USER MANUAL

LLG-uni*OVEN* 42
and LLG-uni*OVEN* 110

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WARRANTY CERTIFICATE

1. LLG warrants that the equipment delivered is free from defects during material and workmanship. This warranty is provided for a period of three 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 equipment.

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

4. The warranty may not be claimed for damages occurred during the shipment, for damages resulting from improper handling or use, the defects in maintenance, negligence, bad functioning of auxiliary equipment, in the case of force majeure or accident and incorrect power supply.

5. In the event of failure, LLG shall be under no liability for any injury, or any loss or damage as the result of the failure other than the guarantee 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 LLG. IT MAY NOT BE DUPLICATED OR DISTRIBUTED WITHOUT PERMISSION.**

We would like to take this opportunity to thank you for preferring this LLG Labware 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;

- obey all the warning labels,
- do not remove the warning labels,
- do not operate damaged instrument,
- do not operate the instrument with a damaged cable,
- do not move the instrument during operation.

In case of a problem contact your LLG partner for an authorized service or maintenance.

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

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

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1. INTRODUCTION

1.1. USE AND FUNCTION

Both LLG-uni*OVEN* 42 and LLG-uni*OVEN* 110 are designed to heat or dry samples in laboratories. They offer excellent drying and heating conditions.

They maintain temperatures between 50 °C and 250 °C and keep the temperature stable within the given tolerances.

The internal chambers of all LLG-uni*OVEN* are made of stainless steel and their heaters are circular heaters which provide the homogeneity of the temperature by the circulation fans placed on their centers.

The insulation of the ovens not only provides economical working conditions but also helps to achieve the excellent homogeneity.

The LLG-uni*OVEN* series provide precise operation conditions with the PID microprocessor controlled system and the timer. Adjustable safety thermostat offers an additional safety.

All ovens are manufactured according to the following standards,

ISO 9001:2015, ISO 13485:2016, EN ISO 14971:2012, MDD 93 / 42 / EEC (2007/47/EC), EN 60601 – 1, EN 60601 – 1 – 2, EN 60601 – 1 – 6, EN 62304, EN ISO 15223 – 1, EN 61000–6–3, EN 62366 – 1, EN 50419.
This device is in compliance with WEEE Regulation.

Do not operate the instrument for purposes other than main purpose.

The instrument is only to be used by authorized people after the user's manual has been read carefully. Only technical personnel can handle the product in case of a breakdown.

2. TECHNICAL SPECIFICATIONS

2.1. Technical specifications table

	LLG-uni*OVEN* 42	LLG-uni*OVEN* 110
Part number	6.263 670	6.263 675
Temperature Range	50 °C to 250 °C	
Temperature Sensor	Fe-Const	
Control System	PID Programmable Microprocessor	
Temperature set & display sensitivity	1 °C	
Temperature variation (100 °C-150 °C)	± 2 °C	
Temperature fluctuation	± 1 °C	
Thermostat Working Accuracy	± 1 °C	
Timer	1 minute + 99.9 hours + Hold Position	
No of shelves (standard/max.)	2/7	2/10
Safety thermostat	Gas expansion thermostat (50 °C-300 °C)	
Power consumption	850 W	1550 W
Power Supply	230 V, 50/60 Hz	
Useful volume	42 liters	110 liters
Internal material	Stainless Steel	
External material	Epoxy-polyester painted steel	
Internal dimensions (WxDxH) mm	420x280x360	500x445x500
External dimensions (WxDxH) mm	705x505x540	790x665x680
Packing dimensions (WxDxH) mm	790x580x760	870x740x860
Net/Packed weight	39 / 45	66 74

2.2. OPTIONAL ACCESSORIES

- **6.263 671**   Shelf for LLG-uni*OVEN* 42
- **6.263 672**   2 x Shelf carrier for LLG-uni*OVEN* 42
- **6.263 676**   Shelf for LLG-uni*OVEN* 110
- **6.263 677**   2 x Shelf carrier for LLG-uni*OVEN* 110

