NÜVE SANAYİ MALZEMELERİ İMALAT VE TİCARET A.Ş.

ES 120 / ES 252 / ES 600

COOLED INCUBATORS

USER'S MANUAL

Dear Nüve User,

We would like to take this opportunity to thank you for preferring this Nüve product. Please read the operating instructions carefully and keep them handy for future reference.

Please detain the packing material until you see that the unit is in good condition and it is operating properly. If an external or internal damage is observed, contact the transportation company immediately and report the damage. According to ICC regulations, this responsibility belongs to the customer.

While you are operating the instrument please;

1. obey all warning labels,

2. do not remove warning labels,

3. do not operate damaged instrument,

4. do not operate instrument with a damaged cable,

5. do not move instrument during operation.

In case of a problem contact your Nüve agent for an authorized service or maintenance.

The validity of the guarantee is subject to compliance with the instructions and precautions described in this manual.

Nüve reserves the right to improve or change the design of its products without any obligation to modify previously manufactured products.

NÜVE
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WARRANTY CERTIFICATE

1. Nüve warrants that the equipment delivered is free from defects in material and workmanship. This warranty is given for a period of two years. The warranty period begins from the delivery date.

2. Warranty does not apply to parts normally consumed during operation or general maintenance or any adjustments described in the operating instructions provided with the instrument.

3. Nüve does not accept any liability in case where the goods are not used in accordance with their proper intent.

4. The warranty may not be claimed for damages incurred during the shipment, for damages resulting from improper handling or use, abuse, fire, liquid spillage, tampering or unauthorized repairs by any persons, use of defective or incompatible accessories, exposure to abnormally corrosive conditions, use of the product in non-standard environmental conditions, including but not limited to failure to meet requirements of ambient temperature, lubrication, humidity or magnetic field influences, from the defects in maintenance, negligence, bad functioning of auxiliary equipment, in the case of force majeure or accident and incorrect power supply.

5. Any injury, loss or damage caused; due to a failure resulting from negligence of the instructions given in this manual; is beyond the scope of the warranty conditions.

☞   **BEFORE OPERATING THE INSTRUMENT THIS MANUAL SHOULD BE READ CAREFULLY.**

☞   **THE VALIDITY OF THE GUARANTEE IS SUBJECT TO THE OBSERVATION OF THE INSTRUCTIONS AND PRECAUTIONS DESCRIBED IN THIS MANUAL.**

INFORMATION CONTAINED IN THIS DOCUMENT IS THE PROPERTY OF NÜVE. IT MAY NOT BE DUPLICATED OR DISTRIBUTED WITHOUT PERMISSION.

PLEASE REGISTER ONLINE TO VALIDATE YOUR WARRANTY:

To register your warranty online, please visit our webpage **www.nuve.com.tr** and fill in the **"Warranty Registration Form"**.

CONTENT

1. INTRODUCTION

1.1. USE AND FUNCTION

ES 120, ES 252 and ES 600 Cooled Incubators are designed for biology and microbiology laboratories in the fields of medicine and veterinary medicine; It is designed to provide high-level incubation conditions for drying, freezing, long-term storage purposes required by research and quality control laboratories in the pharmaceutical, food and cosmetic sectors, and in the field of biotechnology.

The Cooled Incubators operate in temperature range between -10°C and 60°C and keeps the temperature stable within the given tolerances. ES series Cooled Incubators are safely operated via **N-SmArt™** microprocessor control system. Adjustable safety thermostat offers an additional safety for your operations.

Stable and homogeneous temperature in the useful volume is provided by means of the forced air circulation through the stainless steel heater and the evaporator through which refrigerant circulates. The insulation proportional to the dimensions of the incubator not only provides a homogenous temperature distribution but also saves energy.

A well-insulated glass window and switchable interior lighting permit samples to be observed throughout the incubation process. Fluorescent lamb is used for interior lighting.

ES series have audible and visual alarm systems for open door more than 2 minutes, power failure, high and low temperature conditions, temperature sensor failure and other faults associated with the microprocessor control system. ES series store last 50 failures in the memory and these errors can be followed on the display. Optional Ethernet connection feature enables email sending to five different e-mail addresses in case of any error. ES series offer **AlerText™** GSM module as an option and SMS can be sent to five different telephone numbers in case of error.

ES series incubators have internal memory which can store temperature values for 10 years. In addition to internal memory, temperature values can be recorded in USB stick with communication unit as an option.

The ES Series Incubators are manufactured according to the following standards;
EN 61010-1, EN 61000-6-3, EN 50419.

This device is in compliance with WEEE Regulation.

If the warnings mentioned in this manual are not considered, NUVE will not be responsible from their results.

1. TECHNICAL SPECIFICATIONS

2.1. TECHNICAL SPECIFICATIONS TABLE

TECHNICAL SPECIFICATIONS	ES 120	ES 252	ES 600
Temperature Range	-10°C / +60°C		
Temperature Sensor	Pt-100		
Temperature Set and Reading Sensitivity	0.1°C		
Temperature Fluctuation (at 37°C)	±0.5°C		±1°C
Timer	1 min – 99.9 hours / Hold position		
Number of Program and Step	20 / 20		
Safety System	Gas expansion safety thermostat (0 – 90°C)		
Defrost	Automatic		
Refrigerant	R134a		R404a
Power Supply	230 V / 50-60 Hz		
Number of Shelves (Standard/Max)	2/10	3/20	2/25
Power Consumption	800 W	1250 W	2000W
Useful Volume (liter)	120	252	600
Internal Material	Stainless Steel		
External Material	Epoxy-polyester powder coated stainless steel		
Control System	**N-SmArt™** Programmable Microprocessor Control System		
Temperature Indicator	Colorful LCD		
Internal Memory	10-year memory		
USB	Optional		
Ethernet	Optional		
RS 232	Optional		
Internal Dimensions (WxDxH) (mm)	480x545x465	475x545x1110	735x640x1210
External Dimensions (WxDxH) (mm)	655x745x1020	655x745x1855	925x850x1965

2.2. ACCESSORIES

A 08 190   Communication Unit
A 08 191   **AlerText™** GSM alarm module
A 08 195   **NüveCloser™** Software CD with 3 m. RS 232 cable
R 01 130   Shelf for ES 120 and ES 252
K 23 040   Shelf Carrier for ES 120/252
R 01 165   Shelf for ES 600
K 23 064   Shelf Carrier for ES 600

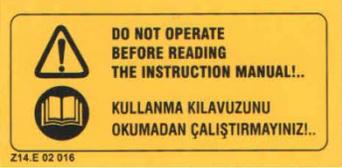> ☞   A 08 191 and A 08 195 should be used with A 08 190.

