Pole Ideal Tajhiz Co.

Operating Manual

Incubators

Classic and Refrigerated

PIT053 & PIT053R

www.medpit.com

Cat.No.:97352

Table of Contents

Critical Considerations

Lift the unit from the pallet at its four lower corners using the help of several people.
Remove transportation protection devices prior to installation.
Position the unit on a solid, stable, even, and level surface
Use only the trays & accessories approved by the manufacturer.
To open the unit's door, turn the door handle downward and to close it, while holding the door handle down, shut the door and push the door handle smoothly up, back to its normal position.
Opening the doors of incubator affects the length of time it takes to reach the set temperature and thermal equilibrium. Therefore, avoid opening and closing the doors as much as possible.

Easy Programming

There are two possible ways for operating the device:

A) Inserting new program

1) The list of new variables (such as: day program, weekly program, graph, network, date, time, audible alarm and settings page) are displayed by pressing (MENU) button.
2) By pressing (△) (▽) (▷) (◁) buttons, options can be selected and recalled.
3) On each variable, by pressing (F2) button, you can enter that variable's settings and you can exit by pressing (F1) button.
4) After entering the settings page of each variable, by pressing (△) and (▽) you can change and adjust the variable value.
5) Changes are saved by pressing (F2) button and the unit begins operating according to new settings. By pressing (F1) button, saving the applied changes is canceled.

B) Program Recall

1) When the display (fig.3) is on, you can change between fixed-temperature mode, weekly program, and sequential programs 1 & 2 by pressing (▷) button.
2) You can go to the previous mode by pressing (◁) button.

Once a program is recalled, the unit will perform according to the settings of that program mode.

Device Overview

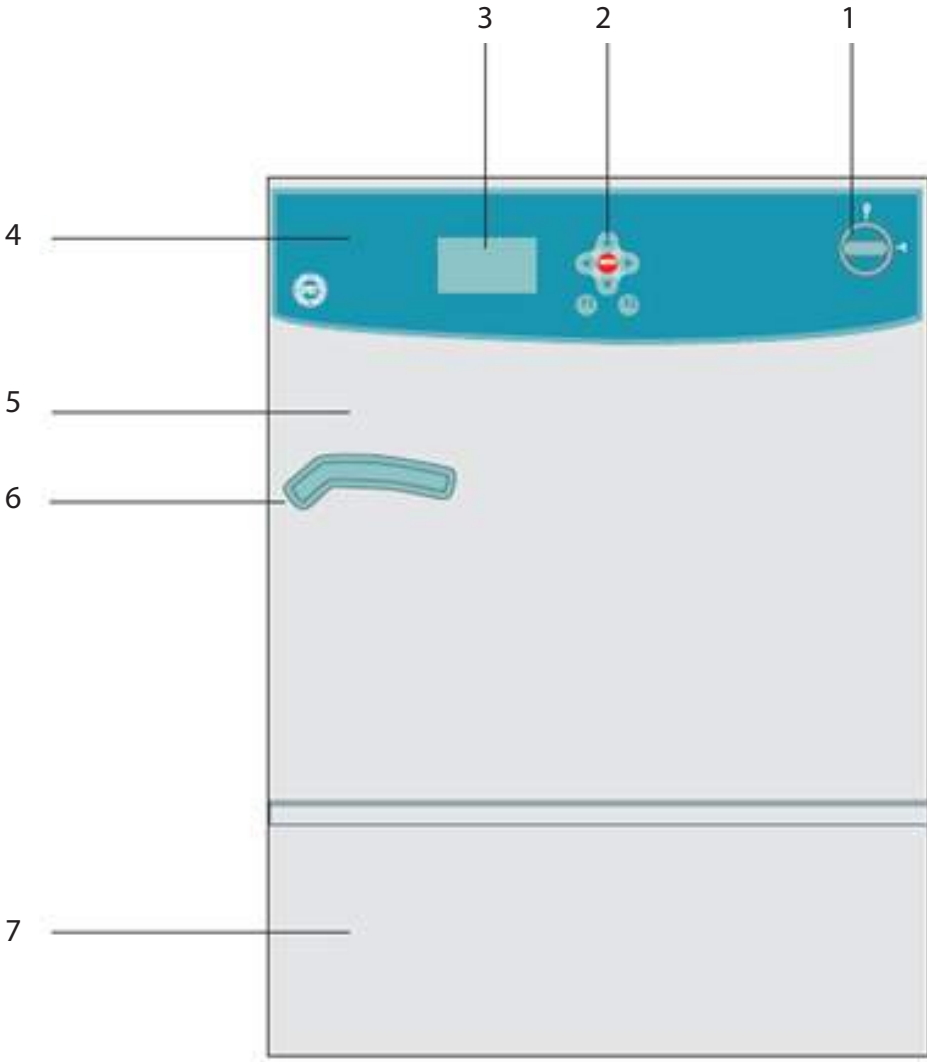


Figure 1: Incubators PIT053 and PIT053R

1) O - I Turning knob (On - Off)
2) Settings keyboard
3) Display
4) Control panel
5) Main door
6) Main door handle
7) Lower panel

Control Panel Close-up

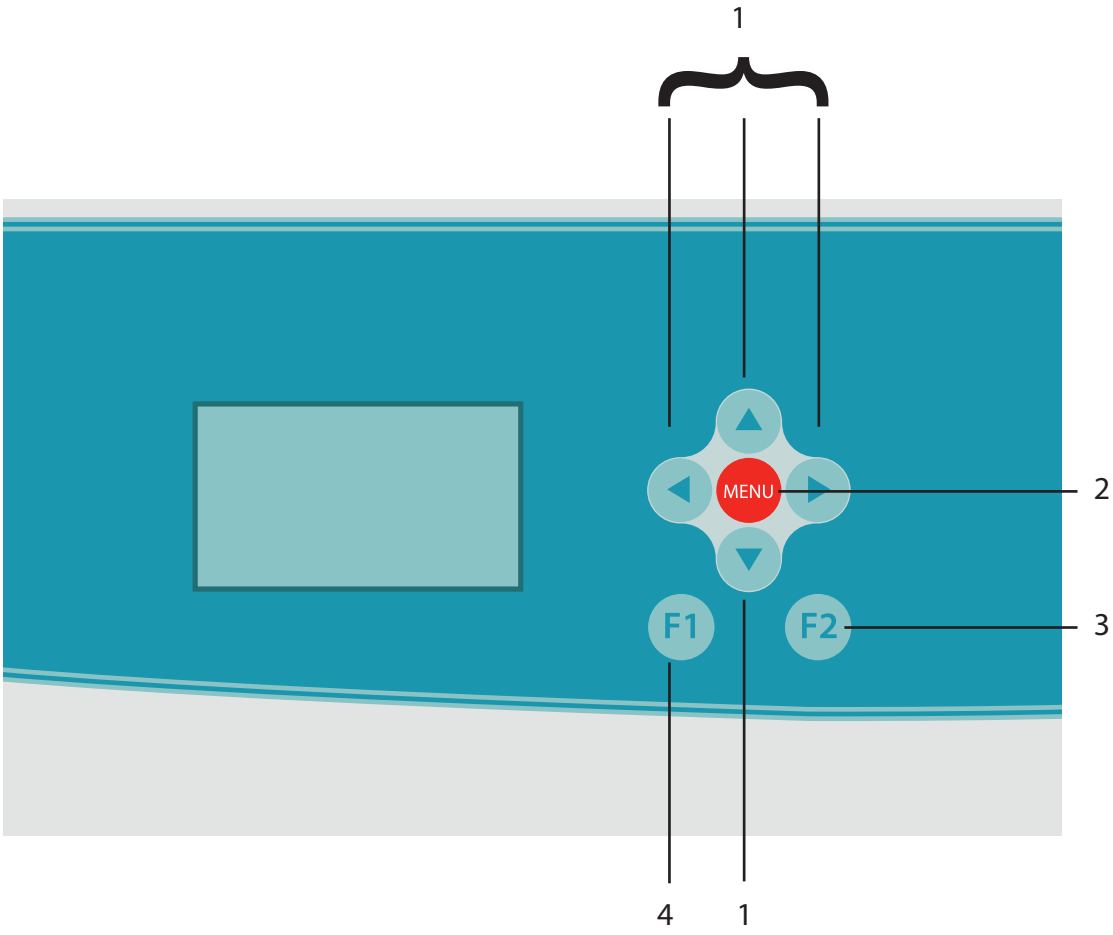


Figure 2: Incubator control panel close-up

1) Settings and arrow buttons (device performance based on screen data)
2) MENU button
3) F2 button (according to the data written on the bottom of right corner of the screen)
4) F1 button (according to the data written on the bottom of left corner of the screen)

1- Why Is It Important To Run The Device In Accordance With The Technical Data?

This device is a medical laboratory product, suitable for certain safe materials. Due to high accuracy, it is appropriate for growing microorganisms having optimum temperature range from 5 to 40 °C. The main application of this device is the long-term tests of storage, refrigerated incubation, and variable temperature incubation. The device is designated only for this purpose. Therefore, applications other than the defined purposes are not according to device specifications and if problems arise, the manufacturer will not be liable for any damages.
In order to use the unit correctly, read the operating manual carefully and observe all instructions such as how to use and maintenance.

2- Risks

This device is manufactured according to state-of-the-art technology and based on the technical-safety principles. Application, improper transporting, and applying materials of which their reactions by increasing & decreasing temperature are unknown, may damage the unit and other properties, as well as endangering the user's and third parties. Combination and interaction of materials may cause explosions.
User must be aware of the risks and potential dangers due to loaded materials inside the device, their humidity, and possible reactions to temperature changes. Factors causing impairing safety must be resolved as soon as possible.

3- Technical Specifications

Model	PIT053R	PIT053
Performance	Refrigerated (heating & cooling system)	Classic (heating system)
Voltage	210-230 V	
Frequency	50 Hz	
Temperature range	from -5 to +100 °C	from +20 to +100 °C
Temperature accuracy	± 0.1	
Capacity	53 L	
Fan speed percentage	50 -100 %	
Internal dimensions (width x depth x height)	400mm x 330mm x 400mm	
External dimensions (width x depth x height)	836mm x 646mm x 635mm	
Approximate weight	52 Kg	72 Kg
Maximum loaded trays	4 pcs.	
Tray capacity	15 Kg	
Maximum Loading Capacity	40 Kg	

4- Safety Instructions

No claim of warranty will be considered by the manufacturer, unless ALL instructions in this Operating Manual have been followed.

Warning	
	To avoid injuries to the user and damaging the unit, observe the safety instructions of this Operating Manual. - Read this manual carefully before operating the device. - Safety instructions must be observed. - Always keep this Operating Manual accessible for further reference.

• Along with the operating instructions and the legal regulations on accident prevention, you should also follow the recognized professional regulations for working in a safe and professional manner.

• These operating instructions should be read in conjunction with any other instructions concerning accident prevention and environmental protection.

• This incubator is built with modern technology and if you follow the instructions in this manual and also safety instructions, it is reliable and safe. It could pose a danger to the user or third parties, however, if it is not used by trained personnel or improperly or not as intended.

• Set up and level the divice stably on a bench top.

• Do not knock or move the unit while it is operating.

• To avoid damage due to condensate, when changing from a cold to a warm room, the incubator must warm up for at least 3 hours in the warm room before it may be connected to the mains or before transfer, operate the unit for 30 minutes until the unit has attained ambient temperature.

• In case of incorrect operation, or malfunction of device, ground wire reduces the risk of electrical shock by less electrical resistance. The plug is equipped with ground wire, therefore it must be fitted properly in grounded outlets.

• Safety instructions must be observed when opening the device door while operating in order to avoid possible burns and other injuries.

• In case of placing other devices, such as shakers, inside the unit, it must be positioned properly on an even surface to avoid spillage and soiling.

• Consider enough space from both sides for convenient opening of the device door.

• Maintain enough space between the rear of the device and the wall for the appropriate function of the fan and the air ventilation system.

• No object should be placed in front of the air ventilation system while the unit is operating.

• Only trays & accessories licensed by the Manufacturer are allowed to be utilized.
• The special design of the chamber sidewalls allows you to place trays in different and desired heights. Moreover, due to the additional height of tray rims of 4cm, user can set different heights by reversing trays between the outgrowths of the sidewalls.
• The netted trays provide homogeneous temperature distribution.
• The incubator may not be operated in potentially explosive areas.
• Do not load materials inside the chamber which can form an explosive mixture when combined with air and chamber temperature must be lower than the flash or sublimation point of the loaded materials.
• Do not use materials which react together with high energy inside the chamber.
• Do not load the unit with corrosive materials that impact the mechanical resistance of different parts of the interior of the incubator and the vessels inside the chamber.
• Do not use trays, vessels, and accessories with appearances of corrosion or damage.
• Using substances with unknown reactions to temperature changes may damage the device or other property, as well as endangering the user or third parties or the mixture and reactions of these substances may lead to explosion. Prior to loading the unit, you must therefore consider the contents, their ingredients, humidity, and possible reactions due to temperature changes.
• Only experts authorized by the manufacturer are allowed to conduct the maintenance work.
• The safety and reliability of the incubator are only guaranteed if:
- The incubator is operated according to the operating instructions.
- The electrical installation at the set-up site of the incubator meets the requirements of the regulations.
- Have an expert examine the device in accordance with the instructions.

5- Terms & Abbreviations

No.	Term	Definition	Abbr. used in screen
1	Mode	Performance mode	-
2	Set point	Set temperature	SP
3	Set point 1	Set temperature 1	SP1
4	Set point 2	Set temperature 2	SP2
5	Fix mode	Performance mode with fixed amount (single temperature)	-
6	Weekly	Weekly Mode	-
7	Program 1	First program	P1
8	Program 2	Second program	P2
9	Sequential	Running sequential programs (program 1)	P#1
10		Running sequential programs (program 2)	P#2
11	Delay time	Performance delay time	-
12	Cycle	Program frequency and repetition	-
13	Critical temperature	Critical temperature	-

6 - Pictograms

	**Symbol on the device:** Caution, general hazards These symbol displays safety alerts and represents possible hazardous conditions. Lack of attention to the symbols may cause damage to the instruments or lead to personnel injuries.
	**Symbol on the device:** Refer to the operating manual Prior to operating the device, read the operating manual completely; observe all symbols.
	**Symbol on the device:** Earth Equipped with earth
	**Symbol on the device and the operating manual** Dispose of the electrical and electronic equipment in separate collection according to the directive 2002/96/EC (WEEE).
	**Symbol on the device:** Caution, general hazards Electrical hazard: high voltage of 220 V hazardous for humans
	**Symbol in the operating manual:** Caution, general hazards This symbol displays safety alerts and represents possible hazardous conditions. Lack of attention to the symbols may cause damage to the instruments or lead to personnel injuries.
	**Symbol in the operating manual:** Risk of injury by lifting heavy loads This symbol represents the risk of injury due to the heavy load of the device.
	**Symbol in the operating manual:** Lift with several persons. Lift the unit with the aid of several people.
	**Symbol in the operating manual:** This symbol represents important notes.

7- Delivery Checklist

Along with the following items, the unit is packaged and delivered:

1 connecting cable

1 operating manual

2 stainless steel trays (more trays can be provided upon request)

1 spare fuse

Computer interface connector (upon request)

8 - Unpacking the Device

• Unpack the device according to the operating manual

• After unpacking, please check the unit and its accessories based on the delivery checklist for the completeness and possible transportation damage. Inform the carrier immediately if transportation damage has occurred.

• The final tests of the manufacturer may have caused traces on the inner surfaces and also on the trays. This has no impact on the function and performance of the unit.

• Please remove any transportation protection devices and adhesives in/on the unit and on the doors and take out the operating manual and accessory equipment (except for the trays).

