NÜVE SANAYİ MALZEMELERİ İMALAT VE TİCARET A.Ş.

NC 40M

VERTICAL STEAM STERILIZERS

USER'S MANUAL

CE 1984

Z14 K26 263 Rev.No: 26 Rev.Date: 04 / 2021

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 you are receiving the product from the transportation company, make sure the package is intact. Take the device out of the box and please accept it after making sure device is intact. 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
SANAYİ MALZEMELERİ
İMALAT VE TİCARET A.Ş.

Saracalar Mah. Saracalar Kümeevleri No: 4/2
Akyurt 06750
Ankara / TURKEY
Tel : (90.312) 399 28 30 (pbx)
Fax : (90.312) 399 21 97
Sales : sales@nuve.com.tr
Technical Service: nuveservice@nuve.com.tr

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.

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"**.

ELECTROMAGNETIC COMPATIBILITIY DECLARATION

Guidance and Manufacturer's Declaration – Electromagnetic Emissions		
NC series are intended for use in the electromagnetic environment specified below. The customer or the user of this NC series should assure that it is used in such environment.		
Emissions test	**Compliance**	**Electromagnetic Environment - Guidance**
RF Emissions CISPR 11	Group 1	The NC series uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR 11	Class B	The NC series are suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic Emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Compliance	

Guidance and Manufacturer's Declaration – Electromagnetic Immunity			
NC series are intended for use in the electromagnetic environment specified below. The customer or the user of this nebuliser should assure that it is used in such environment.			
Immunity Test	**IEC 60101-1 Test Level**	**Compliance Level**	**Electromagnetic Environment – Guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	±4 kV contact ±8 kV air	±4 kV contact ±8 kV air	Floor should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.

Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial and/or hospital environment.
Surge IEC 61000-4-5	±1 kV line to line ±2 kV line to earth	±1 kV line to line ±2 kV line to earth	Mains power quality should be that of a typical commercial and/or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply IEC 61000-4-11	<0 % UT (>100 % dip in UT) for 1 cycle	<0 % UT (>100 % dip in UT) for 1 cycle	Mains power quality should be that of a typical commercial and/or hospital environment.
	40 % UT (60 % dip in UT) for 10 cycles	40 % UT (60 % dip in UT) for 10 cycles	
	70 % UT (30 % dip in UT) for 25 cycles	70 % UT (30 % dip in UT) for 25 cycles	
	<0 % UT (100 % dip in UT) for 5 sec.	<0 % UT (100 % dip in UT) for 5 sec.	
Power frequency (50/ 60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_T is the A.C. mains voltage prior to application of the test level.			

Guidance and Manufacturer's Declaration – Electromagnetic Immunity			
NC series are intended for use in the electromagnetic environment specified below. The customers or the users of this nebuliser should assure that it is used in such environment.			
Immunity Test	**IEC 60101-1 Test Level**	**Compliance Level**	**Electromagnetic Environment – Guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the NC series devices' including cables, than the recommended separation distance calculated from the equation appropriate to the frequency of the transmitter. Recommend separation distance:
Conducted RF IEC 61000-4-6	3 V_{rms} 150 kHz to 80 Mhz	3 V_{rms}	d=1.2 √P 150 KHz to 80 MHz
Radiated RF IEC 61000-4-3	10 V_m 80 MHz to 1 GHz	10 V/m	d=1.2 √P 80 MHz to 800 MHz
Radiated RF IEC 61000-4-3	3 V_m 1.4 GHz to 2 GHz	3 V/m	d=1.2 √P 80 MHz to 800 MHz
Radiated RF IEC 61000-4-3	1 V_m 2 GHz to 2.7 GHz	1 V/m	d=2.3 √P 800 MHz to 2.7 GHz
			Field strengths from fixed RF transmitters as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol: 

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.
a) Field strengths from fixed transmitters, such as base stations for radio (cellular/ cordless) telephones and land mobile radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the NC series are used exceeds the applicable RF compliance level above, the NC series should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the NC series.
b) Over the frequency range 150 kHz to 80MHz, field strengths should be less than 3 V/m.

Recommended separation distance between portable and mobile RF communications equipment and the NC series

NC series are intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customers or the users of these NC series can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the NC series as recommended below, according to the maximum output power of the communications equipment.

Output Power of Transmitter in Watt	**Separation distance according to frequency of transmitter in Output Power of meter**		
	80 MHz - 1 GHz d = 1,2 √P	1.4 GHz - 2 GHz d = 1.2 √P	2 GHz - 2.7 GHz d = 2.33 √P
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.2	1.17	2.33
10	3.79	3.69	7.37
100	11.67	11.67	23.33

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80MHz and 800MHz, the separation distance for the higher frequency range applies

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

CONTENT

I. INTRODUCTION

I.I. USE AND FUNCTION

NC 40M series steam sterilizers are widely used in the laboratories of research institutes, universities and pharmaceutical, food and biotechnology industries. NC 40M series are especially designed for the steam sterilization of liquid and culture media and it is also available for metal, glass, ceramic and plastic items which are resistant to high temperature and high steam pressure.

NC 40M Vertical Laboratory Steam Sterilizers have 5 pre-set programs as follows:

Liquid	121°C	15 minutes
Liquid	121°C	20 minutes
Solid	121°C	20 minutes
Solid	134°C	20 minutes
Solid(Quick)	134°C	4 minutes

NC 40M sterilizers have two special programs for liquid and solid materials. In these special programs, sterilization temperature is programmable between 105.0°C and 135.0°C and sterilization timer is programmable between 1 - 300 minutes. Also, there is a special melting program of which the temperature is programmable between 60°C and 100°C and timer is programmable between 1 - 60 minutes.

The steam is produced by the heater located inside the chamber volume and thus, a homogenous temperature distribution is maintained within the sterilization chamber. The optional pre-heating system decreases the sterilization duration. All parts which are exposed to steam and water are made of stainless materials.

All procedures are carried out automatically without any interference.

NC 40M present supplementary protection with their integrated safety thermostat, safety valve and surface thermostat in addition to the safety features of its control system (i.e. high pressure, high temperature).

NC 40M Vertical Laboratory Steam Sterilizers are designed and manufactured in accordance with national and international directives EN 61010-2-040, EN 61010-1, EN 60601-1-6, EN 61326-1, EN 62304, EN 62366-1, EN ISO 14971, EN 50419, EN ISO 15223-1, EN 12100 and EN 13445 standards under the supervision of total quality management systems ISO 9001 and ISO 13485.
This device is in compliance with WEEE Regulation.
Do not operate the instrument for purposes other than main purpose.

This instrument is only to be used by authorized people after the users manual has been read.

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

2. TECHNICAL SPECIFICATIONS

2.1. TECHNICAL SPECIFICATIONS TABLE

Technical Specifications	NC 40M
Sterilization Temperatures	105°C – 135°C
Number of Preset Programs	2 for Liquids, 3 for Solids
Number of Special Programs	1 for Liquids, 1 for Solids, Melting Program
Melting Program Temperature	60°C – 100°C
Special Program Temperature	105.0°C – 135.0°C
Maximum Pressure	3,0 bars
Maximum Temperature	144 °C
Special Program Time	1-300 minutes
Melting Program Time	1 – 60 minutes
Pre-Heating Temperature	40°C – 60°C
Temperature Sensors	Pt-100
Chamber Material	316L Stainless Steel
Exterior Surface Material	304 Stainless Steel
Power Supply	230 VAC, 50 Hz, 3/N/PE
Power Rating	2500W
Control system	**N-SmArt™** Programmable Microprocessor
Display	Full-color LCD
Memory	29500 cycles + 500 detailed cycles

USB	Standard
Ethernet	Standard
RS 232	Standard
Wi-Fi	Standard
Chamber Volume (Lt)	42
Chamber Dimension (diameter x depth) mm	Ø 320x561
External Dimension (W x D x H) mm	544x565x900
Net / Packed weight (kg)	86 / 97

2.2. ACCESSORIES

2.2.1 OPTOINAL ACCESSORIES

S 09 040 NC 40M Sterilization Basket (Ø 295 x160 mm)
S 09 027 NC 40M Sterilization Basket (Ø 295 x 242 mm)
S 09 028 NC 40M Sterilization Basket (Ø 295 x 345 mm)
S 09 029 NC 40M Sterilization Basket without hole(Ø 295 x 345 mm)
S 09 030 NC 40M Sterilization Basket without hole(Ø 295 x 232 mm)
A 08 104 Printer Paper
Y 07 009 Thermal Printer
A 08 191 GSM Alarm Modul (Without SIM)
A 08 195 **NuveCloser™** software