> ☞   2 pcs. shelf carrier should be ordered for each shelf.

2. PRECAUTIONS AND LIMITATIONS ON USE

The user shall pay attention to the following:

- Do not operate the instrument for purposes other than its main purpose.
- The instrument should only be used by authorized and trained staff after the instruction manual has been read carefully. Only authorized technical staff can handle the product in case of a failure.
- Only original spare parts and original accessories supplied by Nüve should be used.
- Correctly grounded power supply should be used.
- The set temperature should not destroy the structure of the samples without user's notice.
- The boiling points of the samples should be higher than the set temperature.
- The freezing points of the samples should be lower than the set the temperature.
- The samples which may liquefy and expand should not be in a sealed container.
- Liquids which may expand during heating should not overflow from their containers.
- The safety thermostat should be adjusted to the temperature higher than the set temperature.
- There should not be any material in the chamber that can damage to the device.
- The materials which will be subject to heating or drying should not be combustible, explosive, heat susceptible, flammable, adhesive and fusible.
- Ensure that the vapors and gases generated during the operation are not harmful to human health and flammable or explosive.

3. SYMBOLS

⚠	Symbol in the operating instructions: Attention, general hazard area. This symbol refers to safety relevant warnings and indicates possibly dangerous situations. The non-adherence to these warnings can lead to material damage and injury to personal.
☞	Symbol in the operating instructions: This symbol refers to important circumstances.

Labels on the device:

| DO NOT OPERATE BEFORE READING THE INSTRUCTION MANUAL!.. KULLANMA KILAVUZUNU OKUMADAN ÇALIŞTIRMAYINIZ!.. | CAUTION! Always use earthed wall sockets. DİKKAT! Cihazı mutlaka topraklı prizde çalıştırınız. | WARNING !.. DISCONNECT THE MAIN SUPPLY BEFORE REMOVING THE COVER. DİKKAT !.. BU KAPAĞI AÇMADAN FİŞİ MUTLAKA PRİZDEN ÇIKARINIZ. |

Earthed Wall Socket   ES 120 / ES 252 Fuses (2 x 10A)   ES 600 Fuses (2 x 13A)

4. INSTALLATION

4.1. ENVIRONMENTAL CONDITIONS

The instrument is designed to operate safely under the following conditions:
- Indoor use only
- Ambient temperature: 5°C to 40°C
- Maximum relative humidity for temperature up to 31°C: 80%
- Maximum altitude: 2000 m
- Temperature for maximum performance: 15°C / 25°C

> ☞ The instrument is designed to operate in 20°C (±5°C) laboratory conditions. The efficiency of the unit decreases if the ambient temperature exceeds the limits.

4.2. HANDLING AND TRANSPORTATION

All handling and transportation must be carried out by using proper equipment and experienced staff. The instrument must be supported underneath and never be turned upside down.

4.3. UNPACKING

Remove the cardboard box packing and the second nylon wrapping around the instrument. Ensure that no damage occurred during transportation. The below mentioned are provided with the instrument, please check them;

- 1 ea. user's manual and warranty certifications
- 1 ea. power cable for ES 120 and 252
- 2 ea. shelves for ES 120 and ES 252
- 3 ea. shelves for ES 600
- 2 ea. shelf carriers per shelf

4.4. MAINS SUPPLY

The instrument requires 230 V, 50/60 Hz.

Please make sure that the supplied mains matches the required power ratings which are written on the name of plate of the instrument located at the back of the instrument.

> ⚠ Always plug-in the instrument to correctly grounded sockets.

> ⚠ A supply fitted with a circuit breaker should be used for protection against indirect contact in case of isolation fault.

4.5. POSITIONING

- Check that the positioning is suitable for the users.
- Check that the device is stable on its four feet.
- Check that the user will be able to follow up the operation even when the user deals with something else.
- Check that the positioning of the cooled incubator prevents interference with other equipment in the near surrounding.
- The ground where the instrument is positioned should be resistant to the weight of the instrument and vibration free.
- There should be enough space from the cooling unit ventilation. Leave at least 30 cm. free space between the equipment and wall.

4.6. GENERAL PRESENTATION

EXTERNAL SENSOR ACCESS PORT

OBSERVATION WINDOW

DOOR

COMMUNICATION UNIT (OPTIONAL)

CONTROL PANEL

POWER SWITCH

Figure 1

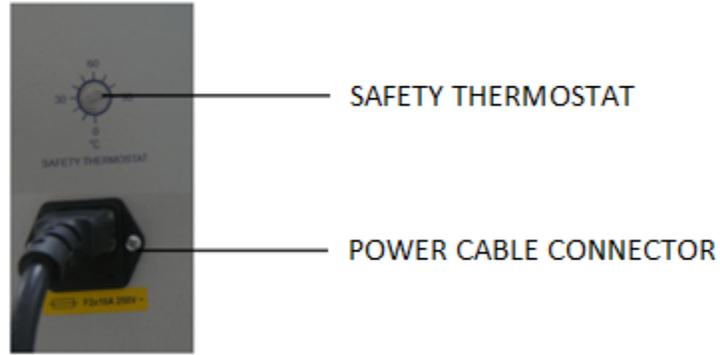☞ There is no observation window in ES 600 unlike ES 120 and ES 252.
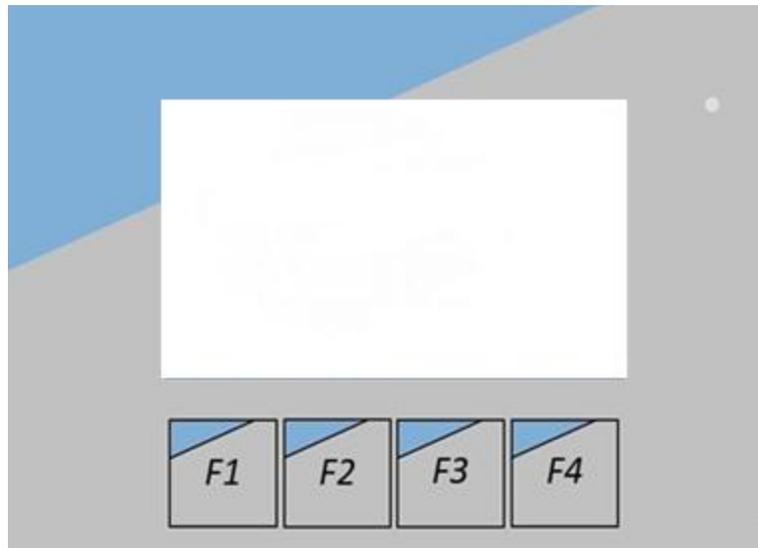
Figure 2

