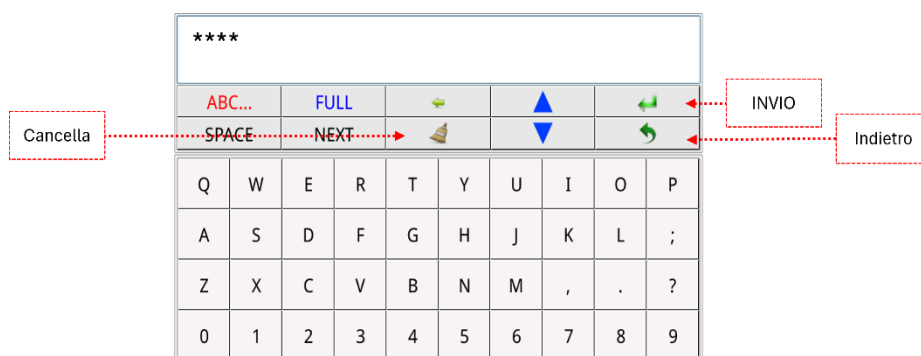
To access the operational functions and use the instrument, it is necessary to **log in** with one of the users listed in the previous paragraph (user2 is recommended).

To log in:

1. Select the box next to [USER NAME].
2. Select the desired user (at first use 'user2' is recommended)
3. After selecting the user, select the box next to [PASSWORD].
4. Enter the password (see table above) and press ENTER

Once the login procedure is complete, the instrument will be ready for use.

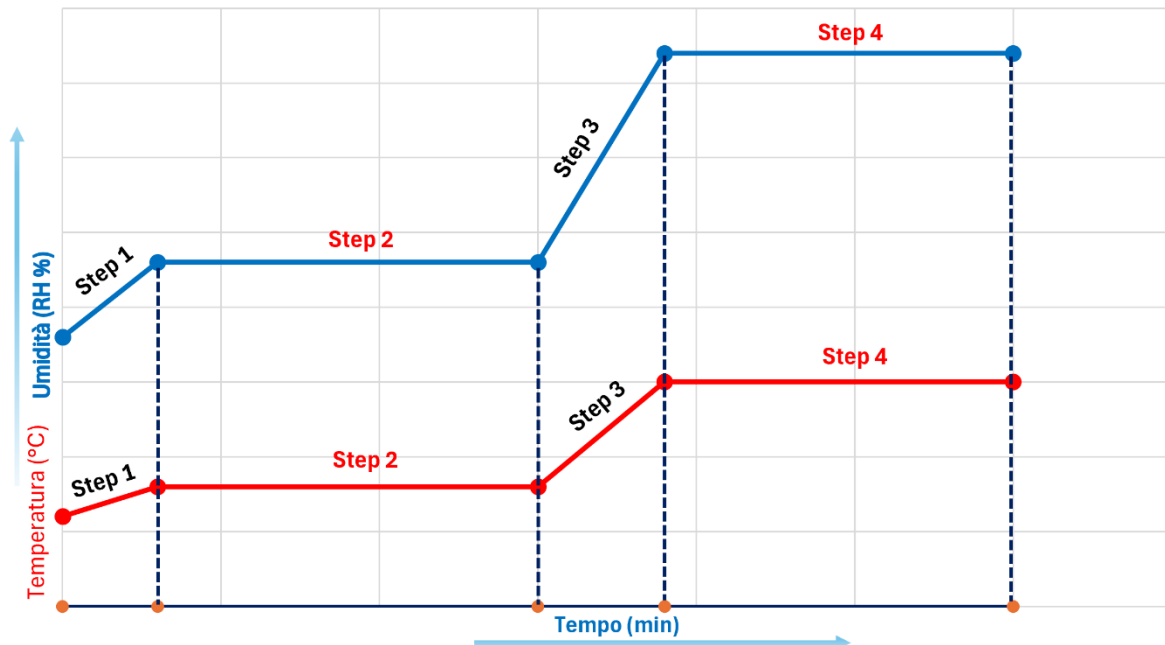
Please refer to the screenshots below for a detailed view of the steps.



Instrument Operating Modes (FIX - PROG)

The instrument can operate in **2** distinct modes (**FIX** and **PROG**):

- !
 - **FIX** - the simplest, single-step programme.
In this mode, you set a temperature (called SET temperature), a humidity (called SET humidity - optional the latter, the instrument can also operate without humidity control) and a time (also optional).
The instrument will reach and maintain the set temperature and humidity for an indefinite time or for a finite time, if previously set.
- !
 - **PROG** - programmes that can be stored in multiple steps. The programmes support the **RAMPE** function:
 - a. The **odd numbered** steps (first, third, etc.) are used to set the temperature/humidity ramp, i.e. how long you want to reach the set temperature/humidity.
 - b. The **even-numbered** steps (second, fourth, etc.) are used to set the holding time for the set temperature/humidity.



For each of these steps, it will be necessary to set the temperature, humidity and time.