9 - Installation, Start-up, and Transportation

9 -1 Installation

According to the standards for laboratory equipment, to completely separate the unit from the power supply, you must set a key to disconnect power supply in case of emergency. Install the unit in a way that the power plug is away from the unit, outside the unit installation site.
Set up the incubator on an even surface, free from vibration and in a well-ventilated, dry location at proper height. The site of installation must be capable of supporting the unit's weight.

the ambient temperature should not be substantially higher or lower than the indicated ambient temperature of +25°C. For other ambient conditions, deviations from the indicated data are possible.

Elevated ambient temperature values over 25°C leads to a reduction in the cooling performance.

9-2 Standard Clearances

Minimum distance between the wall and the rear of the chamber	10 cm
Minimum side clearance from the wall	16 cm
Minimum clearance from the ceiling	10 cm
Minimum distance between each unit when placing several units of the same size side by side	25 cm

9-3 Start-up

- Prior to connection and start-up, check the power supply voltage.
- Ventilation openings may not be blocked.
- Compare the power supply voltage with the data indicated on the type plate.
- Insert plug into standard socket.

⚠ Important Note	
⚠	Danger of electrical shock - Prevent electrical overloads from the socket. - To avoid cable overstretching, choose the socket as near to the unit as. - Check out the connecting cable at regular intervals. - Use standard electricity network and outlets (grounded).

- Turn the unit on by putting the On/Off knob on "I" position.
- The LED will display the company's logo, device model, and the edition number as follows:

PIT053R

PIT053

- The latest settings will appear on the display. Turning the unit on for the first time, the factory settings will be displayed.

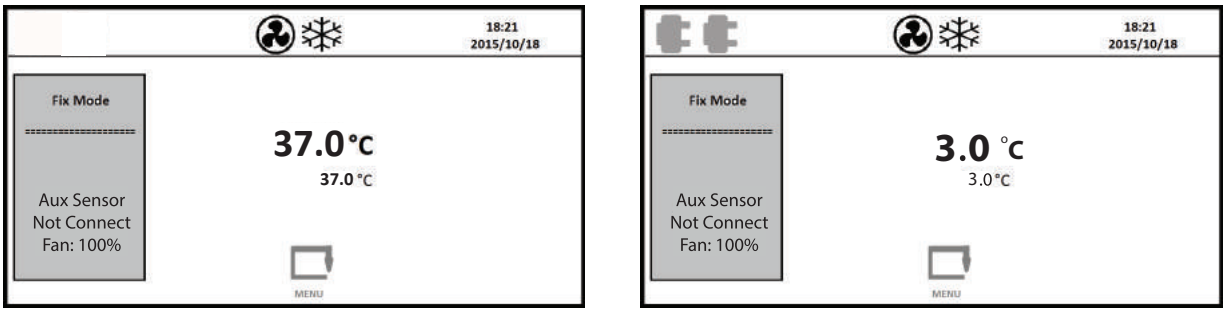


Figure 3

Image on the right: first page of the refrigerated incubator (PIT053R)

Image on the left: first page of the classic incubator (PIT053)

Each time, after turning the device on, the operating mode will be on Fix Mode. You can change operating mode if necessary (refer to the section "Easy Programming – part B").

On Fix Mode, depends on the set point, by activating the heating system, the symbol and by activating the cooling system, symbol is displayed (the latter symbol is only displayed in the refrigerated model).

9-4 Transportation

Move the unit merely when it is empty and turned off, on an even surface. Otherwise the device feet may be damaged.

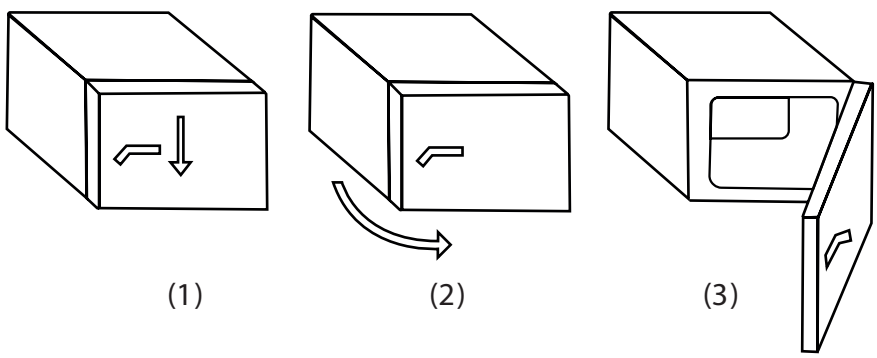
⚠ Important Note	
  	**Sliding or tilting of the unit.** **Risk of injury to user by lifting heavy loads** * Do not lift or transport the unit using the door handle, below the door, the panel beneath the door, or the green panel of the unit. * Lift the unit with the aid of several people from the pallet at its four lower corners.

10- Opening and Closing the Chamber Door

10-1 Opening the door

For opening the chamber door, proceed as follows:

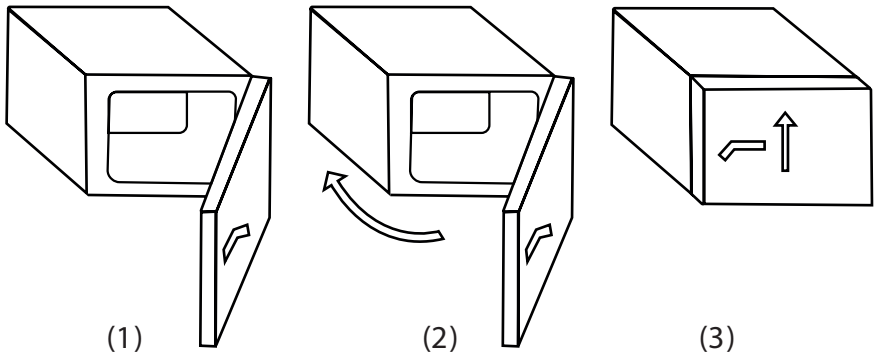
1. Turn the door handle smoothly downwards (Image 1)
2. Pull the door toward yourself (Image 2)
3. The chamber door is open according to the image 3.



(1) (2) (3)

10-2 Closing the door

1. While the door is open, turn the handle smoothly downwards. (Image 1)
2. Push the door towards the chamber. (Image 2)
3. Push the handle smoothly upwards (Image 3)



(1) (2) (3)

Do not slam the chamber door.

You can open and close the chamber door any time (either the device is on or off)

11- Mounting and Unmounting the Trays

The special design of the chamber sidewalls allows you to place trays in different and desired heights. Moreover, due to the additional height of tray rims of 4cm, user can set different heights by reversing trays between the outgrowths of the sidewalls.
Mount the trays properly on the outgrowths of the sidewalls, so that the desired space is provided and probable spillage and soils are avoided.

12- Loading the Trays or the Chamber

• Check the trays to be mounted properly.
• Load the trays considering their maximum load which should not be exceeded.
• While loading the trays, no substances should leak into the sidewalls or the rear wall of the chamber including the fan.
• Fill the vessels outside the chamber, prior to loading the trays.
• Using substances with unknown reactions to temperature changes may damage the device or other property, as well as endangering the user or third parties or the mixture and reactions of these substances may lead to explosion. Prior to loading the unit, you must therefore consider the contents, their ingredients, humidity, and possible reactions due to temperature changes.

13- Device Usable Volume

• Place samples inside the usable volume.

• Only load half of this volume to enable sufficient airflow inside the chamber.

• Do not place samples too close to each other in order to permit circulation between them and thus obtain a homogeneous distribution of temperature.

Usable volume is calculated as follows:

A, B, C = internal dimensions (width x height x depth)

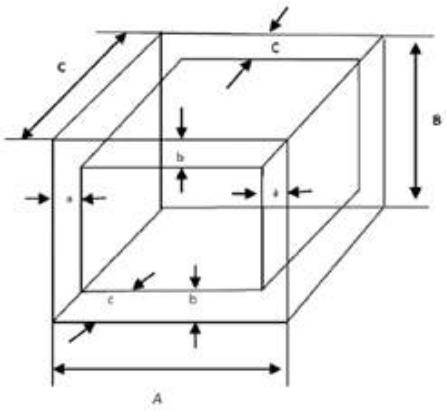
a, b, c = Wall clearances

a = 0.1 x A = 40 mm

b = 0.1 x B = 40 mm

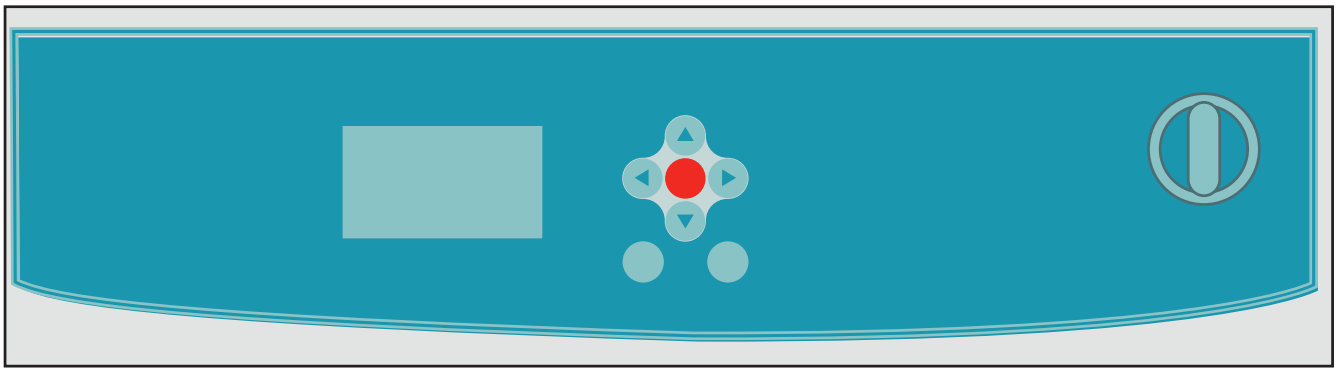
c = 0.1 x C = 33 mm

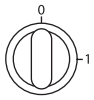
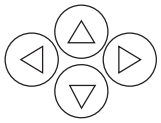
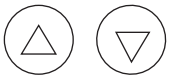
Usable volume = (A-2a) x (B-2b) x (C-2c)



If you load the chamber fully, cooling and heating time varies proportional to the load.

14- Display Items & Control



	O/I turning knob ("O" means off and "I" means on)
MENU	• Entering and exiting the main menu • By pressing this button in graph page, it returns to the main menu.
	Navigation in the main menu and moving on variables
	By these buttons, you can change the amounts of variables such as temperature, date, time, performance mode Step, Ramp, etc. in the settings of each variable.
F1	You can cancel the changes in the settings of each variable and it goes back to the previous step (corresponding to the button on the lower left side of the display)
F2	• Button for selecting the desired variable On each variable, by pressing this button, you can enter the settings of that variable. • You can also apply and save the changes by this button (corresponding to the button on the lower right side of the display).
	Heating system performance to heat up the incubator chamber
	Cooling system performance to cool down the incubator chamber (in refrigerated incubator only)
	Fan performance to homogenize the temperature inside the chamber.

In variables settings page, if you do not push any buttons for 30 seconds, it will return to the main menu.

15- Device Performance

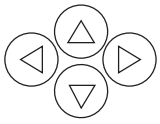
In Incubators PIT053 and PIT053R you can set various temperatures, these devices have different operational levels.

Device can be programmed in three modes: «fixed temperature», «sequential program» and «weekly program». Programming can be carried out directly using the buttons or digitally by means of a computer (upon request) through the software provided specifically by P.I.T. Co.

The device mechanism is based on heating and cooling (only in PIT053R) systems. If the heating system is ON, the symbol  and if the cooling system is ON, the symbol  is displayed on the upper side of the screen. These 2 symbols will be winking when close to the set temperature.

The symbol  on the upper side of the screen represents active fan. the fan is embedded for the homogeneity of temperature. Moreover, the fan speed can be adjusted from 30 to 100 percent. If the fan works with a speed less than 100%, the device performance will be different from what provided. Therefore, setting the fan speed on 100% is recommended.

Turning the device on, first the device information and then the main menu are displayed and the fixed temperature program will be run automatically (Turning the device on for the first time, the factory settings, otherwise the latest settings are displayed.)

Pushing the (MENU) button, the main menu will be displayed on the screen and by pushing the  you can go on different variables.

On each variable, by pushing (F2) button, you will access that variable settings. Using (△) & (▽) buttons, you can change the amount of each variable.

You can save the changes in each step by pushing (F2) button and the device will operate according to the new settings.

By pushing (F1) button, you can cancel the changes and return to the previous step.

16- Fixed Temperature Program (Fix Mode)

As the name suggests, this program allows user to set the temperature on a specified amount (inside the permissible range) and device will keep operating until user changes settings. To change the settings of this mode, proceed as follows:

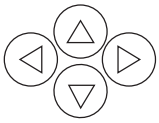
1) Using  buttons, each variable can be selected in the main menu as displayed below. On the first variable (FIX mode), by pushing the F2 button the fix mode setting appears.

Figure 4: The main menu of the incubators (PIT053R/PIT053)

2) As illustrated in figure 5, variables in fixed temperature settings can be adjusted and in this page, you can insert the final temperature 1 & 2 (Set Point 1 and Set Point 2), Safety SP, Fan Speed and Channel 1 & 2.

Set point 2 is of no use in this mode.

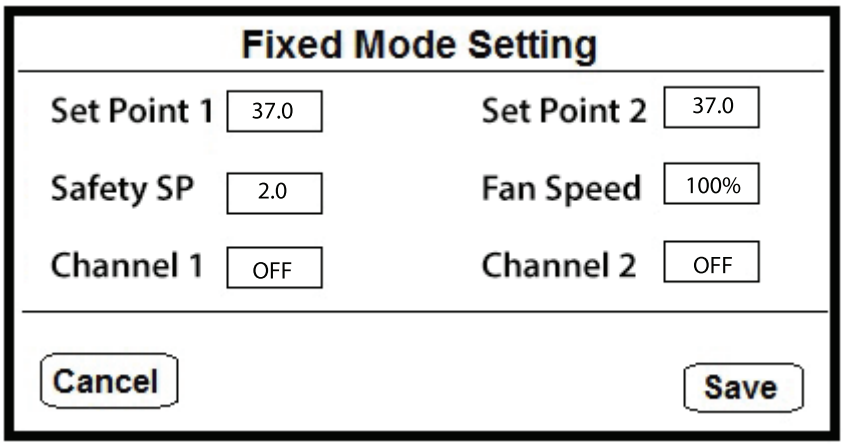


Figure 5: Fix Mode settings

16-1 Set Point 1

This pertains to temperature which can be set from -5 to +100°C in PIT053R model and from +20 to +100°C in PIT053 model.

In this page, the ▽ and △ buttons are for decreasing and increasing temperature respectively, with increments of 0.1°C .

These buttons function in 3 different modes: as they change temperature with 0.1°C increments, by holding them for 5 seconds, the increment changes to 1°C, and holding them for another 5 seconds will change the increment to 10°C.

16-2 Set Point 2

This variable is exactly the same as Set Point 1 and is usable only in Weekly program (refer to section 18).

16-3 Safety SP

This variable is designed for the safety of temperature and loaded materials inside the chamber. This variable can be set by △ & ▽ buttons. For more information on this variable, refer to section 25-1.

16-4 Fan Speed

This pertains to device fan. This fan is designated for the temperature homogeneity of the chamber. The unit will perform best when the fan works at 100% speed.

Fan speed can be adjusted between 30% and 100% (with 1% increments) using the buttons for adjusting variables. Please be informed that by reducing the fan speed to less than 100%, the device temperature will not be balanced and depending on the fan speed, it may fluctuate around the Set Point.

16-5 Channel 1 (available to order in new versions)

This pertains to the socket 1 inside the chamber which can be changed from ON to OFF by △ & ▽ buttons.

16-6 Channel 2 (available to order in new versions)

This pertains to the socket 2 inside the chamber which can be changed from ON to OFF by △ & ▽ buttons.