4.7. CONTROL PANEL

Figure 3

The functions of F1, F2, F3 and F4 buttons depend on the meaning of the corresponding symbol appearing on the display. The following table shows the meaning of these symbols.

	This symbol denotes the menu. You can enter the menu by pushing the button corresponding to this symbol.
	This symbol denotes the settings page. You can enter the settings page by pushing the button corresponding to this symbol.
	This symbol denotes the value increase key. You can increase the value by pushing the button corresponding to this symbol while adjusting the numerical values such as temperature or password.

| Symbol	Description
∨	This symbol denotes the value decrease key. You can decrease the value by pushing the button corresponding to this symbol while adjusting the numerical values such as temperature or password.
<	This symbol denotes the left key. It appears on the graph screen. The next graph appears when the button corresponding to this symbol is pushed.
>	1) This symbol denotes the right key when the right and left keys appears on the same screen. The previous graph is passed when the button corresponding to this symbol is pushed. 2) It denotes the tab button when the left and the right keys do not appear on the same screen.
✔	This symbol denotes enter key. It is used for approval of adjustments.
↩	This symbol denotes backspace. You can return the previous page or exit from the page by pushing the button corresponding to this symbol.
|	The symbol is on the green button which is used to start the program.
○	The symbol is on the red button which is used to stop the program.
☀	The key corresponding to this symbol is used to turn the illumination on or off. If the key is green, it shows that the lamp is off. The lamp goes on when the key is pushed and the key turns red. Lamp goes off when the red key is pushed.
?	This symbol denotes the explanation of the error codes. You can learn detailed explanation about the error by pushing the button corresponding to this symbol. It appears in case of failures.
⧖	This symbol denotes the alarm mute key. You can mute the audible alarm by pushing the button corresponding to this symbol when the alarm is activated in case of error.

4.8. PRIOR TO OPERATION

- Plug-in the instrument to correctly grounded sockets
- Switch the incubator on by using power switch. See that power switch LED is on.
- See that the display and control panel activates.
- Learn the functions of the control panel (See Section 5.7).
- Set the program and start it (See Section 6.1).

5. OPERATING PRINCIPLES

5.1. PROGRAMMING

⚠ At most 70% of the surface area of the shelves should be used in order to obtain a uniform temperature distribution.
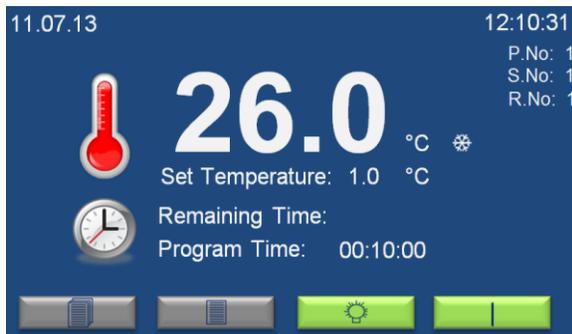
When ES series incubators are powered on, firstly the opening screen and then the working screen on the left appear. Chamber temperature and set temperature can be seen on the working screen. If time is set for the program, program time and the remaining time for program to finish are displayed below temperature values. 'P.No', 'S.No' and 'R.No' on the right upper corner of working screen are program number, step number and repeat number, respectively.

Current time and date are shown at the top line. "❄" symbol flashes on this screen while incubator performs cooling. "♨" symbol flashes on this screen while incubator performs heating.
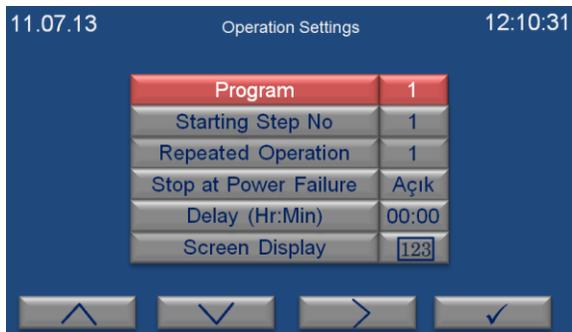
ES series offer 20 program 20 steps and there are two set screens in ES series; one screen for program setting and another one for step settings. The operation settings screen on the left is for program setting. This screen is for setting related to program. Increase (F1) and decrease (F2) keys are used to change the selection value. Tab key (F3) is used to change the selection.

The selection should be on screen display in order to exit the operation settings screen. Push enter key (F4) when the selection is on screen display to return the working screen.

The step settings screen on the left appears, when enter key (F4) is pushed when the selection is on program on the operations settings screen.

On the upper line the program number whose steps are set is shown. Increase (F1) and decrease (F2) keys are used to change the selection value. Enter key (F4) is used to change the selection.

The settings for the specific step number are displayed when the step number is changed by using increase (F1) and decrease (F2) keys.

Back key (F3) is used to exit the screen. Push back key (F3) to return the operation settings screen.

Follow the steps below to set a program:

1- Push settings page key (F2) on the working screen.

2- Password query screen appears. Enter password by using increase (F1) and decrease (F2) keys and push enter key (F4). The password is user password and it can be set on settings menu (See Section 6.3.1). The password is 0000 for the first use.

3- The selection is on *Program* number. Use increase (F1) and decrease (F2) keys to set the program number which will be set and push enter key (F4).