EXAMPLE: the diagram above describes the following work programme

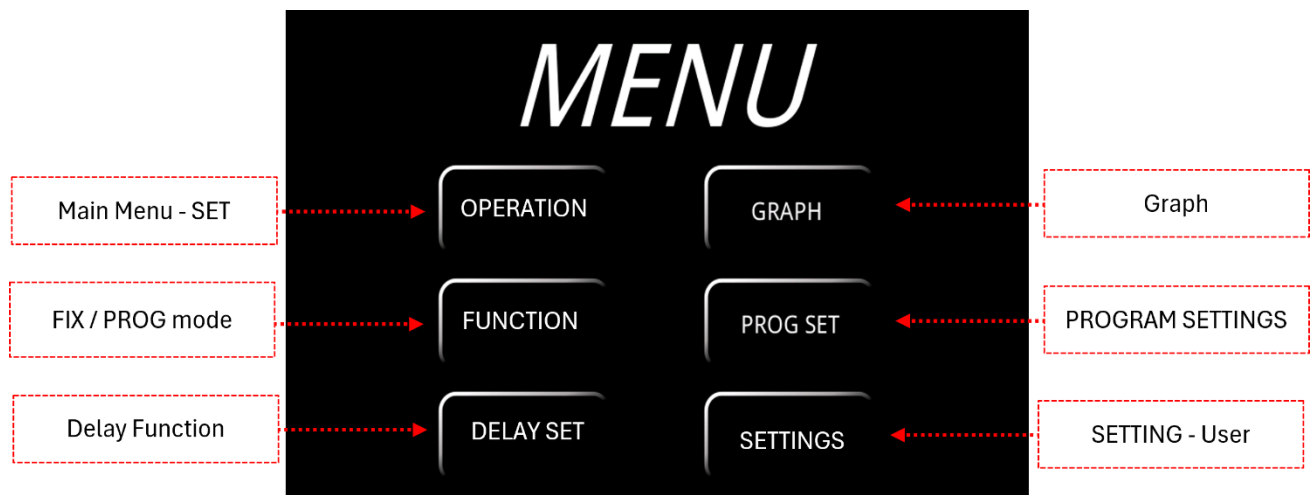
STEP	TEMPERATURE	HUMIDITY	TIME	Description
1	25.0 °C	55.0 %	60 min	The instrument will bring the chamber from room T/H (20°C/40%RH) to 25.0°C/55.0% in 60 minutes
2	25.0 °C	55.0 %	300 min	The instrument will maintain the chamber at 25.0°C/55.0% for 5 hours (300 minutes)
3	40.0 °C	80.0 %	90 min	The instrument will take the chamber from 25.0°C/55.0% to 40.0°C/80.0% in 90 minutes
4	40.0 °C	80.0 %	240 min	The instrument will maintain the chamber at 40.0°C/80.0% for 4 hours (240 minutes)

! **IMPORTANT:** In the event of an unforeseen power failure or shutdown via the ON/OFF button, the system will resume the current work cycle but will again require user authentication upon resumption of operation.

12. Main menu

The main menu allows you to access and manage the main operational functions of the instrument. The available submenus are:

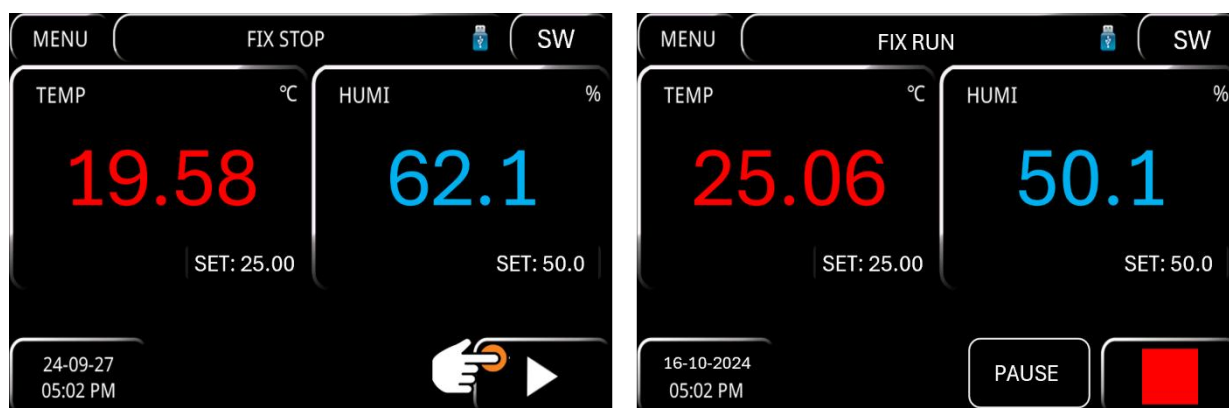
1. **OPERATION:** This is the main and most important submenu, as it provides a constant view of the current status of the climate chamber. Here, active operating parameters such as temperature and humidity can be monitored in real time, as well as the status of the current work cycle. In addition to the status display, it allows you to set parameters for the single-step working mode (FIX) and to **start or stop the working cycle** as required.
FIX mode allows simple and continuous operations with user-defined parameters.
2. **FUNCTION:** Allows you to select between single-step (**FIX**) and multi-step (**PROG**) operating modes, which allows you to programme complex cycles with multiple operating steps. It also includes advanced options, such as automatic restart mode in the event of a power failure (see *Function* section for further details).
3. **DELAY SET:** This submenu allows a programmed delay to be set for the start of the work cycle, which is useful for automating operation with a time delay (see *Delay Set* section for more details).
4. **GRAPH:** Allows you to view real-time graphs of temperature and humidity trends within the chamber. It also provides access to the historical log of stored data, ensuring accurate analysis of environmental conditions (see *Graph* section for more information).
5. **PROG SET:** Dedicated to the configuration and management of multi-step programmes. The tool allows up to 120 different programmes to be saved, each of which can include a maximum of 100 steps. This allows complex and repeatable operations to be managed, adapting to a wide range of applications (see *Prog Set* section for instructions on configuring programmes).
6. **SETTINGS:** This submenu provides access to general instrument settings, including alarm management for over-temperature and over-humidity conditions, as well as **user management**, which allows **users** to define passwords and different levels of authorisation and access (see *Settings* section for more details).



13. Starting/stopping a work cycle and setting in basic mode (FIX)

To set and start a work cycle in basic mode (FIX), proceed as follows:

1. From the main menu, select the **OPERATION** submenu.
2. On the next screen, two main values will be displayed:
 - a. The **current temperature** value inside the chamber, highlighted in red.
 - b. The **current humidity** value, highlighted in blue.These two values represent real-time conditions inside the climate chamber.
3. Below the current values, there will be **SET** commands for temperature and humidity, preset to default values of 25.00°C and 60.0%.
4. **By selecting the SET commands**, it will be possible to modify the default values by entering the desired temperatures and humidity to be **reached and maintained by** the chamber. The SET parameters can be changed both when the instrument is in standby mode and when it is in operation.
IMPORTANT: When setting the working cycle, always pay attention to the working square of the instrument, which represents the operating limits of the chamber.
5. Once the SET parameters have been selected, to **start the work cycle** select the **START** icon at the bottom right and press OK. Afterwards:
 - a. At the bottom left, the total working time will appear, and at the top, **FIX RUN**.
 - b. In the bottom right-hand corner, the **PAUSE** and **STOP** commands will be visible.
 - i. The **PAUSE** command pauses the programme, which is useful for loading and unloading samples.
 - ii. The **STOP** command **terminates the work cycle**.
6. FIX mode makes it possible to maintain the set parameters **indefinitely**. However, to set a **finite** working time, please refer to the *FUNCTION submenu* section.
In the case of a finite working time (example: 72 hours), the remaining time can be displayed by clicking on the top left command "SW". This will display SET TIME (72 hours), RUN TIME (current working time) and RMN TIME (remaining working time). To return to the home screen press "SW" again
7. Also from the *FUNCTION submenu* submenu, it is possible to set a working **ramp** to gradually reach the desired temperature and humidity values. For example, you can configure the chamber to increase the temperature by 0.10°C per minute and the humidity by 1.5% per minute, allowing more precise control of the attainment of operating conditions.