In this step, changes can be saved by pushing the (F2) button and it exits the settings and enters the main menu and the unit will operate according to the new settings. You can also cancel the changes by pushing the (F1) button and exit.

After saving or canceling the changes, it will return to the main Menu. Please be informed that there are two temperatures displayed (according to figure 6): one shows the real-time temperature of the chamber and the other is the set temperature.

The real-time temperature is in bigger size. Moreover, during the unit performance, the real-time temperature keeps changing until it reaches the set temperature and then it will stop changing.

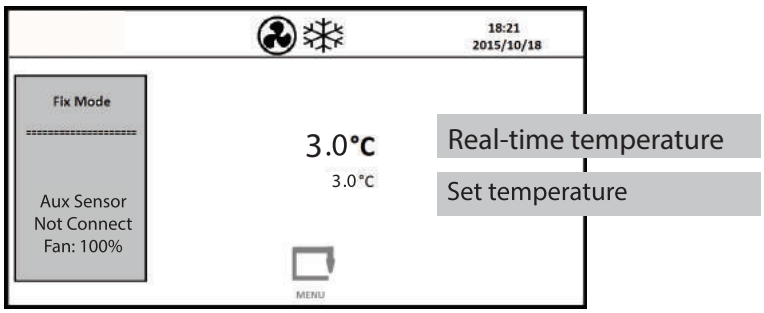


Figure 6: Real-time and set temperatures displayed in the main Menu

• The technical information provided in this operating manual is based on device performance with 100% fan speed. Setting the fan on lower speeds, the device performance may be different from what provided. Therefore, change the fan speed only if necessary.
• with lower speeds, the temperature homogeneity will fall down.

Each time, by turning the unit on, is the settings are on «Fixed Mode». to change the settings, please refer to "Easy Programming" section, part "B".

17- Long Term Programs

By selecting the second variable («week prog» section) in the main menu, you can set the programs on Weekly and Sequential modes.

After entering this page, Weekly and Sequential are displayed as below.

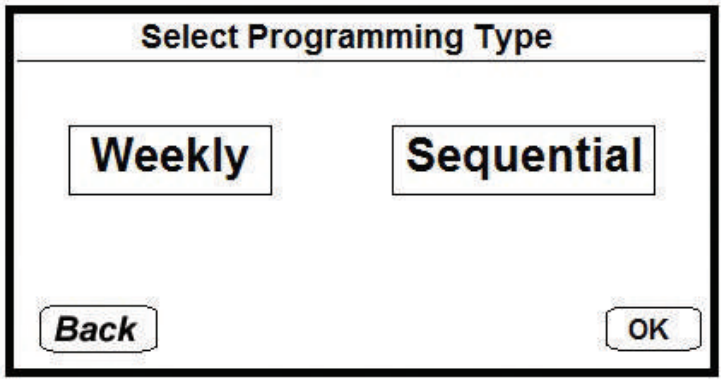


Figure 7: Long-term programming type selection

In case of long-term programs selection, current time and date must be inserted.

18- Weekly Program

This pertains to the weekly mode which you can enter by F2 button and the days of the week will be displayed as follow.

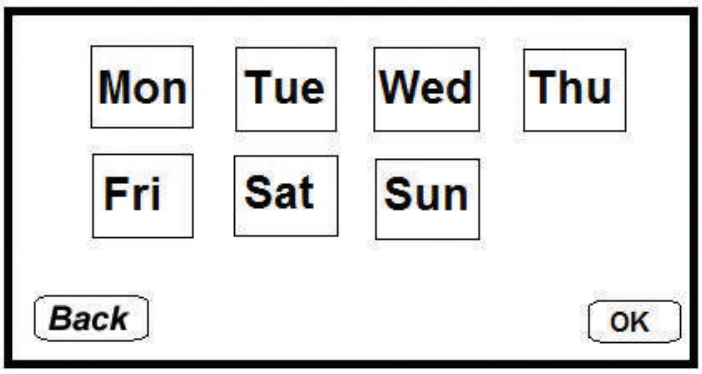


Figure 8: Days of the week selection

By ▷ & ◁ buttons, you can change between days of the week and then by pushing F2 button, you will enter the settings page of each day to program that day.

As displayed in figure 9, there are 8 setting variables of which 4 variables are related to time and 4 are related to temperature.

In time settings, each day can be divided into 4 parts at most. In Weekly program, the unit temperature can be set on SP1 and SP2 modes, as the settings explained in «16-1» and «16-2» sections. Besides, fan speed is based on setting variables in «Fix Mode» settings.

The following figure pertains to Monday. Settings for other days of the week are the same and every day can be covered.

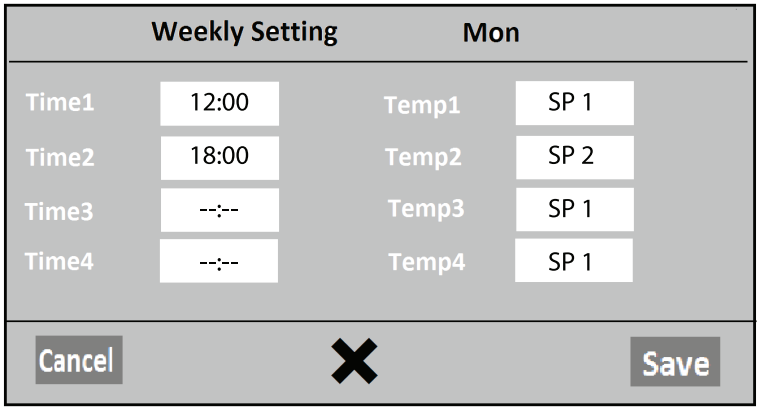


Figure 9: Settings for weekly program variables, for Monday as an example.

Make sure that the settings are done one after another.

As an example, suppose that a program is set for Monday as figure 10. Device performance will be as follows:

1. Suppose that today is Monday, 00:01 AM. First, the unit operates according to the latest settings before Monday.

2. At 9:30 (Time 1), the set temperature will change to SP1 (Temp 1). After reaching the set temperature, the unit will operate maintaining this temperature until 15:00 (Time 2).

3. At 15:00 (Time 2), the set temperature will change to SP2 (Temp 2). After reaching the set temperature, the unit will operate maintaining this temperature until 18:00 (Time 3).

4. At 18:00 (Time 3), the set temperature will change to SP1 (Temp 3). After reaching the set temperature, the unit will operate maintaining SP1 temperature until 21:00 (Time 4).

5. Finally, at 21:00 (Time 4), the set temperature will change to SP2 (Temp 4). After reaching this temperature, the unit will operate according to this program until the first part of the settings for the next days .

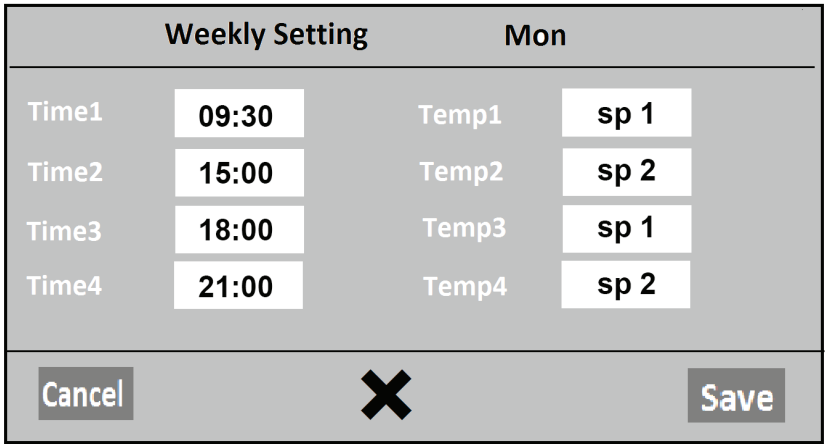


Figure 10: Weekly program settings

You can inactivate a part of the desired day by setting Time1 to Time 4 on --:--. For example, if 2 parts are set on one day, you must set Time 3 & Time 4 on --:-- (inactivated) and for Time 1 & Time 2 insert the desired settings (figure 9).

19-Sequential Programs

Sequential program means the unit operates with consecutive programs. By entering this page, P#1 and P#2 are displayed (figure 11). These two programs are exactly the same and are named differently for easy retrieval.

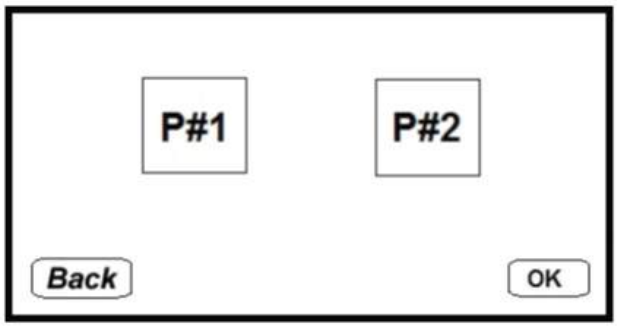


Figure 11: selection of programs P1 or P2

Selecting either of the two programs and pushing F2 button, two variables of «Delay Time» and «Cycle» will be displayed (figure 12). Delay Time refers to the delay in performing the first program and all functions will be paused in this mode. By Cycle, you can set how many times the sequential program (P1 / P2). Delay Time can be set from 00:00 (hh:mm) to 99:59 (hh:mm) in 1 minute intervals and Cycle can be set from 1 to 99 with increments of 1 (frequency). Setting Cycle on «inf» mode (one unit less than 1), program will be repeated infinitely.

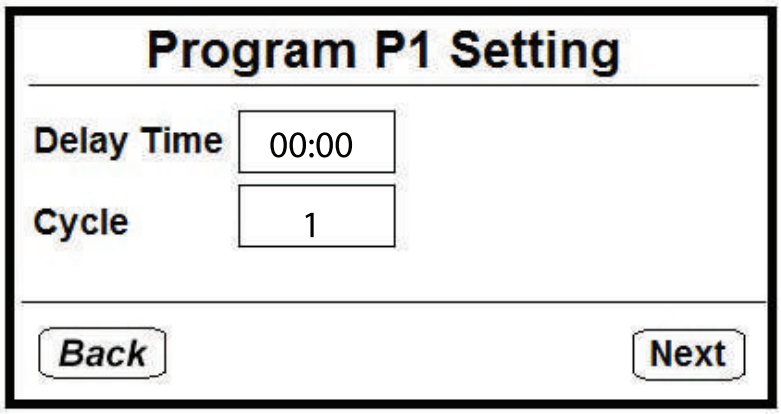


Figure 12: Sequential program pre-settings

After setting Delay Time and Cycle, save the changes and go to the next page by pushing F2 button. In this page, user can insert up to 20 sections of which every section looks the same. Section and Program numbers are displayed on top of the screen. As displayed in figure 13, there are 5 programmable variables in each section.

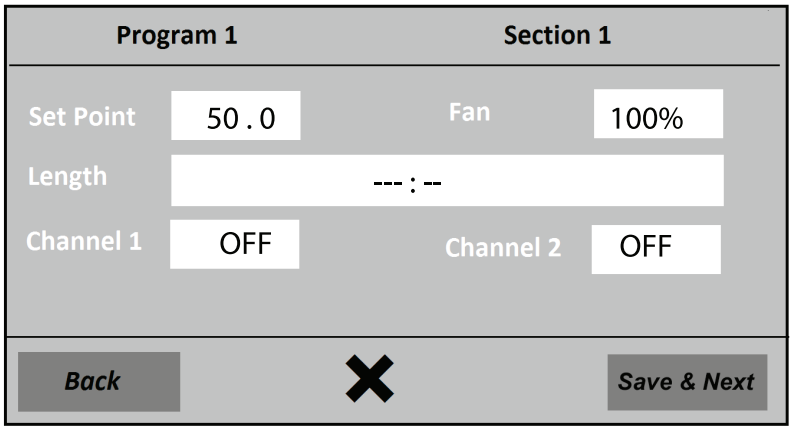


Figure 13: Sequential program sections settings

19-1 Set Point

Set temperature pertains to the desired Section which can be set according to section 16-1.

19-2 Fan

Displays fan speed percent which can be set according to section 16 - 4

19-3 Length

Duration of performing each section which can be adjusted from 000:01 (1 minute) to 999:59 (999 hours and 59 minutes).

19-4 Channel 1

Channel 1 of the unit which can be set according to section 16 - 5.

19-5 Channel 2

Channel 2 of the unit which can be set according to section 16 - 6.

By pushing (F2) button, you can save the changes and go to the next section. By pushing (F1) button, you can return to the previous section (by saving the program). Besides, by pushing the Menu button, the changes on the section will be cancelled and it will go back to the previous page.

20. Graph

Here, you can view temperature-time graph and if needed, you can also make a print of it through the computer (according to section 7, connection to computer can be provided upon request).

Device performance range is displayed on a checked screen to review and check out the unit's temperature performance for the last 30 hours. The time zero on the horizontal axis represents current time.

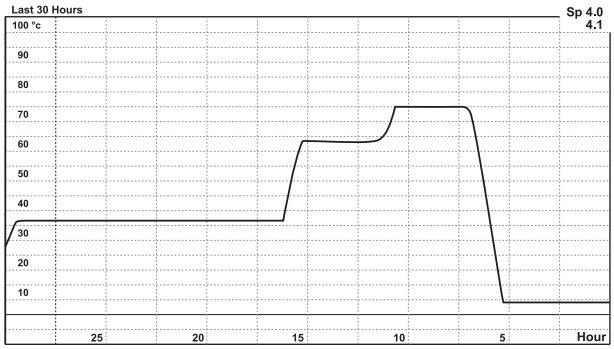


Figure 14: Graph page

If in graph page, no button is pushed for 60 seconds, screen returns to the main menu.

21- Network

It pertains to the network settings of the incubator. The Address parameter can be set from 1 to 32 with increments of 1. In case of linking several incubators to a computer, numbering the devices will facilitate retrieval. You can link up to 32 incubators and numbering each of them will help retrieving information and graphs easily for each device.

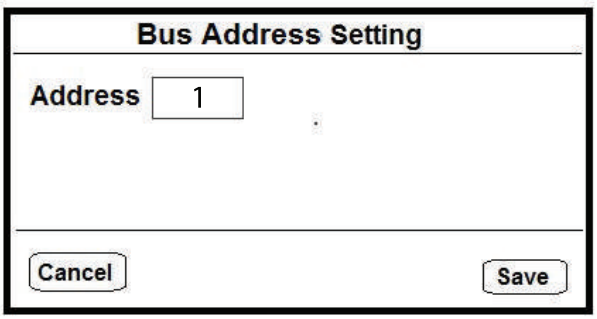


Figure 15: Network address settings (application: device connected to a computer)

By pushing (F2) button, you can save the changes and you can cancel saving the changes by pushing button (F1).

22- Date Settings

In this page, you can set the date.

As displayed below, this section consists of 3 variables: Day, Month, Year which can be set by (△) & (▽) buttons. Moreover, settings of Day can be between 1 and 31, Month between 1 and12, and Year between 2015 and 2099.

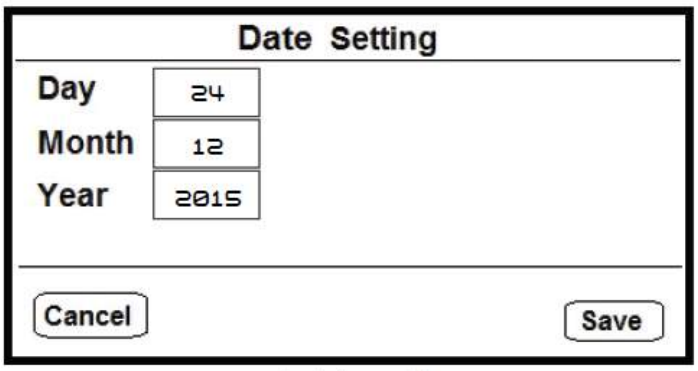


Figure -16 Date settings

• By pushing (F2) button, you can save the changes and cancel saving by pushing (F1) button.

