LARGE VOLUME OVENS

Froilabo
Precision for life

SUMMARY

ATTENTION: GENERAL INFORMATION AND SAFETY

It is necessary to strictly follow the instructions for use of this manual to ensure the proper functioning of the appliances or to exercise any warranty claims.

Using this manual:

- Read this manual carefully before starting the appliance.
- Follow the instructions of the manual.
- This manual is an integral part of the product. Keep this manual in a convenient place.
- If you need to transfer this product, do not forget to attach the manual.
- In case of loss, on request, we will provide another manual.

In this manual:

The icon is intended to draw your attention to information or an observation of great importance or potential danger.

The icon is intended to remind you to pay attention to the warm surface.

On these devices, there are risks to consider:

MU Health hazard: respiratory, germ cell mutagenicity, carcinogenecity, or reproductive toxicity risks

IN Flame hazard: flammable solids risks GHS02

EN Hazardous to the aquatic environment GHS09

DA Acute toxicity, skin irritation, eye irritation, specific target organ toxicity risks GHS07

ENVIRONNEMENT :
Methods of disposal.
Do not allow the product to be released into the environment.
Destruction / Disposal: consult the manufacturer or the supplier for information on recovery or recycling.

TRANSPORT :
Do not tip or place cabinet horizontally. Prevent unit from excessive vibrations.
Two people are required to lift or carry the cabinet.
To move the appliance, you should always wear protective gloves!

1. CERTIFICATE OF CONFORMITY

FROILABO SAS certifies that the appliances mentioned below:

<p style="text-align:center">Air PERFORMANCE large volume oven</p>

Comply with the technical directives applying to them:
- European Directive covering machines: 2006/42/CEE
- European Directive covering electromagnetic compatibility: 2004/108/CEE
- European Directive covering electromagnetic compatibility: 2006/95/CEE

Note : *These appliances are not designed to operate in explosive environments (ATEX). Moreover they cannot be used to store flammable, corrosive or explosive substances.*

2. WARRANTY

FROILABO SAS guarantees optimum operation of these appliances according to the installation and usage conditions indicated in this manual.

<p style="text-align:center">The duration of the warranty is: 24 months.</p>

During this period, in the event of a malfunction of your appliance, the warranty is limited to an improvement in the operation, a repair free of charge or the replacement of equipment if it is evident that the malfunction or breakdown is caused by faulty material or workmanship. **All other claims for compensation are excluded**.

3. GENERAL INFORMATIONS

⚠️ **Make sure that persons using these appliances are trained for the work.**

Persons using these appliances must be informed regularly of the possible dangers linked to their work and of the safety measures to be observed.
Make sure that all persons installing, using or repairing these appliances are aware of the possible danger connected to their work; the safety measures to be followed and that they have understood the operating instructions.

If you use hazardous substances, or ones that could become hazardous, only persons with perfect knowledge of these appliances can operate them. These persons should be able to assess the possible risks overall. If you have any questions about the use of the appliance or method of operation don't hesitate to contact us. FROILABO can in no circumstances be held responsible for the quality of the substances stored in the ovens.

4. INSTALLATION OF APPLIANCES

4.1. Delivery

After receipt, please check delivery:

AP 414	AP 714
4 rack supports	
2 rack supports	
1 installation and use CD	

⚠️ Do not tilt the unit. Preserve to the maximum the unit from all vibrations.
Two people are needed to move the unit.
It should always wear protective gloves!

4.2. Location

Place the appliances in a position where they are protected from the sun's rays and other heat sources, in a sufficiently ventilated place.

Room temperature should be between +18°C and +30°C and should be a minimum of 7°C below the set point. Place the appliance in a place that is little affected by temperature variations. This can considerably affect the stability and the precision of the appliances. Place it on a flat surface. It is essential for its proper functioning that the device is level. Utilize, if necessary, rigid wedges.

4.3. Technical specifications

SPECIFICATIONS		Large volume ovens	
		AP 414	AP 714
Temperature range		Amb +7°C à +250°C	
Temperature uniformity +/- (°C)*	at 70°C	1,0	1,0
	at 150°C	1,8	2
	at 250°C	3	3
Temperature stability (°C)		0,3	0,3
Time for temperature elevation (min)**	at 70°C	10	15
	at 150°C	29	35
	at 250°C	65	70
Recovery time after door opening of 30 secs (min)**	at 70°C	2	2
	at 150°C	5	8
	at 250°C	9	15

ELECTRICAL SPECIFICATIONS

IP rating	Front panel IP55
Power supply ***	230V TRI +N+T 50Hz 16A 380V TRI +N+T 50Hz 16A
Power (W)	3100 4900

Testing at an ambient temperature of 25°C and a variation in the supply voltage of +/-10%

EXTERNAL DIMENSIONS	Large volume ovens	
	AP 414	AP 714
Length (mm)	1130	1130
Height (mm)	1170	1780
Depth (mm)	750	750
Back clearance (mm)	100	100
Side clearance (mm)	-	-