14. Setting up and starting/stop a multi-step programme (PROG)

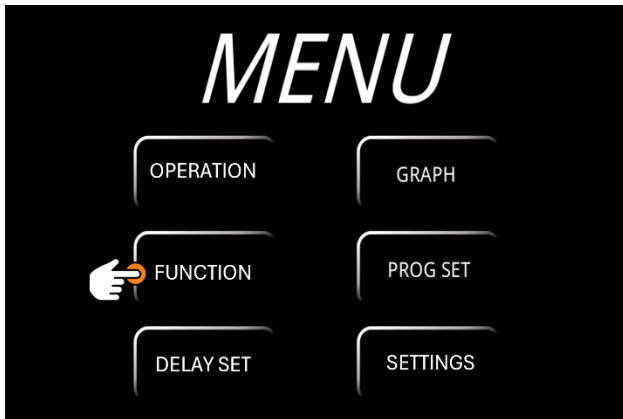
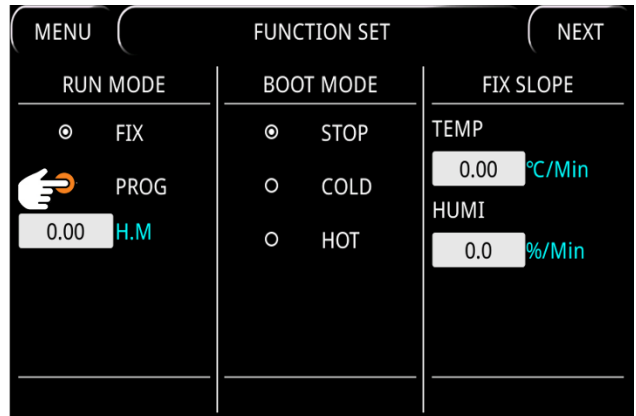
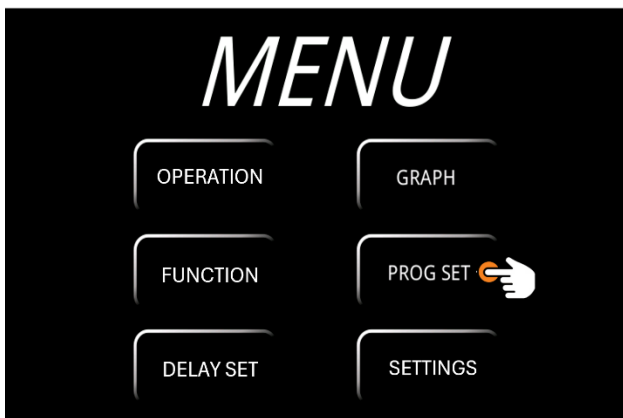
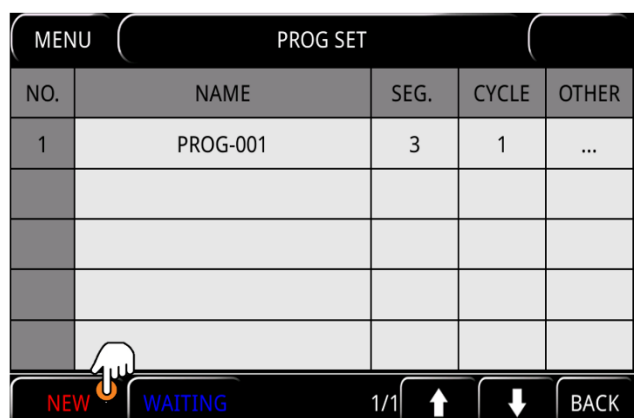
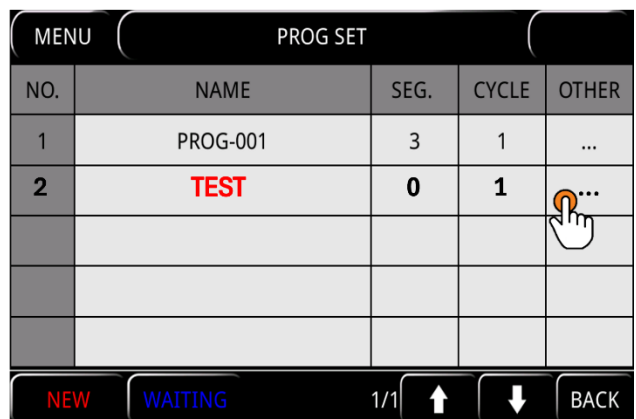
To set a multi-step programme (or recall a previously saved programme), follow these steps:

1. **Stopping the current work cycle:** If a work cycle is running in FIX or PROG mode, it must first be stopped. To do so, click on the STOP icon in the main menu.
2. **Activate PROG mode:** From the main menu, select the **FUNCTION** submenu to activate PROG mode (if PROG mode is already active, this step can be skipped). After selecting FUNCTION, choose PROG to change the operating mode from FIX to PROG.
3. **Accessing PROG SET:** Once PROG mode is activated, return to the main menu and select the PROG SET submenu.
4. **Create a new programme:**
 - a. To enter a new programme, select the NEW option.
 - b. Enter a unique number for the programme (between 1 and 120). The programme will be added to the table of saved programmes.
 - c. You can rename the programme by clicking on the name.
5. **Modifying a programme:**
 - a. To configure the programme according to operational requirements, click on the three dots at the end of the line corresponding to the desired programme and select EDIT.
 - b. Another way to access the programme setting mode is to select the number in the cell given by the intersection of the programme row and the SEG column.
6. **Configure programme steps:** In the programme configuration screen (PROG EDIT), each line corresponds to a step. Set the temperature, humidity and time for each step according to operational requirements.