• For using long term programs (except for fixed temperature), the settings of this section must be done.

23- Time Settings

In this page, you can set the time .

According to figure 17, this section has 2 variables: Hour and Minute that each can be set with 1-minute intervals by △ & ▽ buttons.

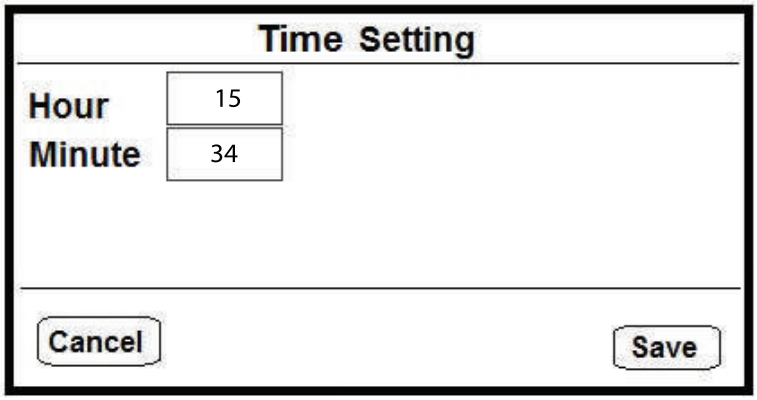


Figure 17: Time settings

• By pushing F2 button, you can save the changes and cancel saving by pushing F1 button.

• For using long term programs (except for fixed temperature), the settings of this section must be done.

24- Audible Alarm

It pertains to the audible alarms of the device which are two for this unit. One alarm activates once the chamber temperature reaches to ±0.1°C of set temperature and the audible alarm buzzes in 8 second intervals.

User can set the audible alarm On or Off.

The second audible signal activates when Safety Error occurs. In this case, device inactivates all functions. This signal cannot be inactivated.

25- Settings

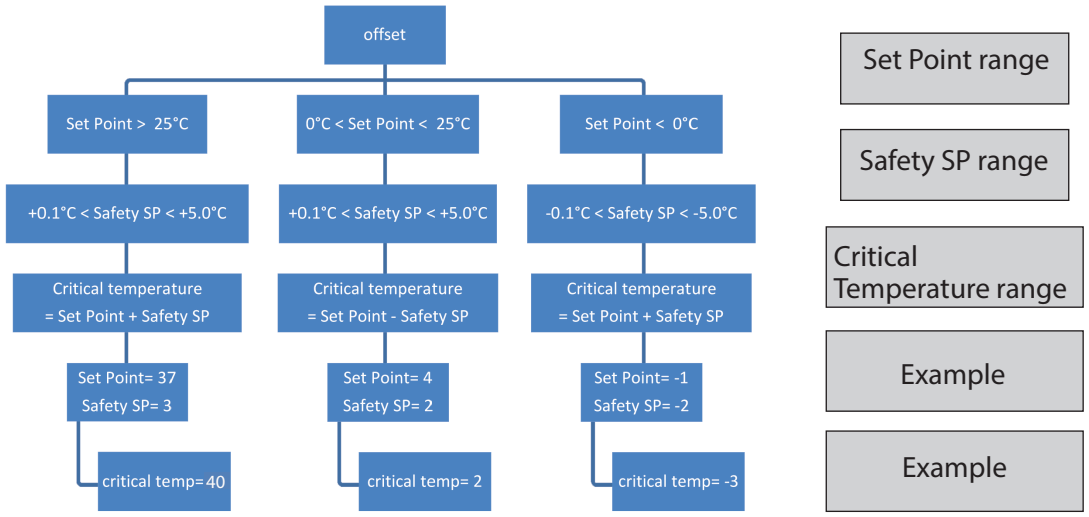
As displayed in figure 18, there are 2 parameters in this part which user can set.

25-1 Safety Mode

This parameter can be set on 2 modes: Limit and Offset.

On Limit Mode, If temperature goes higher than the set temperature in Safety SP (section16-3), the device will alert (If Set Point > Safety SP, then Safety SP = Set Point + 2°C)

And in Offset mode, the Critical Temperature can be determined according to the following chart.



If Safety SP is set on Offset, the best value for this variable is [2, 5] range.

Safety SP starts operating after reaching thermal equilibrium and in case the chamber temperature goes higher than the permissible temperature, Safety Error notification will be displayed.

In Limit mode, temperature safety mode will be activated for Safety SP higher than 25°C only.

Note: In case of temperature alert, the display will be as follows:

In this case, device should be turned off and then on.

25-2 Set Point Type

Thanks to this variable, the process of reaching the Set Point temperature in Sequential programs can be set as Step and Ramp by user.

On Ramp mode, device thermal performance will be inclined and on Step mode, it will be stepped.

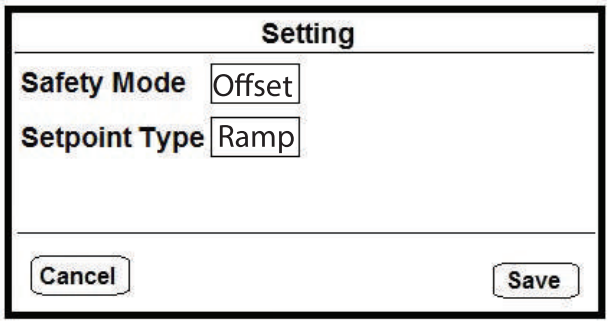
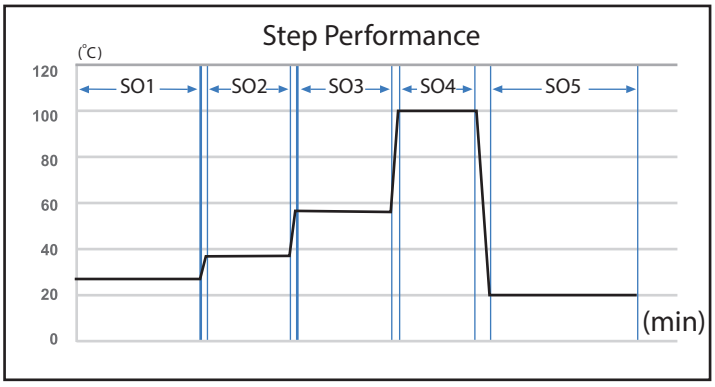


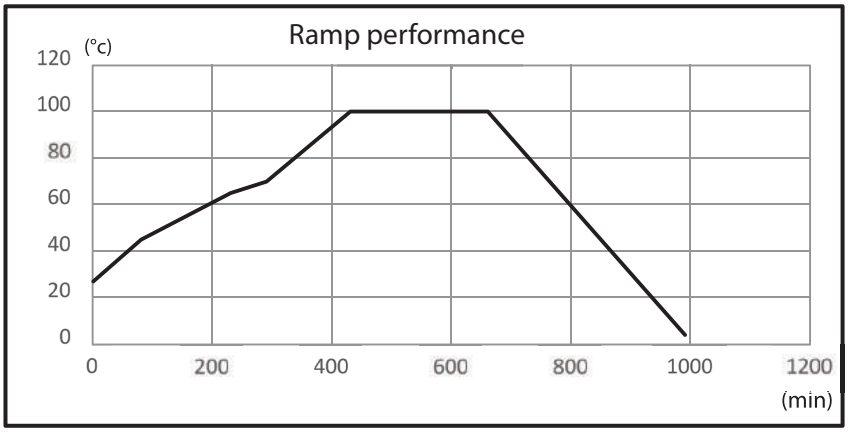
Figure 18: Temperature control settings



Graph 1: Programming in Step mode

Temperature (°C)	Time [hh:mm]	Section No.
27	02:30	S01
37	01:20	S02
56	03:40	S03
70	02:10	S 04
20	04:00	S05

In Step mode, chamber temperature reaches the set temperature and remains the same in the set Time and then enters next level.



Graph 2: Programming in Ramp mode

Temperature (°C)	Time [hh:mm]	Section No.
27	01:20	S01
45	02:30	S02
65	01:00	S03
70	02:20	S04
100	03:50	S05
100	05:30	S06
4	00:01	S07

In Ramp mode, during the set Time, chamber temperature of each section reaches the set temperature of next section (for instance, according to the table, it reaches from 65°C to 70°C in 01:00).
Moreover, the period to reach the initial set temperature does not account for performance time.

26 - Repair and Maintenance

Disconnect the chamber from the power supply before cleaning. Use cleaning detergents and disinfectants with pH between 5 and 8.

Do not use alkali detergents with pH>8.

To avoid potential corrosion damage by ingredients and disinfectants, observe manufacturer instructions.

Cleaning instructions for different parts:

Exterior surfaces	Standard commercial cleaning detergents, free from acids
Inner chamber	Alcohol-based solutions (using liquid soap due to containing chloride is not allowed).
Trays	Neutral cleaning agent
Instrument panel	Standard commercial cleaning detergents, free from acids

In case of contamination of the chamber by biological and chemical hazardous materials, there are two possible procedures recommended depending on the charging materials and type of contamination:

1) Spray the inner chamber with an appropriate disinfectant.

After implementing item 1, please take note of the following:

Before start-up, let the unit totally dry and ventilated, as explosive gases may form during the decontamination process.

2) If necessary, have strongly contaminated inner chamber parts removed by an expert for cleaning, or have them exchanged. Sterilize the inner chamber by disinfectants or autoclave.

27- Defrosting (in refrigerated incubator only)

Refrigerated incubator is designed to provide high accuracy performance. Automatic defrosting system is not embedded on the device, due to the adverse effects. However, to defrost, two following procedures can be taken.

1- Defrosting is done automatically if the temperature of the chamber is higher than +5°C and ambient temperature is higher than +22°C as well.

2- Evaporating dish may be frozen due to the low temperatures and device must be defrosted manually. For this purpose, it is better to set the temperature between 30°C and 40°C and it must operate for 15 to 30 minutes while the door is open to fulfill the defrosting process.

One of the signs of a frozen evaporating dish is the lower speed of the cooling system in which case it is recommended that item 2 mentioned procedures be applied (section 27).

28- Calibration

This unit was calibrated and adjusted in the factory of Pole Ideal Tajhiz Co. It is designed to provide accurate performance. However, it is recommended that the device be calibrated periodically by companies certified by competent authorities, according to the device operation period, the sensitivity of the tests, and device application.

29- Electrical Protection Fuse

This device is protected by a fuse embedded on the rear of the device, next to the input cable, inside the power supply (female part). If this fuse is blown or faulty, you can replace it. There is also a spare fuse in the unit packaging in case of necessity.

⚠ Warning	
	**Danger of Electric Shock** • Make sure to unplug the device prior to replacing the fuse. • The fuse may be replaced only with the spare fuse provided with the device or a substitute of the same technical specifications.

30 - Troubleshooting

If the problem is not resolved by the instructions provided in the below table, you must contact the after-sales services department.

When contacting P.I.T. Service, please provide the incubator model and serial number. You can find them both on the type plate (you can find it, opening the device door).

Fault Description	Possible Cause
Set temperature is not reached	Door gasket defective.
	Unit not in the required mode
	Unit door not properly closed
	Controller defective
Set temperature not held	Door gasket defective.
	Unit door not properly closed
	Controller defective
Unit without any function	Unit not plugged in
	Fuse is blown
	O/I knob off
	Controller defective
Socket heats up	Outlet is weak
"Absolute temp protection" message	Temperature over 105 °C

31- Returning the Unit for Repair

If you return a unit for repair, you must clean and disinfect it totally for personnel safety. We certainly reserve the right to refuse contaminated devices. Customer is liable for disinfection and cleaning costs.

Only the personnel certified by the manufacturer are allowed to do repairs.

32- Reset to the Factory Settings

Factory reset allows you to retrieve all information and settings of the unit software just like the first day.

Factory reset steps:

1) Turn the unit off.

2) Press and hold (F2) button and turn the unit on simultaneously (switch the turning knob on "I")

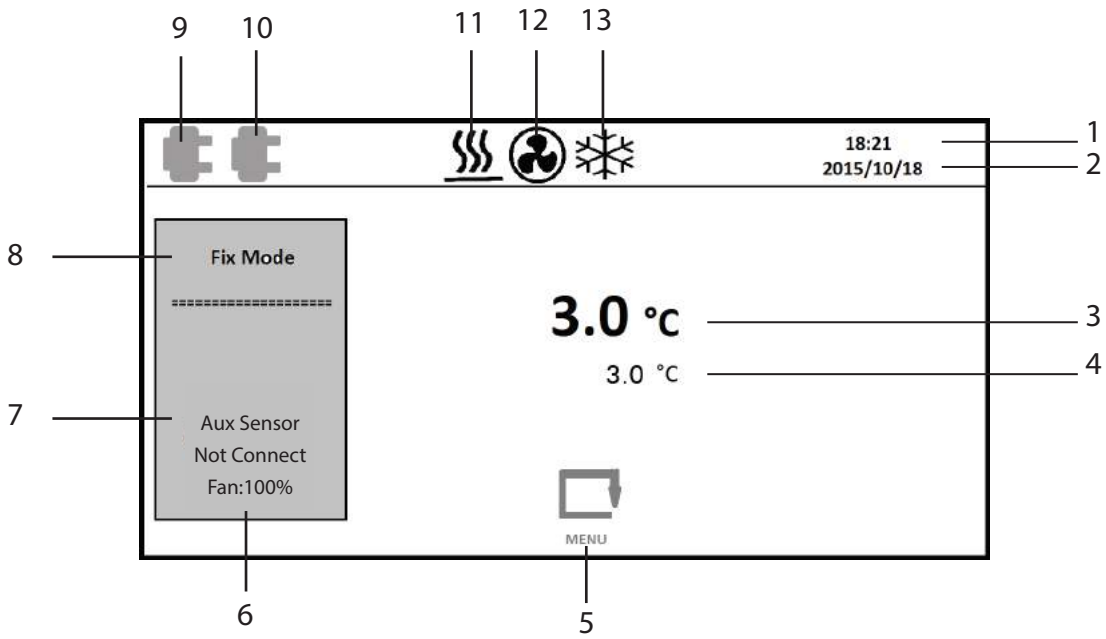
3) Push (F2) button to reset factory, else push (F1) button.

33- Disposal of the Unit

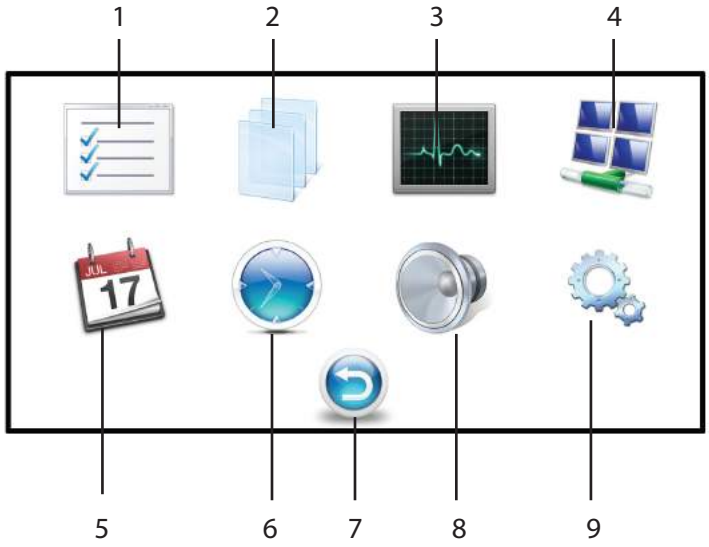
The unit must not be disposed at public collecting points.

For disposing of the device, act according to the directive 2002/96/EC on waste electrical and electronic equipment (WEEE) and also the national laws.