2.3. LOADING CAPACITY

2.3.1. ERLENMEYER FLASK

MODEL	BASKET	CAPACITY	ERLENMEYER FLASK
NC 40M	S 09 040 (Ø 295 x 160)mm	3 x 8 pcs.	250 ml
	S 09 027 (Ø 295 x 242)mm	2 x 4 pcs.	500 ml
	S 09 027 (Ø 295 x 242)mm	2 x 3 pcs.	1000 ml
	*S 09 028 (Ø 295 x 345)mm	1 pcs.	2000 ml
	*S 09 028 (Ø 295 x 345)mm	1 pcs.	3000 ml
	*S 09 028 (Ø 295 x 345)mm	1 pcs.	5000 ml

2.3.2. SCHOTT-DURAN BOTTLES

MODEL	BASKET	CAPACITY	SCHOTT-DURAN
NC 40M	S 09 040 (Ø 295 x 160)mm	3 x 12 pcs.	250 ml
	S 09 027 (Ø 295 x 242)mm	2 x 8 pcs.	500 ml
	S 09 027 (Ø 295 x 242)mm	2 x 5 pcs.	1000 ml
	*S 09 028 (Ø 295 x 345)mm	3 pcs.	2000 ml
	*S 09 028 (Ø 295 x 345)mm	1 pcs.	3000 ml
	*S 09 028 (Ø 295 x 345)mm	1 pcs.	5000 ml

* Optional

3. 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.
- Handling, transportation, installation, first operation, service and maintenance should be handled by authorized personnel appointed by the manufacturer.
- 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.
- Correctly grounded power supply should be used.
- Only original spare parts and original accessories supplied by Nüve should be used.
- Do not attempt to open the door during the operation.
- NC 40M sterilizers are available for sterilization of high temperature and high pressure resistant material such as glass, ceramic, agar, metal, water, liquids and waste. Materials other than these and heat susceptible objects, explosive, flammable, adhesive and fusible materials shall not be used.
- The liquid to be sterilized in the NC 40M sterilizer should have a boiling point of 100 ° C at sea level at 760 mmHg (1 atm) atmospheric pressure.
- The load which would be sterilized should withstand to the applied sterilization temperature. Proper sterilization program shall be selected in accordance with the load type.

- Proper sterilization program shall be selected in accordance with the load type and the sterilization load shall be disinfected prior to being placed into the unit.
- Be careful and do not constrict your hand, while closing the door.
- Before opening the lid, always check the manometer and see that it shows ‘0’
- Do not touch the body of sterilizer during operation as it can be hot.
- At the end of the operation, do not get too close to the door while opening it, steam can cause scalds and wait for 10 minutes before unloading the sterilizer for temperature to decrease.
- Wear the protective gloves while taking the sample out after sterilization.
- If there is “OPEN DOOR” warning on the display when the door is closed, ensure that the door is fully closed.
- The instrument should only be used by authorized and trained staff. Incorrect attempts may cause severe damages.
- Make sure that there is no anything on the lid gasket. If there is something, it will cause rising steam and can imperil the sterilization.
- Liquids which expand when it is heated should be filled to overflow.
- No dangerous gas is emitted from the device to the environment or atmosphere.
- If the process is terminated by the device or user due to error conditions during the process, the device and samples may be hot because the drying phase cannot be completed. Do not hold your hands or face close to the device when opening the door, taking samples, as steam from the cell can cause burns.

4. SYMBOLS AND LABELS

	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.
CE 1984	Notified Body: **KIWA** **Belgelendirme Hizmetleri A.Ş.** **(İTOSB) İstanbul Tuzla Organize Sanayi Bölgesi Tepeören Mevkii** **34597 Tuzla- İstanbul /TURKEY**
	Symbol in the operating instructions: This symbol refers to important circumstances.
	To identify the manufacturer of a product.
	To indicate the date on which a product was manufactured.
	This product is subject to the directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) of the European Parliament and of the EU Council of Ministers.
	Before operating the instrument this manual should be read carefully.

Labels on the product:

5. INSTALLATION

5.1. 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

5.2. 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.

5.3. UNPACKING

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

- 1 piece of User's Manual and Warranty
- 1 piece of water discharge hose
- 1 pair of thermal gloves
- 2 piece of sterilization baskets

5.4. MAINS SUPPLY

NC 40M Sterilizer requires 230 V, 50 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.

5.5. POSITIONING

The service technician shall perform the following preliminary checks before operating the autoclave:

- Check that no damage has occurred during transport. Perform a visual check to verify that there are no dents, scratches, broken gauges, etc.
- Check that the positioning is suitable for the usage purpose and users.
- Check that the instrument is stable on its four pedestals.
- Check that the user will be able to follow up the operation even when he deals with something else.
- Check that the positioning of the device prevents interference with other equipment in the near surrounding.
- Check the right, left and back side spaces of the device. They should be minimal 30 cm.
- Do not place the device near to the explosive materials.
- Make sure that there is no anything on the lid gasket. Then, close the lid carefully, and take the lid handle close position.

At this stage operate the autoclave and continue with the tests:

Safety check: Check safety elements; safety valve and the door locking mechanisms.

Programs check: Run basic programs of the autoclave and check the operation sequences, the sterilization parameters etc.

Validation: Validate the sterilization cycles, taking in consideration the interface of packaging.

5.6. GENERAL PRESENTATION

Figure 1 – NC 40M

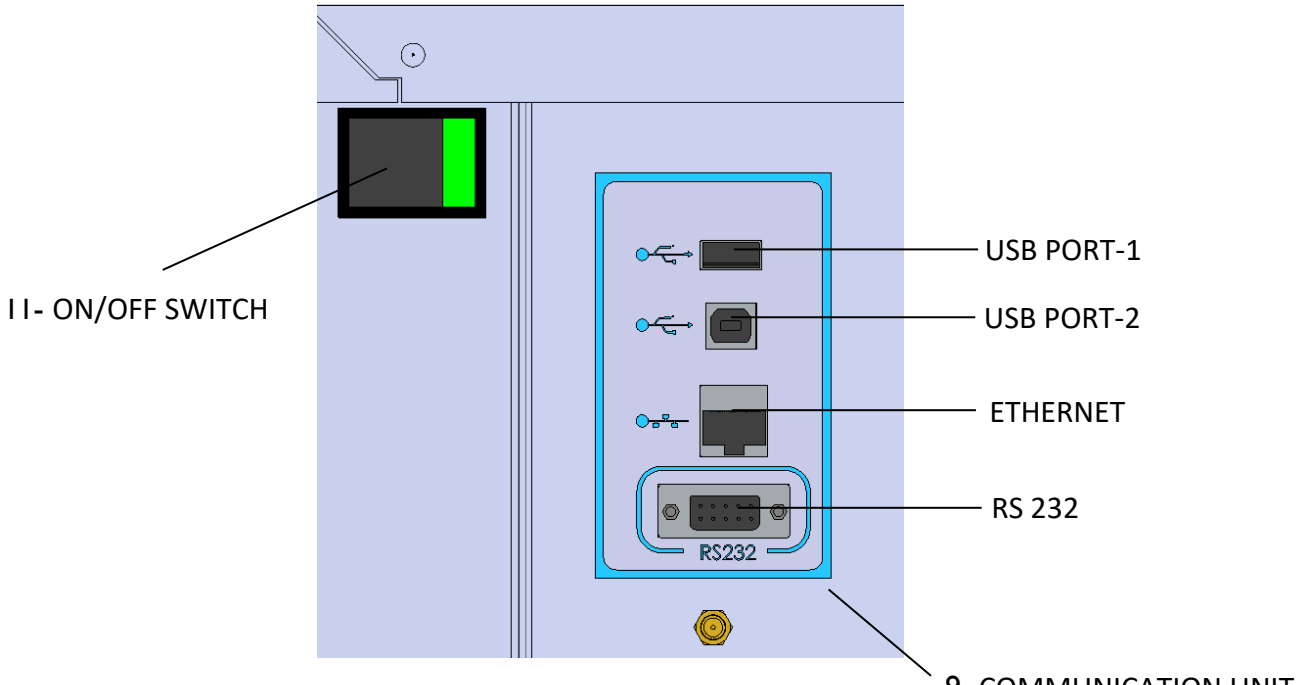


Figure 2 – Communication Unit

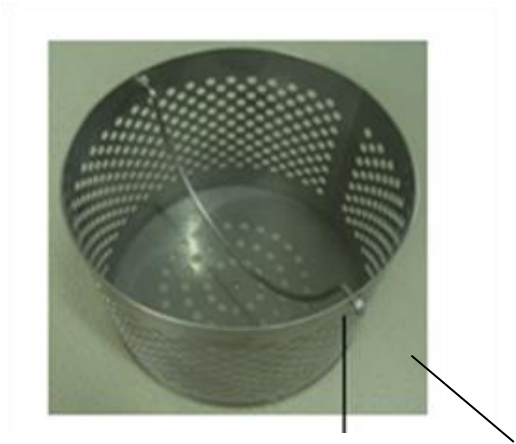


Figure 3 – Sterilization Basket

10- STERILIZATION BASKET

Figure 4 – Back Panel

1.Lid locking/unlocking handle: It is used to lock and unlock the lid.