NOTE: The odd-numbered steps (1, 3, 5,...) correspond to the temperature and humidity change **ramps**, while the even-numbered steps (2, 4, 6,...) indicate the **maintenance of** the set operating conditions.
7. **CYCLE** the entire programme or part of it: It is possible to cycle the entire programme or part of it using the CYCLE column. To configure this option, click on the corresponding cell to enter the CYCLE submenu and define the desired cycles for the programme.
8. **Starting a programme:** To launch a newly created or previously saved programme, click on the three dots at the bottom of the programme line and select **START THIS PROG**.
9. **Return to the main screen:** Once the programme has started, it is possible to return to the main screen to monitor the running status of the programme.
10. **Stopping the programme:** To interrupt the programme, use the STOP command in the bottom right-hand corner.

Example:

To configure a **4-step programme** (which we will refer to as TEST) that includes a 1-hour (60-minute) ramp up from initial ambient conditions to 25.00°C and 55.0% RH, followed by a 5-hour (300-minute) hold at 25.00°C and 55.0% RH, then a 1-hour, 30-minute ramp up to 40.00°C and 80.0% RH, and finally a 4-hour (240-minute) hold at 40.00°C and 80.0% RH, follow the steps below:





NO.

001



The screenshot shows the 'TEST RUNNING' interface. At the top, there are three buttons: 'MENU', 'TEST RUNNING' (highlighted), and 'SW'. Below these are two large data displays. The left display shows 'TEMP' with a red '25.01' and a '°C' unit, with a 'SET: 25.00' value below it. The right display shows 'HUMI' with a blue '50.0' and a '%' unit, with a 'SET: 50.0' value below it. At the bottom left, the 'RUNTIME:00:01:16 (001/001)' is shown. At the bottom right, there are four buttons: '24-09-27 05:09 PM', 'PAUSE', 'JUMP', and a red square button.

Parameter	Current Value	Unit	Set Value
TEMP	25.01	°C	25.00
HUMI	50.0	%	50.0

Multi-User Management - Change User / Password

The system allows the currently logged-in user to change his or her password securely and independently. This function is designed to guarantee privacy and secure access to the system.

TECHNICAL NOTE: The supplier cannot be held liable if the user changes all passwords and subsequently does not remember them.

Care should therefore be taken when managing passwords.

To **change your password**, follow the steps below:

1. Select 'SETTINGS' from the main menu
2. Scroll down the page with the DOWN ARROW slider in the bottom right-hand corner
3. Select "ACCOUNT MANAGER".
4. A table with user name, authorisation level and obscured password will be displayed.
5. The currently connected user will be highlighted in red.
6. The user can change the password by clicking on the cell relating to his password.
7. You will be prompted to enter your old password and then the new one.

To **change users**, you must first log out of your current account and then log in with the new user's credentials.

Follow the steps below to complete the procedure:

1. Follow the previous steps up to point 4.
2. Select 'LOGOUT' in the top right-hand corner.
3. You will then be logged out
4. To log in with the same or another user, select the user type under 'USER NAME' and enter the corresponding password.

ACCOUNT MANAGER			
BACK			LOGOUT
NO.	NAME	ID	PASSWORD
1	admin	SUPER USER	*****
2	user2	ADMIN	*****
3	user3	OPER(PROG)	*****
4	user4	OPER(FIX)	*****
... LOG 1/2			

15. Submenu

The main menu is divided into 6 submenus, each of which provides specific functions for managing and monitoring the instrument.

1. OPERATION

The 'Operation' section allows the user to monitor and control the main operations of the instrument in real time, including operating parameters such as temperature, humidity and other operational values.

2. FUNCTION

The 'Function' section allows you to configure specific functions of the instrument, including additional settings that can affect how the instrument is used and customise its behaviour.

3. DELAY SET

The 'Delay Set' section is dedicated to setting delays for starting or stopping instrument functions, allowing flexible, programmed management of the operating cycle.

4. GRAPH

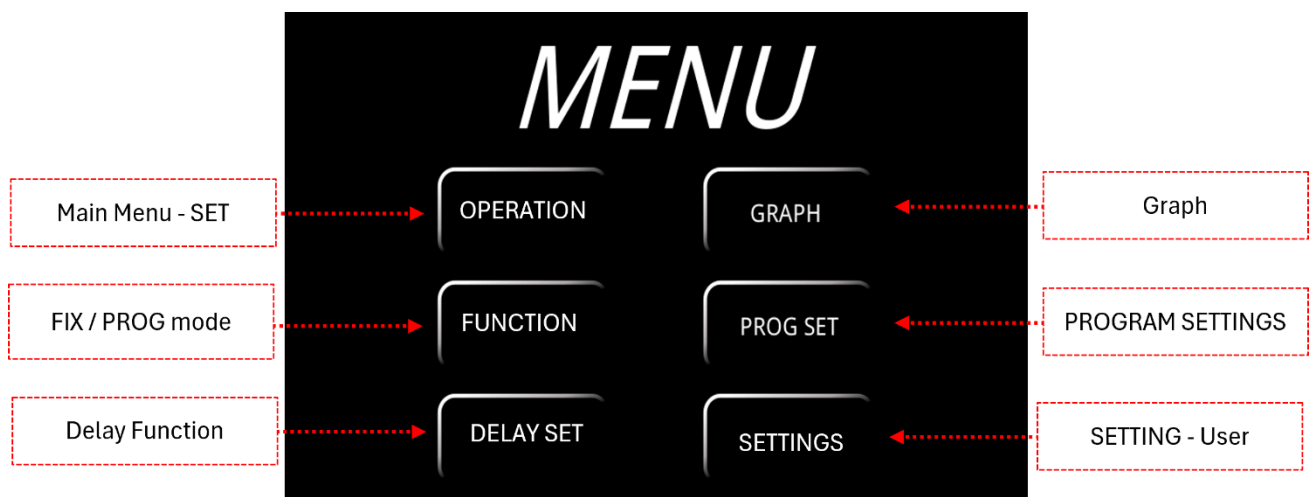
The 'Graph' section provides a graphical display of the operating parameters over time, allowing the user to analyse the trend of the values and verify the stability of the set conditions.

5. PROG SET

The 'Prog Set' section allows customised multi-step operation cycles to be programmed. The user can define sequences of operations with specific parameters to automate the operation of the instrument according to specific needs.