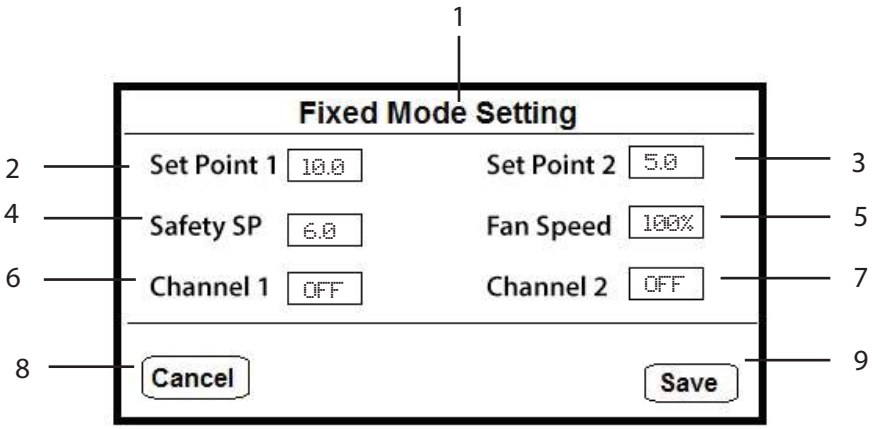
34 - Display Pages Guidance



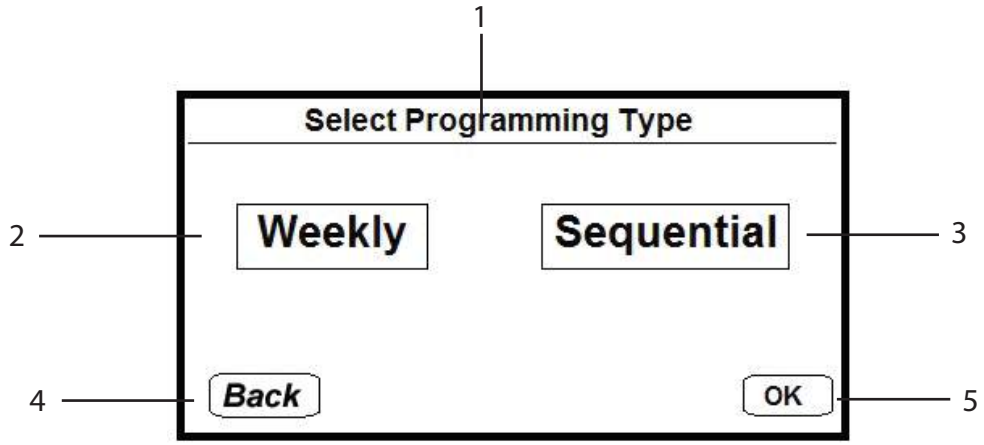
1. Time
2. Date
3. Real-time temperature of chamber
4. Set temperature (set-point)
5. Entering main menu symbol
6. Ventilation Fan Speed
7. Secondary sensor status (available for order in future editions)
8. Program mode
9. First internal socket (displaying plug icon means it is in use)
10. Second internal socket (displaying plug icon means it is in use)
11. Active heating system icon
12. Active ventilation fan
13. Active cooling system icon (in refrigerated model only)



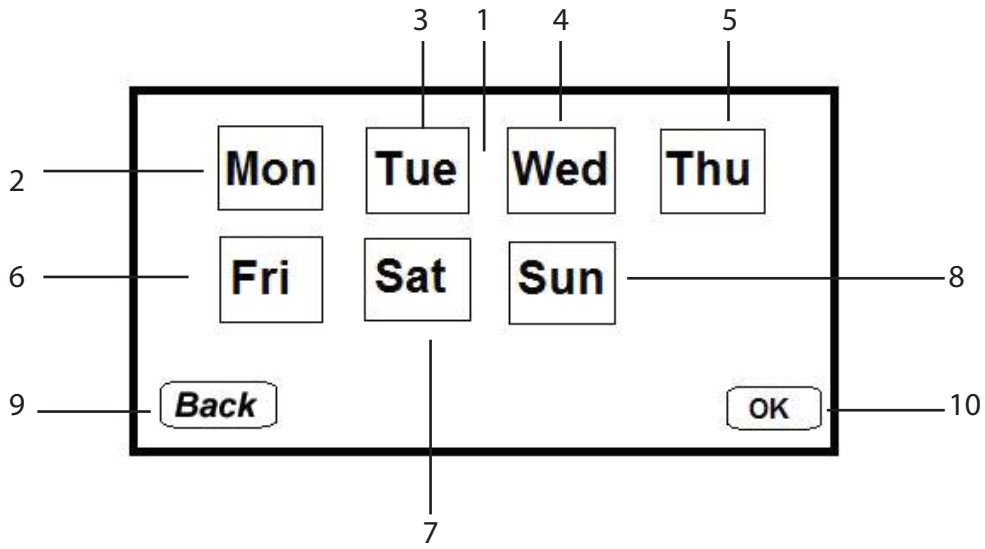
1. Fix mode settings
2. Long-term programs settings (week prog)
3. Graph section and temperature records
4. Network section
5. Date settings
6. Time settings
7. Return to main menu icon
8. Audible alarm setting
9. Program settings



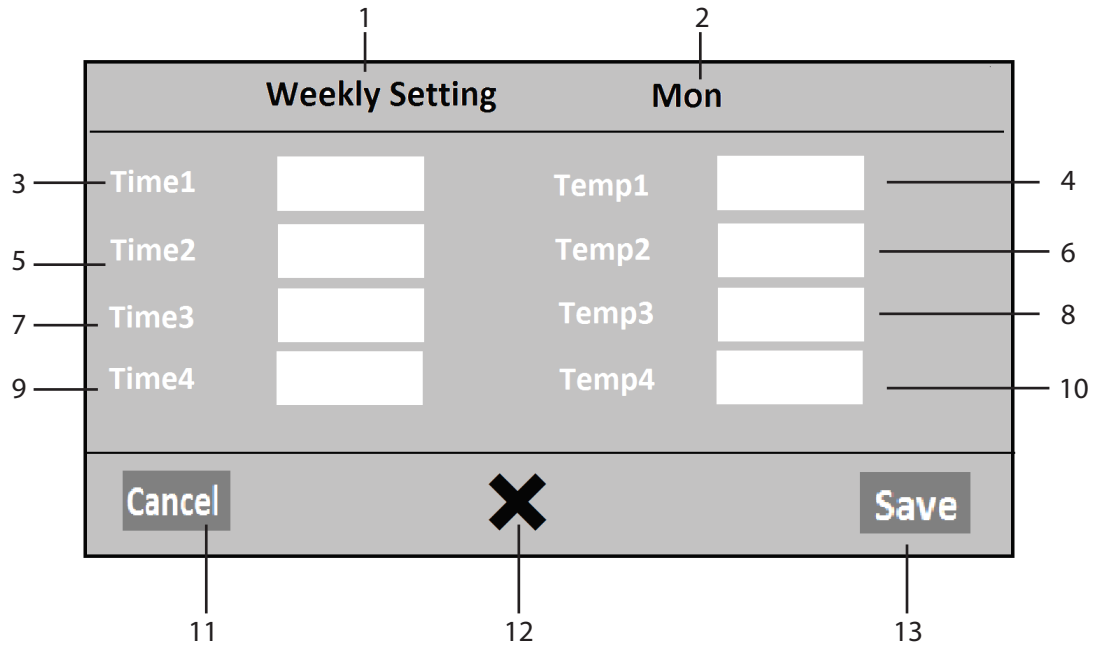
1. Page title (fixed mode settings)
2. Desired temperature set point 1
3. Desired temperature set point 2 (applicable in Weekly program)
4. Safety SP temperature
5. Fan speed percentage
6. First internal socket connected (available for order in future editions)
7. Second internal socket connected (available for order in future editions)
8. Cancel saving changes
9. Save changes



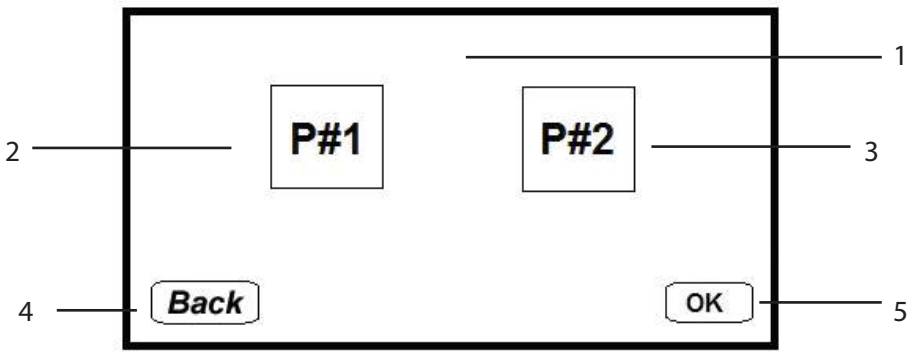
1. Page title (Select programming type)
2. Weekly program
3. Sequential program
4. Exit
5. Enter the desired mode



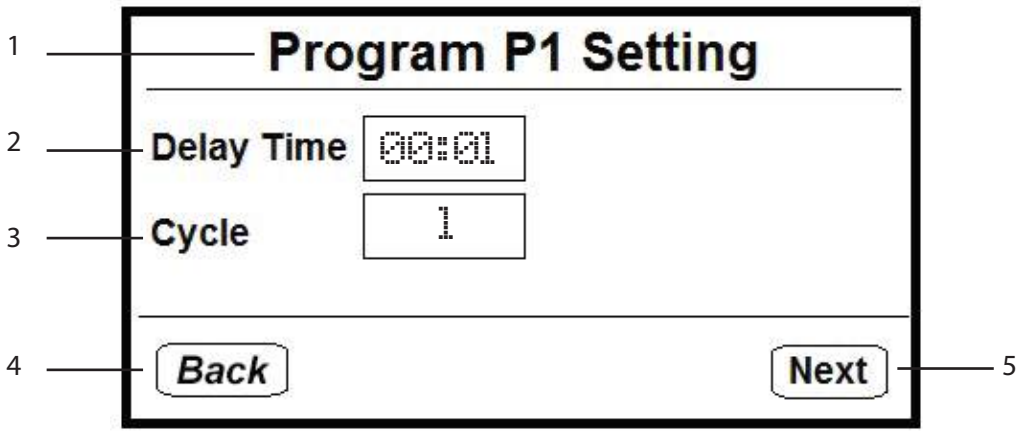
1. Page title: selecting days of the week
2. Monday
3. Tuesday
4. Wednesday
5. Thursday
6. Friday
7. Saturday
8. Sunday
9. Return to previous page
10. Enter next page



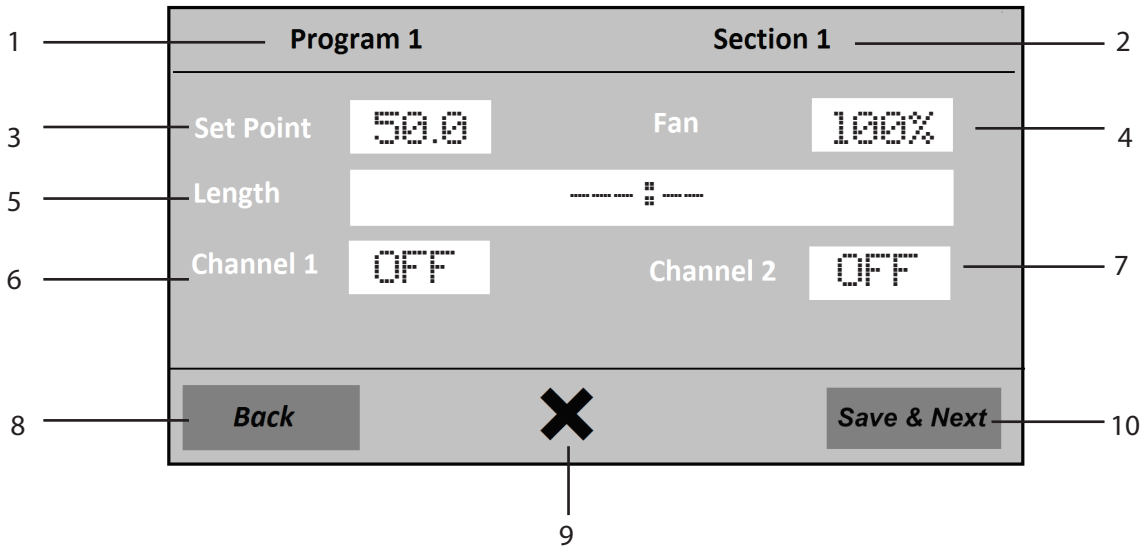
1. Page title (Weekly setting)
2. Desired day
3. Time 1
4. Temperature 1
5. Time 2
6. Temperature 2
7. Time 3
8. Temperature 3
9. Time 4
10. Temperature 4
11. Cancel saving changes
12. Remove changes of the desired day
13. Save changes



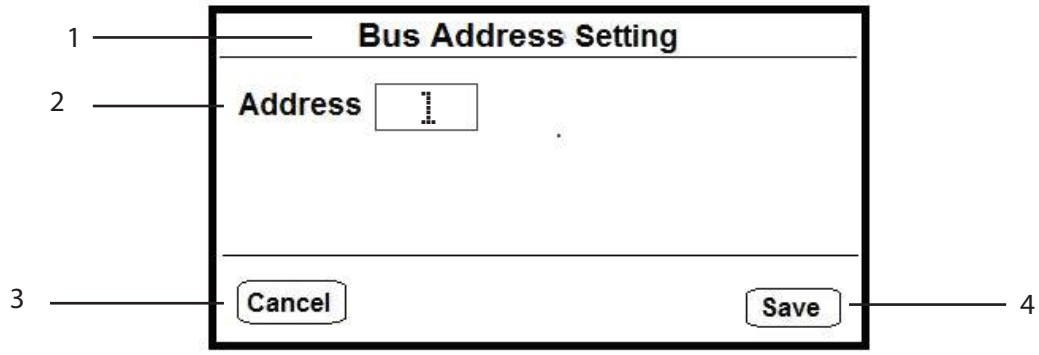
1. Page title (Program number selection)
2. Program 1
3. Program 2
4. Return to previous page
5. Enter next page



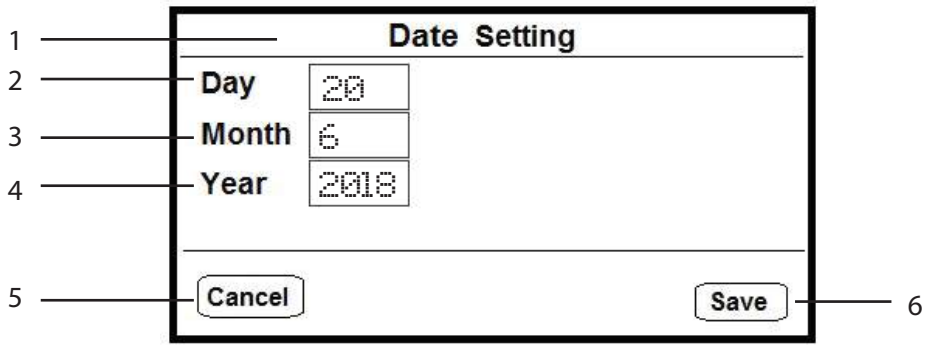
1. Page title «Program P1 setting»
2. Delay time
3. Cycles of repeating sequential program
4. Return to previous page
5. Save changes