2.Manometer: It shows the pressure of the inside chamber.

3.Flexible Temperature Sensor: It is used to measure of the liquid and placed inside a reference bottle.

4.Control Panel: Consists of an LC display and four touch buttons to scroll around, select and adjust the equipment functions.

5.Exhaust Tank: It is used to collect the condensed steam as water.

6.Emergency Stop Button: Power cut-off button for stopping the entire autoclave when encountering any emergency that could compromise the safety of the job or disrupt the quality of the product being sterilized.

7.Panel Type Printer: A thermal printer that is used to print the completed program or any program recorded in the memory. The output involves parameters such as the sterilization phases, pressure-temperature data during sterilization phases' time and installation settings. (Optional Accessory)

8.Gasket: The silicone material disposed between the two surfaces to provide a seal preventing escaping of the steam and air penetration into the sterilizing

9.Communication Unit: Unit provides USB-1, USB-2, Ethernet and RS 232 inputs for recording, software updating and remote connection.

10.Sterilization basket: The loads are placed in the sterilization basket.

11.On-off switch: Puts the unit on and off power.

12.Fuses: Main fuses on the phase-neutral lines.

13.Power Cable: It is the cable connected to the plug to power on the instrument.

5.7. CONTROL PANEL

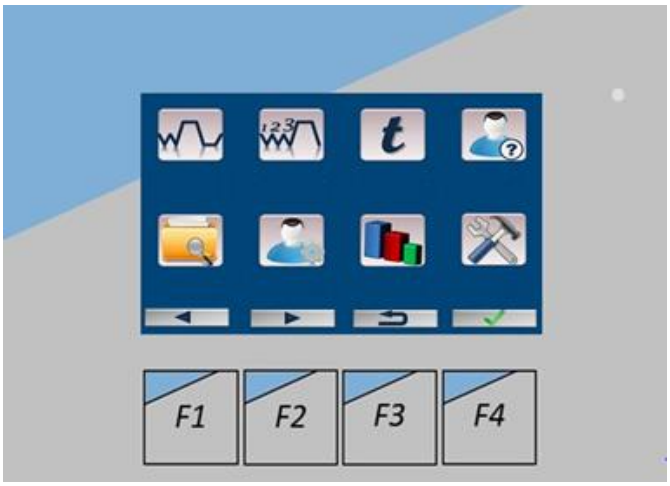


Figure 5 – Control Panel

The functions of F1, F2, F3 and F4 keys 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 key corresponding to this symbol.
°C	This symbol denotes temperature value. When the key corresponding to this symbol is pushed, the screen which shows temperature values of all sensors in sterilizer.
	This symbol denotes the graph screen. Temperature values of current or last sterilization cycle can be monitored on a graph by pushing the key corresponding to this symbol.
	This symbol denotes the door lock. On stand-by, door is unlocked when the key corresponding to this symbol is pushed.  The door is locked again 5 (five) seconds after unlocking. Press the button again to open it.
	This symbol denotes the start key. When the key corresponding to this symbol is pushed, the chosen sterilization program would start.
	This symbol denotes the stop key. When the key corresponding to this symbol is pushed, the chosen sterilization program would stop.

	This symbol denotes backspace. You can return the previous page or exit from the page by pushing the key corresponding to this symbol.
	This symbol denotes the value increase key. You can increase the value by pushing the key corresponding to this symbol while adjusting the numerical values such as temperature or password. It is also used to select next menu item.
	This symbol denotes the value decrease key. You can decrease the value by pushing the key corresponding to this symbol while adjusting the numerical values such as temperature or password. It is also used to select previous menu item.
	This symbol denotes the left key. It appears on the Main menu, Programs and Graph screen. On Main menu and Programs menu, previous menu item is chosen when the key corresponding to this symbol is pushed. On graph screen, the previous graph appears when the key corresponding to this symbol is pushed.
	This symbol denotes the right key. It appears on the Main menu, Programs and Graph screen. On Main menu and Programs menu, next menu item is chosen when the key corresponding to this symbol is pushed. On graph screen, the next graph appears when the key corresponding to this symbol is pushed.
	This symbol denotes enter key. It is used for approval of adjustments.
	This symbol denotes the tab key. When the key corresponding to this symbol is pushed, next item would be selected.
	This symbol denotes settings and it appears only on special programs page. When the key corresponding to this symbol is pushed, the page to set special program parameters is accessed.

5.8. PRIOR TO OPERATION

5.8.1. CONNECTION TO MAINS

- Plug-in the device to correctly grounded socket.

☞ The panel board where the socket is connected shall be fuse protected.

5.8.2. CONNECTION TO WATER SUPPLY

- When the instrument will be operated first time, fill distilled or demineralized water inside the chamber, until upper level of the perforated plate (about 2 liters). At the end of the every operation, this water will decrease, so please fill water before every the operation.

- When the instrument is operating, if 'NO WATER' warning is shown on the display, it means that there is no enough water; in this case stop the program automatically and repeat the sterilization after filling the water.

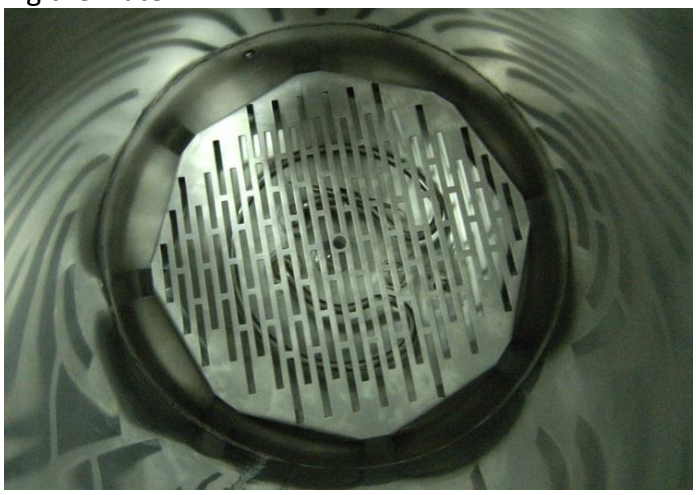


Figure 6

☞ Please use only distilled or demineralized water.

5.9. LOADING THE SAMPLES

Liquids and solids can be sterilized in NC 40M. The right program should be chosen according to the material which will be sterilized. Melting program can be only used for the liquids/culture media

☞ If the right program is not chosen according to the material which will be sterilized, sterilization of the material cannot be guaranteed.

5.9.1. LOADING LIQUID SAMPLES

- Use always same size bottles and Erlenmeyer flasks for the sterilization.

> If the mixed sizes of bottles or erlenmeyer flasks are sterilized at the same time, only the bottles with same size bottle which the flexible temperature sensor is put in will be sterilized and sterilization of the other size of bottles cannot be guaranteed.

- Against risk of overflow, fill 2/3 of the bottles/flasks.
- Always sterilize same type of liquids.

> If the mixed type of liquids is sterilized at the same time, only the liquid which the flexible temperature sensor is put in will be sterilized and sterilization of the other type materials cannot be guaranteed.

- Flexible temperature sensor should be inserted inside the reference bottle and half of the sensor should be inside the liquid.

> Flexible temperature sensor is also used for the sterilization of the liquids and do not measure the temperature during the sterilization of solids.

After the sterilization, clean the flexible temperature sensor and place it to the slot which is inside of the lid and strap the cable of the sensor.

> Use the 'Melting' program only for culture media (agar).