INTERIOR DIMENSIONS

INTERIOR DIMENSIONS	AP 414	AP 714
Actual volume (l)	409	721
Lenght (mm)	990	990
Height (mm)	765	1350
Depth (mm)	540	540
Shelves standard	2	2
Weight per shelf/total (kg)	35/90	35/90
Shelf dimensions LxP (mm)	975x475	975x475
Empty weight/Gross weight (kg)	210/240	240/270

* Not including measure uncertainties
** 98% of the value
*** Supplied as standard for 380V TRI+N+T

4.4. Construction

The monobloc exterior bodywork is made from **electro-galvanized steel** and protected by **epoxy paint**.
The inside tank is made from 304L **stainless steel**. The support racks, rack brackets and racks are also made from 304L **stainless steel** as are all the interior accessories.

4.5. Loading

To avoid any risk of damage to the structural parts and to guarantee the technical performance announced, it is important to respect the following instructions:
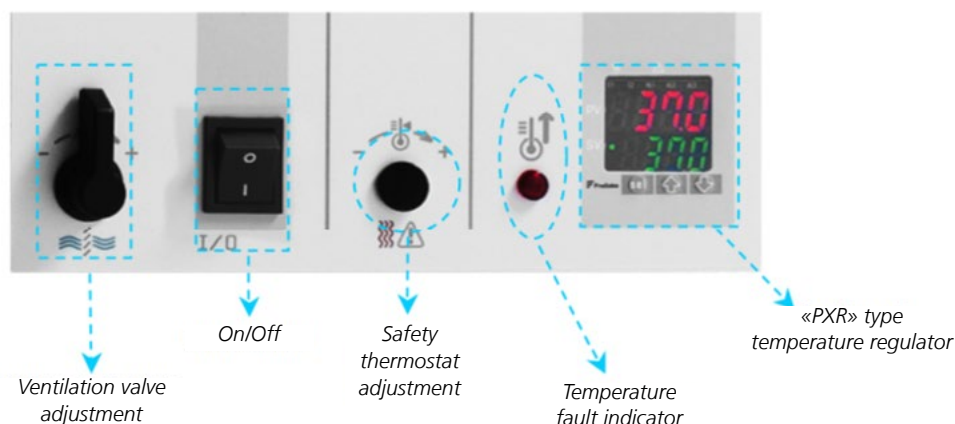
- Never place **highly corrosive materials** in the oven,
- Never place **explosive or highly flammable materials** in the oven,
- Never obstruct the whole surface of a rack,
- Leave a minimum clearance of **5 cm** along internal faces,
- Leave a minimum of **2cm** between the products placed in the oven
- **Spread the load evenly**.

⚠️ *These appliances are not explosion proof.*

5. GENERAL USE

5.1. Control

Ventilation valve adjustment

On/Off

Safety thermostat adjustment

Temperature fault indicator

«PXR» type temperature regulator

5.2. Starting up / Stopping the oven

5.2.1. Starting up

1. Connect the appliance to electric grid:
   - **380V Three-phase + Neutral + Earth supply / 50hz /16 A,** protected by a 30 mA differential circuit breaker.
   - **230V Three-phase + Earth supply / 50hz /16 A ,** protected by a 30 mA differential circuit breaker.

⚠️ **Check the voltage listed on the nameplate of the device before turning the power on.**

2. Press the **On**/Off knob (0/**I**) to start the appliance.
3. Enter the temperature setting on the regulator, using the ↑(S2) and ↓(S3) keys
4. Wait for the appliance to stabilize at the temperature setting.

5.2.2. Stopping

1. Press the On/**Off** knob (**0**/I) to stop the appliance.
2. Open the switch located on the back of the oven before any intervention on the appliance.

5.3. Safety devices

5.3.1. Safety thermostat

These appliances are fitted with a **class 2 safety thermostat** to the **NF EN 61010-2-010 standard**, (equivalent to 3.1 DIN).
It protects the oven and its contents from undesirable overheating (accidental changing of the setting, regulation system malfunction, etc.).

Safety thermostat adjustment

⚠️ **The thermostat should be adjusted when the appliance is started up for the first time, and each time the set point is changed.**

1. Remove the black plug from the control panel strip to access the safety thermostat.
2. Set the safety thermostat to its maximum setting using a flat screwdriver (turn clockwise).
3. Allow the oven to stabilize at the temperature setting.
4. Turn the thermostat anti-clockwise until you hear a click (the red light on the front panel goes on).
5. Turn back slightly clockwise until you hear the click (the red light goes off).
6. Replace the black plug.
-> **The safety system is operational.**