6. SETTINGS

The 'Settings' section includes all general instrument settings, such as user management, network configuration and other options required for proper and safe operation of the instrument.



OPERATION submenu

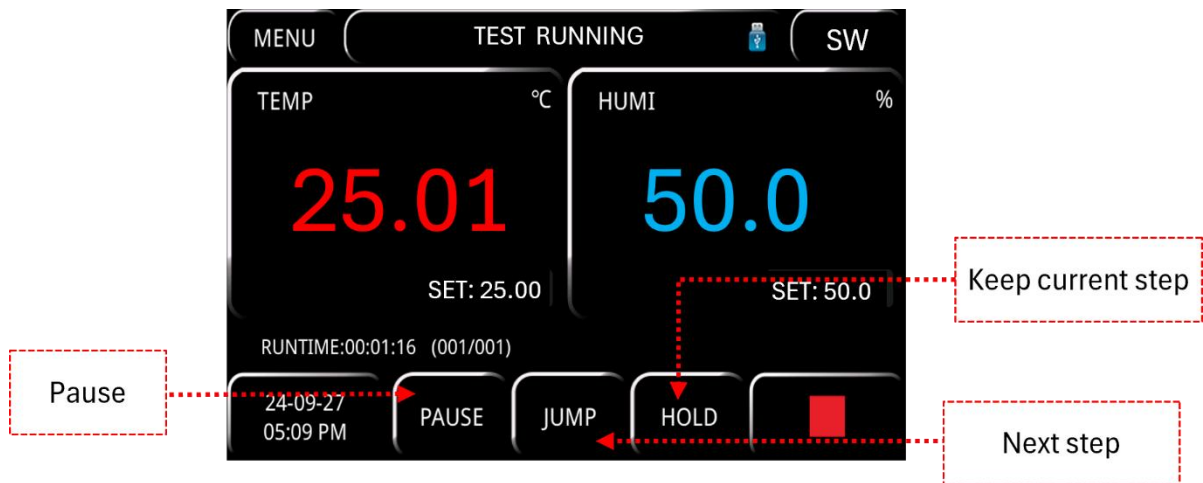
The '**Operation**' section allows the user to monitor and control the main operations of the climatic chamber in real time.

The following parameters are constantly displayed on this screen:

- current temperature and humidity
- set temperature and humidity
- overall working time
- remaining working time (if defined)
- date and time.

There are also the '**PAUSE**', '**START**' and '**STOP**' commands to pause, start or stop climatic chamber operation, both in FIX mode and in PROG mode.

This is the standard display screen, which is recommended in order to keep track of the climatic chamber's operational progress at all times.

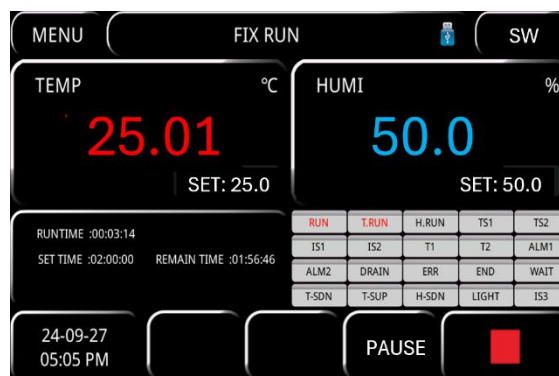


In PROG mode, the 'JUMP' and 'HOLD' commands are also available to switch to the next working step or to hold the current working step.

By clicking on the 'SW' icon in the top right-hand corner, the following parameters will be displayed:

- **Time parameters:** total working time, remaining time and set time (if the working cycle is finished).
- **Work cycle parameters:** information on the current work step and the number of programme reiterations (cycles).
- **Monitoring of active components:** status of refrigeration units, fan, heating elements and any other active components in the cycle.

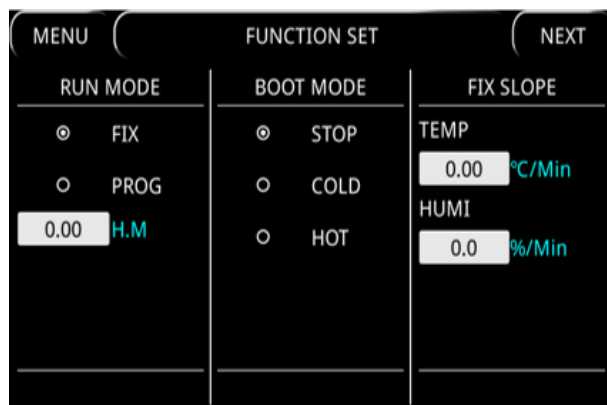
By clicking on the 'SW' icon again, the display of these parameters will be hidden.



FUNCTION submenu

The 'Function' submenu contains the following configuration options:

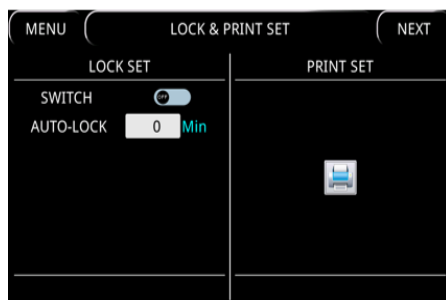
- **Run Mode:** this mode allows you to select the type of work programme:
 - **Fix:** basic programme with single temperature/humidity step.
 - **Prog:** advanced programme with multiple temperature/humidity steps.
 - The working mode can only be changed while the instrument is in standby mode; this cannot be done while the instrument is running.
 - It is also possible to set a **finite working time** for Fix mode. For example 8 hours of work. The instrument will work for the defined time and then stop.
- **Boot Mode:** this setting defines the behaviour of the instrument in the event of a power failure. Three options are available:
 - **Stop:** interrupts the current work cycle, stopping the process completely.
 - **Cold:** restarts from the beginning of the work cycle when power is restored.
 - **Hot:** resumes the work cycle from the point where it was interrupted (default mode).
- **Heating/cooling ramp in Fix mode:** allows you to set the heating or cooling rate, expressed in °C per minute and % RH per minute, to reach the desired set point.



By selecting the NEXT icon in the top right-hand corner, further settings are available:

Printer Settings and Display Lock (LOCK SET): these functions include automatic display lock, useful in shared environments.