5.9.2. LOADING SOLID SAMPLES

- The materials which will be sterilized should be same type.

> If the mixed type of materials is sterilized at the same time, sterilization of material cannot be guaranteed due to the different thermal specifications of the materials.

- Be sure that all materials are cleaned well before sterilization.
- All glass materials such as bottles and flasks should be completely dry before sterilization.
- If bottles and flasks will be sterilized, they should be placed in baskets on their openings.
- For sensitive materials such as glass, exhaust rate should be programmed and chosen according to the material.

> NC 40 M series liquid autoclaves are not drying properties, therefore the samples can be wet.

6. OPERATING PRINCIPLES

Before using the device, “Precautions And Limitations On Use” section should be read carefully.

6.1. OPERATION PHASES

HEATING: Steam is charged to the chamber to reach sufficient steam temperature before sterilization phase.

STERILIZATION: The chamber temperature is kept at the required sterilization degree all through the sterilization phase.

COOLING: After sterilization phase is completed, chamber is cooled by circulating the ambient air around the chamber and when chamber temperature decreases to available temperature degree, door unlocking condition is provided.

If the lid is not opened after the program is over, another program cannot be started.

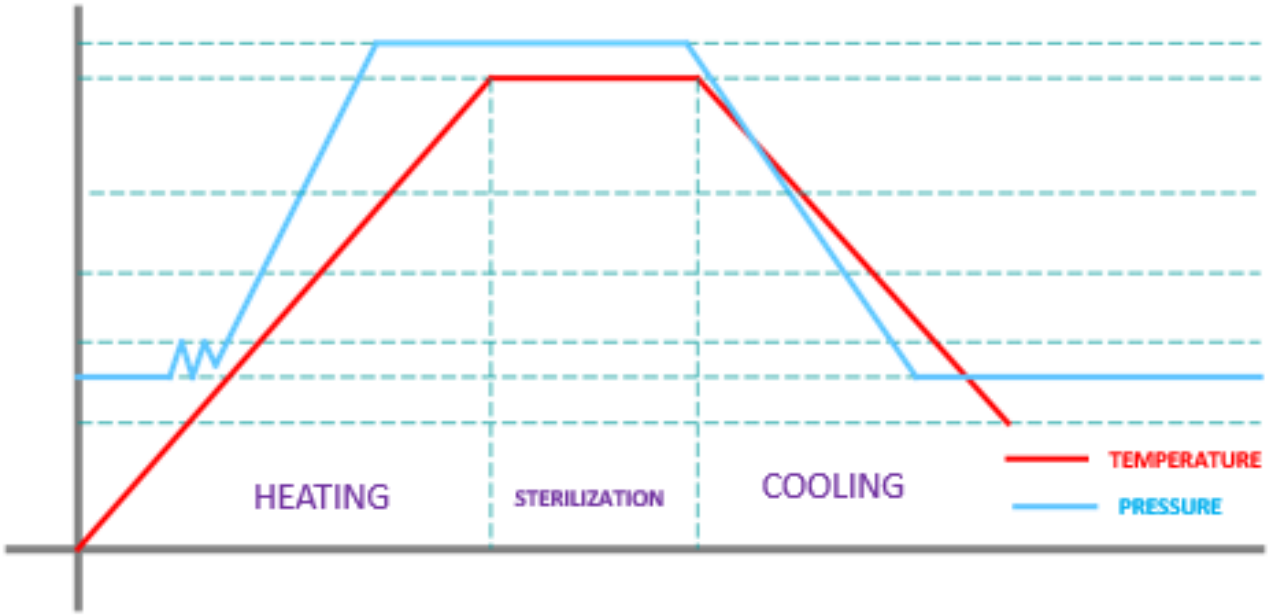
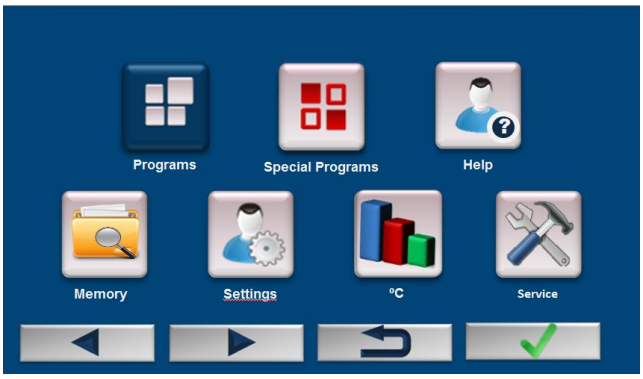
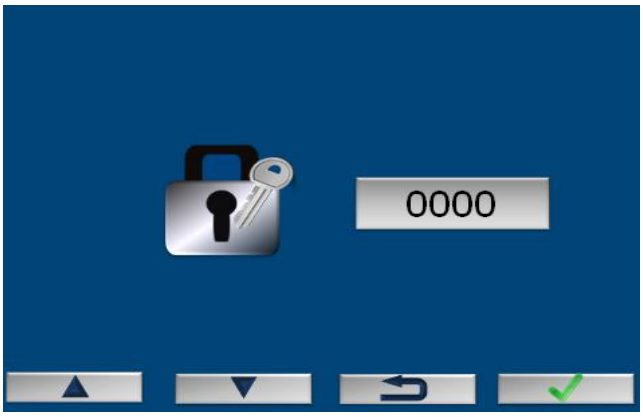


Figure 7 – Operation Phases

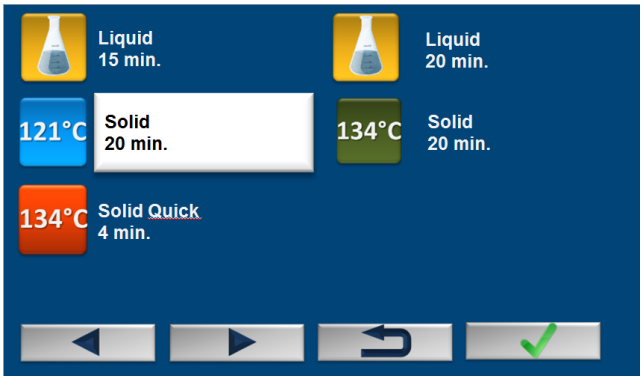
6.2. PROGRAMMING



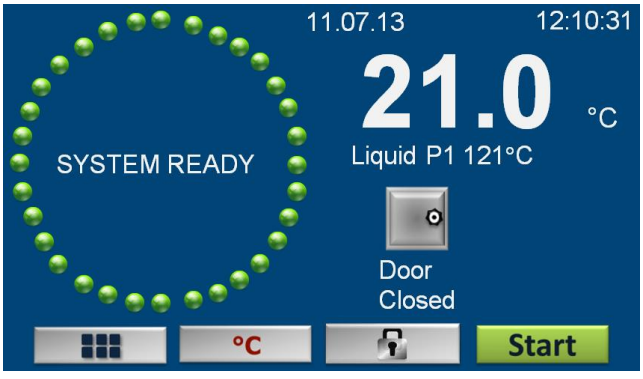
See that display and control panel activates when the device is powered on. Firstly, the screen on the left appears. Use left (F1) and right (F2) keys to select a menu item. Selected menu item color changes to blue and enter (F4) key is used to access the selected menu item.



Password query screen on the left appears, while accessing to "Programs, Special Programs, Test Programs and Settings". Enter password by using increase (F1) and decrease (F2) keys and push enter key (F4). The password should be changed on settings menu to activate password query screen (See Section 7.3.9). The password is 0000 for the first use.



"Programs" menu is selected from the main menu by using left (F1) and right (F2) keys. Push enter (F4) key to access programs page on the left. Use left (F1) and right (F2) keys to select the program to operate. Working screen appears when enter (F4) key is pushed on the selected program.

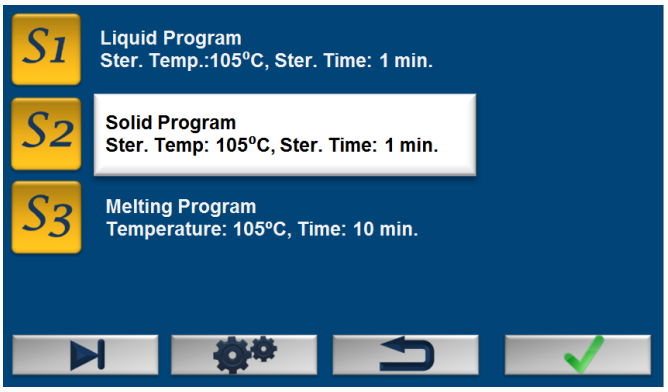


The screen on the left is working screen. Chamber, load and jacket temperature can be monitored from this screen. Current date and time are shown at the top line. Push enter (F4) key to start the selected program. During operation, information about the program are monitored within the cycle which is shows working completed process. Total time is showed on the top line, phase name is showed on the one-down position and program time is showed on the bottom line.