Thermostat adjustment

Red fault light
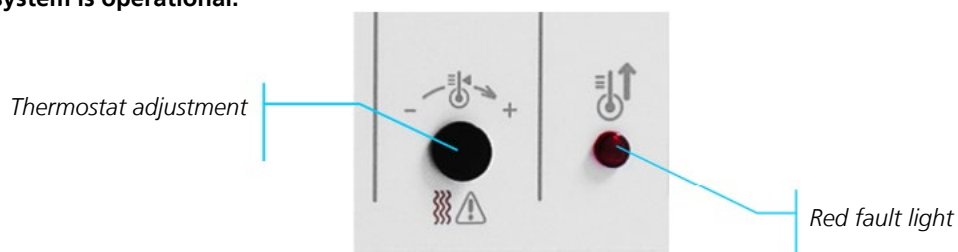
5.3.2. High temperature alarm

These appliances are fitted with **a following high temperature alarm**: a maximum temperature difference between the oven (**PV**) and the temperature setting (**SV**) is acceptable in the oven.
If the temperature measured (**PV**) exceeds this difference the alarm triggers and red light **AL1** goes on. The high temperature alarm value is factory-set to **+10°C** above the temperature setting..
It is possible to insert a time delay for this alarm. This value is factory-set to **0 sec**. Hence, by default the alarm triggers as soon as the high temperature alarm value is reached.

Adjusting the high temperature alarm

1. Press the **SEL** key for 1 second to display parameter block no 1.
2. Display parameter (**AL1**), using the ↑(S2) and ↓(S3) keys and select by pressing **SEL**.
3. Change parameter (**AL1**), using the ↑(S2) and ↓(S3) keys.
4. Press **SEL** to confirm.

Delay the high temperature alarm

1. Press the **SEL** key for 5 second to display parameter block no 3.
2. Display parameter (**DLY1**), using the ↑(S2) and ↓(S3) keys and select by pressing **SEL**.
3. Change parameter (**DLY1**), using the ↑(S2) and ↓(S3) keys.
4. Press **SEL** to confirm.

### 5.4. PXF temperature regulator

See appendix at end of the document

5.5.1. Slope function

Serves to programme the speed of temperature rise of the oven and then maintain the temperature of the enclosure at the temperature setting for a maximum time of 99h59min (per programming segment).
The oven will operate according to the diagram below starting from switching ON (0/I).
Depending on whether or not the step time TMI5 is programmed, the oven will stop by operation of the 0/1 knob or at the end of the programmed TMI5 time. To restart the oven, either use the 0/I knob or the RUN function.
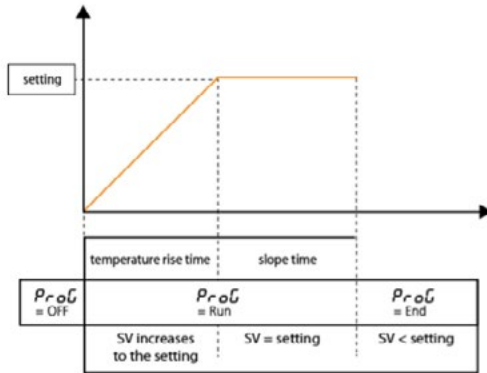
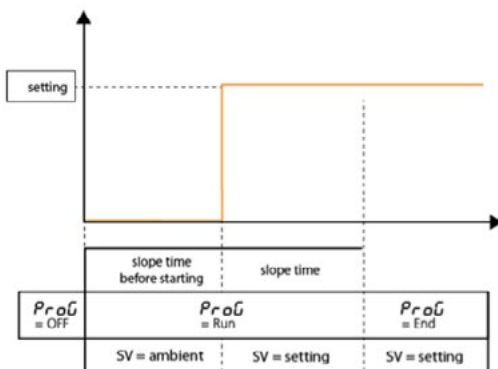| programming procedure AP/AE	
AP/AE	Adjustment
Sū-1	Temperature setting
ΓΠ-Ir	Rise time = 0 to 99 hour 59min
ΓΠ-IS	Slope time (optional) = 0 to 99 hour 59min
Пod	= 0 if starting by RUN = 8 if starting power

To select a parameter:
Press **SEL** for 3s. Display **SV-1** using the ↑(S2) and ↓(S3) keys and then confirm with **SEL**. Choose the temperature setting using the ↑(S2) and ↓(S3) keys and confirm with **SEL**. Repeat the operation for the other parameters.

5.5.2. Program run (differed)

Serves to differ the start of heating of the enclosure in relation to switching on.
The oven will operate according to the diagram below:

⚠ **This appliance is not fitted with an internal clock. The time delay for the start of heating is set in hours and minutes and not by the programming of a start time.**

slope time before starting = 0 to 99 hour 59 min

programming procedure AP/AE	
AP/AE	Adjustment
Sū-1	= 0
ΓΠ-Ir	= 0
ΓΠ-IS	Slope time before starting = 0 to 99 hour 59 min
Sū-2	Temperature setting
ΓΠ-2r	= 0
ΓΠ-2S	Slope time = 0 to 99 hour 59 min
Пod	= 0 if starting by RUN = 8 if starting power

It is always possible to programme a temperature rise time by entering the parameter TM2r of the desired value.
Depending on whether or not the step time TMI5 is programmed, the oven will stop by operation of the 0/I knob or at the end of the programmed TMI5 time. To restart the oven, either use the 0/I knob or the RUN function.