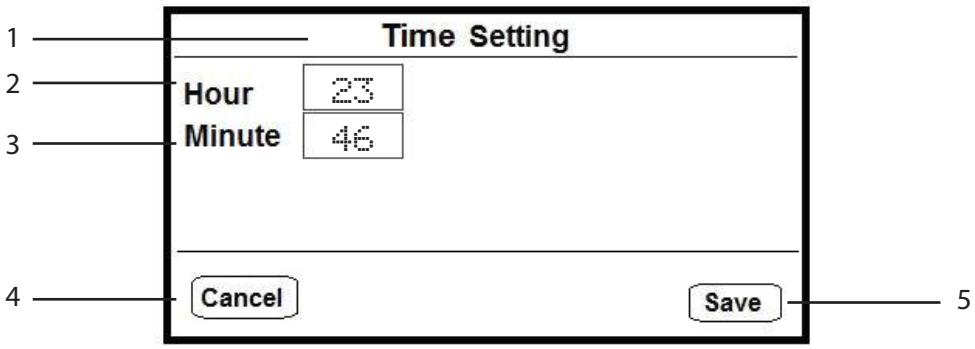
1. Program number (P1/P2)
2. Section number (1 to 20)
3. Set Point temperature
4. Fan speed percentage
5. Program run time
6. Internal socket 1 status (available for order in future editions)
7. Internal socket 2 status (available for order in future editions)
8. Return to previous page
9. Deleting desired section
10. Save and enter next page



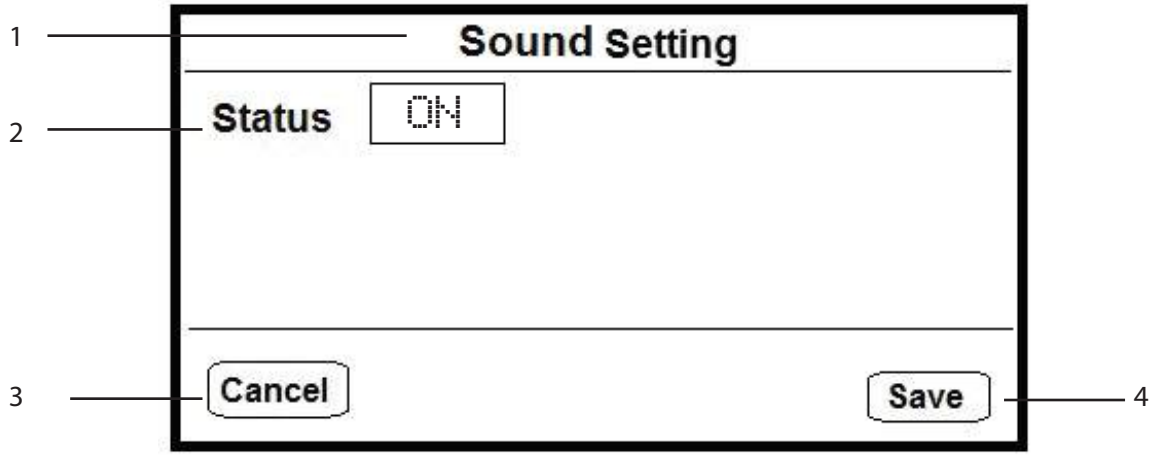
1. Page title "Network address setting "
2. Address number
3. Cancel saving changes
4. Save changes



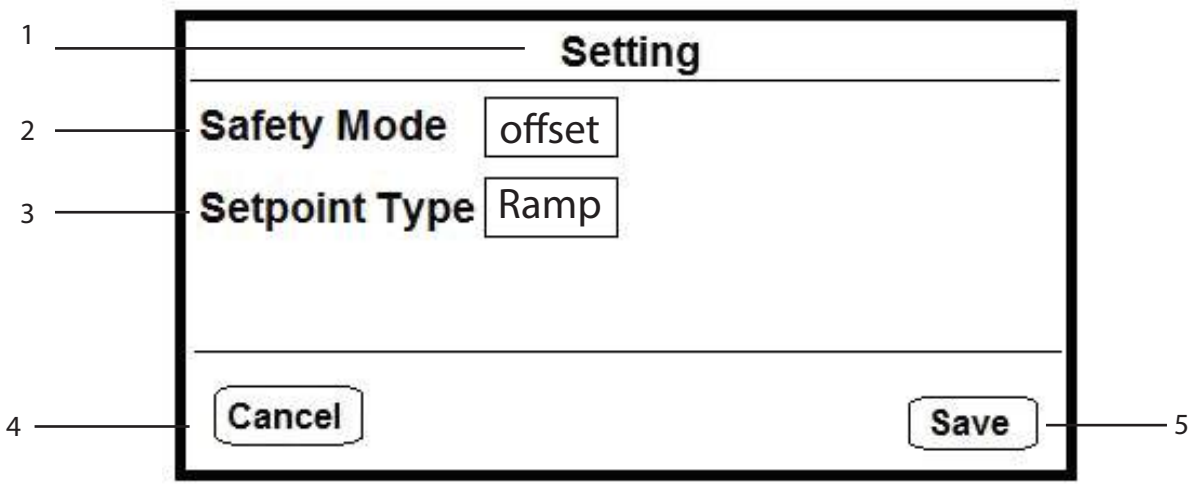
1. Page title "Date setting "
2. Day
3. Month
4. Year
5. Cancel saving changes
6. Save changes



1. Page title "Time setting "
2. Hour (00 to 23)
3. Minute (00 to 59)
4. Cancel saving changes
5. Save changes



1. Page title "sound setting (Audible alarm)
2. ON/OFF mode
3. Cancel saving changes
4. Save changes



1. Page title "Setting"
2. Temperature safety mode (Limit/Offset)
3. Temperature set point type (Ramp/Step)
4. Cancel saving changes
5. Save changes

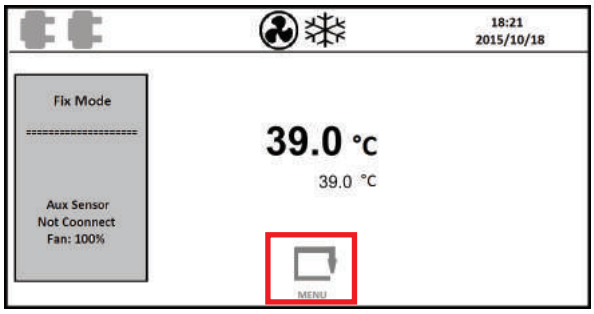
35- Programing Examples

35-1 Fixed Temperature Program

For example, you want the unit to operate based on the below settings:

Temperature: 37 ℃ Fan Speed: 100 % Safety SP : +3℃ Channel 1: off Channel 2: off

Initial page

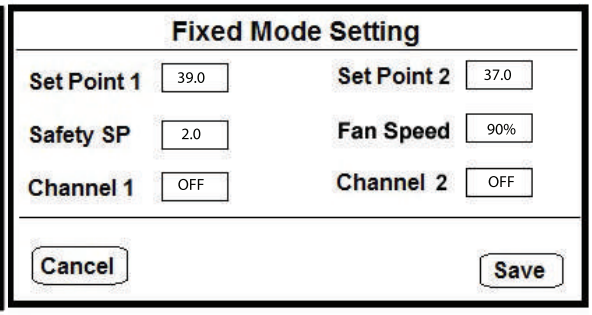


Page after settings

First, push menu button in first page.

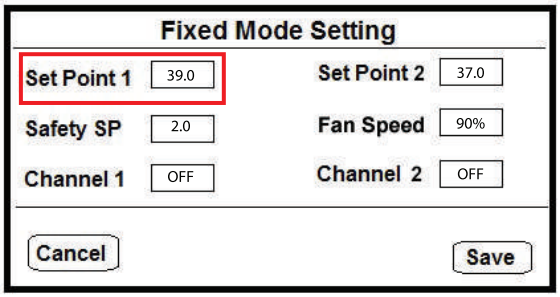
Initial page

Page after settings

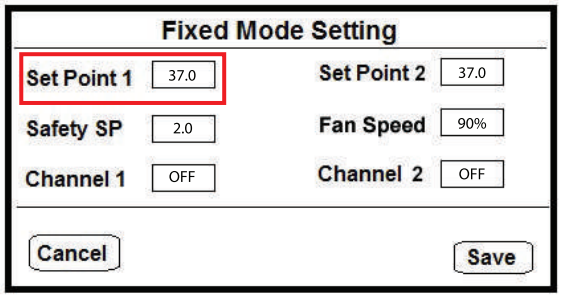


In the main menu, choose Fix Mode icon, then press (F2) button.

Initial page

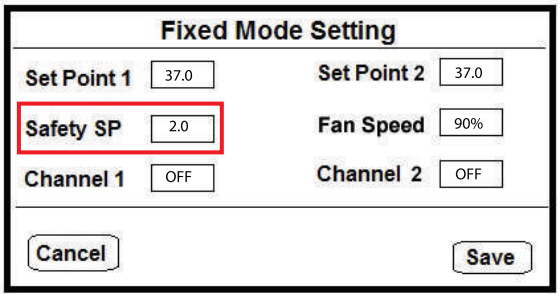


Page after settings

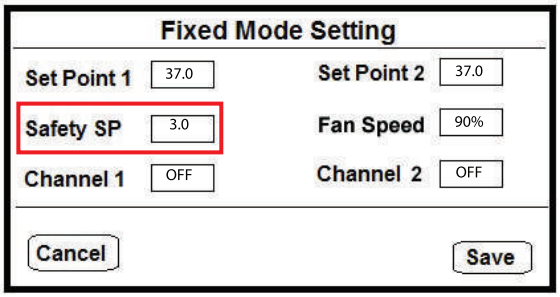


Put Set Point 1 value on 37 by △ & ▽ buttons and push ▷ button twice.

Initial page

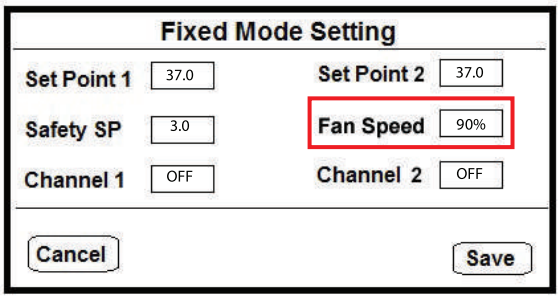


Page after settings

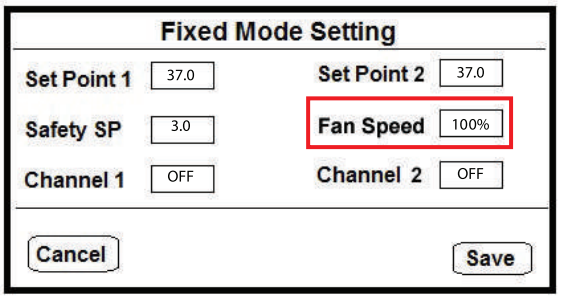


Set Safety SP value on 3 by △ & ▽ buttons and push ▷ button.

Initial page



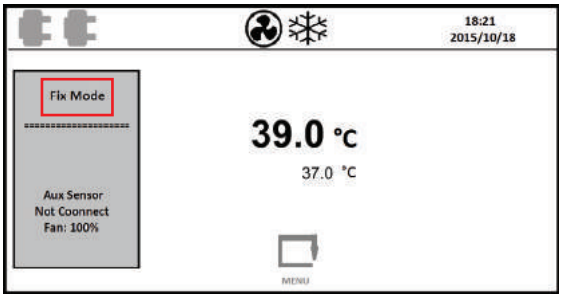
Page after settings



Set Fan speed value on %100 by △ & ▽ buttons and push F2 button.

Initial page

Page after settings



Finally, push Menu button to enter main menu.

If Fix Mode is written as shown in the in the final figure , the inserted Fix Mode program is running.

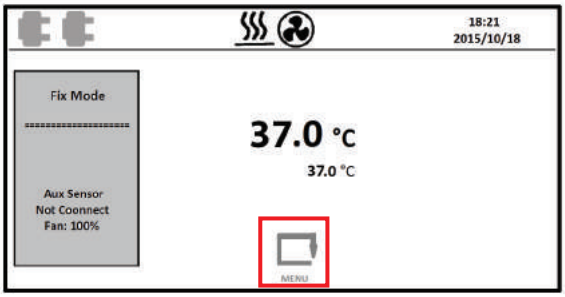
Otherwise, push ▷ or ◁ buttons to set it on Fix Mode.

35-2 Weekly Program

For instance, the following program is entered for Monday:

No.	Time (hh:mm)	Temperature (°C)
1	09:30	15
2	15:00	5
3	18:00	15
4	21:00	5

Initial page

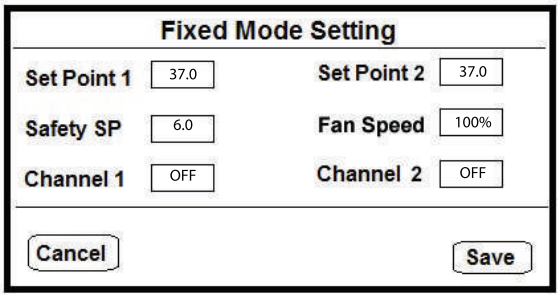


Page after settings

First, push Menu button in main menu

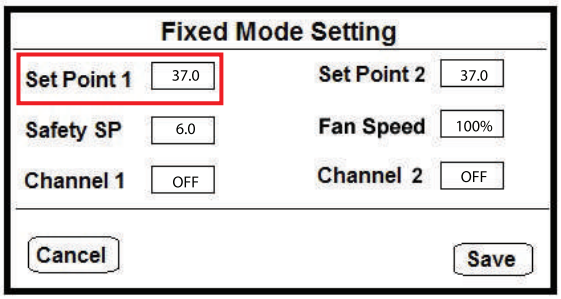
Initial page

Page after settings

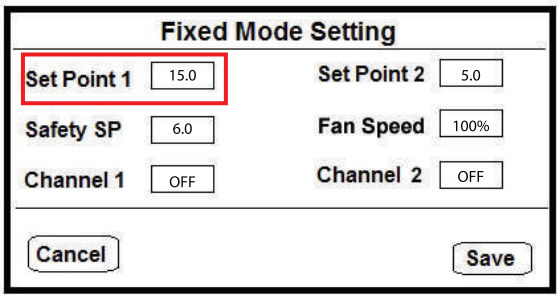


In main menu, choose Fix Mode icon and push (F2) button.

Initial page



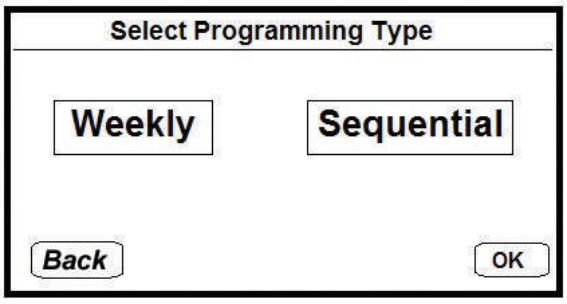
Page after settings



Put Set Point 1 value on 15°C and Set Point 2 on 5°C, then push (F2) button.

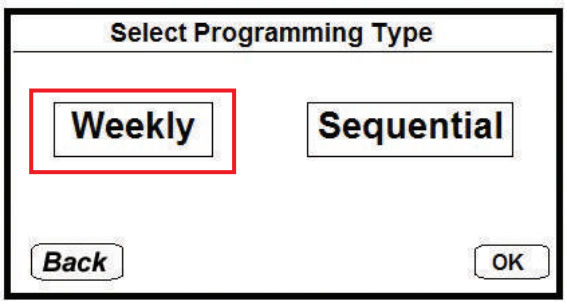
Initial page

Page after settings

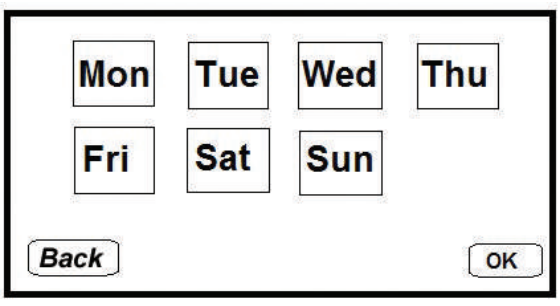


After entering main menu, choose "Week prog" icon by (◁) & (▷) buttons. Then push (F2) button.