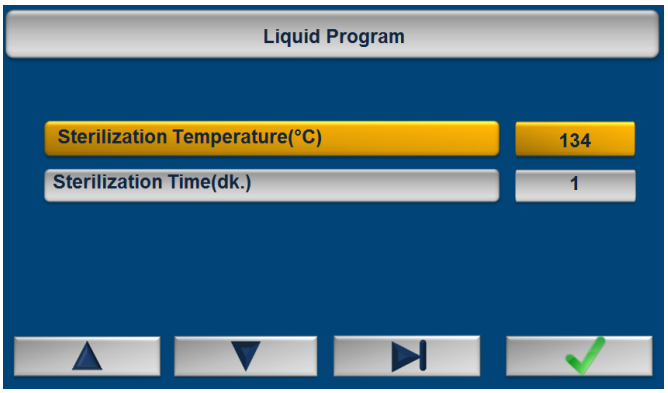
Push "**°C**" key (F2) on the working screen to see the temperature sensors values which are placed in the different parts of the sterilizer. Back key (F3) is used to exit the screen. You may also access this page by using "**°C** " sub menu on main menu.

When the graph button (F3) is pushed on "**°C** " sub menu, the graph page showing temperature values appears on the screen.

6.2.1. SPECIAL PROGRAMS



"Special Programs" menu is selected from the main menu by using left (F1) and right (F2) keys. Push enter (F4) key to access special programs page on the left. Use tab (F1) key to select the program to operate. Working screen appears when enter (F4) key is pushed on the selected program.



Use the key (F2) corresponding to " " symbol to set the parameters of a special program. The screen on the left is special program parameter settings page. Use increase (F1) and decrease (F2) keys to change the value of the selected parameter. Push enter key (F4) to set other parameter values. After setting all parameters, push enter (F4) key to return special programs screen.

Working screen appears when enter (F4) key is pushed on the selected special program. Push start (F4) key on the working screen to start the selected program.

The parameters of a special program shall be set by user who should be authorized and have knowledge about sterilization and its phases. Incorrect setting of a special program may cause irreparable damages on the sterilizer and on sterilized items.

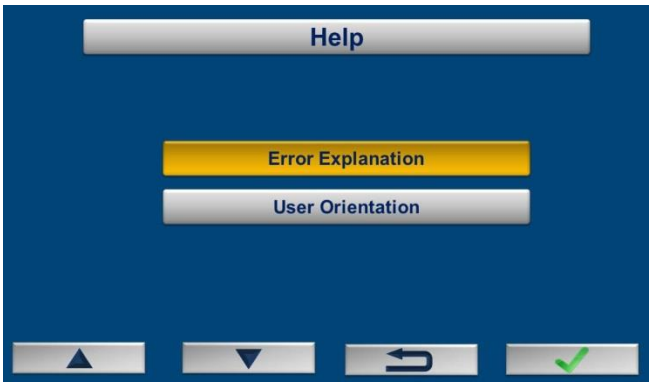
6.3. COMPLETION OF THE OPERATION

When program is completed, “LOADS ARE STERILIZED” appears on the screen.

- See that the program is over.
- Push stop key (F4) to stop the running program at any time. Do not attempt to open the door unless the chamber pressure is at ambient.
- Be careful while handling the samples after the operation as they can be hot.
- You may leave the sterilizer at the stand-by position or switch it off.

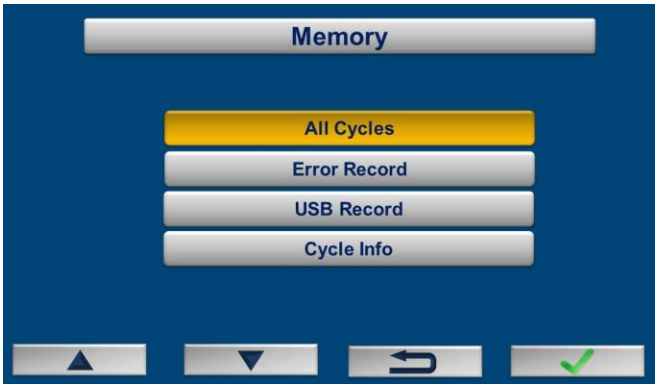
7. MENUS

7.1. HELP



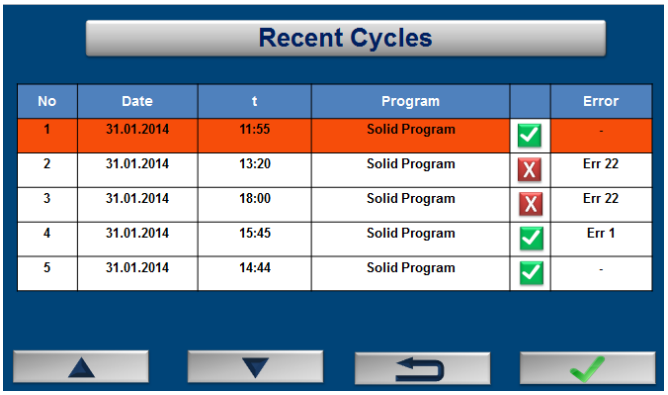
“**Help**” menu is selected from the main menu by using left (F1) and right (F2) keys. Push enter (F4) key to access help page which contains submenus which includes failure explanations which user may encounter and some useful information for user.

7.2. MEMORY

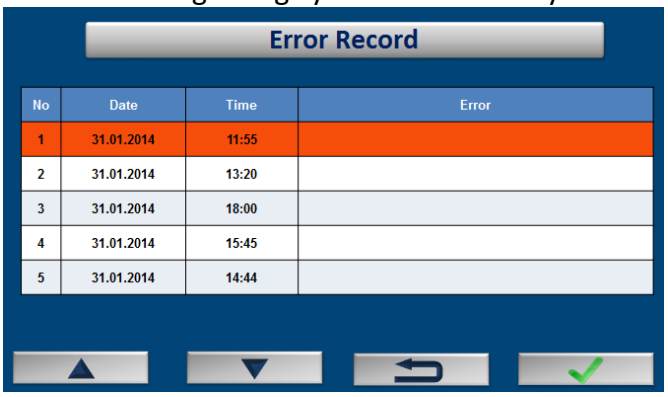


“Memory” menu is selected from the main menu by using left (F1) and right (F2) keys. Push enter (F4) key to access memory page. Use increase (F1) and decrease (F2) keys to select a submenu on memory page and push enter (F4) key to access the selected sub menu.

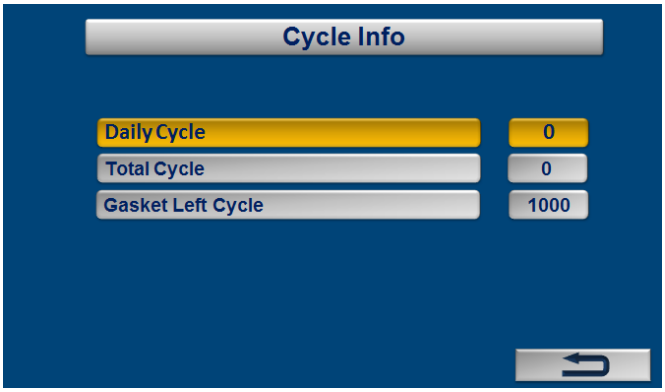
When you select **"All Cycles"** on memory page by using increase (F1) and decrease (F2) keys and push enter (F4) key, the page on the left appears.



When "Recent Cycles" is selected on all cycles page, date query screen for requested program appears on the screen. After entering the date and time by using increase (F1) and decrease (F2) keys and pushing enter (F4) key, a page consisting of records of cycles appears as on the left. Choose a cycle by using increase (F1) and decrease (F2) keys and push enter (F4) key to see detailed record of cycle. Push print (F4) key to print out the record. "Older Cycles" page contains program name, date, time and sterilization result. "Recent Cycles" displays more detailed information regarding cycle than "Older Cycles".



"Error Record" 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. 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.