5.5.3. Programmed stoppage

Serves to stop the heating of the enclosure automatically at the end of a fixed time after starting.
The oven will operate according to the diagram below from switching on (0/I).

programming procedure AP/AE	
AP/AE	**Adjustment**
S̄ʋ-1	Temperature setting
ᴦᴨ-ᴵr	= 0
ᴦᴨ-ᴵS	Slope time (optional) = 0 to 99 hour 59 min
ᴨod	= 4 if starting by RUN = 12 if starting power
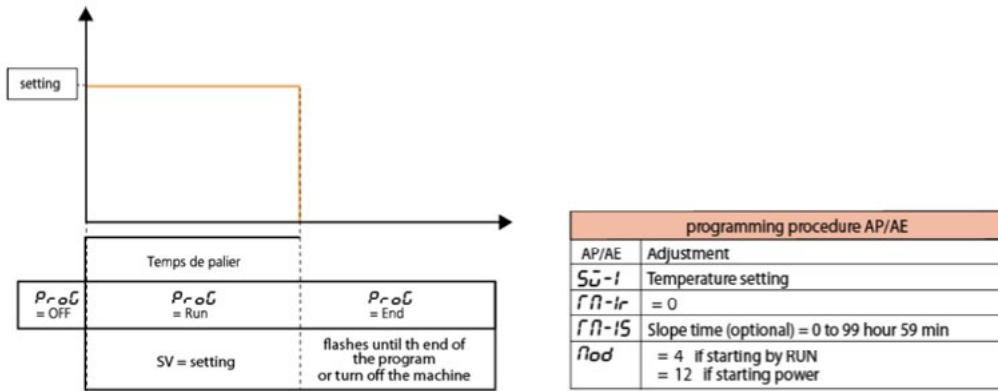
The oven will stop by operating the 0/I knob after the programmed TMI5 time. To restart the oven use either the 0/I knob if the oven is stopped, or the RUN function RUN depending on the ode chosen (12 or 4).

5.5.4. Adjustable air outlet valve

Depending on the applications, it may be useful to adjust the opening of the air outlet situated at the back of the appliance. This adjustment is done by means of the knob on the oven control panel.
Nota : the temperature homogeneity and stability performance are given with the outlet valve closed.

6. AIR RENEWAL

6.1. Delivery

The AP ovens are equipped with an adjustable air outlet valve. This valve is located at the back of the appliance and is controlled by a knob located on the front of it.
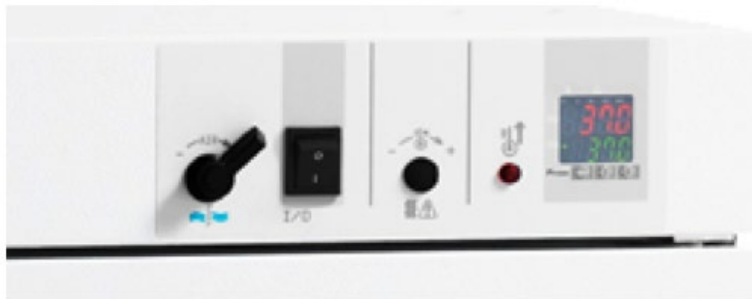
6.2. Operation

Note : depending of the opening of the valve, the oven's performance may be degraded.

Air is vented at the rear of the appliance by a stainless steel pipe with an adjustable shutter of 50 mm diameter.

To adjust the rate of air exchange, rotate the extraction shutter:
- **Closed shutter**: renewal rate close to 0.
- **Totally open shutter**: maximum renewal rate.

7. CABLES ROUTING

A 29.5mm diameter cable chute is located on the right side of the appliance. It facilitates the routing of cables and sensors and allows the control of performance of the appliance, but also its qualification.

8. MAINTENANCE PERFORMED BY THE USER

8.1. Safety rules

⚠ Before any maintenance operation, it is imperative to stop the devices with the ON/OFF button. Then, open the switch to power off.

8.2. Maintenance

Do not clean the oven with a water jet to avoid causing splashing onto the appliance.

In the same way as a motorist maintains his vehicle to keep it in the best possible working order, the use of a cooler necessitates a minimum of maintenance to ensure permanent optimum operation of the appliance.

8.2.1. External surfaces
Wash with warm water with water or a neutral (noncorrosive) detergent. Rinse and dry thoroughly.

8.2.2. Inside tank
⚠️ **Never use disinfectant bleach, even heavily diluted. Never rub stainless steel with steel wool or any other abrasive. Take care over the risk of burns.**

Ovens and incubators are fitted with removable racks for easier maintenance. For this, follow these instructions:
1. Remove the racks with a flat screwdriver.
2. Clean the whole of the tank with a soft cloth soaked in methylated spirit.
3. Refit the racks taking care over their direction (if a rack is reversed all the screws cannot be refitted).