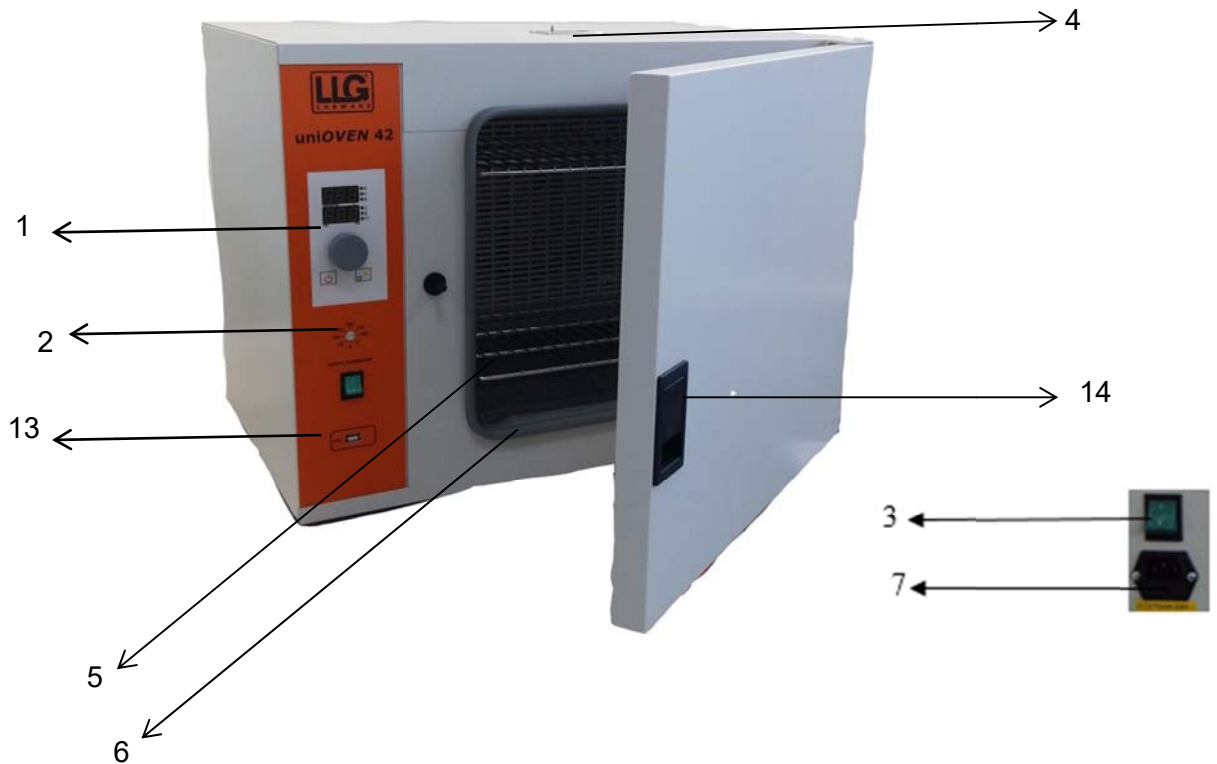**Note:** For each shelf **two shelf carriers** are necessary.

2.3. GENERAL PRESENTATION

Figure 1: Inner side of LLG-uni*OVEN* 42/ LLG-uni*OVEN* 110

1. Control panel
2. Safety thermostat
3. On / Off switch
4. Ventilation hole
5. Shelf
6. Chamber gasket
7. Mains supply inlet and the fuses

8. Shelf carrier holder
9. Shelf carrier
10. Circulation fan
11. Heater
12. Heater protecting sheet
13. Input USB
14. Door handle

3. INSTALLATION PROCEDURE

3.1. LIFTING AND TRANSPORT

Due to the heavy weight of the LLG-uni*OVEN*s, all lifting and transport must be carried out using proper handling equipment. They must be supported from underneath and never turned over.

3.2. UNPACKING

Remove the packing cardboard box and the second nylon packing around the oven. The below written are provided with the instrument, please check them;

- User's manual
- 1 piece electrical cable
- 2 pieces of shelves
- 4 pieces of shelf carriers

3.3. POSITIONING

- Check that no damage has occurred during transport.
- Lift the oven underneath and carry it to its place carefully.
- Balance the oven on the four pedestals. If necessary, provide stable standing by adjusting the pedestal heights.
- Insert the shelf carriers and then the shelves.

Check the followings,

- The proposed site is suitable for users,
- The oven does not occupy the utilisation space of others or damage them.

3.4. ENVIRONMENTAL CONDITIONS

Please pay special attention to the followings,

At most 70 % of the surface area of the shelves should be used in order to obtain a uniform temperature distribution.