Select "Cycle Info" submenu on memory page by using value increase (F1) and decrease (F2) keys and push enter (F4) key. The page consisting of number of daily cycles and number of total cycles appears. Total number of cycles left to next replacement of gasket and filter are also shown on this page. Push the backspace key (F4) in order to exit the page.

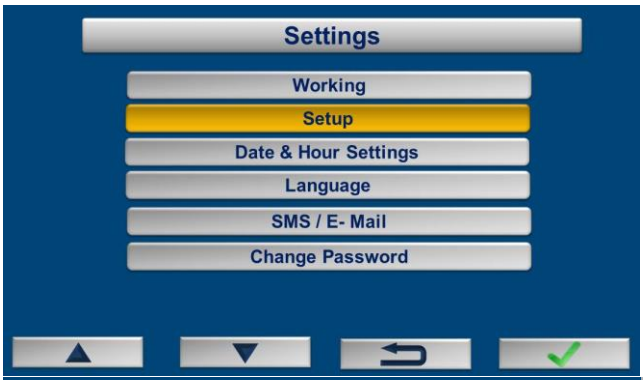
7.2.1. EXTERNAL MEMORY (USB STICK)

USB Stick is connected to USB port-1 of the communication unit (Figure 2). "⇢" appears on the working screen when the USB stick is identified by the microprocessor system.

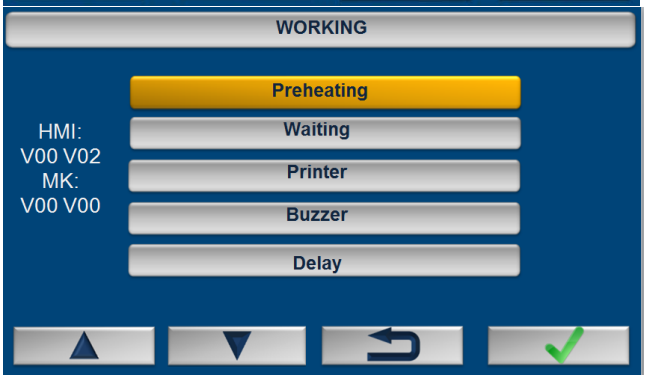
> ☞ If ⇢ does not appear on the screen, USB stick may be defective or may not be connected correctly.

When "USB Record" submenu is selected on the memory page, there are four options: "Recent Cycles"; "Older Cycles"; "Error Record"; and "All". Use increase (F1) and decrease (F2) keys to select one of the options and push enter (F4) key to transfer to USB stick.

7.3. SETTINGS



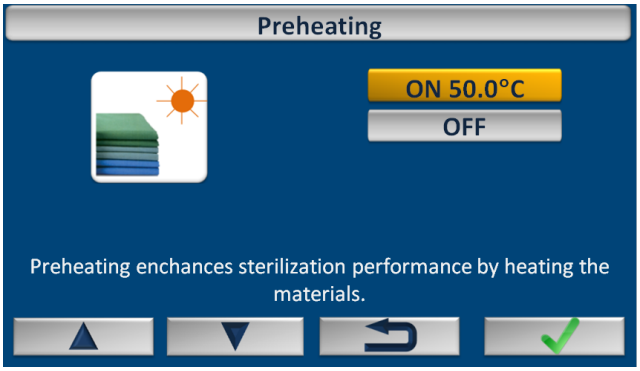
"Settings" menu is selected from the main menu by using left (F1) and right (F2) keys. Push enter (F4) key to access settings page on the left. Use increase (F1) and decrease (F2) keys to select a submenu.



"Working" menu is selected from the main menu by using left (F1) and right (F2) keys. Push enter (F4) key to access settings page on the left. Use increase (F1) and decrease (F2) buttons to select "Preheating", "Waiting", "Printer" and "Buzzer" submenus.

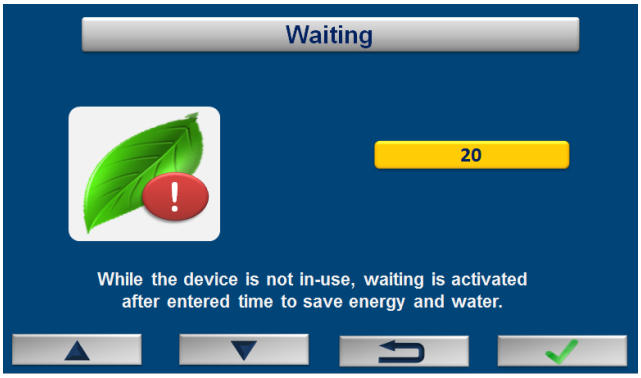
7.3.1. PREHEATING

Steam is produced by heating water in steam sterilizers. The steam penetrates to materials and heats materials to be sterilized. This may lead to steam condensing on the instruments and containers. Condensation forms on the objects being sterilized, and some of the condensation drops to the bottom of the sterilization container. After sterilization, during the drying phase, all the condensation is eliminated from the sterilization container and from the sterilized items themselves. Activate 'preheating' section for better drying result.



Select “Working” submenu on the settings page by increase (F1) and decrease (F2) keys and push enter (F4) key. On the next page, select Preheating by using increase (F1) and decrease (F2) keys and push enter (F4) key. Select ON and push enter (F4) key.

7.3.2. STANDBY

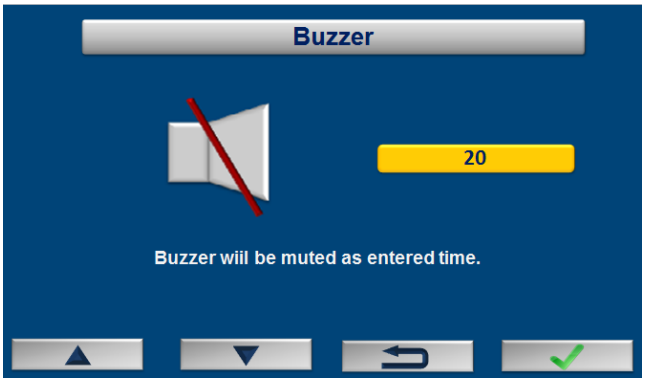


Standby is for energy saving while the sterilizer is not in use. Select “Working” submenu on the settings page by increase (F1) and decrease (F2) keys and push enter (F4) key. On the next page, select Standby by using increase (F1) and decrease (F2) keys and push enter (F4) key. Adjust the time (in minutes) when to activate standby by using increase (F1) and decrease (F2) keys and push enter (F4) key.

7.3.3. PRINTER

Sterilization parameters can be printed as alphanumeric via Thermal Printer that is optional accessories. Printer should be selected as “ON” from printer settings page to take printout via Thermal Printer.

7.3.4. BUZZER



“Alarm Repeat Time” submenu is selected on the working page by using the value increase (F1) and decrease (F2) keys. If the alarm condition continues after muting the alarm buzzer, “Alarm Repeat Time” reactivates audible alarm at the end of the desired time (in minutes). If you want to exit this page without any change, push the backspace key (F3).

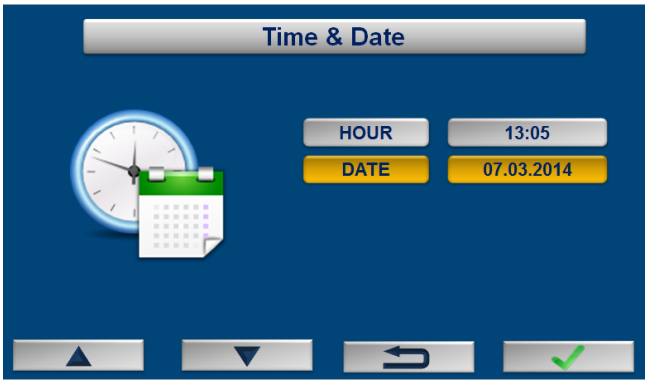
7.3.5. DELAY

"Delay Time" submenu is selected on the working page by using the value increase (F1) and decrease (F2) keys. Push the enter key by using the value increase (F1) and decrease(F2) keys. When turn the working screen and push the "START" button, program will begin at the desired time and date.