Any serious problem will require intervention by our Maintenance Department, or diagnosis and help by telephone.
Depending on the type of contract, FROILABO undertakes to intervene within predetermined times in the event of a breakdown. To take out a maintenance contract, please send the contract request fax.

8.3. Problems and solutions

⚠️ **Any work on an appliance must be done by qualified personnel. Respect the settings of the safety systems (*see 8.1. Safety rules*).**

SYMPTOMS	POSSIBLE PROBLEMS	SOLUTIONS
The regulator does not light up	Plug disconnected	Check the supply cable connection
	Switch in the "O" position	Set the switch to position "I"
	Faulty mains supply	Check the electrical installation
	Faulty supply cable	Replace the cable
The regulator lights up but the appliance does not heat up	No temperature setting has been adjusted	Adjust the setting value
	The safety thermostat has triggered: the red light is on	Adjust the safety thermostat
	The appliance has a lot of inertia	Normal operation, wait for the appliance to stabilise
	The load prevents hot air circulating	Check the positioning of the load
The appliance heats up until the safety thermostat triggers	The safety thermostat is not set to the correct value	Adjust the safety thermostat
	Set point exceeded during the first start up, or a problem (door opening)	Normal operation, wait for the appliance to stabilise
The regulator displays L.L.L.L. or U.U.U.U.	Sensor broken	Call customer service
	Temperature range exceeded	Check the ambient temperature

MAINTENANCE CONTRACT

(form to fax to the number: +331 60 37 41 78)

YOUR DETAILS:

Ms. ☐   Miss ☐   M ☐   Name ....

Company or institution ....

Function..

Service ....

Phone   _ _ / _ _ / _ _ / _ _ / _ _ /   Fax   _ _ / _ _ / _ _ / _ _ / _ _ /

Adress ....

Post code ☐☐☐☐☐   City ....

YOUR REQUEST:

Maintenance contract ☐   Renewal ☐   Number..

Type of device   ....

temperature ....

brand ....

For freezers:
Emergency LN_2 yes ☐ No ☐ CO_2 yes ☐   no ☐

Number of devices ....

Desired number of visits per year   ....

You already have a maintenance contract FROILABO   yes ☐   no ☐

If so, contract number..

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10. TRANSPORT AND DISPOSAL

TRANSPORT:
Do not tip or place cabinet horizontally. Prevent unit from excessive vibrations. Two people are required to lift or carry the cabinet.
To move the appliance, you should always wear protective gloves!

DISPOSAL:
Before removing the device, and that whatever the way, decontaminate the unit.
In case the product is to be disposed of, the relevant legal regulations are to be observed.
Information on the disposal of electrical and electronic devices in the European Community: within the European Community, the disposal of electrical devices is regulated by national regulations based on EU Directive 2002/96/EC pertaining to waste electrical and electronic equipment (WEEE). According to these regulations, any devices supplied after August 13, 2005, in the business-to-business sphere, to which this product is assigned, may no longer be disposed of in municipal or domestic waste.
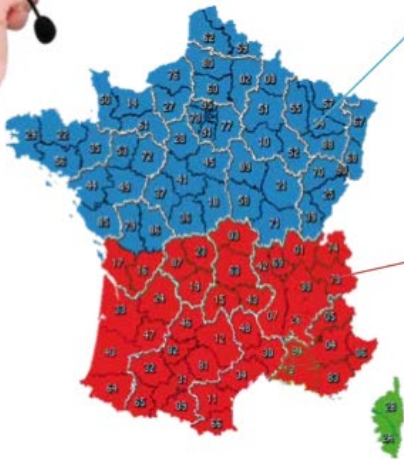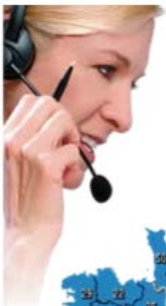To document this, they have been marked with the following identification:

Because disposal regulations may differ from one country to another within the EU, please contact your supplier if necessary.

11. CUSTOMER SERVICE

Any serious problem will require intervention by our Maintenance Department, or diagnosis and help by telephone.