To activate the lock, move the switch icon from "OFF" to "ON" and set a standby time. When activated, a padlock icon will appear on the main screen, and when the selected time expires, the display will enter **standby mode**. This function is particularly useful for preserving the display and avoiding burn-in.



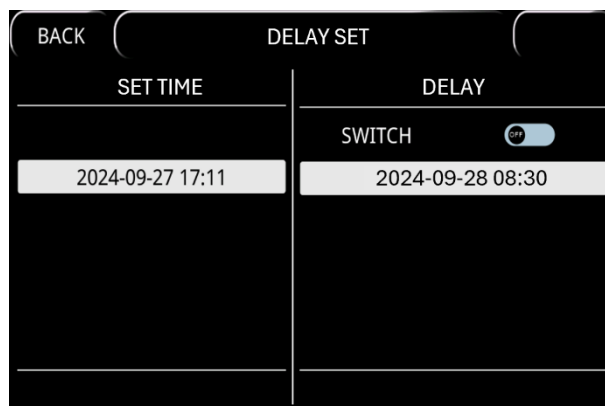
DELAY SET submenu

The '**Delay Set**' submenu allows you to **configure the current time** and **set a delayed start** for the instrument. To configure the delayed start function, the instrument must be in standby mode. Proceed as follows:

1. Select the date and time at which you want the instrument to automatically start the work cycle.
2. Move the switch icon from 'OFF' to 'ON' to immediately activate the programmed delay.

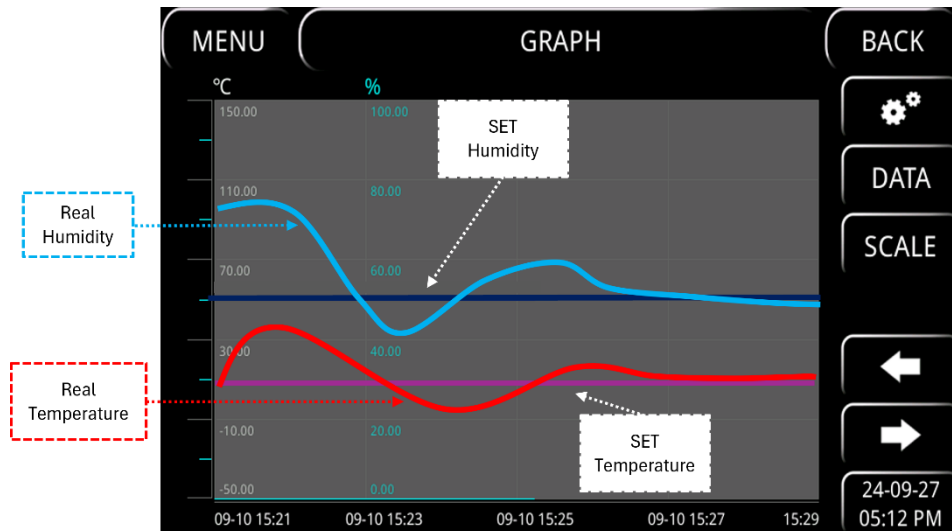
Once the delayed start function is activated, 'DELAY SET' will flash on the main menu to indicate that the delay is active.

To stop the delay, turn the switch icon back to 'OFF' or select the START icon from the main menu to deactivate the delay function.



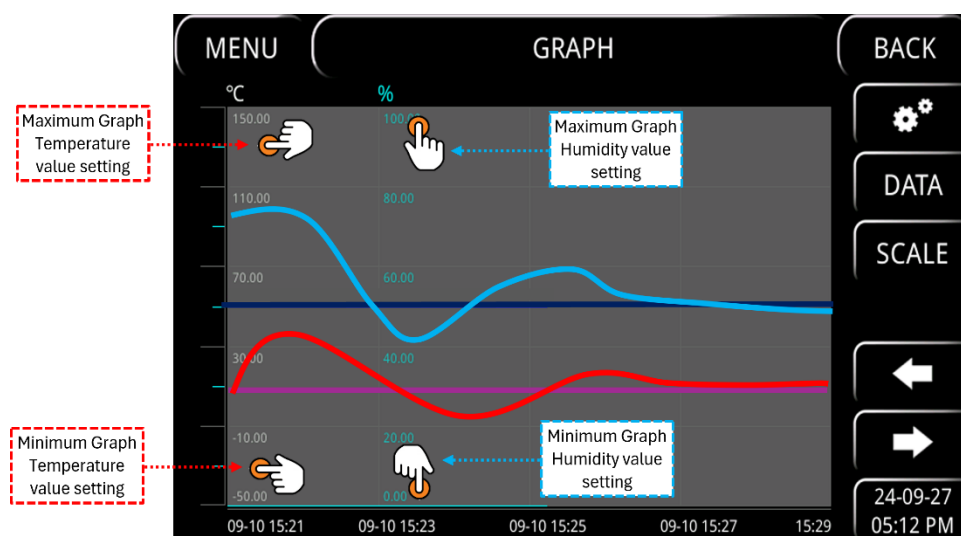
GRAPH submenu

The **GRAPH** submenu offers the display of the **time course of temperature and humidity parameters**, showing both the **set** values and the values **recorded** by the instrument.



The display and acquisition of data can be customised using the following functions:

- **Sampling Interval:** Allows you to set the frequency at which the instrument acquires and records data, with a default value of 60 minutes. The interval can be changed by selecting the **Settings icon** at the top right.
- **Graph scale:** Using the **SCALE icon**, you can change the time scale on the x-axis to optimise the display. To change the temperature and humidity scales on the y-axis, simply click directly on the values in the graph (see example below).
- It is also possible to consult the **Data History**, which can be viewed in graphical or tabular format, via the **DATA icon**. The history shows the data of the work cycles performed.
- Finally, the left and right **cursors** of the graph allow one to navigate within the graph itself, facilitating the consultation of specific periods.



PROG SET submenu

The **PROG SET** submenu allows you to **create, edit and start a multi-step work cycle**. This type of cycle involves **two or more working steps**, each with temperatures and/or humidity levels set specifically to meet the requirements of the process.

For more information on setting up and starting/stopping a multi-step programme, see section 14. *Setting and Starting/Stop a Multi-Step Programme (PROG)*.