- Indoor use only
- Temperature from 5 °C to 40 °C
- Humidity level 80 % up to 22 °C
- Maximum height 2000 m

3.5. MAINS SUPPLY

- The oven requires 230 V, 50/60 Hz
- Please make sure that the supplied mains matches the required power ratings. If not, provide an extra line to support
- **Always plug the oven to properly earthed sockets**
- **A supply fitted with a circuit breaker should be used for protection against indirect contact in case of an insulation fault**

3.5.1. Prior to Operation

Check the followings:
- Make sure that the safety thermostat is adjusted to the temperature which is higher than the set temperature
- Liquids are not heated in sealed containers
- The boiling points of the samples are higher than the set temperature
- The freezing points of the samples are lower than the set temperature
- The liquids which may expand during heating do not overflow from their containers
- The set temperature does not destroy the structure of the samples
- The vapours and gases which are generated during the operation are not harmful to human health or flammable or explosive
- The instruments, which will be dried up and heated, should not be combustible and explosive, especially please kindly check that
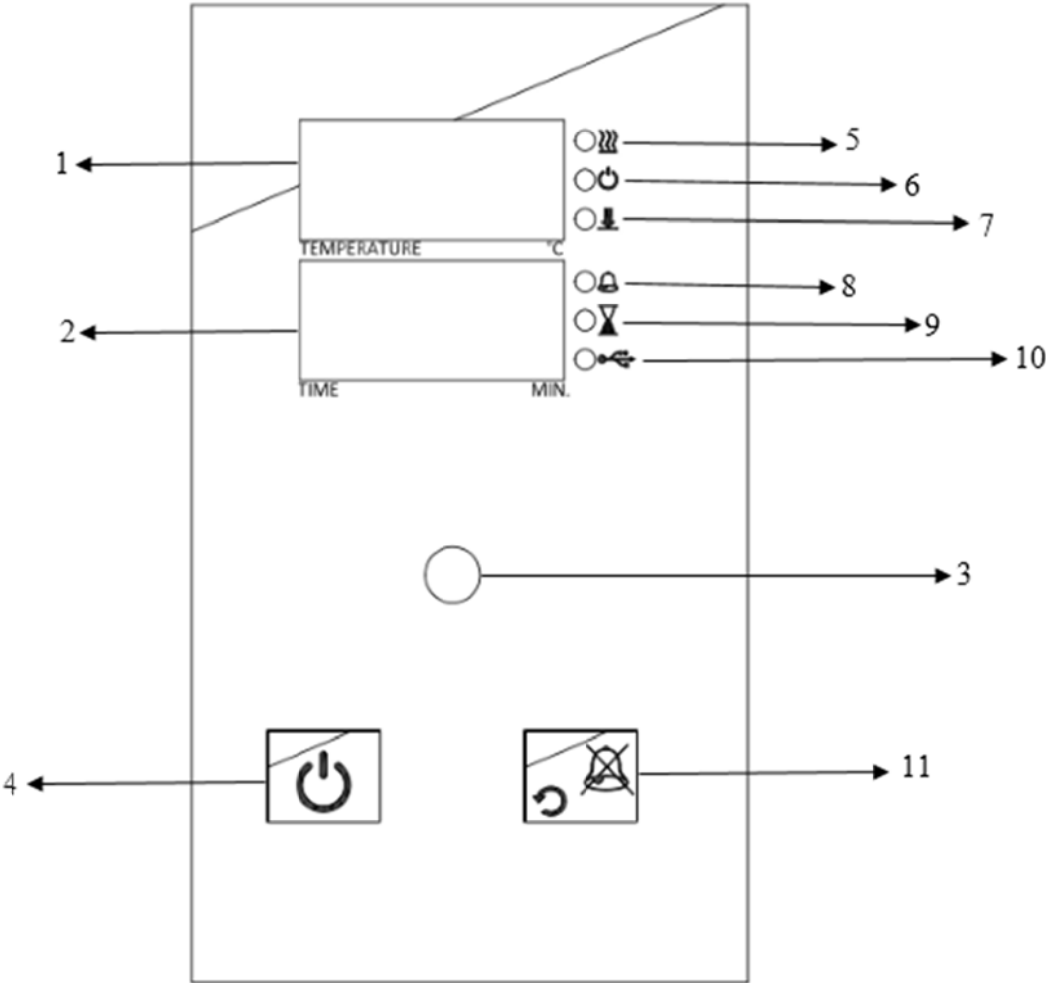
IF MENTIONED WARNINGS ARE NOT CONSIDERED, LLG WILL NOT BE RESPONSIBLE FROM THEIR RESULTS.

4. OPERATING PRINCIPLES

4.1. SWITCHING ON

- Push on/off switch.
- See that the microprocessor control system activates.
- Learn the function of the control and display panel (Section 4.2).