NORTHERN FRANCE
froilabo.paris@froilabo.co

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🖹 ☎ +33(1) 60 37 41 78

Technical call centre
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SOUTHERNFRANCE
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Technical call centre
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🖹 +33(4) 78 04 75 76

EXPORT DIVISION
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Sales call centre
☎ +33 4 78 04 75 75
🖹 +33 4 78 04 75 76

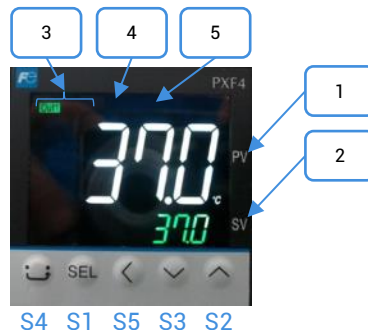Technical call centre
☎ +33 4 37 44 19 19
🖹 +33 4 78 04 75 76

Regulator PXF4:

Operation and programming for incubators BP & BE

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1. PXF4 temperature regulator

Functions buttons

Mark	Designation
S1	Selects the parameter blocks and displays the name or value of the chosen parameter
S2	Increases the value of the set temperature In case of prolonged pressure, the value increases more rapidly Switch from one parameter to another
S3	Increases the value of the set temperature. In case of prolonged pressure, the value decreases more rapidly Switch from one parameter to another
S4	Return to main menu
S5	Back

Display and indicators

Mark	Description	Designation
1	Display temperature / selected parameter	Indicates the actual temperature Displays the symbols of the parameters in the setting mode Display errors codes
2	Setpoint temperature **(SV)**	Display the setpoint temperature **(SV)** Display the parameter values
3	Regulated exit light	**Out1:** the light comes on when the incubator is heating up **Out2:** the light comes on when the incubator is cooling down
4	Alarm output / Indicator stericycle **EV1**	*BIO PERFORMANCE:* The indicator goes out when the temperature alarm **AL1** is on. *BIO EXPERT:* The indicator goes out when the sterilization temperature is reached (only during the stericycle)
5	Alarm output **EV2**	BIO EXPERT: The indicator goes on when the temperature alarm **AL2** is on.

2. Starting up / Shutdown the incubator

Commissioning:
1. Connect the device to a 230V / 50Hz / 10A + Neutral + Earth electrical network, protected by a 30mA differential circuit breaker.
2. Press the **ON/OFF (O/I)** button to turn on the unit.
3. Enter the setpoint on the regulator using ↑ (S2) et ↓ (S3) keys.
4. Wait for the unit to stabilize at the set temperature.
5. Adjust the safety thermostat (cf. below) then load the appliance.

Shutdown:
1. Press the **ON/OFF (O/I)** to stop the device.
2. Unplug the device safely.

3. Safety

Safety thermostat:
These devices are equipped with a class 2 safety thermostat, according to standard NF EN 61010-2-010, (equivalent to DIN 3.1).
It protects the incubator and its contents from unwanted overheating (involuntary modification of the setpoint, malfunction of the control system, etc.).

Setting the safety thermostat:

⚠️ **The thermostat must be adjusted to the first commissioning of the device, as well as to each setpoint change.**

1. Remove the black cap from the console panel to access the safety thermostat.
2. Set the safety thermostat to its maximum temperature using a flat screwdriver turn to the right).
3. Allow the incubator to stabilize perfectly at the set temperature.
4. Turn the thermostat to the left until you hear a click (the red LED on the front panel lights up).
5. Raise very slightly to the right until you hear a click (the red light goes out).
6. Reposition the black cap.

Safety is now operational.

Thermostat adjustment

Red default light
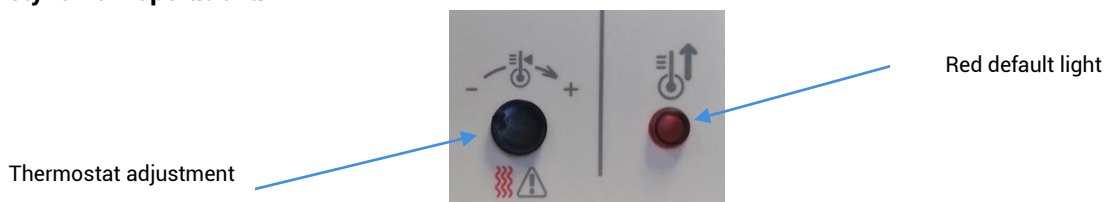
High visual alarm:
These devices are equipped with a high temperature alarm: a maximum deviation between the temperature in the enclosure (PV) and the set temperature (SV, Set Value) is admitted in the enclosure.

If the measured temperature (PV) crosses this gap, the alarm is triggered and the red LED EV2 comes on.

The high alarm value is set at the factory at + 10 ° C above the set temperature. It is possible to delay this alarm. This value is set at the factory at 0 sec. By default, the alarm is active as soon as the high alarm value is reached.

1. Press **SEL**.
2. Display AL2 parameter using ⬆ (S2) et ⬇ (S3) keys and select by pressing **SEL**.
3. Modify parameter AL2, using ⬆ (S2) et ⬇ (S3) keys
4. Validate by pressing **SEL**.
5. Return to main menu by pressing the home button 🙂(S4).

High temperature alarm delay:
1. Press and hold **SEL** until CH 1 appears.
2. Select block parameter n°5 CH 5 using ⬆ (S2) et ⬇ (S3) keys and validate using **SEL**.
3. Display parameter (DLY2) using ⬆ (S2) et ⬇ (S3) keys and select by pressing **SEL**.
4. Modify the parameter (DLY2), using ⬆ (S2) et ⬇ (S3) keys.
5. Validate by pressing **SEL**.
6. Return to main menu by pressing the home button 🙂(S4).