7.3.6. SETUP

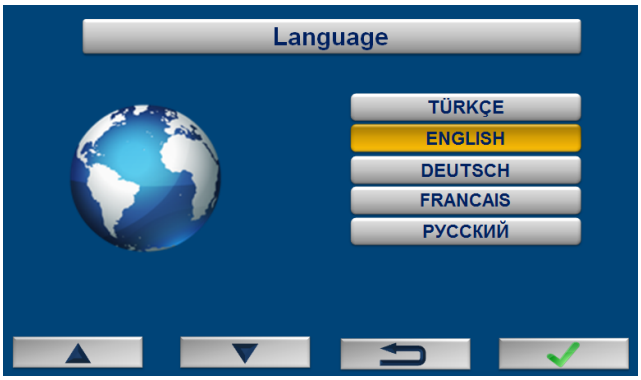
Select "Setup" by using increase (F1) and decrease (F2) buttons and push enter (F4) button to access the page where the company name, address and phone number can be entered. This information is to be used in print outs and memory. Each character of data is entered one by one. Enter first character by using increase (F1) and decrease keys (F2) and push tab key (F3) to enter next character. After all characters of the data is entered completely, push enter (F4) key to enter next data.

7.3.7. TIME/DATE



"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. In order to continue to adjust, push enter key.
If you want to exit this page without any change, push the backspace key (F3).

7.3.8. LANGUAGE



"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).

7.3.9. PASSWORD

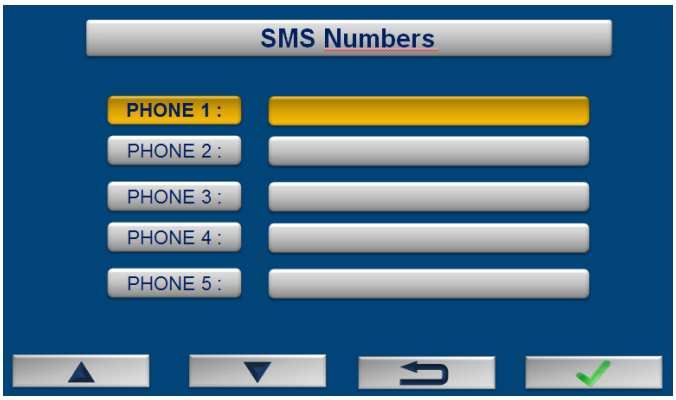
"Change Password" submenu is selected on the settings page by the value increase (F1) and decrease (F2) keys. The page on the left appears when enter key (F4) is pushed. After old password value is entered by pushing the value increase and decrease keys, push the enter key. New password value can be entered in the "New Password" and "Retype New" sections.

If you want to exit this page without any change, push the backspace key (F3). Password query page provides to access to "Programs", "Test Programs", "Special Programs" and "Settings" pages. If "New Password" is selected "0000", Password query page does not appear to access these pages.

7.3.10. SMS

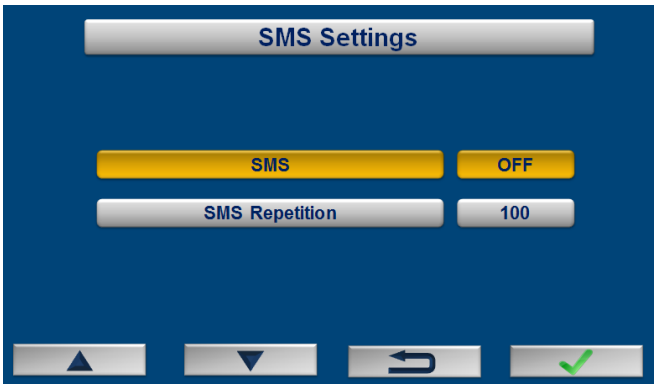
> In order to use SMS, optional GSM module is mandatory to have. Refer to Section 11.1 for information regarding GSM module connection.

Select “SMS/E-mail” submenu on the settings page by increase (F1) and decrease (F2) keys and push enter (F4) key. On the next page, select SMS by using increase (F1) and decrease (F2) keys and push enter (F4) key.



“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.
- 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.



Use increase (F1) and decrease (F2) keys to select “SMS settings” on SMS page and push enter (F4) key to access the page.

- Activation or deactivation of SMS function can be adjusted. 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).

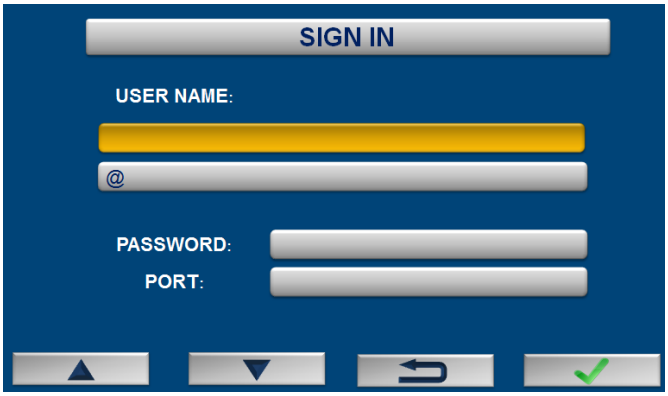
- "Repeat time" is the frequency of sending SMS. The user is notified again by sending SMS if the failure still continues. Repeat time can be adjusted between 1 and 100 minutes by pushing enter key (F4).

7.3.11.E-MAIL

Select "SMS/E-mail" submenu on the settings page by increase (F1) and decrease (F2) keys and push enter (F4) key. On the next page, select "E-Mail" by using increase (F1) and decrease (F2) keys and push enter (F4) key.

- 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).

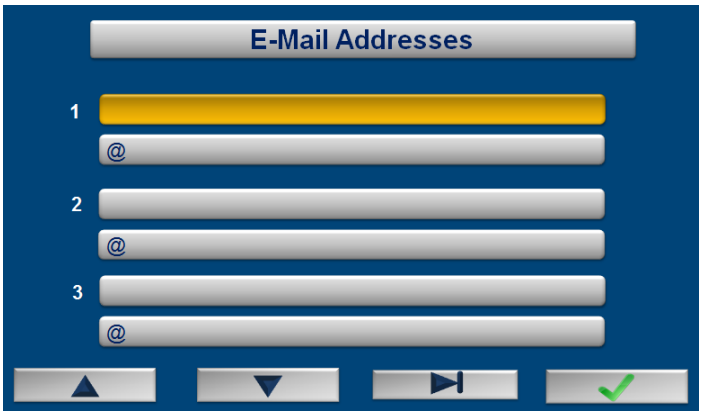
> ☞ Ethernet settings should be adjusted by technical service staff for the first usage. Otherwise, this function does not work.



"Sign In" 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.



"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 mail server is written in the same way, push the enter key (F4) to write next e-mail address.
- After all e-mail addresses from 1 to 5 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.

7.3.12. WI-FI SETTINGS

For Wi-Fi and NuveControl connection of N-Smart devices, follow these steps:

- Open a Wi-Fi broadcast.
- Download and register the N-Mobile app according to the phone's operating system (IOS, Android).
- Add device by typing the MAC address and Serial number of the device you are connecting to.
- Connect to the Wi-Fi broadcast to which the device is connected by phone.
- Set the Wi-Fi connection and Wi-Fi Auto-tuning to On from the Wi-Fi section on the Settings page of the device to be connected.
- Enter the password for the Wi-Fi broadcast connected to Wi-Fi Configuration in the settings section of the N-Mobile application and press the confirmation key.
- Check the connection from the icons on the Wi-Fi Settings page.

7.4. °C

"**°C**" menu is selected from the main menu by using left (F1) and right (F2) keys. Push enter (F4) key to monitor temperature sensors values which are placed in the different parts of the sterilizer. Back key (F3) is used to exit the screen. You may also access this page by using "**°C**" (F3) key on working screen.

7.5. SERVICE

"Service" menu is selected from the main menu by using left (F1) and right (F2) keys nad push enter (F4) key to access. Service menu is password protected and it is for authorized technical staff.

8. PERIODIC MAINTENANCE AND CLEANING

8.1. PERIODIC MAINTENANCE

Cleaning and periodical maintenance operations should be performed the manometer pressure is 0 bar, the lid is open position and the chamber is cold. During cleaning and maintenance operation, remove the plug from the outlet.

- Security valves which are in direct contact with pressure shall be replaced in every 5 years by authorized personnel.
- After each 2000 runs the instrument should be controlled by authorized technical service personnel.
- It is recommended that the device works every day before loaded working, when the device is cold and is not loaded for testing performance of the device.
- Weekly "PLEASE CLEAN THE STERILIZATION CHAMBER" appears on the screen and when OK button is pushed message is cleared.
- In every 500 operation, "PLEASE CLEAN FAN FILTER" message appears on the screen. When message appears, fan filter should be cleaned. Message can be cleaned by pushing "OK" button. After 10 operations, message appears again but working of the device is not affected by this situation.
- In every 1000 operation, "PLEASE CHANGE THE GASKET" message appears on the screen. Gasket of the device should be changed by authorized staff in every 1000 operation or once in six months. Message can be cleaned by pushing "OK" button. After 10 operations, message appears again but working of the device is not affected by this situation.