4.2. CONTROL PANEL

01- Temperature Display
This display shows chamber temperature during "stand-by" and during the operation (thermometer position),during program preparation, the temperature setting values or the alarm setting values, Failure codes, EoF warning when power is interrupted, the set temperature values and alarm values.

02- Time Display
This display shows the elapsed time during the operation and the set value during programming.

03- Encoder Button
The encoder button has two physical movements. The button turn clockwise and anticlockwise to increase or decrease the temperature and time values of the program. Also, the button press for select / confirm.

04- Start / Stop Key
Used button to start the device to operating at set values or to stop the operation.

05- Heating Lamp
The led is "on" during heating, it indicates that the heating process is carried out.

06- "Operating The Program" Lamp
A lamp indicating that the program is running as soon as the device is started.

07- Data Transfer Lamp
The lamp indicates that the records are transferred in the memory or the file is transferred during software update

08- Alarm Led
This led flashes when there is a warning or error on the device.

09- "End of The Program" Lamp
It is a warning lamp that indicates that the running program is finished.

10- Usb Lamp
This lamp is on when connected to a USB external memory.

☞   The device supports up to **8 GB** of external memory.

11- Back / Alarm Mute Button
This button is used to silence audible alarms in case of error and cancel the changes in the menu.

4.3. PREPARATION OF USER SETTINGS

The device has a password protected menu. The password is set to "000" when the device first starts. Follow the below steps to change the password, update current date / time information and access the operator's menu where other settings are made.
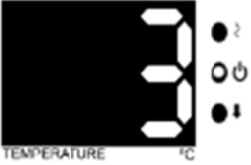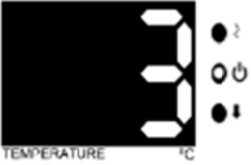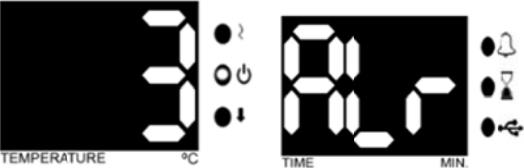
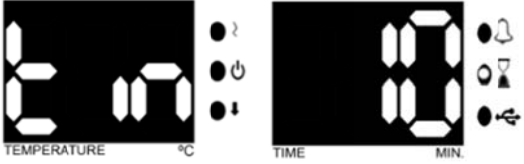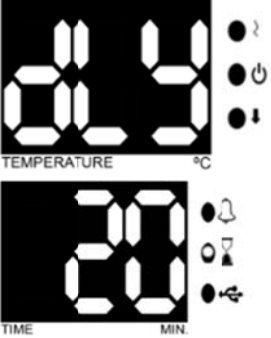|	
↑	Wait by pressing the encoder button.
oP TEMPERATURE °C	Lift your hand when you see "oP" on the temperature display and again press the encoder button. If the device has a menu protection password, password screen "oPS" will come on the temperature display.
(●)	You enter the set password to turn the encoder button right and left. (The password will not be asked if the device is newly installed.) Confirm the password by pressing the encoder button. Observe that the parameter numbers on the temperature display change with each pressing the encoder button. For operator menu parameter descriptions (see section 4.3.1). You can set the parameter values by turning the encoder button right or left on time display.
↑	Again press the encoder button and confirm the set value. Press the back button to return the work screen.

4.3.1. oP Operator Menu Parameters

1: Recording Period: This time is recording period of temperature and error information.

2: Lid Alarm Time: Not used for all LLG-uni*Oven* models.

3: Lid Alarm Range: Not used for all LLG-uni*Oven* models.

4: Timer Set Band: When the read temperature reaches the "Set Temperature - TIMER SET BAND" value, the time starts counting backwards.

5: Buzzer ON/OFF: The alarm sound on/off 0: OFF 1: ON

6: Date Setting - Year: Two digits are displayed the year information of date. If updating is necessary, change.

7: Date Setting - Month: The month information of date is displayed. If updating is necessary, change.

8: Date Setting - Day: The day information of date is displayed. If updating is necessary, change.

9: Time Setting - Hour: The hour information of time is displayed. If updating is necessary, change.

A: Time Setting - Minute: The minute information of time is displayed. If updating is necessary, change.

B: Time Setting – Second: The second information of time is displayed. If updating is necessary, change.

C: Date / Time Update: 0: No change 1: Update date / time according to the entered values. The entered values are considered as current Date / Time information when 5, 6, 7, 8, 9, A parameters are changed and B parameter is set to 1.