4- The selection is on *Step* number. Use increase (F1) and decrease (F2) keys to set the step number which will be set and push enter key (F4).

5- The selection is on *Temperature*. Use increase (F1) and decrease (F2) keys to set temperature and push enter key (F4).

6- The selection is on *Time Function*. If time will be used for the step, choose *Time*. When you choose *Hold*, the program runs until it is stopped. Use increase (F1) and decrease (F2) keys to choose *Time* or *Hold* and push enter key (F4).

7- The selection is on *Time*, after *Time Function* is set and enter key (F4) is pushed. When the *Time Function* is set as *Time*, the time can be set from 0 minute to 99 hours 59 minutes by using increase (F1) and decrease (F2) keys. If the time is set as 00:00, the corresponding step does not run and the program will run the next step.

8- The selection is on *Alarm Range*, after *Time* is set and enter key (F4) is pushed. The *Alarm Range* can be set between 1.0°C and 10.0°C by using increase (F1) and decrease (F2) keys.

9- The selection is on *Timer On at Set*, after *Alarm Range* is set and enter key (F4) is pushed. *Timer On at Set* can be chosen as *ON* or *OFF* by using increase (F1) and decrease (F2) keys. When it is chosen as ON; time starts to count when the temperature reaches to the set temperature. When it is chosen as OFF; time starts to count when the corresponding step starts.

10- Push enter key (F4) to set the next step and apply the steps from 4. If all steps are set, push back key (F3).

11- Push tab key (F3) to continue to settings of the program whose steps are set.

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12- Selection is on *Starting Step No*. it shows the step number which starts to run when the program starts. Choose the step number which starts to run by using increase (F1) and decrease (F2) keys and push tab key (F3).

13- Selection is on *Repeated Operation*. Set repetition number by using by using increase (F1) and decrease (F2) keys and push tab key (F3).

14- Selection is on *Stop at Power Failure*. It can be chosen as *ON* or *OFF* by using increase (F1) and decrease (F2) keys.

If *Stop at Power Failure* is *ON*;
- The program will be interrupted in case of power failure. When the power failure is over, 'Power Failure' error appears on the screen.

If *Stop at Power Failure* is *OFF*;
- The program will continue to run in case of power failure.
    - If the temperature is in the temperature alarm range, there will be notification regarding power failure. Push question mark key (F3) to see the notification.
    - If the temperature is out of the temperature alarm range, 'Out of Temperature Range' error appears.

15- Push tab key (F3). The selection is on *Delay*. It can be set from 0 to 99 hours 59 minutes by using increase (F1) and decrease (F2) keys. The program which is started starts to run after the delay time ends.

11.07.13	Operation Settings	12:10:31
	Program	1
	Starting Step No	1
	Repeated Operation	1
	Stop at Power Failure	Açık
	Delay (Hr:Min)	00:00
	Screen Display	123

Figure 4

16- Push tab key (F3). Choose *Screen Display* as numerical by using increase (F1) and decrease (F2) keys (See Figure 4). Push enter key (F4).

17- Working screen appears. Push green start key (F4) to start to run the set program.

N-SmArt™ microprocessor control system offers the option to follow the running program on a graph. Follow the steps below to monitor the program on a graph:
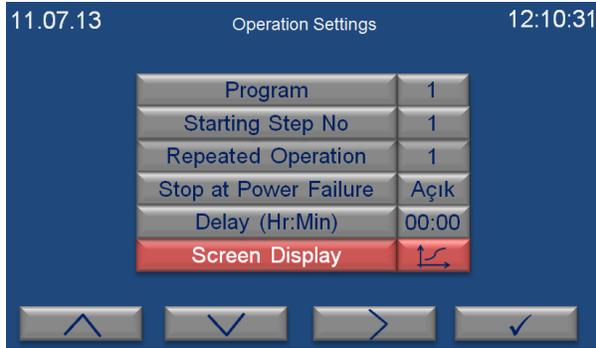
Figure 5

1- Push settings page key (F2) on working screen.
2- Password query screen appears. Enter password by using increase (F1) and decrease (F2) keys and push enter key (F4).
3- The selection is on *program* number. Move the selection to *Screen Display* by using tab key (F3). Use increase (F1) and decrease (F2) keys to change the Screen Display as graph as shown in Figure 5 and push enter key (F4).

5.2. COMPLETION OF THE OPERATION

- See that the program is over.
- Push red stop key (F4) to stop the running program at any time.
- Take the samples out. Be careful while handling the samples after the operation as they can be hot.
- Wipe the chamber surface if needed when the chamber is cold enough.
- You may leave the incubator at the stand-by position or switch it off.

☞ If the unit is in START position when the door is open, it will keep operating and the heaters will be over-heated. This situation may result in irreparable damage in the heaters and other components.

5.3. MENUS

When menu key (F1) is pushed on the working screen, password query screen appears. Enter password by using increase (F1) and decrease (F2) keys and push enter key (F4). The password is user password and it can be set on settings menu (See Section 6.3.1). The password is 0000 for the first use.
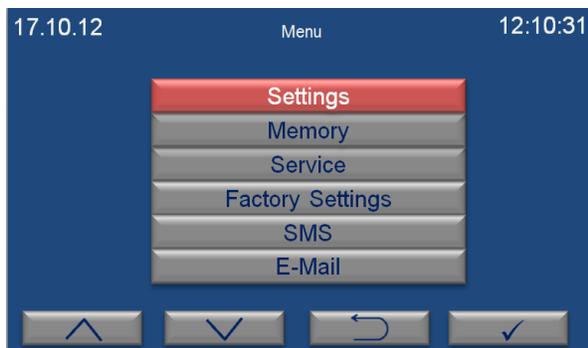
Main menu page appears when the password is approved by pushing enter key (F4). Submenu can be selected by using the value increase and decrease keys. The selected menu becomes red and enter key (F4) is pushed to enter this menu.