Thermal fuse:

In addition to the safety thermostat, these devices are equipped with a thermal fuse. It protects the incubator from unwanted overheating. Its cut-off temperature is 190 ° C.
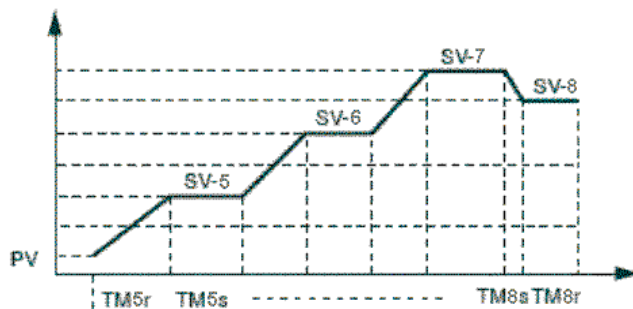
Hot surfaces:

⚠ **Beware of hot surfaces on the back and top cover of the machine (screw head).**

4. Programming a temperature cycle

It is possible to program a temperature cycle (up to 128 segments) and generate 64 set point (SV) The cycle runs from the measured value (PV).

SV-x: setpoint temperature

TMxr: ramp time

TMxs: level time

⚠ **Pay attention to the setting of the safety thermostat. This must be adjusted to the highest temperature of the cycle.**

Step n°1: Draw the temperature cycle based on this diagram.

Ramp: temperature ramp between two instructions. It is defined by its duration.
Level: given time during which a temperature setpoint is executed.

Ramp 5   Level 5   Ramp 6   Level 6   Ramp 7   Level 7   Ramp 8   Level 8
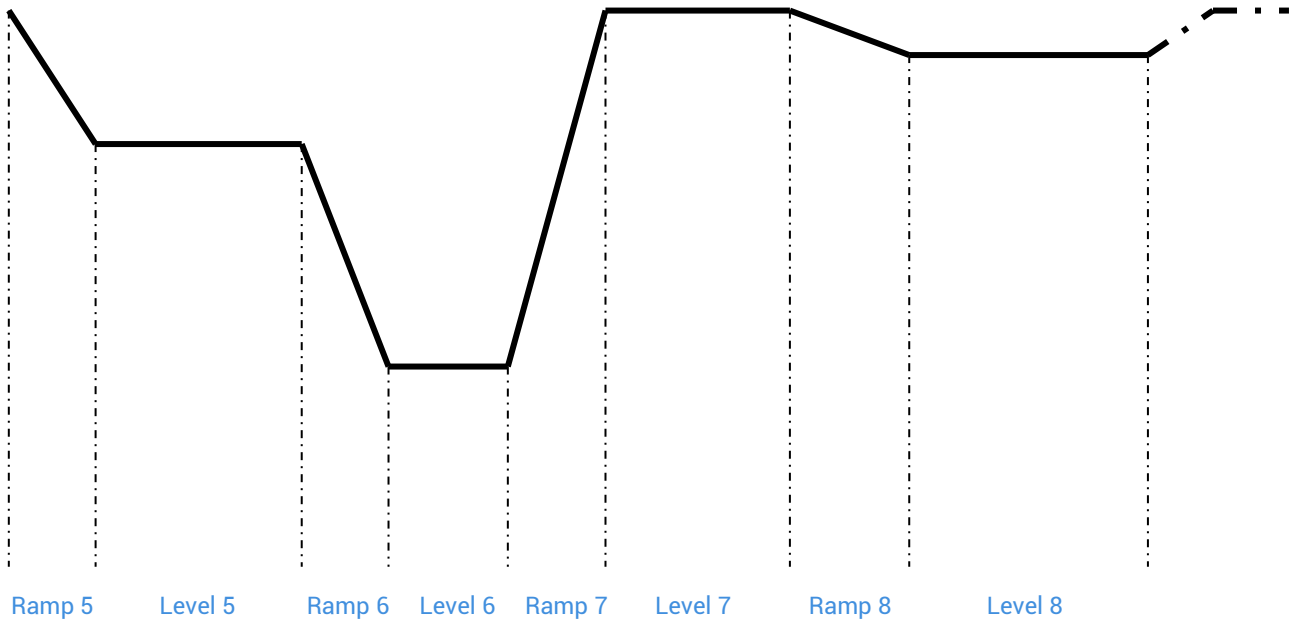
Step n°2: Fill in the table of values defining the cycle.

For unuse level, the **TMxs** and **TMxr** values must be set to « 0 ».