Initial page

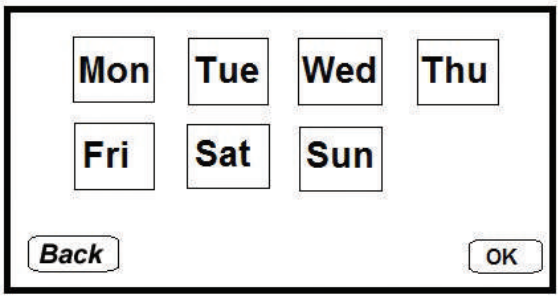


Page after settings

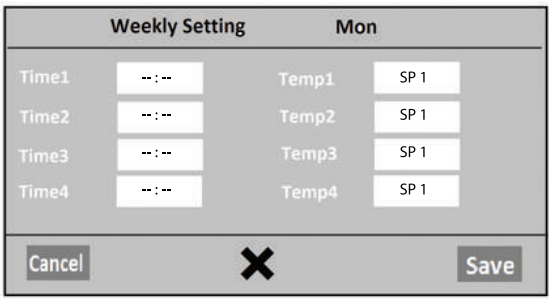


Choose Weekly icon by (◁) & (▷) buttons and push (F2) button.

Initial page

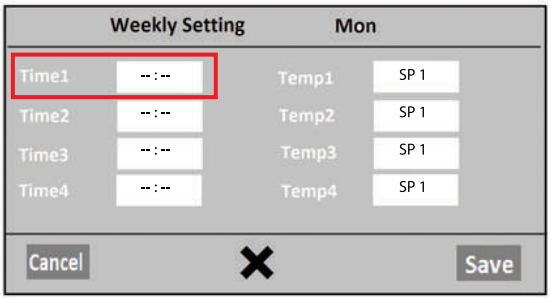


Page after settings

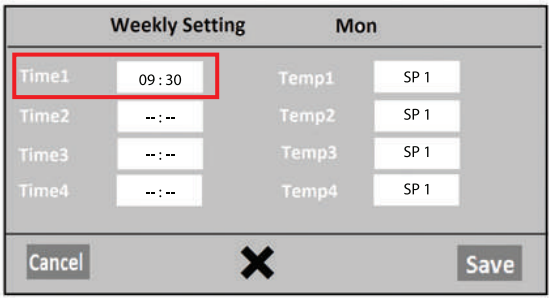


Choose the desired day of the week by ◁ or ▷ buttons and push F2 button.

Initial page



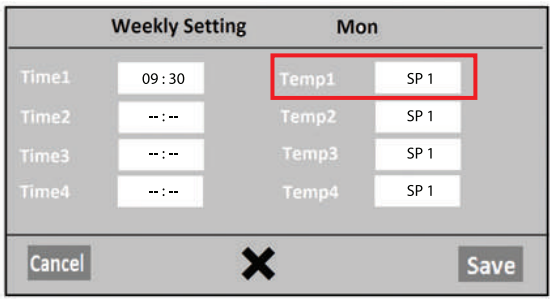
Page after settings



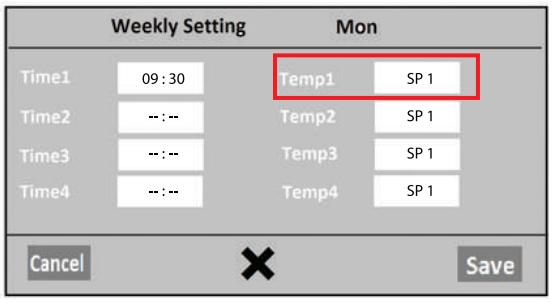
Time 1 setting: first enter desired time by △ & ▽ buttons and then push ▷ button

Example: Set Time 1 on «9:30».

Initial page



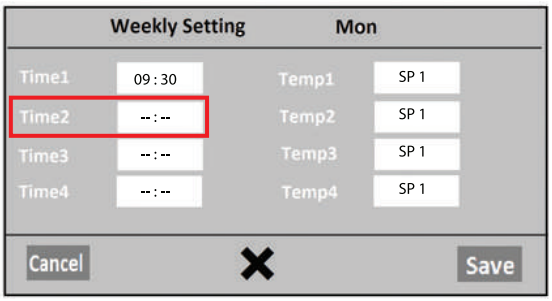
Page after settings



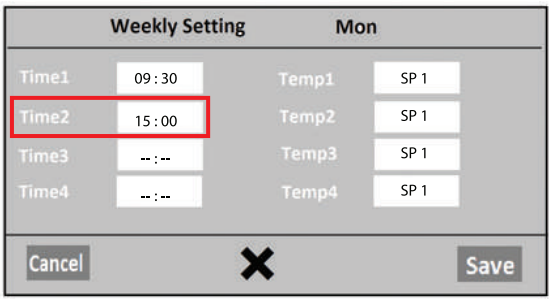
Setting Temp 1: choose one of set temperatures in Fix Mode (SP1 or SP2) by △ or ▽ buttons. Then, push ▷ button.

Example: Set Temp 1 on «SP1»

Initial page



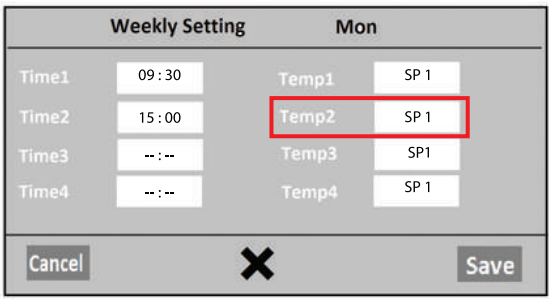
Page after settings



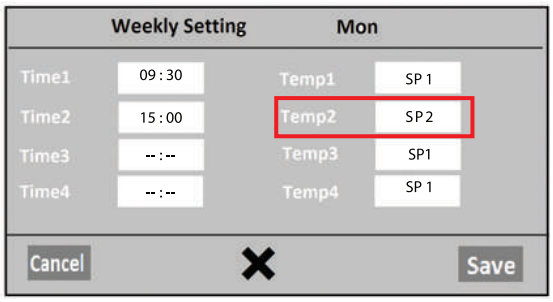
Time 2 setting: first enter desired time by △ or ▽ buttons, then push ▷ button.

Example: Set Time 2 on «15:00».

Initial page



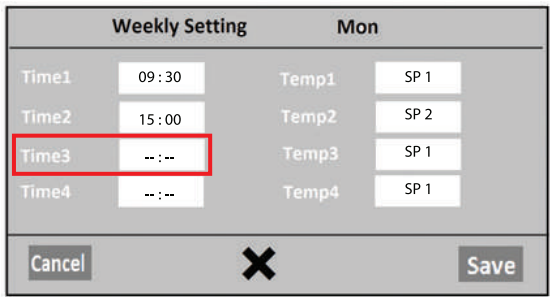
Page after settings



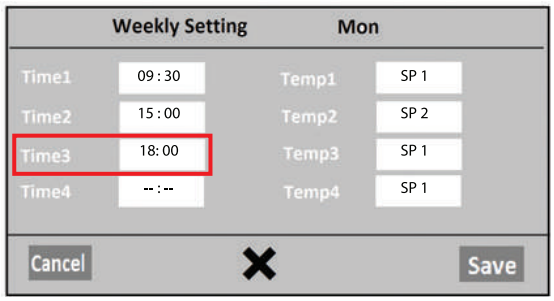
Temp 2 setting: choose one of set temperatures in Fix Mode (SP1 or SP2) by △ or ▽ buttons. Then, push ▷ button.

Example: Set Temp 2 on «SP2».

Initial page



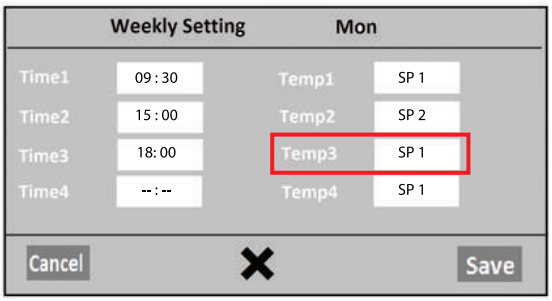
Page after settings



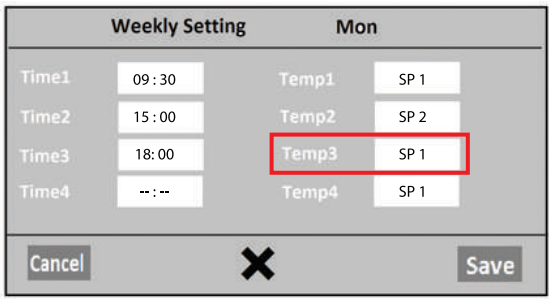
Time 3 setting: first enter desired time by ▽ & △ buttons and then push ▷ button.

Example: Set Time 3 on "18:00".

Initial page



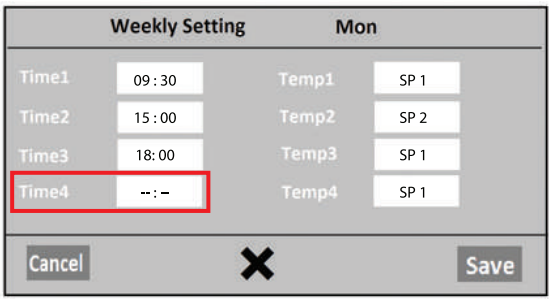
Page after settings



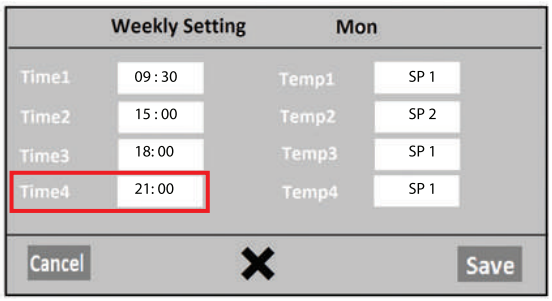
Temp 3 setting: choose one of set temperatures in Fix Mode (SP1 or SP2) by △ or ▽ buttons. Then, push ▷ button.

Example: Set Temp 3 on «SP1»

Initial page



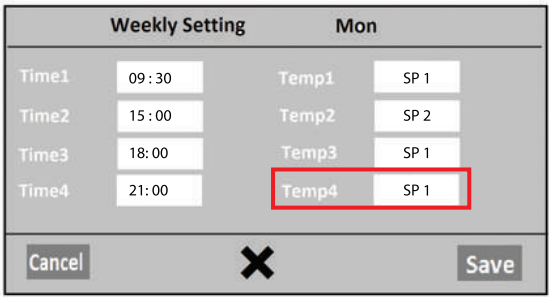
Page after settings



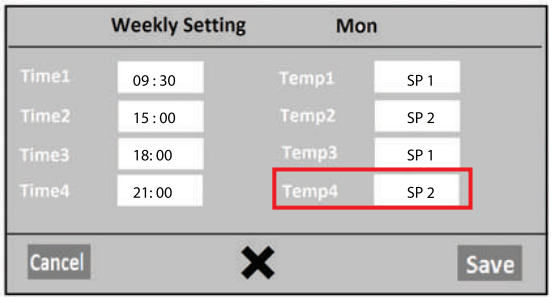
Time 4 setting: enter desired time by △ & ▽ buttons, then push ▷ button.

Example: Set Time 4 on «21:00».

Initial page



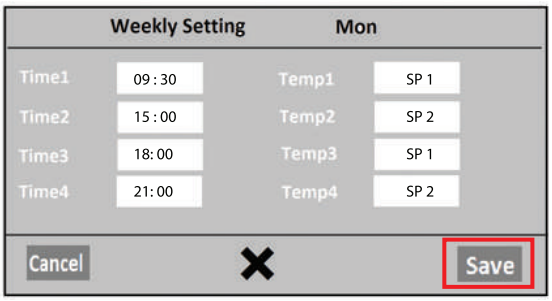
Page after settings



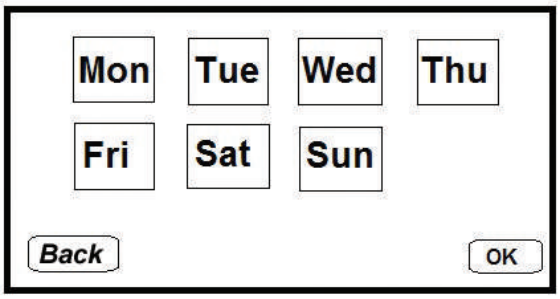
Temp 4 setting: choose one of set temperatures in Fix Mode (SP1, SP2) by △ or ▽ buttons. Then, push ▷ button.

Example: Set Temp 4 on «SP2».

Initial page

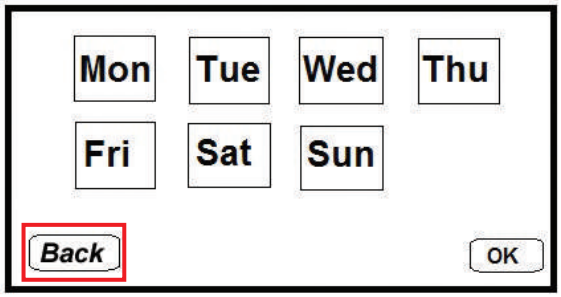


Page after settings

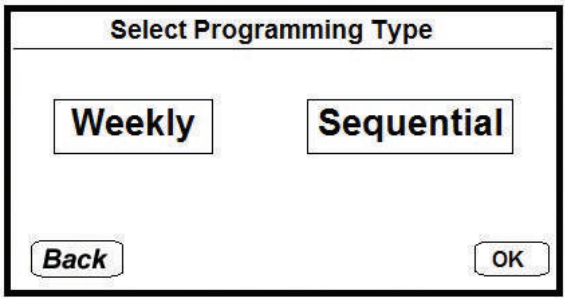


After programming, push (F2) button to save the changes.

Initial page



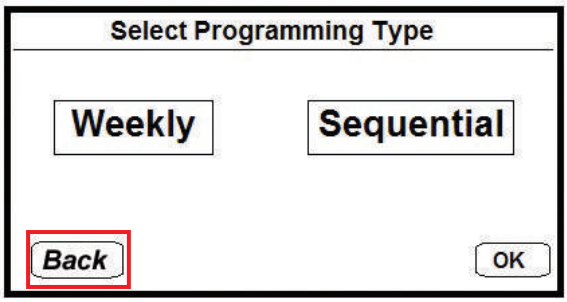
Page after settings



If needed, enter other days and do the desired settings as explained.

Otherwise, push (F1) button.

Initial page

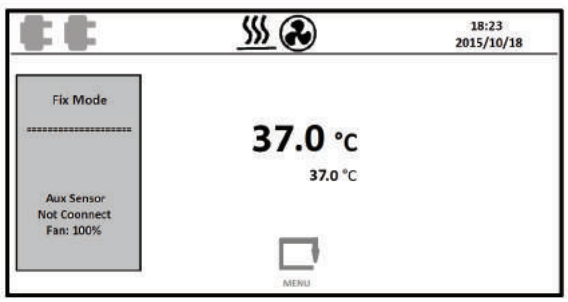


Page after settings

Also at this stage, push (F1) button.

Initial page

Page after settings



Then by pushing menu button, settings will enter main menu.

• Now, according to «Easy Programming» section, part "B", you can run Weekly Program.