5.3.1. SETTINGS
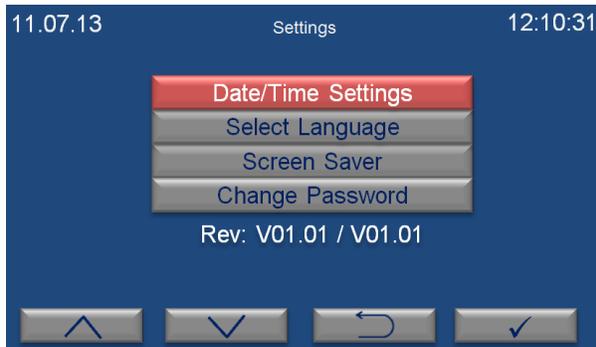
Settings page appears when "settings" submenu is selected from the menu page by the value increase (F1) and decrease (F2) keys. The required submenu is chosen by using the value increase and decrease keys.
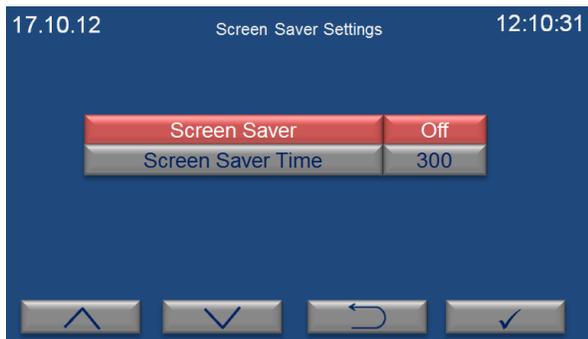
"Date/Time Settings" submenu is selected on the settings page by the value increase (F1) and decrease (F2) keys. The page shown on the left appears when enter key (F4) is pushed. Time is shown in the format of "hour:minute" and the cursor is on hour part when "Date/Time Settings" page comes to the screen. Hour is adjusted by pushing the value increase (F1) and decrease (F2) keys. Push enter key (F4) to continue to adjust. If you want to exit this page without any change, push backspace key (F3).
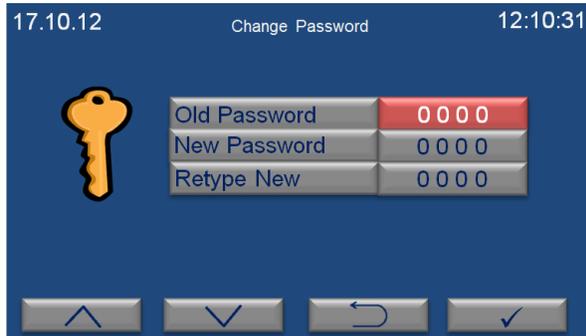
"Select Language" submenu is selected on the settings page by using the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. The language of the control panel can be set as Turkish, English, French, Russian or Spanish. Push the value increase (F1) and decrease (F2) keys to select the language and then push the enter key (F4) to save the selection. If you want to exit this page without any change, push the backspace key (F3).

"Screen Saver Settings" submenu is selected on the settings page by using the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. Screen saver can be on or off by pushing the value increase (F1) and decrease (F2). If the option of "open" is selected, activation time of screen saver is adjusted on screen saver time in minutes. If you want to exit this page without any change, push the backspace key (F3).

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☞   It is suggested to use *Screen Saver* as ON for energy saving.

"Change Password" submenu is selected on the settings page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. After old password value is entered by pushing the value increase and decrease keys, push the enter key. New password value can be entered in the "New Password" and "Retype New" sections. If you want to exit this page without any change, push the backspace key (F3).

5.3.2. MEMORY
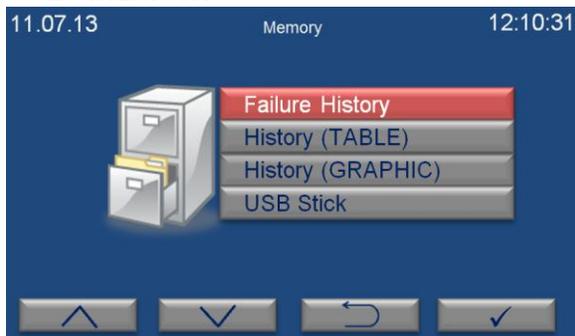
"Memory" submenu is selected on the menu page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed.
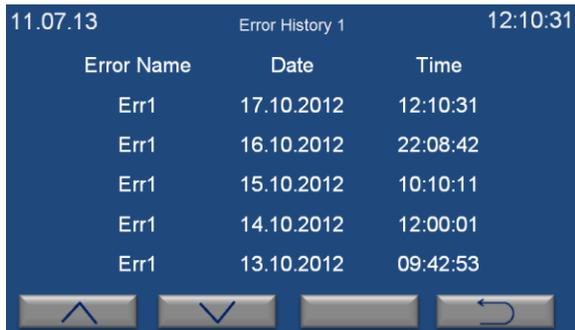
"Failure History" submenu is selected on the memory page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. The last 50 failures can be followed on this page. There are 10 pages in total for error history and 5 failures are listed on each page. Failures are listed from the current date to the earlier. Push the value increase (F1) and decrease (F2) keys to pass the other page.

Push the backspace key (F4) in order to exit the page.

"History (TABLE)" submenu is selected on the memory page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. Enter a date to analyze corresponding operation by pushing the value increase and decrease keys. Push the enter key (F4) to access the table.

Temperature values corresponding to the selected date are shown on three pages. Push the value increase (F1) and decrease (F2) keys to pass from one page to another. "–"appears in the temperature column if the refrigerator does not run on the selected date. Push the backspace key (F3) to return previous page.

☞ When the temperature sensor is broken, "–"appears in the temperature column since temperature cannot be reading by the sensor.

"History (GRAPH)" submenu is selected on the memory page by the value increase (F1) and decrease (F2) keys. "Select Record Date" page appears when enter key (F4) is pushed. Enter a date to analyze corresponding operation and then push the enter key (F4). You can analyze the data in the graph. The data belonging to the other dates can be followed by using left (F2) and right (F3) keys. Push the backspace key (F4) to return the previous page.
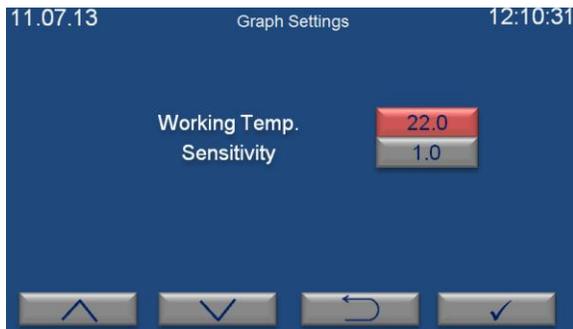
The page on the left appears when the settings key (F1) is pushed on the graph page. Temperature axis (y-axis) can be adjusted on this page. Working temperature determines the midpoint of the temperature axis. The working temperature value should be close to the set temperature value for more comfortable observation. Sensitivity value is the difference between two values on the y-axis. As sensitivity value getting smaller, a more detailed graph appears.