NOTE: The **odd-numbered** steps (1, 3, 5, ...) represent the transition ramps, i.e. the phases in which temperature and humidity vary until the desired conditions are reached; in these steps you can set how quickly the instrument should reach the desired conditions. **To reach the desired settings in the shortest possible time, we recommend setting a time of 1 minute (0.01).**

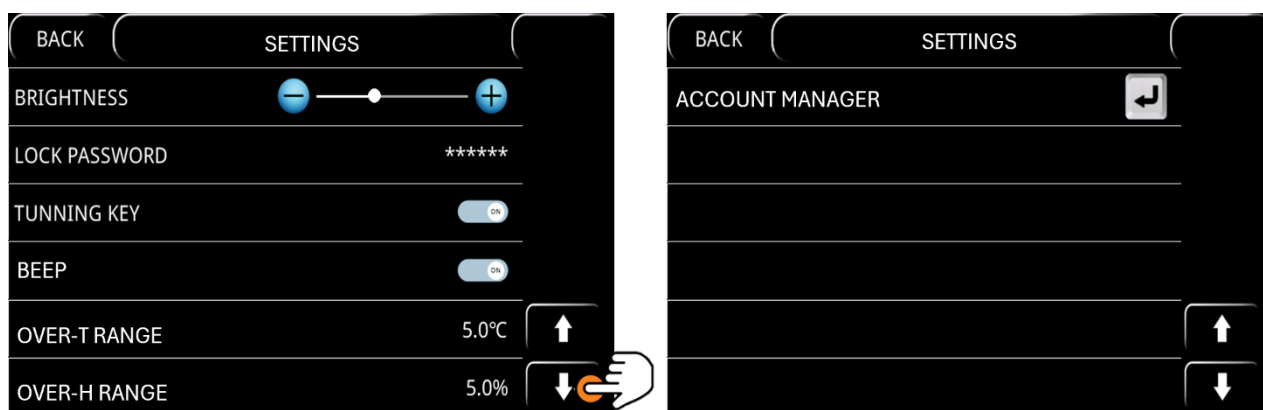
The **even-numbered** steps (2, 4, 6, ...), on the other hand, indicate the maintenance phases, during which the set operating conditions are stabilised and maintained.

SETTINGS submenu

The **SETTINGS** submenu allows various instrument settings to be configured, including:

- **Display Brightness (BRIGHTNESS):** Adjusts brightness to optimise display visibility.
- **Activating the Touchscreen Sound (BEEP):** Enables or disables the sound emitted when the screen is touched.
- **Alarm Settings (OVER-T/OVER-H RANGE):** Configures over-temperature and over-humidity alarms to ensure safe operation of the instrument.
- **User and Password Management (ACCOUNT MANAGER):** Allows configuring password access and user management to protect settings.

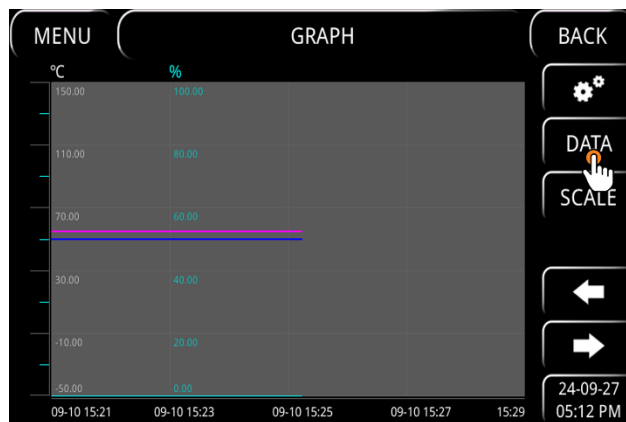
IMPORTANT: The parameters "LOCK PASSWORD" and "TUNING KEY" are reserved for technical service. **It is not recommended to modify them without the support of authorised personnel**, as they may affect the operation of the instrument.



To configure new users or change passwords, please refer to the section *Multi-User Management - Change User / Password*.

16. USB data download

The instrument records and stores data for each completed work cycle, allowing export to a USB drive. To access this function, navigate to the **GRAPH** submenu and select the **DATA** icon.



In the next screen, the log of work cycles will be displayed, starting from the current cycle and including previous ones.

By selecting a work cycle, the following options will be available:

- **TABLE:** View the recorded data.
- **CURVE:** Display the cycle curve on the graph.
- **EXP.to Udisk:** Export the data history to a **USB drive** in two different formats.

BACK	FILE LIST			...
NO.	TIME	LENGTH	SIGN	
13	2024-09-10 15:26:51	0D00H00M		
14	2024-09-10 15:21:37	0D00H04M		
15	2024-09-10 15:08:46	0D00H01M		
16	2024-09-10 14:42:21	0D00H21M		
4/108				<div>↑</div> <div>↓</div>

BACK	FILE LIST			...
NO.	TIME	LENGTH	SIGN	
13	CURVE	EXP. to Udisk (BIN)		
14	TABLE	EXP. to Udisk (XLS)		
15	DEL	BACK		
16	2024-09-10 14:42:21	0D00H21M		
4/108				<div>↑</div> <div>↓</div>

17. Operation Register

The tool allows you to keep track of **all operations and changes performed by users**. To view the log

1. Access the **SETTINGS** menu from the main menu.
2. Scroll to the second page and select **ACCOUNT MANAGER**.
3. Select **LOG**.

In the log screen, you can view the complete history of all operations and changes made. To navigate through the log entries, use the Up and Down cursors.



18. Temperature safety device.

Each ArgoLab climate chamber is equipped with an electronic over-temperature limiter conforming to Protection Class 2 according to DIN 12880.

In addition, each climate chamber is equipped with an additional adjustable electromechanical protection. This electromechanical safety device, classified as **Class 3.1** in accordance with DIN 12880, is configurable from the right-hand side control panel of the instrument.

The device, which can be manually adjusted by the user, has the function of mechanically disconnecting the heating element when the temperature exceeds the temperature set on the device's controller.

19. Cleaning and Maintenance

Before carrying out any cleaning operations, switch off and disconnect the instrument from the power supply. Proper maintenance and cleaning of the instrument ensures its good condition. The internal chamber of the instrument is made of stainless steel (INOX), allowing the use of various neutral detergents. Avoid aggressive or corrosive substances. Apply the cleaning agent with a soft cloth, rinse with distilled water and dry completely. For maintenance of specific components, refer to the manual or contact technical support.