8.2. PERIODIC CONTROL

The service technician shall perform the following preliminary checks before operating the autoclave.

NO	TEST PARAMETERS	CONTROL RANGE
1.	Check the safety valve by operating it.	2 months
2.	Remove the cover of the autoclave, check and tighten the ports and valves.	6 months
3.	Check the lid gasket.	6 months
4.	Check that the autoclave is leveled.	Annual
5.	Check the continuity of the grounding connections.	Annual
6.	Check the safety elements (safety valve, safety and cut-off thermostats and lid locking mechanism).	Annual
7.	Check the water reservoir, piping and plastic parts of autoclave.	Annual
8.	Run the sterilization programs of autoclave and check the	Annual

	operational/ sterilization parameters.	
9.	Check the precise operation of the earth leakage relay and electrical control systems.	Annual
10.	Check and tighten all screw connections in the control box, valves and instrument.	Annual
11.	Check the temperature sensor calibration.	Annual
12.	Validate autoclave effectiveness (loading/ unloading).	6 months/ Annual
13.	Observe the closing device for excessive wear.	5 years
14.	All safety valves exposed to direct steam pressure must be checked.	5 years

Safety tests (pressure vessel, efficiency, electrical) shall be performed in accordance with local rules or regulations, by an authorized inspector.

According to calculations, number of allowable cycles for the operation conditions are 10.000 at pressure fluctuation between 0 bar to 2,05 bar and 20.000 at pressure fluctuation between 0 bar to 1,05 bar.

8.3. CLEANING

- Water discharge process within the chamber should be done by attaching water drain hose to cleaning valve which is positioned under the device. Do not open the cleaning valve when water within the chamber is hot. During the operation cleaning valve should be closed.
- Cleaning valve is positioned behind the exhaust tank for NC 40M. Remove the exhaust tank, place the water drain hose and then water within the chamber can be emptied. (Figure 8)
- Cleaning valve is positioned bottom-left side of the device for 90L. Mount the record and then water within the chamber can be emptied. (Figure 9)

Figure 8 - Attaching water drain hose

Figure 9 – Water Tank

- A soft washcloth must be used not to cause any damage in the chamber.
- Before every sterilization process, the chamber must be checked against any contamination and must be immediately cleaned if needed.*

- Prior to each operation, the cleanliness of the chamber gasket should be checked. Contamination on the surface of the gasket and foreign substances (such as: agar waste, yarn, etc.) adversely affect the sealing of the chamber and any leakage may cause undesired events.
- The sterilization loads should have been disinfected prior to placement into the sterilization chamber.

	Cleaning shall be performed while chamber is cold.
	The materials to be sterilized shall be disinfected prior to sterilization process. Used disinfectants effects should be cleaned carefully and thoroughly after the cleaning process. Uncleaned disinfectants can cause undesirable problems in the chamber during the sterilization phase.
	*Used chemical materials effects for the chamber cleaning should be cleaned carefully and thoroughly after the cleaning process. Uncleaned chemical materials can cause undesirable problems in the chamber during the sterilization phase.
	It is recommended to run a cycle once after cleaning without load.

9. 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 off 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 off in accordance with applicable local regulations.

10. TROUBLESHOOTING

If the device fails to operate, please check the followings:

- The power switch is on;
- The plug is plugged-in properly;
- The plug is not defective;
- The mains supply is present.

10.1. ERROR CODES

Error Codes may appear immediately after the sterilizer is turned on or following a time lag after the unit is turned on, before any program is started.
Error Codes may appear immediately after a program is started or during any program execution. These messages are accompanied by an alarm tone which can be shut down by the "stop" button.
In case of any failure during a program run; the program is interrupted and the sterilizer either releases steam or vents the chamber according to the pressure condition in the chamber.

If failure situation appears before sterilization phase is completed, load is not sterile. Sterilization process must be repeated.

Failures which may be encountered during operation is listed below:

Error 06: Door Open

Door lock has been released during operation. Please check the device loading door sensor.

Error 10: Sensor Failure PT1, PT2, PT4, BT2 – Sensor is broken**.** Please contact to Nüve authorized service.

Error 12: High Preheating Temperature

The maximum pre-heating temperature has been exceeded. Please contact to Nüve authorized service.

Error 14: Door Locking

The duration for door locking has exceeded the permitted time period. Please check whether door is closed.

Error 17: Heater Failure

The message appears when any failure occurs on the heater. Please contact to Nüve authorized service.

Error 19: Low Temperature

The temperature in the chamber (for solid PT-1, for liquid PT-2) remains 2ºC below the set temperature (for melting program 10ºC) after the sterilization phase has started. Please check the sterilization parameters and loading method.

Error 20: High Temperature

The temperature of PT-1 or PT-2 sensors has exceeded SET+4ºC (for melting program SET+10ºC). Please check the sterilization parameters and loading method.

Error 35: Exhaust Tank Failure

When the instrument is operating, the exhaust tank has been taken out. Please check whether exhaust tank is placed properly.

Error 36: Over Temperature

The temperature of sensors (PT-1, PT-2 or PT-3) has exceeded limit temperature (170°C). Please check the sterilization parameters and loading method.

Error 37: Insufficent Water

There is no water within the chamber. Please add water to the chamber.

Error 46: Gasket Warning

Gasket should be changed in every 500 cycle.

Error 48: Communication Error

This message appears that in case there is no connection between main card and display . Please contact to an authorized NÜVE agent to seek technical help.

Error 49: SMS Error

This message appears if the device can not send SMS to user in case of any error situation. Please check whether GSM modül is connected with the device and SMS optional is selected as "OPEN".

Error 50: E-Mail Error

This message appears if the device can not send E-Mail to user in case of any error situation. Please check whether Ethernet cable is connected with the device and E-Mail option is selected as "OPEN".

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

When the emergency stop button pressed, all operations carried out on the device will be terminated. Follow the on-screen prompts as soon as the emergency stop button is reset to its previous position. Be absolutely sure that the manometer shows zero before you open the autoclave cover.

If the autoclave is operated without water, the safety thermostat placed in the autoclave will stop the heating process. please contact with an authorized Nüve agent to seek technical help.

11. OPTIONS

11.1. GSM MODULE

In case of error, DF series can send SMS to five different phone numbers by GSM module as an option.

Figure 10 – GSM Module

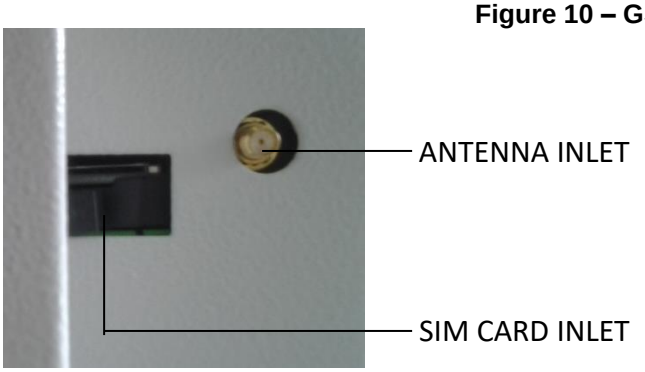


Figure 11

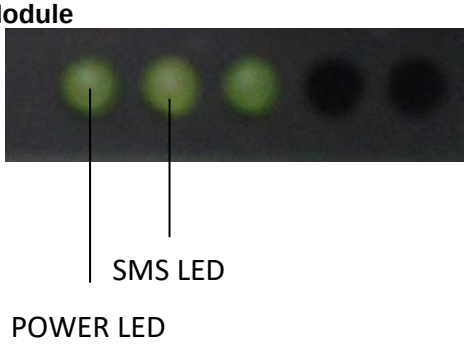


Figure 12

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

- Insert SIM card in the GSM module (See Figure 11).

> SIM card is provided by the user. The cost of SIM card and SMS differs according to the GSM providers and all the 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 10) to the RS 232 port on the sterilizer (See Figure 2).
- Ensure that power led is turned on (See Figure 12). 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 11).

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”.

12. ELECTRICAL CIRCUIT DIAGRAM

12.1. NC 40M ELECTRICAL CIRCUIT DIAGRAM