☞ Values are recorded every one hour and while program is running.

6. PERIODIC MAINTENANCE AND CLEANING

6.1. PERIODIC MAINTENANCE

The instrument does not require any periodical maintenance.

6.2. CLEANING

- Prior to cleaning please unplug the device and clean the device at the room temperature.
- After every operation wipe down the chamber surface to remove any undesirable effects of the operation as spillage.
- A piece of wet cloth may be used in order to remove the dust and dirt from the device.
- Mild detergent use is recommended to remove difficult dust and dirt.
- Clean the condenser filter regularly.
- Please be aware of the undesirable effects of the chemicals and be careful while applying them.
- Protect the device against rust from outside. Please clean the rust as soon as possible when it is detected.

7. DISPOSAL MANAGEMENT CONCEPT

The currently valid local regulations governing disposal must be observed. It is in the responsibility of the user to arrange proper disposal of the individual components.

All parts which may comprise potentially infectious materials have to be disinfected by suitable validated procedures (autoclaving, chemical treatment) prior to disposal. Applicable local regulations for disposal have to be carefully observed.

The instruments and electronic accessories (without batteries, power packs etc.) must be disposed of according to the regulations for the disposal of electronic components.
Batteries, power packs and similar power source have to be dismounted from electric/electronic parts and disposed of in accordance with applicable local regulations.

8. TROUBLESHOOTING

If the device fails to operate, please check the followings:
- The power switch is on;
- The fuse is sound;
- The plug is plugged-in properly;
- The plug is not defective;
- The mains supply is present.
If the Cooled Incubator does not heat, check the followings;
- The program has started.
- The safety thermostat is set at a temperature higher than the set temperature.
If the temperature exceeds the set value, check the followings;
- The internal circulation fan operates.
If the cooled incubator does not cool, check the followings;
- The internal circulation fan operates,
- The ambient temperature does not exceed 20 (± 5)°C limits.

8.1. ERROR CODES

Blue colored screen turns into red in case of any failure and a short explanation of the error appears at the bottom line on the red screen. Push the key corresponding to question mark (F3) for detailed explanation of failures.

Failures which may be encountered during operation is listed below:

EoFF: This error code shows power failure. If *Stop at Power Failure* is *ON*, the program is interrupted in case of power failure. When the power failure is over, 'Power Failure' error appears on the screen.

> ☞ After power interruption, push the key corresponding to question mark (F3) in order to see the time when power interruption occurs.

Err1: It appears when temperature sensor is defective.

Err2: It appears when there is a communication error between display and main PCB.

Err3: It appears when there is a failure in cooling system.

Err5: It appears when door is kept open for a while.

Err6: It shows that the temperature in the chamber is not in the temperature alarm range.

Err7: It appears when software version is not compatible. Push the F3 key corresponding to the question mark to see the explanation. Inform the authorized NÜVE agent regarding the error explanation.

> ☞ A list consisting of the codes of errors can be accessed from the memory page (See section 6.3.2). 'EoFF', 'Err3', 'Err5' and 'Err6' do not appear on working screen and they are only shown in the list of the error history.

> ☞ In case of any error, the program is stopped automatically.

> ⚠ If an error occurs, please contact to an authorized Nüve agent to seek technical help.

8.2. FUSE REPLACEMENT

The fuses shall be always be replaced by the authorized personnel.

9. OPTIONS

9.1. COMMUNICATION UNIT

There are 4 outlets on communication unit (Figure 6). The function of each outlet is explained in the following sections.
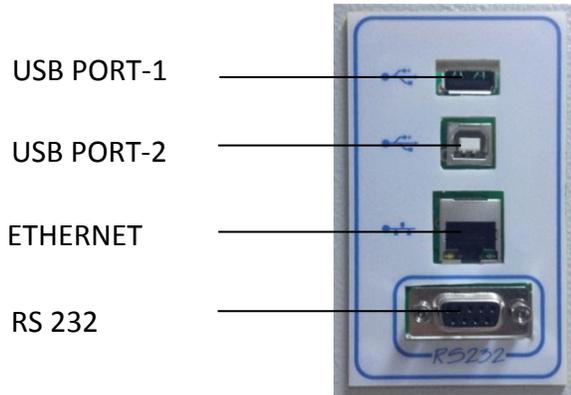

USB PORT-1

USB PORT-2

ETHERNET

RS 232

Figure 6 – Communication Unit

9.2. EXTERNAL MEMORY (USB STICK)

USB Stick is connected to USP port-1 of the communication unit (Figure 6). "⟟" appears on the operating mode screen when the USB stick is identified by the microprocessor system.

> ☞ If ⟟ does not appear on the screen, USB stick may be defective or may not be connected correctly.

When "USB Stick" submenu is selected on the memory page, there are three options: "Copy History", "Instant Record" and "Copy Failure History".

Copy History: As USB stick is connected to the device, all data in the internal memory is transferred to USB stick when "Copy History" is selected. When loading bar shows 100%, push the enter key (F4) to exit the page.

Instant Record: As USB stick is connected to the refrigerator, the page on the right appears when "Instant Record" is selected. The period of the record time can be selected by using the value increase (F1) and decrease (F2) keys. As soon as the enter key (F4) is pushed, recording starts and the display returns the main page. If you want to exit this page without starting to record, use backspace key (F3).

You can remove USB stick when you want to finish the record process.

Copy Failure History: As USB stick is connected to the device, all error history in the internal memory is transferred to USB stick when "Copy Failure History" is selected. When loading is finished completely, push the enter key (F4) to exit from this page.