 DANGER	
  	<p>Danger of electric shock and Danger of death</p> <ul style="list-style-type: none"> Ø DO NOT spray water or detergents on interior and exterior surfaces. Ø Turn off the main switch and disconnect the mains plug before cleaning. ➤ Dry the device completely before switching it on again.

It is recommended to clean internal and external surfaces with a normal all-purpose cleaner sprayed on a soft, dampened cloth, so that it is not concentrated. Before proceeding with cleaning or any decontamination, the user must ensure that the method adopted does not damage the instrument.

 WARNING	
	<p>Danger of corrosion - Damage to equipment</p> <ul style="list-style-type: none"> Ø DO NOT use cleaning agents containing halogen acids. Ø DO NOT use neutral detergent on other surfaces (e.g. on the galvanised parts of the hinges or on the rear wall of the outer structure).
  	<p>Eye contact - Eye damage caused by chemical burns</p> <ul style="list-style-type: none"> Ø DO NOT discharge into the sewage system. ➤ Wear protective goggles.

20. TROUBLESHOOTING

The climatic chamber does not turn on:

1. Power supply check:

- Ensure the power plug is properly inserted into the socket.
- Verify that the power outlet provides the correct voltage using a tester or another electrical device.

2. Fuse inspection:

- Open the fuse compartment and check the fuses visually.
- If a fuse is blown, replace it only with an equivalent fuse provided with the unit and compliant with the instrument's technical specifications.

3. Main switch check:

- Ensure that the main switch is set to "ON".
- If the unit does not turn on, try switching it off and on again after a few seconds.

4. Internal wiring check:

- If the issue persists, contact technical support for an inspection of internal wiring and control electronics.

Humidity Control Issues:

1. The climatic chamber does not reach the set humidity level (does not increase)

1. Water level verification:

- Ensure that the external water tank contains a sufficient amount of deionized, demineralized, or distilled water.
- Check that the suction tube is properly connected and not blocked.

2. Internal tank inspection:

- Ensure the internal tank is correctly filled and that the float switch operates properly.
- If the tank remains empty despite the presence of water in the external reservoir, check the integrity of the water supply system.

3. Heating element check:

- If the internal tank is full but humidity is not generated, the heating element may not be functioning.
- Verify if the water heats up during chamber operation.
- If the heating element does not work, proceed with its replacement.

2. The climatic chamber does not decrease humidity (does not dehumidify)

1. Refrigeration system efficiency check:

- Turn off the unit and disconnect it from the power supply.
- Remove the lower panel and inspect the condenser radiators.
- Clean any dust accumulation using a soft cloth or a vacuum cleaner.

2. Empty chamber operational test:

- Restart the unit and perform a test cycle with the chamber empty and the door closed for at least two hours.
- Monitor if the unit effectively lowers the humidity level to the setpoint.

3. Technical intervention:

- If the chamber does not dehumidify correctly despite cleaning the radiators, contact technical support for an in-depth inspection of the refrigeration system.

Temperature and Humidity Stability Issues:

3. Excessive fluctuations in temperature and humidity

1. Sample loading check:

- Ensure the samples are properly arranged inside the chamber to allow adequate air circulation.
- Avoid placing samples in direct contact with the chamber walls.

2. Refrigeration system check:

- Thoroughly clean the condenser radiators to ensure proper heat exchange.

3. Internal fan check:

- Verify that the internal fan is operating correctly.
- If the fan does not spin, immediately stop the working cycle and contact the supplier.

Humidification Tank Issues:

4. External tank is dirty

1. Operational cycle interruption:

- Immediately stop the working cycle.
- Turn off the chamber and disconnect it from the power supply.

2. Draining and cleaning:

- Empty all water from the tank.
- Clean thoroughly using water and non-corrosive detergents.

5. Internal tank is dirty or empty

1. Float switch check:

- Ensure the float switch is not stuck in the upper position.

2. Internal tank cleaning:

- Use an alcohol solution or citric acid to remove any limescale deposits.

3. Water supply system verification:

- Check that all tubes connecting the external and internal tanks are correctly installed.

6. Water leakage from the machine

1. Internal tank float switch inspection:

- The float switch must stop water inflow when the maximum level is reached.
- If it malfunctions, contact technical support for replacement.

Electronic and Internal Component Issues:

7. The climatic chamber does not respond to commands

1. Reset procedure:

- Turn off the unit using the main switch and unplug it.
- Wait at least two minutes before turning it back on.

2. Technical assistance:

- If the issue persists, contact authorized technical support.

8. Fan is blocked or not operating

1. Operation interruption:

- Immediately stop the chamber's operation.

2. Contact technical support:

- Do not use the unit until the fan has been replaced or repaired by authorized service personnel.

21. Shipping in Technical Assistance

Should the instrument be **sent for service**, it must be properly cleaned and possibly decontaminated from pathogens.

For shipping, it is recommended to use the instrument's original packaging. Without this, it is important to provide adequate packaging to ensure protection during transport.

We recommend removing the shelves and their supports.

Please note that any damage caused by incorrect shipment will not be covered by the warranty. For detailed instructions on cleaning and decontamination, please refer to the "Maintenance and Cleaning" section of the manual or contact technical support directly.

22. Warranty

Under conditions of use in accordance with the specifications, this instrument is covered by warranty for a period of 24 months from the date of purchase.

The guarantee is only valid for the product in its original configuration.

It does not apply to products or components that have been damaged as a result of: installation not in accordance with specifications, improper electrical or mechanical connections, inappropriate use or use not in accordance with the operating manual, accidents or fortuitous events, operating conditions outside the specified parameters.

The manufacturer accepts no liability for damage resulting from use not in accordance with the instructions in the operating manual, failure to carry out prescribed maintenance procedures, unauthorised modifications and alterations made to the product.

Please consult the user manual for detailed instructions on the correct use and maintenance of the instrument.

23. Disposal of electronic equipment



This equipment is classified as an electronic device and is subject to specific regulations for the disposal of such devices. When disposing of this equipment, please strictly adhere to the legal requirements for electronic waste in your jurisdiction. It is recommended that you consult the relevant local authorities or the supplier of the equipment for details of disposal procedures in accordance with current environmental regulations.