D: Password: The password used to enter the operator parameters. This password used when you want to change the set values. No password if 0 is selected.

4.4. PROGRAMMING SUMMARY

You can set the steam sterilizer on stand-by. Follow the below steps to set and save the values.

	Push the encoder button
	By pushing the encoder button select SET menu.
	See that second LED flashes in the temperature display, again push the encoder button.
	See the parameter flashing on the temperature display.
	By turning the encoder button set operating temperature value.
	Push the encoder button and save set value.
	See the parameter flashing on the temperature display.
	By turning the encoder button set operating Set alarm value. If the temperature is out of Set alarm value, audible and visual alarm will be activated.
	Push the encoder button and save set value.
	Turn the encoder button to the right.
	See that second LED flashes in the time display, again push the encoder button.

	See the parameter flashing on the time display.
	By turning the encoder button set operating time value (01 minute to 99 hours 54 minutes or Hold).
	Push the encoder button and save set value. See 'dLY' in the temperature display.
	By turning the encoder button set operating delay time value. If 'Off' is selected, heating will start without delay. If any numerical value is selected; After pressing Start, it starts heating after the set delay time (01 minute to 99 hours 54 minutes).
	Push the encoder button and save set value.
	Push 'the start button' and start the program.

NOTE:	In order to display the set values during the operation, push the encoder button once. The values set on the temperature display and the time display of the device will appear for 5 seconds.

WARNİNG!!

NOTE: During the operation of the program, the time starts to count up after the instrument has reached to the set temperature.

4.5. COMPLETION OF THE WORK
- See that the program is over (See "End" and "End of the program lamp").
- 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 stand-by position or switch it off.
- Operating records are transferred to the usb port attached a USB memory.

NOTE :	The usb led and the data transfer led on the control panel turn on during transfer of data in memory and the transfer process starts automatically. Do not remove external memory from usb port without the data transfer led turn off and the audible alarm finished.

NOTE :	Records are transferred to external memory when external memory is connected to the Usb port. For get the records without program ending, Usb memory, hold down the "Mute" button for 3 seconds until "Data Transfer Lamp" lights up, then remove from Usb port.

ATTENTION !!!

If the unit is in START position in case of the open door, it will keep operating and the heaters will be over-heated. Besides, the heaters and other components may be defected. Please be careful.

The samples may be hot after the operation, please be careful while handling them!!

5. PERIODIC MAINTENANCE AND CLEANING

5.1. PERIODIC MAINTENANCE

- The oven does not require any periodical maintenance which is carried out by the operator.
- Please contact to LLG partner for an authorised service or maintenance.

5.2. CLEANING

- After unplugging the equipment and the equipment is at the room temperature, wipe down the chamber to remove any undesirable effects of the operation, for example spillage.
- You may use a soft brush to clean the chamber.
- For the external body, you may use a piece of cloth. Mild detergent use is recommended to remove difficult dust and dirt.
- Protect your chamber against rust coming from outside.

PLEASE BE AWARE OF THE UNDESIRABLE EFFECTS OF THE CHEMICALS AND BE CAREFUL WHILE APPLYING THEM.

6. 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.
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.

7. TROUBLESHOOTING

If the oven does not operate, check the following:

- The on/off switch is on,
- The plug is plugged-in properly,
- The plug is not defective,
- The mains supply is present,
- Fuses of the instrument are sound,
- The fuse of the installation on which the plug is mounted is not defective

The oven does not heat, check the following:
- The program is started
- The safety thermostat is adjusted higher than set temperature

7.1. ERROR CODES EXPLANATIONS

Er1
The temperature sensor endings are broken. The error code flashes on the temperature display and an audible alarm sounds.

Er2
An electronic failure occurs in the microprocessor. The error code flashes on the temperature display and an audible alarm sounds.

Er3
The temperature sensor measures a temperature higher than 147°C.The error code is shown on the temperature display and an audible alarm sounds.