9.3. AlerText™ GSM MODULE

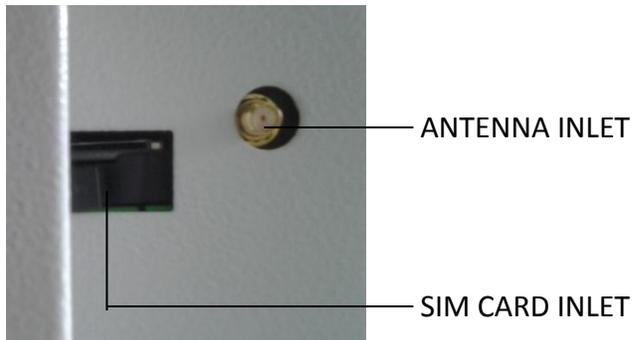In case of error, SMS can be sent to five different phone numbers by GSM module as an option.

POWER CABLE

RS 232 INLET

LED

Figure 7

ANTENNA INLET

SIM CARD INLET
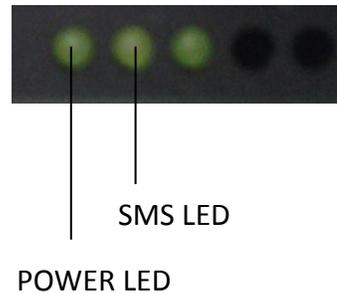
Figure 8

SMS LED

POWER LED

Figure 9

Please carry out the following steps for connection of GSM module:

- Insert SIM card in the GSM module (See Figure 8).

> ☞ SIM card is provided by the user. The cost of SIM card and SMS differs according to the GSM providers and all charges will be covered by the user.

> ⚠ SIM card which will be used for GSM module should not have PIN code.

- Plug-in the GSM module to correctly grounded sockets.
- Connect the end of RS 232 cable of GSM module (See Figure 7) to RS 232 port on the device (See Figure 6).
- Ensure that power led is turned on (See Figure 9). Power led is on when energy is supplied to the GSM module. SMS led starts to flash while the module sending SMS.

- Connect the antenna cable to antenna inlet on the GSM module (See Figure 8).

Antenna has magnet to place it easily. Place the antenna on a place where the signal of GSM module is high.

> ☞ If the GSM module is not connected or does not send messages although it is connected, "modem" error code appears in the error history. If the GSM module is connected and cannot send messages, "SMS" error code appears in the error history. Modem and SMS errors do not appear when SMS submenu on the SMS page is selected as "off".

9.3.1. SMS

> ☞ In order to use SMS, optional GSM module is mandatory to have. Refer to Section 10.1 for information regarding GSM module connection.

"SMS" submenu is selected on the menu page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. Submenus on SMS page is selected by using increase (F1) and decrease (F2) keys. Selected submenu can be adjusted by using enter key (F4). If you want to exit the page, push the backspace key (F3).

- Activation or deactivation of SMS function can be adjusted on "SMS" submenu. If you want to activate this function, choose "on" by pushing the enter key (F4). If you want to deactivate SMS function, choose "Off" by pushing the enter key (F4).
- "Repeat time" is the frequency of sending SMS. The user is notified again by sending SMS if the failure still continues. Repeat time can be adjusted to 8 hours, 16 hours and 24 hours by pushing enter key (F4).
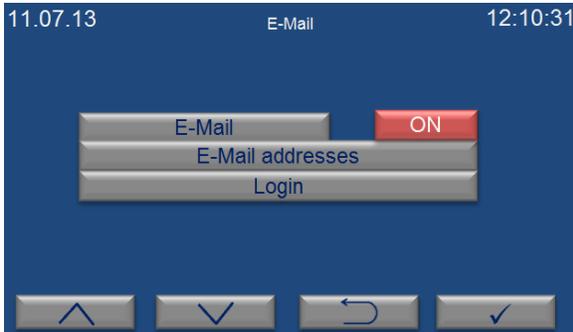

"SMS Numbers" is selected on the SMS page by using the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. The phone numbers can be entered in this page and SMS notifications are delivered to these phone numbers in case of any failure.

- SMS can be sent to 5 different mobile phones. According to demand, 1st, 2nd and 3rd numbers can be users' numbers and 4th and 5th numbers can be technical service staffs' numbers.
- Enter country code before the phone numbers.
- A cursor flashes under a digit which means you can set this digit of the number. Each digit of phone numbers is entered one by one. The first digit of the phone number is entered by

pushing value increase (F1) and decrease keys (F2) and tab key (F3) is pushed to enter the second digit. The second number is entered pushing value increase (F1) and decrease keys (F2) and tab key (F3) is pushed to enter the next digit. After all digits of the phone number are entered completely by this way, push the enter key (F4) to enter the next phone number.

- Tab key (F3) is used for changeover from one digit of phone number to another.
- After all phone numbers from "Phone 1" to "Service 2" is entered as mentioned above, push the enter key (F4) and return to main page.
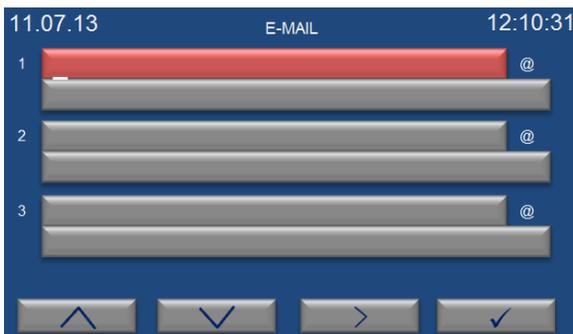
9.4. E-MAIL

"E-Mail" submenu is selected on the menu page by the value increase (F1) and decrease (F2) keys. The page shown on the left appears when enter key (F4) is pushed. The choice of submenus on e-mail page is changed by pushing increase (F1) and decrease (F2) keys. After choosing a submenu, the adjustments for this submenu is made by pushing enter key (F4). If you want to exit this page, push the backspace key (F3).

- Activation or deactivation of e-mail function can be adjusted from "E-mail" submenu. If you want to activate this function, choose "on" by pushing the enter key (F4). If you want to deactivate e-mail function, choose "off" by pushing the enter key (F4).

☞ Ethernet settings should be adjusted by technical service staff for the first usage. Otherwise, this function does not work.