Ramp 5	__ /__ hour/min	TM5r
Level 5	__ / __ hour/min	TM5s
	_____°C	SV-5
Ramp 6	__ /__ hour/min	TM6r
Level 6	__ /__ hour/min	TM6s
	_____°C	SV-6
Ramp 7	__ /__ hour/min	TM7s
Level 7	__ / __ hour/min	TM7s
	_____°C	SV-7
Ramp 8	__ /__ hour/min	TM8r
Level 8	__ /__ hour/min	TM8s
	_____°C	SV-8

Step n°3: Program the controller and set the conditions for stopping and starting the cycle and automatic repetition.

1. From home menu, press **SEL** until CH1 Pid is displayed.
2. Then select CH3 using ↑ (S2) et ↓ (S3) keys.
3. Press **SEL** 1 time to enter the programming menu.
4. Set the **PtN** parameter to define the number of used segments. Press **SEL**, the parameter starts blinking, set the value using ↑ (S2) et ↓ (S3) keys and validate using **SEL.**
5. Display SV-x using ↑ (S2) et ↓ (S3) keys and validate using **SEL**. Choose the setpoint temperature using ↑ (S2) et ↓ (S3) keys and validate using **SEL.**
6. Repeat operation with the other parameters.

Depending on the mode chosen, the programmed temperature cycle will be started directly either at power-on (On / Off) or by the RUN function of the controller. In that case:
1. Press 1 time the **SEL** button.
2. Display **(ProG)** parameter and choose **RUN (rUn)** using ↑ (S2) et ↓ (S3) keys.
3. Temperature cycle start from actual temperature **(PV).**

Nota:
- *To pause the cycle, select HLD (HLd).*
- *To cancel the interruption, choose RUN (rUn).*
- *To stop the cycle, select OFF (oFF).*
- *End is displayed when the cycle is over.*

There are 16 operating modes for a programmated cycle accessible via the Mod (CH3).
The following parameters can be set:

Start of the temperature cycle: the temperature cycle can be activated either when the device is switched on (0 / I) or by using the **RUN** function.

End of program management: determines the status of the control at the end of the temperature cycle.
Stop mode: no regulation, the end of the cycle temperature flashes.
Active regulation: the last temperature of the cycle is regulated.

Management in case of voluntary program shutdown: determines the status of the control at the end of the temperature cycle (HLD function).
Stop mode: no regulation, the set temperatures flashes.
Active regulation: The current set temperature is regulated.

Repeat mode: Allows repetition of the cycle when the previous cycle is completed.
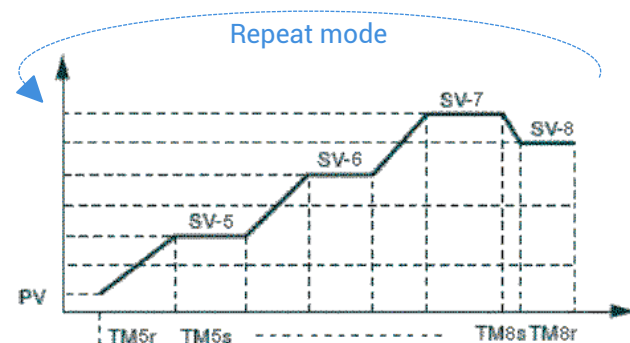
Nota: The rise times must be consistent with the performance of the device.

5. Example of programmer use: the chrono-breaker timer

Step 1:

Designation	Parameter	Value	Designation	Parameter	Value
Set point 1	SV-1	37 °C	**Set point 3**	SV-3	4°C
Ramp time 1	TM-1r	1.0 (hr.min)	**Ramp time 3**	TM-3r	1.0 (hr.min)
Level time 1	TM-1S	94.0 (hr.min)	**Level time 3**	TM-3S	22.0 (hr.min)
Set point 2	SV-2	37 °C	**Set point 4**	SV-4	0 °C
Ramp time 2	TM-2r	0.0 (hr.min)	**Ramp time 4**	TM-4r	0.0 (hr.min)
Level time 2	TM-2S	50.0 (hr.min)	**Level time 4**	TM-4S	0.0 (hr.min)

Step 2:

Temperature cycle starting using is manual (launching via **PROG** parameter) and repeat: **MOD :1**

Nota: This cycle of temperatures is pre-programmed by default on the refrigerated incubators.

5.12 Parameter tree

DESCRIPTION	BLOC	ACCESS
Starting / stopping the programmed temperature cycle	Ope	From home menu press SEL 1 time
Setting the alarm threshold		
Locking		
Setting the temperature cycle	CH3 PRG	From home menu hold on SEL until CH1 Pid is displayed then select CH3
High alarm delay	CH5 ALM	From home menu hold on SEL until CH1 Pid is displayed then select CH5
Offset adjustment	CH6 SEt	From home menu hold on SEL until CH1 Pid is displayed then select CH6
Communication settings	CH9	From home menu hold on SEL until CH1 Pid is displayed then select CH9
Réservé	CH11 dSP	
Réservé	CH13 PASS	

Nota: if no adjustment is made for 30 seconds, the display will reset to (PV) / (SV) values displayed when the power is turned on.