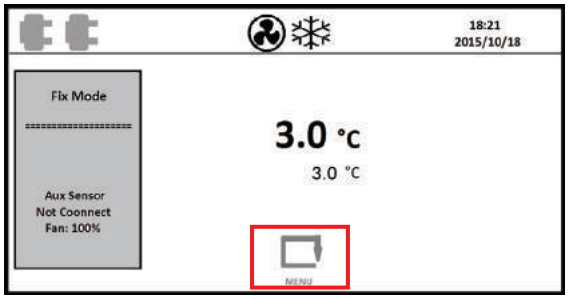
35-3 Sequential Program

As an example, the following program is entered:

Section No.	Temperature (°C)	Fan Speed percentage	Time (hhh:mm)	Channel 1	Channel 2
1	37	100	003:00	On	Off
2	28	90	002:30	On	On
3	57	100	006:00	Off	Off
4	4	100	008:40	0ff	On

Table 1: Sequential Program information

Initial page

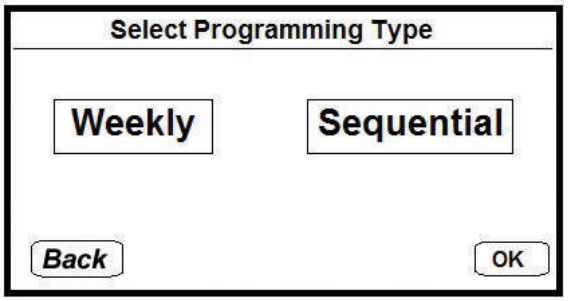


Page after settings

First, push Menu button in main menu.

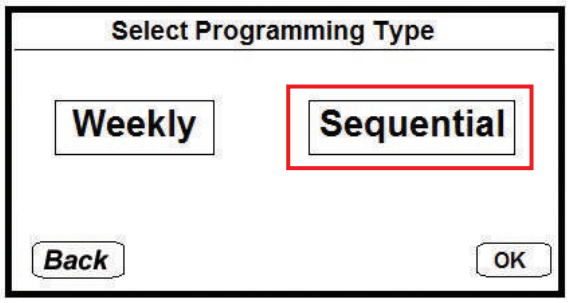
Initial page

Page after settings

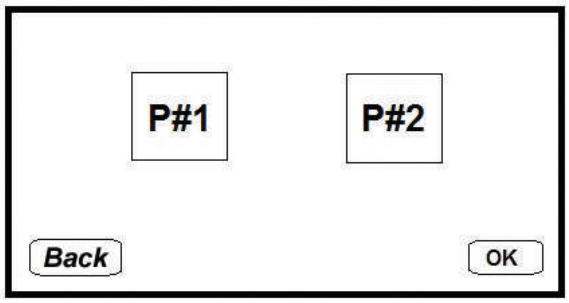


Then, in main menu choose the second icon(long-term programs) and push (F2) button.

Initial page

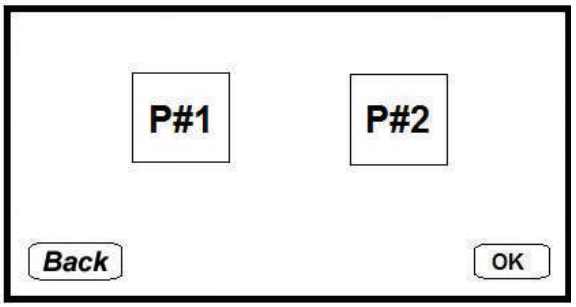


Page after settings

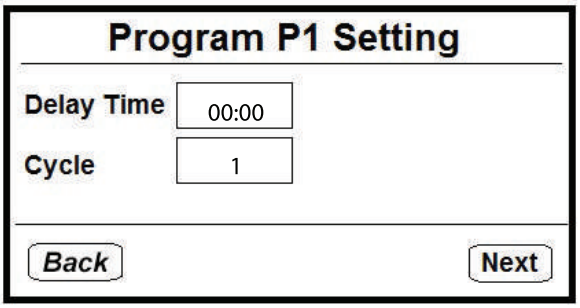


At this stage, choose Sequential Program and push (F2) button.

Initial page

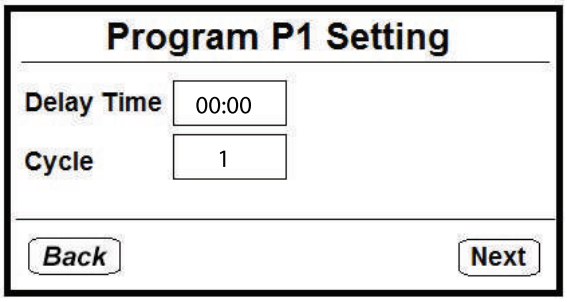


Page after settings

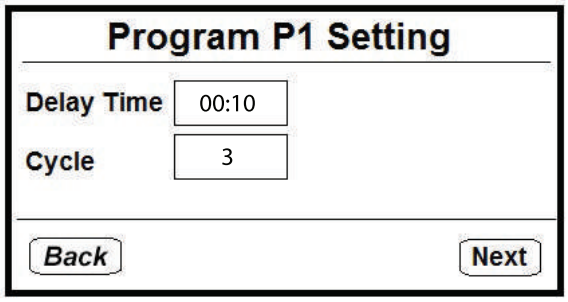


Now, choose P1/P2 as desired and push (F2) button.

Initial page



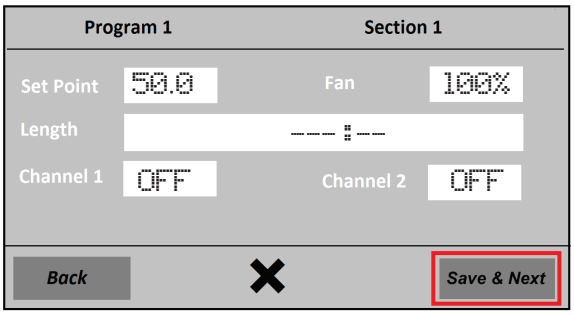
Page after settings



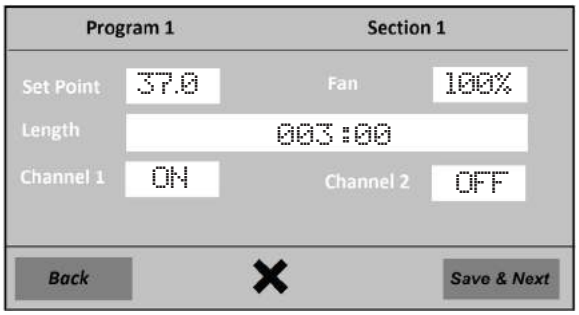
At this stage, enter Delay Time value and number of Cycle, then push (F2) button.

Example: Set Delay Time on 10 minutes and set cycle number on 3.

Initial page



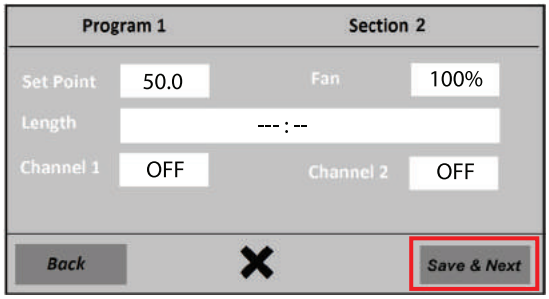
Page after settings



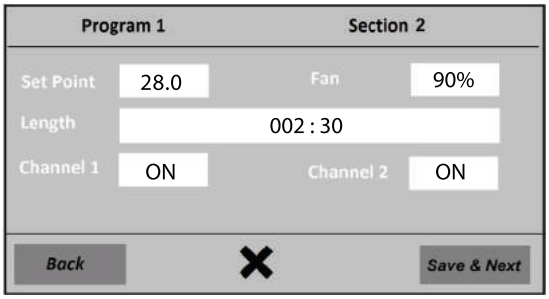
Section 1 setting: at this stage, according to Table 1, enter variables: final temperature, Fan Speed percentage, time, channel 1 and channel 2 status. Then push (F2) button.

Example: Set the temperature on 37, Fan Speed %100, time 003:00, Channel 1 status ON, Channel 2 status OFF.

Initial page



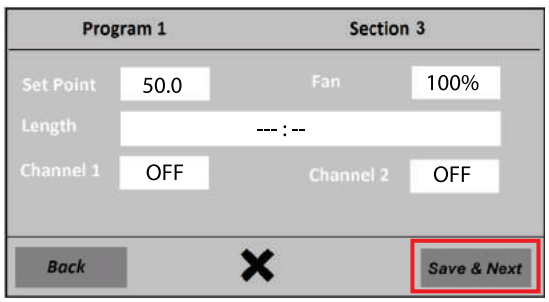
Page after settings



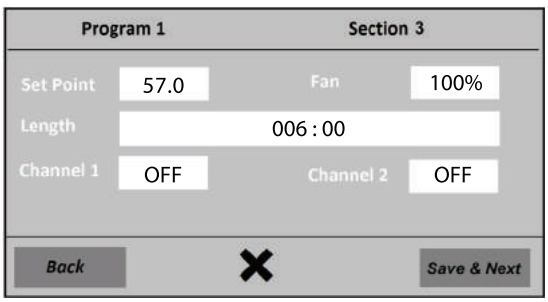
Section 2 setting: at this stage, according to Table 1, enter variables: final temperature, Fan Speed percentage, time, channel 1 and channel 2 status. Then push (F2) button.

Example: Set the temperature on 28, Fan Speed %90, time 002:30, Channel 1 status ON, Channel 2 status ON.

Initial page



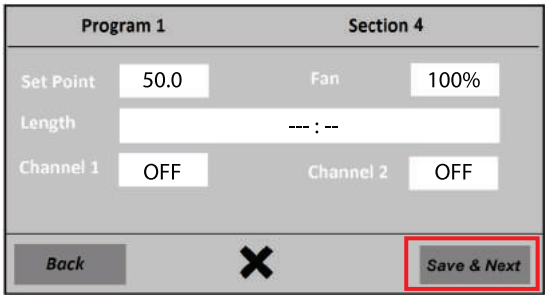
Page after settings



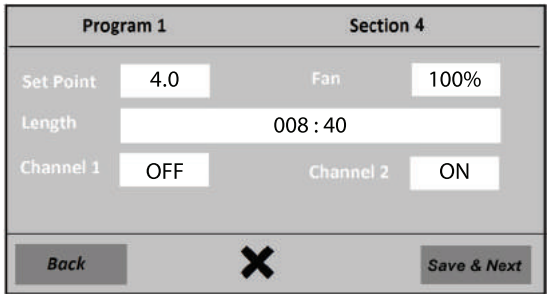
Section 3 setting: at this stage, according to Table 1, enter variables: final temperature, Fan Speed percentage, time, channel 1 and channel 2 status. Then push (F2) button.

Example: Set the temperature on 57, Fan Speed %100, time 006:00, Channel 1 status OFF, Channel 2 status OFF.

Initial page



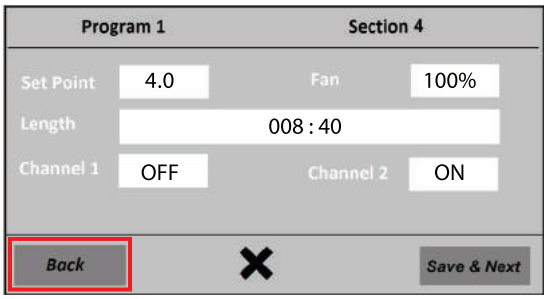
Page after settings



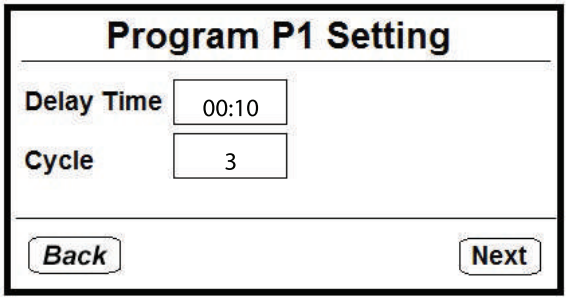
Section 4 setting: at this stage, according to Table 1, enter variables: final temperature, Fan Speed percentage, time, channel 1 and channel 2 status. Then push (F2) button.

Example: Set the temperature on 4, Fan Speed %100, time 008:40, Channel 1 status OFF, Channel 2 status ON.

Initial page



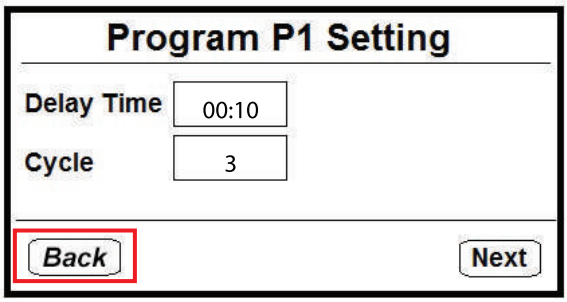
Page after settings



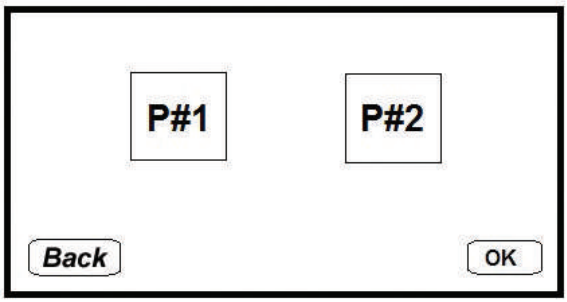
At this point, the desired program is set according to table 1. Now, push (F1) button as many times as the number of set sections (in order to return to the main menu).

Example: 4 sections are entered in P1 program; therefore, you should push (F1) button 4 times.

Initial page

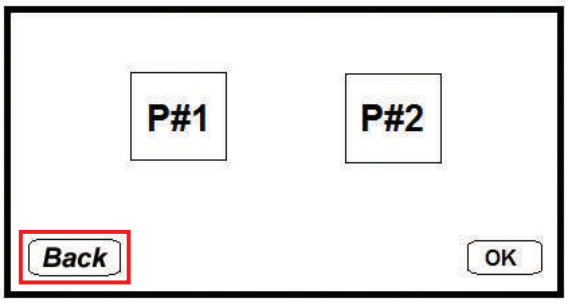


Page after settings

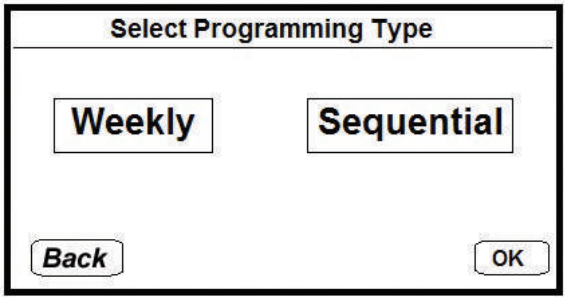


In setting page of P1 program, also push (F1) button to return to previous page.

Initial page

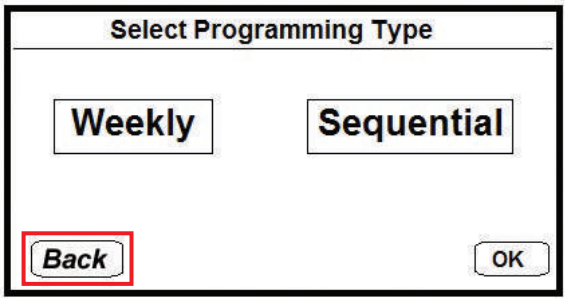


Page after settings



Push F1 button in the page of program number selection.

Initial page

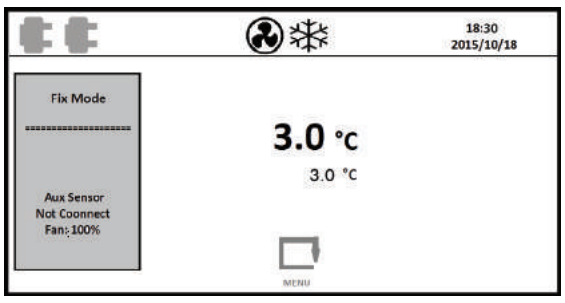


Page after settings

In the page of long-term program type selection, push (F1) button to enter main menu.

Initial page

Page after settings



Then, by pushing Menu button, settings enter main menu.

• Now, according to «Easy Programming» section, part "B", you can run Sequential Program.

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