Er4
The temperature sensor endings are connected in reverse. The error code flashes on the temperature display and an audible alarm sounds.
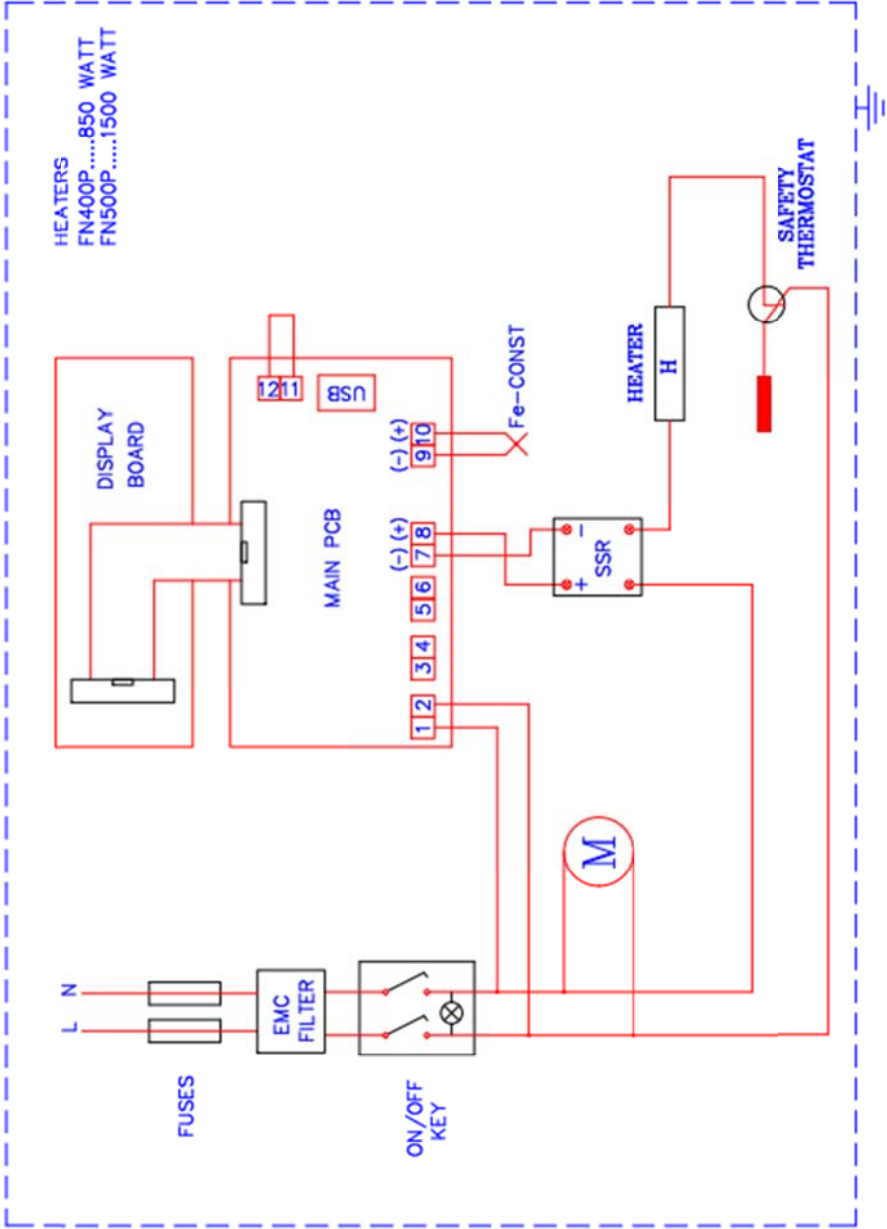
EoF
This error code appears if any probable power cut causes when the sterilization phase "EoF" flashes and the audible alarm sounds on the temperature display.

IN CASE OF ANY ERROR, THE PROGRAM İS STOPPED AUTOMATİCALLY AND İMMEDİATELY.

PLEASE CONTACT TO AN AUTHORIZED LLG PARTNER TO REQUEST TECHNICAL HELP IF AN ERROR OCCURS.

8. ELECTRICAL CIRCUIT DIAGRAMS

LLG-uni*OVEN* 42 and LLG-uni*OVEN* 110 Electrical circuit diagram

9. WARNING LABELS

⚠ DO NOT OPERATE BEFORE READING THE INSTRUCTION MANUAL!.. 📖	**CAUTION!** Always use earthed wall sockets.
⚡ WARNING!.. DISCONNECT THE MAIN SUPPLY BEFORE REMOVING THE COVER.	⚠ **ATTENTION!** HOT SURFACE
⏚ **GROUNDED PLUG**	F2x10A 250V ~ **LLG-uni*OVEN* 110** **FUSE (2×10A)**
F2x4A 250V ~ **LLG-uni*OVEN* 42** **FUSE (2×4A)**	F2x3A 250V ~ **FUSE** **(2×3A)**
🗑	CE 1984

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