- "E-Mails" is the page which e-mail addresses will be written on.
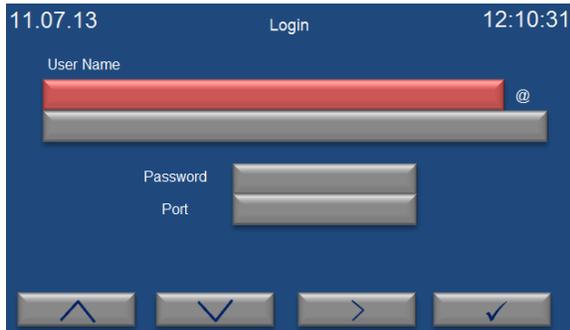- "Login" is the adjustments for the e-mail addresses.

"E-Mails" is selected on the e-mail page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. The e-mail addresses can be typed in this page and e-mail is sent to these addresses in case of any failure.

- Each character of e-mail addresses is typed one by one. The first character is entered by pushing value increase (F1) and decrease keys (F2) and tab key (F3) is pushed to enter the second character. The second character is written by pushing value increase (F1) and decrease keys (F2) and tab key (F3) is pushed to enter the next character. After all characters are written completely in this way, push the enter key (F4) to enter the mail server. After

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mail server is written in the same way, push the enter key (F4) to write next e-mail address. After third email address is written, push enter key (F4) to enter other e-mail addresses.

- After all e-mail addresses are written as mentioned above, push enter key (F4) and return to main page.
- Tab key (F3) is used for changeover from one character of address to another.

"Login" is selected on the e-mail page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. Each character of e-mail addresses is written one by one. The first character is entered by pushing value increase (F1) and decrease keys (F2) and tab key (F3) is pushed to enter the next character. The second character is entered by pushing value increase (F1) and decrease keys

(F2) and tab key (F3) is pushed to enter the next character. After all characters of user's name are entered by this way, push enter key (F4) to enter the mail server of the e-mail address. After mail server is entered in the same way, push enter key (F4) to pass the "password" submenu. Enter the password and push enter key (F4).

The port provided by internet server is entered on the part of "Port". After port is entered, enter key (F4) is pushed to return the main menu. Tab key (F3) is used for changes from one character of address to another.

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10. ELECTRICAL CIRCUIT DIAGRAM

10.1. ES 120 / ES 252 ELECTRICAL CIRCUIT DIAGRAM
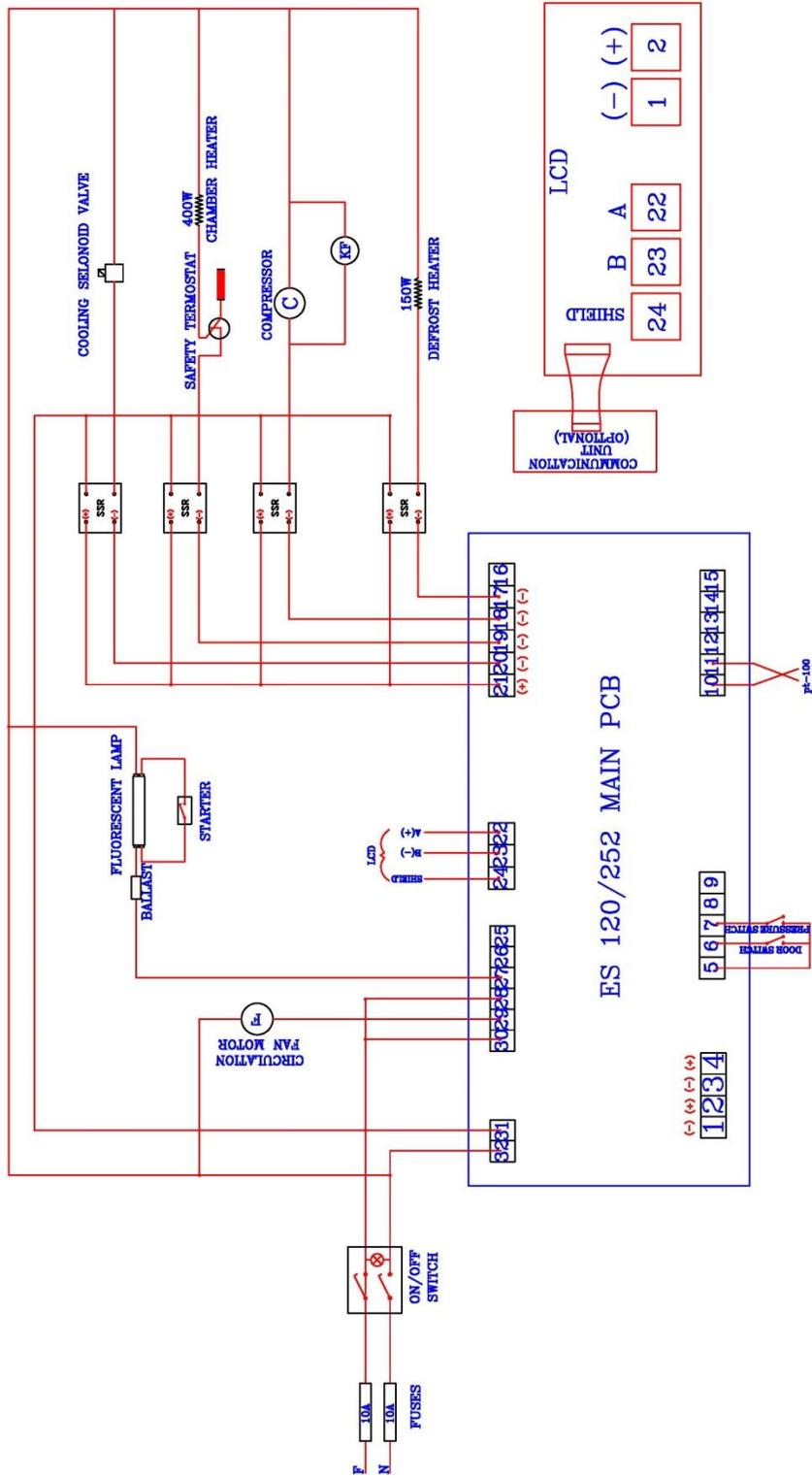
10.2. ES 600 ELECTRICAL CIRCUIT DIAGRAM